



Bulletin

of the International Society of Soil Science

Bulletin

de l'Association Internationale de la Science du Sol

Mitteilungsblatt

der Internationalen Bodenkundlichen Gesellschaft

Boletín

de la Sociedad Internacional de la Ciencia del Suelo

No. 89

1996/1

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

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Seat/Siège/Sitz: c/o Institut für Bodenforschung, Universität für Bodenkultur, Gregor-Mendel-Strasse 33, A-1180 Vienna, Austria. Phone: +43 1 3106026; Fax.: +43 1 3106027.

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Editor: Prof.Dr. Winfried E.H. Blum
Secretary-General of ISSS
Universitaet fuer Bodenkultur
Gregor Mendel-Str. 33
A-1180 Vienna/Austria

Co-Editor and Book Review Editor:

Drs. J. Hans V. van Baren
Deputy Secretary-General of ISSS
ISRIC, P.O. Box 353
6700 AJ Wageningen/The Netherlands
(all correspondence concerning book
reviews should be sent to this address)

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WSL, Zürcherstr. 111
CH-8903 Birmensdorf/Switzerland
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16TH WORLD CONGRESS OF SOIL SCIENCE

MONTPELLIER (France)

August 20 to 26, 1998

THIRD ANNOUNCEMENT

Adress of the Congress Secretariat:

16ème Congrès Mondial de Science du Sol
Agropolis • Avenue Agropolis • 34394 Montpellier Cedex 5 • France
Tel. (33) 67 04 75 38 • Fax (33) 67 04 75 49
E. mail: iss@agropolis.fr
Server WWW: <http://www.cirad.fr/iss.html>

If you wish to receive information about the Congress, kindly remember to return your „notice of intent“ (see below). The call for scientific papers and final registration forms for the congress will only be sent to those from whom we have received a „notice of intent“.

The ISSS Executive Committee met in Montpellier from April 10th to 14th, 1996. The organization of the Congress was discussed in detail. Decisions were made concerning the scientific structuring of the Congress:

- the general programme, as published in ISSS Bulletin N° 88 (1995/2), was adopted;
- the final list was drawn up of the 45 Congress symposia: this list will be sent, in June 1996, to all those who have returned their „notice of intent“;
- on the first day of the Congress, August 20, 1998, a general debate will be organized, concerning:
 - the main aims of soil science;
 - the main challenges faced by soil science;
 - the main services soil science can provide;

this debate, introduced by soil science specialists, will be open to non-specialists in soil science but involved in soil science, both scientifically and technically;

- rooms and time will be allocated to the Commissions, Sub-commissions, Working Groups and ISSS Standing Committees, for the necessary work sessions.

For all detailed information on the Congress, kindly consult the texts published in ISSS Bulletin N° 88 (1995/2) or write to us directly.

A map of pre- and post-congress tours is enclosed; details for each tour have already been published in ISSS Bulletin N° 88 (1995/2).

Here is a reminder of the next stages and deadlines for registration, sending papers and payment:

- * The final list of the 45 Congress symposia will be sent out, in June 1996, to all those who have returned their „notice of intent“; this list will be accompanied by a call for proposals for papers.
- * The final programme for the Congress and the registration forms will be sent as from October 1996.
- * Proposals for papers, in the form of an one-page summary (maximum 2500 characters), must be sent to the Congress Secretariat no later than **April 30th 1997**.
- * Final summaries and complete texts of papers accepted by the Congress Scientific Committee (7 pages or maximum 16000 characters) must be sent to the Congress Secretariat no later than **December 31st 1997**.
- * **The closing date for registration fees and payment for tours is December 31st 1997:**
 - for authors of papers;
 - for registration without extra charge ;
 - for payment of tours without extra charge.

Registration for the Congress and tours, for those who are not presenting papers, will be possible, depending on places available, up to the start of the Congress (prices will include an extra charge of 20%).

Alain RUELLAN
President of ISSS and of
the 16th World Congress of Soil Science

**16th World Congress of Soil Science
Montpellier (France)
August 20th to 26th 1998**

NOTICE OF INTENT

to be sent to

16ème Congrès Mondial de Science du Sol
Agropolis • Avenue Agropolis • 34394 Montpellier Cedex 5 • France
Tel. (33) 67 04 75 38 • Fax (33) 67 04 75 49
E.mail: iss@agropolis.fr • Server WWW: <http://www.cirad.fr/iss.html>

Prof., Dr., Mr., Mrs, Miss

.....
Surname

.....
First names

Mailing address:

Telephone:

Fax:

E.mail:

Telex:

I am member of ISSS: yes no

I expect to attend the Congress: sure probable

I expect to be accompanied by.....persons

I expect to present a paper:

topic of paper:

name of commission, sub-commission, working group or standing committee:

I intend to participate in one or more tours (indicate which ones):

• pre-Congress: **A** • post-Congress: **B** • during Congress: **C**

My accommodation preference is (approximate 1995 prices per night; prices are subject to modification):

single

double

4 star Hotel

(450-500 francs)

(500-550 francs)

3 star Hotel

(360-400 francs)

(400-450 francs)

2 star Hotel

(200-300 francs)

(300-350 francs)

1 star Hotel

(150-250 francs)

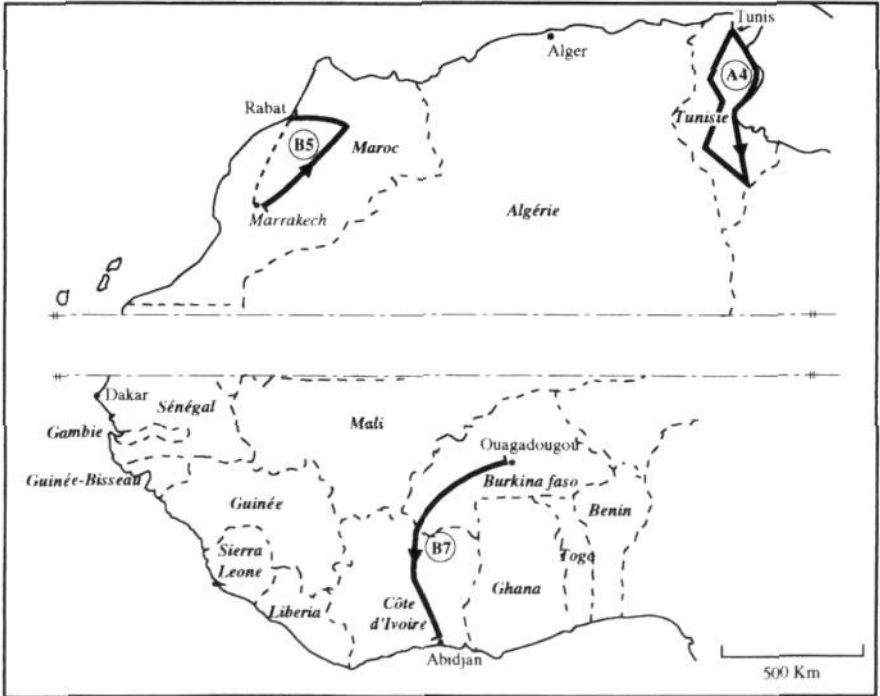
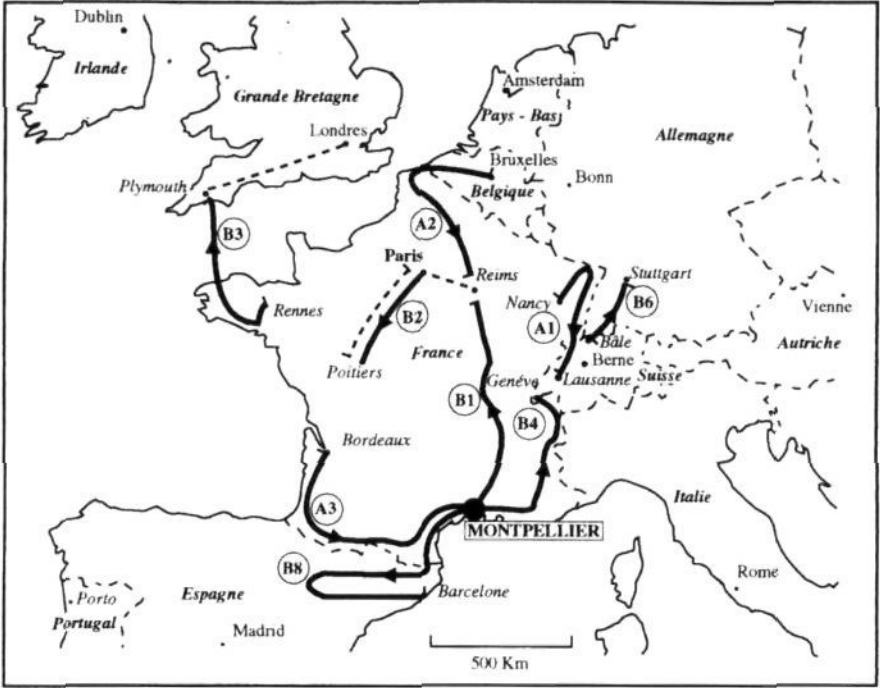
(200-300 francs)

University Hall of Residence (600 francs for two weeks)

Campsite

Date

Signature



Tours - Excursions - Exkursionen

16ÈME CONGRÈS MONDIAL DE SCIENCE DU SOL

MONTPELLIER (France)

20 au 26 août 1998

TROISIÈME ANNONCE

Adresse du Secrétariat du Congrès:

16ème Congrès Mondial de Science du Sol
Agropolis • Avenue Agropolis • 34394 Montpellier Cedex 5 • France
Tél. (33) 67 04 75 38 • Fax (33) 67 04 75 49
E.mail: iss@agropolis.fr
Serveur WWW: <http://www.cirad.fr/iss.html>

Si vous souhaitez recevoir des informations concernant le Congrès, n'oubliez pas de nous envoyer votre „bulletin d'intention de participation” (voir ci-après). Les appels à communications scientifiques et les dossiers d'inscription définitive au congrès ne seront adressés qu'à ceux qui nous auront envoyé leur „bulletin d'intention de participation”.

Le Comité Exécutif de l'AISS s'est réuni à Montpellier du 10 au 14 avril 1996. L'organisation du Congrès a été discutée en détail. Les décisions ont été prises concernant la structuration scientifique du Congrès:

- le programme général, tel qu'il a été diffusé dans le Bulletin AISS N° 88 (1995/2), a été adopté;
- la liste définitive des 45 symposiums du Congrès a été établie: cette liste sera diffusée, en Juin 1996, à tous ceux qui auront envoyé un „bulletin d'intention de participation”;
- la première journée du Congrès, le 20 août 1998, sera consacrée à un grand débat général concernant:
 - les objectifs de la science du sol;
 - les défis que la science du sol doit relever;
 - les services que la science du sol peut rendre;

ce débat, introduit par des spécialistes en science du sol, se fera avec des non-spécialistes en science du sol mais utilisateurs, scientifiques et techniques, de la science du sol;

- des salles et des espaces horaires seront mis à la disposition des Commissions, Sous-commissions, Groupes de Travail et Comités Permanents de l'AISS, pour la tenue des sessions de travail qui leur seront nécessaires.

Pour toutes informations détaillées concernant le Congrès, veuillez consulter les informations parues dans le Bulletin AISS N° 88 (1995/2) ou nous écrire.

Vous trouverez ci-joint la carte des excursions, pré et post congrès; les détails concernant chaque excursion sont déjà parus dans le Bulletin AISS N° 88 (1995/2).

Nous rappelons ci-après les prochaines étapes et les dates limites concernant les inscriptions, les envois des communications, les paiements:

- * La liste définitive des 45 symposiums du Congrès sera diffusée, en Juin 1996, à tous ceux qui auront envoyé un „bulletin d'intention de participation”; cette liste sera accompagnée d'un appel à proposition de communications.
- * Le programme définitif du Congrès et les bulletins d'inscriptions seront diffusés à partir d'octobre 1996.
- * Les propositions de communications, sous la forme d'un résumé d'une page (2500 signes maximum), devront être envoyées au Secrétariat du Congrès avant le **30 avril 1997**.
- * Les résumés définitifs et les textes complets des communications acceptées par le Comité Scientifique du Congrès (7 pages ou 16000 signes maximum) devront être envoyées au Secrétariat du Congrès avant le **31 décembre 1997**.
- * **La date limite de réception des droits d'inscription et du paiement des excursions est fixée au 31 décembre 1997:**
 - pour les auteurs de communications;
 - pour les inscriptions sans majoration;
 - pour le paiement sans majoration des excursions.

Les inscriptions au Congrès et aux excursions, pour ceux qui ne présentent pas de communications, seront possibles, en fonction des places disponibles, jusqu'au début du Congrès (les prix étant majorés de 20%).

Alain RUELLAN
Président de l'AISS et du
16ème Congrès Mondial de Science du Sol

**16ème Congrès Mondial de Science du Sol
Montpellier (France)
20 au 26 août 1998**

BULLETIN D'INTENTION DE PARTICIPATION

à renvoyer à

16ème Congrès Mondial de Science du Sol
Agropolis • Avenue Agropolis • 34394 Montpellier Cedex 5 • France
Tél. (33) 67 04 75 38 • **Fax** (33) 67 04 75 49
E.mail: iss@agropolis.fr • **Serveur WWW:** <http://www.cirad.fr/iss.html>

Prof., Dr., Mr., Mme, Melle

..... Nom de famille Prénoms

Adresse postale:

.....

.....

Téléphone: Fax:

E.mail: Telex:

Je suis membre de l'AISS: oui non

Je compte participer au Congrès: certain probable

Je compte être accompagné par personnes

Je compte présenter une communication:

thème de la communication:

.....

nom de la commission, sous-commission, groupe de travail ou comité permanent:

.....

Je compte participer à une ou plusieurs excursions (indiquer lesquelles):

• avant le Congrès: **A** • après le Congrès: **B** • pendant le Congrès: **C**

Ma préférence d'hôtel est (prix approximatifs 1995, pour une nuit; ces prix sont susceptibles de modifications):

single

double

Hôtel 4 étoiles (450-500 francs) (500-550 francs)

Hôtel 3 étoiles (360-400 francs) (400-450 francs)

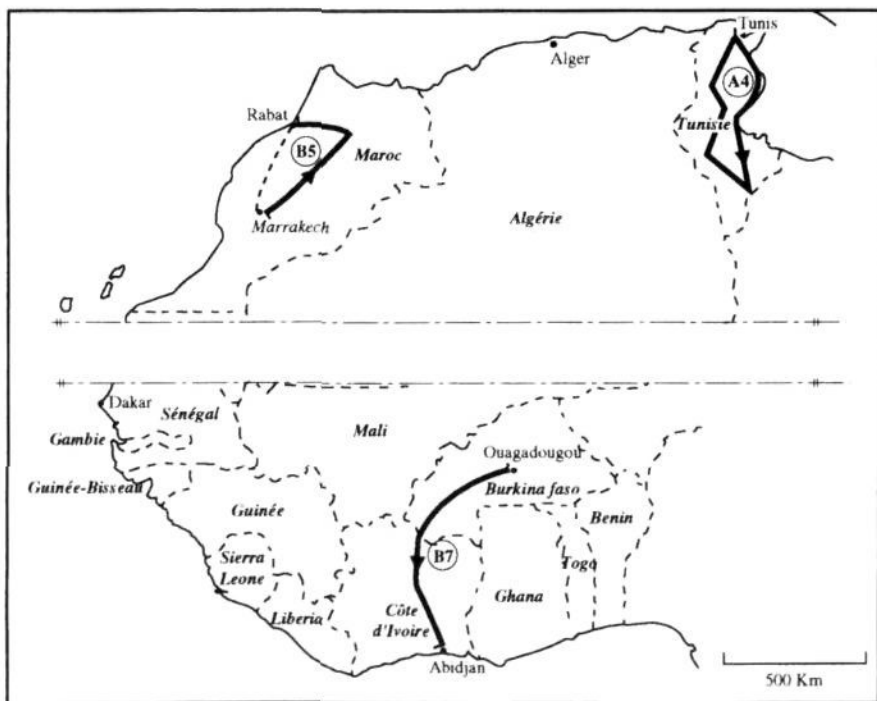
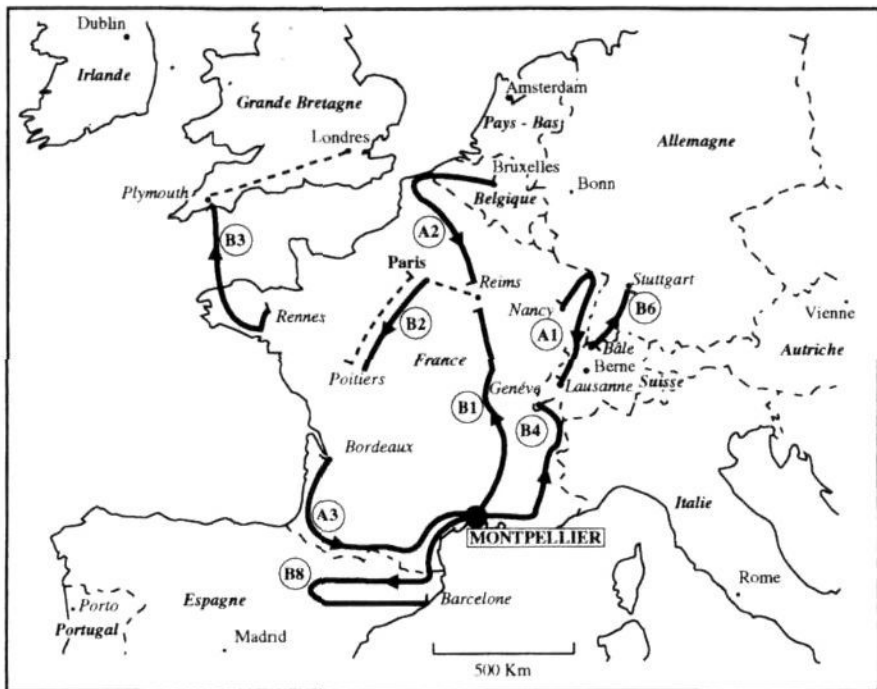
Hôtel 2 étoiles (200-300 francs) (300-350 francs)

Hôtel 1 étoile (150-250 francs) (200-300 francs)

Cité Universitaire (600 francs pour deux semaines)

Camping

Date..... Signature



Tours - Excursions - Exkursionen

16. BODENKUNDLICHER WELTKONGREß

MONTPELLIER (Frankreich)

20. - 26. August 1998

DRIITE ANKÜNDIGUNG

Adresse des Kongreß-Sekretariats:

16ème Congrès Mondial de Science du Sol
Agropolis • Avenue Agropolis • 34394 Montpellier Cedex 5 • Frankreich
Tel. (33) 67 04 75 38 | Fax (33) 67 04 75 49
E-mail: iss@agropolis.fr
Server WWW: <http://www.cirad.fr/iss.html>

Wenn Sie weitere Informationen über den Kongreß erhalten möchten, sollten Sie unbedingt Ihre „vorläufige Anmeldung“ (siehe unten) zurücksenden. Die Einladung zu wissenschaftlichen Beiträgen und die Einschreibeformulare für den Kongreß werden nur denjenigen zugesandt, die die „vorläufige Anmeldung“ zurückgesandt haben.

Der Verwaltungsausschuß der IBG traf sich vom 10. – 14. April 1996 in Montpellier. Die Kongreßorganisation wurde im Detail besprochen. Folgende Entscheidungen bezüglich des wissenschaftlichen Ablaufs des Kongresses wurden getroffen:

- das allgemeine Programm, wie es im IBG-Mitteilungsheft Nr. 88 (1995/2) publiziert wurde, wurde angenommen;
- es wurden letztendlich 45 Kongreßsymposia akzeptiert: die Auflistung derselben wird im Juni 1996 an alle diejenigen versandt, die uns ihre „vorläufige Anmeldung“ zugesandt haben;
- am ersten Tage des Kongresses, am 20. August 1998 wird eine allgemeine Debatte organisiert werden, die folgende Fragestellungen betreffen wird:
 - wesentliche Zielsetzungen der Bodenkunde;
 - wesentliche Herausforderungen für die Bodenkunde;
 - wesentliche Dienstleistungen, die die Bodenkunde erbringen kann.

In diese Debatte wird durch bodenkundliche Experten eingeführt. Sie ist auch für Nichtbodenkundler zugänglich, soweit diese sich wissenschaftlich und technisch für die Bodenkunde interessieren;

- den Kommissionen, Unterkommissionen, Arbeitsgruppen und Ständigen Komitees der IBG werden Räume und Zeiten für notwendige Arbeitssitzungen zur Verfügung gestellt.

Für alle Detailinformationen, die den Kongreß betreffen, bitten wir Sie höflich, den im IBG-Mitteilungsheft Nr. 88 (1995/2) veröffentlichten Text zu lesen oder uns direkt zu schreiben.

Eine Karte der Vor- und Nachkongreß-Exkursionen ist in der Anlage beigefügt; die Details für jede der Exkursionen wurden bereits im IBG-Mitteilungsheft Nr. 88 (1995/2) publiziert.

