bulletin

of the international society of soil science

bulletin

de l'association internationale de la science du sol

mitteilungsblatt

der internationalen bodenkundlichen gesellschaft

boletin

de la sociedad internacional de la ciencia del suelo

No. 74 1988/2

ISBN: 0374-0447. Edited and published by/rédigé et publié par/redigiert und publiziert von:

INTERNATIONAL SOCIETY OF SOIL SCIENCE
ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL
INTERNATIONALE BODENKUNDLICHE GESELLSCHAFT

Founded/Fondée/Gegrundet: 19-05-1924. Individual membership/Membres individuels/Individuelle Mitgliederschaft: 7000. Affiliated national Societies/Associations affiliées/Angeschlossene nationale Gesellschäfte: 60. A scientific-associate member of ICSU since/Membre associé scientifique de l'ICSU depuis/Wissenschaftliche-assozierte Mitglied der ICSU zeit: 1972.

Seat/Siège/Sitz: c/o International Soil Reference and Information Centre (ISRIC), 9 Duivendaal, P.O. Box 353, 6700 AJ Wageningen, the Netherlands. Cables: Sombroek, ISOMUS. Telex: via 45888 intas,nl. Tel: 31.8370-19063.

Officers/Bureau/Vorstand

President/Président/Präsident
Prof.Dr. A. Tanaka, Hokkaido University, Faculty of Agric., Kita 9 nishi 9 Kita-ku, Sapporo 060, Japan

Vice President/Vice-Président/Vizepräsident
Prof.Dr. Y. Takai, Nodai Research Institute, Tokyo University of Agric., 1-1-1 Sakuragaoka, Setagaya-ku, Tokyo 156, Japan

1st Past President/1er Ancien Président/1. Altpräsident
Prof.Dr. K.H. Hartge, Institut für Bodenkunde der Universität Hannover, Herrenhäuser Strasse 2, D-3000 Hannover 21, FRG

2nd Past President/2ème Ancien Président/2. Altpräsident
Dr. J.S. Kanwar, Plot No. 17, Krishi Nagar, ICRISAT Colony-Phase II, Hashmathpet Road, Secunderabad 500 011 A.P., India

3rd Past President/3ème Ancien Président/3. Altpräsident
Prof.Dr. C.F. Bentley, 13103-66 Avenue, Edmonton, Alberta T6H 1Y6, Canada

Secretary General/Secrétaire Général/Generalsekretär
Dr. W.G. Sombroek, ISRIC, P.O. Box 353, 6700 AJ Wageningen, Netherlands

Deputy Secretary-General/Secrétaire Général adjoint/stelvertretender Generalsekretär
Prof.Dr. I. Szabolcs, Research Institute of Soil Science and Agricultural Chemistry, Herman Otto ut. 15, Budapest II, Hungary

Treasurer/Trésorier/Schatzmeister
Dr. D. Gabriels, University Gent, Coupure Links 563, B-9000 Gent, Belgium

Honorary Members/Membres d'honneur/Ehrenmitglieder

Dr. G. Barbier (France), Prof.Dr. Ph. Duchaufour (France), Prof.Dr. W. Flaig (FRG), Dr. V. Ignatieff (Canada), Dr. Y. Ishizuka (Japan), Dr. H. Jenny (USA), Dr. D.Kirkham (USA), Prof.Dr. V.A. Kovda (USSR), Prof.Dr. E. Mückenhausen (FRG), Dr. S.K. Mukherjee (India), Dr. L.A. Richards (USA), Prof.Dr. E.W. Russel (UK), Prof.Dr. R. Tavernier (Belgium).

Commissions/Commissions/Kommissionen – Chairmen/Présidents/Vorsitzenden

I. Soil Physics/Physique du Sol/Bodenphysik
Prof. M. Kutilek, Faculty of Civil Engineering, Technical Univ., Thakurova 7, 166 29 Prague 6, Czechoslovakia

II. Soil Chemistry/Chimie du Sol/Bodenchemie
Prof.Dr.Ir. G.H. Bolt, Dept. of Soil Science and Plant Nutrition, De Dreijen 3, 6703 BC Wageningen, the Netherlands

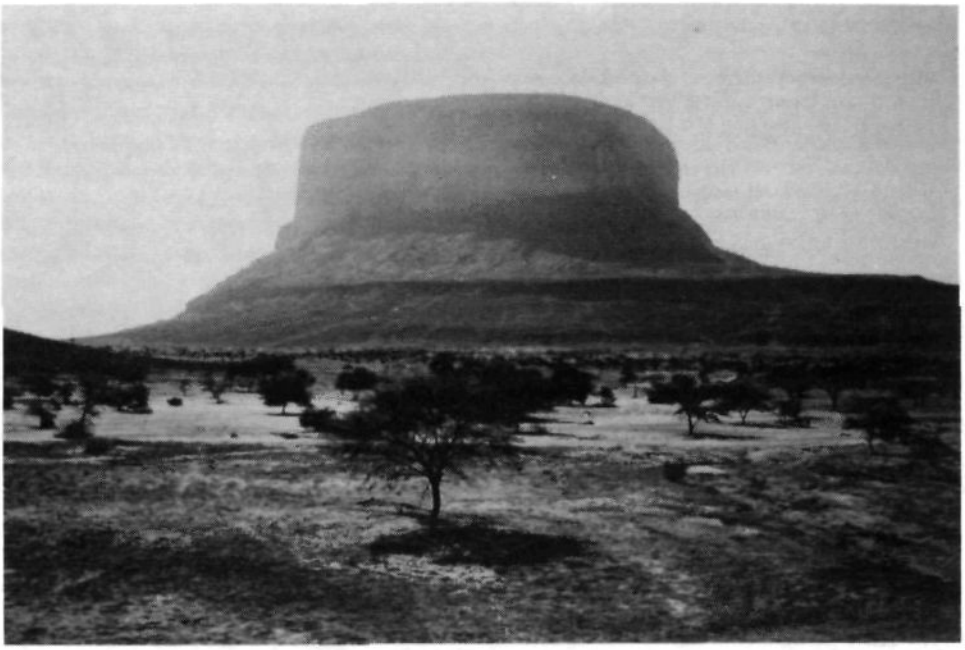
III. Soil Biology/Biologie du Sol/Bodenbiologie
Prof.Dr. J.C.G. Ottow, Inst. f. Mikrobiologie, Justus-Liebig-Universität, Senckenbergstrasse 3, D-630 Giessen, FRG

IV. Soil Fertility and Plant Nutrition/Fertilité du Sol et Nutrition des Plantes/Bodenfruchtbarkeit und Pflanzenernährung
Dr. N.N. Goswami, Indian Agricultural Research Institute, New Delhi 110 012, India

V. Soil Genesis, Classification and Cartography/Genèse, Classification et Cartographie du Sol/Bodengenetik, Klassifikation und Kartographie
Prof.Dr. A. Ruellan, 66 rue Condorcet, 75009 Paris, France

VI. Soil Technology/Technologie du Sol/Bodentechnologie
Dr. I.P. Abrol, c/o ICAR, Krishi Bhavan, New Delhi 11001, India

VII. Soil Mineralogy/Minéralogie du Sol/Bodenmineralogie
Prof.Dr. A. Herbillon, CNRS Centre de Pédologie Biol., B.P. 5, 54501 Vendoeuvres-les-Nancy, France



Season's Greetings
Meilleurs Voeux
Beste Glückwünsche

The Officers of the International Society of Soil Science
Le Bureau de l'Association Internationale de la Science du sol
Der Vorstand der Internationalen Bodenkundlichen Gesellschaft

CONTENTS/SOMMAIRE/INHALT

MID-TERM MEETING OF THE ISSS EXECUTIVE COMMITTEE

The officers of the Society and the Chairmen of the standing scientific Commissions met in Alma Ata, USSR, on September 18th, 1988, for a full-day business meeting halfway between the 13th Congress (Hamburg, august 1986) and the 14th (Kyoto, august 1990). Hospitality was kindly rendered by the USSR All Union Society of Soil Science (Prof. B. Rozanov) and the Institute of Soil Science of the Academy of Sciences of the Kazakh SSR (Prof.Dr. Zh.U. Akhanov).

The first part of the meeting was devoted to scientific and organizational aspects of the next Congress, on the basis of documentation provided by the Japanese Programme Committee (see also ISSS bulletin 73).

A quick agreement was reached on topics and speakers for the six plenary lectures, all to take place during the first one and a half day of the Congress. Ample discussion took place on the precise content of the 43 symposia themes, their fair distribution over the various Commissions and Subcommissions, and the convenors to be contacted. Some themes were combined, and others added, and a degree of geographic balance in the origin of the convenors was obtained. Guidelines for the convenors' work were reviewed and a timetable for the processing of the manuscripts established. The full texts of the symposia papers and the extended abstracts of the poster presentations will be printed before the Congress.

Finances for the Congress were reviewed, and Commission chairmen expressed hope for cheaper accommodation than already published, to facilitate the participation of young soil scientists of limited financial means.

At the afternoon session the Executive Committee discussed the current activities of the Society on the basis of synoptic written reports of the Secretary-General and the Treasurer.

In response to proposals by several West-European soil scientists, in part supported by national societies, it was decided to create provisional Working Groups on 'Soil and Groundwater Pollution' and on 'Pedometrics' respectively. The protagonists will be requested to present details of the rationale and the programmes at the Kyoto-Congress, upon which the ISSS Council may decide to formalise the status of the two groups. For 'Heritage Soils' no Working Group will be formed in view of the lack of written reaction to the publicity given in the Bulletin; the Secretary-General may however establish a Task Force if developing contacts with interested international organizations would warrant such.

The finances of the Society were found to be in healthy state, allowing a degree of annual support to active Commissions, Subcommissions, and Working Groups. It was however realised that financial support by the Dutch Soil Survey Institute is of ad hoc nature, and that it may be necessary to raise the membership fee to $ 10.– at the Kyoto Congress.

The modification of the implementation of the ISSS-COSTED Fellows Fund (payment through meeting organizing committee instead of directly to individual ISSS member) was approved. The incidental nature of some of the national societies' contribution was lamented.

The Executive Committee then reviewed the recommendations of the Committee of Statutes and Structure (CSS) on restructuring the Society, upon an introduction by one of its members Prof.Dr. R. Dudal. In view of the drastic consequences of the proposals it was decided to postpone a substantial discussion till the next Congress. The EC however accepted for further processing the proposal for a maximum term of office-holding (12 years) for members of the standing committees and for the Society

Officers, as well as the deletion of a maximum number for Honorary Members.

The newly created Standing Committee on Standardization (CST) is developing effective liaison with the Technical Committee on Soil Quality (TC 190) of the International Standardization Organization (ISO). In view of the expectation that a number of methods of field characterization and laboratory analysis may be standardized in national and international regulation laws quite soon, the chairmen of the ISSS (Sub)-Commissions will keep close contact with their representatives in the CST and the Secretary-general will provide information on all countries involved.

The EC took note of the activities of the Standing Committee on International Programmes (CIP), especially those relating to the planning of ICSU's International Geosphere-Biosphere Programme (IGBP), and hopes for a substantial and balanced soils input in that programme.

Finally, several requests for scientific co-sponsoring of international meetings were met. The EC also decided to support the application of the International Soil Reference and Information Centre (ISRIC) of Wageningen to become a member of ICSU's World Data Centre system – which is to be expanded from Geophysical and Solar Data to Natural Resources Data. □

RÉUNION DU COMITÉ EXÉCUTIF DE L'AISS

Les membres du Bureau de l'Association et les Présidents des Commissions scientifiques ont tenu à Alma Ata, URSS, le 18 Septembre 1988, leur réunion bisannuelle d'une journée, au milieu de la période entre le 13ème Congrès (Hambourg, août 1986) et le 14ème (Kyoto, août 1990). La All Union Society of Soil Science de l'URSS (Prof. B. Rozanov) et l'Institut de la Science du Sol de l'Académie des Sciences de la République Kazakh (Prof.Dr. Zh.U. Akhanov) nous ont généreusement accordé leur hospitalité.

La première partie de la réunion était consacrée aux aspects scientifiques et organisationnels du prochain Congrès, à partir de documents fournis par le Comité Japonais du Programme (voir également le bulletin 73 de l'AISS).

Rapidement, on a abouti à un accord en ce qui concerne les sujets et les orateurs des six conférences plénières, qui auront toutes lieu soit le 18 août, soit dans la matinée du 19 août. Il a été amplement discuté de la teneur précise des thèmes des symposiums, de leur répartition équilibrée entre les différentes Commissions et Sous-Commissions, et des convocateurs devant être contactés. Quelques thèmes ont été combinés, d'autres ajoutés, et dans la mesure du possible, nous avons essayé de garder un équilibre dans la répartition géographique des pays d'origine des convocateurs. Les directives pour le travail des convocateurs ont été passées en revue, et un emploi du temps pour le traitement des manuscrits a été établi. Les textes intégraux des contributions aux symposiums et les résumés des présentations de posters seront imprimés avant le Congrès.

Les finances du Congrès ont été étudiées, et les présidents des Commissions ont exprimé le souhait de trouver des possibilités de logement moins chères que celles qui étaient mentionnées jusqu'à présent, pour faciliter la participation de jeunes pédologues aux moyens financiers limités.

Au cours de la réunion de l'après-midi, le Comité Exécutif a discuté des activités courantes de l'Association à l'aide rapports écrits du Secrétaire-général et du Trésorier.

En réponse aux propositions de plusieurs scientifiques Ouest-Européens, en partie soutenus par les associations nationales, il a été décidé de créer deux Groupes de Travail provisoires: l'un 'Pollution du Sol et de la Nappe Phréatique', l'autre 'Pédométrique'. Les initiateurs seront priés de présenter les motifs détaillés de leur proposition,

ainsi que leurs programmes, lors du Congrès de Kyoto. C'est au vu de ces détails que le Conseil de l'AISS décidera de formaliser le statut de ces deux groupes. Pour les 'Sols d'Héritage', il ne sera pas créé de Groupe de Travail, du fait du peu de réactions écrites à l'annonce faite dans le Bulletin; le Secrétaire-Général peut toutefois établir une Unité de Travail si le développement des contacts avec des organisations internationales intéressées la justifie.

Les finances de l'Association sont saines, et permettent un soutien annuel des Commissions, Sous-Commissions et Groupes de Travail actifs. Il a été rappelé que le soutien financier de l'Institut Néerlandais de Cartographie des Sols est temporaire, est qu'il serait peut être nécessaire d'augmenter la cotisation à $ 10 lors du Congrès de Kyoto.

La modification de la mise en oeuvre du Fond pour Aspirants AISS-COSTED (paiement par le comité organisateur de la réunion, au lieu de directement au membre de l'AISS participant) a été adoptée. La nature occasionnelle de la contribution de certaines associations nationales a été regrettée.

Le Comité Exécutif a étudié les recommandations du Comité des Statuts et de la Structure (CSS) sur la restructuration de l'Association, suite à une introduction par l'un de ses membres: Prof.Dr. R. Dudal. Du fait des conséquences drastiques que ces propositions entraîneraient, il a été décidé de reporter cette discussion de fond au prochain Congrès. Cependant, le CE a accepté la proposition pour une durée maximale du mandat (12 ans), pour les membres des comités permanents et les membres du bureau de l'Association, ainsi que la suppression d'un nombre maximum de Membres d'Honneur.

Le Comité Permanent de la Standardisation (CST) récemment créé développe ses contacts avec le Comité Technique sur la Qualité du Sol (TC190) de l'Organisation Internationale de la Standardisation (ISO). En vue de la possibilité d'une prochaine standardisation d'un certain nombre de méthodes de caractérisation de terrain et d'analyses de laboratoires dans les lois nationales et internationales, les présidents des (Sous-) Commissions de l'AISS vont rester en contact étroit avec leurs représentants dans le CST, et le Secrétaire-général fournira les informations sur tous les pays concernés.

Le CE a pris note des activités du Comité Permanent des Programmes Internationaux (CIP), particulièrement en ce qui concerne celles ayant rapport à l'organisation du Programme International Géosphère-Biosphère (IGBP) de l'ICSU, et espère que les sols auront une place importante dans ce programme.

Pour terminer, plusieurs demandes de coopération scientifique pour des réunions internationales ont été honorées. Le CE a également décidé de soutenir l'affiliation du Centre International de Référence et d'Information Pédologique (ISRIC) de Wageningen au système du Centre Mondial de Données de l'ICSU – qui, des Données Géophysiques et Solaires, va s'élargir aux Données des Ressources Naturelles. □

HALBZEIT-SITZUNG DES IBG EXEKUTIV-KOMITEES

Amtsträger und Vorsitzende der Ständigen Kommissionen unserer Gesellschaft trafen sich am 18. Sept. in Alma-Ata (UdSSR) zu einer ganztägigen Sitzung in der Mitte der Amtsperiode vom 13. Congress (Hamburg 1986) bis zum 14. Congress (Kyoto 1990). Sie genossen dabei die Gastfreundschaft der Allunionsgesellschaft der Bodenkunde der Sowjetunion (Prof. B. Rozanov) und des Institutes für Bodenkunde der Akademie der Wissenschaften der Kasachischen Sowjetrepublik (Prof. Zh.U. Akhanov).

Der erste Teil der Sitzung war wissenschaftlichen und organisatorischen Fragen des nächsten Congresses gewidmet, wie sie aufgrund der Vorarbeiten des japanischen Organisationskomitees anstanden. Siehe hierzu auch Bulletin N° 73).

Einvernehmen über Themenschwerpunkte und Sprecher der 6 Plenarsitzungen an den ersten anderthalb Tagen des Congresses war schnell erreicht. Ausführlich diskutiert wurde danach die genauere Themenstellung der 43 Symposien, ihre gleichmässige Verteilung auf Kommissionen und Subkommissionen und die Auswahl der jeweiligen verantwortlichen Organisatoren (= Vorsitzenden). Hierbei wurden einige Themen zusammengelegt, andere hinzugefügt. Eine gewisse Gleichmässigkeit hinsichtlich der geographischen Herkunft der Vorsitzenden wurde erarbeitet. Die Richtlinien für die Arbeit der Symposien-Vorsitzenden wurden überarbeitet und ein Zeitplan für die Erstellung der Manuskripte aufgestellt. Die Volltexte der Symposienbeiträge und der ausführlichen Zusammenfassungen der Poster-Beiträge werden vor dem Congress gedruckt werden.

Die Finanzierung des Congresses wurde besprochen. Die Kommissions-Vorsitzenden gaben der Hoffnung Ausdruck dass billigere Unterkünfte bereitgestellt werden könnten als bisher angekündigt, damit jüngeren Wissenschaftlern mit geringen finanziellen Mitteln die Teilnahme erleichtert wird.

Auf der Nachmittagssitzung diskutierte das Exekutiv-Komitee die laufenden Aktivitäten der Gesellschaft anhand der vom Generalsekretär und vom Schatzmeister zusammengefassten Unterlagen.

Auf Vorschlag mehrerer westeuropäische Bodenkundler – z.T. mit Unterstützung durch nationale Gesellschaften – wurde beschlossen, vorläufige Arbeitsgruppen für 'Boden- und Grundwasserverunreinigung' und für 'Pedometrie' zu bilden. Die jeweiligen Befürworter werden gebeten werden, ihre Vorstellungen über Programme und Inhalte auf dem Congress in Kyoto vorzutragen. Der Beirat wird danach über die formale Einsetzung der Gruppen beschliessen. Für 'Heritage Soils' wird keine Arbeitsgruppe gebildet, weil auf die Anregungen im Bulletin hin kaum schriftliche Reaktion erfolgte. Der Generalsekretär soll jedoch von sich aus eine Kerngruppe zusammenstellen, falls das Interesse internationaler Organisationen sich entwickeln und die Fortsetzung der Bestrebungen rechtfertigen sollte.

Die Finanzlage der Gesellschaft wurde als zufriedenstellend angesehen. Sie erlaubt gewisse jährliche Unterstützung der Tätigkeit aktiver Kommissionen, Subkommissionen und Arbeitsgruppen. Es wurde zur Kenntnis genommen, dass die finanzielle Unterstützung durch das Niederländischen Institut für Bodenkartierung ad hoc erfolgt. Es kann notwendig werden auf dem Congress in Kyoto den Mitgliedsbeitrag auf 10 $ anzuheben.

Die Veränderung der Vergabebestimmung der IBG-COSTED-Stiftung wurde gebilligt (Auszahlung durch das Organisationskomitee der Veranstaltung anstelle von Direktauszahlung an die enzelnen IBG-Mitglieder). Der unregelmässige Eingang der Beiträge hierzu von einigen der nationale Gesellschaften wurde bemängelt.

Weiterhin behandelte das Exekutiv-Komitee die Vorlage des Komitee für Statuten und Structuren (CSS) über Umorganisation der Gesellschaft, die von einem seiner Mitglieder, Prof.Dr. R. Dudal, eingebracht wurde. In Anbetracht der schwerwiegenden Folgen des Vorschlages wurde beschlossen eine ründliche Diskussion bis zum Congress 1990 zurückzustellen. Das Exekutiv-Komitee nahm jedoch einen Vorschlag an, eine maximale Dauer für die Amtszeit für die Mitglieder ständiger Kommissionen und für Amtsträger der Gesellschaft einzuführen. Sie soll 12. Jahre betragen. Des weiteren wurde die Begrenzung der Anzahl der Ehrenmitglieder aufgehoben.

Das neugeschaffene ständige Komitee für Standardisierung (CST) entwickelt eine effektive Zusammenarbeit mit dem Technischen Komitee für Bodenqualität (T.C. on Soil Quality = TC 190) der Internationale Vereinigung für Standardisierung (ISO). Es wird erwartet, dass eine Anzahl von Feld- und Labormethoden in internationalen Vereinbarungen schon bald standardisiert werden wird. Daher werden die Vorsitzenden von Kommissionen und Subkommissionen der IBG engen Kontakt mit den CST-Beauftragten halten. Der Generalsekretär wird Informationen über die beteiligten Länder bereithalten.

Das Exekutiv-Komitee nahm von den Tätigkeiten des ständigen Komitee für Internationale Programme (CIP) Kenntnis, insbesondere von denen, die mit der Planung des Geosphären-Biosphären-programmes (IGBP) der ICSU zusammenhängen. Es hofft auf gewichtige und wohlausgewogene Beiträge seitens der Bodenkunde.

Mehreren Nachfragen wegen wissenschaftlicher Unterstützung internationaler Veranstaltungen stattgegeben. Das Exekutiv-Komitee beschloss, die Bewerbung des International Soil Reference and Information Centre (ISRIC) um Aufnahme in das World-Data-Centre der ICSU zu unterstützen. Dieses System wird von geophysicalen und Solardaten in Richtung auf allgemeine Daten natürlicher Resourcen hin erweitert.

□

A report on the International Conference on Soil Classification, also held at Alma Ata and Immediately preceding the EC meeting, will be published in the next Bulletin.

'Trans-Siberia' Tour preceding the 14th ISSS Congres in Kyoto-Japan

The schedule is as follows:

July 28-30, 1990	Moscow to Novosibirsk by train (54 hours)
July 31-August 1	Stopover at Novosibirsk with technical tours
August 2-3	Novosibirsk to Irkutsk by train (32 hours)
August 4-5	Stopover at Irkutsk and technical tours
August 6-7	Irkutsk to Khabarovsk by train (45 hours)
August 8-9	Stopover at Khabarovsk and technical tours
August 10	Khabarovsk to Kyoyo via Niigata by plane and train

Maximum number of participants: 150

Costs: 850 Roubles

(Including transportation, hotels at Novosibirsk, Irkutsk and Khabarovsk, three meals a day, transportation in technical excursions, services of guides, interpreters, but excluding travel charges to Moscow and from Khabarovsk to Kyoto)

Note: For further information, peace contact All-Union Society of Soil Science of the USSR directly.

Correspondence: c/o Prof. Boris G. Rozanov, Vice President,
All Union Society of Soil Science of the USSR Moscow State University, 119899 Moscow, USSR

SECOND ANNOUNCEMENT OF THE 14TH INTERNATIONAL CONGRESS OF SOIL SCIENCE

August 12-18 1990, Kyoto, Japan

'IMPROVING SOIL MANAGEMENT FOR MAN AND THE ENVIRONMENT'
Optimum Utilization of the World's Soil Resources to Increase
Biological Production and to Protect the Environment

Plenary lectures (invited speakers):

1. Soil and water management in farming systems with flooded rice (I/VI)
   Speaker: Zhao Qi-Guo (PRC)
2. Behaviour and effects of exogenous chemicals in soils (II)
   Speaker: B. Yaron (Israel)
3. Role of microorganisms in the protection of the environment (III)
   Speaker: J.M. Tiedje (USA)
4. Impacts of intensive plant nutrient management on crop production and the environment (IV)
   Speaker: K. Mengel (FRG)
5. Human impacts on evolution of soils under various ecological conditions of the world (V)
   Speaker: B. Rozanov (USS)
6. Mineralogical insights into soil productivity (VII)
   Speaker: R.J. Gilkes (Australia)

Instructions for Preparation of Extended Summary
(for papers and posters to be submitted for presentation at one of the 43 Symposia of the Kyoto Congress, see Bulletin 73, pages 2-3).

Instructions for Authors:

You are requested to study the Instructions and the sample extended summary given below, before preparing your summary.

1. The summary must be within two pages, and be typed in either English, German, or French.
2. Title, Authors' Names, and Institutional Affiliations
   a) The title should be entirely in capital letters.
   b) Initials or first names of the author must precede the last name.
   c) Institutional affiliation, city, and country, are required.
3. Body of the summary
   a) Prepare the summary in the order: purpose, methods, results, and conclusions.
   b) State the conclusions definitely. Statements such as 'The results will be discussed.' are not adequate.
4. Common Errors found in Summaries
   Any summary may be rejected for publication by the Program Committee if it has any of the following. Minor errors may be corrected by the Publication Committee.
   a) Incorrect or obscure abbreviations.
   b) Misspelled words.
   c) If it is deemed uninformative by the Program Committee.

Typing Instructions

To ensure that the summary will be in the proper form for the publication, be sure to read the following specifications before typing.

a) Use a typewriter (preferably electric) with PICA type (10 characters per inch).
b) Use a carbon ribbon or a slightly-used black silk ribbon. (Brand-new silk ribbons smudge, and old ones are too faint).
c) All typing must fit within the blue lines printed on the provided paper.
d) Type using a single spacing.
e) The title is typed entirely in capital letters. Indent 5 spaces, and type on the first line of the paper as indicated in blue print.

f) Type the names of the authors on the 4th line with an indent of 5 spaces.
g) Type the institutional affiliation, city, and country on the 6th line with an indent of 5 spaces.
h) Start the text on 9th line in the first page. (In the second page, start on the first line).
i) Indent 3 spaces for the first line of new paragraphs.
j) Do not erase or make smudges. A small piece of paper can be pasted on to make typing correction.

Mailing Instructions

a) Do not fold the summary. When mailing it, please enclose cardboard to protect it.
b) Send the original summary and two photostatic copies **BEFORE 30 APRIL 1989**, to: Program Committee, Secretariat of 14th ICSS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, JAPAN

DEUXIEME ANNONCE 14e CONGRES INTERNATIONAL DE LA SCIENCE DU SOL

12-18 août 1990, Kyoto, Japon

'AMELIORATION DE LA GESTION DES SOLS POUR L'HOMME ET L'ENVIRONNEMENT'

Utilisation optimale des ressources en sols du monde pour augmenter la production biologique et protéger l'environnement

Sessions plénières (orateurs invités):

1. Gestion du sol et de l'eau dans les systèmes d'exploitation du riz irrigué (I/VI)
   Orateur: Zhao Qi-Guao (RPC)
2. Comportement et effets des produits chimiques exogènes dans le sol (II)
   Orateur: B. Yaron (Israël)
3. Rôle des microorganismes dans la protection de l'environnement (III)
   Orateur: J.M. Tiedje (USA)
4. Impacts de la gestion intensive des nutriments des plantes sur la production végétale et l'environnement (IV)
   Orateur: K. Mengel (RFA)
5. Impacts humains sur l'évolution des sols sous différentes conditions écologiques dans le monde (V)
   Orateur: B. Rozanov (URSS)
6. Vues minéralogiques dans la production des sols (VII)
   Orateur: R.J. Gilkes (Australie)

Directives pour la Préparation des Résumés

(pour les communications et posters devant être soumis pour lprésentation à l'un des 43 symposiums du Congrès de Kyoto, voir Bulletin 73, pages 8-9).

Directives pour les auteurs:

Les auteurs sont priés de lire attentivement ces directives et le modèle de résumé ci-dessous avant de préparer leur résumé.

1. Le résumé doit se limiter à deux pages, et doit être tapé à la machine en Anglais, en Allemand ou en Français.
2. Titre, Nom des Auteurs, et Institution d'Affiliation
   a) Tout le titre doit être en majuscules.
   b) Les initiales ou prénoms de l'auteur doivent précéder le nom de famille.
   c) L'institution d'affiliation, la ville et le pays sont requis.
3. Le Résumé proprement-dit.
   a) Préparer le résumé dans l'ordre suivant: but, méthodes, résultats, et conclusions.
   b) Enoncer les conclusions de façon précise. Des affirmations telles que 'Les résultats seront discutés' ne sont pas adéquates.

4. Erreurs courantes dans les résumés.
   N'importe quel résumé peut être refusé par le Comité du Programme s'il contient une ou plusieurs des erreurs suivantes. De moindres erreurs pourront être corrigées par le Comité de Publication.
   a) Abréviation incorrecte ou peu claire.
   b) Mots ayant une mauvaise orthographe.
   c) S'il est jugé de peu d'intérêt par le Comité du Programme.

Directives pour la dactylographie

Pour s'assurer que le résumé ait la forme requise pour la publication, veuillez lire attentivement les points suivants avant de commencer la frappe.

a) Utiliser une machine à écrire (de préférence électrique), avec les caractères PICA (10 lettres par inch).
b) Utiliser un ruban carbone ou un ruban de soie noire légèrement usé. (Les rubans de soie trop neufs font des taches, et les vieux sont trop pâles).
c) Tout le texte doit passer dans le cadre bleu imprimé sur le papier fourni pour le résumé.
d) Utiliser un interligne simple.
e) Tout le titre doit être en majuscules. Renfoncer la ligne de 5 espaces, et dactylographier sur la première ligne du papier, comme indiqué en bleu.
f) Les noms des auteurs seront sur la 4ème ligne avec un retrait de 5 espaces.
g) L'institution d'affiliation, la ville et le pays seront sur la 6ème ligne avec un retrait de 5 espaces.
h) Le texte commencera sur la 9ème ligne de la première page. (pour la deuxième page, commencer à la première ligne).
i) La 1ère ligne de chaque paragraphe commencera par un retrait de 3 espaces.
j) Ne pas effacer ou faire de ratures. Un petit morceau de papier peut être collé pour corriger des fautes de frappe.

Directives pour l'envoi

a) Ne pas plier le résumé. Pour l'envoi, glisser dans l'enveloppe une feuille de carton fort pour le protéger.
b) Envoyer l'original et deux photocopies du résumé **AVANT LE 30 AVRIL 1989** à l'adresse suivante: Program Committee, Secretariat of 14th ICSS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, JAPON

ZWEITE ANKÜNDIGUNG DES 14. INTERNATIONALER BODENKUNDLICHER KONGRESSES

vom 12. bis 18. August 1990, Kyoto, Japan

'VERBESSERUNG DER VERWENDUNG VON BÖDEN ZUM BESTEN VOR MENSCH UND UMWELT'

Optimale Nutzbarmachung der weltweiten Bodenressourcen zur Steigerung der biologischen Produktion und zum Schutz der Umwelt.

Plenarvorträge (geladene Gäste)

1. Bodenbearbeitung und Wasserhaushaltsführung Reisanbaugebieten (I/VI)
Sprecher: Zhao Qi-Guo (PRC)
2. Verhalten und Auswirkungen von exogenen Chemikalien im Boden (II)
   Sprecher: B. Yaron (Israel)
3. Die Bedeutung von Mikroorganismen für den Umweltschutz (III)
   Sprecher: J.M. Tiedje (USA)
4. Auswirkungen intensiver Düngung auf Getreideproduktion und Umwelt (IV)
   Sprecher: K. Mengel (FRG)
5. Auswirkungen des menschlichen Eingreifens auf die Bodenentwicklung unter Berücksichtigung der weltweit unterschiedlichen ökologischen Bedingungen (V)
   Sprecher: B. Rozanov (UdSSR)

6. Mineralogische Blicke in die Bodenproduktivität (VII)
   Sprecher: R.J. Gilkes (Australien)

Richtlinien für die Erstellung der Kurzfassungen
(für Beiträge und Posters, für Präsentation auf einer von die 43 Symposien; siehe Mitteilungen 73, Seite 13-14).

Richtlinien für die Autoren

Die Autoren werden gebeten die nachfolgenden Instruktionen vor der Fertigstellung ihrer Kurzfassungen sorgältig zu studieren und zu beachten.

1. Der Umfang der Darstellung darf maximal 2 Seiten betragen. Der Text kann auf Deutsch, Englisch oder Französisch abgefaßt sein.
2. Titel, Name des Autors und institutionale Zugehörigkeit:
   a) Der Titel soll vollständig in Großbuchstaben geschrieben werden
   b) Initialen oder Vornamen des Autors müssen dem Nachnamen vorangestellt werden.
   c) Institutionale Zugehörigkeit, Stadt und Land müssen genannt werden.
3. Aufbau der Kurzfassung
   a) Die Kurzfassung soll wie folgt gegliedert sein: Problemstellung, Methoden, Ergebnisse, Schlußfolgerungen.
   b) Die Schlußfolgerungen müssen deutlich dargelegt werden. Aussagen wie 'Die Ergebnisse werden besprochen' sind nicht erwünscht.
4. Häufige Fehler
   Jede Kurzfassung, die folgende Fehler aufweist kann von der Programm Kommission zurückgewiesen werden. Geringfüge Fehler können u.U. vom Publikationskomitee berichtigt werden:
   a) Falsche oder unverständliche Abkürzungen
   b) Falsche Rechtschreibung.
   c) Die Arbeit kann zurückgewiesen werden, wenn sie vom Programm Komitee für nicht informative befunden wird.

Technische Instruktionen

Damit die Kurzfassungen einheitlich werden, wird gebeten, die folgenden Anweisungen genau zu beachten.

a) Benutzen Sie eine Schreibmaschine mit Schrifttypen PICA (10 Zeichen pro Zoll)
b) Verwenden Sie ein Carbonband oder ein wenig gebrauchtes Seidenband (Neue Bänder schmieren oft, alte drucken zu blass)
c) Der Text muss innerhalb der blauen Grenzlinien der vorbereiteten Blätter bleiben
d) Bitte einzeilig schreiben
e) Überschrift vollständig in Blockschrift, Beginn: 5 Leeranschläge hinter der Begrenzungslinie
f) Namen der Autors auf der 5. Zeile, Beginn ebenfalls 5 Leeranschläge hinter der Begrenzungslinie
g) Institutionelle Zugehörigkeit, Stadt und Land auf die 6. Zeile, nach 5 Leeranschläge (wie e und f)
h) Textbeginn auf der 9. Zeile der ersten Seite. Auf der zweiten Seite Textfortsetzung auf der ersten Zeile
i) Bei Beginn eines Abschnittes: 3 Leeranschläge zum Einrücken
j) Bitte keine Radierspuren hinterlassen, für Textkorrekturen bitte Neutext auf kleinen Papierstreife sauber einkleben.

Instruktionen zum Versand

a) Bitte falten Sie die Papiere nicht. Verwenden Sie 2 Pappen um die Arbeit auf dem Postweg zu schützen.
b) Senden Sie das Original und zwei Kopien **VOR DEM 30. APRIL 1989** an: Programm Committee, Secretariat of 14th ICSS, 6-26-10-202 Hongo, Bunkyo-ku, Tokyo 113, JAPAN

Announcement

INTERNATIONAL SYMPOSIUM ON DYNAMICS OF SALT-AFFECTED SOILS

Nanjing and Fengqiu, P.R. of China, October 4-10, 1989

Invitation: An international Symposium on Dynamics of Salt-affected Soils will be held October, 4-10, 1989 in Nanjing and Fengqiu, China. You are cordially invited to attend and participate. Discussions at the symposium will be focused on characteristics of water and salt movement in salt-affected soils; on prediction of secondary salinization under different natural conditions and cultivation practices, and on comprehensive measures to control and prevent salinization and alkalization of soils.

Location: Under the cosponsorship of the Subcommission A of the ISSS and the CSSS, the symposium will be held in Nanjing and Fengqiu. Nanjing has been capital of many ancient dynasties and now is the capital city and political, economic and cultural centre of Jiangsu Province. The Institute of Soil Science, Academia Sinica is also situated there. Fengqiu is located in the vast North China Plain, Juang-Huai-Hai Basin, where the Academy has set up an Agroecosystem Experimental Station. The average temperature in Nanjing and Fengqiu in October is ranging between 15-25 °C.

Program: The symposium will last for one week. Day-1 in Nanjing is for registration and visit to the Institute of Soil Science, Academia Sinica, and then night train travel to Zhengshou and to Fengqiu. Day-3, -4 and -5 are for papers and discussion, and the remaining 2 days are for a field tour, visiting research experiments on salt-affected soil being carried out by the Academia Sinica, the Chinese Academy of Agricultural Sciences and the Chinese Academy of Water Conservation. In the evening of day-7 night train travel to Beijing.

Language: The Working language of the symposium is English.

Accommodation: Participants will be accommodated in a hotel with single and double rooms in Nanjing and in the guest house in Fengqiu.

Costs:

- Registration fee of US$ 200 includes a copy of the proceedings of the symposium, and social activities.
- Hotel accommodation in Nanjing is expected to cost US$ 70 per day.
- Accommodation in the guest house is estimated at US$ 50 per day.
- EXCURSION Fengqiu-Xinxiang-Songshan-Zhengzhou-Beijing is expected to cost US$ 220.

Deadline for receipt of full manuscripts and for registration is March 31, 1988. Contributed papers within 8 pages including tables, figures and references are welcome.

NOTICE OF INTENT

International Symposium on Dynamics of Salt-Affected Soils
October 4-10, 1989

Please fill in BLOCK LETTERS and return to: Prof. Zhao Qi-guo, Director, Institute of Soil Science, Academia Sinica, P.O. Box 821, Nanjing, China.

Name: ----------
Organization: ----------
Address: ----------

Proposed title of paper for presentation: ----------

Announcement

WORKING MEETING ON SOIL HORIZONS

Rennes, September 4-6, 1989

A working meeting will be held at E.N.S.A.-I.N.R.A. in Rennes (France) from 4 to 6 September 1989 to:

1. discuss the concept of soil horizons
2. discuss the role of horizons in soil characterization, classification and mapping.

There will be three morning paper reading sessions, two afternoon excursions and a final half day seminar. There will be about twelve invited papers given by specialists coming from different countries all around the world. The meeting is organized, on the behalf of Commission V of ISSS, by: Dr. E.A. FitzPatrick, Department of Soil Science, University of Aberdeen, Scotland; and: Dr. P. Aurousseau, Laboratoire de Science du Sol, ENSA-INRA, Rennes, France.

The meeting will be connected to a meeting of I.R.B. (International Reference Basis for Soil Classification) which will be held at the same place at ENSA-INRA in Rennes from 7 to 9 September. People who are not making contributions at this meeting of IRB are allowed to attend the meeting as observers. The IRB meeting is organized by: Dr. A. Ruellan, Chairman of ISSS Commission V, 66 rue Condorcet, 75009 Paris, France.

Accommodations will be provided in a downtown hotel in Rennes. The price will be approximately 200-250 FF plus meals a day.

The registration fee for one or both meetings is 300 FF. It includes bus transportation for the two afternoon excursions.

A registration desk will be opened Sunday 3 September at the hotel close to the railway station.

For detailed information and registration, contact the secretary:
Dr. P. Aurousseau, 65 rue de Saint-Brieuc, 35042 Rennes Cedex, France.

NOTICE OF INTENT

Working Meeting on Soil Horizons
September, 4-6, 1989

Please fill in BLOCK LETTERS and return to: Dr. P. Aurousseau, 66 Rue de Saint-Brieuc, 35042 Rennes Cedex, France.

Name: ----------
Organization: ----------
Address: ----------
---

attending the meeting on Soil Horizons in Rennes, 4-6/09/89: Yes No

attending the IRB meeting in Rennes, 7-9/09/89: Yes No

REPORTS OF MEETINGS
COMPTE-RENDU DE REUNIONS
BERICHTE VON TAGUNGEN

10th INTERNATIONAL SOIL ZOOLOGY COLLOQUIUM

Bangalore, India, August 7-13, 1988

About 250 soil biologists, from more than 30 countries, met at the Ashok Hotel, Bangalore, to take part in the Colloquium, sponsored internationally by ISSS Subcommission D and IUBS, and in India by the Indian Society of Soil Biology & Ecology, the University of Agricultural Sciences, Bangalore, and the Indian Council of Agricultural Research (ICAR), New Delhi. Local arrangements were in the capable hands of Prof. G.K. Veeresh (Chairman) and Dr. D. Rajagopal (Secretary), supported by 12 enthusiastic local committees, and a National Organising Committee, chaired by Dr. M.V. Roa (special Secretary - DARE, New Delhi).

At an impressive and well-attended inaugural session, the Colloquium was honored by the presence of His Excellency P. Venkatasubbaiah, Governor of Karnataka State, who addressed the meeting, Sir R.V. Deshpande, Minister for Agriculture, Government of Karnataka, Dr. N.S. Randhawa, Director General ICAR and Secretary DARE, who presented a President's address, and a number of other distinguished guests. Following the inaugural session, introductory lectures were presented by Dr. J.L. Sehgal ('Soil types of India') and Dr. Janardan Singh ('Progress of soil zoology in India').

The remainder of the Colloquium programme was organised in eight sessions of oral presentations, each introduced by a thematic paper, and two poster sessions. Provision was made in the programme for a half-day International Specialist Symposium on Apterygota, which was chaired by Dr. J.A. Wallwork.

Themes of the oral presentation sessions were: Termite ecology (7 papers); Harmful soil fauna and their management (13 papers); Impact of agronomic practices including pesticides and animal wastes on soil fauna (16 papers); Impact of forest denudation and silvicultural practices on soil fauna (5 papers); Role of soil fauna in nutrient cycling (12 papers); functional relationships between soil microorganisms and soil fauna (8 papers); Morphology, ecophysiology and systematics of soil fauna (10 papers); and Soil fauna as bioindicators (6 papers).

More than 100 posters were displayed. They covered many aspects of the subjects of the oral presentation sessions, as well as other subjects. They were particularly valuable in providing an overview of the wide range of research undertaken by soil zoologists in India.

In a country where most of the population is dependent for its basic needs on small-scale, intensive and sustainable agriculture, the understanding and intelligent manipulation of soil fauna, microorganisms and organic matter inputs to the soil to maximise production are vitally important. It was apparent that Indian soil zoologists have accepted the challenge to provide the necessary theoretical knowledge and practical guidance concerning beneficial and harmful soil animals.

Two additional discussion sessions, arising from the Colloquium sessions, were organised during the Colloquium: Soil fauna and nutrient cycling; and Soil fauna and soil structure. A summary of conclusions from the second of these sessions will be published in 'Pedofauna'.

A full-day excursion included a visit to the main campus of the University of Agricultural Sciences, Bangalore, recognised as one of the leading agricultural universities of India, visits to a village where the major industry is silkworm cocoons, and to a

small village silk-spinning factory. The excursion continued to a popular hill resort at Nandi Hills, originally a fortress, but now laid out in gardens and with two ancient temples.

Delegates to the Colloquium enjoyed two evenings of cultural shows, the first including music by a percussion band and a very lively display of folk-theatre typical of Karnataka State, and the second a programme of classical temple dances.

At a final Plenary Session of the Colloquium the officers of Subcommission D were elected. An offer was received from Prof. V. Huhta to organise the 11th International Soil Zoology Colloquium, and in connection with it an International Symposium on Apterygota, at the University of Jyvaskyla, Finland, in August 1992. The invitation is supported by the Academy of Finland and by the University of Jyvaskyla, and was unanimously accepted by the meeting.

It was agreed to establish an Advisory Panel, under the auspices of ISSS Subcommission D, on soil fauna and soil improvement. Dr. L. Brussaard (Netherlands) was appointed by the meeting as convener of the Advisory Panel.

With the unanimous approval of those present at the Plenary Session, it was resolved that the Resolution below should be sent to the Director-General of the Indian Council of Agricultural Research, and to the Secretaries-General of ISSS and IUBS with a request that it be published in their Bulletins.

Resolution of a Plenary Session of the 10th International Soil Zoology Colloquium, meeting at Bangalore, India, 13 August 1988.

Delegates to the 10th International Soil Zoology Colloquium, in Bangalore, recognise the high state of development of soil zoology in India and the determination of Indian soil zoologists to apply their efforts to the solution of practical problems of soil management and crop production.

Soil zoology concerns the wide variety of small animals that inhabit the soil. Some, such as white grubs, are serious plant pests, while others, such as earthworms, have beneficial effects on soil structure and fertility. Soil zoologists take a holistic, ecological view of the communities of soil animals, seeing them as part of the whole spectrum of bacteria, fungi and other organisms that influence soils and plant growth, while at the same time relating them to the chemical and physical properties of the soils in which they live. Their knowledge and work are particularly appropriate to the development of farming methods and pest control. For example, they can contribute their knowledge to the better understanding and further development of tillage practices, organic manuring, pest control and suitable systems of land management. They can provide important contributions to the development of low input sustainable agriculture, which is a major priority of international funding agencies, including the World Bank and USAID.