Hiermit erinnern wir Sie an die nächsten Schritte und Zeitlimits für die Einschreibung, die Zusendung von Beiträgen sowie die Zahlungen:

- * Die endgültige Auflistung der 45 Kongreß-Symposia wird im Juni 1996 an alle diejenigen versandt werden, die ihre „vorläufige Anmeldung“ zurückgesandt haben. Zusammen mit dieser Auflistung wird auch ein Aufruf für die Ein sendung von Beiträgen erfolgen.
- * Das endgültige Kongreßprogramm und die Anmeldeformulare werden im Oktober 1996 zugesandt.
- * Vorschläge für wissenschaftliche Beiträge müssen als Zusammenfassung (maximal eine Seite oder 2500 Buchstaben) vor dem **30. April 1997** an das Kongreß-Sekretariat gesandt werden.
- * Die endgültigen Zusammenfassungen und die vollständigen Texte derjenigen Beiträge, die vom wissenschaftlichen Komitee des Kongresses angenommen wurden (maximal 7 Seiten oder 16.000 Buchstaben) müssen vor dem **31. Dezember 1997** an das Kongreß-Sekretariat gesandt werden.
- * **Das späteste Datum für die Einzahlung der Kongreßgebühren und die Bezahlung der Exkursionen ist 31. Dezember 1997:**
 - für die Autoren von Beiträgen
 - für eine Einschreibung ohne zusätzliche Aufschläge
 - für die Bezahlung der Exkursionen ohne zusätzliche Aufschläge.

Für alle diejenigen, die keinen Kongreßbeitrag liefern werden, wird es möglich sein, nach Maßgabe der verfügbaren Plätze bis zu Beginn des Kongresses ihre Anmeldung für den Kongreß oder die Exkursionen vorzunehmen. In diesem Fall wird eine Extragebühr von 20 % zusätzlich erhoben.

Alain RUELLAN
Präsident der IBG und des
16. Bodenkundlichen Weltkongresses

**16. Bodenkundlicher Weltkongreß
Montpellier (Frankreich)
20. bis 26. August 1998**

ANMELDEFORMULAR

einsenden an

16ème Congrès Mondial de Science du Sol

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Prof., Dr., Hr., Fr.

.....
Familiename

.....
Vorname(n)

Postadresse:

Telefon:

Fax:

E.mail:

Telex:

Ich bin ISSS-Mitglied: ja nein

Ich beabsichtige am Kongress teilzunehmen: sicher vielleicht

Ich werde voraussichtlich vonPersonen begleitet

Ich werde voraussichtlich einen Beitrag präsentieren:

Thema des Beitrags:

Name der Kommission, Subkommission, Arbeitsgruppe oder des ständigen Komitees:

Ich werde voraussichtlich an folgender/n Exkursion/en teilnehmen:

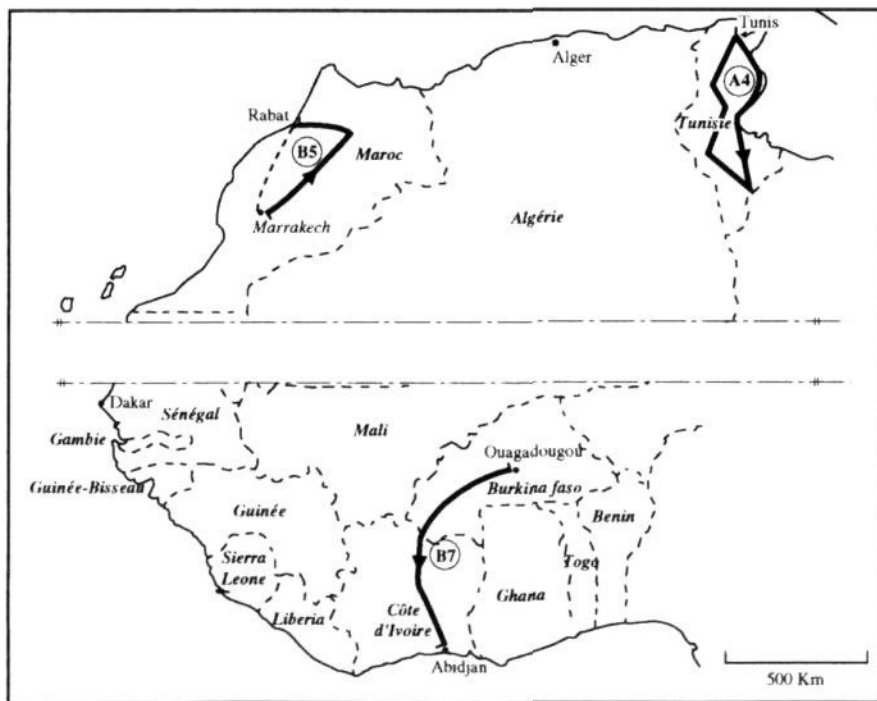
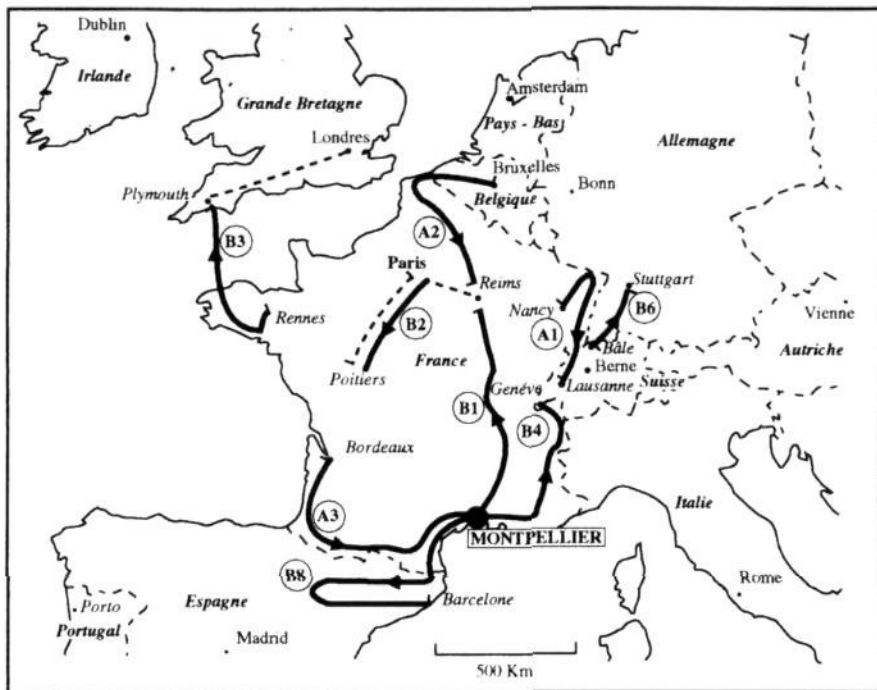
• vor dem Kongreß: **A** • nach dem Kongreß: **B** • während des Kongresses: **C**.....

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	Einzelzimmer	Doppelzimmer
4 Stern Hotel	<input type="checkbox"/> (450-500 FF)	<input type="checkbox"/> (500-550 FF)
3 Stern Hotel	<input type="checkbox"/> (360-400 FF)	<input type="checkbox"/> (400-450 FF)
2 Stern Hotel	<input type="checkbox"/> (200-300 FF)	<input type="checkbox"/> (300-350 FF)
1 Stern Hotel	<input type="checkbox"/> (150-250 FF)	<input type="checkbox"/> (200-300 FF)
Universitätsunterkünfte	<input type="checkbox"/> (600 FF für zwei Wochen)	
Campingplatz <input type="checkbox"/>		

Datum

Unterschrift



Tours - Excursions - Exkursionen

ADVICE ON THE PREPARATION AND PRESENTATION OF ORAL PAPERS, POSTER PRESENTATIONS, SLIDES AND OVERHEADS

ORAL PAPERS

1. Good talks are simple. They convincingly present a few conclusions. They do not tell the audience everything that the author knows about a subject. They are well-focussed and avoid details that distract from the main conclusions.
2. Be sure that the audience understands your terminology. Remember that in a national conference many in the audience may be unfamiliar with your local geography, stratigraphic terminology and even methodology. Visitors from overseas, for example, may find language with a lot of slang terms, idiomatic terminology or jargon difficult to understand.
3. Make sure that your talk (and abstract) is arranged in a logical sequence.
4. Emphasise the interpretation of, rather than the presentation of data. Anyone that has the specialist knowledge to question the data can do so after the talk. Few listeners will be interested in or remember long lists or intricate details of profiles.
5. Do not assume that the audience has read your abstract, but do follow the abstract so that those who have difficulty following your oral presentation have something to relate to.
6. An oral presentation should have a brief introduction that sets the stage and provides perspectives on the problem. It should be followed by descriptive information and an interpretation of this information. Finally, the conclusions (not more than five) should be summarised.
7. Each point in the talk should be illustrated by a slide; but large numbers of slides designed, for example, to show the character of a profile, or the variability of some micromorphological feature should be avoided. The audience should have time to understand each slide; if less time is provided omit the slide. In general, a 15 minute talk should use no more than 15 slides.
8. You must know your talk well. You must have practised it beforehand, and you must be certain that it fits into the allocated 15 minutes.

Keep the presentation simple!

POSTERS

1. Keep illustrative material simple. Most scientists will not want to read a large amount of detailed material - they would rather discuss the poster with you. Try out your poster on colleagues before you bring it to the conference.
2. Provide a simple summary or abstract.
3. The poster should have an introduction, providing background to the issue presented, a presentation of results of field or laboratory investigations, and a discussion of the significance of the results.
4. The introduction should provide enough information for the non-specialist to understand the purpose of the study.
5. In general, as few results as possible should be included, just those necessary to validate the conclusions. A poster overloaded with results will rarely attract attention. There should be simple links between tables, illustrations and text.
6. The discussion will have most impact if it focuses on one or two key issues, with a few easily remembered key conclusions.
7. All lettering of titles should be large enough to catch attention, and text should be large enough to read easily from the distance of about 2 m (6'). Letter should be at least 1 cm high - do NOT use normal typescript. No table should have more than 16 items. No graph should have more than 3 curves, and each should be clearly labelled. All maps and diagrams should be clearly labelled and have a brief title.

Keep the presentation simple!

SLIDES

1. Use one slide for each main piece of information or idea. Each slide should convey a simple significant message.
2. Use several simple slides rather than one complicated one.
3. Use duplicates if the same slide is referred to several times in a talk.
4. Plan your slides carefully to complement your oral presentation. Do not leave an irrelevant slide on the screen while you are talking.
5. Be sure that slides from the field clearly show the features that you wish to illustrate.
6. A slide will be legible when projected in a large room if you can read all the information on the slide with the unaided eye. This means lettering at least 5 mm high, and line widths at least 1 mm, if the original is 20 cm by 12 cm size.
7. Do not clutter a slide; do not show more than 20 to 25 words on a slide. Use the space efficiently.
8. Prepare and check your slides in good time before travelling to the conference. Carry your slides: do not send them in checked baggage.
9. Place a numbered thumb spot on each slide in the lower left corner when the slide reads correctly on viewing by hand (this becomes the top right hand corner when the slide is correctly installed in the carousel).

Keep the presentation simple!

OVERHEADS

The advice here is similar to that for slides. Clearly presented material of the right size to be seen from the back of the lecture theatre is essential. Typewritten and hand-written material is forbidden these days.

Keep the presentation simple!

From: Guidelines INQUA 1987, ISSS Bulletins, Cameron Gourley and the „Soil News“ Editor.

1996 MID-TERM MEETING OF THE ISSS EXECUTIVE COMMITTEE IN MONTPELLIER, FRANCE

Summary

The ISSS Executive Committee members, members of the Standing Committee on Statutes and Structure (CSS), and members of the Organizing Committee of the 16th World Congress of Soil Science met in Montpellier, France from April 10 - 14 for a series of meetings dealing with

- 1) the scientific organization of the 16th World Congress of Soil Science, Montpellier, 1998,
- 2) the venue of the 17th (2002) and 18th (2006) World Congresses of Soil Science,
- 3) the reorganization of the administrative and scientific structures of ISSS, and
- 4) activities, administration and finances of ISSS in general.



Participants of the ISSS Mid-Term Meeting

Participants were:

- Officers:

A. Ruellan (President), M. Jamagne (Vice-President), A. Aguilar Santelises (1st Past President), A. Tanaka (2nd Past President), K.H. Hartge (3rd Past President), W.E.H. Blum (Secretary-General), H. van Baren (Deputy Secretary-General), P.U. Lüscher (Treasurer).

- Presidents and Vice Presidents of Commissions, Sub-Commissions and Standing Committees of ISSS:

R. Horn, D. Tessier (Comm. I), N. Senesi, G. Bourrié (Comm. II), P. Lavelle (Comm. III), P. Sanchez, J.C. Rémy (Comm. IV), V. Targulian, J.P. Legros (Comm. V), M. Robert, C. De Kimpe, F. Andreux, (Comm VIII), M. Rédly (S-Com. A), C. Chartres, M.A. Courty (S-Com B), C. Valentin, D. Parkinson, E. Garnier Zarli (S-Com D), K.J. Beek, P. Brabant (S-Com F), B. Tinker (CSS) J. Kimble (CIP), S. Nortcliff (CST), W. Gardner (CBF) and M. Dosso (CES).

- Members of CSS:

Zhao Quiguo, G. Varallyay, L. Wilding

- Members of the Scientific Committee (SC) and of the Organizing Committee (OC) for the 16th World Congress of Soil Science:

G. Aubert (Honorary Member, ISSS), G. Pédro (President, SC), M. Bornand, G. Catroux, M. Eimberck, J.C. Favrot, E. Georgin, H. Manichon, R. Moreau, I. Sanz, M.J. Valony.

- Further participants:

H.H. Cheng (President, SSSA), H. Exner (assistant of SG), I. Kheoruenromne (Vice-President, SFST).

The meetings on item 1 and 2 were chaired by the President, the one on item 3 by the President and B. Tinker, the one on item 4 by the SG.

Results of the different items discussed

1. Scientific organization of the 16th World Congress of Soil Science in Montpellier, 1998

After long discussions, 45 Symposia were defined, which will be published soon. Moreover, deadlines for presenting summaries and papers to the Organizing/Scientific Committee were defined and the venue was visited by the members of the Meeting. Detailed information will be published soon and sent to all members who have manifested their interest by sending their declaration of interest to the Congress organizers.

2. Venues of the 17th (2002) and 18th (2006) World Congresses of Soil Science

The Soil and Fertilizer Society of Thailand (SFST), represented by its Vice-President, Dr. Irb Kheoruenromne, presented their project for hosting the **17th World Congress of Soil Science in Bangkok, Thailand**, with the possibility of excursions in the neighbouring countries, such as Cambodia, China, Laos, Vietnam, and others. After discussion and exchange of information, the candidature of Thailand was unanimously accepted by the Executive Committee.

In view of the long preparation period for Congresses, due to increasing business of Convention Centres all over the World, a strong backing was given to the generous offer of the Soil Science Society of America (SSSA) presented through its President H.H. Cheng, to host the **18th World Congress of Soil Science in the USA** in the year 2006. The Soil Science Society of America was asked to continue its efforts for preparing the Congress in 2006.



Prof. Pédro, Prof. Blum, Prof. Ruellan and Prof. Jamagne at the Meeting

3. Reorganization of the administrative and scientific structures of ISSS.

Long discussions were held on the re-organization of the administrative and scientific structures amongst the members of the Standing Committee on Statutes and Structure, and with the Executive Committee. The main results of these discussions are communicated in a letter which is presented in this Bulletin in the three official languages.

4. Activities, administration and finances of ISSS

Regarding the activities, administration and finances of ISSS, the budget for the years 1994 and 1995 and the preview of the budget 1996-1998 were presented and discussed. Information revealed that considerable amounts without which ISSS would not be able to continue its work are offered by several countries, especially Austria, as the host country for the Secretariat-General, thus enabling the Society to function duly. It was concluded that the actual situation is far from being satisfactory, especially in view of new targets and the outreach of the Society into International Organizations such as ICSU, into the National Soil Science Societies on a world wide level, as well as into neighbouring sciences, the cooperation of which will be urgently needed for future progress in many tasks of soil science and terrestrial ecosystem research.

Regarding the situation for Honorary Members 1994, it was stated that at the moment two vacancies are open for new candidates, because according to the existing rules, a maximum number of 15 can be Honorary Members.

At the end of the Meeting, the SG thanked all persons who had made this Mid-Term Meeting such an enjoyable and profitable event, in the name of all participants. He especially thanked the President of ISSS and the French Society of Soil Science for their financial support and arrangements.

W.E.H. Blum, Vienna, Austria

TO ALL MEMBERS OF THE INTERNATIONAL SOCIETY OF SOIL SCIENCE A NEW START FOR THE INTERNATIONAL SOCIETY OF SOIL SCIENCE

Dear Member,

The three undersigned are writing to all members of the ISSS on a subject of the greatest importance to our Society. Following much work by the Committee on Statutes and Structures, the Executive Committee and a number of other members of the Society, a new draft set of Statutes is being prepared. This has reached the point at which it is essential that there is an extensive debate within the Society, so as to allow the proposals to be modified if necessary, and then finalised. We wrote to all Presidents of National Societies of Soil Science on this subject last year, and asked them to initiate such a debate, and your own National Society may already have started these discussions.

There are two issues here, that are related, but are being handled quite separately. The first concerns the administrative structure of the Society, and we will describe the proposed changes in our Rules for this in our letter. The Executive Committee hopes to bring this issue to a decision before the next Congress, by a postal vote of all the members, as prescribed in Rule M1.

The second issue concerns the scientific structure; the names and tasks of the Commissions, Sub-commissions and Working Groups. This second issue will not be settled until after the Montpellier Congress. In part, this is due to the different mechanisms that are laid down by our present Rules, in that changes of the scientific structure can be made by the Congress on a recommendation of Council at any time, under Rule H 3. Discussions on this issue have been held, mainly at a meeting in Moscow this January, but no final proposals have been agreed, and more discussion is needed, including a debate at the Montpellier Congress. The next Council can then bring in whatever changes may be agreed, after the Congress.

You may ask why there should be any change at all. The answer is that the ISSS Rules have remained virtually unchanged since 1924, and the world of science is vastly different now. It is important that the ISSS is now a full member of the International Council of Scientific Unions, because this puts soil science on a level with the other main disciplines. The present ISSS has in its membership only a small fraction of all the soil scientists who are members of National Societies, and soil science would count for much more in the scientific world if more of the total number of soil scientists were in the ISSS. Also, soil science now has a much wider interest and appeal because of its importance in many environmental issues, and our structures need to be able to accommodate this. At present the society is held back from taking useful new initiatives because of its chronic lack of funds, so that it cannot offer more services to its membership, and we must find ways of correcting this. We aim for an up-to-date, efficient and responsive society that is ready for the next Century.

The proposed changes are quite complex, and can only be outlined briefly here. The proposals, with full explanations of the reasons for each, will be published in good time, and in any case over a year before the Montpellier Congress (as specified in Rule M 1).

The most important proposal is that National or Regional Soil Science Societies would be the FULL MEMBERS of the Society. As now, they would have seats on Council, but they would pay a subscription, at a rate to be agreed with the ISSS. This corrects the anomalous situation at present, in which the National Societies are not members of the ISSS, and pay no subscriptions to it, but still have seats on the Council. ALL the members of the National and Regional Societies that had joined the ISSS would automatically be SOCIETY MEMBERS of the ISSS, without any payment of a further subscription. This would mean that the members of National and Regional Societies would have all the same rights as members of the ISSS do now, except that Society Members could not vote on a change of the Rules, because this would be a matter for Council. There would also be provision for INDIVIDUAL MEMBERS, for those soil scientists who wished to join ISSS directly as they do at present, and for HONORARY MEMBERS and SUSTAINING MEMBERS as at present.

It is proposed that Commissions (renamed Divisions) would include Subcommissions (renamed commissions) to deal with the various branches of the science in that Division, but otherwise there would be little change in the scientific arrangements. The Congress arrangements would continue in ways very similar to those that apply at present, though the Congress would no longer be the gover-

ning body of the ISSS, which in future would be the Council. The ISSS publications would need a complete review by the new Council; if the Bulletin continued as at present, it would have to be distributed in different and cheaper ways because of the large numbers of Society Members. The Officers and the Executive Committee structure would be changed in various ways to increase efficiency and speed of response, but the changes would not be fundamental. It is also proposed that the name should be changed, to take account of our higher status now, to „The International Union of Soil Sciences“.

We are all certain that these changes would give us an ISSS that would carry much more weight, and be able to take much more vigorous action to advance the interests of Soil Science and of its members.

You will naturally want to know if this will cost the members more than at present. The system we aim for is similar to that used by most of the ICSU Scientific Unions, of which we are one. We cannot make precise statements about costs in particular countries, for two reasons. In a number of countries some or all of a National Society's subscription to the appropriate Union in ICSU is paid from Government funds. This could be a major saving for soil scientists in that country, and each National Society needs to start negotiations over this matter, if it has not done so already. The second reason is that it is proposed that each Full Member's subscription to ISSS would be negotiated on the basis of the size of that National Society and the wealth of its country. For these two reasons we believe that in virtually all cases the cost of a National Society subscription divided by the total number of its members would be substantially less than the individual subscription to ISSS of \$ 12 that is payable now. We think this system will be fairer and more efficient than the present one, and will result in a better funded Society. We intend to make a more detailed statement about funding when the full proposals are published.

We believe that this initiative deserves your most careful attention, and we commend it to you. There will be plenty of opportunity for you to make your views known directly or through your National Society, and finally it is your vote that will decide if the proposals will be accepted. The Executive Committee aims to publish detailed draft proposals for new Rules (called Statutes) during 1997, and then the final proposals will go to a postal vote early in 1998. We ask for your help in this undertaking.

Yours sincerely,

Alain Ruellan
President

Bernard Tinker
Chairman of the Committee

Winfried E.H. Blum
Secretary-General

LETTRE À TOUS LES MEMBRES DE L'AISS: UN NOUVEAU DÉPART POUR L'ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL

Cher Membre,

Nous écrivons à tous les membres de l'AISS au sujet d'un projet de grande importance pour notre Association. En effet, grâce au travail assidu du Comité Permanent sur les Statuts et les Structures (CSS), du Comité Exécutif de l'AISS et de quelques autres membres de notre association, un nouveau projet de statuts de l'AISS a été élaboré. Ce projet est maintenant suffisamment avancé pour qu'il puisse être largement débattu au sein de l'AISS, ce débat devant permettre de modifier, si nécessaire, le projet et de le finaliser. Nous avons déjà écrit à ce sujet, l'année dernière, aux Présidents de toutes les Associations Nationales de Science du Sol, en leur demandant d'initier le débat; celui-ci a ainsi déjà été lancé dans un certain nombre de pays.