India is fortunate to have some of the leading soil zoologists of the world. Their research deserves good support and their advice should be widely sought for practical advice on soil management, when questions of agricultural planning and new developments are discussed, and also in environmental conservation issues. They should be given every encouragement to maintain their well established international contacts through visits to soil zoology laboratories and conferences in other countries.

K.E. Lee, Glen Osmond, Australia

11th INTERNATIONAL CONFERENCE ON SOIL TILLAGE RESEARCH

Edinburgh, Scotland, July 11-15, 1988

The 11th Conference of the International Soil Tillage Research Organization (ISTRO) was held at the University of Edinburgh. The Conference was attended by about 250 participants and guests, coming from 43 countries.

The theme of the conference, 'Tillage and Traffic in Crop Production', was addressed in five sub-themes: a) Structure of the root environment, b) Crop and soil responses to wheel traffic, c) Constraints and advantages of modern tillage systems, d) Performance of tillage implements, e) Modelling the soil/machine/plant system. These sub-themes were introduced by Dr. A.R. Dexter (Advances in characterization of soil structure), Dr. I Håkansson, Mr. W.B. Voorhees and Mr. H. Riley (Vehicle and wheel factors influencing soil compaction and crop response in different traffic regimes), Ir. F.R. Boone (Weather and other environmental factors influencing crop responses to tillage and traffic), Dr. D.R.P. Hettiaratchi (Theoretical soil mechanics and implement design), and by Dr. A. Hadas, Dr. W.E. Larson and Dr. R.R. Allmaras (Advances in modeling machine-soil-plant interactions). Full-length versions of these invited review papers have been published in Soil & Tillage Research, Vol.11, N°3-4 (Special Issue, June 1988), pp. 197-406.

Arranged according to the conference sub-themes, 59 voluntary papers were presented in concurrent lecture sessions. About 100 posters, covering important aspects of the five sub-themes, were on show during the full duration of the conference.

In this way the present knowledge on the effects of tillage and traffic on the soil environment of crop plants, especially with respect to the critical physical properties and transport processes in the soil could be efficiently presented. To many participants the use of model studies to predict management effects on both soil and plant responses was a topic of considerable interest. All voluntary papers and edited versions of theposter presentations have been published in the Proceedings of the 11th Conference of ISTRO.

A 5-day pre-conference tour took 65 participants and 20 accompanying guests to research institutions in England (Silsoe, Rothamsted), to the Royal Agricultural Show (Stoneleigh, near Coventry), and to several large, highly mechanized farm enterprises in Lincolnshire and East Yorkshire. The visit to the Hadrian Wall, the famous Roman boundary between England and Scotland, was a highlight of this pre-conference tour, perfectly organized by Prof. G. Spoor (Silsoe College) and Mr. N.J. Brown (formerly Rothamsted Experimental Station).

During the conference visits were paid to the Scottish Agricultural Museum at Ingliston, Edinburgh, and to the Scottish Centre of Agricultural Engineering at Bush Estate, Penicuik, where laboratory facilities and field experiments on tillage and field traffic were shown. An absolute climax was the ploughing demonstration at the Scottish Crop Research Institute at Dundee, excellently organized by Mr. A. Hall and Dr. F. Geiger, General Secretary and Vice-President respectively, of the World Ploughing Organization (WPO).

A reception at Edinburgh Castle, a dinner in Blair Castle, and a cultural programme following the conference banquet reflected the distinguished heritage of the host country. The organizers, Dr. B.D. Witney and Dr. B.D. Soane, and their enthusiastic co-workers of the Scottish Centre of Agricultural Engineering, are to be highly commended for a both scientifically very interesting and socially very attractive 11th Conference of ISTRO.

C. van Ouwerkerk, Haren Gn., the Netherlands

VIIIth INTERNATIONAL WORKING MEETING ON SOIL MICROMORPHOLOGY

San Antonio, Texas-USA, July 10-15, 1988

This meeting which was the official meeting of Sub-Commission B (Soil Micromorphology) of ISSS was organized at San Antonio, Texas. The chairman of the meeting was Larry Wilding from Texas A&M University. About 200 people from 22 countries attended. It was a very successful meeting which had allowed to check the progress in the use of Soil Micromorphology since the last meeting in Paris. I would like to say that soil micromorphology becomes less and less descriptive and becomes now a useful tool to study soil genesis as well as soil-morphology, chemistry and mineralogy. M.C. Rabenhorst and M.L. Thompson were in charge of the scientific program. Acts of the meeting will be published, L.A. Douglass being the editor.

Three pre-conference tours were organised in North-eastern, North-central U.S. and Hawaii respectively with M.C. Rabenhorst, K. McSweeney and H. Ikawa as coordinators.

One mid-conference and two post-conference tours in South and West Texas were organized, T. Hallmark and B.L. Allen being respectively coordinators. I would like to stress that during these tours we had the opportunity to visit sites were the soil was studied as a system at the scale of the soil system. The scientific harvest of this meeting is important both for our research and for our teaching.

According to the rules of ISSS, at the end of the scientific meeting a business meeting was organized. Australia was selected as the next meeting location in 1992.

P. Aurousseau, Rennes, France

The Proceedings of the International Working Meeting on Soil Micromorphology held in San Antonio, Texas, will be published during the summer of 1989. The book will be about 650 to 700 pages in length. The cost of the proceedings will be $35.00/copy (postage included). This cost will remain in effect until March 1, 1989, if orders are placed with the IWMSM-88 Secretary: Richard Drees; Department of Soil and Crop Sciences; Texas A & M University, College Station, Texas, 77843. Make checks payable to: IWMSM-88 Conference. Purchase orders cannot be accepted. After March 1, orders must be placed with Elsevier, and prices will be higher.

HUMUS et PLANTA IX

Praha, Czechoslovakia, August 21-26, 1988

An International Symposium of 'HUMUS et PLANTA' was held at Agricultural University, Praha. The chairman of the Organizing Committee was Dr. B. Novak of the Research Institute of Crop Production, Praha-Ruzyne, Czechoslovakia.

Number of participants were about 200 from 18 countries. Despite the size being not so large, diverse topics were discussed on the subjects related to soil organic matter. It included state of humus of different types of soils and management, physiological effects to the plants, impacts of xenobiotic substance on soil organic matter and microbes, new methods for the organic matter studies.

On the quiet beautiful campus of the Agricultural University, every participant had an enjoyable moment. Additional features were to attend a concert of famous organist Jiri Ropek at St Jacob Church, a one day excursion to Czechoslovak Agricultural Museum, Kacina, and to a location of old silver mine, City of Kutna Hora.

Many thanks are extended to the Organizing Committee and to all people who devotedly worked to materialize this successful symposium.

R. Hamada, Tokyo, Japan

FOURTH CONFERENCE ON HUMIC SUBSTANCES
Matalacanas/Huelva, Spain, October 3-7, 1988

The IHSS (International Humic Substances Society) was originally and temporarily a Working Group of ISSS. Since 1982 it is an independent organization, headed by a Board of Directors and supported by those soil scientists and hydrologists who are interested in soil organic matter as well as DOC's (dissolved organic compounds) and POC's (particulate organic compounds) in water bodies. The Society held its 4th biannual conference at Matalacanas/Huelva near Sevilla. Prof. Christman, hydrologist from the USA became new vice-president and president-elect for 4 years after 1990. The next 5th conference is planned for Tokyo, probably and hopefully in close time association with the XIVth ISSS International Soil Congress in Kyoto. Many friends and members of the ISSS agree that our professional organization has internationally as well as in many national societies for years not given humus research the commensurate attention, which it deserves in the light of its contributions to soil fertility, to ecological-environmental and to agricultural development. It is often ignored that even more basic investigations on organic matter in soils related to structure-, ad/desorption-, solubility constant and turnover-mobility have important practical features.

The Sevilla-Conference was everything but dominated by soil scientists. It comprised oral presentations and a great number of posters, most of them of excellent quality.

IHSS has become truly a competent partner for ISSS to encourage sustained research on humic substances. Soil scientists with a background on humic substance research and those in the process of specialization should be reminded of the importance of this field of science and of the modernity of its methodology – such as nuclear resonance spectrometry (NMR), gas chromatography plus mass spectrometry (GC-MS) and Isotope ratio testing – in addition to the total array of chemical, physico-chemical and biological testing methods.

Furthermore, it becomes imperative to strengthen our efforts to utilize better the recycling nutrients of the ca 115 bil.t. C photosynthesate-equivalent in annually decomposing organic matter instead of relying progressively on additional input of nutrients by pool transfer from atmosphere and lithosphere into the pedosphere. With increasing world population on a shrinking agricultural surface this would – under improved erosion control – lead inevitably to the calamity of rising eutrophication in the terrestrial environment, beyond the scope that we observe already in lacustrine and strongly hydromorphic soils as well as increasingly in shallow seas.

H.W. Scharpenseel, Hamburg, BRD

INTERNATIONAL WORKSHOP ON THE VALIDATION OF FLOW TRANSPORT MODELS FOR THE UNSATURATED SOILS
Ruidoso, New Mexico, USA, May 23-26, 1988

The workshop, co-sponsored by Commissions I and II of the ISSS, was organized by Dr. P.E. Wierenga of the Department of Agronomy and Horticulture of the State University of New Mexico, as part of the centennial celebration of that University. More than 100 scientists from about 15 different countries and representing the participating disciplines of Soil Physics, Soil Chemistry, Hydrology and Soil Chemistry as well as their Engineering Counterparts spent about three days discussing the possibilities and the difficulties of the use of predictive mathematical models for describing the transport of solutes in soil. During these discussions they met with representatives from various US Agencies involved in or interested in these transport phenomena, like the US Environmental Protection Agency, the Department of Energy, the US

Nuclear Regulatory Commission, the Geological Survey and the Agricultural Research Service. These discussions were followed by a 2-day field trip covering the experimental sites of New Mexico Technical University at Socorro and visiting Los Alamos National Laboratory.

One conclusion one may draw from this conference is that modeling, and especially the model validation, is no simple task. It is not enough to compare a model prediction with 'some' field or laboratory data and conclude in case of satisfactory agreement that the model is validated. During the meetings it became clear that criteria must be developed for the validation of mathematical models, criteria that will vary with the envisaged use of the model. The relation between the scale of validation and the scale of application is obvious.

It became clear that successful modelling of sorptive transport in soil requires that due attention is given to chemical interaction processes in soil, in addition to the physics of transport in porous media. It may be observed that at present the appropriate integration of chemically induced retardation phenomena into transport models often leaves to be desired.

A very important development in modelling transport phenomena at field scale is the increasing interest in the use of stochastic approaches. Again here the scale of the event studied is of decisive importance in determining whether randomness is the most appropriate base for the description of the events. It is also obvious that stochastic modelling still involves a number of deterministic choices with regard to presumed presence or absence of correlations between different sets of parameter values. nevertheless, in soil: '...heterogeneity is reality, and the question is how to deal with this ...', as was stated by L.W. Gelhar in his interesting presentation. The workshop was a stimulant for those attending to find appropriate answers to this question.

G.H. Bolt, Wageningen, the Netherlands

INTERNATIONAL SYMPOSIUM ON LAND QUALITIES IN SPACE AND TIME

Wageningen, the Netherlands, August 22-26, 1988

The Symposium was organized by the ISSS Working Group MV (Soil and Moisture Variability in Time and Space) and Working Group LI (Land Evaluation Information Systems) in collaboration with FAO; the Agricultural University, Wageningen; the Netherlands Soil Survey Institute (STIBOKA); the International Institute for Aerospace Survey and Earth Sciences (ITC); the Geographical Institute, University of Utrecht; and the International Soil Reference and Information Centre (ISRIC). The Symposium was sponsored by the International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT).

At the Symposium emphasis was laid on the critical review of procedures of quantified land evaluation at different scales and associated data needs. Particular attention was paid to mapping, (geo)statistics, field technology, simulation modeling and use of computerized information systems. Attention was focused on both agricultural and environmental studies.

The scientific program of the Symposium consisted of plenary sessions with 16 invited papers, poster sessions (with 36 posters), computer demonstration and discussions groups.

Dr. W.G. Sombroek, Secretary-General of ISSS, Director of ISRIC opened the Symposium and welcomed the participants (more than 150 persons), representing 40 countries and 5 international organizations.

In his introductory paper Prof.Dr. J. Bouma (Agricultural University, Wageningen), Chairman of the Organizing Committee, gave a concise review on the basic con-

cept of land evaluation, including the definitions of basic terms as land qualities, land and soil characteristics, properties and regimes; their variability in space and time; the adequate data-base for their exact characterization; and the new achievements in information technologies. He pointed out the weak points and inadequacies of conventional soil mapping and land evaluation, and defined the main task of up-to-date soil science – as an exciting challenge – as follows: 'to extend moment and point soil information into continuous territorial monitoring of land qualities'.

The main topics of the scientific session were the following: 1) Land evaluation at different scales (9 papers); 2) Dynamics of land qualities (1 paper); 3) Data acquisition, processing and quality control (6 papers).

After the plenary and poster sessions, and the software demonstrations, three discussion groups were organized to discuss the presented papers and posters, draw conclusions and formulate recommendations for the further activities on local, national, international and global levels. These groups were the following: 1) Implications of soil variability in time and space in relation to land evaluation (chaired by R. Nielsen, USA); 2) Effects of scale on data acquisition and modeling (chaired by J. Bouma, Holland); 3) The role of information technology (chaired by J. Feyen, Belgium).

The discussion groups prepared a list of conclusions and recommendations on:

- the common terminology of the variability of land qualities in space and time (and their elements);
- data collection (including conversations with local land users, conventional soil mapping, remote sensing techniques, geostatistical analyses, modeling, etc.);
- modeling (process-oriented deterministic simulation models, Monte-Carlo techniques, stochastic approaches expressing land qualities in terms of probabilities);
- use and presentation of soil survey information (application of (geo)statistical methods and modeling for a rational soil sampling strategy; extension of point data to territorial information; indication of variability on soil maps, etc.);
- the application of information technology in training, education and communication.

The Symposium particularly underlined the necessity of communication – using the same or at least a similar 'language' – among specialists in soil survey, soil classification, mapping, land evaluation, land use, remote sensing, modeling and computer technology. It was pointed out that the present situation is far form being satisfactory in this respect. The Symposium took significant steps toward mutual understanding in a pleasant and friendly scientific atmosphere, thanks to the organizers.

The Proceedings will be published by PUDOC (Wageningen) in 1989.

G. Várallyay, Budapest, Hungary

INTERNATIONAL WORKSHOP ON CLASSIFICATION, MANAGEMENT AND USE POTENTIAL OF SWELL-SHRINK SOILS

Nagpur, India, October 24-28, 1988

This workshop was organized by the National Bureau of Soil Survey and Land Use Planning (Indian Council of Agricultural Research, ICAR). A post-workshop field trip was held from October 29-31.

Swell-shrink soils occur under varied climatic conditions, mainly in tropical and subtropical areas. They occupy an estimated 310 million hectares, in Asia (mostly India); America (mostly USA, Venezuela and Argentina); Australia and Africa. In India these soils occupy approximately 73 million hectares, 22% of the total geographical area of the country. Agricultural production in these soils is relatively low. They are difficult to manage, as they are sticky when wet and very hard when dry. Some 120 participants from 15 countries participated in the discussions, including scientists

The director of the National Bureau for Soil Survey and Land-Use Planning, Dr. J. L. Sehgal, explaining a poster detail to the Union Minister of Agriculture, at the opening of the Nagpur international Workshop. At left ICAR's director Dr. N. S. Randhawa, past-Chairman of ISSS Commisson IV.

from countries with large areas of swell-shrink soils such as Australia, the USA, Venezuela, Sudan, Kenya, Uganda and Hungary.

Seven lead papers were presented in seven sessions, covering Genesis, properties and distribution; Soil water-relationships; Micromorphology; Land and Water Management; Farming Systems; Impact of Irrigation, and Agricultural Climate. A session was held of the ICOMERT, the International Commission on Vertisols of the SMSS-SCS-USDA. A new circular letter will appear shortly which summarizes suggestions made at this workshop.

New successful farming systems have been developed by ICRISAT, in cooperation with local research centers. These systems incorporate land treatment and improved surface drainage, improved soil fertility, efficient cropping systems and use of high yielding varieties. A major problem now is the communication of research results to local farmers. During the excursion a visit was made to field extension experiments, which are successful in promoting implementation of the new management procedures. Reference to local farming experience both during the workshop and during the excursion was a strong point of this meeting. Much remains to be learned, however, about water and nutrient movement in swell-shrink soils. Field monitoring is necessary while prediction techniques for water movement in these types of soils are available now and should be applied to fine-tune soil and water management procedures. This workshop was an excellent opportunity to learn about the impressive field, laboratory and extension work that is being done by our Indian colleagues. The Transactions of the Workshop were available at the start of the Workshop and can be obtained from the National Bureau of Soil Survey and Land Use Planning.

J. Bouma, Wageningen, the Netherlands

ACTIVITIES OF THE COMMISSIONS AND WORKING GROUPS
ACTIVITES DES COMMISSIONS ET GROUPES DE TRAVAIL
TÄTIGKEIT DER KOMMISSIONEN UND ARBEITSGRUPPEN

Subcommission D:

At a final Plenary Session of the 10th International Soil Zoology Colloquium in Bangalore, India, the following were elected as officers of Subcommission D:

Chairman:	Dr. M.B. Bouché (France)
Past Chairman:	Dr. K.E. Lee (Australia)
Vice Chairmen:	Prof. G.K. Veeresh (India), Prof. V. Huhta (Finland), Prof. H. Watanabe (Japan)
Secretary:	Dr. J.C. Kuhle (West Germany)

Subcommission B:

Report on the elections of new officers for the Subcommission B of the ISSS during the San Antonio Working Meeting of the Subcommission, 10-15 July, 1988.

Composition of the nomination committee: Prof.Dr. G. Stoops (past chairman of Subcommission B) chairman, and Prof.Dr. G. Pedro and Prof.Dr. D. Yaalon, members.

The nominating committee proposed following appointment of officers for the Subcommission:

Chairman:	Prof.Dr. L. Wilding (USA)
Vice Chairmen:	Dr. M. Mitsuchi (Japan), Dr. Chartres (Australia, organizer of next venue), and Dr. P. Goldberg (Israel).
Past Chairman:	Dr. N. Fedoroff
Secretary:	Dr. M. Kooistra

In order to keep some continuity in the publication of the Newsletters, and to keep in contact with the different advisory panels, all active in Europe, the Nomination Committee decided to ask Dr. Kooistra to continue her function for one term.

The Nomination Committee tried to obtain the best regional spreading.

It is the aim that Dr. M. Mitsuchi will be replaced after the ISSS-meeting in Kyoto by a vice chairman appointed by the country where the next ISSS-congress will take place (Mexico?)

As no other nominations came from the audience, and no one opposed, the members mentioned above were elected as new officers.

Presently, the officers of the subcommission were elected during the meeting of the Subcommission, and confirmed at the ISSS-meeting. Their activities took a start after the ISSS-meeting, i.e. two years after their election. Since this situation is not very efficient, there is a need to get in phase. As it would not be fair towards the present officers to ask them to leave their functions now, just after a term of one and a half year, the meeting decided that they (Dr. Fedoroff et al.) should carry on till 1989, and then the new officers (Dr. L. Wilding et al.) should take over.

G. Stoops, Gent, Belgium

Subcommission C

Soil Erosion Research Methods. R. Lal, editor. New from the Soil and Water Conservation Society and Subcommission C: Soil Conservation and Environment of the ISSS.

This new publication provides conservation and agricultural researchers of the world community with a chance to observe, study, and apply standardized soil and water research methods so that possibly for the first time in history soil erosion data from areas spanning the globe can be analyzed and compared with some degree of accuracy.

It gives insight on innovative research techniques, the impacts of wind and water erosion on the environment; reports on erodibility and erosivity; assessment of vegetative cover for erosion control; and other facets of soil and water research and testing. *Price:* US$ 16.00, including surface mail. Prepayment required. ISSS members can order their copies from ISSS, c/o ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands. (See also the announcement under 'New Publications' in this Bulletin).

A new ISSS Working Group on Soil and Groundwater Pollution (WG/SP), provisional)

Contamination of soil and groundwater is a major environmental issue and therefore increasingly addressed by soil scientists. Environmental studies often require an integrated approach by the disciplines represented by the various ISSS commissions.

The Working Group SP is expected to be involved in studies of pollution problems. It will focus on the impact of soil processes, properties and spatial variability on soil and water quality as affected by pollutants from non-point sources. Pollution problems to be considered will include leaching of nutrients (N, P) and synthetic organic chemicals to ground and surface waters and soil and water acidification. It is considered that soil quality problems of salinity, erosion and compaction are already adequately covered by existing ISSS activities and should not be within the group's remit.

The group will deal with experimental methodologies (monitoring, sampling, pedotransfer functions) and the application of new technologies such as GIS and simulation models. These activities should be of interest to all those involved in modelling of solute transport, vulnerability mapping and risk assessment, optimization of land use management and development of environmental protection strategies.

This initiative arises from preliminary discussions between A.J. Thomasson (UK), A. Breeuwsma (Netherlands), R.J. Wagenet (USA) and H. Wiechmann (FRG), who have accepted the roles (respectively) of chairman, secretary and core committee members. We would welcome expression of interest from ISSS members and suggestions for future activities. The possibility of a group meeting in Europe during 1989 or 1990 is under discussion.

Addresses: Mr. A.J. Thomasson, Soil Survey and Land Research Centre, Silsoe Campus, Silsoe, Bedfordshire MK45 4DT, England.
Dr. A. Breeuwsma, Staring Centre, P.O. Box 98, 6700 AB Wageningen, the Netherlands.

... and a new Working Group on Pedometries (WG/PM; provisional)

Addresses: Dr. A.B. Mc Bratney, CSIRO Division of Soils, P.O. Box 693, Canberra City, ACT 2601, Australia
Dr. J. J. de Gruyter, Agricultural Mathematics Group, DLO, P.O. Box 100, 6700 AC Wageningen, the Netherlands.

NEWS FROM THE NATIONAL AND REGIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS NATIONALES ET REGIONALES
BERICHTE DER NATIONALEN UND REGIONALEN GESELLSCHAFTEN

Österreichische Bodenkundliche Gesellschaft

Geschäftsführender Vorstand:

Präsident:	Prof.Dr. Othmar Nestroy
Vizepräsident:	Dr. Walter Kilian
Altpräsident:	Prof.Dr. Winfried E.H. Blum
Generalsekretär:	Heide Grall
Schatzmeister:	Dr. Eduard Klaghofer
1. Schriftleiter:	Dr. Maximilian Eisenhut
2. Schriftleiter:	Prof.Dr. Othmar Nestroy
Beisitzer:	Alois Gessl, Dr. Josef Gusenleitner

Adresse: Gregor-Mendel-Strasse 33, A-1180 Wien, Austria.

Australian Society of Soil Science

As per July 1st, 1988, the new members of the Executive are:

President:	Prof. R.J. Gilkes
Federal Secretary:	Mr. J.C. Dixon
Treasurer:	Mr. K.E. Lindbeck

New address of the Secretariat: C/ Division of Resource Management; W.A. Dept. of Agriculture; Baron Hay Court; South Perth, W.A. 6151; Australia.

Societatea Nationala Romana Pentru Stiinta Solului

The 13th Membership Conference of Romanian National Society of Soil Science was held in Pitesti, Romania, form 29-31 August 1988. More than 300 soil scientists attended. The Conference was devoted to the problem of 'Conservation and raising of the productivity of soils of hilly areas in order to obtain high, sure and stable yields'.

The Conference programme included one discussion day, in which more than 80 papers were presented in the 5 commissions, and 2 symposia (soil pollution; information system in soil science). There were two days of study tours in the Arges and Dîmbovita districts, where several soil profiles were examined (described and characterised in a special guide-book) and many problems of soil cultivation, improvement, fertilisation, capability, suitability, etc. were discussed.

On this occasion, the new Council and the Executive Board of the Romanian Society of Soil Science for the period 1988-1991 were elected. The new Executive Board is composed as follows:

President:	Dr. Corneliu Rauta
Vice-Presidents:	Dr. Cristian Hera, Dr. Ion Nitu, Dr. Mihai Iancu.
Secretary:	Dr. Dumitru Teaci
Members:	Dr. Andrei Canarache, Dr. Nicolae Florea, Dr. Gheorghe Sin, Dr. Gheorghe Gata, Dr. Alexandru Volciv, Dr. Gheorghe Mihai.

Address: Bd. Marasti 61, 71331-Bucharest, Romania.

Soil Science Society of America

Annual Meeting at Anaheim, California, November 27 – December 2, 1988

The Soil Science Society of America (SSSA), the American Society of Agronomy (ASA) and the Crop Science Society of America (CSSA) held their 80th Annual meeting at the Convention Centre in Anaheim, California. The year's meeting theme, 'Exploring New Initiatives' was supported by a variety of poster, oral, and symposium sessions. CSSA and SSSA held a joint plenary session on 'Groundwater Quality Research' and a tri-society symposium dealt with 'Issues in Agriculture'.

Overall, nearly 2250 papers by 3800 authors were presented in 203 oral sessions and 53 poster sessions of which 960 papers (51%) were set for the Soil Science Division covering a variety of themes: Macropores, soil surface sealing. Water, heat, and solute transport. Ion exchange adsorption and complexation in soils. Reactions of pesticides and soil organic matter. Biodegradation and xenobiotics. Mycorrhizae and rhizobacteria. N nitrogen: cycling, uptake and losses. Soil genesis. Geographic information systems: concepts and issues. Soil properties, tillage, and crop relations. Soil erosion. Advances in fertilizer technology. Soil mineralogy. Transport of water and solutes in macropores. Cation exchange and charge characteristics in soils. Rhizobia. Nitrogen: legume contribution. Potassium and general soil fertility. Geographic information systems: applications in soil science. Earthworms in agricultural production systems. Below-ground processes. Infiltration and water transport. Biogeochemistry of soil: aluminum. Oxidation-reduction and dissolution precipitation process in soils. Nitrogen fertilization. Nitrogen analysis and transformations. Soil acidity and aluminum toxicity. Soil survey and classification. Soil climate, properties, and erosion. Remote sensing/GIS. Occurrence, characteristics, and genesis of carbon, gypsum, and silica accumulations in soils. Soil potential variability associated with conservation tillage. Acidification and aluminum chemistry in forest soils. Zeolites: mineralogy and uses in agriculture, industry, and waste management. Erosion, control and plant growth in mine spoil. Phosphorus dynamics in soils and wetlands. Managing agricultural nitrogen to protect groundwater quality. Soil physical properties. Plant-microbe interactions. Soil fertility (non-N) and management. Microbial-root-nutrient interactions. Water: erosion, irrigation, quality, and plant use. Soil structure, infiltration, root growth. Soil carbon and nutrient cycling in forest ecosystems. Nitrogen, phosphorus, sulfur. Iron and manganese minerals. Ecosystem studies. Phosphorus: fertility and management. Temporal soil properties: a key to predicting erosion. Assessing plant nutrient uptake and available soil water. Effects of kinetics, weathering, and cultivation on mineralogy. Solute and gas transport. Chemistry of pesticides and organic matter in soils. Analytical methods and solubility equilibria in soils. Phosphate and arsenate chemistry. Microbial and activity. Nitrogen transformations. Sulfur and micronutrients. N-cereal grain crops. Soils of the Pacific. Soil survey/classification/history. Soil archaeology. Tillage effects on soil properties. Site disturbances and soil nutrient status. Natural processes impact forest growth. Nitrogen and phosphorus fertilizer management. Soil physical properties – field. Adsorption – desorption processes in soils. Soil morphology and properties. Soil conditions and crop response.

On the occasion of the annual meeting, the Soil Science Society of America elected new officers, presented awards and nominated new fellows. *Wilford R. Gardner*, Dean of the College of Natural Resources, University of California, Berkeley is the SSSA president-elect 1988-89.

Don Gabriels, Gent, Belgium

Jugoslovensko Drustvo Za Proucavanje Zemijista

The Yugoslav Society of Soil Science had its VIIIth Congress in May 1988. There were around 200 participants and 140 papers were presented.

During the Congress the Society had its General Assembly where the new presidium and other committees were elected.

President: Dr. Dragoje Dusic
Secretary-General: Prof.Dr. Dragi Stevanovic
Address of the Secretariat: Faculty of Agriculture, Nemanjina 6, 11080 Zemun, Yugoslavia.

Canadian Society of Soil Science

The Executive Council of the Canadian Society of Soil Science for the period 1988/1989 is composed as follows:

President: Dr. D.F. Acton
Past President: Dr. R.L. Thomas
President-elect: Dr. H. Krause
Secretary: Dr. C.J. Acton
Treasurer: Dr. J.E. Richards
Easter Councillor: Dr. M. Webber
Wester Councillor: Dr. D. Chanasyk
A.I.C. Representative: A. Schori

At the 1988 CSSS Annual Banquet, fellowships were presented to three distinguished members: Dr. C.A. Campbell (Swift Current), Dr. G.C. Topp (Ottawa) and Dr. G.J. Racz (Winnipeg).

The next annual meeting of CSSS will take place July 9-13, 1989 in Montreal, Quebec.

Address of the Secretary: Agriculture Canada Research Branch, Ontario Institute of Pedology, Guelph Agriculture Center, Box 1030, Guelph, Ont., Canada N1H 6N1.

African Academy of Sciences

Doctoral students from sub-Saharan Africa are invited to apply to the Rockefeller Foundation for dissertation research support. The program, implemented with the African Academy of Sciences, Kenya, enables Ph.D. students enrolled in U.S. universities to return to Africa for extensive field research in areas relevant to economic development or poverty alleviation. Priority is given to research topics in the fields of agricultural, health, and life sciences, but other proposals are welcome.

Applicants are responsible for arranging affiliation with an African institution able to provide needed research support, such as laboratory facilities, access to study sites, and technical advice. The candidate's U.S. faculty adviser, the hosting institution in Africa, and the funding agency with primary responsibility for financing the student's graduate work all must endorse the application.

The next deadline for applications is 1 March 1989. Preliminary inquiries are encouraged to determine the appropriateness of the research topic and the proposed institutional setting in Africa. Candidates should apply well in advance of the expected field work starting date.

For a full description of the competition and the application requirements, write to: African Dissertation Internship Awards, The Rockefeller Foundation, 1133 Ave. Americas, New York, NY 10036, U.S.A.

APPOINTMENTS, HONOURS
NOMINATIONS, DISTINCTIONS
ERNENNUNGEN, AUSZEICHNUNGEN

Prof.Dr. **Rudy Dudal** of Leuven University, Belgium, and past Secretary-General ISSS, has been appointed member of the Technical Advisory Committee (TAC) of the Consultative Group on International Agricultural Research (CGIAR).

Dr. **Rattan Lal** of Ohio State University, USA, and formerly of IITA, Nigeria, received the prestigious International Soil Science Award from the Soil Science Society of America at its annual meeting in Anaheim, California. Dr. Lal has also been elected to a three-year term as president of the International Soil Tillage Research Organization (ISTRO).

Dr **Robert F. Chandler**, founder of the International Rice Research Institute (IRRI) in the Philippines has been awarded the 1988 'General Foods' World Food Price ($ 200,000).

Dr. **Tony Juo** of the farming systems research programme of IITA, Nigeria, has been appointed professor of Agronomy at Texas A&M University, USA.

Dr. **Hari Eswaran**, programme leader of the USAID/SCS Soil Management Support Services (SMSS) has been nominated a member of the Royal Academy of Overseas Science of Belgium. He also received the USDA International Honor Award.

Dr. **Ralph Cummings**, professor emeritus of soil science, first director of ICRISAT and past chairman of the Technical Advisory Committee of CGIAR, received the 1988 Presidential 'End Hunger' Award from the USA State Department.

Dr. **Jim Burrow** of CSIRO at Wembley, Australia, received the John K. Taylor Gold Medal in Soil Science for his research on the reactions of nutrient ions with the surfaces of soil constituents.

The New Zealand **Soil Bureau** was amalgamated with the NZ Soil Conservation Centre, and the new name is **Division of Land and Soil Science** of the Department of Scientific and Industrial Research (DSIR) of the New Zealand Ministry of Science and Technology. The address remains the same: DSIR, Private Bag, Lower Hutt, New Zealand (no need for zip-codes, box numbers, cable addresses, telex or telefax numbers!?)

ISSS POSTER AWARDS

At the eighth international conference on soil micromorphology, held at San Antonio, Texas-USA from 10 to 15 July 1988, awards were given to the four best poster presentations as follows:

C. Coulombe, M. Cailler and **M. Blackburn,** 'Micromorphological and semi-quantitative analysis of a Luvic Gleysol (Providence series) in St. Lawrence lowlands of Quebec'.

C.J. Chartres, A.J. Ringrose-Voase, M. Raupach, and **I. Salins**, 'A method for thin sectioning using dioxane to replace water'.

J. Thompson, M. Robert and **J. Berrier**, 'Fungal activity in dissolution and precipitation of minerals'.

Olga Morozova, E.A. FitzPatrick and **S.A. Shoba**, 'Pedogenic forms of carbonates in Hungarian soils of different types'.

IN MEMORIAM

Prof.Dr. Zoltán Fekete (1911-1988)

Zoltán Fekete, retired professor of soil science of the University of Horticulture and honorary president of the Hungarian Soil Science Society died suddenly of heart-failure on the 14th October, 1988 in Budapest.

Zoltán Fekete was born on 31st March, 1911. His father and grandfather as well were well-known professors of soil science and forestry respectively and he was engaged from his youth in science.

In 1935 he obtained his Ph.D. in geology. After graduating at the University of Budapest he was a high-school teacher 1934-1937. He started his research activity during this time and was appointed by the British Museum as a local collector of Hungarian herbs.

In 1937 he was appointed to the Faculty of Geology to the Budapest University as assistant professor and parallel he was lecturing at the Agricultural University in Keszthely. In 1949 he became professor of soil science at the Faculty of Horticulture at the Agricultural University, Budapest (later University of Horticulture and Food Industry). He was Dean at the Faculty in 1949-1950 and he was Head of Department until his retirement in 1984; he remained active as professor emeritus all his lifetime.

The scientific interest and field of research of professor Fekete covered a very wide spectrum, including meteorology, geology, pedology, agrophysics, agriculture, horticulture and silviculture. He was member and officer of numerous national and international scientific societies, including ISSS where he was a member from 1955 until his death. He participated in numerous congresses, symposia and other conferences of the society and actively took part in its activities. In Hungary he was president of the Meteorological Society in 1950-51 and fellow of this Society until his death, Vice-President of the Hungarian Agronomical Scientific Society in 1957-67, Vice-Rector of the Academy of Horticulture between 1962-66 and Honorary President of the Hungarian Soil Science Society for more than 15 years.

Professor Fekete has published more than 150 papers and books in different languages, including a well-known textbook on soil science, which was the first university manual in Hungary after the IInd World War.

Professor Fekete spoke fluently numerous languages and spent frequently shorter or longer time abroad in study trips or lecturing as guest professor in many countries of four continents.

Professor Fekete was member of editorial board of several scientific journals and also member of high-level scientific boards for many years.

Apart from the science he was a well-know person of public life in Hungary. For several decades until his death he was the secular head of the Hungarian Lutheran Church. Parallel with his outstanding public activity he was deeply interested in literature, arts and music.

Professor Zoltán Fekete was not only an outstanding scientist, teacher and public person, but also a warm-hearted human being who was always ready to collaborate, support and help anybody who asked him, he even approached those who hesitated to ask.

He is a great loss not only for soil scientists in Hungary and abroad, but also for all those who knew and liked him and for whom his bright image will never be forgotten.

István Szabolcs, Budapest, Hungary

Prof.Dr. Grant F. Walton (1924-1988).

Grant F. Walton, Professor Emeritus, Rutgers University died on August 4, 1988. He was born in Philadelphia in 1924. During service with the U.S. Marine Corps in World War II he took part in the invasion of Guadalcanal, Bougainville, New Georgia, Guam, and Iwo Jima. He was wounded twice and decorated. After completing his B.Sc. and M.Sc. degrees at Rutgers University he worked for various conservation and land use organizations in New Jersey. In the early 1960s he joined the faculty at Rutgers where he taught introductory soils and land use planning.

While pursuing his Ph.D. degree at Rutgers University he wrote his thesis on soils of the High Arctic. Accordingly, he made studies in Alaska, Prince Patrick Island, Bathurst Island, Cornwallis Island, Banks Island, Baffin Island, the Hudson Bay area, northern Greenland and Siberia. His Ph.D. thesis was a comprehensive circumpolar treatment of soil zonation and soil geography in the High Arctic. He integrated his work closely with that of B.N. Gorodkov and others. He was also particularly interested in the effect of glaciation and isostatic rebound on the soil pattern.

It became evident to the university during the late 1960s and early 1970s that Dr. Walton also had considerable organizational and administrative talents. Accordingly, he formed and became chairman of the Environmental Resources Department. In 1972 he went on a one-year University leave to become the first director of Division of Environmental Quality of the Department of Environmental Protection for the State of New Jersey. Shortly after returning to Rutgers University he was appointed Dean of Cook College and Director of the New Jersey Agricultural Experiment Station, a dual post he held for eight years.

After a sabbatical year at the Scott Polar Research Institute in Cambridge, England in the early 1980s he returned to the Environmental Resources Department at Rutgers. He was immediately asked to serve as Interim Director of the newly formed Technology Extension Centre for Aquaculture and Fisheries at Rutgers University. When he retired in 1987 he held the title of Professor II (Distinguished Professor).

He was a member of the Soil Science Society of America, International Society of Soil Science, Arctic Institute of North America, American Polar Society, Soil Conservation Society of America, among others. Among his signal award were the Rutgers Medal, the George H. Cook Award, and the Gold Medallion of the New Jersey Agricultural Society.

J.C.F. Tedrow, U.S.A.

INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE VERBINDUNGEN

GLOBAL CHANGE

The first meeting of the Scientific Advisory Council of the ICSU 'International Geosphere-Biosphere Programme: A Study of Global Change (IGBP)' was held in Stockholm 24-28 October 1988.

IGBP, conceived by ICSU and unfolding since 1986, is partially an altogether original, partially (realistically seen) a follow-up organization with expanded scope of programme in continued cooperation and historical successorship to MAB and SCOPE. It is aiming at studying the events of global changes, particularly due to changing climate and to predict the consequences on the biomes of the world by modelling. In the infant stages of the IGBP one felt rather confronted with an 'International ATMOSPHERE – Biosphere Programme'. The geosphere seemed to be assessed very low in the hierarchy of project areas and almost ornamental. There is however no doubt that IGBP will be our chance for the next two decennia to get more understanding of causality and phenomenology of the global changes expected for the near future and to develop foreboding and counter measures against consequences such as temperature and eustatic sea level rise, change of the circulation system and rainfall distribution as well as possible secondary changes to our ecosystems like increasing erosion, aridity, salinization, alkalinization, acidification, loss of organic matter and nutrients.

Since soil related processes such as deforestation by CO_2 emission, ricefields and pastures with grazing ruminants by CO_2 and CH_4 emission, contribute to the global warming about as much as the global annual combustion of about 5.5 bill. t. C of fossil fuel, we are professionally fully involved. CH_4 is of particular importance due to its strong annual increase of 1% and its high efficiency of heat absorption which is about 20 in relation to CO_2. This was stressed to the plenum by the participating soil scientists and ISSS members Scharpenseel, Sombroek, Targulian and Yaalon and was fully accepted. Our Secretary General contributed a proposal of project areas for cooperation between IGBP and ISSS, which drew positive reactions. The planned Geosphere Biosphere Observatories and the suggested megatransects should be especially mentioned. Financing the forthcoming projects (execution beginning about 1992) is foreseen as Central Financing or Condominium Financing (where each group contributes its part into a mutual business administration). At this stage full contribution of ISSS-activities in the IGBP programme can be considered as being assured.

H.W. Scharpenseel, chairman of the ISSS Committee
on International Programmes (CIP)

CENTRE FOR LOESS RESEARCH AND DOCUMENTATION

The Centre for Loess Research and Documentation (CLRD) was established at Leicester University in 1987. The main purpose of the Centre is to carry out research on loess soils and sediments and other fine-grained geomaterials and to provide a consultancy service to industry and commerce. Other aims are to improve communication and information transfer in this field of research, and to assemble a loess archive and document store. The research emphasis is on practical problems of economic significance, and the material emphasis concentrates on loess, although all fine grained (clay-silt predominant) soils and sediments are studied and documented.

The CLRD is the base for two Working Groups of the Loess Commission of the International Union for Quaternary Research: Geomorphology and Land Use (organised by Prof. E. Derbyshire) and Documentation (organised by Prof. I. Smalley). The

INQUA Loess Commission encourages and correlates loess research on a worldwide basis. It acts through eight working groups, the other six being China, North America, Chronostratigraphy, Geochemistry, Geotechnical, and Palaeogeographic Maps. The CLRD makes a significant contribution to international science ia the Loess Commission, in particular it publishes the Commission journal 'Loess Letter' twice a year, with supplements to mark special events. A series of bibliographies is being published which will provide basic information on all the world's loess deposits.

For more information, contact Prof. I. Smalley, Secretary CLRD, Dept. of Geography, Leicester University, Leicester LE1 7RH, England.

TSBF

The Fourth Interregional Workshop of the Tropical Soil Biology and Fertility Programme of the International Union of Biological Sciences had the target of: reviewing progress in initial field of activities; evaluating TSBF as a practical contribution to sustainable development in the tropics; making necessary alterations to the principles, objectives, methods and procedures of TSBF; establishing a management plan for the next phase of the programme.

Progress of research at the ten existing programme centres was reviewed, two years after the initiation of the research programme at the Yurimaguas workshop. In the light of the experience gained, there was a re-statement by TSBF IV of five principal themes, together with a series of ten specific objectives derived from them. Most programme centres had established experiments designed at testing specific hypotheses linked to these objectives. Research directed at the 'Synchrony' themes is now extensive, as is that into Soil Organic Matter hypotheses. The two years' initial field work provided much discussion on methods and sections of the TSBF Methods Handbook are being revised accordingly. Other matters discussed included the balancing of target and strategic research within TSBF, the desirability of using the social survey and extension capacities of other networks and agencies, the development of regional networks, the establishment of a Board of Management for TSBF, the mandate of a Programme Centre Group responsible for applying the TSBF approach to an intensive suite of sites, broadly representative of tropical ecological zones and land-use practices.

Senior representatives from the International Council for Research in Agro-Forestry (ICRAF) and the International Board for Soil Research and Management (IBSRAM) participated in TSBF IV. They both called for closer future cooperation between their programmes and TSBF. It was agreed that subject to the agreement of the IBSRAM Board, strong links could be developed with IBSRAM during the latter half of 1988, possibly culminating in the signing of a formal agreement of cooperation. Initial linkage will be in information networking and the 'sharing' of research sites, especially in Africa, for mutual benefit. ICRAF sees TSBF as playing a crucial role in contributing to the mechanistic understanding of the success of many agro-forestry practices.

On the basis of the evaluation given by the international group of assessors (Sir Charles Pereira, Dr. M. Latham, Dr. A. Young), a number of major conclusions were drawn to guide TSBF through the next phase. The target, approaches and methods of the TSBF are recognized as valid, both scientifically and as a promising contribution to the development of sustainable production in the tropics. The need for improved contact between TSBF and the mainstream of tropical agronomic research was among the evaluation team's conclusions, which establish priorities for TSBF over the next two-year phase of the programme.

For further information on TSBF, contact: Prof. M. Swift, Department of Biological Sciences, University of Zimbabwe, P.O. Box MP167, Harare, Zimbabwe.

From: InfoMAB N°10.

EUROPEAN SOCIETY FOR SOIL CONSERVATION

On November 4, 1988, 18 experts of 10 European countries founded at Leuven, Belgium, the European Society for Soil Conservation to promote research on soil degradation and practices of soil conservation all over the continent. The ESSC will be a multidisciplinary, non-political Society to promote the science and art of good land use in Europe. Emphasis is on the fields of soil degradation (soil erosion, physical, chemical and biological degradation and its consequences) and on soil conservation. The ESSC tries to integrate all parts that are involved in the above cited fields: research laboratories, governmental institutions, EEC, farmers and farmer unions, policy-makers and all those concerned with the implementation of these fields. The ESSC likes to play an educative role by informing the public about major soil conservation matters in Europe.

The ESSC major activities include: (1) the organization of thematic workshops, regional conferences on topics of subcontinental interest and a general congress every 4 years; (2) the support of local meetings; and (3) the publication of a newsletter in 4 languages (English, French, German and Spanish) 4 issues per year.

The Executive committee of the ESSC is composed of: J. De Ploey, Belgium (President); M. Sala, Spain and R.P. Morgan, U.K. (vice-presidents); G. Richter, W.Germany (secretary-treasurer); G. Monnier, France and N. Misopolinos, Greece (members); and H.R. Bork, W.Germany (editor-in-chief of the Newsletter, observer).

Individual membership fee is 10 ECU or equivalent currency (15 US$ or 25 DM).

Address of the secretariat: Prof.Dr. G. Richter, Universität Trier, Postfach 3825, D-5500 Trier, Fed. Rep. of Germany.

25th ANNIVERSARY OF THE INTERNATIONAL TRAINING CENTRE FOR POST-GRADUATE SOIL SCIENTISTS, STATE UNIVERSITY OF GHENT, BELGIUM

The International Training Centre for Post-graduate Soil Scientists of the State University Ghent, Belgium (ITC-Ghent) celebrated in 1988 its 25th anniversary. The centre was founded in 1963 by Prof.Dr. R. Tavernier. Thanks to the support of Prof.Dr. V. Kovda it could start under the auspices of UNESCO. It is probably the oldest training centre of this kind in Europe.

It started as a one-year MSc-course in Soil Survey. Since 1973 this course was replaced by a two-years MSc-course in Soil Science, with two orientations: (i) Soil Genesis and Classification, and (ii) Soil Physics and Chemistry. Apart from this, a one-year course of 'Advanced Studies in Soil Science' exists. In total 621 students obtained a degree: 139 from Africa, 87 from America, 266 from Asia, 2 from Australia and the Pacific and 127 from Europe; they represent 77 different nations.

Apart from its educational task, the ITC-staff has been very active in scientific research. Let us mention only its contributions to 'Soil Taxonomy' (Dr. G. Smith stayed at the ITC after retiring from the USDA), and its well known laboratories of micromorphology and of soil physics.

From 10 to 15 October 1988 several activities were organized to celebrate this anniversary. It started with an academic session, during which the degree of doctor honoris causa was awarded to his Royal Highness Prince Albert of Belgium. During this session a lecture on 'Soil Science for Development' was given by Dr. W.G. Sombroek, Secretary General of the ISSS.

The next day different aspects of the same theme were discussed during a symposium. Invited speakers were former ITC-Ghent students: Dr. H. Eswaran (Program Leader of the Soil Management Support Service, Washington), Prof.Dr. J. Sehgal

(Director of the National Bureau of Soil Survey and Land-use Planning, Nagpur, India), Dr. A. Osman (Director of Soil Science Division, ACSAD, Syria), Dr. F. Zapata (Head of Soil Science Unit, IAEA, Vienna) and Dr. Wan Sulaiman (UPM, Malaysia). The Proceedings of this meeting will be published.

Workshops were organized in the Geological Institute (mainly dealing with soil survey, classification, genesis and land evaluation) and in the Faculty of Agricultural Sciences (mainly on soil chemistry, physics and microbiology). Oral presentations, posters, demonstrations and laboratory visits attracted a large number of visitors. The last day, a panel discussion on 'Pedology in Development Planning' and presentation of projects of ITC-members overseas took place.

G. Stoops, Ghent, Belgium

MAB REGIONAL WORKSHOP ON DEGRADED LANDS AND THEIR REHABILITATION

The Indonesian MAB National Committee, the Indonesian Institute of Sciences, the SEAMEO Regional Center for Tropical Biology, and Unesco joined forces in the organization of a regional workshop on eco-development processes for degraded land resources in South East Asia. The workshop took place at BIOTROP in *Bogor from 22–24 August 1988,* and brought together some 35 participatns from 11 countries. Dr. Emil Salim, State Minister for Population and Environment, gave the keynote address, taking as his major theme the concept of sustainable development as an expression of the conjuncture of ecology, economics and development. The need for seeking the least-cost technology for inclusion in rehabilitation schemes, and of stressing interventions that bring results within the time frame of economic and political decision-making, were two of the points stressed by Minister Salim.

Fourteen technical presentations highlighted some of the issues, challenges and approaches in the redevelopment of degraded land resources in the region, with case studies illustrating progress that had been made in particular countries. Among the topics examined were approaches and technologies for reclaiming lands degraded through tin mining, shifting cultivation, transmigration schemes, selective logging. Participants outlined an action plan for economically and ecologically sustainable development of degraded land resources in the South East Asia region, which incorporates such components as the application of available knowledge and technology, socio-cultural and socio-economic dimensions of redevelopment, and institutional and management considerations. Research approaches and needs were also examined, including proposals for comparative studies centered around shifting agriculture and deforested land.

The action plan provides a framework for South East Asia countries contributing to an evolving interregional MAB initiative on *'Forest regeneration and ecosystem rehabilitation in the humid tropics',* and the workshop expressed agreement in principle with the broad principles set out in a two-page MAB Study Outline onm this topic. Procedures for further development of the action plan, and its transformation into project proposals, were discussed at a regional consultation of representatives of MAB National Committees, which took place in Bogor on 25 August, following the technical workshop.

From: InfoMAB N°10.

MEETINGS, CONFERENCES, SYMPOSIA
REUNIONS, CONFERENCES, SYMPOSIUMS
TAGUNGEN, KONFERENZEN, SYMPOSIEN

Meetings etc. marked with *, are organized or (co)-sponsored by ISSS, implying that participation with support from the ISSS Fellows Fund can be considered (for details on the Fund see page 92 of Bulletin 74).

ISSS, as an associate member of the International Council of Scientific Unions, subscribes to the principle of free movement of bona fide scientists; patronage or sponsoring will therefore automatically be withdrawn if the country of venue denies or purposely delays visa awarding to any ISSS member who wishes to participate in the meeting concerned.

Les réunions, etc., marquées d'un astérisque (*) sont organisées ou (co)-financées par l'AISS, ce qui implique qu'il y a possibilité d'y participer avec un financement du Fond pour Aspirants de l'AISS (voir détails page 92 du Bulletin 74).

Tagungen usw, versehen mit (*) werden organisiert bzw (mit)finanziert von der IBG, was bedeutet dass die Möglichkeit gegeben ist sich zu beteiligen mit finanzielle Unterstützung aus der IBG Stipendien (für Einzelheiten siehe Seite 42, Mitteilungsblatt no. 72).

Las reuniones, etc. marcadas con un asterisco (*) son organizadas o (co)-promovidas por la SICS, implicando la posibilidad de participar con el apoyo del Fondo para becarios de la SICS (ver detalles, p.92 del Boletin No.74).

1989

***International Symposium Managing Sandy Soils,** Jodhpur, Rajasthan, India, February 6-10, 1989 (postponed from February 8-12, 1988).
Information: Dr. S.P. Malhotra, Director, Central Arid Zone Research Institute, Jodhpur 342003, Rajasthan, India.

International Workshop on Phosphorus Requirements for Sustainable Agriculture in Asia and the Pacific Region, Los Baños, Philippines, March 6-10, 1989.
Information: Dr. J.R. Freney, CSIRO Division of Plant Industry, G.P.O.Box 1600, Canberra, Australia.

International Symposium on Global Changes in South America during Quaternary: Past-Present-Future. March 8-12, 1989.
Information: Prof. Kenitiro Suguio, Instituto de Geociências-USP, CP 20899, CEP 01498-Sao Paulo S.P., Brazil.

***International Workshop on the Multipurpose Use of Soil Survey Information for efficient Land Use Planning,** Nairobi, Kenya, March 12-20, 1989 (ISSS Commission V and SMSS).
Information: Mr. S.M. Wokabi, Head Kenya Soil Survey, P.O.Box 14733, Nairobi, Kenya.

***International Workshop on Denitrification in Soil, Rhizosphere and Aquifer,** Giessen, FRG, March 17-19, 1989 (ISSS Commissions III and IV in cooperation with the Commission III of the German Society of Soil Science (DBG) and the Society for General and Applied Microbiology (VVAM, FRG).
Information: Prof. J.C.G. Ottow, Institute for Microbiology, Justus Liebig-University, 3 Senckenbergstrasse, D-6300 Giessen, FRG.

International Workshop on Conservation Farming on Hillslopes, Taichung, Taiwan, March 20-26, 1989 (co-sponsoring by ISCO).
Information: Dr. San-Wei Lee, Soil and Water Conservation Society, Council of Agriculture Executive Yuan, 37 Nanhai Road, Taipei, Taiwan, China.

Symposium on Plant Growth: Interaction with Nutrition and Environment, Edinburgh, Scotland, April 4-6, 1989.
Information: Dr. J.R. Porter, University of Edinburgh, Scotland.

3rd Scientific Assembly of the International Association of Hydrologic Sciences, (IAHS), Baltimore, USA, May 10-19, 1989. With Symposia on: Atmospheric Deposition; Surface Water Modelling; Sediment and the Environment; Groundwater Contamination; Remote Sensing and Large-scale Global Processes; Image Processing and geographic Information Systems; a.o.
Information: Dr. A.I. Johnson, Organising Committee, 3rd IAHS Assembly, 7474 Upham Court, Arvada CO 80003, USA.

International Symposium on Peat/Peatland Characteristics and Uses, Bemidji, Minnesota, USA, May 16-19, 1989
Information: Center for Environmental Studies, Bemidji State University, 1500 Birckmont Drive NE, Bemidji MN 56601-2699, USA

***International Symposium on Excess and Deficiency of Trace Elements in Relation to Human and Animal Health in Arctic and Subarctic Regions,** Tromsø, Norway, 25-26 May, 1989. (ISSS Working Group SG)
Information: Prof. J. Låg, Norwegian Academy of Science and Letters, Drammensv. 78, 0271 Oslo 2, Norway.

***International Conference on Soil Conservation and Environment,** Bratislava, Czechoslovakia, May 29-June 2, 1989 (Co-sponsoring ISSS Commission I and Subcomm. C).
Information: Prof. J. Hrasko, Research Centre of Soil Fertility, Vrakunska 29, 82563 Bratislava, Czechoslovakia.

***International Conference on Soil Compaction as a Factor determining Plant Productivity,** Lublin, Poland, June 5-10, 1989 (ISSS Commission I).
Information: Prof. J. Glinski, Institute of Agrophisics, Krakowskie Przedmiescie 39, 20-076 Lublin, Poland.

International Conference on Wetlands; the people's role in wetland management, Leiden, the Netherlands, June 5-8, 1989.
Information: Leiden Congress Bureau, P.O. Box 16065, 2301 GB Leiden, the Netherlands. telex 39427 burinl-nl.

4th International Symposium on River Sedimentation, Xian, China, June 5-9, 1989.
Information: Prof. D.E. Walling, Dept. of Geography, Univ. of Exeter, Amory Bldg. Rumes Drive, Exeter EX4 4RJ, England.

International Conference on Soil Quality in Semi-arid Agriculture, Saskatoon, Canada, June 12-16, 1989.
Information: Mr. Hans Korven, Saskatchewan Institute of Pedology, Univ. of Saskatoon, Sask. S7N 0W0, Canada.

International Symposium on Compost Production and Use: Technology, Management, Application and Legislation; S.Michele All'Adige, Italy, 20-23 June, 1989.
*Information:*Instituto Agrario Provinciale, 38010 S.Michele All'Adige (TN), Italy. telex 401317 iapsm i.

International Symposium on Rice Production on Acid Soils of the Tropics: Achievements and Challenges, Kandi, Sri Lanka, June 26-30, 1989.
Information: Dr. Cyril Ponnamperuma, Director, Institute of Fundamental Studies, Hantana Road, Kandi, Sri Lanka. telex 21700 ifs-ce

9th Symposium on How User's Requirements can Influence Space Programs, Espoo, Finland, 27 June – 1 July 1989.
Information: EARSeL Secretariat, attn.: Mrs. M. Godefrou, P.O.Box 209, 92108 Boulogne-Billancourt, France.

28th International Geological Congress, Washington DC, USA, July 9-19, 1989.
Information: Secretariat Int. Geol.Congress, P.O.Box 1001, Herndon, Virginia 22070, USA.

22nd Brazilian Congress of Soil Science, Recife, Pernambuco, Brazil, July 23-29, 1989.
Information: Fernando B. Be Silva, EMBRAPA/SNLCS, Rua Antonio Falcao 402, Boa Viagem, 51020 Recife PE, Brazil.

International Symposium on the Role of Biology in Resolving the Food Crisis in Africa, Yamoussoukro, Côte d'Ivoire, 26-30 July, 1989.
Information: Dr. Amadou Tidiane Ba, ABN Coordinator, Unesco-BREDA, BP 3311, Dakar, Senegal; *or:* ICSU, 51 bd. de Montmorency, 75016 Paris, France. telex 630553 f.

11th International Plant Nutrition Colloquium (ICPN), Wageningen, the Netherlands, July 30-August 4, 1989.
Information: Dr. M.L. van Buisichem, Dept. of Soil Science and Plant Nutrition, WAU, P.O. Box 8005, 6700 EC Wageningen, the Netherlands.

***International Conference on Soils and the Greenhouse Effect,** the effect of changing soils and land uses on their emission of 'greenhouse' gases, evaporation and albedo; Wageningen, the Netherlands, August 14-18, 1989 (VROM/ISRIC, with co-sponsoring by ISSS Committee on International Programmes).
Information: Ir. A.F. Bouwman, Conference Secretary, ISRIC, P.O.Box 353, 6700 AJ Wageningen, the Netherlands.

International Symposium on Soil Testing and Plant Analysis, Fresno, California, USA, August 14-19, 1989.
Information: Dr. J. Benton Jones, Council on Soil Testing and Plant Analysis, University Station, P.O.Box 2007, Athens, Georgia 30612-2007, USA.

***International Meeting on Statistics, Earth and Space Sciences,** Leuven, Belgium, August 21-25, 1989.
Information: Dept. of Mathematics, Faculty of Sciences, Catholic University of Leuven, Celestynenlaan 200B, 3030 Leuven, Belgium.

*Pre-conference study tour in Black Forest and Rhine Valley, and one-day **Symposium on Rock Weathering and Soil Mineralogy,** organised by ISSS Commission VII, Strasbourg, France, August 27-29, 1989.
Information: Prof.Dr. A.J. Herbillon, CPB-CNRS, B.P.5, 54501 Vendoeuvre-les-Nancy Cedex, France.

International Symposium on Fertilization and the Environment, Leuven, Belgium, 27-30 August, 1989.
Information: K.U. Leuven, Laboratory of Soil Fertility and Soil Biology, Kardinaal Mercierlaan 92, B-3030 Leuven (Heverlee), Belgium.

10th International Symposium on Soil Biology, Keszthely, Hungary, August 27-31, 1989.
Information: Prof.Dr. J. Szegi, Research Institute for Soil Science and Agric. Chemistry, Pf 35, 1525 Budapest, Hungary.

9th International Clay Conference (AIPEA), Strasbourg, France, August 28-September 2, 1989.
Information: Dr. Hélène Paquet, Institut de Géologie, 1 rue Blessig, 67084 Strasbourg, France.

5th International Symposium on Paleolimnology, Ambleside, U.K., August 31 – September 6, 1989.
Information: Prof. Frank Oldfield, Dept. of Geography, University of Liverpool, P.O.-Box 147, Liverpool L69 3BX, United Kingdom.

MAB Workshop on Management of the Forest Ecosystems in Humid Tropical Regions; comparative approach between Africa and the Americas, Cayenne, French Guyane, September 1989.
Information: H.F. Maître, CTFT/CIRAD, 45 bis Avenue de la Belle Gabrielle, 94736 Nogent-sur-Marne Cedex, France.

Réunion internationale sur les Horizons du Sol: concept d'horizon, leur utilisation dans la caractérisation, la classification et la cartographie des sols, Rennes, France, Septembre 4-6, 1989 (co-sponsoring by ISSS Commission V).
Information: M. Pierre Aurousseau, ENSA Chaire de Sciences du Sol, 65 rue de Saint-Brieuc, 35042 Rennes-Cedex, France.

2nd International Conference on Geomorphology, Frankfurt/Main, FRG, September 3-9, 1989. Theme: 'Geomorphology and Geo-ecology'.
Information: Prof.Dr. A. Semmel, Inst. für Physische Geographie, Universität Frankfurt, Postfach 111932, D-6000 Frankfurt/Main 11, F.R. of Germany.

11th International Congress of the International Commission of Agricultural Engineering, Dublin, Ireland, September 4-9, 1989.
Information: M. Carlier, Secr. General CIGR, 17 rue de Javel, 75015 Paris, France.

International Conference and Workshop on Global Natural Resource Monitoring and Assessments: Preparing for the 21st Century, Venice, Italy, September 24-30, 1989.
Information: Mr. H.Gyde Lund, c/o USDA Forest Service TM, P.O. Box 96090, Washington, DC 20090-6090, U.S.A.

2nd Iberian Quaternary Meeting, Madrid, Spain, September 25-29, 1989.
Information: Dra. T.A. Campos, Instituto de Edafologia y Biologia Vegetal (CSIC), Serrano 115-do, 28006 Madrid, Spain.

3rd Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, Pertersburg FL, U.S.A., October 1-4, 1989.
Information: 3rd Multidisciplinary Conference, Florida Sinkhole Research Institute, University of Central Florida, Orlando, FL 32816, U.S.A.

International Symposium on Groundwater Management: Quality and Quantity, Benidorm, Spain, October 2-5, 1989 (IAHS).
Information: Dr. J. Andreu, Symposium Secretary, E.T.S. de Ingenieros Caminos, Univ. Politécnica, Camino de Vera s/n, 46071 Valencia, Spain.

International Soil Correlation Meeting on Wetland Soils, New Orleans, Louisiana, USA, October 2-14, 1989 (SMSS).
Information: Dr. H. Eswaran, SMSS, P.O. Box 2890, Washington DC 20013, USA.

***International Symposium on the Dynamics of Salt-affected Soils,** Nanjing and Fungqiu, P.R. China, October 4-10, 1989 (ISSS Subcommission A).
Information: Prof.Dr. Zhao Qiguo, Director, Institute of Soil Science, Academia Sinica, P.O. Box 821, Nanjing, P.R. China.

16th International Grassland Congress, Nice, France, October 4-11, 1989.
Information: Secrétariat, XVI Congrès Int. des Herbages, AFPE, INRA, Rue de St.Cyr, 78000 Versailles, France.

International Symposium on Information Processing in Geology and Mining, Pribram, Czechoslovakia, 16-20 October 1989.
Information: Mrs. Jitka Bradácová, RNDr., Director of Geofond Praha, Kostelní 26, 170 00 Praha 7, Czechoslovakia.

***6th International Soil Conservation Conference,** Addis Abeba, Ethiopia, November 6-18, 1989 (ISCO; co-sponsoring by ISSS Subcommission C).
Information: Mr. Kebede Tato, 6th ISCO Conference, P.O.Box 2597, Addis Abeba, Ethiopia. Telex: 21619; *or:* Dr. Hans Hurni, Geography Institute, Hallerstrasse 12, 3012 Berne, Switzerland.

European Conference on Landscape-ecological Impact of Climatic Change (assessing the potential effect of a climatic change on terrestrial ecosystems and landscapes in Europe), Lunteren, the Netherlands, December 3-7, 1989.
Information: Drs. R.S. de Groot, Dept. of Nature Conservation, Wageningen Agricultural University, Ritzema Bosweg 32a, 6703 AZ Wageningen, the Netherlands. telex 45015 bluwg-nl.

1990

International Symposium on Land Drainage for Salinity Control in Arid and Semi-arid Regions, Cairo, Egypt, 26 February – 3 March, 1990
Information: Drainage Research Institute (DRI), Irrigation Bldg., 13 Giza Street, El Giza, Cairo, Egypt. telex: 94014 exwap un; *or:* ILRI, P.O.Box 45, 6700 AA Wageningen, the Netherlands. telex: 75230 visi nl.

2nd International Symposium on Plant-Soil Interactions at Low pH, Beckley, West Virginia, USA, June 24-29, 1990.
Information: Dr. Paul Murrmann, Conference Chairman, USDA-ARS, Appalachian Soil & Water Conservation Research Laboratory, P.O.Box 1061, Beckley, West Virginia 25802-1061, USA.

10th Congress of the International Union of Pure and Applied Biochemistry (IUPAB), India, August 1990.
Information: J. Tigyi, Secretary IUPAB, Institute of Biophysics, Medical University, Szigeti ut 12, 7643 Pécs, Hungary.

14th Congress of the International Commission on Irrigation and Drainage (ICID), Rio de Janeiro, Brazil, August 1990.
Information: Secretariat ICID, 48 Nyaya Marg. Chanakyapuri, New Delhi 11, India.

19th World Congress of the International Union of Forestry Research Organisations (IUFRO), Montreal, Canada, August 7-18, 1990.
Information: IUFRO Secretariat, Tirolergarten, Schönbrunn, A-1131 Vienna, Austria.

****14th INTERNATIONAL CONGRESS OF SOIL SCIENCE,** Kyoto, Japan, August 12-18, 1990.
Information: Dr. K. Kumazawa, Japanese Society of Soil Science and Plant Nutrition, 26-10-202, Hongo 6-chome, Bunkyo-ku, Tokyo 113, Japan.

IGU Regional Conference on Asian Pacific Countries, August 12-20, Beijing, China.
Information: IGU Conference Secretariat, The Geographical Society of China, Building 917, Datun Road, Beijing 100012, China.

International Symposium on Remote Sensing and Water Resources, Enschede, the Netherlands, 20-24 August 1990.
Information: Secretariat of the International Symposium 'Remote Sensing and Water Resources', ITC (BPC), P.O.Box 6, 7500 AA Enschede, the Netherlands.

23rd International Horticultural Congress (ISHS), Firenze, Italy, August 22-Sept. 1, 1990.
Information: Org. Committa, Societa Orticola Italiana, Via G. Donizetti 6, 50144 Firenze, Italy.

5th International Congress of Ecology, Yokohama City, Japan, August 23-30, 1990.
Information: Dr. A. Miyawaki, Inst. of Environmental Science & Technology, Yokohama National University, 156 Tokiwadai, Hodogaya-ku, Yokohama 240, Japan.

1991

12th International Conference on Tillage for Sustainable Crop Production, IITA, Ibadan, Nigeria, July 8-12, 1991.
Information: Dr. R. Lal, Dept. of Agronomy, 2021 Coffey Road, The Ohio State University, Columbus, Ohio 43210-1086, U.S.A.

INTERNATIONAL TRAINING COURSES/COURS INTERNATIONAUX DE FORMATION/INTERNATIONALE FORTBILDUNGSKURSE

LONG COURSES (more than three months duration):

Post-graduate Training Course in Soil Science, Agricultural University, Aas, Norway

This 10½ months course, starting in August each year and open for candidates with B.Sc.Ag. or B.Sc. degree from developing countries, is aimed to provided theoretical and practical training in the field of soil science and is sponsored by the Norwegian Agency for International Development (NORAD) which provides fellowships to the students.

The course leads to a post-graduate diploma. NORAD, however, provides fellowships to students from East Africa for completion of M.Sc. degree at any recognised university in East Africa provided they have successfully completed the diploma course at Aas.

The course program covers a number of subjects, such as soil physics and management, soil fertility and plant nutrition, soil chemistry, soil survey, soil classification and soil resources, soil analysis, general and soil microbiology, soil and water engineering, statistics, and in the use of personal computer. The language of the course is English.

Information: Dr. B.R. Singh, Coordinator International Post-graduate Program in Soil Science, Box 28, 1432 Aas-NLH, Norway.

International Post-Graduate Course in Soil Science, Ghent, Belgium

A two-year course, leading to a M.Sc. degree in soil science, is open for candidates with a B.Sc. or B.A. degree in earth sciences, agronomy, or a comparable qualification. The first year consists of introductory studies; the second year is devoted to advanced courses and research work in preparation of a thesis. Two options are possible: (1) soil genesis and classification and (2) soil physics and chemistry.

A one-year course, consisting partly of introductory and partly of advanced courses, leads to a diploma of advanced studies in soil science.

Both courses are given in English, but French is also accepted as communication language. The lectures start the second week of October. A restricted number of scholarships for students from developing countries is available through the Belgian Embassies.

Ph.D. and postdoctoral research programmes can be arranged, even as special training programmes.

Information: The International Training Centre for Post-Graduate Soil Scientists, State University of Ghent, Krijgslaan 281, B-9000 Ghent, Belgium.

Cours de 3e cycle en Protection de l'Environnement, EPFL, Lausanne, Suisse

L'Ecole polytechnique fédérale de Lausanne (EPFL) organise dès octobre 1989 son prochain 3è cycle en protection de l'environnement. Le cours d'une durée de 15 mois, est subdivisé en deux parties indépendantes: une formation générale de 6 mois (étude théorique) et un travail de recherche individuel (étude pratique) d'une durée de 9 mois dans l'une des orientations suivantes: protection des sols; écotoxicologie; génie de l'environnement; biotechnologie environnementale; gestion des eaux. Ce cours conduit à l'obtention d'un Certificat de Maîtrise.

Le programme est offert aux titulaires d'un grade universitaire scientifique ou technique d'établissement supérieurs suisses ou étrangers de niveau comparable au diplôme de EPFL. Structuré en modules d'enseignement, le programme permet, à ceux qui le désirent, de conserver une activité professionnelle à temps partiel en étalant la durée des études théoriques sur deux années.

Information: Prof. L.Y. Maystre, Inst. de génie de l'environnement, EPFL-Ecublens, CH-1015 Lausanne, Suisse. tél: (21) 693.27.15.

MSc Programme in Agricultural Engineering, Nairobi, Kenya

Two-year programmes of study leading to the degree of MSc in Agricultural Engineering (including soil and water engineering) or MSc in Land and Water Management are offered. Candidates should have a BSc in Agricultural, Mechanical or Civil Engineering or equivalent qualifications.

Information: Dept. of Agricultural Engineering, Kabete Campus, P.O. Box 30197, Nairobi, Kenya.

MSc-Course in Soil Science and Water Management, Wageningen, the Netherlands

This 2-year course, leading to an MSc-degree, provides an academic training directed towards subjects which are of direct importance for agricultural development. The language of the course is English.

Admission requirements: B.Sc. or M.Sc. degree in agriculture or related science plus entrance exam at Dutch embassy in home country.

The next course will start in September 1989. Applications (with copies of BSc-degree, Academic Transcript etc.) not later than January 1st, 1989.

Other M.Sc. courses are on: Animal Production and Aquaculture; Management of Agricultural Knowledge Systems; Tropical Forestry; and Crops Science (specialisation in crop protection). Subsequent individual Ph.D. research programmes possible.

Information: Director of Studies of MSc-Courses, P.O. Box 453, 6700 AL Wageningen, the Netherlands.

Post-graduate Courses in the Application of Aerospace Photography and other Remote Sensing Techniques in Natural Resource Survey, ITC, Enschede, The Netherlands

One-year courses, starting in September/October in several fields of earth sciences and land resources, e.g. soil survey (with specialisation possibilities in soil erosion and conservation; land evaluation, and remote sensing); geological survey; water resources survey with emphasis on watershed management and conservation or on groundwater resource survey; aerospace survey for applied geomorphology with emphasis on environmental and natural hazard studies; engineering geological survey; forest survey and forestry for rural development; rural and land ecology survey; survey integration for resources development; land information systems for rural applications.

Possibility of follow-up to 1-1½ year M.Sc. course and further Ph.D. studies. The ITC also offers, among others, courses in cartography at technician, technologist and post-graduate levels.

Some of the courses may be followed at the ITC sister institutes in Bogotá-Colombia or Dehra Dun-India.

Information: ITC Student Registration Officer, P.O. Box 6, 7500 AA Enschede, the Netherlands.

International Course on Land Drainage, ILRI, Wageningen, the Netherlands

The annual international post-graduate course on Land Drainage (1989-28th course), given from 20 August to 1 December, has the objective to provide the physical and agricultural backgrounds of drainage systems. The course is offered by the International Institute for Land Reclamation and Improvement (ILRI), in cooperation with the International Agricultural Centre (IAC).

Information: The Director, IAC, P.O. Box 88, 6700 AB Wageningen, the Netherlands

International Atomic Energy Agency, Seibersdorf, Austria

Sponsored training courses on use of isotope techniques in soil research and plant nutrition, e.g. use of N-15 in Soil Science and related disciplines.

Applications must be made through official channels (Ministry of Foreign Affairs, National Atomic Energy Authority, UNDP or Ministry of Agriculture).

Information: IAEA Headquarters, Joint FAO/IAEA Division, Vienna International Center, Wagramerstr. 5, P.O. Box 100, A-1400 Vienna, Austria.

M.Sc. in Conservation of Soil Fertility, Canterbury, England

MSc course for students with biological, chemical or agricultural background. The emphasis is on biotechnological and environmental aspects of agriculture and the efficient use of problem soils. 6 months course work and 6 months independent research project. Taught jointly with Wye College, University of London.

Information: Dr. R.G. Burns, Biological Laboratory, University of Kent, Canterbury, Kent CT2 7NJ, U.K.

M.Sc. and Post-graduate Diploma Courses in Agricultural Engineering and Land and Water Management, Silsoe College, Cranfield Institute of Technology, England.

The course in Soil and Water Engineering is designed for graduates (or equivalent) in engineering, agriculture and other subjects who are interested in agricultural development and are keen to learn how engineering skills can be applied to agricultural problems at field or farm level, in the UK and overseas. Within the MSc programme there are opportunities to take as alternatives to the general course, specialist options in: drainage and reclamation; irrigation engineering; and soil conservation.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc).

The course in Irrigation Water Management is designed to provide the technical, economic and management skills required by those involved in the operation and mangement of irrigation schemes.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc).

The course in Land Resource Management and Planning is designed to meet the needs of those working or intending to work in land resource survey and evaluation or rural and agricultural planning, as planners or land use officers or in project teams.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc).

The course Applied Remote Sensing is being offered in response to the increased need for trained specialists in interpretation and analysis of sensor information to achieve improved management of the earth's resources.

The programme is designed for graduates (or the equivalent) working or intending to work in the UK or overseas in natural resource development or in other fields where the applicaiton of remote sensing can effect improvements in the management of resource development.

Duration: 1 year (2 year programme available for those not qualified for direct entry to the MSc).

All courses start in October each year and lead to a M.Sc. degree or post-graduate diploma. Also specialist short courses are available, in the UK and elsewhere.

Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford MK45 4DT, England.

Post-graduate Training Courses in Soil Science and Plant Biology, Granada/Sevilla, Spain

This 7 month course, starting in January each year and open for non-european post-graduate students, intends to provide the participants with an in-depth knowledge in the cultivation of agricultural crops. Language of the course is Spanish.

Information: Dr. M.L. Garrido, Estacion Experimental del Zaidin, Avenida de Cervantes, Apdo. 419, Granada, Spain.

International Course in Irrigation Engineering, K.U. Leuven, Leuven, Belgium

The program is a joint initiative of the Faculties of Agricultural Sciences and Civil Engineering of the Catholic University at Leuven. The purpose of the program is to train agricultural and civil engineers in advanced irrigation and management of irrigated land. Special emphasis is put on quantitative approaches, for which computer facilities are available. All courses are given in the English language. The course includes lectures, exercises and project design, and a study tour to Southern Europe.

Two types of programs, a 1- and a 2-year cycle, are available. Applicants for the 2-year MSc-program must possess BSc-degree in agriculture or in civil engineering. During the 2nd year of their study the graduate students are requested to do an individual research project (thesis). Qualified participants will be awarded a degree of Master in Irrigation Engineering. Applicants for the 1-year postgraduate program must possess a MSc-degree in agriculture or in civil engineering or an equivalent degree. The diploma of Engineer in Irrigation will be awarded to those candidates that complete the examination tests successfully. Both programs start on the first monday of October.

Information: Course Coordinator, Center for Irrigation Engineering, Kardinaal Mercierlaan 92, B-3030 Leuven (Heverlee), Belgium.

Post-graduate Courses in Soil Science, Univ. of Reading, Dept. of Soil Science, U.K.

1) MSc Course in Soil Science

Programme: A one- or two-year course with options in:

a) Pedology and Soil Survey based on the principles of pedology with emphasis on soil genesis, the conduct of soil surveys, and case studies and site evaluation of soils for alternative land use from a wide range of countries and environments;

b) Soil Chemistry and Fertility based on the mineralogy and chemistry of soils, management of fertilizer use, and special problems of acid, alkaline, saline, waterlogged soils, soils of variable charge; emphasis on practical work;

c) Soil Water Management based on physical principles of soil/plant water relations and agricultural meteorology; emphasis on field problems in rainfed environments and field measurements of water supply.

2) MAgrSc Course in Soil Science - programme of work over two years on principles of soil science and soil management, soil chemistry, physics, pedology and soils survey with emphasis on applications to agricultural problems. First year serves as introductory year to MSc courses.

3) MPhil and PhD programmes are available

Information: The Secretary, Department of Soil Science, University of Reading, London Road, Reading RG1 5AQ, England.

Post-graduate Course in Soil Science, Maracay, Venezuela

This course is aimed to prepare students and professionals at the levels of Soil Science Specialists (Diploma), M.Sc., and Ph.D., with capabilities for creating, planning and executing work on basic and applied research in Soil Science, and to relate research with management, conservation and use of soils in tropical environments.

These objectives are obtainable through a set of basic and optional courses, and the completion of individual research work. The Soil Science Specialization program (one year-Diploma) has three main subjects on Soil Fertility, Soil and Water Conservation, and Soil Survey and Evaluation.

The official language is Spanish, but a broad instrumental knowledge of English is required.

Information: Universidad Central de Venezuela, Facultad de Agronomia, Comision de Estudios de Postgrado, Curso de Postgrado en Ciencia del Suelo, Avda. Principal el Limon, Apartado Postal 4579, Maracay, Estado Aragua, Venezuela, S.A.

Interuniversity Post-graduate Programme in Hydrology, Free University of Brussels, Belgium

First year: leading to a Diploma in Hydrology or a Certificate.

Second year: leading to a Master's degree in Hydrology.

The programme is located at the Faculty of Applied Sciences, Free University Brussels (VUB) in Brussels and is supported by the Universities of Antwerp, Ghent and Leuven.

Courses start in the Faculty of Applied Sciences on September 1st of each year. English is the medium of instruction. Students who obtained a Bachelor's degree (BSc. or Eng.) or its equivalent (Licence) will be considered for admissions.

Information: Prof.Dr.Ir. A. van der Beken, Director of the Hydrology Programme, Laboratory of Hydrology, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium.

Farming Systems Approaches to Upland Conservation and Watershed Management in the Tropics, University of Hawaii.

This four-month course has for general objectives: 1) Develop the knowledge of the interactions among the primary constraints to upland conservation and integrated watershed conservation; 2) Develop a capability to design and conduct integrated research resulting in farming systems which are acceptable to farmers; 3) Develop a capability to use computer technology; 4) Develop a cadre of researchers; and 5) Upgrade English language skills for the trainees.

Phase I of the course is an intensive English course. The second Phase includes principles and field training on integration of regional planning, resource development and utilization, agroecosystem analysis and farming systems. Phase III proposes a field exercise in a small farm setting, while Phase IV is dedicated to the application of microcomputer technology.

Information: S.A. El-Swaify, Chairman, Dept. of Agronomy and Soil Science, College of Tropical Agriculture and Human Resources, University of Hawaii, Honolulu, Hawai 96822

Programme for Ph.D. in Environmental Chemistry and Technology, Lublin, Poland
This Ph.D. programme for specialists in Environmental Chemistry and Technology is offered at the Technical University of Lublin.
Information: Prof. Lucjan Pawlowski, Dept. of Water and Wastewater Technology, the Technical University of Lublin, 40 Nadbystrzycka Str., 20-618 Lublin, Poland.

M.Sc. Course in Soil Conservation and Land Reclamation Engineering, Institute of Irrigation Studies, University of Southampton, U.K.
A 12-month course covering the disciplines involved in soil erosion and land reclamation. The course is designed to give students a sound knowledge of the physical, agricultural and socio-economic aspects of soil conservation.
M.Sc. Course in Irrigation Engineering
This 12-month course, organized by the Institute of Irrigation Studies of the University of Southampton aims at giving an up-to-date understanding of irrigation methods and environments so providing a basis for professional practice in design and operation systems of irrigated agriculture.
Information: The Academic Registrar, The University, Southampton S09 5NH, U.K.

Advances in Biological Nitrogen Fixation, Puerto Rico, USA
Graduate level course which takes place, alternate years 1989, 1991, etc., and where the language is Spanish.
Information: Dr. E.C. Schroder, Dept. of Agronomy and Soils, College of Agricultural Sciences, University of Puerto Rico, Mayaguez, Puerto Rico 00709-5000, USA.

M.Sc. Course in Resource Assessment for Development Planning, University of East Anglia, Norwich, England
A one year inter-disciplinary course combining practical experience in soils and natural resource survey, land evaluation and land use planning.
Specialist options include project analysis, applied remote sensing, geotechnical interpretations of soils information, and farming systems research. A supervised research dissertation provides the opportunity for candidates to work on a development problem from their own country.
Information: Dr. David Dent, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, England.

Cursos de Postgrado en Desarrollo de los Recursos de Aguas y Tierras, Merida, Venezuela
The objective of the course, leading to a M.Sc. degree, is to train the participants in developing the land and water resources within the social, economical and cultural conditions of Latin-America and the Carribbean. The following courses are given: 'Riego y Drenaje de Suelos Agricolas', 'Planificacion y Desarrollo de los Recursos Hidraulicos', 'Obras Hidraulicas'. The duration of the courses is six trimesters and the language Spanish.
Information: CIDIAT, Apartado 219, Merida, Venezuela.

Training course in Soil and Plant Analysis, at the Royal Tropical Institute, Amsterdam, The Netherlands
A 6 month course designed for non-graduate laboratory assistants with an emphasis on practical work. It aims to give participants the necessary skills needed for the most frequently required soil and plant material analyses and for the technical management of small and medium size laboratories engaged in such activities.
The course is based on a number of internationally recognized analytical methods and procedures used for soil mapping, soil fertility assessments, etc. together with recommendations for the proper use of fertilizers. It includes practical training, theoretical background studies and special subjects.
Information: The Course Coordinator, Soil and Plant Analysis, Royal Tropical Institute (KIT), 63 Mauritskade, 1092 AD Amsterdam, The Netherlands.

International Institute for Hydraulic Engineering and Environmental Engineering, Delft, the Netherlands

One year Postgraduate diploma Course in Environmental Science and Technology, october to september, with a possibility for 4-6 months additional study leading to M.Sc. Also courses in: Hydraulic Engineering, Sanitary Engineering, and Water Quality Management.
Information: Prof.Ir. W. Segeren, IHE, P.O. Box 3015, 2601 DA Delft, The Netherlands.

Centro Internacional de Altos Estudios Agronomicos Mediterraneos, Zaragoza, Spain

Curso superior de diez meses sobre Ordenacion Rural en funcion del Medio Ambiente.
Informacion: Instituto Agronómico Mediteráneo de Zaragoza, Apartado 202, 50080 Zaragoza, España.

SHORT COURSES (duration three months or less):

Cours de Formation Specialisée sur les Aménagements de Terrain, Le Havre, France.

Ce cours de formation est destiné aux étudiants qui désirent s'orienter vers les Sociétés de Développement intégré, les plantations, la mise en place d'opérations de terrain, les Instituts de Recherche appliquée et tout le secteur agro-commercial de l'irrigation. Il comprend des études de microbiologie générale et de microbiologie du sol, de géologie, de pédologie, de topographie et d'hydrologie et irrigation.
Information: ISTOM, CHCI Quai George V, 76600 Le Havre, France.

College of Soil Physics, Trieste, Italy

The course is intended for students and professionals with varied backgrounds in engineering, agriculture and environmental sciences. It will cover Physical properties of Soils, The Soil-Water-Plant-Atmosphere continuum and Soil and Water Conservation. Adequate knowledge of English necessary for this course which is open to scholars from countries who are member of United Nations, IAEA or Unesco.
Information: International Centre for Theoretical Physics, College on Soil Physics, P.O. Box 586, I-34100 Trieste, Italy.

International Course on Soil Reference Collections, ISRIC, Wageningen, the Netherlands

This eight-weeks course is organized by the International Soil Reference and Information Centre in cooperation with Unesco. It responds to requests by organizations planning to set up national soil reference collections and associated soil databases. The training includes taking and impregnating soils; the display of soil monoliths; the presentation of data and information in an exhibition; the structure of computerized soil databases; the use of the material for purposes of soil correlation, education, and rural planning.

The course is held every other year; the next one will be in May-June 1989.
Information: the Director, ISRIC, P.O. Box 353, 6700 AJ Wageningen, the Netherlands.

International Fertilizer Development Center, USA

Two and three-week courses held annually in USA and other centers. Topics covered:

1. Data Collection, Analysis and Projections for Fertilizer Sector Studies;
2. *Statistical and Economic Analysis of Fertilizer Experimental Data (French and English);
3. *Fertilizer Marketing Management Training Programme;
4. *Fertilizer Marketing Training Programme;
5. *Modern Trends in Fertilizer Distribution and Handling;
6. Computer Simulation for Crop Growth and Fertilizer Responses;
7. Soil Testing and Soil Fertility Management;
8. *Relevant Fertilizer Supply Strategies (French and English);
9. Technical Management of Fertilizer Production Units;
10. *Finance for Non-Finance in Fertilizer Sector

Courses helded in Muscle Shoals, Alabama, USA except for those marked * which are held in Africa, Asia, Latin America or Europe. Languages offered are English, French and Spanish.
Information: International Fertilizer Development Centre, P.O. Box 2040, Muscle Shoals, Alabama 35662, USA.

Courses in Agricultural and Rural Development by the USDA and US Universities.
4-8 weeks courses are offered in Agriculture and Rural Development.

Soil Testing, Soil Classification and Fertility Management (8 weeks), Problems and Practices on Irrigation Systems (8 weeks).

Other courses are available in Resource Development of Watershed Lands, Small-Scale Irrigation and Water Management, Tree Establishment in Arid Areas for Fuelwood and Conservation, and Range Management and Forage Production.
Information: Ralph Otto, Acting Director, International Training Division, USDA/OICD, Washington, D.C. 20250-4300, U.S.A.

Courses in Project Planning and Management, Bradford, England.

These 3-month courses are designed for overseas participants who have responsibility for the identification, preparation, appraisal and implementation of projects. The course programme includes: Agricultural and Rural Project Management; The planning and appraisal of agro-industrial projects; Agricultural Project Planning.
Information: The Director, Development and Project Planning Centre, University of Bradford, Bradford, West Yorkshire BD7 1DP, England.

Advanced Soil and Plant Analysis Training Workshop, Ibadan, Nigeria.

The primary objective of the Workshop is to train laboratory directors and supervisors from tropical regions in the management, instrumentation and techniques for soil and plant analysis. The Workshop aims to train laboratory personnel in the methods and procedures for soil and plant analysis. The laboratory directors who attend the advanced training workshop are expected to provide in-house training or country training courses for laboratory technicians from their region.

The course will be conducted in English and French in 1989 from 8 May – 2 June.
Information: H. Gasser, Director of Training, IITA, Oyo Road, P.M.B. 5320, Ibadan, Nigeria.

Course in Irrigation and Soil Management and Agrochemicals in Arid and Semi-arid Regions, Bet Dagan, Israel.

This 2-month post-graduate course will be held at the Volcani Center, Bet-Dagan, from October till December 1989. It focusses on the basic problems of water and soil properties, plant-soil-water relationship, irrigation technology, crop water requirements, salinity problems in irrigation and economic considerations in irrigation designs, as well as on behaviour of agro-chemicals in soils; Use of organic and inorganic agro-chemicals; Methods of application; Fertigation and chemigation, wheat control and soil sterilization.
Information: Dr. K.M. Schallinger, Director – International Courses, The Volcani Center, P.O. Box 6, 50250 Bet Dagan, Israel.

Courses in Soil and Plant Analysis. University of Reading, England.

One or more six-week courses in Soil and Plant Analysis are held annually in Reading, England during the summer (April-September). The courses are offered jointly by the Department of Soil Science, University of Reading (Prof. Alan Wild) and the Tropical Soils Analysis Unit of the Land Resources Development Centre, ODA (Mr. Richard Baker).

The courses are aimed at giving experienced, practising analysts in soil science and plant nutrition greater understanding of the management of a modern agricultural analytical laboratory, including building design, sampling procedures, general and specific analytical techniques, simple instrument maintenance and interpretation of data. At least fifty per cent of the course is spent on practical work and visits to agricultural laboratories of major commercial companies and research. The fee will cover accommodation which will be in Halls of Residence at the University.
Information: Dr. A.A. Jones, Department of Soil Science, University of Reading, London Road, Reading, RG1 5AG, England.

NEW PUBLICATIONS
NOUVELLES PUBLICATIONS
NEUE VERÖFFENTLICHUNGEN

Titles of new publications are listed here for information. Orders can not be handled by the ISSS Secretariat but should be placed through a bookstore or directly with the publishers. Nearly all publications mentioned can however be viewed at the seat of the Society, c/o the International Soil Reference and Information Centre (ISRIC) in Wageningen, the Netherlands.

Les titres de nouvelles publications sont mentionnés à titre d'information. Veuillez adresser vos commandes non pas au Secrétariat de l'AISS, mais à une librairie ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent être consultées au siège de l'AISS, p/a Centre International de Référence et d'Information Pédologique (ISRIC) à Wageningen, Pays-Bas.

Die Titel neuer Veröffentlichungen sind hier zu Information angeführt. Bitte richten Sie Ihre Bestellungen nicht an das IBG Sekretariat sondern an den Buchhandel oder direkt an die Verlage. Fast alle Veröffentlichungen sind jedoch zu besichtingen an der Stelle der IBG, p/a Internationales Bodenreferenz und Informations Zentrum (ISRIC) im Wageningen, Holland.

Ernährungsstörungen bei Kulturpflanzen, Entstehung, Visuelle und Analytische Diagnose. Werner Bergmann. VEB Gustav Fischer Verlag, Jena, 1988, 762 p. ISBN 3-334-00248-9.

The second enlarged edition of NUTRIENT STRESS ON CULTIVATED PLANTS, ASSESSMENT, VISUAL AND ANALYTICAL DIAGNOSIS provides the necessary information to understand the principles of mineral nutrition of plants. The book consists of the text on the unbalance of nutrients, both deficiency and excess, in crop plants, flowers and trees, and colour pictures showing changes in the growth and development of plants under various nutrient stresses. The author described both major and micronutrients, based on his great experience and on the review of about one and half thousand publications of which some were published in 1987.

Physiological processes involved in the transport of nutrients within plant tissues, and mechanisms of their activation and/or inactivation are discussed. Plant injuries reflected improper nutrition are presented in detail. Plant resistance to all nutrients, and especially to their excess is presented for separated cultivars, and in relation to both bacterial diseases and elemental interactions. Diagnosis of nutrient status based on plant analyses and/or soil analyses is discussed in detail.