Il y a deux aspects, qui sont liés mais qui sont traités séparément. Le premier concerne la structure administrative de l'AISS: c'est cet aspect que nous évoquons ci-après. Le Comité Exécutif de l'AISS espère pouvoir obtenir, sur cet aspect, une décision avant le prochain Congrès Mondial de Montpellier: ceci nécessitera, comme l'exige la règle M1 des statuts de l'AISS, un vote par correspondance des membres de l'AISS.

Le deuxième aspect concerne la structure scientifique: noms, contenus et tâches des Commissions, Sous-commissions et Groupes de Travail. L'élaboration et les débats concernant ce deuxième aspect ne seront pas finalisés d'ici le Congrès de Montpellier. Ceci est partiellement du aux règlements actuels de l'AISS qui spécifient que les modifications de structures scientifiques sont décidées par le Congrès sur proposition du Conseil (règle H3). Les discussions sur ce sujet ont déjà été entamées, principalement lors d'une réunion du Comité Exécutif et du CSS à Moscou en Janvier 1996; mais aucune proposition n'a encore été approuvée, la discussion devant se poursuivre, y compris pendant le Congrès de Montpellier. C'est le prochain Conseil de l'AISS qui aura, après le Congrès de Montpellier, la responsabilité de décider des changements à proposer.

Vous pouvez vous interroger sur les raisons de ces changements de structures. La réponse c'est d'abord que les règlements de l'AISS n'ont pratiquement pas changés depuis 1924, alors que le monde de la science est aujourd'hui très différent. Par ailleurs, et c'est important, l'AISS est depuis peu membre de l'ICSU, le Conseil International des Unions Scientifiques: cela place la science du sol au niveau des principales disciplines scientifiques. En outre, l'actuelle AISS ne regroupe, parmi ses membres, qu'une petite fraction de tous les spécialistes qui sont membres des associations nationales: la science du sol aurait plus d'impact dans le monde scientifique si plus de spécialistes en science du sol étaient membres de l'AISS. Par ailleurs, la science du sol a aujourd'hui plus d'impact, en particulier à cause de son importance dans plusieurs domaines concernant l'environnement: nos structures doivent être adaptées à cette nouvelle situation. Enfin, actuellement, les activités courantes et les nouvelles initiatives que pourraient prendre l'AISS sont freinées par la faiblesse chronique des moyens financiers: de ce fait, l'AISS ne peut offrir à ses membres suffisamment de services; il faut trouver les voies pour y remédier. Le but est de construire une association responsable et efficace, prête pour le prochain siècle.

Les changements proposés sont assez complexes et nous ne pouvons ici que les résumer brièvement. Toutes les propositions, détaillées et expliquées, seront publiées à temps, et en tous cas au moins un an avant le Congrès Mondial de Montpellier (comme le prévoit la règle M1).

La proposition la plus importante est que les Associations Nationales et Régionales de Science du Sol seront les "Membres à Part Entière de l'AISS". Comme maintenant, ces associations siègeront au Conseil de l'AISS, mais elles devront payer une cotisation dont le montant sera fixé en relation avec l'AISS. Ceci corrigera la curieuse situation actuelle: les associations nationales ne sont pas membres de l'AISS, ne payent aucune cotisation, mais sont membres du Conseil de l'AISS. Tous les membres, des Associations Nationales et Régionales qui auront adhéré à l'AISS, seront automatiquement "Membres Associatifs" de l'AISS, sans avoir à payer une cotisation AISS. Ceci veut dire que, dans

le futur, tous les membres, des Associations Nationales et Régionales qui auront adhéré à l'AISS, auront les mêmes droits que les membres actuels de l'AISS, sauf le droit de vote pour les changements concernant les statuts, car ceci sera du ressort du nouveau Conseil de l'AISS. La possibilité d'avoir des "Membres à titre Individuel" sera maintenue pour ceux qui voudront adhérer directement à l'AISS; il y aura aussi, comme actuellement, des "Membres d'Honneur" et des "Membres Bienfaiteurs".

Il est proposé que les Commissions (renommées Divisions) regroupent des Sous-commissions (renommées Commissions) qui concerneront les diverses branches scientifiques de la Division. Il y aura peu d'autres changements proposés. Le Congrès Mondial continuera à fonctionner comme avant, mais il ne sera plus le responsable principal de l'AISS: la responsabilité de l'AISS sera assurée par le Conseil. Les publications de l'AISS devront être revues par le nouveau Conseil; si le Bulletin continue comme maintenant, il faudra, vu l'augmentation du nombre de Membres Associatifs, qu'il soit diffusé par des moyens différents et plus économiques. L'organisation du Bureau et du Comité Exécutif devra être changée, afin d'en améliorer l'efficacité et la rapidité; mais ces changements ne seront pas fondamentaux. Il est également proposé de changer de nom, afin de tenir compte d'une nouvelle dimension de notre statut: il est proposé "Union Internationale de la Science du Sol".

Nous sommes persuadés que ces changements donneront plus de poids à l'AISS et permettront des actions plus vigoureuses pour servir les intérêts de la science du sol et de ses acteurs. Nous voudrions savoir si ce nouveau statut sera, pour les Membres à Part Entière de l'UISS, plus onéreux que maintenant. Le système proposé est le même que celui qui est adopté par la majorité des Unions Scientifiques qui sont, comme nous, membres de l'ICSU. Il est difficile de faire des prévisions de coût pour tel ou tel pays, et ceci pour deux raisons. Dans nombre de pays, partie ou totalité de la cotisation versée par une Société Nationale à l'Union à laquelle elle appartient, membre de l'ICSU, l'est par des fonds gouvernementaux. Ceci peut être, pour les Associations Nationales de Science du Sol de ces pays, une bonne solution et nous recommandons que ces Associations Nationales entreprennent, dès maintenant, des négociations dans ce sens avec leurs gouvernements. La deuxième raison, c'est qu'il est proposé que la cotisation de chaque Membre à Part Entière soit négociée avec l'AISS sur la base de la dimension de l'Association Nationale concernée et sur la base des potentialités économiques de son pays. Pour ces deux raisons, nous pensons que, pratiquement dans tous les cas, le montant de la cotisation d'une Association Nationale divisé par le nombre total de ses membres, sera nettement inférieur à ce que paye actuellement chaque membre individuel de l'AISS, soit 10 dollars US. Nous pensons que ce système sera meilleur et plus efficace que l'actuel, et aura pour résultat une AISS financièrement plus solide. Nous avons l'intention, d'ici la publication détaillée des propositions de statuts, de faire une étude plus détaillée de ces aspects financiers.

Nous espérons que cette initiative retiendra toute votre attention et nous vous la recommandons. Vous avez et aurez toutes possibilités de faire connaître votre avis, directement ou par le canal de l'Association Nationale dont vous êtes membres et, en définitive, c'est votre vote qui décidera de l'adoption ou non de ces propositions. Le Comité Exécutif de l'AISS s'est donné comme objectif de publier le projet détaillé des nouveaux statuts courant 1997, de façon à ce que le vote par correspondance puisse avoir lieu début 1998. Nous comptons sur votre appui pour réussir cette entreprise.

Sincèrement.

Alain Ruellan
Secrétaire Général

Bernard Tinker
Président de l'AISS

Winfried E.H. Blum
Président du CSSde l'AISS

AN ALLE MITGLIEDER DER INTERNATIONALEN BODENKUNDLICHEN GESELLSCHAFT: VOR EINER NEUEN EPOCHE DER INTERNATIONALEN BODENKUNDLICHEN GESELLSCHAFT

Wertes Mitglied,

die drei Unterzeichneten wenden sich heute an Sie in einer Fragestellung, die für unsere Gesellschaft von großer Bedeutung ist. Nach umfangreichen Vorbereitungen durch das Komitee für Statuten und Struktur hat der Verwaltungsausschuß und eine Anzahl weiterer IBG-Mitglieder einen neuen Entwurf für die Statuten ausgearbeitet. Hiermit wurde ein Punkt erreicht, an dem eine ausführliche Debatte innerhalb der Gesellschaft absolut notwendig erscheint um Vorschläge für mögliche weitere Änderungen einzubringen und das ganze zu einem guten Ende zu führen. Wir haben bezüglich dieser Fragestellung im vergangenen Jahr an alle Präsidenten der Nationalen Gesellschaften für Bodenkunde geschrieben und diese gebeten, eine Debatte auf nationaler Ebene zu beginnen. Ihre eigene Nationale Gesellschaft dürfte bereits mit einer solchen Diskussion begonnen haben.

In diesem Zusammenhang gibt es zwei verschiedene Fragestellungen, die zwar eng miteinander verknüpft sind, andererseits aufgrund der geltenden Statuten aber vollständig unabhängig voneinander behandelt werden müssen.

Das erste Anliegen betrifft die administrative Struktur der Gesellschaft, und wir werden versuchen, die wichtigsten vorgeschlagenen Änderungen unserer Statuten in diesem Brief näher zu erläutern. Der Verwaltungsausschuß der Gesellschaft hofft, daß diese Frage vor dem nächsten Kongreß, durch eine briefliche Abstimmung aller Mitglieder, wie dies in Abschnitt M 1 unserer Satzung vorgesehen ist, entschieden werden kann.

Die zweite Fragestellung betrifft die wissenschaftliche Struktur, die Namen und Aufgabenstellungen der Kommissionen, Unterkommissionen und Arbeitsgruppen. Diese zweite Fragestellung wird auf keinen Fall vor dem Kongreß in Montpellier einer Entscheidung zugeführt werden können. Dies ist vor allem bedingt durch die verschiedenen Abstimmungsmechanismen, die in unserer augenblicklichen Satzung niedergelegt sind und die besagen, daß im Gegensatz zur administrativen Struktur Änderungen in der wissenschaftlichen Struktur der Gesellschaft vom Kongreß auf Empfehlung des Beirats zu jedem beliebigen Zeitpunkt gemacht werden können, siehe Absatz H 3 der Satzung. Bisher wurden zahlreiche Diskussionen über diese Frage geführt, vor allem anläßlich eines Arbeitstreffens in Moskau im Januar dieses Jahres. Bisher konnte jedoch keine Übereinstimmung bezüglich verschiedener Vorschläge erreicht werden und daher ist eine weitere Diskussion unbedingt erforderlich, einschließlich einer grundsätzlichen Debatte anläßlich des Kongresses in Montpellier 1998. Der nächste gewählte Beirat der Gesellschaft kann dann, nach dem Kongreß in Montpellier Änderungen in der wissenschaftlichen Struktur, soweit diese übereinstimmend akzeptiert wurden, durchführen.

Sie mögen sich fragen, warum überhaupt eine Veränderung der bisherigen Statuten und Regeln notwendig ist. Die Antwort darauf liegt zunächst einmal in dem Umstand, daß die Satzung der IBG seit 1924 im wesentlichen unverändert geblieben ist, die Welt der Wissenschaften sich jedoch inzwischen entscheidend geändert hat. Darüber hinaus ist auch von Bedeutung, daß die IBG inzwischen ein Vollmitglied des Internationalen Rats Wissenschaftlicher Vereinigungen (International Council of Scientific Unions, ICSU) geworden ist, und diese Akzeptanz das Fachgebiet Bodenkunde auf dieselbe Ebene wie die anderen wichtigen naturwissenschaftlichen Disziplinen gehoben hat.

Augenblicklich umfaßt die IBG jedoch nur eine kleine Anzahl aller der Bodenkundler, die Mitglieder in Nationalen Gesellschaften sind. Bodenkunde könnte jedoch im Rahmen der Wissenschaften ein sehr viel größeres Gewicht bekommen, wenn die Zahl der Mitglieder in der Internationalen Bodenkundlichen Gesellschaft größer wäre. Darüber hinaus hat die Bodenkunde inzwischen ein weit größeres öffentliches und wissenschaftliches Interessensspektrum und eine größere Ausstrahlung als noch vor einigen Jahren erreicht, da sie auch für sehr viele Umweltbelange von größerer Bedeutung geworden ist. Unsere Strukturen müssen dies notwendigerweise berücksichtigen. Darüber hinaus wird die IBG augenblicklich daran gehindert, wesentliche neue Initiativen zu ergreifen, weil sie an chronischem Geldmangel leidet, sodaß sie auch keine zusätzlichen Serviceleistungen für ihre Mitglieder bereitstellen kann. Dies müßte nach übereinstimmender Meinung geändert werden. Wir hoffen daher, daß unsere Gesellschaft in einer verantwortlichen und effizienten Art so angepaßt und entwickelt

werden kann, daß sie in das nächste Jahrhundert hinübergeführt werden kann und dafür auch entsprechend vorbereitet ist.

Die vorgeschlagenen Änderungen sind weitreichend und können hier nur kurz dargestellt werden. Die genauen Vorschläge mit ausführlichen Erläuterungen und Begründungen werden in Bälde und rechtzeitig publiziert werden, jedenfalls mehr als ein Jahr vor dem Kongreß in Montpellier, wie dies in dem Abschnitt M 1 der Satzung niedergelegt ist.

Die wichtigste Änderung liegt darin, daß Nationale oder Regionale Bodenkundliche Gesellschaften Vollmitglieder der IBG werden. Sie werden wie bisher Sitz und Stimme im Beirat haben, aber sie werden einen Beitrag zahlen, dessen Höhe mit der neuen IBG zu vereinbaren wäre. Dies würde die gegenwärtig ungewöhnliche Situation korrigieren, in der die Nationalen und Regionalen Gesellschaften zwar nicht Mitglied in der IBG sind und auch keine Beiträge an diese bezahlen, aber trotzdem Sitz und Stimme im Beirat haben. Alle Einzelmitglieder der Nationalen und Regionalen Gesellschaften, die somit Vollmitglied der IBG geworden sind, würden automatisch Mitglieder der IBG sein, ohne jedoch weiter direkte Zahlungen an diese zu leisten. Dies würde bedeuten, daß alle Einzelmitglieder der Nationalen und Regionalen Gesellschaften dieselben Rechte wie die derzeitigen Mitglieder der IBG hätten, aber als Einzelmitglieder Nationaler oder Regionaler Gesellschaften nicht über eine weitere Änderung der Satzung direkt mitbestimmen könnten, da dies vom wissenschaftlichen Beirat durchgeführt würde, indem nur Nationale Gesellschaften als Vollmitglieder Sitz und Stimme haben.

Es wäre weiterhin vorgesehen, daß die individuelle Mitgliedschaften für solche Bodenkundler erhalten bleiben, die direkt der IBG beitreten wollen, wie sie dies auch gegenwärtig tun, z.B. aus Ländern ohne Nationale oder Regionale Gesellschaften, sowie für bisherige Ehrenmitglieder und Lebenszeit-Mitglieder.

Es wird vorgeschlagen, daß zukünftige Divisionen (bisher Kommissionen) in Kommissionen (bisher Sub-Kommissionen) untergliedert würden, wobei die Division die Zusammenarbeit verschiedener Zweige einer jeweiligen wissenschaftlichen Richtung koordinieren würden.

Darüber hinaus gäbe es nur geringe Veränderungen in der wissenschaftlichen Restrukturierung. Die Durchführung der Kongresse würde wie bisher erfolgen, obwohl die Kongresse nicht länger die gleichen entscheidenden bzw. gestaltenden Möglichkeiten innerhalb der IBG hätten, da diese zukünftige vom Beirat übernommen würden. Die IBG-Publikationen müßten durch den neuen Beirat neu überdacht werden. Wenn das Mitteilungsblatt wie bisher weitergeführt würde, müßte es aufgrund der großen Anzahl von Mitgliedern aus Nationalen Gesellschaften anders verteilt und vor allem preisgünstiger hergestellt werden.

Darüber hinaus müßte der Vorstand und die Struktur der ständigen Komitees verändert werden, um die Effizienz und die Beweglichkeit der Gesellschaft zu erhöhen. Aber diese Veränderungen wären nicht als tiefgreifend zu betrachten.

Es wird ebenfalls vorgeschlagen, daß der Name der IBG geändert werden sollte, um dem neuen Status der Gesellschaft gerecht zu werden, z.B. in „Internationale Bodenkundliche Union (IBU)“.

Wir sind davon überzeugt, daß diese Änderungen eine neue IBG mit sehr viel größerem Gewicht ergeben würde, die auch in der Lage wäre, sehr viel aktiver und schneller die Interessen der Bodenkunde und ihrer Mitglieder auf nationaler wie internationaler Ebene zu vertreten.

Sie werden natürlich daran interessiert sein, zu erfahren, ob dies für die Mitglieder mehr als bisher kosten würde. Das System, das wir anstreben wäre dem der meisten wissenschaftlichen Unionsmitglieder des Internationalen Rats Wissenschaftlicher Vereinigungen (ICSU), dem wir inzwischen auch als Gesellschaft angehören, sehr ähnlich. Wir können bisher aus zweierlei Gründen keine exakten Aussagen über die Kosten für einzelne Länder (Nationale Gesellschaften) machen: In einer Reihe von Ländern werden ein Teil oder die gesamten Beiträge der Nationalen Bodenkundlichen Gesellschaften an die entsprechende Union (da in der ICSU) durch Regierungsstellen oder nationale Akademien etc. bezahlt. Dies könnte eine erhebliche Kostenreduktion für Bodenkundler in Ländern mit solchen Möglichkeiten bedeuten. Daher sollte jede Nationale Gesellschaft über diese Frage Verhandlungen mit den entsprechenden Regierungsstellen bzw. nationalen Akademien und Forschungseinrichtungen etc. aufnehmen, wie dies auch schon teilweise gemacht wurde. Der zweite Grund liegt darin, daß die Beiträge jedes Vollmitglieds (der jeweiligen Nationalen Gesellschaft) an die neue IBG auf der Basis

der Größe dieser Nationalen Gesellschaft und dem Wohlstand des jeweiligen Landes verhandelt würde. - Aus den beiden genannten Gründen meinen wir, daß in allen Fällen der tatsächliche Mitgliedsbeitrag für den Beitritt der Nationalen Gesellschaften, dividiert durch die Gesamtanzahl ihrer Mitglieder, erheblich geringer wäre, als die individuelle Mitgliedschaftsbeiträge, die in Höhe von 12 US\$ jährlich im Augenblick an die IBG bezahlt werden. Wir sind der Meinung, daß dieses System fairer und auch effizienter als das gegenwärtige wäre und zu einer besseren Finanzierung der IBG führen würde. Wir werden auf jeden Fall eine sehr viel detailliertere Auskunft über die mögliche zukünftige Finanzierung geben, wenn wir den ausführlichen Text des Entwurfs der neuen Vorschläge für Statuten demnächst publizieren werden.

Darüber hinaus sind wir der Meinung, daß Sie diese neue Initiative sehr sorgfältig prüfen sollten, und bitten Sie, dies auch zu tun. Wir versichern Ihnen, daß zahlreiche weitere Gelegenheiten für Sie bestehen werden, Ihre Ansichten durch Ihre Nationale Gesellschaft oder direkt kundzutun und letztendlich ist es ja Ihre Stimme, die darüber entscheiden wird, ob diese neuen Vorschläge allgemeine Akzeptanz finden. Der Verwaltungsausschuß beabsichtigt, den Detailentwurf für die neue Satzung nach Diskussion und Anpassung im Jahre 1997 zu publizieren und die endgültigen Vorschläge für diese Satzung im Frühjahr 1998 einer postalischen Abstimmung zu unterwerfen. Wir bitten Sie um Ihre Mithilfe in dieser wichtigen Angelegenheit.

Mit freundlichen Grüßen,

Alain Ruellan
Präsident

Bernard Tinker
Vorsitzender des Komitees

Winfried E.H. Blum
Generalsekretär

ISSS PROCEEDINGS

The proceedings of the last three International Congresses of Soil Science can be ordered at a reduced rate for ISSS members.

Proceedings 13th International Congress of Soil Science, Hamburg, 1986 (set of 6 volumes)	NLG 25.—
Proceedings 14th International Congress of Soil Science, Kyoto, 1990 (set of 7 volumes)	NLG 75.—
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Please send me the set(s) of the proceedings of the International Congress(es) of Soil Science mentioned below:

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ANNOUNCEMENTS

13TH LATIN AMERICAN SOIL SCIENCE CONGRESS, 11TH BRAZILIAN SOIL AND WATER CONSERVATION MEETING and 1ST BRAZILIAN SOIL BIOLOGY MEETING Agua de Lindoia, Brazil, August, 4-10, 1996.

Organized by the Soil Science Department of the Agricultural College „Luiz de Queiroz“ (ESALQ) of the University of Sao Paulo, Brazil, with the support of the Latin American Soil Science Society and the Brazilian Soil Science Society

- This event will consist of state-of-the-art lectures, plenary sessions of invited papers and voluntary poster sessions.
- The official languages will be Spanish and Portuguese.
- Accommodation and Congress activities will be held in the Hotel Monte Real (*****) in Agua de Lindoia, 150km North from the ESALQ Campus.
- Agua de Lindoia is and hydrothermal spa in a mountain region, famous for the curative power of its water, for its natural beauty and the serenity of its atmosphere, providing a special environment for accompanying persons and for relaxing after the hard work at the Congress.
- The Congress will have simultaneous sessions divided into the following commissions:
 - Soil Physics
 - Soil Chemistry and Mineralogy
 - Soil Biology
 - Soil Fertility and Plant Nutrition
 - Soil Genesis, Morphology and Classification
 - Soil Management and Conservation
 - Soil Science Education
 - Fertilizers and Conditioners
 - Soil Pollution and Environmental Quality
 - Forest Soils

Several **Congress** and **Post Congress** tours are being organized to the most important Brazilian regions, including the central savanna region (Cerrado), the Pantanal wetland, the Amazon rain forest, the Southeast agricultural region, the Iguacu Waterfalls and the Northeast Brazilian semi-arid region.