The most impressive and informative are the 945 colour pictures showing changes in growth and development of plants under nutrient stress (from deficiency to toxicity). The description of almost each picture provides information on the nutrient content of plant tissues, and on soil kind and its properties (e.g. pH, clay content, organic matter content). The imbalance in the supply of following elements is presented on pictures: N, P, S, K, Ca, Mg, B, Mo, Cu, Fe, Mn, and Zn. In addition, pictorial presentation is given for the toxicity of heavy metals, of gaseous compounds (SO_2, NH_4, Cl, HF, and NO_x), of herbicides, and of salts (NaCl). The toxicity symptoms are also given for various groups of plants such as ornamental plants, forest trees, and tropical and subtropical vegetation. Each picture is described in German, English and Russian.

The book comprises a most valuable data base to study all problems of plant nutrition and plant intoxication and will meet the requirements of a wide range of users, especially students of agricultural colleges, agronomists, botanists, physiologists, ecologists, and environmentalists. The book is nicely edited, and both the author and the editor are to be congratulated on this well-done job.

Price: DM/DDR: 96.00; DM/FRG: 109.00

Orders to: VEB Gustav Fischer Verlag, Villengang 2, 6900 Jena, German Democratic Republic.

A. Kabata-Pendias, Pulawy, Poland

Arid Lands. Today and Tomorrow. Proceedings of an International Research and Development Conference, Tucson, October 1985. E.E. Whitehead, C.F. Hutchinson, B.N. Timmerman and R.G. Varady, editors. Westview Press, Boulder and Belhaven Press, London, 1988, xix + 1435 p. ISBN (U.S.A. ed.) 0-8133-7536-3; (U.K. ed.) 1-85293-031-4. Hardbound.

There is no doubt that one of the greatest challenges facing both national governments and the international community is how to improve on a long-term sustainable basis the quality of life of poor people living in arid regions, especially in the rural sector of the developing world. It has been estimated that the rural poor living in dry lands has grown from 500 million in 1977 to 800 million in 1983.

In 1960 Unesco marked the end of its Major Arid Lands Project with a conference in Paris. Until then the nature of arid lands and the problems of their residents has not been addressed in such a comprehensive and universal manner. Interest in arid lands has grown widely since then: the U.N. Conference on Desertification held in Nairobi in 1977 drew much interest.

The primary objective of the present conference in Tucson, Arizona in October 1985 was to bring together involved researchers and development practitioners to gain a fresh understanding of how to sustain arid

zone productivity and ensure future habitability. As spelled out by the conference steering committee, this was to be achieved through the integration of 1) recent research advances from numerous disciplines; 2) new technologies and innovative applications of science; 3) recent enhancement of our comprehension of the social, biological and physical dynamics of desert ecosystems derived from various international research efforts; and 4) experiences gained from major antidesertification efforts since 1970 in the Sahel and elsewhere.

From the 146 papers presented at the conference, 128 are included in the proceedings in the following chapters: plenary session, climate, underutilized plants, irrigation and water management, biosphere reserves, water policy, animal resources, desert ecology, crop physiology and agronomy, urban environments, desertification, land intensification, ecology of nomadic Turkana pastoralists, halophytes, reclamation, small-scale water management, culture and demography, soils ,general geography, range management, economic development, new crops, and desert riparian systems and reclamation.

This monumental work on arid lands is of interest to a wide variety of scientists.

Price: £ 50.00 in the U.K.

Orders to: Belhaven Press, 25 Floral Street, Covent Garden, London WC2E 9DS, England; *or:* Westview Press, 5500 Central Avenue, Boulder CO 80301, U.S.A.

Aquatic Surface Chemistry. Chemical Processes at the Particle-Water Interface. W. Stumm, editor. Wiley Interscience. John Wiley & Sons, New York, Chichester, 1987, xix + 520 p. ISBN 0-471-82995-1.

The aim of this book is to give an account of current research and applications on chemical processes occurring at the interfaces of water with natural occurring solids. The processes discussed and the concepts presented are applicable to all natural waters (oceans and fresh waters as well as soil water systems and sediment water systems) and to the surfaces of natural solids such as minerals, soils, sediments, biota, and humus. An appreciation of the physical chemistry of these interfaces and the reactions controlled by them is a prerequisite for understanding many of the important processes in natural systems. The geochemical fate of most trace elements is controlled by the reaction of solutes with solid surfaces; simple chemical models for the residence time of reactive elements in oceans and lakes are based on the partitioning of species between soluble and sedimenting aquatic particles.

The authors – electrochemists, surface and colloid chemists, geochemists, oceanographers, aquatic chemists, soil chemists, and environmental engineers – have attempted to write their chapters in such a way as to assist the readers (students, geochemists, water and soil scientists, environmental engineers) in understanding general principles as well as to guide research in aquatic surface chemistry. The interactions of solutes with the solid surfaces are looked at from a mechanistic and dynamic point of view rather than a descriptive one. Emphasis is on explanation and intellectual simulation rather than on extensive documentation.

This volume progresses from theoretical models and laboratory studies to applications in natural water, soil, and geochemical systems, emphasizing those processes that regulate the distribution and concentration of elements and compounds.

In addition to the theory of the electric double layer typically used to interpret surface chemical phenomena, it cites specific chemical factors to explain many phenomena in natural systems and derive rate laws on geochemical processes such as the dissolution and weathering of rocks and the formation of minerals.

The book also examines: complementary modes of the different mechanisms that contribute to the overall energy of adsorption; the dynamics of particles, especially the role of particle-particle interactions (coagulation); and the effect of particles on the catalysis of redox reactions and heterogeneous organic reactions and on photochemically induced processes involving particles.

Understanding how geochemical cycles in natural water systems are coupled by particles and organisms may aid our understanding of global ecosystems and on how the interacting systems may become disturbed by civilization. After all, the inorganic and physical processes and the biological processes that are analyzed here at the microlevel are of influence on the major geochemical cycles.

Given the degeneration of our environment, it is imperative that rigorous criteria of environmental quality be developed, realistic standards be established, and technological progress be tailored to meet them. This book is an important step in this direction.

Price: £ 62.50 or US$ 95.00

Orders to: John Wiley & Sons, Baffins Land, Chichester, West Sussex, PO19 1UD, U.K.; *or:* John Wiley & Sons, 605 Third Avenue, New York NY 10016, U.S.A.

Cellulose Decomposition and Soil Fertility. J. Szegi. Akadémiai Kiadó, Budapest, 1988, 186 p. ISBN 963-05-4575-6. Hardbound.

The theoretical and practical significance of the microbiological decomposition of cellulose is well known. A considerable part of the cosmic energy bound by the plants is stabilized in cellulose: this is why its transformation has such an importance in the processes of soils. As the source of energy for most of the microorganisms living in the soil is, directly or indirectly, cellulose and its transformation is linked to that of humus, the organic matter of the soil, its role and importance are considerable from the points of view of maintaining and increasing the fertility of soils, too. This accounts for the large number of written sources dealing with the characterization of cellulolytic microorganisms living in the soil.

The present book deals with the biochemistry of cellulose decomposition, and provides a survey of the basic groups of cellulose decomposing microorganisms and the regularity of their spread under different climatic and soil conditions.

It gives information on the effect of different ecological factors, on the activity of the cellulose decomposers in pure cultures and in the soil. The interrelationships of cellulose decomposing microorganisms with other representatives of microbial communities are also discussed. Finally a characterization of cellulose decomposing activity in different soils is given as a widely used method for determination of soil biological activity. It may be of interest not only to researchers dealing with cellulose but to environmentalists especially those concerned with soil science.

Price: US$ 25.00

Orders to: Akadémiai Kiadó, P.O. Box 36, H-1361 Budapest, Hungary.

Nutritional Quality of Cereal Grains: Genetic and Agronomic Improvement. Agronomy Monograph No. 28. R.A. Olson and K.J. Frey, editors. American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Madison, 1987, 511 p. ISBN 0-89118-092-3. Hardcover.

Cereal grains provide two-thirds of the calories and half of the protein in the diets of humans. Additionally, they are major feedstuffs for both monogastric and ruminant livestock. Therefore, the production *and* nutritional quality of this series of crops has immense impact directly and indirectly on the well being and health of the human population on earth.

Because cereals are so significant in human diets, research and policy decisions about their production impact every household, especially in developing countries. For example, the protein of all cereals, except oat and rice, is notoriously poor in quality because of deficiencies in the essential amino acids lysine and tryptophan. High-lysine genes have been discovered in maize, sorghum, and barley, but these genes cause changes in other traits as well, including sizable reductions in yield. Thus, whether to use high-lysine genotypes of cereals that result from plant-breeding research is a serious decision for subsistence farmers.

As a result of the growing importance of cereals to our diets, it was decided to develop the present monograph. It presents unbiased evaluations of the nutritional values of the major cereals and assesses the opportunities and limitations that exist for genetic and agronomic manipulation of these nutritional values. The compilation and treatment of existing data provides background for (i) assessing deficiencies in research data, (ii) proposing solutions to regional and world nutritional problems, and (iii) suggesting research and development programs for proposed solutions involving cereals.

Price: US$ 37.50, plus $ 0.75 per book on orders outside the U.S.A. Prepayment required.

Orders to: ASA, CSSA, SSSA Headquarters Office, attn. Book Order Dept., 677 South Segoe Road, Madison WI 53711, U.S.A.

IMIN Bibliography. Documents in the Irrigation Management Information Network (IMIN) Database. International Irrigation Management Institute, Digana Village, Sri Lanka. DDC: 016.6317.

The International Irrigation Management Institute (IIMI) was established in 1984 with the goal of strengthening the national capacity of developing countries to improve irrigation performance through better management. In working towards this goal, IIMI has developed a three-part program which includes: 1) research, 2) professional development, and 3) communication and information exchange.

In the area of information exchange, the Irrigation Management Information Network (IMIN) was established in 1986 to share information and literature with collaborating organizations, researchers, and practitioners in the field of irrigation management.

Documents on irrigation management and related topics at three collaborating units were catalogued and the information put into a microcomputer-based bibliographic database. It was discerned that this unique collection should be made available for dissemination to a wider audience concerned with irrigation management.

Although the majority of the documents cited in the bibliography deal with irrigation management, it also includes some documents of a general nature that form part of IIMI Headquarters library holdings. The bibliography can be used as a 'card catalog' for finding material in the IIMI Headquarters library.

The citations are organized according to broad Dewey Decimal Classification divisions. As the majority of the documents fall in the area of irrigation management, that subject has been further expanded by IIMI to better distinguish the various aspects. Abstracts are included when feasible.

In addition to the categorical divisions, each citation has been assigned specific keyword and geographical terms. These keyword and geographical indexes bring together the citations on more specific topics irregardless of the category in which they are located in the main body of the bibliography. Author and title indexes are included to enhance access to the individual citations.

Requests to: Library and Documentation Service, IIMI, Digana Village via Kandy, Sri Lanka.

Biogeochemistry of an oak-woodland ecosystem in the Netherlands affected by acid atmospheric deposition. Agricultural Research Report 930. N. Van Breemen, W.F.J. Visser and Th. Pape, editors. Pudoc, Wageningen, 1988, 197 p., and 1 microfiche. ISBN 90-220-0916-5.

This book describes the results of three years (1981-1984) of biogeochemical monitoring of four plots in a small oak woodland in the east-central part of the Netherlands. The original oak coppices was cut

for the last time in 1939, and has been largely left to itself since then. On account of a unique variation in soil composition, with both calcareous and strongly acidic soils within a short distance in the same forested area, the woodland is particularly interesting for scientific study. From 1956 to 1964, a wealth of data on vegetation and soil fauna was collected, while from 1981 to 1987, the fluxes of major elements from the atmosphere and through the soil at various depths were studied. The book describes how a combination of hydrologic monitoring and modelling and of soil solutes monitoring was used to arrive at a chemical balance for the soils in question, and discusses the results.

Soil composition is strongly influenced by atmospheric inputs of N from ammonium sulphate, amounting to 50-60 kg/ha.year. Strong nitrification, even at low pH, is responsible for enhanced soil acidification with soil solutions dominated by aluminum nitrate. The dominance of nitrate suggests that the ecosystems are close to 'saturation' with N. Saturation with N seems to be reached at one site, where biomass production is much lower than elsewhere, and where the ecosystem apparently is unable to absorb the incoming atmospheric N.

The monitoring results have been summarized in tabular and graphical form, and the complete data are included in microfiche form.

Price: Dfl 85.00

Orders to: Pudoc, P.O. Box 4, 6700 AA Wageningen, the Netherlands. In U.S.A. and Canada: UNIPUB, 4611-F Assembly Drive, Lanham MD 20706-4391, U.S.A.

Advances in Soil Science. Volume 7. B.A. Stewart, editor. Springer-Verlag, New York, Berlin, 1987, ix + 228 p. ISBN 0-387-96670-6 (U.S. ed.), 3-540-96670-6 (F.R.G. ed.). Series: ISSS 0176-9340. Hardcover.

This series was established to provide a forum for leading scientists to analyze and summarize the available scientific information on a subject, assessing its importance and identifying additional research needs. It is not the purpose of the series to report new research findings because there are many excellent scientific journals for that need. Communications in scientific journals, however, are generally restricted to short and technical presentations. Therefore, it fills a gap between the scientific journals and the comprehensive reference books in which scientists can delve into a particular subject relating to soil science. Contributors are asked in particular to develop and identify principles that have practical applications to both developing and developed agricultures.

The present volume contains chapters on the modeling of flow, transport and crop yield in spatially variable fields; pedogenesis in the Great Plains of North America; legume winter cover crops; influence of sludge organic matter on soil physical properties; and on an efficient management system for Indian drylands.

Price: US$ 73.00

Orders to: see below.

Advances in Soil Science. Volume 8. B.A. Stewart, editor. Springer-Verlag, New York, Berlin, 1987, ix + 221 p. ISBN 0-387-96670-6 (U.S. ed.), 3-540-96670-6 (F.R.G. ed.). Series: ISSS 0176-9340. Hardcover.

This volume comprises chapters on: ionic factors affecting aluminum transformations and the impact on soil and environmental sciences; productivity of drylands; a conceptual model of changes in soil structure under different cropping systems; and on Vertisols in India.

Price: US$ 69.00

Orders to: in North America: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A. *Elsewhere:* Springer-Verlag, Tiergartenstrasse 17, D-6900 Heidelberg, Fed. Rep. of Germany.

Soil Erosion Research Methods. R. Lal, editor. Soil and Water Conservation Society, Ankeny and International Society of Soil Science, Wageningen, 1988, xiii + 244 p. ISBN 0-935734-18-X

The international community is becoming increasingly aware of the dangers that soil erosion and sedimentation pose to sustainable agriculture and the overall stability and quality of the environment. Formation of Subcommission C: Soil Conservation and Environment by the ISSS not only recognized these dangers but also reflects a commitment by all soil scientists to use their skills in developing effective solutions.

This publication is one of the first major activities of this subcommission. Members of the subcommission and other interested scientists perceived the need for a volume that would provide an overview of research methods to assess the magnitude and impact of soil erosion. They believed that such a publication would help disseminate proven technology while also stimulating research on better methods of assessing the damages of erosion throughout the world and of developing and applying soil-saving practices.

The book includes 10 chapters. The first addresses the issues of evaluating soil erosion problems with unstandardized methodologies and of data precision and reliability. Chapters 2 through 9 deal with methodologies involved in the laboratory, field runoff plots, and large river basins; the design and use of rainfall simulators; modeling soil erosion processes; methods of monitoring erodibility and erosivity and of the canopy cover; and assessing the impact of erosion on productivity. The last chapter discusses the important topic of wind erosion and available techniques to measure and predict its magnitude.

Price: US$ 16.00 or Dfl 35.00, including postage. Prepayment required.

Orders to: SWCS, 7515 NE Ankeny Road, Ankeny, Iowa 50021-9764, U.S.A.; *or:* ISSS, P.O.Box 353, 6700 AA Wageningen, the Netherlands.

Drought and Hunger in Africa: Denying Famine a Future. M.H. Glantz, editor. Cambridge University Press, Cambridge, New York, 1988, xx + 457 p. ISBN 0-521-36839-1. Paperback.

Now in paperback, this timely volume assesses the impact of drought as a major factor in the agrarian crisis of sub-Saharan Africa. This book discusses the African environment, the socio-political factors that generate famine, gives case studies of the effects of famine on these social structures and gives possible lessons to be learnt on dealing with famine worldwide.

The book is an outcome of a colloquium held in Boulder in August 1985. Part I is a general introduction to the problems and prospects for development in Africa. Part II focusses on internal and external factors which foster or hinder processes that can turn food production shortfalls into famine. The third and fourth part contain case studies from various African regions. The final chapter provides a brief overview of the discussions held at the colloquium and on the preceding chapters.

Price: £ 40.00 (Hardback) or £ 20.00 (Paperback)

Orders to: Cambridge University Press (CUP), Trumpington Street, Cambridge CB2 1RP, England; *or: CUP, 32 East 57th Street, New York NY 10022, U.S.A.*

CRC Handbook of Chemistry and Physics. 69th edition. E.C. Weast, editor-in-chief. CRC Press, Boca Raton, 1988, 2466 p. ISBN 0-8493-0469-5.

The 75th anniversary edition of this valuable reference book of chemical and physical data contains up to date information in chapters on: mathematical tables; the elements and inorganic compounds; organic compounds; general chemical data; general physical constants; tables on miscellaneous subjects; and an enlarged index. Compared to the previous edition, considerable progress has been made in converting pertinent data into SI units.

Price: £ 57.50

Orders to: Wolfe Medical, 2-16 Torrington Place, London WC1E 7LT, England; *or:* CRC Press, 2000 Corporate Boulevard NW, Boca Raton FL 33431, U.S.A.

Soil Survey Techniques. SSSA Special Publication Number 20. W.U. Reybold and G.W. Petersen, editors. Soil Science Society of America, Madison, 1987, ix + 98 p. ISBN 0-89118-783-9.

The purpose of this book is to inform field soil scientists of new techniques that can help enhance the quality of soil surveys and improve the efficiency with which they are made. It is written primarily for the field soil scientist who makes soil surveys. Others involved with natural resources, hydrology, and archaeology, may find some of the techniques described useful in their work.

In this book members of the National Cooperative Soil Survey (NCSS) describe tools that have been fully tested and proven to be effective by field soil scientists working in project soil surveys. Not only have they found these techniques important to increasing their efficiency in making soil surveys, the results also demonstrate an enhanced quality of services and products being provided.

Technology discussed in the book includes video image analysis, ground penetrating radar applications, microcomputer processing and analysis, and digital elevation model and spectral data use. New techniques for describing surface soil properties are presented.

The techniques described herein are only examples of what is going on in the soil survey. The authors hope that others will be encouraged to write about tools and techniques they are using or are aware of.

Price: US$ 15,00, plus 1.50 per book on all orders outside the U.S.A. Prepayment required.

Orders to: SSSA Headquarters Office, Attn. Book Order Dept., 677 South Segoe Road, Madison WI 53711, U.S.A.

Quaternary Geology for Scientists and Engineers. Ellis Horwood Series in Applied Geology. J.A. Catt. Ellis Horwood, Chichester, 1988, 340 p. ISBN 0-85312-915-0 (Ellis Horwood ed.); 0-470-21135-0 (Halsted Press ed.).

Many professional geologists encounter Quaternary deposits, weathering and erosion effects in their work, and need to interpret them. The Quaternary illustrates very clearly the vital importance of understanding and applying the complete range of stratigraphic principles, which are important to geologists in the engineering and related industries.

This book describes the full spectrum of geological processes which occurred during different climatic conditions during the Quaternary, and the characteristics of sediments, soils and landscape features that resulted: it describes their classification, mapping and correlation, emphasizing the contributions made by related disciplines (e.g. soil science, archaeology, geomorphology, glaciology). It covers the analytical techniques now used for dating Quaternary deposits and events, and evaluates the significance of Quaternary features for engineering geologists and other professionals who are unfamiliar with recent advances.

The wide range of analytical laboratory techniques applicable to Quaternary deposits cannot be described in detail, but their uses and limitations are discussed so that the field geologist can decide when it is worth calling upon the services of an expert analyst.

Price: £ 39.50

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* Halsted Press, a division of John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Soil Fertility. H.D. Foth and B.G. Ellis. John Wiley & Sons, New York, Chichester, 1988, xi + 212 p. ISBN 0-471-82507-7. Paperback.

This book has been written to serve as a text for a soil fertility course at the junior-senior level and at the master's level for students who have had an introductory course in soil science and several basic science courses. The authors have chosen to cover the most essential topics and not produce an all-inclusive text to serve as a reference book. The treatment is an evolutionary one which considers soils as dynamic, ever-changing bodies.

There has been major progress over the past three decades in the accumulation of new knowledge and development of theories in the fields of soil science, agronomy, plant physiology, and plant nutrition. Thus, the production of this book has been an exciting challenge to integrate the most recent information about soil fertility with the knowledge and theories about weathering and soil evolution, mineralogy, exchange chemistry, soil taxonomy, fertilizer technology, and plant growth and nutrition.

Price: £ 19.95 in U.K.

Orders to: see below

Biology of Anaerobic Microorganisms. A.J.B. Zehnder, editor. Wiley Series in Ecological and Applied Microbiology. John Wiley & Sons, New York, Chichester, 1988, xii + 872 p. ISBN 0-471-88226-7. Bound.

This series of monographs and edited volumes is being produced to facilitate the exchange of information relating to the microbiology of specific habitats, biochemical processes of importance in microbial ecology, and evolutionary microbiology. The series will also publish texts in applied microbiology, including biotechnology, medicine, and engineering, and will include such diverse subjects as the biology of anaerobes and thermophiles, paleomicrobiology, and the importance of biofilms in process engineering.

During the past decade we have seen dramatic advances in the study of microbial ecology. Microbial ecologists not only cooperate with colleagues in other disciplines but also study the comparative biology of different habitats. Modern microbial ecologists, investigating ecosystems, gain insights into previously unknown biochemical processes, comparative ecology, and evolutionary theory. They also isolate new microorganisms with application to medicine, industry, and agriculture.

Anaerobic organisms have attracted the curiosity of scientists for over 100 years. Anaerobes have long been used in the production of fine and bulk chemicals. More recently, they have found application in agriculture, energy conversion, and water and wastewater treatment. The great diversity of anaerobic microorganisms and their manifold metabolic possibilities represent a storehouse for new biotechnological processes and applications.

There is almost no natural system, or environment created by man, not significantly affected by the activity of anaerobes – they are, in fact, crucial to the evolution of life on Earth. The present book explores the potential of anaerobes in order to increase our knowledge of the fundamental processes of life, and to open new views on the scientific and commercial exploitation of these microbes. An international group of researchers in this increasingly active field presents fourteen chapters which represent the state-of-the-art in molecular, ecological and applied aspects of organisms living in the absence of molecular oxygen. Readers will find this book to be a comprehensive source for information on (1) the interplay between the thermodynamic state and the microbiology of anaerobic systems; (2) the molecular mechanisms of anoxic photosynthesis, denitrification, manganese and iron reduction, hydrolysis and fermentation reactions, acetogenesis, sulfate reduction and methanogenesis; (3) the ecological and biogeochemical aspects of the microorganisms involved in these and other anoxic reactions; and (4) prospects for the application of anaerobes in the environment and in biotechnological processes.

Price: £ 77.50 in U.K.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Conservation in Africa. People, Policies and Practice. D. Anderson and R. Grove, editors. Cambridge University Press, Cambridge, New York, 1987, ix + 355p. ISBN 0-521-34199-X. Hardback.

This is not a soils book. It provides an inter-disciplinary look at the practice and policies of conservation in Africa. Bringing together social scientists, anthropologists and historians with biologists for the first time, the book shed some light on the previously neglected but critically important social aspects of conservation thinking. To date conservation has been very much the domain of the biologist, but the current ecological crisis in Africa and the failure of orthodox conservation policies demand a radical new appraisal of conventional practices. This new approach to conservation the book argues, cannot deal simply with the survival of species and habitats, for the future of African wildlife is intimately tied to the future of African rural communities. Conservation must form an integral part of future policies for human development. The book emphasises this urgent need for a complementary rather than a competitive approach. It covers a wide range of topics important to this new approach, from wildlife management to soil conservation and from the Cape in the nineteenth century to Ethiopia in the 1980s.

It is interesting reading for soil scientists concerned about people and conservation in Africa.

Price: £ 35.00

Orders to: Cambridge University Press, the Edinburgh Bldg., Shaftesbury Road, Cambridge CB2 2RU, England; *or:* 32 East 57th Street, New York, NY 10022, U.S.A.

The Microbiology of Terrestrial Ecosystems. B.N. Richards. Longman Scientific and Technical, co-published in the U.S.A. with John Wiley & Sons, New York.

Most of the organisms essential to man's continues existence on this planet are, paradoxically, invisible to the naked eye. Perhaps because of this, ecological textbooks tend to neglect microorganisms and concentrate instead on the more familiar plants and animals. This book seeks to redress the imbalance by emphasising the role of soil organisms, especially fungi and bacteria, in maintaining productive and stable ecosystems.

The book stresses the interrelationships between soil microbes and plants in functional activities, such as the capture and transfer of energy and the circulation of chemical elements in ecological systems. It begins with ha review of basic concepts followed by a description of the soil as a living entity. A brief survey of soil characteristics is followed by an overview of the major life forms found therein, and of the manner in which they satisfy their requirements for energy and nutrients. Pattern and process are seen as complementary facets of ecosystem development, and particular attention is paid to the role of microbial interactions in the operation of the soil subsystem. The remainder of the book deals with various kinds of association between plants and microbes and the significance of these relationships for the cycling of nutrients in the soil-plant-atmosphere system. Separate chapters are devoted to the microbiology of the rhizosphere, mycorrhiza, and root nodule symbioses.

Primarily intended as a main text for courses in soil microbiology and the ecophysiology of plant communities, this book will also provide supplementary reading for students of ecology, soil science, environmental studies, microbiology and resource management.

Price: £ 17.95

Orders to: Longman, Fourth Avenue, Harlow, Essex CM19 5AA, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Vertisols: Their Distribution, Properties, Classification and Management. Soil Management Support Services Technical Monograph N°18. L.P. Wilding and R. Puentes, editors. Texas A&M University, 1988, x + 193 p.

This text is an outgrowth of a symposium held jointly by the America Society of Agronomy and the Soil Science Society of America in Chicago in 1985. It emphasized the need to further exchange ideas on Vertisol distribution, properties, classification and management. The book includes 10 chapters illustrating state-of-knowledge on Vertisol distribution, minimum data sets for technology transfer, proposed modifications in Soil Taxonomy placement, fundamental shrink-swell processes, models of soil genesis, measurements of soil moisture, soil management under diverse agroecological and socioeconomical constraints, nutrient balance and kinetics, and soil resource conservation.

Price: US$ 25, including mailing charges. Prepayment required.

Orders to: Dr. L.P. Wilding, Soil & Crop Sciences Dept., Texas A&M University, College Station, TX 77843, U.S.A.

Agroclimatological Data for Latin America and the Caribbean. FAO Plant Production and Protection Series N° 24. FAO, Rome, 1985. ISBN 92-5-002294-8.

Over the past decade a considerable amount of agroclimatological data has been collected at FAO. This information on over 3200 stations around the world has served as a base for many FAO documents, in particular the agroclimatology surveys, the report on the agro-ecological zones and the activities derived from these projects.

For use within FAO and an increasing demand for this type of information by many specialists and institutions has made the publication of this information necessary.

The following values of agrometeorological and climatological parameters are given: monthly and yearly average precipitation; average, mean maximum and mean minimum, mean day, and mean night temperatures; vapour pressure; wind speed; sunshine; total radiation; and monthly and yearly potential evapotranspiration. Furthermore, data are given on the type of the humid season, number of dry, intermediate and wet days, and total length of growing season. In addition to the average values, rainfall probabilities have been given special attention. The volumes on Africa have already been announced in the Bulletin. The present compilation of Latin America and the Caribbean contains information on about 800 stations. All texts are in English, French and Spanish.

Price: US$ 44.00

Orders to: see below.

Agroclimatological Data for Asia. Vol.1 A-J, Vol.2 K-Z. FAO Plant Production and Protection Series N° 25. FAO, Rome, 1987. ISBN 92-5-002513-0 (vol.1), 92-5-002514-9 (vol.2).

This compilation contains the data mentioned above of over 1200 stations distributed throughout 39 countries or territories of the Asian continent. All texts are given in English and French.

Price for both volumes: US$ 60.00

Orders to: FAO Sales Agents throughout the world; *or:* Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

L'irrigation au Sahel. La crise des périmètres irrigués et la voie haalpulaar. G. Diemer et E. van der Laan. Eds. Karthala, Paris, 1987, 226p. ISBN 2-86537-193-X.

Si l'Afrique connaît plusieurs formes viables d'agriculture irriguée engendrées par l'initiative paysanne, les périmètres d'irrigation dus à des actions *externes* se soldent rarement par des succès. C'est que l'ingénieur part des objectifs des investisseurs, des fonctionnaires et des planificateurs, et se voit confier la tâche de mobiliser les resources d'une société rurale pour atteindre un but extérieur à cette société.

Dans ce contexte, le succès des petits périmètres chez les Haalpulaar de la moyenne vallée du Sénégal – après plusieurs tentatives infructueuses s'étalant du XIXè siècle aux années 1970, toutes fondées sur un schéma colonial et bureaucratique – permet de dégager les caractéristiques d'un aménagement hydro-agricole réussi.

Bien qu'elle bénéficie de l'aide technique et financière des pouvoirs publics, l'expérience haalpulaar ne doit rien à une organisation à l'occidentale; elle se caractérise par une gestion intégrée au système de production des ménages ainsi qu'aux structures sociales locales et supralocales.

A l'avenir, il conviendra que les sciences sociales, fortes de cet exemple, définissent avec l'aide des planificateurs et des ingénieurs un modèle original, doté tant d'institutions favorisatn le contact entre agriculteurs et techniciens que d'organismes transmettant l'information des paysans vers le politique. C'est à ce prix que les communautés haalpulaar, et d'autres avec elles en Afrique de l'Ouest, trouveront le moyen d'accéder à une existence nouvelle.

Commandes à: Editions Karthala, 22-24 boulevard Arago, F-75013 Paris, France.

First Training Workshop on Site Selection and Characterization. IBSRAM Technical Notes n°1. International Board for Soil Research and Management, Bangkok, 1988, 298p.

The International Board for Soil Research and Management (IBSRAM) is developing two regional collaborative networks in Africa, (1) Management of Vertisols under Semi-Arid Conditions and (2) Land Development and Management of Acid Soils in Africa, divided in two subnetworks: Land Development for Sustainable Agriculture in Africa; and Management of Acid Soils in Africa.

At the present time, seventeen African countries are cooperators in these two networks. Some of these countries have already started network activities.

The overall goal of the networks is to serve as an international means of promoting and coordinating collaborative soil management research, of validating and transferring improved adapted technologies, and of fostering the application of these technologies for food production by farmers in Africa.

In order to conduct collaborative research, a network requires a methodology which has been commonly agreed upon and is well understood by the network cooperators. Short, well-focused training courses for front-line researchers are essential to meet this need.

Site characterization, including site selection, is one of the fundamental components of soil management networks. The different regional seminars held by IBSRAM in Africa have shown that there is a definite need for training in this area. The first IBSRAM training workshop was held from 22 February to 4 March 1988 at IITA in Ibadan, Nigeria.

The overall goal of this training workshop was to prepare front-line investigators for the first phase of the network implementation: site selection and characterization. More specifically the objectives of the training workshop were: (1) to review the different procedures for site selection and characterization, and to prepare guidelines on these subjects; (2) to introduce the cooperators to the IITA farming systems approach; and (3) to prepare the ground for the first steps in the implementation of the networks' regional programmes. The programme consisted of 13 technical sessions each consisting of the following aspects: paper presentations, a field exercise, discussions on methodological guidelines, and terrain visits.

The discussion concerning methodological guidelines was mainly based on the working group reports of the earlier meetings, where conclusions on the following subjects has already been reached: morphological, structural physicocemical characterization, design of experiments, cropping system evaluation, site selection, site characterization, farming systems, management practices, and evaluation of sustainability.

The present report contains the papers presented at the workshop.

Price: US$ 15.00 plus postage ($3.00 surface mail)

Orders to: IBSRAM, p.O. Box 9-109, Bangkhen, Bangkok 10900, Thailand.

Science and Food. The CGIAR and Its Partners. J.R. Anderson, R.W. Herdt and G.M. Scobie. The World Bank, Washington, D.C., 1988, 134p. ISBN 0-8213-0947-1. Stock number BK0947.

This book offers a comprehensive assessment of the Consultative Group on International Agricultural Research (CGIAR) and of the 13 international research and training centers associated with it. The authors review the contributions that the centers have made through their research programs and their collaboration with national agricultural research systems in developing coutnries. They also discuss the potential for replicating successful programs in other countries.

Included in the book are excerpts from country studies undertaken in conneciton with this report, which present national perceptions of the system's contributions to developing countries. The authors also discuss the products and achievements of the CGIAR centers, including new crop varieties, new farming techniques, changes in institutions and policies, assistance to national research programs, and training.

Price: US$ 14.95

Orders to: The World Bank, Publications Dept., J2190, 1818 H Street, N.W., Washington DC 20433, U.S.A..

NMR Techniques and Applications in Geochemistry and Soil Chemistry. M.A. Wilson. Pergamon Press, Oxford, New York, 1987, xi + 353p. ISBN 0-08-034852-1. Hardbound.

Almost all areas of organic and inorganic geochemistry where nuclear magnetic resonance (n.m.r.) has had an influence are discussed in this book. These discussions are preceded by the first four chapters which introduce n.m.r. Here, the object is to cover the concepts used in the following chapters without going into too much detail. Chapter 1 deals with elementary theory, the Bloch equations and relaxation. Basic n.m.r. practice and instrumental details are described in Chapter 2. This chapter is primarily intended for the geochemist who has never operated an n.m.r. spectrometer. More detailed accounts of solution and solid state n.m.r. are given in Chapters 3 and 4.

The treatment of specifically geochemical topics begins in Chapter 5 with a discussion of minerals and the application of n.m.r. to the determination of their structure. Precursors to organic matter are similarly considered in Chapter 6. Soils are reviewed in Chapter 7 and humic substances, peat, shale and coal are covered in Chapters 8-11. Finally, Chapters 12 and 13 are concerned with the large contribution n.m.r. has made to the chemistry of coal.

The book provides an in-depth review of the state-of-the-art of n.m.r. spectroscopy as applied to a wide range of geochemical problems. It is intended to assist geochemists and spectroscopists working at the interface between geochemistry and n.m.r.

Price: £ 36.00 or US$ 63.00

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, England; *or:* Pergamon Press, Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.

Agricultural Productivity. Measurement and Explanation. S.M. Capalbo and J.M. Antle, editors. Resources for the Future, Washington DC, 1988, xvi + 404 p. ISBN 0-915707-37-3. Clothbound.

Society's standard of living in this century has been enhanced primarily through gains in productivity. Accordingly, economists have devoted considerable effort to measuring productivity gains and understanding their sources. The present book is a comprehensive, integrated body of knowledge concerning recent advances in agricultural productivity research, highlighting both the strengths and limitations.

The first of 3 book sections contains background material related to theoretical developments in productivity measurement and historical evidence on agricultural productivity research. The chapters in the second part present recent research on measuring the rate of productivity growth and technical change in the U.S. agricultural sector and discuss the limitations of the methods that have been developed. The final part of the book focuses on methodological approaches to identifying the sources of productivity changes. As the chapters in the first two parts demonstrate, the measurement and explanation of productivity are not unrelated. Improvements in quantitative measurement techniques have complemented investigation of the sources of productivity growth.

Although much of the volume is devoted to developing methodological approaches to productivity measurement, certain specific conclusions are reached. The editors believe that little more can be gained by continuing to apply the existing aggregate time series data with the static, neoclassical models based on the theory of the firm. New disaggregate data, new more general models of the firm and sector, and appropriate measurement methods are needed to push back the frontier of knowledge. This volume contributes by filling a gap in the literature with a comprehensive assessment of the modern literature and by moving away from the static aggregate approach to productivity measurement to a dynamic, disaggregate approach.

Price: US$ 30, plus $ 3.00 postage/handling.

Orders to: Resources for the Future, Publications and Communication. 1616 P Street N.W., Washington, DC 20036, U.S.A.

Arid Lands Research Institutions. A World Directory. Third edition. B.S. Hutchinson and R.G. Varady, Office of Arid Lands Studies, Tucson. Allerton Press, New York, 1988, 290 p. ISBN 0-89864-039-3.

This third edition of this reference work contains about 270 organizations all over the world concerned with arid lands research. UNEP's Annotate Directory of Organizations dealing with Desertification Control and Dryland Development (UNEP, 1986) lists primarily action-oriented institutions. From all entries are *given: the parent organization, scope of interest, research programme, organizational structure and number* of staff, facilities (space, equipment, library, exchange facilities), and publications. Included are an index of institutions and a subject index.

Price: US$ 24.50, plus postage (US$ 2.50 in U.S.; US$ 5.00 elsewhere).

Orders to: Allerton Press, 150 Fifth Avenue, New York, NY 10011, USA.

Proceedings of the International Symposium on Solonetz Soils. Problems, Properties, Utilization. Osijek, Yugoslavia, June 1988. M. Adam, editor-in-chief. 375 p.

This symposium was dedicated to the 75th anniversary of investigation of salt-affected soils in Yugoslavia. The objective was to exchange experiences and to promote better understanding among scientists dealing with research of these problem soils. After 5 introductory papers, the proceedings has 9 papers on genesis, geography, cartography and classification, 16 on soil properties, 10 on reclamation and utilization, and 7 on secondary salinization and potential salt-affected soils. Contributions come from 26 countries.

Requests to: Prof.Dr. M. Adam, Agricultural Faculty, University of Osijek, Yugoslavia.

Effects of Management Practices on Soil Physical Properties. Queensland Dept. of Primary Industries Conference and Workshop Series QC87006. K.J. Coughlan and P.N. Truong, editors. Dept. of Primary Industries, Queensland Government, Brisbane, 1987, vii + 268 p. ISBN 0-7242-2451-3. ISSN 0728-067X.

The papers in this report were presented at a national workshop, held in Toowoomba, Queensland, in September 1987. The workshop reviewed trends in physical properties of Australia's arable soils, evaluated techniques (both existing and new) for measuring change in soil physical properties and identified needs for future research. Reports on group discussions and a final report on suitable measuring techniques are also included.

Price: Australian $ 25, plus $ 5.35 for seamail or $ 17.15 for airmail. Prepayment required.

Orders to: Information Centre, Queensland Dept. of Primary Industries, G.P.O. Box 46, Brisbane, QLS 4001, Australia.

Manganese in Soils and Plants. Developments in Plant and Soil Sciences 33. R.D. Graham, R.J. Hannam and N.C. Uren, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1988, xvii + 344 p. ISBN 90-247-3758-3. Bound.

This new volume in the series Developments in Plant and Soil Sciences contains the proceedings of the international symposium, held in Glen Osmond, in August 1988.

The 21 papers give an overview over 60 years of knowledge on manganese in soils and plants.

After an introduction to manganese biological chemistry, 5 papers discuss the occurrence and role of manganese in soils. The importance of this element in plants is treated in 6 papers. In the part on the soil-plant system, 9 papers discuss such items as the uptake of manganese by roots, manganese deficiency and toxicity and their amelioration, and techniques for research on manganese in the system.

This book is the first review on this scale on manganese.

Price: Dfl 160, US$ 80 or £ 47.

Orders to: In USA and Canada: Kluwer Academic Publ., 101 Philip Drive, Norwell, MA 02061, USA. *Elsewhere:* Kluwer Academic Publ. Group, P.O. Box 322, 3300 AH Dordrecht, the Netherlands.

Agrohydrology – Recent Developments. J.W. van Hoorn, editor. Elsevier Science Publ., Amsterdam, Oxford, 1988, ix + 550 p. ISBN 0-444-43028-8. Bound.

This book contains the proceedings of a symposium, held at Wageningen in September/October 1987 on the occasion of the retirement of Prof. W.H. van der Molen. The objective of the symposium was the presentation and discussion of recent developments in agrohydrology, for which four themes were chosen: 1) Effects of drainage on crops and farm management; 2) Water conservation; 3) Hydrology of nature reserves; and 4) Reuse and disposal of drainage waters from irrigated areas.

As might be expected, approximately fifty percent of the papers deal with drainage, still the focal point of agrohydrology. A number of these papers treat in particular the effects of drainage on crops and farm management, whereas others are devoted to such aspects as preferential flow and drainage of special soils.

Since water conservation is a very broad subject, the papers presented within this theme do not cover all aspects, but are limited to such areas as water harvesting, soil water conservation, irrigation scheduling, and changes in quality and quantity of groundwater.

The hydrology of nature reserves is receiving more and more attention, since these reserves are often affected by qualitative and quantitative changes of the environment .There is a growing consensus that improvement of water management should not only serve agricultural purposes, but also aim at protecting nature reserves.

The small number of papers on the final theme does not indicate that it is of less importance than the other subjects. Disposal of drainage water is now recognized as a major aspect of water management in irrigated areas, which are facing a shortage of good quality water. Coupled with this, it is becoming increasingly difficult to dispose of large amounts of drainage water.

Price: US$ 144.75 or Dfl 275.00

Orders to: In USA and Canada: Elsevier Science Publ. Comp., P.O. Box 1663, Grand Central Station, New York, NY 10163, USA. *Elsewhere:* Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, the Netherlands.

Geobase. The Geo Abstracts Database. Geo Abstracts, Norwich.

This new online database of Geo Abstracts is the only database in its field to include abstracts. Truly international in scope, it provides coverage form over 4000 journals and other publications in the world literature. The main areas covered are: GEOGRAPHY, including cartography, climatology, economic geography, environment, geomorphology, historical geography, human geography, hydrology, international development, planning, regional studies, remote sensing; GEOLOGY, including economic geology, geophysics, mineralogy, paleontology, regional geology, sedimentology, stratigraphy, tectonics; and ECOLOGY, including freshwater, marine, terrestrial, the environment.

The database contains over 250000 records dating from 1980. It is updated monthly with an annual growth of some 40000 items. Searching is made easy by its user-friendly data format and is a most effective way of scanning the broad international literature.

For information: Geo Abstracts Ltd., Regency House, 34 Duke Street, Norwich NR3 3AP, U.K.

Recent Climatic Change. S. Gregory, editor. Belhaven Press, London and New York, 1988, xvi + 328 p. ISBN 1-85293-010-1. Hardback.

The current concern with recent climatic change reflects media focus on droughts, floods, hurricanes and the fear that human activities may be causing irreversible climatic changes.

But it is the scientific concern with climatology which makes current developments in recent climatic changes so important.

In this volume these scientific issues are addressed by researchers from more than a dozen countries. Four main themes are developed: 1) data problems and climatic modelling; 2) regional climatic change; 3) teleconnections; and 4) impacts of climatic change.

Topics covered range from the statistical modelling of rainfall and temperature variation and the local and global seasonal fluctuations of climate, to the functioning and structure of large scale climatic systems and the practical aspects of climatic change, including power generation, fisheries, agriculture, storms, 'the greenhouse effect', and acid deposition. The studies also display the specific characteristics of particular regions.

Orders to: Belhaven Press, 25 Floral Street, London WC2E 9DS, England.

Scales and Global Change. Spatial and Temporal Variability in Biospheric and Geospheric Processes. SCOPE 35. T. Rosswal, R.G. Woodmansee and P.G. Risser, editors. John Wiley & Sons, Chichester, New York, 1988, xvii + 354 p. ISBN 0-471-91828-8. Hardbound.

The impetus for the workshop that resulted in this book was the deliberations in many national and international forums about the research areas to be addressed in a decade-long international programme to study global environmental change. At the request of the Executive Committee of ICSU's Scientific Committee on Problems of the Environment (SCOPE), the US National Committee for SCOPE of the US National Research Council (NRC) began discussions to organize an international workshop intended to identify the contributions to the upcoming International Geosphere-Biosphere Programme: A Study of Global Change (IGBP) that could be made by biological and physical scientists working together. Discussions with a number of scientists led to the consensus that a useful focus for the workshop would be on an issue of extreme concern in conducting the interdisciplinary research required to understand the processes controlling the global environment – how to overcome the disparities in spatial and temporal scales used in different scientific disciplines. The transfer of information between these disciplines is severely constrained by disparities in scale. Thus, a workshop to identify the research needed to deal meaningfully with these scaling problems and with the spatial and temporal variability in biospheric and geospheric processes was organized.

At the workshop, ecologists, other biological scientists, atmospheric scientists, geomorphologists, and marine scientists met in a plenary session and in working groups to explore the research needs for understanding interactions between the atmospheric, aquatic, and terrestrial components of the biosphere at different scales. A report describes the research priorities identified for dealing with the scaling problems and for possible inclusion in the research agenda for a programme on global change. Papers presented at the workshop are published herein.

The workshop was organized with the intention that it be one of several planning efforts toward the elucidation of research priorities for an International Geosphere-Biosphere Programme.

This book is the first to address scaling problems both within individual disciplines and between disciplines, and represents an important first step in developing strategies for 'Global Change' studies.

Price: £ 50.00 or US$ 115.00

Orders to: Karen Hawes/ES, John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Project Monitoring and Evaluation in Agriculture. D.J. Casley and K. Kumar, editors. Published for the World Bank by The John Hopkins University Press, Baltimore and London, 1987, xiii + 159 p. ISBN 0-8018-3616-6. Paperback.