A complete **program** (Portuguese or Spanish) and the instructions for submitting invited papers and **inscriptions** can be obtained at the address below or at the homepage <http://www.ciagri.us.br/~CLACS96/>

Prof.Dr. Pablo Vidal Torrado,
Organizing Committee Chairman,
Soil Science Department,
University of Sao Paulo,
Agricultural College „Luiz de Queiroz“,
CP 9, CEP 13.418-900,
Piracicaba (SP), Brazil.

Tel.: +55 194 29 4246
Fax: +55 194 34 3242
Email: CLACS96@esalq.usp.br

**INTERNATIONAL SYMPOSIUM OF ISSS-COMMISSION VIII, on
SOIL, HUMAN and ENVIRONMENT INTERACTIONS**

**Institute of Soil Science, Nanjing, China,
May 4 - 11, 1997 (including field trip)**

MAIN THEMES

A Soil resource conservation and sustainable development

1. Soil resource survey and monitoring at regional and global scales; 2. Options for soil resource management; 3. Soil and water pollution

B Soil degradation

1. Measuring changes in soil quality; 2. Risk assessment; 3. Prediction and monitoring at different scales

C Land use and environment changes

1. Evidence of ancient environment changes; 2. Land use changes and atmospheric gas emission; 3. Effects of climate changes on soil environment; 4. Database and simulation models

D Soil restoration

1. Experience in soil restoration: implementation, and monitoring progress; 2. Soil resilience and its measurement; 3. Policy issues: preventive and controlling strategies

GENERAL INFORMATION

The Symposium is sponsored by the Chinese Academy of Sciences and the International Society of Soil Science

It is organized by the Institute of Soil Science, Academia Sinica, and ISSS Commission VIII, Soils and the Environment

It is supported by the Chinese Academy of Sciences, the China National Natural Science Foundation, the China International Centre for Technology Exchange, and the International Society of Soil Science.

for **INFORMATION, REGISTRATION, ABSTRACTS**, please contact:

Prof. Z.H. Cao, Secretary-General,

International Symposium on Soil, Human and Environment Interactions

Institute of Soil Science, Academia Sinica, P.O.Box 821, Nanjing, P.R. China

Tel.: +86-25-7712572; Fax: +86-25-3353590; E-mail: zhaogq@njct.ihep.ac.cn

PRE-REGISTRATION FORM / NOTICE OF INTENT

(Please return by September 1996)

Please type or write in CAPITALS and mail, fax or e-mail to Prof. Cao:

Name First name

Address:

.....

.....

Tel./Fax:

I am interested in sessions:

I will present a paper entitled:

.....

Name(s) of accompanying person(s):

I will participate in the post-Symposium tour (May 8-11, 1997) Yes No

Date: Signature

**INTERNATIONAL CONFERENCE
„PROBLEMS OF ANTHROPOGENIC SOIL FORMATION“**

June 23 - 28, 1997, Moscow, Russia

- Theme:** The rising concern about human-induced changes, especially in the soil cover of our planet, call for efforts towards a better understanding of the increasing role of human activity as a soil-forming factor. The event will focus on scientific and applied problems related to anthropopedogenesis.
- Organizers:** Commission V of ISSS, the Russian Society of Soil Science and the V.V. Dokuchaev Soil Science Institute in Moscow, Russia.
- Topics:** **1.** - Agrogenic and technogenic transformation of soils (composition and organization of the soil body); **2.** - Classification of anthropogenically transformed soils; **3.** - Human-induced changes in the soil cover and problems of their mapping; **4.** - Specific processes in anthropogenically transformed soils; **5.** - Soil conservation.
- Programme:** *Oral presentations, posters, one-day field tour.*
- Languages:** English and Russian
- Registration fee:** (including Conference materials and proceedings and one-day field excursion): **250 USD**

Papers and posters on all related topics are welcome

For further information, please contact:

V.V. Dokuchaev Soil Science Institute,
Pyzhevskii per. 7, Moscow 109017, RUSSIA
Fax: +7-095-231-50-37 or +7-095-230-80-42

NOTICE OF INTENT

International Conference „Problems of Anthropogenic Soil Formation“

Surname:

First name(s):

Affiliation:

Mailing address:

Tel.: Fax:

Proposed title of paper for presentation:

oral

poster

Date: Signature:

**3rd INTERNATIONAL CONFERENCE ON SOIL DYNAMICS (ICSD-III)
Israel, August 3-8, 1997**

FIRST ANNOUNCEMENT AND CALL FOR PAPERS - MAY, 1996

ORGANIZED BY: Faculty of Agricultural Engineering, Technion- Institute of Technology,
IN CO-OPERATION WITH: ASAE, IDF (Israel Defense Forces), ISAE (Israel Soc. of Agric.
Engineering), ISSS Comm. I - Soil Physics, ISTRO, ISTVS, USDA-ARS Nat. Soil Dynamics Lab.

TOPICS OF PAPERS: Papers may address a broad range of topics related to the reaction of soil to forces applied by any type of mechanical load, for example:

- Soil-machine interaction, tillage, earth moving, transportation, traction, traffic, mobility, soil handling, soil compaction ability;
- Soil-plant interaction, plant root growth, primary and secondary field tillage operations, and sensors to monitor soil conditions
- Soil Mechanical properties, soil stability, soil penetration, soil cutting, soil constitutive law, simulation, modeling, and sensors for soil properties

LANGUAGE: The official language of the conference will be English

PARTICIPATION FEE AND ACCOMMODATIONS: Information will be provided in the second announcement, December 1996.

DATES TO REMEMBER:

September 1, 1996: Preliminary registration form due; **February 1, 1997:** Abstracts due, **May 1, 1997:** Registration and payment due; **June 1, 1997:** Final Paper due (in Camera-ready form).

CONFERENCE COORDINATOR:

Dr. Shmulevich, Itzhak,
Technion - Israel Institute of Technology, Faculty of Agricultural Engineering
Technion City, Haifa 32000 Israel
Tel.: +972-4-829-2620; Fax: +972-4-822-1529; E-mail: agshmil@tx.technion.ac.il

PRELIMINARY REGISTRATION FORM

This form must be returned to the Conference Coordinator by September 1, 1996

PLEASE PRINT OR TYPE

NAME:

TITLE/POSITION:

AFFILIATION:

.....

ADDRESS:

.....

POSTAL CODE AND COUNTRY:

TELEPHONE: FAX:

E-MAIL:

I WOULD LIKE TO CONTRIBUTE TO THE CONFERENCE.

Preferred presentation:

oral poster presentation

tentative topic

I am interested in attending the Conference

Please put me on the mailing list for further information

THE FOLLOWING PERSONS MAY BE INTERESTED IN RECEIVING INFORMATION ABOUT THE CONFERENCE:

**CONFERENCE on GEO-INFORMATION
for PLANNING of SUSTAINABLE LAND MANAGEMENT**

Enschede, The Netherlands, August 17 - 22, 1997

Organizer: International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, NL
Sponsors: ISSS Subcommittee F (Land Evaluation), Food and Agriculture Organization of the United Nations (FAO)

Maximum number of participants: 150

Themes: **1.** Concepts of Sustainable Land Management; **2.** Planning of Sustainable Land Management: User Needs and Possibilities; **3.** Land-Use Systems Approach to Sustainable Land Management; **4.** Integrating Biophysical and Socio-Economic Sustainability Analyses; **5.** Geo-Information Infrastructure for Planning of sustainable Land Management.

The Conference will consist of Plenary Sessions, with keynote addresses and contributed papers by invited speakers, and of posters and workshops. A one-day-**Mid-Conference Excursion** is planned. The Conference will be concluded by a Panel Discussion in which conclusions from workshops and recommendations for the 1998 ISSS World Congress of Soil Science will be formulated. Participants in the Conference will be invited to contribute posters or short papers, which will be included in the **Conference proceedings**. The proceedings will be published in March 1998, at the latest.

For further information please contact:

Prof. Dr. K.J. Beek (Chairman, Sub-Commission F, ISSS)
ITC, P.O.Box 6, 7500 AA Enschede, THE NETHERLANDS
Fax: +31-534-874-200; E-mail: beek@itc.nl

NOTICE OF INTENT

I intend to participate in the:

Conference on Geo-Information for Planning of Sustainable Land Management in Enschede, The Netherlands, August 17-22, 1997

Name:

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Datum Unterschrift

**INTERNATIONAL WORKING MEETING
of ISSS (Com.V and WG Paleopedology) and INQUA (Com. Paleopedology),
September 24-26, 1997 in Rauschholzhausen near Marburg,
Univ. of Giessen, Germany**

Organization: P. Felix-Henningsen and A. Bronger

**„RECENT AND PALEO-PEDOGENESIS AS BASIS FOR MODELLING
PAST AND FUTURE GLOBAL CHANGE“**

Topics of the tentative program:

- a. Polygenetic concepts of Quaternary and pre-Quaternary surface paleosols;
- b. Environmental implications of paleopedogenic features for agriculture, forestry etc.
- c. Buried Quaternary and pre-Quaternary paleosols as tools for reconstructing and modelling environmental changes.
- d. (Paleo)pedology and Archaeology.
- e. Methodological recognition of soils with relic properties: definition, classification and modelling.

Before the Meeting there will be a Pre-Conference tour on September 22-23, 1997 seeing e.g. loess profiles in the vicinity of Frankfurt/M, Mainz and Ludwigshafen.

During a Post-Conference tour on September 27-28, deep weathering mantles of the upper Cretaceous and Tertiary periods will be shown in the Rhenish Massiv and Vogelsberg.

Contact addresses:

Prof. Arnt Bronger,
President of INQUA Comm. of Paleopedology,
Chairperson of ISSS WG Paleopedology,
Department of Geography, University of Kiel, D-24098 Kiel, Germany
Phone: +49 432 880 2952;
Fax: +49 431 880 4658;
E-mail: bronger@geographie.uni-kiel.de

Prof. Victor Targulian,
Chairperson of ISSS Commission V, Soil Genesis,
Classification and Cartography
Institute of Geography, Staromonetny per. 29, 109017 Moscow, Russia
Phone: 7-095-238-18-67;
Fax: 7-095-230-20-90
E-mail: targul@geosoil.msk.ru

Dr. Alexander Makeev,
Secretary-treasurer of INQUA Commission Paleopedology,
Dokuchaev Soil Institute, Pyzhevsky, 7, 109017, Moscow, Russia
Phone/Fax: 7-095-932-11-82;
E-mail: makeev@fadr.msu.ru

Prof. Peter Felix-Henningsen,
Director, Dept. Soil Science and Soil Conservation,
University of Giessen, Wiesenstr. 3-5, Giessen 35390, Germany
Phone: +49-641-702-9680;
Fax: -9679;
E-mail: Peter.Felix-H@agrar.uni-giessen.de

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Chairperson:	Dr. P.J. Gregory, Dept. of Soil Science, Univ. of Reading,

Whiteknights, P.O.Box 233, Reading, RG6 2DW, U.K.

WORKING GROUP SG:

Chairperson:

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Chairperson:

Prof.Dr. D. H. Yaalon, Institute of Earth Sciences, Hebrew University, Givat Ram Campus, Jerusalem 91904, Israel.

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Members: *vacancy (Comm. I), Prof. A. L. Page (USA, Comm. II), vacancy (Comm. III), Prof. K. Syers (Thailand, Comm. IV), vacancy (Comm. V), Y. P. Kalra (Canada, Comm. VI), vacancy (Comm. VII), vacancy (Comm. VIII), Prof. Somsri Arunin (Thailand, Subcomm. A), Dr. W. McDonald (Australia, Subcomm. B), Prof. R. Lal (USA, Subcomm. C), Prof. L. Brussard (Netherlands, Subcomm. D), Dr. K.-J. Meiwes (Germany, Subcomm. E), vacancy (Subcomm. F), vacancy (Subcomm. G).*

Committee on Budget and Finances (CBF), instead of ad-hoc committees at Congresses.

Chairman: Dr. W. R. Gardner, College of Natural Resources, Univ. of California, Berkeley, CA 94720, USA.

Members: Prof. Dr. W. E. H. Blum (Austria), Dr. D. Gabriels (Belgium), Dr. P. U. Luescher (Switzerland), Dr. W. G. Sombroek (The Netherlands) and one representative of the regional Society of Africa, East/Southeast Asia and Latin America.

Committee on Education in Soil Science (CES), with particular attention to secondary school/college level

Chairwoman: Prof. Dr. M. Dosso, CNEARC, B.P. 5089, 1101 Av. Agropolis, 34033 Montpellier, France.

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ICSU-IBN	International Biosciences Networks: Prof.Dr. P. A. Sanchez (USA).
ICSU-IGBP	International Geosphere-Biosphere Programme: Prof.Dr. H. W. Scharpenseel (Germany).
ICSU-COSPAR	Committee on Space Research: Dr. Karale (India).
ICSU-CODATA	Committee on Data for Science and Technology: Prof.Dr. M. F. Baumgardner (U.S.A.).
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ACTIVITIES OF COMMISSIONS AND WORKING GROUPS
ACTIVITÉS DES COMMISSIONS ET GROUPES DE TRAVAIL
AUS DER TÄTIGKEIT VON KOMMISSIONEN UND ARBEITSGRUPPEN

International Congress on Soils of Tropical Forest Ecosystems

This Congress held in Balikpapan, East Kalimantan, Indonesia from October 29 to November 3 1995 was the third intercongress meeting of the ISSS Subcommission F Forest Soils. The meeting was attended by over 200 delegates from 34 different countries and involved a series of invited papers, submitted papers, poster and an end of Congress field tour, plus a number of social events. For many, even those for whom it was not a first time in Indonesia this was a first visit to East Kalimantan, and the hospitality afforded by the regional and city hosts was of the highest order, as was the general level of welcome in Balikpapan itself. The opening session of the Congress included an Introduction from the Organising Committee Dr. Ruhiyat and Dr. Schulte which in addition to introducing the participants to the Congress also showed the high technological level of the video facilities which portrayed maps of the continents and flags identifying the participants. Throughout the Congress the participants were captured on video or in normal photographs from almost every angle!

The opening session included welcomes from a range of persons representing Mulawarman University, the Federal Republic of Germany, East Kalimantan, and the Ministry of Education and Culture of the Government of Indonesia, followed by an address on Forests and Forest management in Indonesia from the Ministry of Forestry. After that, there were presentations on „A concept of sustainability based on soil and soil functions“ by Professor Dr. Blum (ISSS) and Forest Soils and their Potential Use in Indonesia.



Participants of the Congress

After this first morning the remaining sessions followed a similar format of an Opening Invited paper followed by submitted contributions. The first session focused upon Soil Characteristics and Classification, with a first paper by Kauffman, Sombroek and Mantel from ISRIC in the Netherlands and FAO considering The characterisation and major constraints of dominant soils this was followed by a range of papers addressing the classification of soils, their characteristics and response to various management activities. The morning session on Tuesday focused upon Soils and Plantation

Forestry, opening with a paper from Nambiar and Brown from CSIRO, Australia, which was followed by a range of papers addressing aspects of plantation forestry in sites in a range of tropical and sub tropical environments. The afternoon session highlighted soil degradation and conservation opening with a paper from van Noordwijk, Murdiyarto, Wasrin, Hairiah and Rachman which described work in Indonesia on the Global Project on the Alternatives to Slash and Burn. The remaining papers in this session considered the effects on soil physical and chemical properties of forest clearance, with a wide geographical range of examples. The day was ended with the first of the two excellent poster sessions, which illustrated some top quality and interesting work which resulted in some animated discussion at the end of the day.

Wednesday's programme also included two paper sessions, the first with the theme Fertility and Fertilisation, opening with a paper by Zech and Dresel from Germany entitled Degradation and amelioration of soil and tree nutrient status without and with mineral fertilizer. There followed a set of papers addressing a wide range of topics including long term studies of agroforestry, problems of soil acidity and aluminium toxicity, and problems of fertilizer management under a range of conditions. The broad theme of plant nutrition was continued in the afternoon session which concentrated upon nutrient cycling. Following the opening paper by Brouwer on Nutrient dynamics in intact and logged tropical rain forest on an acid sandy soil in Guyana the papers examined various aspects of nutrient cycling including the role of soil microarthropods. The second very successful poster session concluded the days proceedings.

The theme for Thursday morning had a strong biological content with a focus upon mineral nutrition and the role of roots and mycorrhiza. The session opened with a presentation from Alexander entitled Mineral nutrition of tropical forests - the role of mycorrhiza, which linked well into many of the other papers presented during this session. The afternoon session focused upon soil and water relationships with a keynote address from Bruijnzeel entitled Soil chemical and hydrochemical responses to tropical forest disturbance and conversion: A hydrologists perspective supported by just two papers concerned with soil water. The final paper of the congress considered the use of soil conditioners.

All the papers having been given the Congress was brought to a close by the field excursion. Helicopters provided the participants with an excellent opportunity to view forest, plantation and



Intensive discussion around a soil pit

degraded plantation from above before visiting some of the sites on the ground. Once in the concession, the groups were introduced to the forestry activities in the concession, then visited three sites where soils (Oxisol, Spodosol and Ultisol) were viewed together with the surrounding forest and forest management practices. These sites provided excellent opportunities for wide ranging discussions linking many aspects of what had been presented and discussed in the Congress Hall during the previous four days. The traverse through the concession also provided opportunities to view other areas of forest and various management activities. This was a most enjoyable field day and a fitting climax to an excellent congress.

This Congress was a most successful meeting and the organising committee are to be thanked for all their efforts before the meeting in successfully bringing together this group of scientists and for the organisation of the meeting itself. The Congress would not have been possible without the support of the sponsors and in particular thanks are given to; Indonesian-German Forestry Project Deutsche Gesellschaft für Technische Zusammenarbeit GMBH (GTZ), Faculty of Forestry, Mulawarman University, Samarinda, Indonesia, Centre of International Forest Research (CIFOR), and the PT. International Timber Cooperation Indonesia and PT.ITCI Hutani Manunggal.

Stephen Nortcliff, Reading, UK

NEWS FROM THE ISSS WORKING GROUP „SOILS AND GEOMEDICINE“

An International Symposium held in Oslo, Norway, from 30/11/95 to 01/12/95 was hosted by the Norwegian Academy of Science and Letters, and chaired by Prof. J. Låg. The title „Chemical data of plant, animal and human tissues as basis of geomedical investigations“, has attracted a large number of international participants.

It is known that environmental factors, in particular the chemical composition of the soil, play an important role in a host of human diseases. However very little is understood of critical levels of these chemical components in the soil, plant, animal and human tissues. The symposium attracted a wide range of contributions from medical people, biologists, veterinary specialists and soil scientists. Topics addressed in the symposium were:

- Relationships between chemical composition of biological tissues and geomedical problems;
- The use of large serum banks in environmental and cancer studies;
- Selenium in human tissues;
- Pathways from toxic soils to animals and man;
- Monitoring environment by shed primary teeth;
- Teeth as indicators of environmental exposure;
- Aluminium content in teeth related to aluminium in drinking water;
- Transport of agrochemicals through soils;
- Heavy metals in Norwegian wildlife;
- Heavy metals and bioelements in Estonia;
- Liver copper levels and copper/molybdenum balance in grass;
- Hypophosphatemia in free-ranging moose;
- Relationship between osteodystrophia and trace elements;
- Cobalt deficiency in animals;
- Toxins produced by special microorganisms.

The symposium noted that a very strong correlation exists between the natural soil environment and prevailing levels of micro-elements in human tissue which in turn explain the occurrence of related human diseases. A standing problem which deserves our attention in the future is the establishment of critical threshold levels of these chemicals in the various compartments of the environment. More insight is also needed in the processes which dominate the transport of these chemicals from the environment to man.

J. Deckers, Secretary, ISSS WG-SG

FIELD ASSESSMENT OF SOIL PHYSICAL CONDITIONS

Advances in equipment have now given us a whole suite of physical tests to provide comprehensive data on many soil properties. Despite these advances, our understanding of the soil environment is far from complete. However, there are dangers that the use of sophisticated and complex tests may be excluding those once regarded as standard. There is also evidence to suggest that some scientists consider the direct examination and assessment of soils in the field is something to be avoided and not worthy of serious attention. Indeed „the armchair scientist“ who delegates all matters of field evaluation to junior and technical staff is no longer a myth.

At an International Conference, I recall listening to a superb presentation describing in detail the results of a major research project. An impressive range of physical tests had been done. It was a surprise and disappointment to the researchers, and to the audience, that there was no response whatsoever to deep tillage. It was subsequently found that the trials had been done on a fertile and uncompacted soil. Apparently no one had examined the soil prior to the application of the main treatment. A straightforward examination and evaluation of the soil at an early stage should have alerted the researchers to this fact.

Is it not now time to get back to basics and to regard field examination as highly desirable and an often essential means of soil evaluation? This can have many advantages:

- * low cost, little equipment
- * comprehensive and thorough
- * no delay, quickly done
- * direct assessment of part or of the whole soil
- * highly sensitive to slight changes in physical conditions
- * capable of numerical recording and statistical interpretation

There are also many circumstances when careful examination in the field should precede sampling or testing by more sophisticated methods. Otherwise samples may be taken across boundaries, from zones with dissimilar properties.