Because of the need to monitor the implementation of projects and to evaluate their achievements, these activities are now a routine part of project appraisal. This book – the successor with a forthcoming companion volume to the popular **Monitoring and Evaluation of Agriculture and Rural Development Projects** (1982) by D.J. Casley and D.A. Lury – uses a wealth of recent examples to explain in detail the concepts of monitoring and evaluation as they apply to agricultural and rural development projects.

In the early 1980s several international agricultural development agencies recognized the problems in formulating effective monitoring and evaluation systems. Since then progress has been made in developing effective systems and in reaching a consensus regarding concepts and definitions for them. This book and its companion, *The Collection, Analysis, and Use of Monitoring and Evaluation Data*, reflect this consensus and will thus be useful as the basis for regional and national training programs, and will find wide use by practitioners and among academic audiences. The volumes are a collaborative effort of the International Fund for Agricultural Development, the Food and Agriculture Organization, and the World Bank; they build on principles given by the United Nations Task Force on Rural Development.

Price: US$ 12.95

Orders to: The World Bank, Publications Dept., J 2190, 1818 H Street N.W., Washington DC 20433, USA.

Commercial Fertilizers and Geomedical Problems. J. Låg, editor. The Norwegian Academy of Science and Letters. Norwegian University Press, 1987, 156 p. ISBN 82-00-02651-5.

This meeting on the relationship between commercial fertilizers and health problems took place in November 1986. The papers read are mostly on conditions in the Nordic countries, and deal mainly with the effects of N, P and K fertilizers and trace elements on different plants, crops, soils and water, and with the effects of radioactive elements in NPK fertilizers.

The Norwegian Academy of Sciences and Letters established in 1984 a permanent Committee for Geomedical Information and Research. The present book is the outcome of one of the meetings. The Editor is Chairman of the ISSS Working Group 'Soils and Geomedicine', and heads also the Committee.
Price: NOK 165,
Orders to: Norwegian University Press, P.O. Box 2977 To/yen, N-0608 Oslo 6, Norway.

Land Development and Management of Acid Soils in Africa II. IBSRAM Proceedings Number 7. M. Latham, P. Ahn and C.R. Elliott, editors. IBSRAM, Bangkok, 1987, 339 p. ISBN 974-7614-86-3.

This publication contains the papers presented at a workshop, held in Zambia in April 1987, on the improvement of the management of acid soils, or poor soils on newly cleared land, using limited financial resources. Experiences in various African countries and in Latin America were presented, as were papers on sustainability, the design of experiments and data processing, characterization and management practices and on the implementation aspects of the IBSRAM Land Development and Management of Acid Soils in Africa (AFRICALAND) Network.

The appendix includes working group reports and resolutions.
Price: US$ 15.00 plus mailing charges (surface mail $ 3.00, airmail Asia & 5.00, Europe $ 8.00, Africa and Americas $ 10.00). Prepayment required.
Orders to: IBSRAM, P.O. Box 9-109, Bangkhen, Bangkok 10900, Thailand.

Building Databases for Global Science. H. Mounsey and R.F. Tomlinson, editors. Taylor & Francis, London, New York, 1988, xv + 419 p. ISBN 0-85066-485-3. Hardbound.

Many of the most serious problems in the environment today are of a scale which is truly global. Climatic and environmental changes, be they natural or caused by the activities of man, may have consequences for regions far beyond the immediate areas in which they originate. Some of the problems have a high profile in current news coverage; carbon dioxide levels and climatic warming, the depletion of the Antarctic ozone layer, the dispersion of pollutants and radioactive discharges.

At present we understand little of the science of many global processes. To investigate, and ultimately understand, these processes requires research and data collection with cross-border collaboration on a global scale. Expanding use of techniques such as remote sensing requires computing technology that can handle and exploit vast quantities of data, linking together information from many sources to model, and eventually to understand, the results.

The International Geographical Union (IGU) has set up the Global Database Planning Project to improve the state of knowledge about global data studies. Scientists and representatives from numerous international and national agencies and environmental organizations, from all over the world, were brought together in May 1988 at Tylney Hall, Hampshire, UK, for the first meeting of the Project.

This book is a collection of papers presented at the meeting and summarizes the current work of the national and international agencies responsible for environmental monitoring and modelling. It examines the philosophical, methodological, technical, legal and organizational problems associated with running these databases; defines the shortcomings and advantages of selected data sources, and presents an overview of future developments.
Price: £ 35.00
Orders to: Taylor & Francis, Rankine Road, Basingstoke, Hants RG24 0PR, England; *or:* Taylor & Francis Inc., 242 Cherry Street, Philadelphia, PA 19106-1906, USA.

Man, Nature and Technology. Essays on the Role of Ideological Perceptions. E. Baark and U. Svedin, editors. Macmillan Press, Basingstoke, *1988*, xiii + *150* p. *ISBN 0-333-42812-9. Hardback.*

Most attempts to comprehend our relationship to nature and technology have tended to be biased in the direction of either the environmental sciences or the engineering sciences. Many scholars are beginning to appreciate, however, that such partial approaches fail to capture essential aspects of the increasingly complex problems generated as we extend our sphere of influence into nature. A more comprehensive perspective is required in order to deal with this crisis of understanding and managing the linkages between nature, culture and technology. Such a perspective is provided here by seeing our relationship to nature and technology as partly conditioned by ideological perceptions.

The first essay serves to introduce many of the key concepts and issues taken up in connection with the interaction of nature, society, and technology. This concerns resource adequacy, environmental degradation in relation to development, and whether technological change threatens to overwhelm us through its massive force and through the complexity involved.

The second essay indicates that major advances in science and technology at the world level during the last thirty years make it necessary to reinterpret the concept of 'development' and to offer explanatory

schemes which explicitly incorporate the process of knowledge generation.

In the next essay the main theme of the book is explored on the basis of the cultural hypothesis. This notion brings together insights from two areas of inquiry. One of these is the sociology of perception.

In the following essay it is argued that technology embodies a differentiated set of cultures. Thus it will imply associated attitudes, images and belief systems which legitimise the social relations of technology.

The fifth essay attempts to trace the origins of images of nature and technology to power relations. The author uses a case study of a modern desert society, the American Southwest, to show the links between ecology and power.

The last essay shows that campaigns to save natural resources and artifactual heritage show significant parallels in their origins, agents, development, and motivations.

The theme of the book, and a number of dimensions which this theme represents in relation to nature, culture and technology, are taken up in the epilogue. Issues illustrating the theme and its implications for research are discussed.

Price: £ 33.00

Orders to: John Darvill, Macmillan Press, Globe Division, Houndmills, Basingstoke, Hampshire RG21 2XS, England.

Geomorphic Processes in Environments with Strong Seasonal Contrasts. Vol.I. Hillslope Processes. Catena Supplement 12. A.C. Imeson and M. Sala, editors. Catena, Cremlingen, 1988, 190 p. ISBN 3-923381-12-3 (this volume). ISSN 0722-0723 (series).

Price: DM 149.00 or US$ 88.00

Geomorphic Processes in Environments with Strong Seasonal Contrasts. Vol.II. Geomorphic Systems. Catena Supplement 13. A.M. Harvey and M. Sala, editors. Catena, Cremlingen, 1988, 164 p. ISBN 3-923381-13-1 (this volume). ISSN 0722-0723 (series).

Price: DM 126.00 or US$ 74.00

In September 1986, the IGU Commission on Measurement, Theory and Application in Geomorphology (COMTAG) organised its main autumn meeting in Spain. This meeting had as its theme 'Geomorphological Processes in environments with strong seasonal contrasts'. Most of the papers presented at the meeting are published in these two books. Volume I contains papers primarily dealing with hillslope processes. Volume II deals with sediment transport through fluvial systems and the relationships between processes and morphological development in fluvial systems.

The COMTAG meeting in Spain was organised principally in Barcelona, Murcia and Granada, where the paper sessions were held. A major feature of the meeting was the large number of excursions to sites where field investigations were in progress. In this way the COMTAG symposium drew attention to the interesting and important work being done in Spain and at the same time served to stimulate research in process geomorphology.

The location of the meeting in Spain provided the opportunity for COMTAG to focus its attention on regions having strong seasonal contrasts. Geomorphological systems in such environments are highly complex and difficult to study due to seasonally extreme conditions. The meeting reflected the need to increase our understanding of the basic processes important in these regions; of the effects of seasonality on interactions between abiotic and biotic processes; and on relationships between climatic parameters and processes. A better understanding of the effect of extreme seasonality has application in terms of our appreciation of the effects of drought in less seasonally extreme humid regions.

Orders to: In USA and Canada: Catena Verlag, P.O. Box 368, Lawrence, KS 66044, USA; *Elsewhere:* Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed. Rep. of Germany.

L'eau et le Sol. Principes et processus physiques. Collection Pedasup 5. D. Hillel. Academia, Louvain-la-Neuve, 1988, 288 p. ISBN 2-87209-015-0. (traduit de l'anglais par L.W. de Backer: Soil and Water. Physical Principles and Processes, Academic Press).

Le sol et l'eau sont les deux ressources fondamentales de notre environnement naturel ainsi que de notre agriculture. L'accroissement de la population rend ces ressources de plus en plus rares ou bien conduit à leur exploitation excessive dans de nombreuses parties du monde. L'impérieuse nécessité de gérer continuellement ces ressources d'une manière efficiente est devenue une des tâches cruciales de notre époque. Pour cette raison, il faut de plus en plus approfondir et diffuser la connaissance des propriétés et du comportement du système sol-eau en relation avec les conditions climatologiques, la végétation et le cycle hydrologique.

Dans ce livre, sont décrits les principes qui gouvernent le système sol-eau et, en particulier, la suite des processus qui forment le cycle de l'eau au champ. Il est destiné aux étudiants et aux chercheurs en physique du sol et autres disciplines connexes (telles que la botanique, l'écologie, l'agronomie, la microbiologie, la géologie, l'hydrogéologie, la géographie, le génie rural et le génie civil) qui ont besoin d'une présentation fondamentale et mise à jour de la physique du sol, ou qui pourraient y être intéressés.

Prix: FB 700.

Commandes à: Academia, Edition et Diffusion, 42 passage de l'Ergot, B-1348 Louvain-la-Neuve, Belgique.

The Soil Atlas of China. Hsueng Yi and Li Jin, chief compilers, Xi Yaokun, editor. Institute of Soil Science, Academia Sinica, Nanjing, 1986, 128 p. Hardbound.

This is the first atlas showing the geography of soils in China. The atlas includes 32 octavo size colour maps of China and some regions. It has four parts: 1) administrative, climatic and vegetation maps; 2) soil map of China (1:14M scale) and 8 regional soil maps (mostly 1:1M scale); 3) 14 maps (1:14M scale) showing such factors as soil parent materials, soil geochemistry, soil texture, clay minerals, organic matter, pH, and available micronutrients; and 4) maps on salinization, distribution of eroded soils and soil use. The atlas also has 85 colour photos with landscapes, soil profiles, land use, soil micromorphological features and clay minerals.

With the explanation and legends in Chinese and English, the atlas provides a wealth of information on the soils of this hitherto rather unknown part of the world.

Price: US$ 190.00, including surface mailing charges.

Orders to: Prof. Li Jin, Dept. of Soil Geography, Institute of Soil Science, Academia Sinica, P.O. Box 821, Nanjing, People's Republic of China.

Air Pollution and Acid Rain. The Biological Impact. A. Wellburn. Longman Scientific and Technical, Burnt Mill. Copublished in the USA with John Wiley & Sons, New York, 1988, xiv + 274 p. ISBN 0-582-01464-6 (U.K. ed.); 0-470-20887-2 (USA ed.). Hardbound.

Acid rain, and air pollution in general, is an issue of enormous importance throughout the industrialized world. This timely book adopts a unique approach to the problem concentrating on how different biological mechanisms are affected by airborne pollution. Beginning with a consideration of the sources of various atmospheric pollutants (and also natural emissions), and their reactions in the atmosphere and in rain, soils and lakes, the author goes on to discuss how each of the different pollutants and their derivatives gains access to living organisms, including ourselves. He then examines in detail the reactions within animal and plant cells that are especially sensitive to these intruders. Coverage is not restricted to specific geographical areas; the author takes a global view of the effects of air pollutants and acid rain on the living world as a whole. A key conclusion is that while the uptake mechanisms (in lungs, gills, stomata and roots) and the nature of the observed effects and injuries across the plant and animal kingdoms are very different, and underlying cellular events exhibit many more similarities than differences.

Price: £ 17.95

Orders to: Longman Scientific and Technical, Fourth Avenue, Harlow, Essex CM19 5AA, England; *or:* John Wiley & SOns, 605 Third Avenue, New York, NY 10158, USA.

Warnock Revisited: A Bibliography of North American Loess 1805-1955. D.E. Harding and I.J. Smalley. Leicester University Geography Department, Leicester, 1988, 69 p. ISBN 1-870474-16-3.

The loess in North America has been studied for nearly 200 years. The explorers, early in the nineteenth century, tended not to use the term 'loess' but they described the remarkable structures and bluffs encountered in the mid-West and the Mississippi valley. A few of their early 'pre-loess' writings are included in this bibliography but the main aim of the work is to provide a chronological study of loess investigation in North America, essentially as part of the INQUA Loess Commission's (Documentation Working Group) programme of world-wide loess bibliographies, but also in the hope of contributing to practical land use and conservation studies in relation to one of the world's major soil resources.

This useful compilation covers the period from the early explorers to the mid-nineteen fifties and has 403 entries. An author index and states and regions index supplement this. It has been prepared for the 13th INQUA Congress, Beijing 1991 as part of the inter-congress programme of the Documentation Working Group.

Price: US$ 12.00, including postage.

Orders to: Map Library, Geography Dept., Leicester University, Leicester LE1 7RH, England.

World Agriculture Toward 2000. An FAO Study. N. Alexandratos, editor. Published by arrangement with FAO by Belhaven Press, London, 1988, xvi + 338 p. ISBN 1-85293-057-8. Hardback.

This is the FAO's latest assessment of world food and agriculture prospects to the turn of the century. It provides an overview of the most basic human economic activity, raising issues such as the prevalence of hunger amidst global plenty, food self-sufficiency and food security, farm support policies and related international trade distortions, rural poverty, technological developments and aspects of environment, resource conservation and sustainable production. The detailed examination of key policy and management issues are all backed up by statistical analysis and documentation from FAO's resources.

A major statistical appendix presents details of agriculture for over 120 countries, including the results of projections specially carried out for this report.

Price: £ 27.50

Orders to: Belhaven Press, 25 Floral Street, London WC2E 9DS, England.

Landschaftsökologische Moorkunde. M. Succow. Gebr. Borntraeger, Berlin, Stuttgart, 1988, 341 S. ISBN 3-443-01027-X.

In den letzten Jahrzehnten gewinnen Moore zunehmendes Interesse für land- und forst-wirtschaftliche Flächennutzung, Rohstoff- und Wasserwirtschaft, Umweltschutz, Balneologie, aber auch für den Naturschutz sowie für ur- und frühgeschichtliche Fragestellungen. Der weltweit fortschreitende Verbrauch der Moore hat das Bewusstsein geschärft, dass Moore eine für den Menschen vielfältig nutzbare und bedeutsame Naturressource darstellen, mit der äusserst haushälterisch umzugehen ist. Es muss mehr für ihren Schutz getan werden als bisher. Das verlangt von jedem Land eine genaue Kenntnis seiner Moore und der in ihnen ablaufenden Veränderungen.

In landschaftsökologischer Betrachtungsweise werden die vielfältigen Moorbildungen in ihrer Entstehung und Entwicklungsgeschichte, dem stratigraphischen Aufbau, den stofflichen Eigenschaften, den hydrologischen Bedingungen sowie den mannigfaltigen Vegetationsausbildungen dargestellt. Dabei sind sowohl naturnahe Moore als auch ihre anthropogenen Abwandlungsreihen bis hin zu hochgradig den Standort verändernden Nutzungsformen zu betrachten. Den Schwerpunkt der Darstellungen bilden die eigenen Untersuchungen an Moorstandorten der DDR. Die hier vorhandenen Moortypen sind im Hinblick auf Genese, Stratigraphie und Vegetation mit denen der Nachbarländer gut vergleichbar und unterliegen gleichartigen Prozessen bei der anthropogenen Umwandlung. Die gewonnenen Erkenntnisse haben also weitgehend für den gesamten mitteleuropäischen Raum Gültigkeit.

Die Eigenart des Naturraums Moor, seine biologische Mannigfaltigkeit und seine ökologischen Besonderheiten, die sich ständig aufdrängenden Fragen nach der Genese, aber auch der menschlichen Nutzung und damit anthropogenen Umwandlung, fordern weiter zu intensiver wissenschaftlicher Untersuchung, zu immer tieferem Eindringen in die Naturgesetzlichkeiten heraus. Weitere Forschungen und Moorerkundungen sind notwendig, um schonende Formen der Moornutzung zu finden, um die verbliebenen Reste naturnaher Moore möglichst lange in unserer Landschaft zu erhalten, für uns, aber auch für unsere Nachkommen.

Preis: DM 72

Bestellungen an: E. Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Bundesrep. Deutschland.

Shrub-Steppe. Balance and Change in Semi-Arid Terrestrial Ecosystem. Developments in Agricultural and Managed Forest Ecology 20. W.H. Rickard, L.E. Rogers, B.E. Vaughan and S.F. Liebetrau, editors. Elsevier Science Publ., Amsterdam, 1988, 284 p. ISBN 0-444-42990-5.

Owing to man-made intervention, the shrub-steppe now represents a rapidly disappearing landscape in the arid regions of North America. This book represents a systems-level study of ecological variables affecting water balance, and responses to perturbation. The study focused on a very large, protected, landscape unit, comprising a natural 'watershed' area located in the semi-arid western United States. Long-term and concurrent data sets were established with a view towards establishing system-level responses to manipulative interventions, and natural perturbations like wildfire. These data sets were established for micrometeorology, climatology, mineral cycling in soils, nutrient and mineral pathways in springs and streams, vegetational dynamics, and population changes on the site. In synthesizing nearly twenty years of data, the more interesting ecosystem level responses concerned vegetational recovery and water balance. For instance, the synthesis uniquely demonstrates the interaction of biotic and non-biotic factors and their integrated effect on regional water balance.

This book will be of primary interest as a reference resource to land managers and wildlife specialists, and as a research study for scientists interested in systems-level ecology.

Price: Dfl 275.00 or about US$ 145.00.

Orders to: In USA and Canada: Elsevier Science Publ. Comp., P.O.Box 882, Madison Square Station, New York, NY 10159, USA. *Elsewhere:* Elsevier Science Publ., P.O. Box 211, 1000 ARE Amsterdam, the Netherlands.

Landscape-Ecology of Ujung Kulon (West Java, Indonesia). P.W.F.M. Hommel. Doctoral thesis, Wageningen Agricultural University, 1987, 259 p. With one map.

This study deals with the Ujung Kulon peninsula, situated on the western-most tip of the island of Java (Indonesia). Descriptions are given of the area's history, climate, geology, geomorphology, soils, flora, vegetation and fauna. For three of these land-attributes, viz. geomorphology (landform), soils and vegetation, classification systems are presented. The classification of vegetation types is based on their complete floristic composition and carried out by tabular comparison of plot-data. Relations between all land-attributes are studied, resulting in the description of landscape units that are shown on a landscape-ecology map (scale 1:75.000). Special attention is paid to the impact of the 1883 Krakatau eruption on soils and vegetation, the orographic vegetation zones as determined by the so-called 'telescope-effect' and the availability of foodplants for the Javan rhinoceros.

Requests to: Dr. P.W.F.M. Hommel, Soil Survey Institute, P.O. Box 98, 6700 AB Wageningen, the Netherlands.

Concepts of Ecosystem Ecology. A Comparative View. Ecological Studies 67. L.R. Pomeroy and J.J. Alberts, editors. Springer Verlag, New York, Berlin, 1988, xii + 384 p. ISBN 0-387-96686-2 (USA ed.), 3-540-96686-2 (German ed.). Hardbound.

This volume derives from a conference honoring Eugene P. Odum on the occasion of his retirement. Professor Odum has been influential in ecological thinking through his focus on the ecosystem as a functional unit of nature. The editors assembled leading experts in the functional analysis of ecosystems and some related topics to consider two question: 1) what is the proper study of ecology, and are we doing it? and 2) what have we learned about ecosystem function?

The contributions tended to divide into those mainly concerned with philosophy and methodology and those mainly concerned with the status of our knowledge of a specific system. So the editors have arranged this volume accordingly, beginning with a series of chapters which consider how we go about studying ecosystems. The two central sections consider the state of our knowledge of some terrestrial and aquatic ecosystems. The final section considers problems of current or future concern in studies of ecosystems, terminating with an opinionated summary by the editors.

Papers examine the flux of energy and biologically essential elements and their associated food webs in forests, grasslands, cultivated lands, streams, coral reefs and the ocean basin. In each case, interactions between different ecosystems, predictive models, and the application of ecosystem research to the management of natural resources are given special emphasis. A number of theoretical chapters provide a synthesis through critical discussion of current concepts of ecosystem energetics and dynamics.

Price: DM 128.00

Orders to: Springer Verlag, Heidelberger Platz 3, Postfach, D-1000 Berlin 33, Fed. Rep. of Germany; *or:* Springer Verlag, 175 Fifth Avenue, New York, NY 10010, USA.

The SAMWAT Database for Computer Models in Water Management. Samwat report 2. C. Volp and A.C.W. Lambrechts, editors. SAMWAT, the Hague, 1988, 129 p. ISBN 90-6743-129-X.

The SAMWAT database for computer models, the development of which was initiated in the second half of 1987, is designed to include models covering a wide range of different subjects. The design aims at great flexibility for more modules. The database now consists of modules for groundwater, surface water and sewer systems, rainfall-runoff relations and agricultural production. It is suitable to contain a high degree of detail of information concerning the models of all modules. The modules were developed in close cooperation with specialists in each specific type of research. The development and the extension of the total database with other model modules will be continued in the coming years. Much attention will be given to validation and actualization of the information of the database.

The database holds general information relating to the models, such as availability, documentation, kind of computer on which the model is implemented and references on applications. Apart from this general information details are included about all features of the models. The following main characteristics can be distinguished: fluid, solute, heat and sediment transport as well as biological processes, solution methods for basic equations, statistics/stochastics and required boundary conditions.

The choice of the programme package for the development of the database and the storing and retrieving of information was carefully considered. Various programme packages were analyzed and compared. Mainly on account of the great importance attributed to aspects such as flexibility, accessibility, availability and PC-AT compatibility, the choice finally fell on dBase III plus.

Bureau SAMWAT can now give detailed answers to all questions concerning models for water management available in the Netherlands as far as models are concerned of the above mentioned four types of models. Apart from that, for those who are interested in subscribing to a yearly updated download of a part of, or the total database, Bureau SAMWAT is able to offer the desired service.

Price: Dfl. 15.00

Orders to: Bureau SAMWAT, P.O. Box 297, 2501 BD The Hague, the Netherlands.

Weathering. Vol.I. Processes. K.S. Balasubramaniam et al., advisory editorial board. Theophrastus Publications, Athens, 1989, viii + 462 p. Bound.

Weathering is a reaction of the atmosphere-hydrosphere with the lithosphere. The complexity and results of this continuous reaction are, as expected, variable, complicated and of fundamental significance for our existence.

Weathering is the main exogenetic process contributing to the pattern, shape, and profile of the Earth's surface. The complex phenomenology and its relation to morphology are supplemented by the intricate processes as a result of which various soil 'covers' have been formed.

The biosphere and its reaction with the lithosphere also contribute to weathering. In addition to rhexistancy and biogenic action, organic matter in the soil makes biogenic factors more significant.

In recent years there is an increasing interest in alteration-weathering processes and in the products and deposits formed by the geochemical mobilization and re-distribution of elements under these processes.

The first volume of a series of two deals with weathering processes, and contains chapters on general concepts, mineralogy of weathering products, geochemistry, marine action, loess formation and decementation. Volume II will deal with weathering products and deposits and with geotechniques.

Price: US$ 50.00, including mailing charges.

Orders to: Theophrastus Publications, 33 J. Theologou street, Zographou, Athens, Greece.

Combating Desertification in the Pre-Saharan Zones. The Case of Southern Tunisia. Unesco, Paris, 1987.

This slide-tape presentation contains 79 colour slides, a 22 minute cassette and a booklet containing the script and instructions for use. The presentation deals with the environmental conditions and land use systems in southern Tunisia, causes and effects of desertification, the conservation of water and soil and the fight against erosion, studies undertaken in the area, the resulting applications and their impact on the landscape. The slides are of high quality.

Orders to: Unesco Sales Agents around the world; *or:* Unesco Press, 7 Place de Fontenoy, F-75700 Paris, France.

Mineral resources' extraction, environmental protection and land-use planning in the industrial and developing countries. P. Arndt and G.W. Lüttig, editors. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1987, x + 337 p. ISBN 3-510-65132-4.

In the last few decades access to the natural resources has taken on alarming proportions due to the increase in the world population and the consumption of natural resources. Although many who made prognoses and spoke about the exhaustibility of these natural resources were fortunately wrong, a number of shortages do show that we have to handle these natural goods carefully.

The concern about the future of mankind has brought together scientists involved with investigating, increasing and releasing the natural environment's potential and representatives of environmental protection who often complain about the ruthless impact on natural landscapes, biological communities and the space available for human beings. The dialogue with those responsible for land-use planning has begun. Every level of continuing and intensifying this must be taken advantage of.

Since nations characterized by their industrialization and those still developing have moved closer together economically and ethnologically, it is evident that it is necessary in all parts of this world to search for ways of eliminating conflicts between resource extraction and the utilization of soil, water and the biosphere on one hand and environmental protection on the other. In solving conflicts, the maps that translate geoscientific and other findings into recommendations regional planners can understand have proven useful.

Following a conference in Lomé in 1980, an international seminar was held in Berlin where geoscientific representatives of mining, environmental protection and land-use planning from industrial and developing countries got together. In this volume the problems to be discussed are presented; the contributions introduce general and then specific problems before the representatives of the industrial nations and then those of the developing countries express themselves. At the end, an attempt is made to arrive at conclusions for the three professional fields represented.

Price: DM 98.00

Orders to: E. Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Fed. Rep. of Germany.

Agricultural Waste Management and Environmental Protection. 4th International Symposium of the International Scientific Centre of Fertilizers (CIEC), Braunschweig, FRG, May 1987. Proceedings, vol.1. E. Welte and I. Szabolcs, editors. CIEC and Federal Agricultural Research Centre (FAL), 1988, 510 p. ISBN 3-88452-623-5.

For many years CIEC has concentrated its activities and endeavors on an efficient and proper use of mineral and organic fertilizers regarding their adequate supply in the soil to maintain or even improve its fertility and to satisfy the crop's nutrient demand necessary for economic and high-quality yields.

Beside these vital interests, by following the scientific principles of plant nutrition in the fight against hunger and starvation, this organization has never neglected the aspect of thinking in nutrient cycles and utilizing refuse and waste of agricultural and nonagricultural origin.

The 7th CIEC World Congress of 1972 in Vienna focused on the relationship between increasing fertilizer use and manure application considering mainly losses of nitrogen and phosphorus by leaching and erosion, and the impact on the natural waters.

In pursuing these environmental aspects the 9th CIEC World Congress of 1984 in Budapest was partly dedicated to problems originating in fertilizer. In the plenary discussion the audience proposed the organization of a special symposium dealing with the problems of the increasing amounts of waste and waste waters.

According to this proposal CIEC decided at the General Assembly of 1984 in Budapest that the 4th Symposium should be planned for 1987 under the heading 'Agricultural Waste Management and Environmental Protection'. It was held in Braunschweig in May 1987, and about 200 experts from 28 countries participated. There were 139 contributions, most of them presented orally or at the poster exhibition. Besides some introductory papers and a memorial speech in remembrance of the 200th birthday of the famous German pioneer of agricultural chemistry, Philipp Carl Sprengel, three plenary lectures introduced into the targets of this symposium and focused on the most urgent problems dealing with the technical and chemo-technological solutions in utilizing and recycling agricultural and non-rural wastes to avoid environmental impact and damage.

It was decided to publish most contributions in the present proceedings. They are arranged into the following themes: efficient and safe utilization of farm wastes in modern agriculture; upgrading of wastes by separation, composting and additives, and agricultural use of non-rural wastes – benefits and limitations. Volume 2 will contain the reports presented in other working group sessions.

Orders to: Goltze Druck, Postfach 1944, D-3400 Göttingen, Fed.Rep. of Germany.

The Nature of Weathering. An Introduction. Eiju Yatsu. Sozo-sha Publishers, Tokyo, 1988, 624 p. ISBN 4-88156-069-7. Hardbound.

The author states that this book is based on lectures he gave at the University of Guelph. Even if this is so, his former students will probably recognize only fragments of the original notes in the extensive text at hand. The author is too modest by calling his book 'an introduction'. It is certainly much more than that: it is an up-to-date comprehensive textbook on weathering, richly illustrated with diagrams and tables and making use of an extensive bibliography.

The division in chapters is rather classical: 1) prologue; 2) mechanical weathering; 3) chemical weathering; 4) weathering by organisms; 5) mineral transformation in the weathering zone; and 6) epilogue. The author succeeded in combining treatises on the many aspects of weathering giving numerous examples, schemes and reaction equations with some philosophical notes. Very useful is the appendix with thermodynamic data (entropy, free energy and enthalpy) of almost 6000 elements, ions minerals and other compounds. The only flaw worth mentioning is the 'Japanese-English' in which the book is written. Rather than apologizing for it, the author should have called in the good service of an English corrector. Despite this, the book will be found most useful by students, teachers and research workers in several disciplines, not in the least amplified by the unique feature that although the publisher has the copyright the user may reproduce any part of the book without written permission.

Price: US$ 98.00, including surface mail.

Orders to: Maruzen Co., P.O. Box 5050, Tokyo International 100-31, Japan.

L.P. van Reeuwijk, Wageningen, the Netherlands

Surveying and Mapping for Field Scientists. W. Richie, M. Wood, R. Wright and D. Tait. Longman Scientific & Technical. Co-published in the USA with John Wiley & Sons, New York, 1988, ix + 180 p. ISBN 0-582-30086-X (Longman ed.), 0-470-20846-5 (Wiley, USA, ed.)

Most field scientists are, from time to time, required to carry out their own surveys of a variety of subjects in a range of terrain and environments. This book suggests that a wide spectrum of techniques exists for any given situation, including the use of existing maps, air photo interpretation, ground surveying and, in some instances, aerial surveying and remote sensing. The results of this surveying work are normally translated into map or diagram form for communication, and thus an important section of the book is concerned with appropriate cartographic methods.

The book's essence is its comprehensive nature as a practical guide, addressing the problem of surveying/mapping and cartographic communication by a variety of techniques. The authors provide clear solutions to mapping problems that are encountered in many professions by those engaged in field studies and who are required to carry out surveying/mapping on an occasional basis. The book is therefore not aimed at the specialist in mapping science but at those who require a basic but broad grounding in the subject, by ground air and satellite methods, and in cartographic presentation of the data. It will be used as a fundamental text for undergraduate students in geography, geology, environmental and ecological sciences, and supplementary reading for those in surveying, photogrammetry, remote sensing and cartography.

Price: £ 12.95

Orders to: Longman Scientific & Technical, Fourth Avenue, Harlow, Essex CM19 5AA, England; *or:* John Wiley & Sons, 605 Third Avenue, New York NE 10158, USA.

Bodenerosion und ihre Beziehungen zur Bodenfruchtbarkeit im subtropischen Bereich der VR China. Giessener Abhandlungen zur Agrar- und Wirtschaftsforschung des Europäischen Ostens. Band 160. G. Kuhnt. Duncker & Humblot, Berlin, 1988, 138 S. ISBN 3-428-06497-6. ISSN 0078-6888 (Reihe).

Bodenerosion war schon in der Vergangenheit und ist auch in der Gegenwart ein weltweit auftretendes Problem. Die Ursachen dafür liegen zu einem großen Teil an einer Bevölkerungszunahme und damit verbundenen intensiven Nutzung vorhandener landwirtschaftlicher Nutzflächen. Eine weitere Ursache ist die Urbarmachung von Flächen, die für eine landwirtschaftliche Nutzung wenig geeignet sind. Die Nutzung von weniger geeigneten Flächen für die Landwirtschaft und besonders der Zwang zum Anbau bestimmter Kulturpflanzen begünstigen erosionsauslösende und erosionsfördernde Faktoren.

Im subtropischen Bereich der VR China zeigt sich Bodenerosion in unterschiedlichem Ausmaß. Schwere Erosionsschäden treten vor allem in steilen Hanglagen nach erfolgter Abholzung auf. Diese Hanglagen sind landwirtschaftlich nicht nutzbar; durch Bodenabtrag dieser Hanglagen und Sedimentation auf benachbarten landwirtschaftlichen Nutzflächen kommt es aber zu erheblichen Schäden. Als Alternative kommt lediglich die Wiederaufforstung der Steilhanglagen in Betracht. Im Gegensatz dazu wird der Bodenerosion auf landwirtschaftlichen nutzflächen in weniger steilen Lagen wenig Beachtung geschenkt. Aus diesem Grunde wurden auf verschiedenen landwirtschaftlich genutzten Böden aus unterschiedlichen geologischen Substraten im 1986 Bodenerosionsmessungen mit einem Regensimulator durchgeführt. Ziel der Untersuchungen war es neben Oberflächenabfluß und Bodenabtrag die dadurch verursachten Nährstoffabträge sowie Korngrößenverteilung und mineralogische Zusammensetzung des erodierten Bodenabtrages zu ermitteln. Als Ergänzung wurden einige bodenchemische Untersuchungen durchgeführt.

Preis: DM 32.00

Bestellungen an: Verlagsbuchhandlung Duncker & Humblot GmbH, Postfach 41 03 29, D-1000 Berlin 41, Bundesrepublik Deutschland.

Humic Substances and Their Role in the Environment. Dahlem Workshop Reports; Life Sciences Research Report 41. F.H. Frimmel and R.F. Christman, editors. John Wiley & Sons, Chichester, New York, 1988, xii + 271 p. ISBN 0-471-91817-2. Hardbound.

The need for communication between scientific disciplines concerned with common problems increases with scientific advancement, particularly when the problem is in the context of the natural environment and truly global processes are involved. Humic acid chemistry has been the purview of soil and agricultural scientists since the 18th century, and much of what is known today about the structure and properties of organic materials in terrestrial soil derives from this scientific area. In the last two decades, advances in analytical chemistry and the emergence of scientific interest in global organic geochemistry have led to the recognition that humic-like substances are ubiquitous in the earth's surficial water bodies and their sediments, as well as in many underground waters. Moreover, the presence of these complex natural substances has been found to markedly affect the productivity of plant systems, to influence the distribution of many other organic and inorganic chemical species in the environment, and to produce toxic by-products when exposed to water disinfectants containing halogen.

An important scientific communication need existed, therefore, between elements of the scientific community interested in the structure and properties of humic substances in the terrigenous and aquatic environments. The need found fertile ground at Dahlem Konferenzen, Berlin, FRG, where a Workshop was held in 1987.

This volume consists of background papers and discussion group reports focused on defining the interdisciplinary research frontiers of the chemistry of the earth's humic substances and their role in environmental processes. Contributors to this work include soil scientists, lignin chemists, analytical chemists, water chemists and marine scientists, each of whom have made important independent advances in the last few years. Topics emphasized include: a critique of the different isolation methods employed by current soil and aquatic research workers, in which a novel nomenclature system is proposed for future use; a re-evaluation of the principal pathways for humic formation in light of recent analytical advances for soluble and insoluble macromolecules; an analysis of degradation techniques and the validity of current structural models; and a review of important environmental reactions and processes controlled or affected by humic substances.

This volume should appeal to research scientists interested in the chemistry of soil, plants, fresh and marine water systems, and to all scientists interested in global environmental processes.

Price: £ 37.50

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Proceedings Symposium '87 Wetlands/Peatlands, Edmonton, August 23-27, 1987. Compiled by C.D.A. Rubec and R.P. Overend. 704 p. ISBN 0-9692186-2-1.

This collection of papers presents the proceedings of the Wetlands/Peatlands '87 Symposium held at Edmonton. This meeting represented the first major Canadian gathering of scientists, planners, representatives of government and non-government organizations, developers, peat harvesters, and academics – all with diverse interests in wetlands and peatlands. Wetlands/Peatlands '87 permitted an overview of where Canada stands in the conservation and sustained, wise use of one of its greatest natural assets – those wetlands and peatlands covering over 14% of the nation's land base. These areas also comprise over 24% of the wetlands of the world, hence they have global significance.

This proceedings comprises 86 papers presented at the symposium. They are organized into seven categories including peat properties; peat and wetland chemistry; forestry, agriculture, waste water, and energy use of peatlands; wetland quality and assessment; wetland classification and inventory; wetland vegetation and ecology; and wetland conservation and policy. Papers are in English, with French abstracts.

Price: Can$ 75 in Canada; US$ 75 to all other addresses. Prepayment required; no purchase orders will be accepted.

Orders to: Wetland/Peatlands '87 Coordinator, 488 Athlone Avenue, Ottawa, Ontario, Canada K1Z 5M8

Semiarid Soil and Water Conservation. H.J. Finkel. CRC Press, Boca Raton, 1986, 126 p. ISBN 0-8493-6112-5. Hardbound.

In this book ten chapters deal with different aspects and forms of soil erosion and engineering and agronomic measures for soil and water conservation. The erosion and conservation measures discussed are, for the most part, those under unirrigated agriculture. The use of irrigation could cause significant changes in the growing seasons, and in the agricultural calendar, especially in the warmer climates where temperature is not a limiting factor. It is further noted that much of the material in this volume has been prepared with the developing countries in mind. In many of these countries there is a dearth of basic data, such as long-term hydrological records, detailed soil and topographic surveys, and experimental results for various types of erosion control measures. Some design procedures cannot be imitated or copied directly from those of the technologically more advanced countries. Consequently, emphasis will be placed, wherever possible, upon simple empirical methods of design, and approximate solutions within the limitations of the available data, technical possibilities, and financial resources of the developing countries.

Price: £ 52.50 in the U.K.

Orders to: CRC Press, 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, U.S.A.; *or:* Wolfe Medical, 2-16 Torrington Place, London WC1E 7LT, England.

Phosphore et Potassium dans les Relations Sols-Plante: Conséquences sur la Fertilisation. Ouvrage collectif sous la direction de L. Gachou. Institut National de la Recherche Agronomique (INRA), Paris, 1988, 566 p. ISBN 2-7380-0007-X.

Les relations entre le comportement des cultures et la fertilité phosphatée ou potassique du sol ont toujours préoccupé les agronomes. Depuis 1973, date du premier renchérissement des matières premières et, consécutivement, des engrais, les agriculteurs y ont accordé une attention accrue.

Sur ce thème, chercheurs et praticiens se posent deux questions majeures: 1) Concernant le diagnostic: à partir de quel seuil de fertilité n'est-il plus nécessaire d'élever l'offre du sol pour satisfaire la demande des cultures? 2) Concernant la fertilisation: quelles modalités d'apports d'engrais permettent d'atteindre une telle offre puis d'en assurer l'entretien?

De ces deux questions majeures découlent d'autres interrogations: a) comment déterminer la demande de chaque culture? b) comment apprécier de façon fiable l'offre potentielle du sol? c) dans quelle mesure les espèces cultivées sont-elles capables d'utiliser et ainsi de valoriser l'offre potentielle du sol? et d) quelles peuvent être les répercussions de la fertilisation sur l'environnement?

C'est à l'ensemble de ces questions que les articles rassemblés dans cet ouvrage visent à apporter des éléments de réponse.

Un tel objectif très orienté vers la gestion des systèmes de culture se pose pour l'essentiel en terme de bilan d'éléments nutritifs et de son corollaire immédiat: celui de cycle biogéochimique. Le temps n'est plus des société rurales autarciques où l'homme consommait sur place presque tout ce qu'il produisait. Aujourd'hui, les marchés agricoles ont acquis une dimension internationale et véhiculent d'un point à l'autre du globe terrestre des millions de tonnes de phosphore et de potassium. Tout au long de cet ouvrage le lecteur ne sera donc pas surpris de retrouver des préoccupations permanentes se rapportant aux flux d'entrée et de sortie à l'Echelle de la parcelle et/ou au caractère d'assimilabilité des éléments nutritifs du sol distingués *par la mise en oeuvre de telle ou telle méthode*.

Compte tenu de cet objectif, l'ouvrage est bâti autour des résultats issus d'essais de longue durée conduits sur des systèmes culturaux intensifs à base d'espèces dites de 'grande culture': essais consacrés à la fumure potassique d'une part, à la fumure phosphatée d'autre part.

Prix: FF 390.00

Commandes à: voir ci-dessous.

Etudes sur les Transferts d'Eau dans le Système Sol-Plante-Atmosphère. R. Calvet, éditeur. Institut National de la Recherche Agronomique (INRA), Paris, 1988, 362 p. ISBN 2-7380-0006-1.

Cet ouvrage présente les travaux de recherches effectués dans le cadre d'une Action Thématique Programmée de l'I.N.R.A. mise en place en 1982. Dans l'esprit de ses promoteurs, cette opération devait avoir pour but de regrouper des chercheurs et des équipes de différents départements autour de préoccupations communes relatives à l'eau et à ses transferts dans le système Sol-Plante-Atmosphère.

Les principaux objectifs visés étaient les suivants: 1) obtenir des informations sur les caractéristiques quantitatives des transferts d'eau et de chaleur dans les milieux non saturés en eau; 2) évaluer l'intérêt de la géostatistique pour l'étude des propriétés hydrostatiques et hydrodynamiques du sol; 3) apporter des éléments de description de la fonction puits racinaire en relation avec la structure du sol; et 4) analyser les transferts d'eau entre la plante et l'atmosphère d'une part, et dans la totalité du système Sol-Plante-Atmosphère d'autre part.

Les résultats des travaux sont regroupés en trois parties, chacune faisant l'objet d'une introduction dans laquelle on trouvera: a) une discussion sur la manière dont les objectifs ont été atteints; b) un état des connaissances et du savoir faire dans le domaine des phénomènes de transport de l'eau; et c) des suggestions sur les principales voies de recherches qu'il apparaît opportun de développer.

Cet ouvrage contient trois parties: 1) propriétés physiques des sols et transferts; 2) les transferts d'eau sol-système racinaire; et 3) bilan hydrique et énergétique: consommation en eau des cultures. Tous les articles ont un résumé en Anglais.

Prix: FF 120,00, frais de port compris.

Commandes à: INRA, 147 rue de l'Université, F-75007 Paris, France

Bascad. A mathematical model for level basin irrigation. ILRI publication 43. J. Boonstra and M. Jurriëns. ILRI, Wageningen, 1988, 30 p. and 1 diskette. ISBN 90-70754-12-6.

The need for better water management in surface-irrigation systems is clearly shown by their usually low water-application efficiencies – typically less than 60 per cent. Nevertheless, surface systems, when properly designed and managed, can attain much higher application efficiencies. The purpose of surface-irrigation models is to improve the design and management of these systems.

With this in mind, BASCAD (BAS = Basin, CAD = Computer-Aided Design), a mathematical model for basin irrigation was developed. A copy of the compiled version of the program, written in BASIC, is included with this manual. It comes on a 5¼-inch floppy disc in MS-DOS format, and will run on any IBM or compatible microcomputer. As a service to users, a FORTRAN version of the program is also available. It comes on a 9-track magnetic tape in ASCII format.

Price: Dfl 28.00 or about US$ 15.00

Orders to: ILRI, P.O. Box 45, 6700 AA Wageningen, the Netherlands.

Soil Micromorphology and the Quaternary. Q.R.A. Technical Guide N°2. R.A. Kemp. Quaternary Research Association, Cambridge, 1985, 80 p. ISBN)-907780-04-0. ISSN 0264-9241.

Recent Quaternary Research Association field trips and conferences have demonstrated an increasing awareness of the contribution that soils are capable of making to Quaternary studies. As a consequence, a number of pedological techniques have been introduced to a new audience. Soil micromorphology, in particular, has attracted considerable interest from Quaternary scientists, though its widespread application has tended to be hindered by its elaborate terminology and apparent complexity.

The aim of this publication is to introduce the beginner and/or inexperienced user to soil micromorphology and to demonstrate its potential for Quaternary studies. This book has been written in a very short space of time as a basic inexpensive text to accompany a course. However, it is hoped that its publication within the Quaternary Research Association Technical Guide Series will also encourage people to become familiar with the technique, resulting in its more widespread use.

After an introduction, chapters give information on sampling and thin section manufacture, the description of thin sections (according to the Handbook for Soil Thin Section Description), the presentation of micromorphological data, and on the use of micromorphology in the study of Quaternary soils.

Price: £ 8.00

Orders to: Quaternary Research Association, Mr. R.V. Dackombe, School of Applied Sciences, the Polytechnic, Wulfruna Street, Wolverhampton WV1 1LY, England.

Nitrogen Efficiency in Agricultural Soils. D.S. Jenkinson and K.A. Smith, editors. Elsevier Applied Science, London and New York, 1988, 450 p. ISBN 1-85166-240-5. Hardbound.

This book contains the papers presented at a Seminar on 'Nitrogen efficiency in agricultural soils and the efficient use of fertilizer nitrogen', held at the University of Edinburgh, 16-18 September 1987. The Seminar was organized on behalf of the Commission of the European Communities (CEC) as part of their 'Energy in Agriculture' Research Programme.