A spade, some water, a pair of hands and keen observation are all that is needed. By such methods accurate assessments can be made of: soil texture, soil compaction, narrow smeared layers, soil structure, soil consistence and also of related features such as soil moisture and root distribution. These methods are particularly suited to the diagnosis of damaged soils.

Advances in technology must not displace the basic skills of direct visual and tactile methods. Both groups of tests are required, they should not be in conflict nor be regarded as alternatives but operate side by side.

Because interest in field tests appears to be in decline, the International Soil Tillage Research Organisation (ISTRO) has formed a Working Group to encourage their use. Details were published in *Soil & Tillage Research* 34 (1995) pages 261-262.

It is over 30 years since Peerlkamp and Boekel published their „St“ values for assessing the structure of a soil. These tests are sensitive to small differences not readily determined by other means; they continue to be used by a few but are unknown to the majority. Further development of such tests is in progress in France, Germany and Sweden.

There is no reason why interest in furthering field evaluation should be restricted to the ISTRO Working Group. Any soil scientist keen to know more about such tests or to encourage their use is welcome to join. Any ISSS member who would like to help or to obtain more information please contact me:

Dr. Tom Batey
Plant&Soil Science Department
University of Aberdeen, Aberdeen, AB9 2UE
UK

**REPORTS OF MEETINGS
COMPTE-RENDUS DE RÉUNIONS
TAGUNGSBERICHTE**

Symposium „Remote Sensing and GIS as Tools for Monitoring Soils in the Environment

Ouagadougou, Burkina Faso, 6-10 February 1995

The 6th Symposium of the ISSS Working Group Remote Sensing for Soil Survey (WG-RS) was organized jointly with the ISSS Working Group World Soils and Terrain Digital Data Base (WG-DM) and with the West and Central African Soil Science Association (WCASS). The Symposium was held at the Conference Hall of the United Nations Building in Ouagadougou, Burkina Faso. The organizing committee was drawn from: Joint Research Center, Ispra, Italy (Dr. J. Mégier), ORSTOM, Tunisia (Dr. R. Escadafal, Secr. WG RS), Wageningen Agricultural University, The Netherlands (Dr. M. A. Mulders, Chairman WG RS) and Dr. L. Thiombiano, Burkina Faso (INERA, Secr. Gen. of WCASS)

The Symposium was well attended, with 90 scientists from 20 countries. The Symposium was made possible by 15 sponsoring institutions, collaboration with WCASS and with the local authorities of Burkina Faso.

The Symposium programme contained four parts: sessions with oral communications, interactive sessions with posters, an excursion and round table discussions.

Keynote papers on Remote Sensing and GIS for inventory of the environment were presented in session I by D. King (France), S. Bialousz (Poland), R. Escadafal (ORSTOM-Tunisia), M. Khouma (Senegal), H. Van Baren (The Netherlands, Dep. Secr. Gen. of ISSS) and M.A. Mulders (The Netherlands).

The conference was continued by the following sessions with oral communications:

- II Correlation of terrain properties with remote sensing data;
- III Techniques for extracting information on soils and vegetation;
- IV Applications to soil and land use mapping;
- V Applications to land evaluation and degradation monitoring;

The interactive sessions were dedicated towards:

- A) Methods and techniques, application I - soil mapping;
- B) Applications II - land use, land degradation, land evaluation.



The opening session of the Symposium

After the sessions, the excursion and roundtable discussions took place. The excursion to the Kaya region was well organized by Dr. N. P. Zombré (Univ. of Ouagadougou) and Dr. F. Pallo (IRBET, Ouagadougou), assisted in the organisation by the representatives of 10 institutes of Burkina Faso, active in the field of soils, environment, remote sensing and GIS. Attention was paid during the excursion to parent rock, vegetation, soil profiles, field reflectance measurements, interpretation of Landsat TM data, demonstration and discussion of GIS products, giving the spatial distribution of physiographic, land use and soil mapping units.

The round table discussions were concentrated on the following topics:

- 1) the need of soil geographical databases - GIS advantages and disadvantages;
- 2) spectral unmixing methods;
- 3) Remote Sensing and GIS applied to mapping of land resources versus conventional techniques;
- 4) Remote Sensing and GIS for assessment of land degradation.

The following six recommendations reflect the outcome of the round table discussions:

- Remote Sensing and GIS in combination enable to reach a greater accuracy in the mapping of land resources than provided by the application of conventional techniques;
- spectral unmixing methods have to be used in Remote Sensing of complex landscapes, where pixels are built of various land components; spectral reflectance measurements are more than useful, but spectral unmixing can also work by starting with satellite image data;
- land degradation as a process should consider the time factor; aerial photographs taken four decades ago can act as a point of reference; remote sensing can be used to detect various degradation aspects, such as slaking, erosion, salinization and degrading vegetation;
- there is an urgent need for the establishment and use of harmonized procedures for data selection, -collection, -generation (incl. lab data) for application in geographical databases;
- GIS is a rapidly developing powerful tool for a large variety of users; soil scientists should provide relevant information to these users about the possibilities and limitations of GIS and its products in order to limit misuse;
- developing countries should possess one national center on Remote Sensing and geographical database management; the selection of hardware and software ought to be based on the needs of the country, scientific and technical support, training needs and possibilities as well as available funds.

1995 INTERNATIONAL SYMPOSIUM ON SOIL AND PLANT ANALYSIS,

Wageningen, The Netherlands, August 5-10, 1995

Soil testing and plant analysis are becoming more and more specialized and the need was felt for symposia specific for this field. Therefore, the U.S. Council on Soil and Plant Analysis started organizing these meetings. The first was held in Fresno, California (1989), followed by equally successful meetings in Orlando, Florida (1991), and Olympia, Washington (1993). To emphasize the international character of this series, it was decided to locate future symposia outside the USA.

The 4th International Symposium on Soil and Plant Analysis was held at the WICC-AIC (Wageningen International Conference Centre - International Agricultural Centre), 11 Lawickse Allee, Wageningen, the Netherlands. It was developed around the theme „Quality of soil and plant analysis in view of sustainable agriculture and the environment“. The aim was to bring together scientists and agricultural specialists from around the world to disseminate information about methodology, terminology, interpretation and application of soil, plant, water and other analyses for the purpose of efficient resource management and environmental protection. There were 225 participants representing 43 countries.

Following welcoming remarks by Victor Houba (Chair, Organizing Committee, Wageningen Agricultural University), the symposium was opened by Byron Vaughan (USA), President of the Council. The packed agenda included plenary speakers, poster sessions, instrument exhibits, tours, and special training courses.

The symposium compressed several years of research work into six days. Plenary sessions focusing on (1) Quality of soil and plant analysis in relation to sustainable agriculture and the environment (2) Quality of Laboratories (3) Laboratory certification (4) Nutrient balances, and (5) Soil extraction procedures in relation to plant uptake were chaired by Byron Vaughan (USA), Ann Wolf (USA), Hans van der Lee (the Netherlands), Ewald Schnug (Germany), and Owen Plank (USA). Moderator for the final plenary session (analytical methodology) and panel discussion was Yash Kalra (Canada). About 200 voluntary papers were presented in four poster sessions on the following topics: (1) Methods and techniques of soil, plant, water and waste analysis (2) Laboratory quality assurance and control (3) Sample collection techniques, and (4) Interpretation and recommendations based on laboratory analysis. During the whole session, authors were present at their posters for explanation, discussion, and interaction among participants. Abstracts of papers were provided at the time of registration. Full plenary and poster papers will be published following proper review, in a special issue of the *Communications in Soil Science and Plant Analysis*.

The following training sessions were provided: (1) Test kits for soil analysis, Denton Slovacek (USA) (2) Interlaboratory analytical studies, Victor Houba (the Netherlands) (3) Laboratory management, Ed Hanlon (USA) (4) Nutrient balances „QUEFTS“, Kees Wisserhof (the Netherlands), and (5) Instrument troubleshooting, Byron Vaughan (USA). The training sessions provided „how-to“ solutions and cost-cutting approaches, which would help the laboratories save time and money.



Delegates representing 43 countries participated in the Symposium in Wageningen

These sessions stimulated new creative approaches to solving analytical problems. In addition to an outstanding scientific program, the symposium had an excellent accompanying two-day scientific exhibition. Sixteen scientific instrument companies and institutions exhibited their latest developments in soil and plant analysis.

Equipment demonstrations augmented the exhibition section, which brought real-world application to the technical theory. Nat Dellavalle (USA) was the recipient of the prestigious J. Benton Jones, Jr. Award.

The symposium dinner on August 7 was held at a castle (Kasteel De Doornenburg), an unforgettable experience!

There was a choice of three pre-symposium tours: (1) Rotterdam and Delta Works (2) Zuiderzee museum and Flevo polders, and (3) A walk through the historical centre of Wageningen. On August 9, there were two all-day tours (1) Flower Auction, Honselersdijk and Glasshouse Crops Research Station, Naaldwijk and (2) Laboratory for Soil and Crop Testing, Oosterbeek and De Hoge Veluwe National Park and Museum.

In Holland, there are about 20 000 growers, 6 000 wholesalers, and exporters, and 10 000 retailers and landscape contractors working in the ornamental horticultural sector dealing with flower bulbs, trees, cut flowers, and indoor plants. Horticulture is the cornerstone of Dutch economy. Holland has the largest horticulture production under glass (10 000 ha) in the world. For example, Westland, the most important glasshouse area in the world, consists of 3 000 nurseries under glass (each nursery about 1.1 ha). Here the concentration of glasshouses is such that their reflection can actually be seen on satellite pictures. After the auction, we visited the Proefstation voor Bloemisterij en Glasgroente (Research Station for Floriculture and Glasshouse Vegetables, formerly known as Glasshouse Crops Research Station). It specializes in soilless culture media and energy-saving measures. Experiments on blossom-end rot of bell peppers (Ca deficiency) were of particular interest. In the greenhouse here they obtain a bell pepper yield of 14 kg/plant/year.

After the symposium on August 10, we visited the laboratories, greenhouses, and climate chambers of the Department of Soil Science and Plant Nutrition, Wageningen Agricultural University. The laboratories have the state-of-the-art instrumentation. Victor Houba coordinates the Wageningen Evaluating Programs for Analytical Laboratories (WEPAL); programs for plants, soils, sediments, manure, compost and refuse samples. In these four programs (ISE, IPE, SETOC, and MARSEP), more than 600 laboratories from around the world participate. To ensure that all participants receive representative sub-samples, an automatic device for homogenization and subsampling has been constructed at a cost of 200 000 guilders. The Wageningen Agricultural University (founded in 1918) is one of the world's leading education and research centres for agricultural and environmental sciences.

The organizing committee is to be complimented for a successful symposium. **Dank U wel en tot ziens!**

Yash P. Kalra, Edmonton, Canada

INTERNATIONAL CONFERENCE: FROM SOIL SURVEY TO SUSTAINABLE FARMING

Slovak Republic, High Tatras, 3-5 October 1995

The International Conference „From Soil Survey to Sustainable Farming“ was held in the Slovak Republic, Stará Lesná, High Tatras from 3 to 5 October, 1995. The conference was organized as an international activity within the framework of ENCY 1995 (European Nature Conservation Year) and simultaneously has been dedicated to the 35th anniversary of the Soil Fertility Research Institute in Bratislava. Almost one hundred specialists from 11 countries (Austria, Belarus, Bulgaria, Croatia, Czech Republic, Germany, Hungary, The Netherlands, Poland, Switzerland and Slovak Republic) took part in the conference.

The following four main topics of the program were discussed: new tasks and perspectives in soil survey; soil properties evaluation and man-induced changes in the soil; soil productivity and sustainable land use; risk assessment and soil conservation practices. Within the program 32 oral presentations and 43 poster presentations were offered. Besides lectures and posters, fruitful official discussions, personal exchanges of experiences, new scientific contacts, new cooperation ideas and helpful

conclusions were achieved during the conference. Pleasant working conditions and accompanying social programs were the result of the organizing committee's good work.

Thanks to the attendance of many well known specialists in soil science, soil protection and soil use problems, the conference has brought good results in the evaluation of the present state and has defined main targets of relevant research activities for the future. Mainly for representatives from countries in transition it was a fruitful opportunity to compare their own special approaches in soil protection and soil use problems, also in relation to Western Europe. It was shown that such an exchange of experiences is useful for both sides.



Audience at the International Conference: „From Soil Survey to Sustainable Farming“

The abstracts of oral and poster presentations were edited before the conference and we are able to send a limited number of copies to anyone who is really interested. Proceedings of full papers will be available from January 1996.

Further information can be obtained from:

Soil Fertility Research Institute
Gagarinova 10, 827 13 Bratislava
Slovak Republic
Tel.: 427/5220 866
Fax: 427/295 487
E-mail: sci @ vupu.sanet.sk

Dr. Pavol Bielek, Director,
Soil Fertility Research Institute in
Bratislava

TRAINING SEMINAR: STATISTICAL METHODS IN SOIL AND LAND RESOURCE SURVEY

Mojmírovce/Nitra, Slovakia, 6-10 November 1995

This training seminar was organized in Slovakia for participants from Central and Eastern Europe by Dr. P. Bielek, director of the Soil Fertility Research Institute, Bratislava, with support from European Commission DG XII - Science, Research and Development. The lecturers were Professor R. Webster (Rothamsted Experimental Station) and Dr. M. A. Oliver (University of Reading), England, who introduced modern methods of statistical analysis and its underlying theory and their

application to soil and environmental surveys and to monitoring and pollution studies. It was held at the residential centre at Mojmirovce near Nitra, from 6-10 November 1995 and was attended by young research workers in soil and environmental science from the Slovak Republic and the Czech Republic, Hungary, Poland and Romania.

Each lecture was followed by a practical session on the computers in which the participants analysed sets of data selected to illustrate the techniques described.

The first two days were devoted to exploratory data analysis, statistical distributions, design-based (classical) estimation, and the role of classification and the analysis of variance. They were followed by an introduction to geostatistics including the variogram, its computation, modelling and interpretation, model-based estimation (kriging) and the design of optimal survey. The participants had ample opportunity to gain practical experience of the methods derived from the theory, and to discuss their own particular problems. The course was illustrated with case studies.

P. Bielek, R. Webster, M.A. Oliver

INTERNATIONAL WORKSHOP ON INTEGRATED SOIL MANAGEMENT FOR SUSTAINABLE USE OF SALT AFFECTED SOILS

Manila, The Philippines, 6-10 November, 1995

A co-operative project was initiated between UNEP and FAO, in association with ISSS Sub-Commission A (Salt Affected Soils) in November 1994, with the main objective to establish an International Network on Integrated Soil Management for Sustainable Use of Salt Affected Soils.

One of the main Network activities was the organization of an International Workshop on Integrated Soil Management for Sustainable Use of Salt Affected Soils, held at the Bureau of Soils and Water Management, Department of Agriculture, Manila, the Philippines, from 6-10 November, 1995.

The main objective of the Workshop was to discuss results of the ongoing collaborative projects, information from technical sources on the subject, future newsletter (SPUSH) publications, and future network activities, research and cooperation.

The Workshop was attended by the co-ordinators or their representatives of national institutes participating in the Network from twelve countries (Argentina, Brazil, Egypt, Indonesia, Iran, Kenya, Mexico, Pakistan, Philippines, Tanzania, Thailand and Tunisia) with a total of 17 participants. UNEP and FAO Headquarters, the FAO Regional Office for Asia and the Pacific, ISSS Sub-Commission A (Salt Affected Soils), and a project consultant (Hungary) were represented at the Workshop. Representatives of the International Rice Research Institute (IRRI) and the Japan International Cooperation Agency also attended.



Participants in the Workshop in Manila

The opening session took place on November 6, at the Bureau of Soils and Water Management. The Assistant Secretary, Department of Agriculture, Philippines, Mr. G. Lasam; the Director of the Bureau, Dr. G. Alcasid; the representatives of UNEP (Dr. A. Ayoub), FAO (Dr. A. M. Mashali) and ISSS (Dr. M. Rédly) addressed the Workshop. Two plenary lectures followed, on: „Global overview on sustainable management of salt affected soils“ (I. Szabolcs) and „Integrated soil management for sustainable use of salt affected soils and network activities (A.M. Mashali).

Country papers including results of the ongoing collaborative projects in the participating countries, and a paper presented by IRRI on „Increasing productivity of saline areas for rice cultivation“ were discussed in four technical sessions. Country papers were distributed among the participants. Proceedings of the Workshop are to be published by the end of April 1996. Three planning sessions were devoted to discussing future network activities, including collaborative projects, newsletter publication, research and cooperation as well as the extension of the Network to other countries requesting participation. The Workshop participants suggested dividing future field work activities into four groups following the integrated approach including several management practices to be adopted. Methods for soil and water sampling and analysis were discussed and agreed to be standardized.

On November 7 and 8, a technical visit was organized to areas affected by salinity in the Bulacan Province, and soil management programmes to improve soil productivity (Bureau of Soil and Water Management - BSWM); and to IRRI projects, Pampanga Delta and Mt. Pinatubo affected areas. The Buenavista Central Soil and Water Research Station, (20 ha experimental farm belonging to BSWM) was also visited and different facilities and research programmes of the International Rice Research Institute were demonstrated.

As a result of the discussions, the participants agreed in the following principles and recommendations for future Network activities:

- strengthen research and development efforts in participating countries through the established Network;
- consider the management of salt affected soils as one of the high priorities in line with national agricultural policy and funding in participating countries;
- disseminate information, improve coordination among scientists and extension staff, strengthening field experimental programmes and extension of appropriate management practices to increase productivity of saline dryland;
- co-ordinate inter-country exchange of data information of sustainable management and environmentally sound utilization of salt affected soils;
- carry out technical and economical tests and evaluation of the effect of integrated management approach and of the effect of different management techniques in future field experimental programmes in all participating national institutions;
- promote the activity of farmers in the development of appropriate management systems;
- report the outputs of Network activities at the next World Congress of Soil Science to be held in Montpellier, France, in August 1998;
- continue the publication of the newsletter (SPUSH) every six months.

It was agreed that a second Network meeting should take place in 1997 in Tunisia.

The participants of the Workshop expressed their thanks to the Government of the Philippines and the Host Authority, the Bureau of Soils and Water Management, particularly the Organizing Committee for the excellent preparation and arrangements that have been made, and for the cordial hospitality extended to them during the Workshop.

Marianne Rédly, Chair, Sub-Commission A
Hungary

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

Asociación Argentina de la Ciencia del Suelo

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Fax: +541-522-1667-8395

BELARUSSIAN SOCIETY OF SOIL SCIENTISTS

This is the present Board of the Belarussian Society of Soil Science:

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Prof.Dr. N.I. Smeyan, President
Belarussian Institute of Soil Science and Agrochemistry, Kazinets str., 62
220108 Minsk, BELARUS

BULGARIAN SOCIETY OF SOIL SCIENCE

During the conference of the Bulgarian Society of Soil Science on July 5, 1995, the following scientists were appointed **Honorary Members** of the Society, in designation for their exceptional contributions to soil science and for their fruitful collaboration with Bulgarian scientists:

Prof.Dr. Sergey B. Zonn (Russia)
Prof.Dr. I. Szabolcs (Hungary)
Prof.Dr. R. W. Arnold (USA)
Prof.Dr. N. Koroxenidis (Greece)

41st ANNUAL CONFERENCE OF THE CANADIAN SOCIETY OF SOIL SCIENCE

The Canadian Society of Soil Science (CSSS) held its meetings jointly with the Association Québécoise des Spécialistes en Sciences du Sol (AQSS). The meetings were held on the campus of Laval University, Ste-Foy, Québec City, July 21-28, 1995 under the theme „Elemental Cycles in Soil Ecosystems“. A symposium on greenhouse gas emissions from soil ecosystems was also held as a reflection of the growing concern of the soil scientists in this area.

Following the opening remarks by Régis Simard, Chair, Organizing Committee, the 225 delegates were welcomed by the representatives of Agriculture and Agri-Food Canada, Minister of Agriculture, Fisheries, and Food (Québec), Québec City, and Laval University. The extensive technical program featured 175 papers including 80 posters. The Symposium on Greenhouse Gas Emissions, July 24 and 25 included, in addition to four keynote speakers, the following three oral sessions (1) N₂O emissions (2) N₂O, CO₂, and CH₄ emissions and (3) Carbon sequestration and a poster session. Similarly, in addition to three keynote speakers, the papers presented at the conference on July 26 and 27 included oral and poster sessions on (1) Elemental cycles in agricultural and forest soils, (2) Organic amendments and soil biology, and (3) Soil conservation and physics.

The following awards were presented at the CSSS Awards Banquet at the beautiful Château Bonne-Entente on July 26: (1) Fellowships of the CSSS (2) Soil Science in Society Award (3) F.Bentley Student Oral Presentation Awards (4) CSSS President's Student Poster Presentation Award (5) Conference Travel Awards (6) Overseas Travel Awards (7) Book Awards.



*R. Simard, chairman of the Local Organizing Committee
giving the welcoming address*

Twenty people took the preconference Forest Soils Tour (July 21-23), coordinated by Rock Ouimet. We covered about 1,000 km. The weather cooperated. The tour included beech-yellow birch-sugar maple forest up to northern taiga, the mixed forest, the fir and the spruce forest; the soils that support these various ecosystems and the environmental and the anthropogenic pollution, forest decline, fire and forest management practices. We had interesting discussion on podzol, brunisol, and regosol profiles. The tour included a ferry ride aboard the M.V. Trans-Saint-Laurent from Rivière-

du-Loup to St. Siméon on the majestic St. Lawrence River. It was a lot more than just a crossing. It was seeing nature at its best. During the 1.5 hr. crossing, we saw several beluga whales.