In the year 1985-86 the 12 countries of the CEC used 9.5 million tons of nitrogen fertilizer, worth some £ 3 billion. It is of economic and environmental importance that this fertilizer be used efficiently, not only to avoid wasting a valuable plant nutrient but also to make sure that as little as possible leaks into rivers and aquifers, where it is not wanted.

The aims of the Seminar were: 1) to bring together and consider current work on the efficiency of use of fertilizers in agriculture; 2) to examine the pathways by which nitrogen is lost from the crop/soil system; 3) to consider how the biological transformations undergone by nitrogen influence its behaviour in soil and its uptake by plants; 4) to discuss current attempts to model the behaviour of fertilizer nitrogen in soil and to assess how best to use such models to minimize wastage of nitrogen. Discussion groups were set up during the Seminar to consider the papers presented under these four headings; there is a synopsis of their reports at the end of the book.

After a general introduction, the proceedings contains the following chapters: nitrogen fertilizer efficiency in arable crops (13 papers); nitrogen fertilizer efficiency in grassland (4 papers); losses of nitrogen from the crop/soil system (7 papers); biological transformations of nitrogen in soils; and modelling the behaviour of nitrogen in soil and in the crop/soil system (6 papers).

Price: £ 49.00

Orders to: Elsevier Applied Science Publ., Crown House, Linton Road, Barking, Essex IG11 8JU, England.

Agricultural Systems Research for Developing Countries. ACIAR Proceedings N°11. J.V. Remenyi. Australian Centre for International Agriculture Research, Canberra, 1987, 189 p. ISBN 0-949511-18-8.

The papers in this volume were prepared for an ACIAR-sponsored workshop on farming systems research (FSR). The purposes of the workshop were principally to identify areas of FSR where Australia can be said to have a comparative advantage, and on the basis of this identify a strategy for collaborative research between Australian and developing country researchers. To these ends the workshop brought together leaders in FSR from Australia and overseas, mainly agronomists and agricultural economists. It is these two disciplines that dominate the community of farming systems researchers both in Australia and elsewhere.

The papers presented at the Workshop are an important record of a unique meeting of farming systems researchers from Southeast Asia, Papua New Guinea and Australia. They form a reference volume on FSR approaches in neighbouring countries, areas of systems research concentration in Australia, the relationship between FSR and rapid rural appraisal techniques, and studies of problems and pitfalls in adapting FSR approaches from developed to developing country agriculture.

Price: Austr.$ 24.00, including postage.

Orders to: see below.

Assessment of Agricultural Research Priorities: An International Perspective. ACIAR Monograph N°4. J.S. Davis, P.A. Oram and J.G. Ryan. Australian Centre for International Agricultural Research, Canberra, 1987, 85 p. ISBN 0-949511-31-5.

This monograph, a joint publication of ACIAR and IFPRI (International Food Policy Research Institute), seeks to assign an order of priority to agricultural research activities and, thus, optimise the use

of available funds. A model is developed with a novel approach to the allocation of agricultural research priorities. Data from 12 commodities are used to derive a set of indicators predicting the consequences of competing research resource allocation decisions within a regional framework. The book will be of particular interest to policy makers, research planners and research administrators in both national and international agricultural research and planning institutions, since its content should help with promoting effective and appropriate research.
Price: Austr.$ 14.00, including postage.
Orders to: Inkata Press, 4 Longbourne Avenue, North Clayton, Vic. 3168, Australia.

Australian Soil and Land Survey Handbook. Volume 2. Guidelines for Conducting Surveys. R.H. Gunn, J.A. Beattie, R.E. Reid and R.H.M. van de Graaff, editors. Inkata Press, Melbourne and Sydney, 1988, xv + 300 p. ISBN 0-909605-44-0.

This handbook is one of a set of three commissioned by the Soil and Land Resources Committee, a technical committee established in 1979 by the Standing Committee on Soil Conservation. The 'Australian Soil and Land Survey Field Handbook' (McDonald et al. 1984) lists and defines the attributes needed to describe site and soil conditions in field observations for Australian soil and land resource surveys. The 'Laboratory Handbook' (Bond et al. in preparation) describes recommended methods for soil and water analysis. This handbook aims to give guidelines on methods of conducting soil and land resource surveys and of interpreting the results for various purposes. These surveys are primarily field operations that aim to identify, describe, map, and evaluate the various kinds of soil and land resources in specified areas.

The main objective of the three handbooks is to recommend and promote the use of consistent methods, procedures and terminologies in soil and land surveys carried out throughout Australia. This handbook is somewhat different from the others in that much of the material is conceptual and is based on limited experience. Some of the guidelines are therefore likely to change when further experience is gained and new technologies are developed.

The methods of surveying soil and land have much in common but the attributes of land concern several disciplines that need to be integrated. Land is characterized by distinctive assemblages of attributes that include the atmospheric and soil climates, the lithology of underlying rocks, landform and surficial features, soils, vegetation, fauna and waterbodies.

Subjects covered in this book include: soil classification, land classification, soil survey specifications, developing land survey specifications, mapping, field operations, vegetation and faunal surveys, subsurface investigations, groundwater, survey equipment, laboratory analysis, data analysis, the role of computers, soil properties and soil performance, land evaluation, and survey reports.
Price: Austr.$ 55.00, plus $ 5.00 for postage and packing.
Orders to: Inkata Press, 13/170 Forster Road, Mount Waverley, Vic. 3149, Australia.

Nitrogen Fixation: Hundred Years After. Proceedings of the 7th International Congress on N-Nitrogen Fixation, Köln (Cologne), F.R.G., March 13-20, 1988. H. Bothe, F.J. de Bruijn and W.E. Newton, editors. Gustav Fischer, Stuttgart and New York, 1988, xx + 878 p. ISBN 3-437-30587-5 (German ed.); 0-89574-271-3 (USA ed.). Hardbound.

The 7th International Congress on Nitrogen Fixation was held in Cologne, Fed.Rep. of Germany, in March 1988. Two special events guided the organizers to hold the Congress in Germany this year. First, exactly 100 years ago, Hellriegel and Wilfarth published their classical manuscript 'Untersuchungen über die Stickstoffnahrung der Gramineen und Leguminosen'. They had performed the seminal experiments at the agricultural station of Bernburg/Saale, which proved that leguminous plants can utilize not only combined nitrogen in the soils but also atmospheric dinitrogen gas for growth. They showed that these plants cannot utilize dinitrogen gas directly, but are strictly dependent for this function on soil bacteria, which they harbour in nodules on their roots. Two contributions to the Congress were devoted to this special event at the opening session.

Secondly, this Congress constitutes one of the major scientific events in the celebration of the 600th anniversary of the founding of Cologne University. This University, being established in May 1388, is the oldest university in Germany founded under the patronage of a city.

The Congress was attended by 650 scientists from 42 countries. The objectives of the Congress were to bring together scientists working in different fields of nitrogen fixation, to stimulate interdisciplinary discussions concerning the basic principles of chemical and biological nitrogen fixation and to evaluate possibilities for increased agricultural productivity through biological nitrogen fixation. The general rapid progress occurring in molecular biology today is also reflected in the nitrogen fixation research area. More than 50% of the lectures and of the more than 400 posters presented were devoted to the molecular biology of the subject, with special emphasis on the *Rhizobium*-legume symbiosis. Other aspects, particularly the properties of the alternative nitrogenases, were also extensively discussed. A third major concern was the application of nitrogen fixation research towards improving global agricultural productivity.

The present proceedings contain the contributions of all 65 invited lecturers and summaries of about 400 posters. They represent an up-to-date account of the state of knowledge of biology and chemistry of nitrogen fixation and applied aspects.
Price: DM 186.00
Orders to: Gustav Fischer Verlag, P.O. Box 720143, D-7000 Stuttgart 70, Fed.Rep. of Germany.

Selected Papers of the Dakar Symposium on Acid Sulphate Soils. Dakar Senegal, January 1986. ILRI Publication 44. H. Dost, editor. ILRI, Wageningen, 1988, 249 p. ISBN 90-70754-13-4. Hardbound.

This selection of papers reflects the current developments in the study of acid sulphate soils. Most of the information that was presented at the Dakar Symposium elaborated on subjects that had been broached at the earlier symposia held in Wageningen (1972) and Bangkok (1981). The conclusions and recommendations of Dakar demonstrate the persistence of the problems that are encountered in investigating and using acid sulphate soils.

The Dakar symposium demonstrated a shift of the focus to fresh aspects of conventional subjects, such as the presentation of several cases of acid sulphate soil phenomena from upland areas. The need to study the variety and variability of essential soil properties over a wide range of temporal and spatial orders of magnitude was emphasized in several presentations. Corresponding innovations were the introduction of geostatistical analysis and improved methods of identifying active and potential acidity. The refinement of mathematical models that stimulate essential processes, and the renewed attention for microbiological and plant physiological processes, are sustaining this multidisciplinary approach.

In adapted research, the same holds for various papers on pisciculture and forestry as alternatives to the conventional use of acid sulphate soils for rice cultivation and also for papers on the environmental and socio-economic aspects of reclamation projects.

The present volume contains most of the papers that demonstrate this widening disciplinary scope. Most other papers will be published in a complementary volume.

All papers are in English, with French summaries.

Price: Dfl 70.00 or about US$ 35.00

Orders to: ILRI, P.O. Box 45, 6700 AA Wageningen, the Netherlands.

An Introduction to Agricultural Systems. Second edition. C.R.W. Spedding. Elsevier Applied Science, London and New York, 1988, viii + 189 p. ISBN 1-85166-191-3. Hardbound.

This is the second edition of an established work describing in introductory form the physical, biological and economic components of agricultural systems and their applications to agriculture in the world at large. This multidisciplinary and holistic book defines and describes a systems approach, the need for this approach and the ways in which it can be used.

This edition includes revisions such as the updating of illustrative data, especially those used in tables and figures, the addition of material which has become available since the first edition and the extension of material to cover new thinking and methodology. The result is a comprehensive second edition which contains 25% new material and has 20% more pages.

Additionally this book provides an initial guide to the relevant literature available on a systems approach to agriculture and will provide a relevant framework to those specialising in these sectors of agriculture.

Price: £ 22.50

Orders to: Elsevier Applied Science Publ., Crown House, Linton Road, Barking, Essex 1G11 8JU, England; *or:* Elsevier Science Publ. Comp., 52 Vanderbilt Ave., New York, NY 10017, U.S.A.

Agricultural Research Systems and Management in the 21st Century.K.V. Raman, M.M. Anwer and R.B. Gaddagimath, editors. National Academy of Agricultural Research Management, Hyderabad, 1988, vi + 211 p. Hardbound.

Agricultural changes in the later half of this century have been swift and complex and have largely contributed to increase and stabilise food production, mitigate hunger, reduce rural poverty and raise farm income. As the world's population reaches six billion by the year 2000, the productivity and imagination of agriculturists will be taxed as never before. Only continuous technological innovations could meet the challenges of the increased production of food, fuel and fibre. An integrated dynamic action plan that will optimise production using existing technologies, identify gaps and lapses and develop research strategies of the future, needs to be evolved.

National Agricultural Research Systems (NARS) will have to provide the basis for technological innovations, and the management of such systems holds the key to success. An international seminar, held in Hyderabad in December 1987, was organized to focus attention of the scientists to the challenging tasks ahead and discuss the structural and organizational changes that may be required to meet these challenges.

The seminar has been organised under four specific themes. The present volume is the proceedings of the seminar incorporating 17 invited and contributed papers to the seminar. The papers are arranged according to the themes. Theme I (4 papers) deals with projecting the future demands of food and fibre for the 21st Century. The increased demands arise not only from the increased population, but also from changes in economic status altering the consumption requirements. Theme II (4 papers) explores the technological innovations to meet the challenges of the next century. Theme III (3 papers) reviews the current agricultural research and educational systems in the country. India has one of the largest, complex and successfully organised agricultural systems in the world. Theme IV (6 papers) deals with the development of appropriate agricultural research and educational systems to meet the needs of the 21st century.

Price: US$ 22.00, including postage. Prepayment required.

Orders to: General Secretary, NAARM Alumni Association, National Academy of Agricultural Research Management, Rajendranagar, Hyderabad - 500 030, India.

Practical Pedology. Studying Soils in the Field. S.G. McRae. Ellis Horwood Series in Soil Science. Ellis Horwood Ltd., Chichester, 1988, 253 p. ISBN 0-85312-918-5 (Ellis Horwood ed.): 0-470-21062-1 (Halsted Press ed.).

The author, lecturer in Land Resources Science at Wye College, University of London, aims at the following readership: 'Lecturers and students of soil science, agriculture, microbiology, environmental sciences, geological sciences, botany and zoology. Geologists and others requiring a field guide to soil science. Those new to soil science with expertise in related subjects'.

The material is discussed in nine chapters. Especially the chapters 'Describing a soil sample', 'Interpreting a soil map for practical purposes' satisfy the aim of the author: 'a practical book, advising the reader how to study soils in the field. In contrast with the rather complex and advanced manuals and textbooks previously available, it assumes no previous knowledge of the subject'.

Most of the material in the other chapters can be found in many textbooks, but of course they can not be missed in a book dealing with 'Practical Pedology'.

In the chapter 'Naming and classifying a soil profile' the soil classification system for England and Wales is discussed at length, but also the Legend of the FAO-Unesco Soil Map of the World and the USDA Soil Taxonomy are dealt with. Much information in the text is condensed in figures (43) and tables (83).

The way of presenting the material (with questions in the text, 'Let us assume...', 'You may have problems with...', and the like) makes the book appropriate for self-study, at least if accompanied by adequate and sufficient field work.

Price: £ 35.00

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

H. de Bakker, Wageningen, the Netherlands

Efficiency in Irrigation. The Conjunctive Use of Surface and Groundwater Resources. G.T. O'Mara, editor. The World Bank, Washington, 1988, xiii + 196. Order N°: BK 1030.

More efficient use of surface and groundwater for irrigation can boost agricultural production significantly and reduce environmental damage. Increased efficiency is not without costs, however, and may require changes in water and irrigation institutions and management, as well as additional investment in irrigation and drainage facilities.

This collection of papers explores the theory, history, economics, evaluation, and applications of the conjunctive use of surface and groundwater. Particular attention is given to an important cause of inefficiency in conjunctive irrigation systems – the social costs of drawing water from common streams and aquifers differ significantly from the private costs paid by users.

The authors of the papers look at a number of ways to allocate water more efficiently. Some of these remedies are examined in case histories from California, Pakistan, and China. The report also looks at how efficiency can be increased through better information systems, more skilled and responsive irrigation managers, and institutional reforms that advice rather than becoming involved in the distribution and management of inputs and credits. The guidelines are particularly adapted to Sub-Saharan Africa, but can be used by managers of any extension agency.

Price: US$ 19.95

Orders to: Distributors of World Bank Publications or in case of difficulty: World Bank Publications, Dept. 0552, Washington, DC 20073-0552, USA; *or:* Publications, The World Bank, 66 avenue d'Iéna, F-75116 Paris, France.

The Red Soils of East and Southern Africa. Proceedings of an International Symposium, Harare, Zimbabwe, 24-27 February 1986. Manuscript report. IDRC-MR 170e. K. Nyamapfene, J. Hussein and K. Asumadu, editors. International Development Research Centre, Ottawa, 1988, viii + 498 p.

These proceedings are the outcome of a four-day symposium held at the University of Zimbabwe in February, 1986. The symposium was organised to gather together unpublished research and data on red soils from different countries in the region. The choice of red soils in preference to other soil types was in recognition of the fact that red soils form some of the most valuable commercial agricultural land in much of the East and Southern African region. They also present some of the most intricate and intractable problems in agriculture.

Much research has been done on red soils in the various countries of the region but a great deal more is required to solve some of their inherent problems. A great deal of the research done on these and other soils in this region is contained in mountains of paper which gather dust on the shelves of government departments or in consultants reports and, in some cases, a vast amount of relevant data are safely locked away in the archives of former colonial powers. One of the major objectives of the symposium was to collect some of this information and present it in a readily accessible form by way of the proceedings.

The report also contains contributions on research needs in soil survey, soil fertility, erosion and conservation, soil management and a listing of recommendations on collaboration, regional linkages and follow-up of the Red Soils Symposium. IDRC Manuscript Reports are gratis publications.

Requests to: IDRC, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9.

To Feed the Earth: Agro-Ecology for Sustainable Development. M. Dover and L.M. Talbot. World Resources Institute, Washington, 1987, 88 p. ISBN 0-915825-19-8. ISSN 0880-2582 (series).

'To feed the earth' has a double meaning. In the 1970s, concern arose over a possible global food shortage. Experts debated whether the earth could ever produce enough food to feed all its people. Although the headlines have disappeared, the question remains valid, for after a decade of strong agricultural growth there were more hungry people in 1980 – before the Sahelian drought – than there had been in 1970.

Today's concerns are different. Although aggregate agricultural production, now and for the foreseeable future, is sufficient to feed everyone, not everyone can afford to buy food. So part of the problem is distribution or, alternatively, growing enough food where the hungry people are. Tied to this concern are questions about the sustainability of agricultural production systems, especially in developing countries. The soil that sustains crop plants needs to be 'fed' as much as do the people who benefit from the food it produces. Worries about sustainability are not new, but are newly salient as growing numbers of people put increasing pressure on what are often marginal agricultural lands.

This paper defines and describes an ecological approach to agriculture that differs profoundly from the industrial approach that has dominated agricultural research and development for decades. Both have their place, but – as argued here – the main issue is how to incorporate the former into agricultural development.

The idea is not to abandon the methods of industrial agriculture that have been so successful in the economic and ecological conditions for which they were designed, but to determine where such methods as mechanization, use of agricultural chemicals, and monoculture are and are not appropriate, and to develop alternative systems better suited to tropical climates and developing economies. This study lays out steps – stretching from basic research to the mechanics of international assistance – that must be taken if ecologically based agriculture is to contribute all it can to feeding the earth.

Price: US$ 10.00

Orders to: see below.

A Matter of Degrees: The Potential for Controlling the Greenhouse Effect. Research Report N° 5. I.M. Mintzer. World Resources Institute, Washington, 1987, 60 p. ISBN 0-915825-27-9; ISSN 0880-2582 (series).

For the past several years the international scientific community has been issuing unusual warning signals. Earth's climate, they say, the climate that has sustained life throughout human history, is now seriously threatened by atmospheric pollution.

Perhaps the most notable warning came in October 1985, as a conference in Villach, Austria, drew to a close. 'As a result of the increasing concentrations of greenhouse gases,' the conference statement began, 'it is now believed that in the first half of the next century, a rise of global mean temperature could occur which is greater than any in man's history'.

Until recently, climate was taken for granted and assumed to be unchangeable. The evidence is clear, however, that through such activities as burning fossil fuels, leveling forests, and producing certain synthetic chemicals, people are releasing large quantities of 'greenhouse' gases into the atmosphere. These gases absorb Earth's infrared radiation, preventing it from escaping into space. This process traps heat close to the surface and raises global temperatures.

The scientists at Villach took the important step of urging that the greenhouse issue be moved into the policy arena. 'Understanding of the greenhouse question is sufficiently developed', they concluded, 'that scientists and policy-makers should begin an active collaboration to explore the effectiveness of alternative policies and adjustments'.

The author of the present report, who participated in the Villach meeting, has worked since 1985 to design a method to help scientists and policy-makers collaborate. The report is the first fruit of that effort. Between scientific understanding and policy initiative lies the domain of policy research, and the paper describes a promising tool for addressing many of the questions that must be answered before effective national and international action can be taken.

The author has integrated many existing simulation models into one structure – the Model of Warming Commitment – that can be used to project future emissions of the six gases that contribute most to global warming and to estimate their ultimate warming effects. Individual components of the model can be separately manipulated to simulate possible policy initiatives and economic changes.

The report describes the model and presents important results of analyses using it. These results provide grounds for great concern about current trends and guidance toward a less risky future. They suggest that strong measures can significantly diminish the built-up of greenhouse gases *if* implemented effectively and soon. They also suggest that even with such measures substantial climate change stemming form past and current activities may now be inevitable.

Price: US$ 10.00

Orders to: WRI Publications, P.O. Box 620, Holmes, PA 19043-0620, U.S.A.

Conservation Farming on Steep Lands. W.C. Moldenhauer and N.W. Hudson, editors. Soil and Water Conservation Society and World Association of Soil and Water Conservation, 1988, xiv + 296 p. ISBN 0-935734-19-8. Hardback.

Soil degradation afflicts farming communities in developed and developing countries alike. It is in the latter, however, that the problem and its consequences are particularly severe. Deforestation, intense cultiva-

tion of steep lands, overgrazing, and poor management of soil and water resources all work to reduce the productive capacity of soils and constrain people's efforts to increase food, feed and fuel production.

A sound, viable agricultural industry relies heavily on a stable natural resource base. Efforts to reduce or eliminate land degradation are requisite to maintenance and improvement in the productive capacity of soil resources.

Such efforts in the past have produced mixed results. Some have succeeded; others have failed. In most cases, a number of common principles account for that success or failure.

The present book identifies these common principles and suggests how they might be applied in agricultural development projects to increase the chances of success. A prominent theme throughout the book is the need to view the conservation of soil and water resources as an integral part of agricultural development efforts and not to look on conservation as something apart from agriculture to be undertaken as time and money permit.

This publication is essential reading for those decision-makers who create and finance agricultural development schemes and for those program administrators and conservation technicians who are responsible for putting those schemes in place on the farmlands of the world.

Price: US$ 25.00, including postage.

Orders to: Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764, USA.

Pollution Control and Conservation. M. Kovács, editor. Translated from Hungarian by Akos Máthé. Published in English with Ellis Horwood Ltd., Chichester. Akadémiai Kiadó, Budapest, 1985, 398 p. ISBN 963-05-3931-4. Hardbound.

This extensive survey of current knowledge in terms of the effective protection of air, water and living matter, looks at the problems of pollution at an international scale. It gives a comprehensive picture of a topical and highly significant area of current research, unifying the knowledge and experience of a team of active researchers and workers in pollution control and nature preservation.

The book opens with a detailed account of the components, functions, stability and local capacity of the natural and seminatural ecosystems vital to life on this planet. There is a prognosis on the effects of planned waterways, power stations and dams upon water quality; and a discussion of the impact of urban development, the role of forests in environmental control, and the interconnection between environmental control and law. A most valuable feature is a glossary of some 600 widely-used abbreviations from international organizations and institutions concerned with this.

The authors' concern throughout the text rests with the prevention of damage to out environment, and enumerates the alarming phenomena which have given cause for concern and become the basis for present scientific measures against pollution.

Orders to: Kultura, Hungarian Foreign Trading Comp., P.O. Box 149, H-1389 Budapest, Hungary.

Cotton Strip Assay: an Index of Decomposition in Soils. ITE Symposium N° 24. A.F. Harrison, P.M. Latter and D.W.H. Walton, editors. Institute of Terrestrial Ecology, Grange-over-Sands, 1988, 176 p. ISBN 1-870393-06-6. ISSN 0263-8614 (series).

Nutrient cycling in natural, silvicultural forest or agricultural ecosystems is maintained by continued decomposition of organic matter on and within the soil. The rate of organic matter decomposition is a complex function of litter quality, soil and environmental factors and, despite considerable research, it has not proved easy to quantify or to model the interactions involved.

To investigate either the direct or indirect effects of soil and environmental factors separately from those of litter quality, many research workers have employed standardized organic substrates, as analogues in decomposition studies. One such substrate is cotton fabric strips, a robust material but readily conforming to soil shape. It is usually inserted vertically into soil for a period of time, with their degree of decomposition being assessed by the loss in tensile strength of the cotton.

The standardized procedure which has been developed gives an integrated result over a particular period of time, and is here referred to as the 'cotton strip assay'. Because the assay reacts to the entirety of changes in environmental factors, which control decomposition (temperature, moisture, nutrient availability), it is used where a comparative measure is required for the effects of natural variations or of management practices. Although initially used as a comparative index of cellulose decomposition in surveys, it is now frequently considered as a general index of decomposer potential, as the results in this publication demonstrate.

The assay has been used in many types of environment with a wide geographical spread, with modifications for experimental studies on macro- and microscales. This diversity of uses has led to many publications throughout the scientific literature. It was, therefore, considered opportune to bring together those using the assay at a Symposium in Grange-over-Sands, which was held in October 1985, to discuss techniques, to pool available data, and to consider further possible developments of the assay.

This publication presents the papers and topics discussed. It is intended not only as a report of the meeting, but more as a handbook and reference base for the cotton strip assay. For this reason, the papers were revised after the meeting following the discussions which took place, and have been fully refereed and edited.

Price: £ 12.50

Orders to: HMSO Publications Centre, P.O. Box 276, London SW8 5DT, England.

Bibliography of Soil Taxonomy 1960-1979. Compiled by G.D. Bailey. Soil Management Support Services, USDA, and U.S. Agency for International Development. CAB International, Wallingford, 1987, 194 p. ISBN 0-85198-588-2.

The objective of this bibliography is to present an inventory of the world literature on Soil Taxonomy. This report lists journal articles, monographs, conference proceedings, technical reports, and dissertations on this subject which were published between 1960 and 1979. Citations on all aspects of Soil Taxonomy are included: explanations, criticisms, proposed modifications, and applications of the system, as well as contributions to the management problems of soils that have been classified by this system.

The bulk of the citations contained in this bibliography were retrieved from machine readable computer data bases, Agricola and CAB Abstracts.

In addition, a manual search of major soil science journals was made for pertinent citations that were published prior to the development of these data bases, as well as for citations that were not retrievable by computer methods. All citations retrieved from the CAB Abstracts data base contain abstracts, but those retrieved from the Agricola data base and those retrieved manually have no abstracts. The bibliography has 1310 entries arranged on author, a keyword index and a geographic index.

Price: £ 12.50 in U.K., US$ 25 in the Americas, £ 14.00 elsewhere, including postage.

Orders to: see below.

Soil Organic Phosphorus. A Review of World Literature. A.F. Harrison. CAB International, Wallingford, 1987, ix + 257 p. ISBN 0-85198-589-0.

Whilst the topic of organic phosphorus in soils has been reviewed on a number of occasions, the reviews have been relatively short accounts of a 'Survey-the-Scene' type, rather than comprehensive accounts. The objective of this present review has been the latter, drawing together information from many sources, and including summaries of organic phosphorus data in tabular form, as appendices.

This review comprises 20 sections covering such aspects as (i) the precision of methods used to determine organic phosphorus content of soils, (ii) the varied physico-chemical nature of organic phosphorus and its relationship with organic matter, (iii) the influences exerted by land-use and management practices, (iv) the changes occurring in organic phosphorus during pedogenesis, and (v) the factors affecting its rate of mineralization.

Additional to a written account, an attempt has been made to explain the variation in organic phosphorus content of soils on a world basis, by a mathematical analysis of data collated from the surveyed literature. Analysis of variance have shown highly significant differences in organic phosphorus content of soils, (i) in different geographical regions of the globe, (II) of different textural classes, (iii) of different major soil groups and (iv) under different land uses.

In the last section, the author highlights areas where new advances in research need to be made. Appended is a bibliography comprising nearly 900 references.

Price: £ 22.00 in U.K., US$ 42 in the Americas, £ 24.50 elsewhere, including postage.

Orders to: CAB International, Wallingford, Oxon OX10 8DE, England.

Acidification in Tropical Countries. SCOPE 36. H. Rodhe and R. Herrera, editors. John Wiley & Sons, Chichester, New York, 1988, xviii + 405 p. ISBN 0-471-91870-9. Hardbound.

Emissions of sulfur and nitrogen oxides into the atmosphere in Europe and North America have resulted in widespread environmental effects, including acidification of soils, surface- and groundwaters, injury to vegetation, corrosion of building materials and decreased atmospheric visibility. Although there is still considerable uncertainty regarding some of the cause and effect relations, e.g. in connection with injury to forests, many environmental effects are well documented.

There are very good reasons to consider acidification as one of the most serious environmental problems facing industrialized countries today. A natural question to ask is whether acidification is also a serious problem in other parts of the world. Even if this is not the case, it is important to know what the prospects are for the future: how susceptible are tropical ecosystems, for example, to future emissions of sulfur and nitrogen pollutants?

In 1984 the SCOPE (Scientific Committee on Problems of the Environment) Executive Committee decided to launch a project to answer some of these questions. In preparation for a workshop held in April 1986, case studies were initiated in late 1984 to describe the current situation in relation to acidification and other regional air pollution problems in seven countries: Australia, Bangladesh, Brazil, China, India, Nigeria and Venezuela. these case studies were presented together with several background papers about acidification problems in Europe and North America.

During the year following the workshop the case study reports were reviewed, expanded and improved. Two of the case studies (Bangladesh and India) were never completed.

The contributions in this book reflect current understanding of the potential for acidification in five countries. The data used in this assessment are generally sparse and thus may not be representative of all parts of the tropics. The book includes a synthesis chapter, which summarizes the most important findings of the project.

Price: £ 65.00 in the U.K.

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex, PO19 1UD, England; *or:* John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

The Properties and Management of Vertisols. M.E. Probert, I.F. Fergus, et al. CAB International and IBSRAM, 1987, iii + 36 p. ISBN 0-85198-601-3.

Although Vertisols cover a small part of the world's surface, they are important in semi-arid agriculture because in this environment they are among the most productive soils. In some parts of the world they have been cropped for centuries. That they are capable of sustained, but low, production over long periods indicates their stability under extensive use rather than a high degree of fertility, but there has been a cost in terms of severe erosion. They pose special problems for the cultivation of crops, so much so that their potential production is seldom attained. An essential feature of these clay soils, with their characteristic cracking behaviour, is their response to wet and dry periods.

Different classification systems make the integration of information difficult, but 'Vertisol' is now a widely used term for soils that meet or closely approximate the rigid definition of Soil Taxonomy and the legend of the FAO-Unesco Soil Map of the World. For the purpose of this review, we are less concerned whether a soil should be classed as a Vertisol, but more with the soil properties associated with Vertisols, in particular their physical properties such as cracking, response to water etc., and the consequences of such behaviour in terms of management.

The review contains chapters on the occurrence and distribution, characteristic properties, and management; and a listing of 254 references.

Price: £ 15.00 in U.K., US$ 32.00 in the Americas, £ 16.50 elsewhere, including postage.

Orders to: CAB International, Wallingford, Oxon OX10 8DE, England.

Rambling on Soil Conservation: An Essay from Kenya. Wilhelm Ostberg. Swedish International Development Authority (SIDA), Stockholm, 1987. 83 p. ISBN 91-586-7091-2.

This is an unusual addition to soil conservation writings. It is charmingly written with a light touch and the author obviously enjoyed writing it. But it is also very perceptive, and should be read by all soil conservationists concerned with planning or implementing soil conservation programmes. The author is a social anthropologist, and curator of the African Section of the Ethnographical Museum of Sweden. He has spent much time in Kenya working for SIDA on their soil conservation programme, particularly on the assessment of its results. Compared with most other soil conservation programmes in Africa the SIDA programme in Kenya is one of the most successful, but this is not the usual glowing uncritical report. He paints a realistic picture, and points out the failings and the weaknesses as well as the successes. At a time when soil conservationists are realising that their programmes can only be effective when they are based on a deep understanding of the objectives, aspirations, and constraints of the small-scale farmer, this essay is a welcome and useful contribution.

Orders to: SIDA, Agricultural Division, S-10525 Stockholm, Sweden.

N.W. Hudson, Bedford, U.K.

Soil Erosion and its Counter-measures. S. Jantawat, editor. Proceedings of an International Workshop, November 11-19, 1984, Chiangmai, Thailand. The Soil and Water Conservation Society of Thailand, 1987, 283 p. ISBN 974-340-410-4.

The Conference was attended by about fifty overseas participants from sixteen countries, mainly in South-East Asia, and nearly one hundred participants from Thailand. The Proceedings include twenty five papers reporting soil conservation programmes in South East Asia with one or two international papers putting the Asian experience into world perspective. A useful volume, particularly for conservationists working in Malaysia, India, Thailand, Indonesia, and China.

Orders to: Chuan Printing Press, 469 Phra Sumeru Road, Borvornives District, Bangkok 10200, Thailand.

N.W. Hudson, Bedford, U.K.

Guidelines for Developing Agents on Soil Conservation in Ethiopia. Community Forests and Soil Conservation Development Department, 1986, viii + 100 p. Hardback.

In the present day Ethiopia soil conservation occupies a very important place, if not the most important. It has been firmly established that in some parts of the country the problem of environmental degradation has gone beyond all limits of reversal and the problem is expanding very fast. Therefore, massive effort is required to reverse this trend and retain the disappearing natural resources. The Community Forests and Soil Conservation Development Department (CFSCDD) has been implementing soil conservation measures for the past few years. However, systematic approaches through local problem identification were missing and this has resulted in much lower impacts than expected.

The Soil Conservation Research Project (SCRP) has been active in the collection of information on the processes and dynamics of soil erosion and ways to combat it. The massive information so far collected is now becoming available for field implementation. This document is therefore the beginning of a series of similar guidelines which will gradually emerge.

The book has a very original approach to soil conservation in Ethiopia. The main objective is to simplify conservation planning while at the same time providing sound scientific base on the measures to be applied. The book is basically meant for the Development Agents who operate at the farm level and who are the key link between the farmer and the Ministry of Agriculture.

Orders to: Soil Conservation Research Project, P.O. Box 2597, Addis Abeba, Ethiopia.

Modelle für Prozesse im Boden. Programme und Übungen. R. Anlauf, K.C. Kersebaum, et al. J. Richter, Koordinator. F. Enke Verlag, Stuttgart, 1988, x + 232 S. ISBN 3-432-96441-2. Kartoniert.

Eines der erklärten Ziele des Buches 'Der Boden als Reaktor' (J. Richter, F. Enke Verlag, 1986, ISBN 3-432-95731-9, DM 28) ist, zur operationalen Beschäftigung mit den im Boden ablaufenden und für das Pflanzenwachstum wichtigen Prozessen durch Modellierung anzuregen. Der vorliegende Programm- und Übungsteil soll die Beschäftigung mit den numerischen Simulationsmodellen unterstützen. Voraussetzung für eine erfolgreiche Beschäftigung mit den in diesem Buch zusammengestellten Simulationsprogrammen ist die Kenntnis der Programmiersprache BASIC. Die hier vorgelegten Programme und Übungen knüpfen an die im Buch enthaltenen Beispiele an. Sie sind so einfach wie möglich gehalten. Durch ihre gründliche Dokumentation und Erklärung soll das Arbeiten mit ihnen erleichtert werden, sodaß sie als Ausgangspunkte für selbst zu erstellende Modelle dienen können.

Alle Programme sind in Microsoft-BASIC auf IBM-kompatiblen Mikrocomputern erstellt worden. Die auch auf Diskette erhältlichen Programme sollten daher auf allen entsprechenden Rechnern lauffähig sein.
Preis: DM 39.
Bestellungen an: F. Enke Verlag, Postfach 1304, D-7000 Stuttgart 1, Bundesrepublik Deutschland.

100 Years of Genetic Soil Science. V.A. Kovda, and V.V. Egorov, editors. Nauka, Moscow, 1986, 277 p. (in Russian).

The 100 years anniversary of V.V. Dokuchaev's monumental publication on Russian Chernozems produced a flood of papers and commentaries on the originator of the genetic approach to soil science. Based on a two-day meeting in December 1983 in Moscow, the most recent of these is the present collection of 35 essays. The facts that the meeting and book were sponsored by the USSR Academy of Sciences and the Agricultural Academy, together with the Ministry of Agriculture and the Soil Science Society of the Soviet Union, and that 1500 copies of it were printed, indicate probably better than anything else the high esteem and interest in the legacy of V.V. Dokuchaev and his ideas in the Soviet Union.

Some 100 authors contributed to the five sections of the book, dealing with the effect of Dokuchaev's ideas on agriculture, on their spread in the non-Russian republics of the Soviet Union, on current aspects of Chernozem studies, on the role of Dokuchaev's ideas on pedogenetic studies and in various specialized fields of soil science, including at least two valuable philosophical discourses on soil evolution and the laws of pedogenesis. The legacy of Dokuchaev is certainly revered in the Soviet Union, at times to the detriment of innovative thinking.

D.H. Yaalon, Jerusalem, Israel

Land Application of Sludge. Food Chain Implications. A.L. Page, T.G. Logan and J.A. Ryan. Lewis Publishers, Chelsea, 1987, ix + 168 p. ISBN 0-87371-083-5.

The disposal and/or recycling of sewage sludge is a problem facing municipalities throughout the world. As steps are taken to maintain and improve the quality of surface waters, the quantities of sludge generated continue to increase, and municipalities are confronted with an urgent need to develop safe and feasible alternative practices for sludge management. One alternative, as old as sludge treatment itself, and which presumably could accommodate increasing quantities of sludge, is agricultural utilization. The application rates to agricultural lands should be such that the plant nutrients in the sludge (e.g., nitrogen and phosphorus) meet entirely or in part the needs of the crop. However, in addition to valuable plant nutrients, sludge contain a variety of organic and inorganic trace constituents potentially harmful to plants and consumers. Consequently, disposal/recycling of municipal sewage sludge on agricultural lands must be carried out in a way which provides a beneficial use to the crop without developing pollution problems associated with the accumulation of trace constituents in soils.

Recognizing the need to utilize the most current available information in the development of regulations and criteria to safely manage land application of municipal sludge, a workshop was held in Las Vegas in November 1985. The workshop brought together scientists knowledgeable in the subject matter to critically examine current available information and produce in report form an assessment of the current knowledge about factors known to affect the impact of trace constituents on crops and consumers when applied to lands in the form of municipal sludge. This book presents the findings of the workshop.
Price: £ 31.70
Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England.

Rill Erosion. Processes and Significance. Catena Supplement 8. R.B. Bryan, editor. Catena Verlag, Cremlingen, 1987, 160 p. ISBN 3-923381-07-7 (this volume); ISSN 0722-0723 (series).

This publication contains a collection of recent research papers on the rill development process and its role in geomorphology. After an introductory chapter by the editor, this volume has 9 papers, dealing with rill erosion in temperate, mediterranean, and tropical field conditions and includes one paper on the initiation of rills in a laboratory experiment.
Price: DM 149.00 or US$ 88.00
Orders to: In U.S.A. and Canada: Catena Verlag, P.O. Box 368, Lawrence, KS 66044-368, U.S.A.; *Elsewhere:* Catena Verlag, Brockenblick 8, D-3302 Cremlingen, Fed.Rep. of Germany.

Classification, Properties and Management of Aridisols. C.B. Mack and O.A. Chadwick. Office of Arid Lands Studies, University of Arizona, Tucson, 96 colour slides, tape, guide.

This slide/tape program is designed to be used as a teaching aid in the dissemination of knowledge about the classification, properties and management of arid soils. The target audience is students, technicians and professionals involved in the characterization and utilization of soils in developing countries of the world.

Topics include: (1) the global importance and extent of Aridisols; (2) technical aspects of Soil Taxonomy including: a) the aridic soil moisture regime; b) ten diagnostic soil horizons important in the classification of Aridisols; c) the hierarchical structure of the taxonomy with special emphasis placed on illustration of Aridisol Great Groups; d) soils of arid regions which classify in other Orders; and (3) management aspects of Aridisols for agriculture.

To obtain copies in developing countries: contact the local USAID mission or write to: SMSS Program Leader, Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 2890, Washington DC 20013, U.S.A.

Price: US$ 90.00. Prepayment required

Orders to: University of Arizona, Office of Arid Lands Studies, 845 N. Park, Tucson, AR 85719, U.S.A.

Mediterranean-type Ecosystems. A Data Source Book. Tasks for Vegetation Science 19. R.L. Specht, editor. Kluwer Academic Publ., Dordrecht, Boston, 1988, xii + 248 p. ISBN 90-6193-652-7. Hardback

The regions of the world which experience a mediterranean type climate, with a cool wet season alternating with a hot dry summer, contain some of the world's most attractive landscapes. In the Old World, the mediterranean landscapes became the cradle of civilization; other mediterranean areas of the world have attracted considerable populations for many centuries. These large human populations have exerted considerable stress on the fragile ecosystems which developed in these sunny, but droughted, fire-prone landscapes. The mediterranean landscape has thus become one of the most threatened in the world.

In recent years much has been learned about the structure and function of mediterranean-type ecosystems. Much of this research has been fostered under the International Biological Program (IBP), UNESCO Man and the Biosphere Program (MAB) and, recently, the International Society of Mediterranean Ecologists (ISOMED).

The objectives of this volume are to ascertain the controls on distribution of community types within the major mediterranean climatic regions and to assess the variation in key environmental and community characteristics. This broad approach is intended to aid in the placement of specific sites in a more general framework.

This volume emphasizes four key community variables: (1) climatic controls on growth and community distribution; (2) regional variations in plant nutrient status; (3) species richness of plants, vertebrates, and soil fauna as a function of stand architecture, climate, soil moisture and substrate stability; and (4) ecomorphological characteristics and seasonality.

Besides describing the variation which occurs in each of the regional MTEs (mediterranean terrestrial ecosystems), the data on ecomorphological characteristics describe aspects of community function. The changes in these parameters along environmental gradients will help understand adaptive responses of vegetation to environment, and change in community function with environmental variation. Taken as a whole, this data set will act as a resource to analyze the level of similarity of community type to varying environmental conditions and the similarity of the vegetation and climate among the various MTEs. The data on ecomorphological characters are used to analyze the range in plant growth response to varying environmental conditions.

The tremendous wealth of plant and animal species and the variety of forms which MTEs exhibit are examined across the mediterranean climatic regions. These attributes and the factors which appear to control this diversity are examined on a continental and global basis in a search for an understanding of those ecosystems to the tremendous climatic stresses experienced in the recent geologic past and the effect of disturbance by man in recent times.

Price: Dfl 225, US$ 125, £ 67.

Orders to: In U.S.A. and Canada: Kluwer Academic Publ., 101 Philip Drive, Norwell, MA 02061, U.S.A.

Elsewhere: Kluwer Academic Publishers Group, P.O. Box 322, 3300 AH Dordrecht, the Netherlands.

Soil Management. A World View of Conservation and Production. R.L. Cook and B.G. Ellis. John Wiley & Sons, New York, Chichester, 1987, xiii + 413 p. ISBN 0-471-88927-X. Hardbound.

This textbook considers tropical as well as temperate-region crops and discusses the specific soil management problems of subsistence farmers in tropical countries. Their needs for equipment, fertilizers, pesticides, better varieties, irrigation facilities and agricultural know-how are discussed.

Price: £ 38.35 in U.K.

Orders to: John Wiley & Sons, Baffins Land, Chichester, West Sussex, PO19 1UD, U.K.; or: John Wiley & Sons, 605 Third Avenue, New York NY 10016, U.S.A.

Land Degradation and Society. P. Blaikie and H. Brookfield. Methuen, London and New York, 1987, xxiv + 296 p. ISBN 0-416-40150-3 (paperback); 0-416-40140-6 (hardback).

Why does land management so often fail to prevent soil erosion, deforestation, salination and flooding? How serious *are* these problems, and for whom? This book sets out to answer these questions, which are some of the most crucial issues in development today, using an approach called 'regional political ecology'. This approach acknowledges that the reasons why land management can fail are extremely varied, and must include a thorough understanding of the changing natural resource base itself, the human response to this, and broader changes in society, of which land managers are a part.

Four chapters provide a method of analyzing the problems of management and degradation. They focus particularly on the decision-making environment of the land users and managers themselves, its great variety through space and time, and on the inability of 'single grand theories' to provide satisfactory explanations. The next eight chapters are case studies which use and expand the methodology. They range through Nepal, North America, Indonesia, the Pacific, China, India and historical erosion in Europe, and modern capitalist, socialist and developing countries. The book justifies the great need for social scientists to understand the causes of soil erosion and land degradation, and improve upon the modest success which current national and international initiatives have brought so far.

Orders to: Methuen & Co, 11 New Fetter Lane, London EC4P 4EE, England; *or:* Methuen, 29 West 35th Street, New York NY 10001, U.S.A.

Serpentine and its Vegetation: a Multidisciplinary Approach. R.R. Brooks. Ecology, Phytogeography & Physiology Series. Volume 1. Dioscorides Press, Portland, 1987, 454 p. ISBN 0-931146-04-6. Hardbound.

In this book the terms serpentine and ultramafic are used as synonyms. Although ultramafic rocks occupy less than 1% of the land surface of the earth, they have an importance which far outweighs this small extent. They are, for example, hosts for asbestos and the important minerals of nickel, cobalt and chromium, and are so infertile that few areas can be used for agriculture. Their unusual and highly-specialised floras have been for many years targets for botanists, plant physiologists, phytochemists, plant geographers and soil and other scientists from many other disciplines whose roles are uncovered in this book.

Because of the multitude of topics covered in this work, it has been divided into two parts. Part I may be considered loosely as 'The ecology of serpentine' including such diverse subjects as: the nature, composition and distribution of ultramafic rocks; the serpentine factor (reasons for the infertility of serpentine soils), plant evolution; animals and serpentine, the phytochemistry of serpentinophytes; and the floras of kimberlites and carbonatites. Part II is a tour of serpentine floras throughout the world.

This comprehensive study of the soils, tectonics, associated fauna and the unusual physiology of the flora found in association is well illustrated with illustrations, tables and colour plates. The book has a glossary of terms, botanical index, geographical index and a subject index.

Price: US$ 47.50, plus $ 3.00 postage.

Orders to: Dioscorides Press, 9999 SW Wilshire, Portland, OR 97225, U.S.A.

Environmental and Dynamic Geomorphology. M. Pécsi, editor. Akadémiai Kiadó, Budapest, 1985, 220 p. ISBN 963-05-4226-9.

This collection of papers is dedicated to the First International Conference on Geomorphology, Manchester, September 1985.

Environmental geomorphology in recent years has started to play an increasing role in the technical design of establishments and in present-day agriculture as well as in regional and physical planning and rational land use management. Comprehensive research into land forms has undergone rapid changes during the last decade as far as fields of interest and objectives are concerned and this has involved a basic revision of concepts and methods of investigation.

An important objective of present geomorphological research lies in the assessment of various dynamic processes and landform equilibria to include not only the origin of landforms but the consideration and evaluation of the interactions between relief configuration and land use.

The papers are concerned with issues in conceptual geomorphology, and case studies are drawn from Hungary that illustrate the interactions between landforms and other environmental factors, long-term relief evolution, landform typologies and geomorphological mapping.

Orders to: see below.

Paleogeography and Loess. Pleistocene Climatic and Environmental Reconstructions. M. Pecsi and A. Velichko, editors. Akadémiai Kiadó, Budapest, 1987, 156 p. ISBN 963-05-4650-7.

The INQUA Commission on Loess and Commission on Paleogeographic Atlas discussed and fixed the contents of the Paleogeographic Atlas of the Northern Hemisphere: a series of maps registering global paleoenvironmental changes during the Upper Pleistocene. The lectures presented at the joint session of the two commissions are published in this volume. Papers are mostly concerned with Late Quaternary environmental changes and climates in Europe relying on the analyses of loesses, paleosols, moraines of the succession of biogenic phenomena and of fossil animal and plant finds and, last but not least, of climatic and relief changes.

Price: US$ 14, DM 34, £ 9.75

Orders to: Kultura, P.O.B. 149, H-1389 Budapest, Hungary

Land Management and Survival. Anders Hjort, editor. Scandinavian Institute of African Studies, Stockholm, 1985, 148 p. ISBN 91-7106-244-0.

The book emanates from a workshop at Odalgården, near Uppsala, Sweden in March 1985. Fourteen papers were presented by invited scholars, all of whom were commenting on their personal experience of dry land agricultural development projects in Africa, funded by the aid organizations of Denmark, Finland, Norway and Sweden. The purpose of the workshop was to initiate an exchange of views over problems of interpretation. Two disciplinary perspectives were exchanged: one focussing on land, its uses and management, and the other one on people, their resources and lives.

Price: SEK 100

Orders to: Almqvist Wiksell International, P.O. Box 62, S-10120, Stockholm, Sweden.

Waterlogged Wealth. Why waste the world's wet places?. Edward Maltby. Earthscan, London, 1986, 200 p. ISBN 0-90537-63-3.

The message of the book is made clear on the back cover – 'Don't drain the swamp! Man's traditional response to swamps, marshes and bogs has been to drain them. But wetlands are not wastelands. Coastal marshes are among the world's most productive ecosystems. They make commercial fisheries possible and protect coasts from floods and storm surges. Wetlands are pollution filters, water reservoirs. They are among the last places on earth offering homes to endangered plants, birds, and animals.' Having declared his purpose, it is not surprising that the author then produces a great deal of evidence for this theme, with examples of unwise interference with wetlands and other examples of well managed productive wetlands. One may perhaps feel that the study would be more balanced if there were some acknowledgement of the cases where well-managed drainage and irrigation schemes have increased food production without serious degradation of the environment, but perhaps someone will be stimulated by this book to present that case.

Price: £ 3.95

Orders to: Earthscan, 3 Endsleigh Street, London WC1H 0DD; *or:* Earthscan, 1717 Massachusetts Avenue NW, Washington DC 20036, U.S.A.

N.W. Hudson, Bedford, U.K.

The Potential of Agroforestry for Soil Conservation. Part III. Soil Changes Under Agroforestry (SCUAF): a Predictive Model. ICRAF Working Paper 44. A. Young, R.J. Cheatle, and P. Muraya. International Council for Research in Agroforestry, Nairobi, 1987, 90 p.

SCUAF: Soil Changes Under Agroforestry. A. Young and P. Muraya. Computer programme on diskette. International Council for Research in Agroforestry, Nairobi, 1987.

The Working Paper describes an interactive computer model designed to make approximate predictions of the effects upon soils of specified agroforestry systems within given environmental conditions. The present version of the model predicts changes in soil organic matter, represented by carbon, and erosion. The agroforestry system is specified by the proportional ground cover of two basic components, 'tree' and 'crop', the rates of growth of their respective parts (leaf, fruit, wood and root), and by which of these parts are harvested or returned to the soil. The basis for estimating changes in organic carbon is the decomposition constant, with either one or two humus fractions at the choice of the user. Erosion is determined by the USLE equation, estimating future changes in the soil and cover factors. A feedback effect of soil changes on rates of tree and crop growth is included. There is a system of best-estimate default values for missing data, but all values can be inspected and altered by the user.

Examples are given of the application of the model to a rotational agroforestry system (shifting cultivation) and a spatial system (alley cropping), and for comparison to some non-agroforestry forms of land use (natural vegetation, agricultural monocropping, reclamation forestry). The last chapter gives instructions to users.

The model is in MS-Pascal language, and operates on MS-DOS/PC-DOS microcomputers.

Price: Working Paper, US$ 3.00 plus postage. Model on diskette, US$ 5.00, purchasers must send a blank 5¼ inch diskette.

Orders to: Publications Secretary, ICRAF, Box 30677, Nairobi, Kenya.

Agriculture and Soils in Kenya. A case study of farming systems in the Embu District and characterization of volcanogenous soils. S. Hirose, editor. College of Agriculture and Veterinary Medicine, Nihon University, 1987, 138 p.

In 1985, a team of Japanese experts made a study in Kenya of the agricultural practices and their relationship with the particular characteristics of the soils. The factors studied included the socio-economic aspects of the traditional food production and consumption as well as the chemical, mineralogical and fertility characteristics of the rather typical soils of the region: Nitosols and Ando-like soils formed on alkali-rich volcanic material of the Great Rift Valley. This report is a useful contribution to a better understanding of agriculture in the subhumid regions of Africa.

Requests to: Dr. S. Hirose, College of Agriculture and Veterinary Medicine, Nihon University, 3-34-1 Shimaima, Setagaya-ku, Tokyo, Japan.

Ground-Water Contamination. Field Methods. ASTM Special Technical Publication 963. A.G. Collins and A.I. Johnson, editors. ASTM, Philadelphia, 1988, 491 p. ISBN 0-8031-0968-7.

One half of the drinking water consumed in the U.S. comes from ground water, three quarters of the cities take all or part of their supplies from ground water and the rural areas are nearly completely dependent upon ground water. Therefore, it is imperative that every precaution be taken to protect the purity of this resource. The present publication contains the proceedings of a Symposium, held in Cocoa Beach in February 1986.

The purposes of the symposium were to foster interdisciplinary communication and to develop information that can be used to prepare guidelines for ground-water contamination studies and also be used to develop field methods that can eventually become ASTM standard methods or practices. To move in a direction to meet these stated purposes, 51 papers were presented on methods related to quality assurance; geophysical exploration; well-drilling; construction, monitoring, and development of monitoring wells; ground-water sampling and sampling in unsaturated soils; soil permeability; nonpoint source investigations; and a variety of actual case histories. Of the presented papers, 37 have been peer reviewed and accepted for publication in this publication.

Price in Europe: £ 52.00

Orders to: American Technical Publications, 68 a Wilbury Way, Hitchin, Herts SG4 0TP, England. In the U.S.A.: ASTM, 1916 Race Street, Philadelphia, PA 19103, U.S.A.

People, Food and Resources. Sir Kenneth Blaxter. Cambridge University Press, Cambridge, London, 1986, 118 p. ISBN 0-521-32300-2.

The current problems of sub-Saharan peoples who are subject to recurrent famine and shortages of food are only one facet of a wider problem which confronts the peoples of the world. This problem, which is vast in scale, concerns the relationship between the physical and biological resources which the world can muster and the provision of food for the adequate nutrition of its peoples.

Overshadowing much of the thought about the future is the theorem propounded by Malthus almost 200 years ago, namely that population, unless checked in some way, has the capacity to outstrip the productivity of the earth in supplying food. Malthus' views are examined in this book and estimates are made of the need to increase and the possibilities of increasing both the nutritional status of the world's population and the production of food and other essentials. The enormous dilemmas that face mankind, the economic arguments that, while apparently logical, pose large moral questions, and the possible role of new scientific advances are outlined. The likely solutions to the many and vexed problems are analyzed and the urgency of them emphasised.

Orders to: Cambridge University Press, the Pitt Building, Trumpington Street, Cambridge CB2 1RP, England; *or:* CUP, 32 East 57th Street, New York, NY 10022, U.S.A.

Principles of Environmental Sampling. ACS Professional Reference Book, L.H. Keith, editor. American Chemical Society, 1988, xxi + 458 p. ISBN 0-8412-1173-6.

The goal of this book is to ensure consideration of the many variables and special techniques that are needed to plan and execute reliable sampling activities. Specific needs will dictate which techniques are actually incorporated in sampling plans and which are rejected; the key point is to be certain that those variables and techniques not selected were rejected because of the sampling goals rather than because of being overlooked.

Obtaining reliable environmental samples is a difficult process. Generally, the objective is to take representative samples of a heterogeneous and changing piece of our world in order to analyze for components that constitute a very tiny fraction of the samples. Other complicating factors are that the matrix is usually very complex, thereby facilitating analytical interferences such as masking and false positives. And once the sample is taken, other interferences can be introduced during transport or preservation. Furthermore, the analyses of interest are sometimes unstable. No wonder sampling is often considered to be the weakest link in the chain of planning-sampling-analysis-reporting activities.

This discussion shows that the reliability of the overall data cannot be greater than that of the reliability of the weakest part of the chain of events constituting an environmental sampling and analysis effort. What good is a precise analytical report if the samples are not representative of their source?

The American Chemical Society (ACS) Committee on Environmental Improvement recognized this problem and sponsored a symposium upon which this book is based.

Certain principles of planning, sample design, and quality control prevail over all the special considerations that matrix variations impose. These principles are discussed in the first section. Special matrix requirements (e.g., sampling equipment and techniques, and preservation) are then discussed along with the principles of sampling that involve them. These topics are discussed in sections involving water; air and stacks; biota; and solids, sludge, and liquid wastes.

Price: £ 48 in U.K.

Orders to: American Chemical Society, Distribution Office, Dept. 225, 1155 16th Street, NW, Washington DC 200 36, U.S.A.

Connaissance du Milieu Amazonien. Actes du Séminaire du 15 et 16 Octobre 1985, Paris. ORSTOM, 1987, 319 p. ISBN 2-7099-0879-4. ISSN 0767-2896 (série Colloques et Séminaires).

L'objectif de ce séminaire n'est pas de présenter tous les aspects du milieu naturel et humain de massif amazonien dans son originalité et sa diversité. Il faut l'entendre comme un primier bilan destiné à situer la modeste action des chercheurs de l'Institut dans le vaste réseau de recherches menées par les différents pays amazoniens.

Les 7 thèmes retenus l'ont été en fonctkon de notre expérience ou pour l'intérêt que nous y attachons. Ils sont étroitement liés dans la réalité amazonienne et de l'un à l'autre, les rappels sont fréquents.

Les thèmes sont: (1) le milieu naturel; (2) l'occupation humaine; (3) les systèmes agricoles; (4) les ressources halieutiques; (5) les effets des grands barrages; (6) les grandes endémies en milieu amazonien, et (7) santé et société.

Prix: FF 100

Commandes à: Service Diffusion, ORSTOM, 70-74 Route d'Aulnay, F-93140 Bondy, France.

Laborhandbuch für die Untersuchung von Wasser, Abwasser und Boden. H.H. Rump und H. Krist. VCH, Weinheim, 1987, 206 S. ISBN 3-527-26580-5. Kunststoffeinband. DM 58,00

Laboratory Manual for the Examination of Water, Waste Water, and Soil. H.H. Rump and H. Krist. VCH, Weinheim, 1988, xii + 192 p. ISBN 3-527-26973-8. Softcover. £ 20.25.

Dieses Handbuch bietet eine Sammlung einfacher und robuster chemischer, mikrobiologischer und bodenkundlicher Methoden zur Untersuchung von Wasser, Abwasser und Bodenproben. Bei der Auswahl der Methoden stand der Bezug zur Bewässerung und zum Gewässerschutz im Vordergrund. Beschrieben werden aber nicht nur die eigentlichen Analyseverfahren, sondern auch alle Aspekte, die bei der Analyse-Vorbereitung und bei der Interpretation der Resultate bedacht werden müssen. Etwa die Hälfte des Buches befaßt sich daher mit Themen der Qualitätskontrolle, der Organisation und Technik der Probenahme sowie der Beurteilung von Untersuchungsergebnissen. Die Versuchsbeschreibungen setzen Kenntnisse in praktischer Laborarbeit voraus, sind aber so ausführlich gehalten, daß der Benutzer normalerweise auf die Konsultation von Spezialliteratur verzichten kann. Dank der straffen und übersichtlichen Behandlung des Stoffes eignet sich das Buch auch als Nachschagewerk.

Bestellungen an/Orders to: VCH Verlagsgesellschaft, Postfach 1260/1280, D-6940 Weinheim, Bundesrepublik Deutschland; VCH, 8 Wellington Court, Wellington Street, Cambridge CB1 1HW, England; *or:* VCH, Suite 909, 220 East 23rd Street, New York NY 10010-4606, U.S.A.

Towards Sustainable Development. Panos Publications, London, 1987, 200 p. ISBN 1-870670-01-9 (paperback); 1-870670-02-7 (hardback).

This is an imaginatively produced publication comprising 14 case-studies written by influential third world journalists and prefaced by two prime ministers – Mrs Gro Harlem Bruntland, Prime Minister of Norway and Chairman of the World Commission on Environment and Development and Ingvar Carlsson, Prime Minister of Sweden. Shridath Ramphal, Commonwealth Secretary General, has also contributed a chapter.

The publication of these reports represents a publishing first and is a great step forward in understanding and improving development assistance. For the first time ever, a series of government-funded projects was publicly critiqued – not by donor experts, nor by Third World governments, but by an entirely independent team of recipient country journalists.

The reports examine the environmental and social impacts of each project, and the extent to which development assistance is achieving its aims.

This publication, with many line drawings, and photos, is a must for all those with even just a passing interest in environment and development of third world countries.

Price: £ 9.95 (paperback), £ 14.95 (hardback)

Orders to: Panos Books, The Panos Institute, 8 Alfred Place, London WC1E 7EB, England.

Vegetation Mapping. Handbook of vegetation science 10. A.W. Küchler and I.S. Zonneveld, editors. Kluwer Academic Publ., Dordrecht, Boston, London, 1988, ix + 635 p. ISBN 90-6193-191-6.

Through matching of the highly developed knowledge of vegetation with the refinement of cartographic techniques maps can now be made that will show the extent and geographical distribution of vegetation anywhere on the surface of our planet with a remarkable degree of accuracy. Vegetation maps are indispensable tools for many purposes: (1) Vegetation maps present an inventory of existing plant communities, their location, extent and geographical distribution in the landscape at the time of mapping; (2) Vegetation maps are scientific tools for analyzing the environment and the relationships between vegetation and the site on which it occurs; (3) Vegetation maps are valuable standards of reference for observing and measuring changes in the vegetation, their direction and their speed, i.e. the rate of change; and (4) Vegetation maps can serve as a scientific basis for planning future land-use, especially with regard to forestry, range management, and agriculture in all its forms and variations.

Although the usefulness of a vegetation map is no longer questioned, it is quite a different matter to produce it. This requires a considerable expertise. In this book, some basic considerations must necessarily precede the more technical aspects of vegetation maps and their preparation. Then a chapter is devoted to some examples of vegetation mapping schools, followed by parts on ecological information in vegetation

and related landscape maps, and on the application of vegetation maps. The book finishes with a listing of the Unesco Classification of Vegetation and a colour section of 32 pages.

There are growing numbers of geographers, zoologists, geologists, plant and animal ecologists, pedologists, and an ever-increasing multitude of people concerned with land-use planning, forestry, agriculture and conservation, with climatology and communications, investments and fiscal problems, education and military matters who are discovering the practical value of vegetation maps as applied to their respective fields.

Price: Dfl. 500 or US$ 246.

Orders to: In U.S.A. and Canada: Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061, U.S.A. *Elsewhere:* Kluwer Academic Publishers Group, P.O. Box 322, 3300 AH Dordrecht, the Netherlands.

Research Needs in Third World Irrigation. C.L. Abernethy and G.R. Pearce, editors. Hydraulics Research, Wallingford, 1987, 98 p.

This publication contains the proceedings of a colloquium held in Wallingford in April 1987. There is an increasing interest in irrigation research. Research programmes should be well targeted, aiming to answer real questions. The overall goal, in an applied science like this one, must be that the results of research should significantly influence actual practices in the field.

The Colloquium on Research Needs in Third World Irrigation was launched with these ideas as the motivating influence. The aim was to develop an appropriate agenda for irrigation research. For this purpose, a diverse group of people assembled, reflecting the variety of professional disciplines that are concerned in irrigation, but also reflecting the different relationships that different sectors of the professions have towards research.

This volume presents the proceedings of the meeting. To suit the nature of the subject, and to elicit a free flow of ideas from all the participants, it does not have a conventional conference structure. The event was organized in three parts. In advance of the full meeting, seven Preparatory Groups met and produced short summaries of research needs in the specific sub-sectors allocated to each. The purpose of this was to reduce the workload for the main sessions.

The main meeting, divided first into three Working Groups, devoted to Agriculture and the Environment, to Irrigation Engineering, and to Management: these reviewed what the Preparatory Groups had said, and introduced their own views, which were thereafter brought together in a final general discussion session.

After the meeting, the participants completed a questionnaire, which enabled them to express their personal opinions on the priorities that should be attached to the many researchable questions that had been identified. All of these inputs – Preparatory Groups, Working Groups, Questionnaire returns and Comments – are recorded in the present report.

Price: For engineers and researchers in developing countries: free of charges. Others: £ 17.50, including postage.

Orders to: Overseas Development Unit, Hydraulics Research Ltd., Wallingford, Oxon OX10 8BA, England.

Coastal and Inland Salt-affected Soils in Thailand – Their Characteristics and Improvement. Y. Takai, T. Nagano et al., editors. Nodai Research Institute, Tokyo University of Agriculture, 1987, 280 p.

Salt-affected soils are distributed widely throughout Northeast Thailand and peat soils and acid sulphate soils in peninsular and southern coastal Thailand.

Research was carried out in these regions to elucidate the physical, chemical and biological characteristics of the soils, to test methods for removing the salinity or strong acidity, and to clarify the important factors which retard crop growth employing pot and water-culture cropping experiments.

Orders to: Nodai Research Institute, Tokyo University of Agriculture, 1-1-1, Sakuragaoka, Setagaya-ku, Tokyo 156, Japan.

The Interactions between Termite Activity, Agricultural Practices and Soil Characteristics in Kisii District, Kenya. Agricultural University Wageningen Papers 87-3. Chr. Kooyman and R.F.M. Onck. Wageningen Agricultural University, 1987, 120 p. ISBN 90-6754-108-7

Especially since the 1950's, the contribution of termites to soil formation and their effects on soil fertility are widely discussed. With regard to agricultural aspects of termite activity, attention has mainly been given to the damage they cause to crops and to wooden structures. Little work has been done to investigate their contribution to the formation and maintenance of soil structure. More research is needed about the effects of the soil fauna on soils, especially on soils under cultivation.

The present study attempts to answer the following questions: (1) what is the relation between the distribution and species diversity of termites and the spatial variations in ecological conditions? and (2) to what extent is the activity of termites affected by farming practices, and how does this reflect on soil characteristics?

After information on the study area, chapters deal with the distribution of the termite species and their impact on the micromorphology of the soil. A field experiment on the long-term effects of tillage and type of crop on the soil and termite population is described. The next chapters treat the effects of termite building activities separately and the study closes with the role of termites in soil formation.

Price: Dfl. 42.00

Orders to: Kniphorst, P.O. Box 67, 6700 AB Wageningen, the Netherlands.

The Impact of Climatic Variations on Agriculture.
Volume 1: Assessments in Cool Temperate and Cold Regions. M.L. Parry, T.R. Carter and N.T. Konijn, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1988, xii + 876 p. ISBN 90-277-2700-7 (hardbound); 90-277-2701-5 (paperback).
Volume 2: Assessments in Semi-Arid Regions. M.L. Parry, T.R. Carter and N.T. Konijn, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1988, xii + 764 p. ISBN 90-277-2719-8 (hardbound); 90-277-2720-1 (paperback).

These volumes report detailed results from the project on 'The Impact of Climatic Variations on Agriculture', funded by the U.N. Environment Programme (UNEP) and the International Institute for Applied Systems Analysis (IIASA).

The studies trace the complex linkages between climate-related impacts as they cascade through biophysical, economic and social systems. They adopt a hierarchy of models of systems and perform experiments with this hierarchy for a number of climatic scenarios of short-term and long-term climatic changes. Three sets of models simulate in turn the climatic change, the first-order impacts on crop yields or livestock production, and the second-order responses of the wider agricultural and socioeconomic sectors. Although there is much uncertainty still attached to estimates of long-term climatic changes and effects, it is possible, by considering credible future scenarios, to identify a range of probable climate-induced effects on food production, as well as suitable adjustments to agricultural and supporting activities for managing the associated risks.

Volume 1 reports results from five case studies in cool temperature and cold regions and Volume 2 for six case studies in semi-arid regions. Each case study brought together climatologists, agronomists, agricultural economists and regional and national planners. In all, more than 70 scientists were involved in the project.
Price: Vol.1: Dfl 220 or £ 69 (hardbound); Dfl 95 or £ 29 (paperback). Vol.2: Dfl 200 or £ 62 (hardbound); Dfl 85 or £ 26 (paperback).
Orders to: In U.S.A. and Canada: Kluwer Academic Publ. Group, 101 Philip Drive, Norwell, MA 02061, U.S.A; in U.K., Ireland and Middle East: Kluwer Academic Publ. Group, Falcon House, Queen Square, Lancaster LA1 1RN, England. *Elsewhere:* Kluwer Academic Publ. Group, P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Agricultural Research Centres, a World Directorate of Organizations and Programmes. 9th edition. Longman, 1988, 1180 p., 2 volumes. ISBN 0-582-01775-0.

This updated edition gives detailed profiles of about 7500 research and technology laboratories in the public and private sectors active in the agricultural and environmental sciences. It covers 130 countries, and is fully indexed.
Price: £ 220.00, including surface mail postage.
Orders to: Sales Department, Longman Group, Westgate House, The High, Harlow, Essex CM20 1YR, England.

Remote Sensing in Soil Science. Developments in Soil Science 15. M.A. Mulders. Elsevier Science Publishers, Amsterdam, Oxford, 1987, x + 379 p. ISBN 0-444-42783-X (this volume); 0-444-40882-7 (series). Hardbound.

The soil scientist is involved in the study of environment since the environmental conditions have to be evaluated for their impact on soil formation. However, it may be that the impact of past environmental conditions has been of even more importance on soil morphology than the present conditions. Therefore geo- and morphogenesis form also part of his field of study. His subject of interest is often not visible. In areas covered by vegetation, he has to use combinations of aspects such as natural vegetation or land use and relief to find a clue to the geographical extension of soil bodies. The combinations are not fixed but depend on the type of landscape. For example, vegetation may be the effect of human interference and may not at all offer a clue to soil condition.

Scientists involved in geographical distribution of soil, especially in medium and small scale surveys, obtain much profit of remote sensing techniques because they offer an overview over large areas and make the study of various landscape elements individually as well as their interrelationship possible. During the past decade, remote sensing techniques developed rather fast. Therefore, it is possible that a soil surveyor becomes old-fashioned by not knowing the potential use of modern techniques.

This book is dealing with remote sensing techniques and their application in the field of soil science. It may be used by students and scientists in soil science, geography, geology, hydrology, ecology, agriculture and civil engineering. Basic knowledge of soils, geomorphology, geology and physics will provide a useful background. The reader is stepwise introduced to remote sensing by the following subjects: (1) basic physics concerning the interaction of electromagnetic radiation with matter; (2) spectral data of soils, rocks and plants; (3) technical aspects; and (4) interpretation of remote sensing data.

The purpose of the book is to present, besides remote sensing techniques and application, interpretation methods as well as most of the basic parameters usable for modelling of the interaction.
Price: Dfl 195.00
Orders to: In U.S.A and Canada: Elsevier Science Publ.Comp., 52 Vanderbilt Avenue, New York, NY 10017, U.S.A. *Elsewhere:* Elsevier Science Publ., P.O. Box 211, 1000 AE Amsterdam, the Netherlands.

The Integrated Land and Watershed Management Information System (ILWIS). ITC Publication N°7. A.M.J. Meijerink, C.R. Valenzuela and A. Stewart, editors. International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, 1988, 115 p. ISBN 90-616-4055-5.

This geographical information system (GIS) aims to provide users with state-of-the-art data gathering, data input, data storage, data manipulation and analysis, and data output capabilities – marrying and integrating conventional GIS procedures with image processing capabilities and a relational database. The system is tailored for use with microcomputers available and maintained in most developing countries.

Data gathering procedures incorporate ITC's expertise in developing survey techniques and aerospace interpretation methods. Image processing plays an important role in data gathering, especially in areas without much basic natural resources information.

Graphics data are entered with easy-to-use menu-driven procedures for digitizing maps; well-structured forms are used to input attribute data. Digitizing is done in a freehand format. Geometric data are stored in both vector and raster structures.

Map manipulation and cartographic modelling are in the raster domain. Several procedures for point, aerial and neighborhood transformations are available within the map analysis package. Fast overlaying constitutes an important characteristic of the system. The use of internal tabular data reduces data storage requirements and allows rapid reclassification procedures. Image processing techniques are an essential component in the system's data analysis and data transformation capabilities.

Maps can be displayed in both vector and raster structures, colour output (in up to 255 colours) can be displayed on the screen, and hard copies can be obtained using a colour printer and ink-jet plotter. Tabular data, statistics and reports are provided by the relational database.

Research is being carried out to evaluate several hydrologic and crop prediction models that would satisfy the requirements and data-availability in several developing countries. Rule bases are being developed for specific applications and local conditions in several regions with different environmental and ecologic conditions.

The full integration of the relational database, map analysis package and image processing is being investigated and constitutes one of the main efforts of the ongoing and immediate research. Although the main purpose of the system is to provide a decentralized, low-budget information system, research is also being carried out on development of a network for access to geographic information systems in mainframes or minicomputers, such as Arc/Info or Usemap. The programme is priced at about US$ 15.000. For more information on ILWIS, contact Dr. C. Valenzuela, ITC, see address below.

Price: Dfl 20.00, plus postage.

Orders to: The Bookshop, ITC, P.O. Box 6, 7500 AA Enschede, the Netherlands.

Geotechnical Applications of Remote Sensing and Remote Data Transmission. A.I. Johnson and C.B. Pettersson, editors, ASTM, Philadelphia, 1988, 277 p. ISBN 0-8031-0969-5.

An International Symposium on Geotechnical Applications of Remote Sensing and Remote Data Transmission was held in Cocoa Beach in 1986. The purpose was to develop information that could be used to prepare guidelines for the use of remote sensing and data transmission techniques. By definition of the requirements of remote sensing data, the gap between remote sensing and know-how and geotechnical know-how can be made smaller.

For this several case studies on application of remote sensing are highlighted. Different areas are studied covering parts of Australia, Canada, China, Great Britain and the U.S.A.

A summary is given on remote sensing techniques such as aerial photography, multispectral scanning in the visible and near infrared, thermal infrared line scanning, Side-Looking Airborne Radar (SLAR), Synthetic Aperture Radar (SAR), spaceborne radar (Seasat and Shuttle Imaging Radar or SIR).

Different fields of application are dealt with: (1) site evaluation studies for pipeline constructions, mining, reservoir submerging and waste site use; (2) mapping of near surface materials such as gravel and sand; (3) mine subsidence studies, and potential ground subsidence and collapse features in soluble carbonate rocks; and (4) mapping of lineaments for geologic and hydrologic studies.

The book is more than proceedings only, since besides the inclusion of a subject index, editing has resulted in uniform presentations. For instance, the remote sensing techniques are in each contribution evaluated for their effectiveness. In addition, attention is paid to spatial statistics, Geographic Information Systems and change detection leading to coverage of the subject as complete as possible. The latter is served also by the glossaries of terms, definitions and abbreviations, the index to sources in the U.S.A. of remotely sensed data, and a bibliography for additional reading.

Finally, some contributions are directed to Remote Data Transmission and criteria for selection of remote telemetry methods for geotechnical applications, an approximation from the other side.

Price: £ 52 in U.K.

Orders to: American Technical Publishers, 68a Wilbury Way, Hitchin, Herts. SG4 0TP, England; *or:* American Society for Testing of Materials (ASTM), 1916 Race street, Philadelphia, PA 19103, U.S.A.

M.A. Mulders, Wageningen, the Netherlands

Soil Map of Xizang Autonomous Region, China. Scale 1:2,5 million. With explanatory text, xvi + 316 p., and colour plates.

This small-scale map of Xizang (Tibet) covers an important part of the People's Republic of China. The region was hitherto not covered with a soil map at this scale. The accompanying text, all in Chinese, gives information on the environmental conditions, soil classification, soil geography and discusses all soils recognized. The text will hopefully be translated into English at a later stage.

Orders to: Nanjing Institute of Soil Science, Academia Sinica, P.O. Box 821, Nanjing, People's Rep. of China.

Abstracts on Intercropping. Vol.6, 1987. J. Carls, editor. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, 1988, 275 p.

This volume contains 237 extensive abstracts on intercropping and related subjects, such as traditional farming systems, agroforestry and farming systems research. The present volume comprises abstracts of literature collected during 1987. It has indexes based on key words, crops, geographical locations and authors. The project expiredin 1986, but GTZ has the intention to keep the documentation available for users.

Requests to: GTZ, Datenerfassung und Auswertung, Postfach 5180, D-6236 Eschborn 1, Fed.Rep. of Germany.

New Publications from FAO / Nouvelles Publications de la FAO.

Septième Réunion du Sous-comité Ouest et Centre Africain de Corrélation des Sols pour la Mise en Valeur des Terres. Ouagadougou, Novembre 1985. Rapport sur les Ressources en Sols du Monde 59. FAO, Rome, 1986, 191 p. ISBN 92-5-202498-0.

Huitième Réunion du Sous-comité Ouest et Centre Africain de Corrélation des Sols pour la Mise en Valeur des Terres. Yaoundé, Janvier 1987. Rapport sur les Ressources en Sols du Monde 61. FAO, Rome, 1987, 203 p. ISBN 92-5-202642-8.

En vue d'une meilleure connaissance des sols et d'un échange d'informations et d'expérience en matière de description, d'analyse, de classification et d'aménagement des sols, la FAO a, dans le cadre de ses activités, établi en 1972 un Sous-Comité Ouest et Centre Africain de corrélation des sols pour l'évaluation et la mise en valeur des terres.

Le Sous-Comité regroupe actuellement les pédologues de 20 pays sur les 24 qui constituent les sous-régions de l'Afrique de l'Ouest et du Centre. Les réunions du Sous-Comité ont lieu tous les deux ans et portent sur un thème précis.

Le premier rapport concerne la septième réunion du Sous-Comité, qui s'est tenue à Ouagadougou (Burkina Faso) du 10 au 17 Novembre 1985. Le thème discuté a porté sur l'application des Directives FAO d'évaluation des terres. Etude de cas: critiques et propositions. Il ressort des discussions que l'insuffisance de données fiables dans les pays de la région incite plutôt à l'utilisation de méthodes qualitatives que quantitatives.

Une tournée sur le terrain dans deux zones écologiques du Burkina Faso a permis aux participants de se familiariser avec les principaux types de sols de ces zones. La légende révisée de la Carte mondiale des sols a été présentée aux participants, de même que l'ébauche de la Carte des sols de l'Afrique de l'Ouest au 1/2.000.000.

La huitième réunion s'est tenue à Yaoundé (Cameroun) du 19 au 28 janvier 1987 et a été suivie d'une excursion sur le terrain au cours de laquelle une dizaine de profils de sols ont été décrits et classifiés. Le thème discuté se rapporte aux: 'Sols rouges: types, étendue, classification et mise en valeur'. Le choix de ce thème a été motivé par la grande distribution de ces sols dans la sous-région et par leur excessive sollicitation pour la production agricole.

Ces deux rapports contiennent les communications des délégués, ainsi que des informations sur les excursions sur le terrain, y compris les descriptions et résultats analytiques des profils étudiés.

Seventh Meeting of the East and Southern African Sub-committee for Soil Correlation and Evaluation, Gaborone, March-April 1987. World Soil Resources Report 62. FAO, Rome, 1988, 161 p. ISBN 92-5-102675-0.

The seventh meeting of the Eastern African Sub-Committee for Soil Correlation and Land Evaluation (EASC) took place in Gaborone, Botswana, in March-April 1987. The meeting was organized around three agenda items: (1) Presentation and discussion of the country papers; Application of FAO Guidelines on Land Evaluation for Rainfed Agriculture; Criticisms and Proposals; (2) Discussion on the Revised Legend of the FAO/Unesco Soil Map of the World; and (3) Classification of the soil profiles during field trips. The report contains the presented papers, the guide to the field trip and the soil descriptions and analytical data of the studied profiles.

Directives: Evaluation des terres pour l'Agriculture pluviale. Bulletin Pédologique de la FAO 52. FAO, Rome, 1988, xii + 220 p. ISBN 92-5-201455-1.

Les Directives s'adressent au personnel de terrain chargé d'évaluer, suivant les principes décrits dans le Cadre pour l'évaluation des terres de la FAO (FAO Bulletin 32, 1976), les terres que l'on envisage d'exploiter en régime pluvial. Les concepts fondamentaux du Cadre y sont développés sous la forme de procédures et de méthodes d'évaluation. On y trouvera des indications pratiques concernant la planification et l'exécution des différentes étapes de l'évaluation, depuis l'interprétation des données de base jusqu'aux recommandations finales sur lesquelles se fondent la planification de l'utilisation des terres et la mise en oeuvre d'un projet.

Les procédures proposées peuvent être utilisées à différents niveaux de sophistication et de détail selon les objectifs et l'échelle de l'évaluation ainsi que le personnel et les ressources financières disponibles. Plus particulièrement, les procédures sont applicables à toutes échelles, depuis les continentales ou nationales en passant par les régionales et sous-régionales, jusqu'aux études détaillées ou très détaillées pour des projets locaux au niveau de la planification d'une communauté villageoise ou d'une ferme.

Outre leur utilité pour les techniciens qui effectuent déjà des études d'évaluation, les Directives peuvent, de pair avec le Cadre, servir d'instrument de travail pour la formation en matière d'évaluation des terres.

Soil and Water Conservation in Semi-arid Areas. FAO Soils Bulletin 57. N.W. Hudson. FAO, Rome, 1987, xiii + 172 p. ISBN 92-5-102606-8.

This Bulletin does not offer easy solutions to all the problems of soil and water conservation in semi-arid regions. There is no storehouse of tested methods and techniques ready to be taken off the shelf for immediate application. The conditions vary too much – the climate, the soil, and the social and economic factors. Instead, this Bulletin reviews methods and techniques which have been tested and found useful somewhere, and which might be suitable for use in other conditions.

No attempt is made to define semi-arid areas, and some of the examples come from arid and sub-humid regions. The objective is to make the Bulletin relevant anywhere that rainfall is a problem because of amount, *distribution or unreliability*.

The problems associated with salinity and alkalinity, wind erosion and mechanization are omitted. Neither is there a discussion of the political, social and economic issues, although in many cases these are as important as the technical problems.

The first three chapters are introductory, and outline the scale and importance of the problem, the difficulties and the possibilities for improvement. The Bulletin argues strongly, and presents evidence, that drought is part of the natural order in semi-arid areas, and that the recent disasters of degradation and famine *in Africa result from misuse and mismanagement of the natural resources which reduced the region's ability* to cope with the additional stress of drought.

These are followed by four chapters which deal with the technical aspects of soil conservation, water conservation, water harvesting and the application of water conservation. The approach is practical, and numerous examples are given of the different practices and techniques which are described in the Bulletin.

Nature and Management of Tropical Peat Soils. FAO Soils Bulletin 59. J.P. Andriesse. FAO, Rome, 1988, *xiv + 165 p. ISBN 92-5-102657-2.*

In developing countries there is an increasing demand for agricultural expansion onto new land caused by population pressure, by deterioration of existing land as a result of overfarming, or by competition for land from industry and urbanization. For many countries self-sufficiency in food either necessitates intensification of food cropping on existing land or the reclamation of new land for agriculture.

Most land not yet in agricultural use has some limitations on its suitability for agriculture. Much of this land is too steep or too wet for farming. In general the limitations caused by wetness are technically *easier to overcome so wetlands offer better prospects for sustained agriculture than steepland.*

This Bulletin aims to consolidate the up-to-date knowledge available on the characteristics of tropical peatswamps, and to describe the management required to reclaim them and to bring them into production. It is comprehensive and intended for all disciplines involved in peatswamp reclamation. All aspects of peatswamps are covered, form their genesis to the environmental impact of the reclamation on neighboring ecosystems.

This Bulletin is not a working manual in the sense that it provides answers to all problems which might arise. The subject is too wide in scope and the conditions too variable to make this possible in a volume of this size. The Bulletin tries to focus on principles, processes and procedures to create awareness of the likely problems involved, and to show ways and means to solve them. It also provides a carefully chosen bibliography covering most of the issues raised.

Commandes à: Points de vente des publications de la FAO, ou à la Section distribution et ventes, FAO, Via delle Terme di Caracalla, 00100 Rome, Italie.
Orders to: FAO sales agents, or Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

D & D User's Manual. An Introduction to Agroforestry Diagnosis and Design. Compiled and edited by J.B. Raintree. International Council for Research in Agroforestry (ICRAF), Nairobi, 1987, 110 p.

In response to reader feedback on earlier publications in the D&D manual series, this manual has been written to answer popular demand for a user-friendly introduction to ICRAF's methodology for agroforestry diagnosis and design. It represents a new synthesis of the most generally useful and adaptable procedures to emerge from practical applications of the D&D methodology during a five year trial period in sites around the world.

The key to effective use of the D&D methodology is *flexibility*. Although the basic logic of D&D is quite generally applicable, the specific procedures and survey instruments may need to be adapted to fit the requirements of the user. The elementary D&D concepts and baseline procedures are presented in the first section.

Basic procedures and key concepts are followed by more detailed suggestions on procedures for national research programmes, with the understanding that these must be *selected* and *adapted* to fit the circumstances. Some of the most important modifications of the procedures suggested for formal research programmes arise from creative adaptations of the methodology by community-based fieldworkers doing informal, participatory agroforestry research and development. Next comes a case study example of the open-ended D&D learning process, as it was experienced in an agroforestry project in Kenya. The introduction concludes with 'D&D in action' – a pictorial dramatization of the D&D process which may help in gaining a rapid overview of the D&D process as it might be implemented by a national agroforestry research programme. The appendix contains a limited selection of the most useful diagnostic survey instruments and design resources. This manual attempts to answer the need for an up-to-date, practical introductory manual at an intermediate level of detail.

Price: US$ 12.50 plus $ 6.25 (airmail) or $ 1.10 (surface mail).
Orders to: ICRAF, Infocomm Div., P.O.Box 30677, Nairobi, Kenya.

Mixed Cropping of Groundnut and Maize in East Java. W.C.H. van Hoof, Ph.D. Thesis, Wageningen Agricultural University, 1987, 156 p.

In East Java, Indonesia, a survey was carried out on farming practice and yield of groundnut and maize. Farmers obtained a 23% higher productivity in mixed cropping than in sole cropping.

The effects of plant density and of different sowing times on development and yield of groundnut and maize in mixed cropping were studied in field experiments. Light interception and light use efficiency were measured and calculated, as a possible explanation for the yields in sole and mixed cropping. An indication was obtained at which level of leaf area index and productivity, maize in sole cropping was more productive than mixed crops of groundnut and maize. The impact of mixed cropping on returns and labour requirement were listed and discussed.

Improvements in mixed cropping techniques are a cheap way to increase the food production in East Java. The research results seem relevant for the same and comparable crop combinations, such as maize-beans, maize-soyabeans and sorghum-cowpeas, in other parts of the world.

Price: Dfl. 15 or US$ 7.50
Orders to: Dept. of Tropical Crop Science, P.O. Box 341, 6700 AH Wageningen, the Netherlands.

Snap beans: present status in the developing world and bibliography of research (1919-1987). W. Janssen, J. López and F. Gonzáles. Centro Internacional de Agriculture Tropical (CIAT), Cali, 1988, v + 411 p.

In developing countries, there is a growing interest in improving the quality of food, firstly to provide secondary sources of nutrients, and secondly to raise the income levels of small farmers. Snap beans outstand among potential crops; its similarity to common beans suggests that it can be grown in many tropical regions, traditionally devoted to the cultivation of staple food crops. CIAT has attempted to put together the literature on snap beans.

The first part of the publication consists of a review of the present status of snap beans in developing world, dealing mainly with socioeconomic aspects. Production, marketing and consumption features are described and the future potential for the crop is outlined. Constraints to production increases are discussed and the opportunities for research and development of the crop are defined.

The socioeconomic orientation of the opening paper and the technical emphasis of the bibliography are highly complementary. Whereas the paper outlines the major issues in snap bean production and utilization, the bibliography indicates what has been accomplished in them.

The bibliography contains 922 references to research on snap beans. Most of the documents are available at CIAT. References are organized by disciplines and are complemented with author and subject indexes. Within each discipline, the citations are arranged alphabetically by authors, and within the papers of each author, by year in descending chronological order. Users may obtain the full text of the documents from CIAT

Price: US$ 5.00, including postage.
Orders to: CIAT, Apartado Aereo 6713, Cali, Colombia.

Histoire de la Géologie. Tome I. Des Anciens à la première moitié du XVIIè siècle. Petite Collection d'Histoire des Sciences. F. Ellenberger. Lavoisier, Paris, Technique et Documentation. 1988, viii + 352 p. ISBN 2-85206-457-X; 2-85296-455-3 (série Histoire de la Géologie).

Le présent ouvrage est appelé à devenir pour longtemps *la* référence. Il est le premier à explorer à fond les racines de la science depuis les Grecs jusqu'au milieu du XVIIè siècle. C'est en effet à cette époque que nous assistons à sa véritable naissance, basée sur des données axiomatiques rigoureuses, toujours valables de nos jours.

La première originalité de ce volume est de constituer une formidable source d'informations totalement inédites. Parallèlement, l'auteur s'applique à dégager de façon lucide et impartiale, les leçons du passé. A l'écoute attentive et passionnée de l'enseignement même des anciens auteurs, il nous montre comment et pourquoi ils se sont souvent trompés: cette *logique de l'erreur* est indissociable du cours de l'histoire et les chercheurs d'aujourd'hui doivent en être constamment conscients.

L'historien a pour devoir impératif de comprendre et non de juger. Or, l'auteur dévoile sans indulgence, documents à l'appui, nombre d'erreurs historiographiques flagrantes, que l'on voit se perpétuer à plaisir faute de prendre la peine de remonter aux sources.

Comment alors comprendre le passé si l'on se fonde sur des données rudimentaires et des idées toutes faites? A ce titre, ce livre sera pour beaucoup une révélation. Un index thématique fort bien conçu en facilite grandement la lecture.

Le but de cette Petite Collection d'Histoire des Sciences est de pallier une telle carence en fournissant des textes illustrant les diverses descriptions scientifiques. Ces textes sont conçus pour éclairer l'enseignement scientifique, pour l'insérer dans une tradition culturelle et enfin pour permettre de prendre du champ par rapport à l'analyse scientifique immédiate. Ils sont donc destinés aux lycéens, pour un travail en classe ou une lecture personnelle, mais aussi bien au public curieux.

Prix: FF 165

Commandes à: Lavoisier, 11 rue Lavoisier, F-75384 Paris Cedex 08, France.

An Annotated Bibliography on Durum Wheat 1972-1974. J.P. Srivstava, G. Kashour and S. Datta. International Centre for Agricultural Research in the Dry Areas (ICARDA), Aleppo, 1986, xxiv + 238 p.

Durum wheat is one of the major crops in many countries, particularly those in the arid and semi-arid environments. In the past, however, this crop has received less attention than bread wheat, but in view of its importance in the diets of the masses, researchers are now increasingly turning their attention to the improvement, production, and utilization of this crop. An urgent need is therefore being felt for information about the researches conducted on this crop.

This annotated bibliography, with 1590 entries, covers all aspects of durum wheat, including durum wheat food products and their utilization. Annotations have been adopted, and often shortened from the authors' original abstracts, when available. For some of the more general articles (those not reporting on specific research findings) and for some of the articles on food technology, abstracts were judged as not necessary and only the citations are included. All citations and annotations are given in English, with the original language of publication noted next to the title. The publication has an author index and subject index.

Orders to: ICARDA, Box 5466, Aleppo, Syria.

Windbreak Technology. Proceedings of an International Symposium on Windbreak Technology, Lincoln, June 1986. J.R. Brandle, D.L. Hintz and J.W. Sturrock, editors. Elsevier Science Publ., Amsterdam, Oxford, 1988, x + 598 p. ISBN 0-444-43019-9. Hardback.

This book contains a selection of papers presented at the first International Symposium on Windbreak Technology, summarising the available worldwide literature on windbreaks and the response, both positive and negative, to wind protection. State-of-the-art information is presented on general design criteria, and principles of planting and establishment for a wide range of conditions and objectives. It provides descriptive information of tree and shrub species for arid, semi-arid, temperate and tropical areas, and their use in windbreaks.