The post-conference Agricultural Soils Tour, co-ordinated by Michel Nolin, on July 28 included visits to three sites in the beautiful Beauce-Appalaches area: an experimental watershed, a national benchmark site on soil quality monitoring, and a research station conducting mid- and long-term experiments.

The AQSSS banquet, a very lively evening on July 27, was held at the MAPAQ Experimental Station.

At the Congress, the delegates had an excellent opportunity to broaden their professional networks. The organizing committee is to be complimented for an exciting and informative program.

The Canadian Society of Soil Science, formed in 1954, is a non-government, non-profit organization for scientists, engineers, technologists, administrators, and students involved in soil science. Its members are engaged in a wide variety of activities, including agriculture, forestry, geography, geology, remote sensing, and environmental science. It is affiliated with the International Society of Soil Science and the Agricultural Institute of Canada. The Society meets annually to conduct its business meeting, present technical papers and sponsor field trips. It publishes a newsletter five times a year and is involved with the editing of the Canadian Journal of Soil Science. CSSS has a membership of about 460.

Further information can be obtained from:
Canadian Society of Soil Science, Box 21018,
Westend Postal Outlet, Brandon, MB, Canada R7B 3W8,
Tel.: (204) 725-4336,
Fax: (204) 725-0624,
E-mail: omni@docker.com

Yash P. Kalra, Edmonton, Canada

CHILEAN SOCIETY OF SOIL SCIENCE

At the 7th National Congress of the Chilean Society of Soil Science (VII CONACISU) at the Universidad de La Frontera, Temuco, Chile, the following Council was elected for 1995-1997:

President:	Itilier Salazar Quintana
Vice-President:	Fernando Borie B
Past President:	Pedro Baherle
Secretary-Treasurer:	Amelia Peirelongue
Directors:	Achim Ellies
	Jose L. Rouanett
	Carlos Rojas

Address:
Chilean Society of Soil Science
Itilier Salazar Quintana
President,
Universidad de La Frontera
Casilla 54-D
Temuco
Chile

Tel.: +56-45-252-672 / 252-746;
Fax: +56-45-252-547 / 252-648
E-mail: itisal@werken.ufro.cl

SOIL SCIENCE SOCIETY OF CHINA

From November 3-7, 1995, the SSSC convened its Eighth National Congress celebrating its fiftieth Anniversary, in Hangzhou, with „Food is god to the people and soil is the source of food“ as its theme. The Conference had an attendance of over 600 delegates. At the meeting a new board of the SSSC (1995-1999) was elected:

Chair:	Prof. Dr. Cao Zhihong, Inst. of Soil Science, Chinese Acad. of Sciences
Vice-Chairs:	Prof. Mao Daru, Chinese Agriculture University Prof. Sun Tiehang, Shenyang Applied Ecology Inst., Chinese Acad. of Sciences Prof. Zhu Zhonglin, Sichuan Province Academy of Agricultural Science Prof. Li Jiakang, Soil and Fertilizer Institute, Chinese Academy of Agricultural Science Prof. Yu Rangshui, Chinese Academy of Tropical Agricultural Science
Secretary-General:	Prof. Zang Shuang Institute of Soil Science, Chinese Academy of Sciences P.O. Box 821 210008 Nanjing, CHINA

Prof. Dr. Cao Zhihong

SOIL SCIENCE SOCIETY OF INDONESIA (SSSI)

From December 12-15, 1995, the Soil Science Society of Indonesia (SSSI) had its 6th four-year National Congress, held in Jakarta. Approx. 500 members and non-members participated, 113 scientific and policy papers were presented.

At this occasion, a new Executive Committee was elected for the period 1995-99:

President:	Prof. Dr. Lutfi I. Nasoetion
Vice-Presidents:	Dr. Nad Darga Talkurputra Prof. Dr. Muslimin Mustafa Dr. A. Syarifuddin Karama
Secretary-General:	Dr. Didiek H. Goenadi
Execut. Secretary:	Dr. H. Subagjo
Treasurer:	Dr. Astiana Sastiono
Division Chairmen:	Dr. W. H. Utomo (Soil Physics, Mechanics, and Conservation) Dr. S. Sabiham (Soil Chemistry, Biology and Fertility) Dr. J. A. Rachim (Soil Genesis and Classification) Mr. D. Djaenudin, MS (Land Survey and Evaluation) Dr. Dja'far Shiddieq (Land and Environmental Managements) Dr. M. Sastrowihardjo (Spatial Planning and Land Use)

Address:
Soil Science Department, Bogor Agriculture University
Jl. Raya Pajajaran, Bogor 16144
Indonesia
Tel.: +62-251-328857;
Fax: +62-251-321642

Didiek H. Goenadi

ITALIAN ASSOCIATION OF PEDOLOGISTS (A.I.P.)

The Italian Association of Pedologists (A.I.P.) was founded in 1992, with its seat in Florence. Presently, this organization counts 250 members.

The A.I.P. is willing to cooperate with all the other scientific associations and institutions in Italy and abroad, and with all professional organizations that operate in the sector of soil science and environmental protection.

The association accepts as its members those who practice a documented activity as pedologist, and moreover organizations, i.e. public and private corporations, associations and societies. A pedologist is defined as an expert in soil science, soil survey, classification, mapping, interpretation and conservation of soils and land, according to the methodologies accepted in Italy and abroad.

The A.I.P. bulletin „Il suolo“ constitutes a fundamental reference point for the coordination and spreading of the Association's activities. As foreseen by the Articles of Association, the Board of Counsellors has created a series of working groups on specific themes, which are open to the cooperation of all members: - the editing of the bulletin - public relations - management of internal activities - drafting of the internal regulations - amendment of professional norms - coordination of study groups.

For further information please contact:

A.I.P.

Piazza M. D'Azeglio 30,
50121 Florence, ITALY

or:

Antonia Arnoldus (Vice President), Tel.: +39-6-9499936, fax: +39-6-9496952

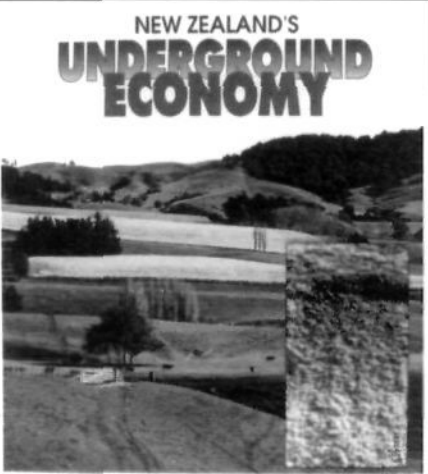
Edoardo Constantini (President), Tel.: +39-55-2491222

Lorenzo Gardin (Secretary), Tel.: +39-55-2491221, fax: +39-55-241485

NEW ZEALAND SOCIETY OF SOIL SCIENCE POSTER



The New Zealand Society of Soil Science produced the poster (pictured) and distributed it free to every member. The intention of the poster is to help raise public awareness of the importance of soils. One thousand copies of the poster are to be distributed to New Zealand schools. For further information about this interesting (and needed!) initiative contact:

Dr. Megan Balks,
c/o Department of Earth Sciences,
University of Waikato,
Private Bag 3105,
Hamilton, New Zealand.
Fax: +64-7-856-0115;
E-mail: m.balks@waikato.ac.nz



**NEW ZEALAND'S
UNDERGROUND
ECONOMY**

Soils are the nutrient bank for New Zealand's primary production. When a crop is harvested, be it meat, milk, wool, timber, grain or horticultural products, nutrients are removed from the soil. To sustain production, nutrients lost must be recycled or replaced.

 **SOIL** *More to it than meets the eye!*
 **Bayer** *Novosol Fertiliser*

SOUTH AFRICAN SOIL SCIENCE SOCIETY

The Soil Science Society of South Africa has approx. 300 members, reflecting virtually all of the eleven official South African languages, almost all branches of soil science and members in nine countries.

The Council of the Society:

President:	Mr. M. du Plessis (Water Research Commission, Pretoria)
Vice-President:	Prof. H. Moolman (University of Stellenbosch)
Secr./Treasurer:	Mr. Th. Dohse (Institute for Soil, Climate&Water, Pretoria)
Members:	Dr. K. Bormann (Kynoch Fertilisers, Johannesburg)
	Prof. Ch. du Preez (Univ. of the Free State, Bloemfontein)
	Mr. J. Meyer (South African Sugar Association, Durban)
	Prof. M. Molohe (Department of Agriculture, Pretoria)
	Dr. L. van Huyssteen (Nietvoorbij Research Inst., Stellenbosch)
	Dr. Dries van der Merwe (Inst. for Soil, Climate&Water, Pretoria)

The 20th Congress of the SSSSA is to be held in Bloemfontein in July 1996, and in September delegates of the World Soil Reference Base will visit South Africa in order to see some of the unique soils in this country.

The address of the SSSSA:

Garry Paterson
Editor,
Soil Science Society of South Africa Newsletter
ISCW
Private Bag X79
Pretoria 0001
SOUTH AFRICA
Tel.: +12-326-4205;
Fax: +12-323-1157;
E-mail: G-PATER@IGKW2.AGRIC. ZA

SOIL SCIENCE SOCIETY OF AMERICA (SSSA)

Officers of SSSA for the period 1995-1996:

H. H. Cheng	President
D. Keith Cassel	President Elect
David E. Kissel	Past President of SSSA.
Robert F. Barnes	Executive Vice President

**INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE BEZIEHUNGEN**

ICSU- Workshop on „Food Security for the 21st Century“

At the 24th General Assembly in 1993, the International Council of Scientific Unions (ICSU) decided to suspend the Scientific Committee on the Application of Science to Agriculture, Forestry and Aquaculture (CASAFSA) and requested the Executive Board to appoint a consultative group to examine the role ICSU should play in the future in this field, in view of the great importance for humanity of the involvement of science in these areas. This consultative group, under the chairmanship of H. K. Jain, held a meeting in Accra in April 1994 and its recommendations were presented by Winfried E. H. Blum to the 33rd meeting of the General Committee of ICSU, which agreed to propose to the 25th General Assembly the setting up of a Committee on Food Security for the 21st Century. The General Committee also requested that a workshop be organised as a part of the planning phase. Therefore, a Workshop on Food Security for the 21st Century was held in Dakar from November 28-29, 1995, convened by W. E. H. Blum.

The participants at this Workshop adopted the internationally recognized definition of food security as comprising availability, stability and accessibility. The Workshop proposed a „Committee on Sciences for Food Security“, which would have two roles: First, a proactive role, in which specific interdisciplinary areas could be identified for special study, such as soil quality, efficient use of water, food security and climate change, urban and periurban food systems, and others.

Second, a reactive role, in which the ICSU bodies are invited to take part in independent reviews of documents and publications as required and requested. A complementary role would be the eventual dissemination of the knowledge and expertise thus obtained.

In September 1996, the General Assembly of ICSU will take place in Washington D.C., USA, and a final decision will be taken in relation to a proposed committee on sciences for food security. It is certain that the International Society of Soil Science will have to take its role within this activity of ICSU and to cooperate with other sciences in order to develop new approaches for food security on a worldwide level.

W. E. H. Blum



Prof.Dr. A.T. Ba, COSTED-IBN, Dakar, P.A. Bahmani Fard, Deputy Executive Director of ICSU, and W. E. H. Blum, Secretary-General of ISSS and convenor at the opening of the Workshop



Participants of the ICSU-Workshop

AMCEN SOILS AND FERTILIZERS NETWORK FOR AFRICA

The Soils and Fertilizers Network for Africa (SOFERNET) was among the 8 Regional Networks established by the African Ministerial Conference on the Environment (AMCEN) meeting in Cairo in December 1985.

AMCEN, organised by UNEP in cooperation with the United Nations Economic Commission for Africa (ECA) and the Organisation of African Unity (OAU), established the 8 Networks with the aim of strengthening horizontal cooperation among national technical departments and scientific institutions and bringing African scientists together to solve the problems of environmental degradation, biodiversity and food security of the continent.

The primary objective of establishing the SOFERNET is to assist the African Continent to develop a sustainable management of its soil resources for self-sufficiency in agricultural production. The SOFERNET is therefore to:

1. develop scientific methods for improving the productivity and management of African soils and to reduce soil degradation;
2. develop and promote the application of scientific information in agricultural production systems;
3. encourage the application of scientific information in the conservation of soils and in reducing the loss of productive agricultural and forest lands to other purposes;
4. monitor change in soil quality, quantity and in land-use;
5. assess local fertilizer resources and advise on their appropriate use;
6. seek solutions at national, sub-regional and regional levels to the problems of large-scale production of cheap local fertilizers in Africa.

The SOFERNET, which is being hosted by the Soil Research Institute of Ghana, is managed by the Management and Planning Group (MPG) whose members are nominated by their governments. At present the MPG members are from Egypt, Nigeria, Senegal, Sudan, Ghana, Burundi, and Zambia.

The SOFERNET has been organising and/or attending seminars, workshops and meetings to collect and collate information from experts and disseminate them to African soil scientists and institutions. Training Seminars on soil conservation strategy for Africa and on the Revised Legend of the

FAO-UNESCO Soil Map of the World have been organised in Ghana in 1989 and 1991, respectively. A workshop on sources, usage and policy of fertilizers in Africa was held in Dakar by the Network in 1993, after its Training Workshop on Soil and Water Management for field extension officers in Anglophone West Africa in 1991. A number of international meetings have been attended and papers presented under SOFERNET sponsorship.

SOFERNET has published and disseminated a number of scientific articles and reports including the directory of experts and institutions on soils and fertilizers in Africa. A newsletter is produced bi-annually for African soil scientists and institutions.

SOFERNET has been run on funds from UNEP and the Government of Ghana. A permanent office and conference hall complex is under construction and will be completed by the end of 1996.

Since its inception, the Network has attracted the attention of a number of scientists worldwide and it has come out clearly that its contribution in solving Africa's environmental and food problems is gradually being realised. With the present set-up of the Network and the enthusiasm shown by the African soil scientists in its operations, the SOFERNET, if assisted by the world science community, will be on course in fully attaining its objectives to help Africa solve its numerous soil and water management problems to ensure sound environmental and food-security status.

For enquiries, please contact:

R. D. Asiamah
Soil Research Institute
Private Post Bag
Academy Post Office
Kwadaso, Kumasi, GHANA.

CLAY MINERALS SOCIETY ON THE INTERNET

The Clay Minerals Society has initiated a home page. Information about the Clay Minerals Society publications, student research grants, and pointers to other clay-related resources are included. URL:

<http://ctjrs.agry.purdue.edu:80/claymin/clayminsoc.html>

In addition, we have started a listserver for clay-related discussion. The name of the listserver is CLYMIN-L and you can add your name to the distribution list.

To subscribe to the list, send an E-mail message to the listserver at Purdue University.

listserv@vm.cc.purdue.edu

and in the text of the message (not the subject line), put the following line:

SUB CLYMIN-L John Doe

Use your full name and not your E-mail address for name field.

Cliff Johnston
cjohnston@dept.agry.purdue.edu

ATTENTION: ECOLOGISTS

The Ecological Society of America wishes to announce a program for granting memberships to ecologists in need in developing countries. Three year memberships including journal subscriptions are available on a competitive basis depending on qualifications and available funds. Application forms may be obtained by writing to:

Dr. Brian Keller
Ecological Society of America
Suite 400
2010 Massachusetts Avenue NW Washington, D.C. 20036-1023
Fax: 202 833-8775
E-mail: Brian@esa.org

INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES (IAHS)

The International Association of Hydrological Sciences has elected new officers for the period 1995-1999:

President:	J. C. Rodda (UK)
Vice Presidents:	G. Golubev (Russia) P. Hubert (France) K. Takeuchi (Japan)
Secretary-General:	G. J. Young (Canada)
Past President:	U. Shamir (Israel)
Treasurer:	M.E. Moss (USA)
Editor:	T. E. O'Donnell (UK)
Hon. President:	A. Johnson (USA)
Chair IAHS Ltd:	D. E. Walling (UK)

Address:

Dr. G. J. Young
Secretary-General, IAHS
Dept. of Geography
Wilfrid Laurier University
Waterloo, Ontario N2L 3C5
Canada
Fax: +1-519-846-0968 or +1-519-725-1342;
E-mail: gyoung@mach1.wlu.ca

INTERNATIONAL UNION FOR QUATERNARY RESEARCH (INQUA)

New INQUA Executive Committee 1995-1999

President:	Prof. Stephen C. Porter, Quaternary Research Center, University of Washington, Seattle, USA
Secretary:	Prof. Sylvi Haldorsen, Dpt. of Soil and Water Sciences Agricultural University of Norway, Åas, Norway
Treasurer:	Dr. Ed F. J. de Mulder, Geological Survey of The Netherlands Haarlem, The Netherlands
Vice-Presidents:	Prof. Nicholas J. Shackleton, University of Cambridge, U.K. Dr. Martín H. Iriondo, Conicet, Paraná, Argentina Prof. Yoko Ota, Senshu University, Kawasaki, Japan Prof. Timothy Cooper Partridge, University of the Witwatersrand Johannesburg, South Africa.

ISSS, especially the Working Group on Paleopedology, co-operates closely with the International Union for Quaternary Research, an organization affiliated to the International Union of Geological Sciences (IUGS)

For information about the International INQUA Congress, August 4 - 12, 1999, please contact:

Prof. Timothy Cooper Partridge,
Climatology Research Group,
University of the Witwatersrand,
12 Cluny Road, Forest Town,
2193 Johannesburg, South Africa.
phone: +27-11-646-3324;
Fax: +27-11-486-1689
e-mail: 141tcp@cosmos.wits.ac.za

CONCEPTION OF AN IDEA: AN INTERNATIONAL CENTER FOR SOIL AND SOCIETY

June, 1995

I propose to organize an **International Center for Soil and Society (ICSS)** that would encourage new approaches to understanding the scientific nature and human perception of soils. The ICSS would support research, teaching, and international workshops in soil chemistry, microbiology, physics, and genesis as the fundamental disciplines of soil science in ways that link them together, and that coordinate their study with aquatic and atmospheric sciences. In addition, a new dimension supported by the ICSS would integrate this triad of environmental scientific disciplines with the social sciences, arts, and humanities that relate to and shape human perceptions of soil; especially environmental history, environmental ethics, the arts and world religions, and ecological anthropology.

The Need for an International Center for Soil and Society

As a river, the breadth and depth of a scientific discipline are increased by tributaries carrying new ideas from diverse watersheds of human culture and experience.

Adapted from Rachel Carson's Silent Spring (1962)

The soil is one of the earth's systems, along with natural waters and the atmosphere, that is central to ecosystem function, change, and stability; yet its study has largely been defined by agriculture and the human need to produce food. Human perceptions and appreciation of soil by many cultures are still ill-defined compared to perceptions of water and air. The study of the soil needs greater breadth and depth, and it can be instilled with new sources of knowledge and ideas from diverse watersheds of intellectual inquiry.

We recognize the importance of soil as the source of almost all our food, but we still think of it as something to wash off or sweep away. In contrast, we have clearer perceptions of clean and polluted water or air, and we largely define the quality of our environment by sensing them and knowing of their nature through science. We drink water, breathe air, and enjoy them both as affecting our comfort and health each day. Similar relationships to and perceptions of soil remain rudimentary for most of us.

From scientific and environmental perspectives, the soil is a locally-diverse ecosystem and natural resource that is highly heterogeneous from chemical, physical, and biological points of view. In contrast, water is regional-to-global in scale and relatively uniform and homogeneous in many of its properties. Air is a global system that is invisible and well-mixed, yet stratified on large scales. If air and water samples were taken from Puerto Rico, Egypt, and Switzerland, they would be remarkably similar in many properties, but soil samples and profiles from these three locales would be remarkably diverse in myriad ways. When the differences among the physical, chemical, and biological properties of soils are studied, explained, and linked to the behavior of the soil in nature; they often induce awe and excitement in the new student and seasoned soil scientist alike. How such diversity of the soil resource has shaped human cultural development and civilizations through history is a fascinating, yet little studied, concept to investigate.

Soils in many wild ecosystems have not been studied nearly as intensively as they have been in managed, agricultural ones. Knowledge of the diverse roles played by the soil in grasslands, forests, tundras, savannas, deserts, and wetlands is central to understanding elemental cycles and energy flows within local, regional, and global ecosystems. A more comprehensive understanding of the behavior of natural waters and atmospheric systems can also be obtained through the integration of knowledge from the soil sciences. Broadening the study of soil in such ecosystems and relating soil to human perceptions of land, water, and air could generate much new theoretical and practical knowledge.

Programs of the ICSS

In addition to cross-disciplinary research and teaching, special month- or semester-long programs would be developed, possibly around a given theme, and guest professionals would participa-

te in role-playing exercises, lectures, and field-trips to discuss scientific and cultural aspects of soils and human experience. Examples of themes are:

- (1) Large ecosystem management and regional environmental studies: The role of laboratory-based and field-scale soils studies;
- (2) Nationalism, attachment to the land, and cultural diversity as related to knowledge and appreciation for the soil resource;
- (3) Ethical bases for perceptions of the soil and decision-making related to natural resource management;
- (4) The role of religious beliefs affecting soil and water use and conservation in different cultures;
- (5) The expression of attachment to soils and the land through art forms; and
- (6) Historical perspectives from different parts of the world with respect to soil use and the rise and fall of civilizations.

The goals of the ICSS would be analogous to two aspects of human health care systems: preventive medicine and ambulance driving. In the same way that preventive medicine seeks to „have answers before the public asks the questions“ about health issues, the ICSS would conduct basic research in multi-disciplinary contexts, but not necessarily to address an immediate need of society. In addition and in contrast, the ICSS would respond to immediate technological, scientific, and non-scientific needs and problems of society with respect to soils in the environment; as an ambulance responds rapidly to emergency medical needs.

Proposed Organization of the ICSS

Physical Location

The ICSS would be on or near the campus of a major university or college where excellent, diverse library facilities are available. The location would need to facilitate international activities and meetings, and short-term study visits, such as sabbaticals, would be encouraged. In an ideal location, the environment would be conducive to intensive research in the library, laboratory, and field; for cross-disciplinary meetings; for field trips; and for classroom activities. The location and environment of the ICSS should encourage student-professor interactions in all of its activities.

Staff

A staff of approximately twelve PhD-level professionals would have research and teaching groups in the following areas:

- Soil Chemistry
- Soil Physics
- Soil Microbiology
- Soil Morphology, Genesis, and Classification
- Aquatic Chemistry
- Hydrology
- Atmospheric Chemistry
- Atmospheric Physics
- Environmental History
- Ecological Anthropology
- World Religions/Arts
- Environmental Ethics

The interactions and professional relationships among these twelve professors would develop creatively, and the ICSS would encourage excellent, in-depth research and teaching in their individual fields. It would also foster communication across the diverse disciplines, and an increased appreciation would emerge for different ways of knowing and learning about soil and its relationship to human and ecological systems. In addition, the multi-disciplinary staff would collectively initiate diverse international programs. Teaching at different levels would be a prominent activity of

all the staff, and would bring together young professionals, such as graduate students and post-doctoral associates, with the professors in all of the fields.

Comments on the idea for the ICSS are invited, and suggestions for its implementation are welcome. Please contact Bruce R. James at the address below to obtain more information:

Associate Professor of Soil Chemistry
Agronomy Department
University of Maryland
College Park, MD 20742 USA
Telephone: 301-405-1345
Facsimile 301-314-9041
Email: bj5@umail.umd.edu

MORPHOCLASSOL: A MACINTOSH EXPERT PROGRAM FOR SELF-TEACHING SOIL MORPHOLOGY AND SOIL CLASSIFICATION.

C. Dorronsoro, J. Aguilar and J. Fernández. Departamento de Edafología.
Facultad de Ciencias. Campus de Fuentenueva. Universidad de Granada. 18071 Granada.
Spain.

A computer program for teaching soil classification, based on the FAO system, has been developed in CD ROM. The current version of the program is based on the 1990 edition, and the program is intended to be up-dated along with any revisions of FAO. The program is based on self-teaching by students and is compiled in HyperCard format (although it is not necessary to have this program to use MorphoClassol program) for Apple Macintosh minicomputers. The data is taken from actual soil samples, and are complemented with full color images (more than 800 photographs and microphotographs).

Soil classification problems in the MorphoClassol program are comprehensively presented in three stages, in accordance with the methodology habitually used in pedological studies: recognition of the soil horizon, provisional classification of the soil in the field, and definitive classification on the basis of field and laboratory data.

The program, in addition to teaching classification technique, is expected to give students a basic knowledge of the morphology and properties of the most common types of soils.

The program is divided into three subprograms: HorSol, ProfilSol and ClasSol.

- HorSol is divided into two stages. In Horizon Recognition, students learn to recognize the soil constituted by the superimposition of layers called horizons (25 examples). In ABC Horizons, the student has to recognize the specific type of horizon, as well as the suffix letters which define them (42 examples).
- ProfilSol shows a series of pictures of soil sections, and the students must recognize, without any other piece of information, the type of soils they belong to (more than 200 examples).
- ClasSol teaches the classification of soils step by step, using only the field facts (Tentative Typology) or laboratory facts as well (Soil Classification). This third programme has 43 examples of common soil types in temperate regions: leptosols, fluvisols, arenosols, regosols, anthrosols, vertisols, andosols, calcisols, cambisols, gleysols, solochaks, chernozems, kastanozems, phaeozems, luvisols, alisols, planosols and podzols.

The program contains a self-evaluation component that presents questions for the student to answer. For each incorrect answer, an appropriate penalization is exacted. Complementary information is available to the student to help him answer each question. Instructions are given showing how users can include their own soil samples.

The program is available in English and Spanish. The program consists of 2 CD-ROM (other options are possible too). One of them is intended for practice and the other CD-ROM is for examining the students only. Each CD-ROM has different soil examples.

Conditions of sale. Institutional version: 250 US dollars. Includes CD-ROM for practicals + CD-ROM for examinations. Multilicense version. Personal version: 75 US dollars. Includes CD-ROM for practicals.

Payment by cheque to Departamento de Edafología. Universidad de Granada.
Orders should be sent to Departamento de Edafología. Facultad de Ciencias.
Campus Fuentenueva. Universidad de Granada. Granada 18071. Spain. FAX 34 58
244160.e-mail: pedology@goliat.ugr.es

OPTIMIZING THE USE OF NATURAL RESOURCES AND NATIONAL SOILS POLICIES

Background

Over the past decades soils have been used with an increasing intensity to meet food demands for a growing world population. Land has also become a central target for competing uses, such as farming pasture and grazing, forestry, mining, industrial and urban development,... and as a consequence land conflicts are on the rise.

Despite substantial increases in the world agricultural output over the last twenty years, basic food production in many developing countries is still not keeping pace with population growth. Intrinsic production capacities are sometimes also decreasing due to inappropriate land management practices, loss of fertile topsoils through erosion, physical and chemical degradation, pollution, etc.

Realizing that a broad-based sustainable development is not feasible, at least in the long term, without sound environmental assessment, and learning from adverse experiences in the past, international organizations have since the early eighties urged for a more optimized sustainable land use under conditions of threatened soil productivity, progressing land degradation and continuous encroachment of arable land for urban and industrial development. Hence, the UN Environment Programme (UNEP), in collaboration with UNESCO, FAO and ISSS, has focussed on the need for a coordinated soils policy and has recommended that national soils policies be prepared in order to conserve precious natural soil resources. In this context, the World Soil Charter (FAO, 1981) was drafted, and UNEP issued its Environmental Guidelines for the Formulation of National Soils Policies (UNEP, 1983)

The problems of optimizing sustainable land use were strongly re-emphasized at the UN Conference on Environment and Development in Rio de Janeiro (UNCED, 1992), where they became a key topic of Agenda 21. Chapter 10 in particular insists on formulation of policies, improvement of planning and management of systems, strengthening of institutions and involvement of land users.

Over the past years the collaboration between UNEP, FAO and ISSS has resulted in the drafting of national soils policies for a number of selected countries. More of those projects are under discussion.

Objectives

A national soils policy is a set of guidelines aimed at ensuring and stimulating optimal utilization of soils on a sustained basis without lowering productivity, and limiting direct or indirect damage to the environment. The policy draws attention on two major principles: one, of utilizing soils to their maximal potential (both in terms of agricultural and non-agricultural uses), but within the context of sustainability, and two, of avoiding soil loss and degradation. In a national or regional context the emphasis is primarily upon the knowledge of the varied nature and properties of soils in the country, and as a consequence thereof, upon the need for appropriate management.

Drafting a soils policy requires a holistic approach which focusses on all possible types of land use, and gives due consideration to the socio-economic aspects of use and management. Ultimately,

land use planning itself is touched upon in view of its obvious role in mediating between land use patterns and practices, and the achievement of conservation goals and objectives.

A national soils policy deals with four aspects: the technical, socio-economical, institutional and legal aspects of land use. The author(s) of a policy document should therefore have a broad scientific and pragmatic view, be prepared to liaise with a wide group of experts and call upon external specialized services wherever needed.

A national soils policy generally starts with an assessment of the present and future land potential, followed by an identification of the key factors or constraints to optimize production and use. It finally suggests scenarios for future development strategies as a function of existing market conditions since land is the basis for many human activities.

Expected benefits

A soils policy compares all potential land uses, and provides scenarios for future development. Drafting a soils policy is a long-term planning exercise with the objective of selecting the optimal, that is the most economic and socially acceptable use of the land within the possibilities of its natural biophysical suitabilities. In particular, the benefits arising out of a coherent national soils policy are:

- to obtain a sustainable and optimal production from the land, according to its inherent properties and related to specific market demands and national objectives;
- to provide a policy framework within which programmes and projects can be integrated and their continuity in terms of objectives and methods be achieved; and
- to strengthen national capabilities for conducting soil research, monitoring, conservation and extension, and to identify domains for upgrading education and training, enabling staff to keep abreast of advances in knowledge.

Lessons learnt

The potential problems and conflicts related to soils and land use vary from country to country, and it is therefore impossible to conceive a standard format for the formulation of a national soils policy. Usually, land use problems are linked to increasing population pressures, decreasing land/man ratios and growing competition for land. There are however also areas in the world where population densities are low and the land potential is not adequately used, either because environmental conditions are too harsh and appropriate technologies are not available or not economic, or because sanitary and infrastructural conditions hamper the development of settlements, or just because local populations have no incentives to produce more than what is needed for their direct family needs. Under those conditions, governments should create enabling conditions to improve land outputs.

As soil and land are now often a competing issue between different sectors, a national soils policy may become a hot political item, and it should therefore be dealt with at the highest level of decision-making. This cross-sectoral approach requires a change in the mind of many administrators, scientists and technicians who for generations have been used to act within their well-defined sector and even to protect its interests. The interdisciplinarity of the topic urges also for an increased collaboration and coordination between disciplines and ministries, and this is often perceived as a threat for power loss. Land use planning remains a sensitive item at institutional level.

Land use planning and related policy-making is best achieved by an independent administrative framework, for example a National Land (Use Planning) Board, composed of high-level decision makers representing the various sectors or ministries involved in land issues. This Board should be supported by a number of ad hoc technical and scientific committees or advisers. In countries where a National Environmental Action Plan is already established, a close collaboration with the Land Use Board is highly recommended.

The main objective of a national soils policy is that its key elements should be integrated into the long-term national development plans. The policy as such should moreover be given legislative support for implementation and enforcement at national and regional levels.

Finally, it should be recalled that a soils policy which obviously affects a great number of peo-

ple, can never be successful if not conceived in collaboration with, and/or endorsed by a majority of the stakeholders.

The way forward

Optimizing natural resources and formulation of national soils policies involve a wide spectrum of disciplines and qualified people. There is however still a serious risk that different schools of thought develop and go their own way, resulting ultimately in long academic discussions and in creating confusion in the minds of those non-technicians who have to implement the policy. This can be avoided by an early coordination and correlation of the approaches.

Since its appointment in 1994 as UN-Task Force Manager for the implementation of Agenda 21, chapter 10, FAO has organized several meetings and has issued a number of professional papers aiming to disseminate current knowledge and to improve and streamline concepts and approaches towards sustainable land use and management.

More information can be obtained from
Mr. Denis Sims,
FAO Land and Water Development Division,
Via delle Terme di Caracalla, 00100 Roma, Italy,
Tel.: +39-6-522-53674;
Fax: +39-6-522-56275.
E-mail: denis.sims@fao.org.

Information about National Soils Policies can also be obtained from
Dr. Ali Ayoub,
DC/PAC, UNEP, P.O.Box 30552, Nairobi, Kenya.
Fax: +254-2-215-615.
E-mail: ali.ayoub@unep.no; or dcpacinf@unep.no.

Dr. Willy H. Verheye, Director of Research,
National Science Foundation, Gent University, Belgium

APPOINTMENTS, HONOURS, PERSONAL NEWS
NOMINATIONS, DISTINCTIONS, INFORMATIONS PERSONNELLES
ERNENNUNGEN, AUSZEICHNUNGEN, PERSÖNLICHE NACHRICHTEN

Dr. Morris Schnitzer and **Dr. Frank J. Stevenson** were awarded the **Wolf Foundation Prize** in Agriculture for 1995/96, for their pioneering contributions to the understanding of the chemistry of soil organic matter and its application to agriculture.

The following distinguished scientists received **awards from the Soil Science Society of America** during its 1995 annual meeting in St. Louis:

Egbert Spaans, postdoc in the Department of Soil, Water, and Climate at the University of Minnesota, received the Emil Truog Award.

Joseph W. Stucki, professor of soil physical chemistry in the Department of Natural Resources and Environmental Sciences at the University of Illinois, received the Jackson Soil Science Award.

The following scientists received the Soil Science Award for Distinguished Service: **Daniel Hillel**, professor and research scientist, who played a leading role in the development of innovative methods for managing scarce soil and water resources;

William E. Larson, retired head of the Soil Science Department at the University of Minnesota;

Morris Schnitzer, Emeritus Distinguished Research Scientist at the Centre for Land and Biological Resources Research of Agriculture and Agri-Food Canada, Ottawa.

Eldor A. Paul, professor of soil microbiology and biochemistry in Crop and Soil Sciences at Michigan State University received the Soil Science Research Award.

Wilbur W. Frye, professor of agronomy and director of regulatory services at the University of Kentucky, received the Soil Science Education Award.

James S. Schepers, soil scientist with the USDA-ARS and adjunct professor of agronomy at the University of Nebraska, received the Soil Science Applied Research Award.

David S. Jenkinson, Lawes Trust Fellow at Rothamsted Experimental Station, UK, and visiting professor in the Department of Soil Science at the University of Reading, UK, was elected Honorary Member of the SSSA.

Biauw Tjwan Kang, a renowned soil scientist working in the Resource and Crop Management Division of the Institute of Tropical Agriculture in Ibadan, Nigeria, received the International Soil Science Award.

Ed Runge, professor and head of the Soil and Crop Sciences Department at Texas A&M University, received the Agronomic Service Award.

Malcolm E. Sumner, Regent's Professor of Crop and Soil Sciences at the University of Georgia, received the Agronomic Research Award.

Rattan Lal, professor of soil science in the School of Natural Resources at Ohio State University, received the International Service in Agronomy Award.

Jean-Marc Bollag, professor of soil biochemistry at Pennsylvania State University, received the Environmental Quality Research Award.

Virupax C. Baligar, Virginia Tech, **James R. Boyle**, Oregon State University, **Jacob H. Dane**, Auburn University, **John L. Havlin**, Kansas State University, **Dale W. Johnson**, Desert Research Institute, **Anthony S.R. Juo**, Texas A&M University, **Michael J. Singer**, University of California, and **Donald L. Suarez**, USDA-ARS were named Fellows of the Soil Science Society of America.

Dr. William B. McGill was elected Fellow of the Canadian Society of Soil Science.

Prof. Adrien Herbillon has received the Prix Georges Millot of the Académie des Sciences de France.

The Académie d'Agriculture de France bestowed on:

Dr. Marc Latham, Director of the International Board of Soil Research and Management (IBS-RAM), Thailand, the Gold Medal; and on

Dr. Jacques Berthelin, of CPB Nancy, the Prix Epidaure for research in medicine and ecology.

Marion F. Baumgardner, professor of agronomy at Purdue University, USA and chairman of the

ISSS Working Group DM, was granted a Honorary Doctorate by Gödöllő University of Hungary. Dr. Baumgardner was recognized for his outstanding scientific and academic work and the valuable efforts he has made for the cooperation between Purdue and Gödöllő University.

Richard W. Arnold, N. Koroxenidis, I. Szabolcs and Sergey B. Zonn were appointed Honorary Members of the Bulgarian Society of Soil Science. They were recognized for their exceptional contributions in soil science and his collaboration with Bulgarian scientists (see also „News from Regional and National Societies“).

Brennan D. Soane and Cees van Ouwerkerk were elected Honorary Members of the International Soil Tillage Research Organization (ISTRO) at the 13th International Conference of ISTRO, 1994, in Aalborg, Denmark.

G.V. DOBROVOLSKY IS 80 YEARS OLD



Professor Gleb Vsevolodovitch Dobrovolsky was born in Moscow on September 22, 1915. In 1939 he graduated from Moscow State University where he had studied soil science. Since that time his life has been closely connected with the University where he started to work as an assistant. At present he is Head of the Department of Soil Geography, a position which he has held for more than 30 years.

For many years Professor Dobrovolsky has been successfully developing ecological-genetic directions of soil science in soil genetics and soil geography. He elaborated detailed soil geographical zoning of the former Soviet Union, carried out a long-term study of the alluvial soils of the European part of Russia and of Siberia, substantiated their ecological-genetic classification and laid the scientific basis for their conservation and rational use. Methods of micromorphological and biological diagnostics of soils have been improved under his scientific supervision. In recent years Prof. Dobrovolsky has been actively developing the paradigm of soil functions in the biosphere and in terrestrial ecosystems.

He has more than 300 scientific publications, including such well-known monographs and textbooks as „Soils of river valleys in the central part of the Russian Plain.“, „Soil geography“, Soil conservation“, „Functions of soils in the biosphere and ecosystems“, „Studying of soils with scanning electron microscopy“, Ecological functions of soils“, etc.

For his outstanding achievements in the field of soil science the Academy of Sciences of the USSR awarded him the Dokuchaev Gold Medal in 1984 and he won the First Lomonosov Prize of the Moscow State University. In 1973 he initiated the foundation of the Soil Science Faculty of Moscow State University which comprised 8 departments corresponding to the main branches of modern soil science.

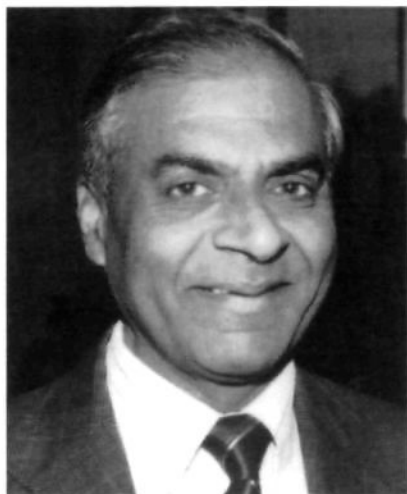
Prof. Dobrovolsky was elected the first dean of this faculty and kept this position till 1990. In acknowledgement of his great contribution to the development of soil science the Russian Academy of Sciences elected him its Corresponding Member in 1984, and a Full Member (Academician) in 1992. The Scientific Council of Moscow University awarded him the title of Honorary Professor.

For many years Prof. Dobrovolsky has contributed a great deal to the activities of the All Union Soil Science Society. In 1985-89 he was Vice President and since 1989 President of the Russian SSS. He has been Chief Editor of the oldest Russian journal „Soil Science“ since 1987.

On the 22nd of September 1995 soil scientists, biologists, geographers, geologists and agronomists working in many scientific, pedagogical and administrative institutions of Russia and abroad congratulated Prof. Dobrovolsky on his 80th birthday and wished him good health and success in this scientific activity. By Decree of the President of the Russian Federation (dated September 7, 1995) he was awarded one of the highest orders of Russia.

S.A. Shoba
Dean, Faculty of Soil Science, Moscow State University

RETIREMENT



Umesh C. Gupta, Principal Research Scientist with Agriculture and Agri-food Canada, Research Centre, Charlottetown, P.E.I. retired on Jan. 17, 1996 after a distinguished 34 year career in soil fertility and plant nutrition.

Dr. Gupta received his B.Sc. and M.Sc. degrees from AGRA University, India and his Ph.D. in soil microbiology from Purdue University, Indiana, in 1961. He began his professional career in 1961 at Agriculture and Agrifood Canada's Soil Research Institute, Ottawa, Ontario. In 1963, he was appointed research scientist at the Research Centre in Charlottetown, a position he held until his retirement.

He specialized in the micronutrient fertilization of crops, developing methods for the determination of the best micronutrient levels, which are now used around the world. Dr. Gupta is acknowledged worldwide as an authority in the trace element nutrition of crops.

From 1986-1991, Dr. Gupta served as Program Leader for the Soil Management and Conservation Program at the Research Centre. He is the editor and principal author of the book „Boron and its Role in Crop Production“ published by the C.R.C. press in 1993, and the editor and author of four chapters for the book „Molybdenum in Agriculture“ to be published by the Cambridge University Press, in 1996. Dr. Gupta has authored/co-authored 125 research publications in prestigious journals and 10 chapters/review articles for national and international books, he has written and edited bulletins on soil fertility, sulfur and micronutrients for use by farmers, extension personnel and researchers.

From 1984-86, Dr. Gupta served as Chief Editor of the Canadian Journal of Soil Science and from 1990-91 he was the President of the P.E.I. Institute of Agrologists. Currently (1995-96, he is the President of the Canadian Society of Soil Science.

He is a fellow of the Canadian Society of Soil Science (1978), of the Soil Science Society of America (1981), the American Society of Agronomy (1981) and the Agricultural Institute of Canada (1991). He is an active member of several scientific and professional societies and he gave invited keynote lectures in France, the UK, Germany, Nigeria and Brazil.

Even though retired, Dr. Gupta will continue research collaboration with scientists at the Charlottetown Research Centre and can be contacted at his usual address,

Tel.: (+1)902-566-6872;
Fax: (+1)902-566-6821 and
E-mail: guptau@em.agr.ca .

Y.P. Kalra, Canada

SERGEY VLADIMIROVICH ZONN IS 90 YEARS OLD



Professor Sergey Vladimirovich Zonn, one of the most senior Russian soil scientists, turned 90 on the 3rd of April, 1996. He can look back on 70 years of scientific activities which is exceptional, indeed. His achievements in the field of soil genetics, soil geography and the practical aspects of soil science are well known not only in his country, but also abroad.

His scientific interests have been manifold from the very beginning of his career. He has studied the soils of the Caucasus since 1926 and he has published several books about different regions of the Caucasus (The Soils of Degestan, Salinity of Soils along the Delta of the River Terek, The Soils of North-West Caucasus, The Soils of Subtropical Georgia, etc.). Later he carried out wide-ranging studies of the Russian Plain, Siberia and the Far East. His particular line has been the study of Russian forest soils. His book on the subject was translated from Russian into many other languages. For a long time he acted as Deputy Director of the Research Institute for Forestry of the Soviet Academy of Sciences, as partner of Academician V.N. Sukhachov who was director of the Institute at the time.