It has the following sections: windbreak basics (3 papers); wind erosion (3 papers); non-woody windbreaks (2 papers); crop response to windbreaks (4 papers); livestock and windbreaks (1 paper); windbreaks and energy (3 papers); windbreaks and wildlife (2 papers); windbreaks, snow and water use (4 papers); windbreak planting and establishment (5 papers); and windbreak management (7 papers). All sections have an introduction and list the recommendations of the symposium.

This book is a reprint of Agriculture, Ecosystems and Environment, vols. 22 and 23 (1988).

Price: US$ 221 or Dfl 420.

Orders to: In USA and Canada: Elsevier Science Publ.Co., P.O. Box 1663, Grand Central Station, New York NY 10163, USA. *Elsewhere:* Elsevier Science Publ., P.O.Box 211, 1000 AE Amsterdam, the Netherlands.

New Journals/Nouveaux Périodiques/Neue Zeitschrifte

Waste Management Today. Incorporating the Waste Management Information Bulletin. Waste Management Information Bureau, Harwell. ISSN 0953-0975. Monthly.

This international journal aims to be a working tool for people in all branches of the waste management profession – contractors, operators, consultants, researchers and decision makers in local and central government. It gives a comprehensive new coverage from hundreds of publications gathered by the U.K. national data base on waste management.

Its scope is to publish papers or give information on the management of non-radioactive liquid, solid and gaseous industrial wastes and domestic refuse; disposal; recovery; environmental hazards impact; reclamation of land; legislation; policy; research; and on economic studies.

Subscription price: (1989) £ 160 in U.K.; US$ 300 in North America; £ 170 elsewhere.

Orders to: Waste Management Today, Waste Management Information Bureau, Bldg 7.12, Harwell Laboratory, Oxon OX11 0RA, U.K.

Ambio. A Journal of the Human Environment. Vol XVII, n° 4, 1988. Royal Swedish Academy of Sciences/ Pergamon Press. A. Rosemaria, editor-in-chief.

This issue inaugurates the Global Change News, produced by the IGBP (International Geosphere Biosphere Programme) Secretariat at the Royal Swedish Academy of Sciences. It contains news about the planning and execution of this mammoth international project aimed at bringing together man's knowledge about the biosphere and geosphere with respect to global-scale changes.

Subscription price: DM 80.00 for individuals, DM 255 for institutions.

Orders to: Pergamon Journals, Headington Hill Hall, Oxford OX3 0BW, U.K.; *or:* Pergamon Journals, Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.; or to other Pergamon offices.

Soil Use and Management. Vol.4, n° 3, September 1988. Blackwell Scientific Publ., Oxford. ISSN 0266-0032. Quarterly.

This issue contains 4 papers on influence of iodine, caesium and other radionuclides on soils, plants and animals as a result of the accident at Chernobyl in April 1986. Emphasis is on the key role which soils play as determinants of radionuclide behaviour.

Subscription price: £ 30.00 in U.K.; US$ 61.00 in U.S.A. and Canada; £ 36.50 elsewhere.

Orders to: Blackwell Scientific Publ., Osney Mead, Oxford OX2 0BR, England.

Quaderni di Scienza del Suolo. A cura di E. Busoni, M. Sussi e D. Torri. Centro di Studio per la Genesi, Classificazione e Cartografia del Suolo, Firenze. Vol.1, 1988.

During almost twenty years of activity, the work of the Centre for the Study of Soil Genesis, Classification and Cartography of the Italian National Research Council was primarily aimed at the improvement of basic and applied research in soil science in Italy. The need of an expanded cooperation at an international level is now felt. In order to achieve this aim, it was decided to initiate the editing of a scientific journal 'Quaderni di Scienza del Suolo', open to contributors from all over the world. The main topics are: soil genesis, classification, cartography, physics, chemistry, mineralogy, paleopedology, soil erosion and conservation, surface hydrology and transport of solids, soil capability, soil suitability and evaluation.

Orders to: Centro di Studio per la Genesi, Classificazione e Cartografia del Suolo, Ple. delle Cascine 15, I-50144 Firenze, Italy.

Rural Development in Practice. T. Scarlett Epstein, editor-in-chief. RWAL Publications, Bexhill, ISSN 0954-8777.

It is intended that this new international journal will further the international dissemination of important rural development knowledge. It will focus on the practical aspects of rural development, not the theoretical.

It is to be a participatory Journal. It is to provide the means whereby the many people directly concerned in the planning and implementation of rural development projects and programmes may usefully share their experience and express their opinion. It will establish a multi-dimensional channel of communication between development personnel operating in different international socio-economic environments and provide a forum for discussion of the practical issues which are of the utmost concern to rural development practitioners.

The journal is to communicate project example and experience, to analyze and compare development programme success and failure, seeking to establish alternative practical solutions to current problems and difficulties whatever the scale or complexity of endeavour.

Each edition will present 1) One major theme of practical importance: lead article. Short account of related experience by different practitioners. Editorial; 2) Practitioners' forum: the exchange of practical experiences in rural development and discussion about factors leading to success or failure; and readers' questions; and 3) Matters of interest to rural development practitioners: reports and notices of conferences and workshops; book reviews; information on equipment, materials and services.

Subscription price: (1988) £ 24.00

Orders to: RWAL Publications, Lloyds Bank Chambers, 15 Devonshire Road, Bexhill, East Sussex, TN40 1AH, England.

Society and Natural Resources. An International Journal. Taylor & Francis. R.J. Burdge and D.R. Field, editors. ISSN 0894-1920. Quarterly.

This new journal will bring order to the literature on social science research on leisure and recreation and help identify future research needs and will provide knowledge about natural resource management issues on biological and physical changes resulting from acid rain, biological and genetic diversity in world-wide agriculture, and water resource degradation. In addition it will become a repository for scientific, refereed research that provides credibility for management decisions over natural resource development and will provide multi-disciplinary and inter-disciplinary social science perspectives on natural resource issues.

Subscription price: US$ 75 or £ 42 (institutional), US$ 42 or £ 27 (personal).
Orders to: Taylor & Francis, Rankine Road, Basingstoke, Hants. RG24 0PR, United Kingdom.

Ocean & Shoreline Management. B. Cicin-Sain, I.P. Jolliffe, R.W. Knecht and C.R. Patman, editors. Elsevier Applied Science. ISSN 0951-8312.

This international journal dedicated to the study of all aspects of ocean and coastal management at local, regional, national and international levels. Proper development and conservation of ocean and coastal resources requires the insights of a number of disciplines ranging from the natural and physical sciences to the social sciences, policy analysis, and law. Articles form all relevant disciplines are thus invited, but contributions must make clear the explicit link to central questions of planning and management. The Editors encourage articles involving analytical approaches, development of theory, and improvement of management practice. Comparative studies (e.g. subnational, cross-national, to other policy areas) are especially encouraged.

Subscription price: (1988, 6 issues) In U.K. £ 105.00, outside U.K. £ 116.00 or US$ 203.00.
Orders to: see below.

Oil and Chemical Pollution. D. Cormack, editor. Elsevier Applied Science. ISSN 0269-8579. Quarterly.

This journal deals with practical problems arising from release of oil and chemicals to the environment and provides practical solutions in the areas of prevention, removal and final disposal of recovered pollutants. It presents results of fundamental investigations into the physical and chemical behaviour of pollutants and of their effects on organisms without which real progress at the practical level cannot be achieved. Bearing in mind the origins, current interests and future developments of this subject area it is the intention to publish papers on the following subjects:

1) detection of pollutants in air, land and water (marine and fresh); 2) fate of pollutants in air, land and water and their effects on living organisms; 3) hazards to human health and safety; 4) equipment and methods of monitoring and of treatment of effluent discharges; 5) prevention of accidental releases; 6) equipment and methods for detection and location of accidental spills and discharges and of lost substances in packaged form; 7) equipment and methods of pollutant removal or dispersal; 8) methods of final disposal or recycling of recovered pollutants; 9) risk analysis; 10) contingency planning; 11) legal and compensation issues; and 12) socio-economic factors in relation to pollution and its avoidance.

A diary of forthcoming events, conference reports, equipment reports, and book review are also featured.

Subscription price: In U.K. £ 75; outside U.K. £ 82 or US$ 144.
Orders to: Elsevier Applied Science Publ., Crown House, Linton Road, Barking, Essex, 1G11 8JU, England. In North America: Journal Information Centre, Elsevier, 52 Vanderbilt Ave., New York NY 10017, USA.

European Journal of Mineralogy. E. Althaus, C. Chopin and F.P. Sassi, chief editors. E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Stuttgart.

Published by the Deutsche Mineralogische Gesellschaft, Società Italiana di Mineralogia e Petrologia, Société Française de Minéralogie et de Cristallographie, in cooperation with the European Mineralogical Union.

The European Journal of Mineralogy (EJM) was founded jointly by these societies as a merger of the three well established journals 'Bulletin de Minéralogie', 'Fortschritte der Mineralogie' and 'Rendiconti *della Società Italiana di Mineralogia e Petrologia*'.

The EJM was founded to reach a large audience on an international scale and also for achieving closer cooperation of European countries in the publication of scientific papers. The founding societies have set themselves the task of publishing a European journal of mineralogy of the highest standard open to all scientists doing mineralogical research in the widest sense of the term all over the world. Contributions will therefore be published primarily in English but articles in French, German and Italian will also be accepted.

The EJM publishes original papers, review articles and short notes on all mineralogical fields like mineralogy, crystallography, petrology, geochemistry, ore deposits, including applied and technical mineralogy as well as related fields.

Subscription price: (vol.1, 1989, 6 issues) DM 340.00 plus postage.
Orders to: E. Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, D-7000 Stuttgart 1, Fed. Rep. of Germany.

Indian Journal of Natural Rubber Research. M.R. Sethuraj, editor-in-chief. Rubber Research Institute of India, Kottayam. Two issues per year.

This new journal, published in English, will contain original contributions relevant to natural rubber research. Accepted are full papers, short communications, reviews, mini-reviews, opinions and technical reports.

Subscription price: (1988) In India Rs 150, elsewhere US$ 30.00 including airmail charges.
Orders to: Indian Journal of Natural Rubber Research, Rubber Research Institute of India, Rubber Board, Kottayam – 686 009, India.

Global and Planetary Change. E. Barron, S. Cloetingh et al., editors. Elsevier Science Publishers, Amsterdam. ISSN 0921-8181. Quarterly.

This is a daughter journal of Palaeogeography, Palaeoclimatology, Palaeoecology. The objective of the new journal is to achieve a multidisciplinary view of the causes, processes and limits of variability in planetary change. The journal will focus on the record of change in earth history and the analysis and prediction of recent and future changes. Topics will include, but are not limited to, changes in the chemical composition of the oceans and atmosphere, climate change, sea level variations, human geography, global geophysics and tectonics, global ecology and biogeography.

Key criteria for manuscripts are global scope or implications for global scale problems, significance beyond a single discipline and a focus on the causes, processes and limits of planetary change.
Subscription price: (1989) Dfl 277.00 or approx. US$ 140.00.
Orders to: Elsevier Science Publ., Journals Dept., P.O. Box 211, 1000 AE Amsterdam, the Netherlands.

Journal of South American Earth Sciences. C.E. Macellari and N.J. Snelling, Executive editors. Pergamon Press, Oxford, New York. ISSN 0895-9811. Quarterly.

This new journal will provide an international medium for the publication of scientific work concerned with all aspects of the earth sciences in the South American continent and the surrounding oceans. Contributions will also be accepted from the adjacent regions of the Caribbean, Central America and the Antarctic Peninsula. Papers must have a regional appeal and should present work of more than local significance.

Research papers dealing with the regional geology of South American cratons and mobile belts; economic geology particularly metallogenesis and hydrocarbon genesis; stratigraphy, structure and basin evolution; geophysics and geochemistry; volcanology; tectonics and Quaternary geology will be featured. Short notes, discussions, book review and conference and workshop reports will also be included when relevant.
Subscription price: (1988) DM 190.00; (1988/1989) DM 361, including postage.
Orders to: Pergamon Journals, Headington Hill Hall, Oxford OX3 0BW, England; or: Pergamon Journals, Maxwell House, Fairview Park, Elmsford, NY 10523, USA.

Journal of Production Agriculture. R.G. Hoeft, editor. American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Madison. ISSN 0890-8524. Quarterly.

The Journal has been created for the primary purpose of transmitting production-oriented information in an understandable and useful manner. It is intended for a wide range of professionals including scientists, consultants, journalists, farm advisers, farm managers, extension specialists, teachers, and college students.

For this journal, the term 'production agriculture' is intended to encompass crop production programs or practices. Manuscripts published will deal with the production or use of food or fiber related to crops and/or soils. Inclusion of economic analysis is encouraged.

The journal publishes manuscripts of original research, synthesis, or interpretive reviews on contemporary issues, state of the art papers, notes or short articles, letters to the editor, and book review related to production-oriented information on agronomy in concert with other disciplines. Emphasis is given to interdisciplinary and applied production articles. Basic research, for which at least theoretical applicability of the results can be discussed, will be considered for publication.
Subscription price: US$ 30 for non-members of the Societies, US$ 15 for members.
Orders to: ASA, CSSA, SSSA Headquarters Office, Attn. JPA Subscriptions, 677 South Segoe Road, Madison, WI 53711, U.S.A.

Regulated Rivers. Research and Management. G.E. Petts, editor-in-chief. John Wiley & Sons, Chichester.

This new international journal is dedicated to the promotion of interdisciplinary research concerned directly or indirectly with river management. River regulation is defined in the broadest sense to include the effects of major dams, weirs, canalization and water transfers. The journal is devoted to the rapid publication of scientific and technical papers on biological, ecological, engineering and geographical aspects relating to both the developed and developing world.

Research focusing on reservoirs, river basin development, wetlands, estuaries and the near-shore coastal zone etc., is also accepted if the paper is set in the context of the regulated river system. In addition to original research papers, regional and thematic reviews, both invited and submitted, are published, as are short communications and book reviews.
Subscription price: (5 issues, vol.2) In U.K. £ 95.00; elsewhere US$ 175.00
Orders to: John Wiley & Sons, Journals Dept., Baffins Lane, Chichester, West Sussex, PO19 1UD, England; or: John Wiley & Sons, 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Sulphur in Agriculture. Special issue on International Networks. Vol.12, 1988. R.J. Morris, editor. The Sulphur Institute, Washington. ISSN 0160-0680.

With the increasing incidence and recognition of sulphur (S) deficiencies worldwide, a greater need has developed to delineate areas of S deficiency, characterize soils where they occur, and evaluate S fertilizer sources and required rates. Six international symposia have been held since 1986 to address the problems of S deficiencies and consolidate existing information in the form of proceedings. Plant nutrient sulphur (PNS) research activity has increased during the seventies and eighties, but, for the most parts, studies have been scattered amongst various government agencies, universities, industrial agencies, and other public and privately funded groups. Within the past five years, a significant development in PNS research has been the formation of international networks to address the growing problem of S deficiencies.

This issue focuses on four major international networks that have formed during this period. Since Asia has the greatest need for PNS to sustain its rapid growth rate in food production, much of the work is focused on this region. The extent, focus and major results of the programmes by FAO, IRRI, the Australian *Centre for International Agricultural Research (ACIAR) and of the International Fertilizer Development* Centre (IFDC) are briefly given.

Requests to: the Sulphur Institute, 1725 K Street N.W., Washington DC 20006, USA.

Chinese Journal of Arid Land Research (English translation). Zhao Songqiao, coordinating editor. Allerton Press, New York. ISSN 0898-5146. Quarterly.

This is the only English-language journal covering all aspects of research on the immense arid and semi-arid lands of China. The subject matter covers a wide range of topics in the physical, biological and social sciences. The following topics are covered: natural resources (land, water, climate, biology, minerals, etc.) and their evolution; natural hazards (drought, salination, eolian deflation and deposition) and measures for combatting them; geological evolution; historical development; human impacts: desertification and de-desertification; economic production (farming, animal husbandry, forestry, industry, transportation, etc.); land-use planning; minority populations; population and settlements; and regional development and potential population carrying capacity.

The journal is mainly a selective article translation from four current Chinese journals on arid land research: Arid Zone Research; Arid Land Geography; Chinese Deserts; and Journal of Arid Land Resources and Environment.

Subscription price: (1988) US$ 195.00, plus $ 15 outside U.S.A. and Canada.

Orders to: Allerton Press, 150 Fifth Avenue, New York, NY 10011, U.S.A.

Specifications of the ISSS-COSTED Fellows Fund

The fund is meant to promote active participation of young ISSS members of developing countries in international scientific meetings, especially those taking place in their own continent, by providing partial support in the costs of travel or subsistence.

– eligible to benefit from the fund are promising young soil scientists of developing countries of limited personal or institutional financial means. They should have at least at BSs level of education, preferably by under 35 years of age, have several years of experience in one of the branches of soil science, and be a member of ISSS fopr at least two years.

– only international meetings that are officially sponsored by ISSS can be considered, and with preference those that take place within the continent of the applicant's residence.

– applications are to directed to the organising committee of the meeting, which thereupon submits the names until six months before the meeting to the Secretary-General ISSS with its recommendations. The Secretary-General, in consulation with the Treasurer and the other Officers of the Society where necessary, decides which applicants are to be supported and what amounts can be allotted. The Treasurer of ISSS will then transfer these amounts to the Organising Committee.

– the maximum number of applicants to be supported per event is four, and the maximum subsidy per person US$ 500,– or equivalent.

– soonest after the event the successful applicant will submit a short person on the meeting, with the relevant receipts, to the Secretary-General or Trasurer.

Spécifications du fonds pour aspirants de l'AISS-COSTED

Le fonds est destiné à promouvoir la participation active de jeunes membres de l'AISS des pays en voie de développement dans des réunions scientifiques internationales spécialement lorsque ces réunions ont lieu dans leur propre continent, en apportant une contribution partielle aux frais de voyage et de séjour.

– ceux qui peuvent bénéficier du fonds sont de jeunes pédologues prometteurs appartenant à des pays en voie de développement et qui ont des moyens financiers ou institutionels limités.

Ils doivent avoir au moins le niveau d'enseigment BSc, avoir de préférence mois de 35 ans, avoir quelques années d'expérience dans une des branches de la science du sl et être membre de l'AISS depuis au moins 2 ans.

– seules les réunions internationales officellement parrainées par l'AISS seront prises en considération et de préférence cells qui setiennent sur le continent où réside le candidat.

– les demandes doivent être adressées directement au comité organisateur de la rénion que soumet ensuit les noms au moins 6 mois avant la réunion au SG de l'AISS avec ses recommandations. Le SG, après avoir consulté le Trésorier et les autres responsables de la Société si nécessaire, décide quels sont les postulants qui seront aidés ewt quelle somme leur sera allouée. Le Trésorier de l'AISS transfèrera ensuite cette somme au Comité Organisateur.

– le nombre maximum de postulants aidés par manifestion est de 4 et le subside maximum par personne est de US$ 500 ou son équivalent.

– aussitôt après cette manifestation l'heureux postulant soumettra un rapport succinct sur la réunion, avec les reçus concernant les dépenses, au SG ou a Trésorier.

Condiciones del Fondo para becarios de la SICS-COSTED

El Fondo pretende promover la activa participación de jovenes miembros de la SICS de paises en desarrollo en reuniones cientificas internacionales, especialmente aquellas que tienen lugar en su proprio continente, mediante la provisión parcial de apoyo, bien en los cortes de viaje, bien en los de estancia.

– Candidatos a los beneficios del Fondo son prometedores jòvenes cientificos de suelos de paises en vias de desarrollo con limitados medios económicos personales o institucionales. Deberan tener al menos un nivel BCs de educación, preferiblemente de menos de 35 años de edad, con varios años de experiencia en alguna de las ramas de la cienda del suelo y ser miembros de la SICS por al menos dos años.

– Sólo reuniones internationales que sean oficialmente promovidas por la SICS podran ser consideradas, y con preferencia aquellas que tengan lugar dentro del continente de residencia del solicitante.

– Las solicitudes serán dirigidas al comitè organizador de la reuniòn, el cual enviarà los nombres hasta seis meses antes de la reunión al Secretario General de la SICS con sus recomendaciones. El Secretario General, en consulta con el Tesorero y los otros Directivos de la Sociedad cuando sea necesario, decidirá que solicitantes van a ser atendidos y que contidas pueden ser asignadas. El Tesorero de la SICS transferirá luego estas cantidades al Comité Organizador.

– El número máximo de solicitudes concedidas para cada ocasión es de quatro y el máximo subsisio por persona es de 500 dolares USA o su equivalante.

– Lo antes posible despues de la reunión cada solicitante seleccionada enviará un breve informe de la reunión, con los correspondientes recibos, al Secretario General o Tesorero.

The Fellows Funds, or 'young scientists travel fund' is now being supported by the members of the national Soil Science Societies of the Netherlands, the United Kingdom, Canada and the U.S.A. These contributions are complemented by an annual contribution of ISCU's COSTED committee.

ISSS COOPERATING JOURNALS/JOURNAUX COOPERANTS DE L'AISS/ IBG KOOPERIERENDE ZEITSCHRIFTE

1. CATENA, an interdisciplinary journal of Soil Science-Hydrology-Geomorphology, focusing on Geoecology and Landscape Evolution.
   Size: 6 issues per year, in one volume of about 600 pages.
   Publisher: Catena Verlag, 3302 Cremlingen 4, F.R. of Germany
   Editor-in-Chief: Dr. M. Rohdenburg, Braunschweig, FRG
   Full subscription rate, including surface mailing: DM 379.00
   Personal subscription price for ISSS members (available from the Publisher only): DM 133.00 (about US$ 67.00; 65% discount). A discount of 40% applies to the issues of CATENA SUPPLEMENT.

2. SOIL BIOLOGY & BIOCHEMISTRY
   Size: 6 issues per year, in one volume of about 700 pages.
   Publisher: Pergamon Press Ltd., Oxford, England.
   Editor-in-Chief: Prof.Dr. J.S. Waid, Bundoora, Australia.
   Full subscription rate, including surface mailing: US$ 210.00.
   Personal subscription price of ISSS members: US$ 42.00 (80% discount).

3. GEODERMA, an International Journal of Soil Science.
   Size: 8 issues per year, in 2 volumes of about 400 pages each.
   Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands.
   Editor-in-Chief: Dr. R.W. Simonson, College Park, MD, USA.
   Full subscription rate, including surface mailing: Dfl 518.00.
   Personal subscription price for ISSS members: Dfl 170 (US$ 89.–; 66% discount)

4. BIOLOGY & FERTILITY OF SOILS
   Size: Eight issues per year, in two volumes of about 720 pages.
   Publisher: Springer Verlag, Berling-Heidelberg-New-York-Tokyo.
   Editor-in-Chief: Prof.Dr. J.C.G. Ottow, Giessen, Fed. Rep. of Germany.
   Full subscription rate for the two volumes, excluding surface mailing: DM 856.–.
   Personal subscription price for ISSS members for the two volumes, excluding postage and handling DM 514.– (40% discount).

Name and full address/*Nom et adresse complète*/Name und vollständige Anschrift

.....

.....

..... Signature: .....

I wish to take a personal subscription to the following Cooperating Journal(s) of ISSS, under the conditions as outlined on page 3 of ISSS Bull.68 and page 93 of Bull.74.
Je souhaite prendre un abonnement personnel au(x) Journal (Journaux) Coopérant(s) suivant(s) de l'AISS, sous les conditions mentionnées à la page 3 du Bulletin 68 et page 93 du Bull. 74.
Hiermit bestelle ich ein persönliches Abonnement auf die folgende(n) IBG-Kooperierende(n) Zeitschrift(en) zu den im IBG-Mitteilungsblatt no. 74, Seite 93 und no. 68, Seite 4 genannten Bedingungen.

.....

Forward to Secretariat ISSS / *A retourner au secrétariat de l'AISS* / Einsenden zur IBG Sekretariat: P.O.Box 353, 6700 AJ Wageningen, the Netherlands.

Committee on Statute and Structure (CSS), to ensure correct application of Statutes and Bylaws of ISSS, and to propose changes in the organizational structure as required.
Chairman: Prof.Dr. E.G. Hallsworth, 30 Fowlers Road, Glen Osmond, S.A. 5064, Australia.
Members: Prof.Dr. R. Dudal (Belgium); Dr. S. El-Swaify (USA-Hawaii), Prof.Dr. I.P. Garbouchev (Bulgaria), Dr. N.N. Goswami (India), Dr. F.N. Muchena (Kenya); Prof.Eng. I. Pla-Sentis (Venezuela), Dr. W.G. Sombroek (ISSS Secretariat), Prof.Dr. R. Tavernier (Belgium), Dr. P.B. Tinker (UK), and Dr. G. Varallyay (Hungary).

Committee on International Programmes (CIP), to liaise with international organizations and to promote joint programmes.
Chairman: Prof.Dr. H.W. Scharpenseel, c/o Institut f. Bodenkunde, Univ. Hamburg, Allende-Platz 2, D-2000 Hamburg 13, FRG.
Members: Dr. I.P. Abrol (India), Dr. R.W. Arnold (USA), Dr. D.J. Greenland (UK), Prof.Dr. V. Kovda (USSR), Prof.Dr. P.A. Sanchez (USA/Peru), Dr. W.G. Sombroek (ISSS Secretariat), Prof.Dr. Y. Takai (Japan), Dr. P.B. Tinker (UK), Dr. G. Vachaud (France), Dr. G. Varallyay (Hungary) and Prof.Dr. D.H. Yaalon (Israel).

Committee on Standardization (CST), to liaise with the International Standardization Organization (ISO, Geneve-Switzerland) and its Technical Committee on Soil Quality (ISO/TC 190, NNI, Delft, the Netherlands).
Chairman: Prof.Dr. H.P. Blume (Comm.V) c/o Inst. f. Pflanzenernährung und Bodenkunde, Olshausenstrasse 40, D-2300 Kiel 1, FRG.
Members: Dr. C. Dirksen (Netherlands, Comm.I); Dr. P. Arnold (UK, Comm.II), *vacancy* (Comm.III), Dr. S.A. Barber (USA, Comm.IV), *vacancy* (Comm.VI), Prof.Dr. A. Herbillon (France, Comm.VII), *vacancy* (Subcomm.A), Prof.Dr. G. Stoops (Belgium, Subcomm.B), Dr. M. Romkens (USA, Subcomm.C) and Dr. M.B. Bouché (France, Subcomm.D). Technical Secretariat with Labex programme of ISRIC-Wageningen (Dr. J. Gerits).

ISSS Representatives in ICSU committees/commissions

SCOPE	Scientific Committee on Problems of the Environment: Dr. F. Fournier (France).
CASAFA	Inter-Union Commission on the Application of Science to Agriculture, Forestry and Aquaculture: Dr. W.G. Sombroek (The Netherlands).
IBN	International Biosciences Network: Prof.Dr. P.A. Sanchez (U.S.A./Peru).
COSPAR	Committee on Space Research: Mr. F. Hilwig (The Netherlands).
CODATA	Committee on Data for Science and Technology: Prof.Dr. M.F. Baumgardner (U.S.A.).

Life Membership

Dr.E. Pushparajah, RRI – Malaysia
Prof.Dr. R. Dudal, KU Leuven – Belgium
Dr. A. Osman, ACSAD – Syria
Mr. J.H.V. van Baren, ISRIC – Netherlands
Dr. Go Ban Hong, CSR – Indonesia
Dr. P. Smart, Glasgow Univ – UK
Mr. Y.P. Kalra, CFS – Canada
Mr. M.M. Striker, Gainesville – USA
Dr. M.A. Sattar, BAU – Bangladesh
Dr. Ha Eswaran, SMSS – Washington
Dr. C. Mathieu, FAO – Rep. Centrafricaine
Dr. M.R. Goyal, CCA – Puerto Rico
Mr. A.J. van Kekem, NSS Tanga – Tanzania
Dr. P. Driessen, WAU – Netherlands
Mr. P. Pietrowicz, Münster – FRG
Dr. B.S. Gupta, Khatauli – India
Mr. Dhiraj Pal, Chicago – USA
Prof. Dr. R. Nielsen, Davis, Ca – USA
Mr. J.G. van Brandt, FAO – Senegal
Dr.R.W. FitzPatrick, CSIRO – Australia
Mr. C.A. van Diepen, WAU – Netherlands
Dr. A.K. Singh, IARI – India
Mr. H. Brammer, FAO – Rome
Mr. J. Riquier, Villeneuve Loubet – France
Dr. M. Bybordi, Plan & Budget Org. – Iran
Mrs. Caroline C. Mba – Nigeria
Prof.Dr. M.F.A. Khan, Karachi – Pakistan
Dr. P.K.R. Nair, Gainesville – USA
Mr. A.R. Adetumbi, RSU Salford – UK
Dr. A. Louis, Ghent – Belgium
Prof.Dr. M. Eaqub, Mymensingh – Bangladesh
Dr. T. Wakatsuki, Shimane Univ. – Japan
Mr. Wen Ting-Tiang, Chilanga – Zambia
Mr. Celso Nóbrega, Brasilia – Brazil
Dr. P.W. Mtakwa, Morogoro – Tanzania

MEMBERSHIP APPLICATION FORM/FICHE DE DEMANDE D'AFFILIATION/AUFNAMEANTRAG FORMULAR

International Society of Soil Science (ISSS)
Association Internationale de la Science du Sol (AISS)
Internationale Bodenkundlische Gesellschaft (IBG)

☐ REGISTRATION FOR MEMBERSHIP/DEMANDE D'AFFILIATION/AUFNAHME-ANTRAG

☐ CHANGE OR CORRECTION OF ADDRESS/CHANGEMENT OU CORRECTION D'ADRESSE/ANSCHRIFTENÄNDERUNG

☐ STATEMENT ON SPECIAL INTERESTS/DECLARATION D'INTERÊTS SPECIAUX/ANZEIGUNG VON SPEZIALINTERESSEN

☐ APPLICATION FOR LIFE MEMBERSHIP/DEMANDE D'AFFILIATION POUR LA VIE/ANTRAG AUF MITGLIEDSCHAFT AUF LEBENSZEIT

- Please return this form, completed at both sides, to the Secretariat ISSS: P.O. Box 353, 6700 AJ Wageningen, the Netherlands.
- *Veuillez bien renvoyer ce formulaire, complété de deux côtés, au Secrétariat AISS: B.P. 353, 6700 AJ Wageningen, Pays-Bas.*
- Bitte senden Sie diesen Formular, ausgefült an beiden Seiten, zum Sekretariat IBG: P.B. 353, 6700 AJ Wageningen, Niederlande.

Membership number (if applicable)
Numéro d'affiliation (si applicable) .....
Mitgliedernummer (wenn anwendbar)

Previous country of residence
Ancien pays de domicile .....
Voriger Landesort

* **Surname** (Apellido/Sobrenome)
* **Nom de famille** .....
* **Familienname**

First name(s) (Nombre/Nome) or initials, **and title(s)**
Prénom(s) ou initiales, **et titre(s)** .....
Vorname(n) oder Initialen, **und Titel(s)**

Address (Institution & Dept., Street and no. P.O. Box, Town & Zipcode, Country)
Adresse (Institution et Département, Rue et no., Boîte Postale, Vile et Code Postale, Pays)
Anschrift (Institut & Abteilung, Strasse & No., Postfach, Stadt & Postleitzahl, Land)

.....

.....

.....

.....

Date .....
Datum

Signature .....
Unterschrift

* For composite names, please indicate first the part of the name to be used for listing it in alphabetical order.
* *Pour les noms composés, prière de marquer en premier lieu l'élément du nom à utiliser dans une liste alphabétique.*
* Bei zusammengesetzte Namen wird gebeten, zuerst den Teil des Namens anzugeben, der in einer alphabetische Folge erscheinen soll.

please turn over!/*voir au verso!*/bitte wenden!

Specially interested in the activities of/intérêt particulier pour les activités/besonders am folgenden Bereichen interessiert:

(C) *Commission(s)/Commission(s)/Kommission(en)*

- ☐ I Soil Physics/Physique du sol/Bodenphysik
- ☐ II Soil Chemistry/Chimie du sol/Bodenchemie
- ☐ III Soil Biology/Biologie du sol/Bodenbiologie
- ☐ IV Soil Fertility and Plant Nutrition/Fertilité du Sol et Nutrition des Plantes/Bodenfruchtbarkeit und Pflanzenernährung
- ☐ V Soil Genesis, Classification and Cartography/Genèse du Sol, Classification et Cartographie/Bodengenetik, Klassifikation und Kartographie
- ☐ VI Soil Technology/Technologie du sol/Bodentechnologie
- ☐ VII Soil Mineralogy/Minéralogie du sol/Bodenmineralogie

Subcommissions/Sous-commissions/Subkommissionen

- ☐ A Salt affected soils/Sols salins/Salzböden
- ☐ B Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie
- ☐ C Soil Conservation and Environment/Conservation du Sol et Environment/Bodenerhaltung und Umwelt
- ☐ D Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit IUBS)

Working Groups/Groupes de Travail/Arbeitsgruppen der Kommissionen

- ☐ LI Land Evaluation Information Systems/Informatique de l'Evaluation des Terres/Landbewertung und Informationssysteme (Comm. VI)
- ☐ DC Desertification/Désertification/Verwüstung (Subcomm. C)
- ☐ PP Paleopedology/Paléopédologie/Paläopedologie (Comm. V & INQUA)
- ☐ RS Remote Sensing for Soil Surveys/Pédologie et Télédétection/Fernerkundung für Bodenkartographie (Comm. V)
- ☐ CO Soil Colloid Surfaces/Surfaces des Colloïdes du Sol/Kolloidale Oberflächen in Böden (Comm. II)
- ☐ PT Pedotechnique/Pédotechnique/Pedotechnik (Comm. VI)
- ☐ HP History, Philosophy and Sociology of Soil Science/Histoire, Philosophie et Sociologie de la Science du Sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm. V & IUHPS)
- ☐ MV Soil and Moisture Variability in Time and Space/Variabilité du Sol et de l'Humidité dans le Temps et l'Espace/Boden- und Feuchtigkeitsvariabilität in Raum und Zeit (Comm. I)
- ☐ DM Digitized International soil and terrain map/Carte internationale numérique des sols et terrains/Digitalisierte Internationale Boden- und Landkarte (SOTER, Comm. V)
- ☐ SG Soils and Geomedicine/Sols et Géomédecine/Böden und Geomedizin (Comm. VII)
- ☐ PS Paddy Soil Fertility/Fertilité des sols rizicoles irrigués/Fruchtbarkeit von Reisböden (Comm. IV)
- ☐ RZ Rhizosphere/Rhizosphère/Rhizosphäre (Comm. IV)
- ☐ FS Forest-Soil relationship/Relations Sol-Forêt/Wald-Boden Beziehungen (Comm III)
- ☐ FT Soil Fertility Trials/Essais de Fertilité des Sols/Bodenfruchtbarkeitsproben (Comm. IV)

(T) **Preferred language/Langue préferée/gewünschte Sprache**

- ☐ English
- ☐ Francais
- ☐ Deutsch
- ☐ Español

Payment/Cotisation/Jahresbeitrag

Payment of the yearly due of US$ 8 or equivalent will be made:
La cotisation annuelle de 8 dollars E.U. ou leur équivalent sera versée:

(P) Der Jahresbeitrag von US$ 8 oder Gegenwert wird bezahlt:

- ☐ through the national society of/par l'intermédiaire de l'association nationale de/durch die Nationalgesellschaft von (country/pays/Land)
- ☐ by cheque/par chèque/durch Scheck
- ☐ as Unesco coupons/sous forme de bons de l'Unesco/mit Unesco-Kupons
- ☐ **life membership/affiliation pour la vie/Mitgliedschaft auf Lebenszeit** (US$ 200 or equivalent, after four years of regular memberschip/US$ 200 ou leur équivalent, après quatre ans d'affiliation régulière/US$ 200 oder Gegenwert, nach vier Jahren Normalmitgliedschaft)

Account/Compte/Konto: D. Gabriels, Treasurer ISSS, 390.0440957.50, Bank Brussels Lambert, Martelaarslaan, B 9000 Gent, Belgium (no direct transfer of small amounts, please/pas de transfers directs de petites sommes, svp/keine direkte Remittierung von kleinen Beiträge, bitte!)

Subcommissions/Sous-Commissions/Subkommissionen – Chairmen/Présidents/Vorsitzenden

A. Salt affected soils/Sols salins/Salzböden
Prof. Zhao Qiguo, Nanjing Institute of Soil Science, Academia Sinica, Nanjing, Jiangsu, China

B. Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie
Dr. N. Fedoroff, I.N.A. Paris-Grignon, Géologie-Pédologie, 78850 Thiverval-Grignon, France

C. Soil Conservation and Environment/Conservation du Sol et Environnement/Bodenerhaltung und Umwelt
Dr. S.A. El-Swaify, University of Hawaii, Dept. of Agronomy & Soil, 1910 East-West Road, Honolulu HI 96822, USA

D. Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit IUBS)
Dr. K.E. Lee, CSIRO, Division of Soil, Private Bag 2, Glen Osmond S.A. 5064, Australia

Working Groups of the Commissions/Groupes de Travail des Commissions/Arbeitsgruppen der Kommissionen – Chairmen/Présidents/Vorsitzende

AS Acid Sulphate Soils/Sols Sulphatés Acides/Saure Sulfatböden (Comm.VI)
Prof.Dr. L.J. Pons, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37, 6700 AA Wageningen, Netherlands

CO Soil Colloid Surfaces/Surfaces des Colloïdes de Sol/Kolloidale Oberflächen in Böden (Comm.II)
Prof.Dr. M.F. de Boodt, Fak.Landbouwwet., R.U.G., Coupure Links 653, 9000 Gent, Belgium

DC Desertification/Désertification/Verwüstung (Subcomm.C)
Prof.Dr. H.E. Dregne, Texas Technical Univ., P.O. Box 4169, Lubbock TX 79409, USA

DM World Soils and Terrain Digital Data Base/Carte Internationale Numérique des Sols et des Terrains/ Digitalisierte International Boden- und Landkarte (SOTER, Comm.V)
Prof.Dr. M.F. Baumgardner, Dept. of Agronomy, Purdue University, West Lafayette IN 47907, USA

FS Forest-Soil Relationship/Relations Sol-Forêt/Wald-Boden Beziehungen (Comm.III)
Dr. P.K. Khanna, CSIRO, Div. of Forest Research, P.O. Box 4008, Canberra ACT 2600, Australia

FT Soil Fertility Trials/Essais de Fertilité des Sols/Bodenfruchtbarkeitsproben (Comm.IV)
Prof.Dr. H. Scharpenseel, Inst.für Bodenkunde, Allende-Platz 2, D-2000 Hamburg 13, FRG

HP History, Philosophy and Sociology of Soil Science/Histoire, Philosophie et Sociologie de la Science du Sol/Geschichte, Philosophie und Soziologie der Bodenkunde (Comm.V & IUHPS)
Prof.Dr. D.H. Yaalon, Dept. of Geology, Hebrew University, Jerusalem 91000, Israel

LI Land Evaluation Information Systems/Informatique de l'Evaluation des Terres/Landbewertung und Informationssysteme (Comm.VI)
Dr. J. Dumanski, Land Resources Research Institute, Agric. Canada, Ottawa, Ontario, Canada K1A 0C6

MV Soil and Moisture Variability in Time and Space/Variabilité du Sol et de l'Humidité dans le Temps et l'Espace/Boden- und Feuchtigkeitsvariabilität in Raum und Zeit (Comm.I)
Prof.Dr. J. Bouma, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37, 6700 AA Wageningen, Netherlands

PM Pedometrics (Provisional) (Comm. I)
Dr. A.B. McBratney, CSIRO Division of Soils, Brisbane, Australia

PP Paleopedology/Paléopédologie/Paläopedologie (Comm.V & INQUA)
Dr. J.A. Catt, Rothamsted Exp. Station, Harpenden, Herts, AL5 2JQ, England

PS Paddy Soils Fertility/Fertilité des Sols Rizicoles Irrigués/Fruchtbarkeit von Reisböden (Comm.IV)
Prof.Dr. H. Wada, Faculty of Agriculture, University of Tokyo, Bunkyo-ku, 113 Tokyo, Japan

PT Pedotechnique/Pédotechnique/Pedotechnik (Comm.VI)
Dr. R. Horn, Inst. of Plant Nutrition & Soil Science, Olsenhausenstrasse 40-60 HS 20A, 2300 Kiel-1, FRG

RS Remote Sensing for Soil Survey/Pédologie et Télédétection/Fernerkundung für Bodenkartographie (Comm.V)
Mr. F.W. Hilwig, ITC, P.O. Box 6, 7500 AA Enschede, Netherlands

RZ Rhizosphere/Rhizosphère/Rhizosphäre (Comm.IV)
Prof.Dr. A. Jungk, Inst. f. Agrikulturchemie, Von Sieboldstrasse 6, 3400 Göttingen, FRG

SG Soils and Geomedicine/Sols et Géomédecine/Böden und Geomedicin (Comm.VII)
Prof. J. Laag, Dept. of Soil Science – AUN, P.O.Box 28, 1432 Ås-NLH, Norway

SP Soil and Groundwater Pollution/Pollution du Sol et des Eaux Souterraines/Boden- und Bodenwasserverschmutzung (Provisional) (Comm.II)
Mr. A.J. Thomasson, Soil Survey and Land Research Centre, Silsoe, Bedford MK45 4DT, England

Cooperating Journals/Journaux Coopérants/Kooperierende Zeitschrifte

CATENA; SOIL BIOLOGY & BIOCHEMISTRY; GEODERMA; BIOLOGY & FERTILITY OF SOILS

ISSS MEMBERSHIP

Membership of the International Society of Soil Science is open to all persons engaged in the study and the application of soil science. Membership application can be addressed to the National Societies or directly to the Secretariat General. For individual memberships, the yearly subscription, due each January, is 8 US dollars, or equivalent in any other convertible currency. Voluntary contributions by sponsors of the Society will be highly appreciated and acknowledged in the Bulletin. Individual payments can be made by cheque or by international money order. Unesco coupons are also accepted. In order to reduce bank charges it is recommended that subscriptions be remitted, whenever possible, through medium ofthe National Societies (for their addresses see Membership List 1986). Non-membership subscriptions to the Bulletin, by Library Services, Institutes, etc., are US$ 15.– yearly.

ADHESION A L'AISS

Toute personne engagée dans l'étude et l'application de la science du sol peut adhérer à l'Association Internationale de la Science du Sol. Les demandes d'inscription peuvent être faites par l'intermédiaire des associations nationales ou adressées directement au Secrétariat général. La cotisation individuelle, due au mois de janvier, est de 8 dollars E.U. par an ou son équivalent dans une autre monnaie convertible. Des contributions volontaires, qui permettraient de promouvoir l'Association, sont les bienvenues, et mention en sera faite dans le Bulletin. Les versements individuels peuvent être faits au moyen d'un chèque ou d'un mandat international. Les coupons Unesco peuvent également être utilisés. En vue de réduire les frais bancaires, il est demandé, dans la mesure du possible, de faire parvenir les cotisations par l'intermédiaire des associations nationales (voir leurs adresses dans la Liste de Membres 1986). Les abonnements au Bulletin sans adhésion, pour les institutions, services de bibliothèques, etc., sont de 15 dollars E.U. par an.

IBG-MITGLIEDSCHAFT

Die Internationale Bodenkundliche Gesellschaft heisst Personen die auf dem Gebiet der Forschung und Anwendung der Bodenkunde arbeiten, als Mitglieder willkommen. Aufnahmeanträge können direkt an das Generalsekretariat der Gesellschaft geschickt oder über die nationalen bodenkundlichen Gesellschaften an dieses geleitet werden. Der Einzelmitgliedsbeitrag, der jeweils im Januar zu entrichten ist, beträgt jährlich 8 US-Dollar oder den Gegenwert in einer konvertierbaren Währung. Freiwillige Beträge, die eine Förderung der IBG erlauben würden, werden sehr geschätzt und in den IBG-Mitteilungen bestätigt. Einzelzahlungen können durch Scheck oder internationale Postanweisungen. Unesco-Kupons werden auch akzeptiert. Um die Bankkosten niedrig zu halten, sollten beiträgen wo möglich durch die nationalen Gesellschaften gezahlt werden (für ihren Anschriften sehe Mitgliederverzeichnis 1986). Abonnemente auf die Mitteilungen ohne Mitgliedschaft, für Institute, Bibliotheken u.s.w., sind US$ 15.– jährlich.

SOCIOS DE LA SICS

Todas las personas involucradas en el estudio y la aplicación de la ciencia del suelo pueden ser miembro de la Sociedad Internacional de la Ciencia del Suelo. Las solicitudes de inscripción pueden ser enviadas a través de las Sociedades Nacionales o directamente a la Secretaría General. Para miembros individuales la cuota anual, a ser pagada durante el mes de Enero, es de US$ 8 (8 dolares EUA) o su equivalente en cualquier moneda cambiable. Aportes voluntarios que permiten promover la Sociedad son muy apreciados y serán mencionados en el Boletin de la SICS. Os pagos individuales pueden ser realizados por medio de un cheque ó un orden de pago internacional. Tambió los cupones de la Unesco pueden ser utilizados. Con el objeto de reducir los cargos bancarios se recomienda efectuar los pagos en lo posible a través de las Sociedades Nacionales (para las direcciones ver Lista de Socios 1986). Suscriptiones al Boletin, sin ser miembro, de parte de Servicios de Bibliotecas, Institutos etc. son de US$ 15,– por año.

Account/compt/Konto/Cuenta: Dr. Gabriels, International Society of Soil Science, University Gent, 390.0440957.50, Bank Brussel Lambert, Martelaarslaan, B-9000 Gent, Belgium