Also in the field of tropical soil science, Professor Zonn's activities are significant. He studied the soils of China, Vietnam, Burma, India, Algeria, Cuba, Colombia, etc. and published a book entitled Tropical Soil Science, which is a handbook used in universities and research institutes alike. His books on the subject also include the Soils of Cuba, and the Soils of Colombia, both of which have been also used as basic handbooks.

During his long career, Professor Zonn not only followed but also developed the best traditions of classical Russian and Soviet soil science. He thoroughly studied the history and activities of his predecessors and published a series of scientific biographies including that of V.V. Dokuchaev, K.D. Glinka, V.N. Sukhachov and I.P. Gerasimov. Most of these valuable biographies appeared in the last 10 years in which period he also wrote fundamental books on soil science, including his monographs on the role of iron, and later of aluminium, in the soil and soil forming processes.

The activities of S.V. Zonn as a university professor, are also significant. He established the Chair of Soil Science at the University of People's Friendship in Moscow where he was professor for 26 years. He conducted postgraduate courses in several places, and spent a few years in Cuba as a soil expert for the government. He was an active member and Vice President of the All Union, later Russian Soil Science Society and a member of the International Soil Science Society for many years. He participated in a great number of international gatherings and visited more than 25 countries.

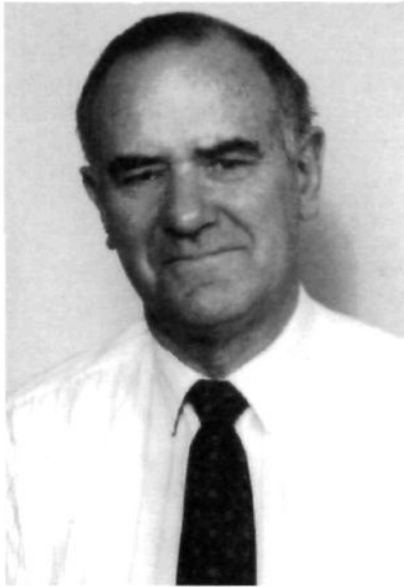
At the age of 90 he is still in good health, an active soil scientist living with his children, grandchildren and great-grandchildren. He continues his very important activity as deputy editor of the Soviet periodical *Pochvovedenie*, still travelling to different regions for making soil surveys, delivering lectures and holding courses.

In appreciation of his achievements *Pochvovedenie* published special Jubilee issues for his 60th, 70th and 80th birthdays. He is a holder of the Dokuchaev Gold Medal and the Williams Gold Medal.

His modesty, hospitality, benevolence, and readiness to help, his wisdom and understanding made him very popular both at home and abroad. All his friends wish him good health and strength for further scientific and social activities.

I. Szabolcs, Budapest

IN MEMORIAM
Dr. Kevin Tiller



Kevin Tiller was born in March 1931 in Pinnaroo, South Australia, and was raised in the country areas of South Australia. He graduated from the University of Adelaide with a B.Sc. in Chemistry in 1952. This was followed by a M.Sc. from the University of Adelaide in 1957, and a PhD from Cornell University (USA) in 1961.

In 1955 he took up an appointment with the CSIRO Division of Soils, the start of a 40-year association with the Organisation, in which he rose to the highest ranks. Dr. Tiller acted as a consultant and adviser to State and Commonwealth government agencies, dealing with a range of soil and environmental problems. He was a visiting professor in Germany and delivered a keynote address at the International Congress of Soil Science in Hamburg in 1986. He also was the author or co-author of 112 journal publications and book chapters.

He was an outstanding scientist, specialising on the study of trace elements, particularly heavy metals, in the soil. His work on zinc and cobalt laid the foundation for future studies throughout the world. As early as 1971, he had the foresight to perceive that heavy metal pollution in the environment was likely to become a major problem, and he resolved to change the focus of his work to address issues of environmental contamination. His work on Pb levels in soils around Port Pirie formed the basis of health controls that now govern acceptable levels of Pb in the environment.

Kevin Tiller became the recognised national leader in environmental pollution by heavy metals, and an international authority whose opinion was frequently sought and highly regarded.

Kevin was a friendly and sociable person, who, despite attaining well-deserved international recognition for his considerable scientific achievements, was not carried away by any inflated sense of personal achievement; he fully and freely acknowledged the contributions and skills of his colleagues.

Kevin Tiller is survived by his four daughters and his wife.

Dr. Roger Swift

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

Important Notice

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1996

**13th Latin American Soil Science Congress,
11th Brazilian Soil and Water Conservation Meeting and
1st Brazilian Soil Biology Meeting, Águas de Lindóia, Brazil, August, 4-10, 1996.**

Information: Prof. Dr. Pablo Vidal Torrado, Organizing Committee Chairman, Soil Science Department, University of Sao Paulo, Agronomy Campus „Luiz de Queiroz“, CP 9, 13.418-900, Piracicaba (SP). Tel.: +55-194-29-4246; Fax: +55-194-34-3242; E-mail: CLACS96@esalq.usp.br.

30th International Geological Congress, Beijing China, August 4 - 14, 1996

Information: Prof. Zhao Xun, Deputy Secretary General, 30th International Geological Congress, P.O. Box 823, Beijing 100037, P.R. China. Fax: +86-10-832-8928; E-mail: zhaox@bepc2.ihep.ac.cn.

28th International Geographic Congress „Land, Sea and Human Effort“, The Hague, The Netherlands, August 5 - 10, 1996.

Information: Congress Secretariat, IGC'96, The Hague, Mw.R. van der Linden, Faculty of Geographical Sciences, Utrecht University, P.O. Box 80115, 3508 TC Utrecht, The Netherlands. Tel.: +31-30-532044; Fax: +31-30-540604

International Workshop on „Soil and Water Quality at Different Scales“, Wageningen, The Netherlands, August 7 - 9, 1996.

Information (scientific): Dr. P.A. Finke, Winand Staring Centre for Integrated Land, Soil and Water Research, P.O.Box 125, 6700 AG Wageningen, The Netherlands. Tel.: +31-8370-74258 (after 10.10.95: +31-317-424812); Fax: +31-8370-24812 (after 10.10.95: +31-317 474258);

E-mail: p.a.finke@sc.agro.nl.

Information (organizational, registration etc.): IAC, Section OCC, P.O.Box 88, 6700 AB Wageningen, The Netherlands; Fax: +31-8370 18552 (after 10.10.95: +31-317-418552), Tel.: +31-317-490111.

Ecological Summer Summit '96, Copenhagen, Denmark, August 19-23, 1996

- 10th International Conference on Ecological Modelling
- International Conference on Ecological Engineering
- 2nd International Symposium on Ecosystem Health
- European Meeting on Ecological Economics

Information: Gill Spear, ECO-Summit '96 Secretariat, Elsevier Science Ltd., Conference Department, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK.

Tel.: (+44)1865-843643; Fax: (+44)1865-843958; E-mail: g.spear@elsevier.co.uk.

International Symposium „Sustainable Land Management“, Tallinn - Lohusalu, Estonia, August 20-24, 1996.

Information: Dr. Edvin Nugis, SCA „ECOFILLER“, Teaduse 18-4, EE3400 Saku, Harju County, Estonia; Fax: 372-2-721961; Tel: 372-2-722-564.

9th Conference of the International Soil Conservation Organisation (ISCO): „Towards Sustainable Land Use - Furthering Cooperation between People and Institutions“, August 26-30, 1996, Bonn, Germany.

Information: A. Klein, Federal Environmental Agency, FG II 3.2/Soil Quality, Postfach 33 00 22, 14191 Berlin, Germany; Fax: (+49-30)229-30-96 or 231-56-38; E-mail: 100 434 1121 @cumpuserve.com

Second International Congress of the European Society of Soil Conservation (ESSC): Development and Implementation of Soil Conservation Strategies for Sustainable Land Use, München-Weihenstephan, Germany, September 1 - 7, 1996.

Information: Dr. Karl Auerswald, ESSC Congress, Lehrstuhl fuer Bodenkunde, TU München, 85350 Freising, Germany. Fax: +49-8161-714466.

2nd Workshop on Sustainable Land Use Planning, with special regard to Central and Eastern European Countries, Gödöllő, Hungary, September 4 - 6, 1996.

Information: Gödöllő University of Agricultural Sciences, H-2103 Gödöllő, Hungary;
Tel.: +36-28310-200; Fax: +36-28310-804; E-mail: TSZALAI@FA.GAU.HU .

8th Meeting of the International Humic Substances Society: The Role of Humic Substances in the Ecosystem and in Environmental Protection, Wroclaw, Poland, September 9-14, 1996.

Information: IHSS 8 Conference, J. Drozd and J. Weber, Agricultural University of Wroclaw, Institute of Soil Science and Agricultural Environment Protection, Grunwaldzka 53, 50-357 Wroclaw, Poland; Fax: +48(71)-224849; Tel.: +48(71)-205632; E-mail: IHSS@ozi.ar.wroc.pl.

International Symposium on Soils with Gypsum, Lleida, Catalonia, Spain, September 15 - 21, 1996.

Information: Dr. Rosa M. Poch, Secretary ISSWG, Dep. Medi Ambient i Ciències del Sòl, UdL, Av. Rovira Roure 177, 25198 Lleida, Catalonia, Spain. Tel.: +34-73-702-567; Fax: +34-73-238-264.

IV Congreso Nacional de la Ciencia del Suelo: „Información de suelos para el siglo XXI“, Lleida, España, 16 al 19 septiembre de 1996.

Información: Sección de Evaluación de Recursos y Nuevas Tecnologías, DARP, C/Rovira Ruore, 177, 25006 Lleida, España; Tfno: (+34)73-220653; Fax: (+34)73-249403.

1st European Meeting on Phytoliths Research: The state of-the-art of phytoliths in soils and plants, Madrid, Spain, September 23-25, 1996.

Information: Ascensión Pinilla Navarro, President, Organizing Committee, Centro de Ciencias Medioambientales, c/Serrano 115 dpdo., 28006 Madrid, Spain.

Symposium „NMR in Soil Science“ (Nuclear Magnetic Resonance Spectroscopy and Magnetic Resonance Imaging), Wageningen, The Netherlands, September 26, 1996.

Information: Dr. M.A. Hemminga, Tel.: +31-317-482044; Fax: +31-317-482725;

E-mail: marcus.hemminga@virus.mf.wau.nl; WWW: <http://gcg.tran.wau.nl/wnmrc/soil-nmr.html>

Joint BAHC GCTE DIS Workshop on „Large-Scale Pattern & Process in Root System Structure and Dynamics“, USA, September/October 1996.

Information: Bhaskar Choudhury, NASA-GSFC, Code 974, Greenbelt, Maryland 20771, USA;
Tel.: +1-301-286/5155; Fax: /1758.

IUCN World Conservation Congress, Montréal, Canada, October 14-23, 1996.

Information: John Burke, Director of Communications, IUCN - The World Conservation Union, 28 rue Mauverney, 1196 Gland, Switzerland.

Substrate Use for Characterization of Microbial Communities in Terrestrial Ecosystems“, Innsbruck, Austria, October 17-18, 1995.

Information: Dr. H. Insam, Institut f. Mikrobiologie, Technikerstrasse 25, Universitaet Innsbruck, 6020 Innsbruck, Austria; Tel.: +43-512-507-6009; +43-512-507-2928; E-mail:

Heribert.Insam@uibk.ac.at

X Seminario Científico del Instituto Nacional de Ciencias Agrícolas (INCA), La Habana, Cuba, 6 - 8 de noviembre de 1996.

Información: Dr. C. Rodolfo R. Piana Llerena, Secretario Ejecutivo X Seminario Científico, Instituto Nacional de Ciencias Agrícolas, Caseta Postal 1, San José de las Lajas, La Habana 32700, Cuba.

Rhizosfera, Actividad y Manejo, Cuba, 11 - 13 de noviembre de 1996.

Información: Dr. Ricardo Delgado Díaz, Director, Instituto de Suelos, Autopista Costa-Costa y Antigua Carretera de Vento, Capdevila, Boyeros. Fax: 537-335086; -333703; -336409.

Maximizing Sustainable Rice Yields Through Improved Soil and Environmental Management, Khon Kaen, Thailand, November 11-17, 1996.

Information: Prof. Dr. Tasnee Attanandana, Soil and Fertilizer Society of Thailand, Department of Soil Science, Faculty of Agriculture, Kasetsart University, Bangkok 10900, Thailand.
Tel.: (662)-579-9538; 579-2028; Fax: (662)561-4766.

World Food Summit, Rome, Italy, November 13 - 17, 1996.

Information: FAO, Viale delle Terme di Caracalla, I-00100 Rome, Italy.

International Symposium on Hydrology in the Humid Tropic Environment, Kingston, Jamaica, November 17-22, 1996.

Information: A. Ivan Johnson, Co-Chairman, HTE'96, Water and Soils Consulting, 7474 Upham Court, Arvada, CO 80003-2758 USA; Tel. and Fax: +1-303-425-5610.

ICSC-2: The 2nd International Crop Science Congress, New Delhi, India, November 17 - 23, 1996.

Information: Suresh K. Sinha, Secretary General, Second International Crop Science Congress, IARI, Pusa, New Delhi-110 012, India.

Soil Resilience and Sustainable Land Use for Small Holdings, Dhaka, Bangladesh
postponed to Oct./Nov. 97 - see there.

Tercer Simposio Internacional: Suelos Volcanicos Endurecidos - Problemática de un Ordenamiento Sostenible, Quito, Ecuador, 9-14 de diciembre de 1996.

Información: Germán Trujillo y/o Claude Zebrowski, ORSTOM Ecuador, Apartado 1711 6596, Quito, Ecuador.

1997

R'97 - Recovery, Recycling, Re-integration: 3rd International Congress with Exhibition, Geneva, Switzerland, February 4-7, 1997.

Information: LPM Ltd., Ms. Maria Bühler, R'97 Project Manager, P.O.Box, CH-8008 Zurich;
Tel.: +41-1-385-29-29; Fax: +41-1-385-26-53.

Regional Workshop „Soil fertility management in West African land use systems“, Niamey, Niger, March 4 - 8, 1997.

Information: Tropical Centre for Agriculture (SFB 308), Andreas Neef (Workshop Coordinator), University of Hohenheim (793), 70593 Stuttgart, Germany;
Tel.: +49-711-459-2548; +49-711-459-3315; E-mail: nigsymp@uni-hohenheim.de.

6th Conference on Sinkholes, Eng. & Env. Impact Karst, Springfield, MO, USA, April 6-9, 1997.

Information: B.F. Beck, P.E. LaMoreaux & Assoc., Inc., PO Box 4578, Oak Ridge, TN 37831-4578, USA; Tel.: +1-423-483-7483; E-Mail: pelaor@use.usit.net.

International Conference: „Analytic based modeling of groundwater flow“, Nunspeet, The Netherlands, April 7-11, 1997.

Information: Conference secretariat: Analytic Based Modeling of Groundwater Flow, Buerweg 51, 1861 CH Bergen, The Netherlands; Tel: +31(0)72-58-990-62; Fax: +31(0)72-58-990-40.

5th Scientific Assembly of the International Association of Hydrological Sciences, Rabat, Morocco, April 23 - May 3, 1997.

Information: IAHS'97 Organizing Committee, Direction Générale de l'Hydraulique, Casier: Rabat - Challah - Maroc; Tel.: +212-7-769008/777842; Fax: +212-7-778696

International Symposium and Workshop: „Combating Desertification: Connecting Science With Community Action“, Tucson, Arizona, May 12-16, 1997; Optional Training Package:

May 17-23, 1997.

Information: United States Department of the Interior, Bureau of Land Management, Arizona State Office, 3707 N. 7th Street, P.O. Box 16563, Phoenix, Arizona 85011-6563, U.S.A.

International Conference on Soil and the Environment: pollution, degradation and restoration, China, May-June, 1997.

Information: Prof. Zhao Quiguo, Inst. of Soil Science, Academia Sinica, P.O.Box 821, Nanjing 21008, P.R. China. Fax: +86-25-712-668.

4th International Meeting on Red Mediterranean Soils, Plovdiv, Bulgaria, May 27 - June 2, 1997.

Information: Prof. I. Atanassov, Chairman, Organizing Committee, Department of Soil Science, Agricultural University, 12 Mendeleev str., 4000 Plovdiv, Bulgaria;

Tel.: +35-932-223-800 or -224-100; Fax: +35-932-233-157 or -265-920; Telex: 44405 or 44252.

XVIII International Grassland Congress, Grasslands 2000, Winnipeg, Manitoba & Saskatoon, Saskatchewan, Canada, June 8 - 19, 1997.

Information: P.O.Box 4520, Station C, Calgary, Alberta, Canada T2T 5N3;

Tel.: (403)244-4487, Fax: (403)244-2340, E-mail: amc@supernet.ab.ca.

11th International Clay Conference and 34th Annual Meeting of the Clay Minerals Society, Ottawa, Ontario, Canada, June 15-21, 1997.

Information: Dr. Jeanne B. Percival, Secretary-General, 11th ICC, Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario, Canada K1A 0E8. Fax: 613-943-1286;

Internet: icc97@gsc.emr.ca; use gopher.emr.ca (GSC menu) for future updates on the 11th ICC.

International Symposium on Iron Nutrition and Interactions in Plants, Stuttgart, Germany, July 20-25, 1997.

Information: Dr. Volker Römheld, Institut fuer Pflanzenernaehrung (330), Universität Hohenheim, 70593 Stuttgart, Germany; Fax: +49-711-459-3295; Tel.: +49-711-459-3714 or -2344.

16th International Congress of Nutrition, Montreal, Canada, July 27-August 1, 1997.

Information: 16th International Congress of Nutrition, c/o Conference Services Office, National Research Council Canada, Ottawa, ON, Canada K1A 0R6;

Tel.: (+1-613)993-7271; Fax: (+1-613)993-7250; E-mail: confmail@aspm.lan.nrc.ca.

14th ISTRO Conference: Agroecological and Economical Aspects of Soil Tillage, Lublin, Poland, July 27 - August 4, 1997.

Information: ISTRO Conference 1997, Dr. Jerzy Rejman, Institute of Agrophysics, Polish Academy of Sciences, ul. Doswiadczalna 4, 20-236 Lublin, Poland; Tel.: +48-81-45061; Fax: +48-81-45067.

VII Congreso Nacional Chileno de la Ciencia del Suelo, La Serena, Chile, Agosto de 1997.

Información: Fax:+56-51-211473. Suelos y Nutrición de Plantas, Universidad de La Serena, Chile.

II International Conference „Cryogenic Soils: Ecology, Genesis and Classification“, Syktyvkar, Komi Republic, Russia, August 5-8, 1997.

Information: Prof. I.V. Zaboeva, Institute of Biology, Komi Center, Russian Academy of Sciences, 167610 Syktyvkar, Komi Republic, Russia. Tel.: +7-821-22-25213; +7-821-22-25240;

Fax: +7-821-22-25213.

Conference on Geo-Information for Planning of Sustainable Land Management, Enschede, The

Netherlands, August 17-22, 1997.

Information: Prof. Dr. K.J. Beek, ITC, P.O. Box 6, 7500 AA Enschede, The Netherlands.

Fax: +31-534-874-200; E-mail: beek@itc.nl.

XV National Conference of the Romanian Soil Science Society: „Problems concerning the genesis, evolution, use and protection of soils of the southern region of Romania“, Bucharest, August 26-30, 1997.

Information: Dr. I. Munteanu, RISSA, Bd. Marasti 61, 77331 Bucharest 32, Romania.

IX World Water Congress, Montréal, Canada, September 1-6, 1997.

Information: Aly M. Shady, Canadian International Development Agency, 200 Promenade du Portage, Hull, Quebec, K1A 0G4, Canada. Tel.: +1-819-994-4098; Fax: +1-819-953-3348; E-mail: aly-shady@ACDI-CIDA.GC.CA.

BORON97: International Symposium on Boron in Soils and Plants, Chiang Mai, Thailand, September 7-11, 1997

Information: Dr. B. Rerkasem, Multiple Cropping Center, Chiang Mai University, Chiang Mai, Thailand 50200; Fax: +66-53-210000.

11th World Fertilizer Congress „Fertilization for sustainable plant production and soil fertility“, Gent, Belgium, September 7-13, 1997.

Information: University of Gent, Faculty of Agricultural and Applied Biological Sciences, Coupure 653, B-9000 Gent, Belgium; Tel.: +32-9-264-6006; Fax: +32-9-264-6242; Telex: 12754 rugent b; E-mail: annick.vermoesen@rug.ac.be.

XIII International Plant Nutrition Colloquium, Tokyo, Japan, September 13-17, 1997.

Information: Dr. Hiroaki Hayashi, IPNC Secretariat, Division of Agriculture and Agricultural Life Sciences, The University of Tokyo, 1-1-1, Yayoi, Bunkyo-ku, Tokyo 113, Japan.

Fax: +81-3-5689-7226; Tel.: +81-3-3812-2111 ext. 5105; E-mail: hiroh@tansei.cc.u-tokyo.ac.jp.

6th International Conference on Agrophysics, Lublin, Poland, September 15-18, 1997.

Information: R. Debicki, Institute of Agrophysics, Polish Academy of Sciences, Doswiadczalna 4, P.O.Box 121, 20-236 Lublin, Poland; Tel.: +48-81-450-61; Fax: +48-81-450-67;

E-mail: debicki@demeter.ipan.lublin.pl.

International Symposium: Sustainable management of salt affected soils of the arid ecosystem, Cairo, Egypt, September 22-27, 1997.

Information: Prof. A.M. Elgala, Chairman, Organizing Committee, Department of Soil Science, Faculty of Agriculture, Ain Shams University, Hadayek Shobra, 11241, Cairo, Egypt;

Fax: 202-2214461.

Comm. IV Conference „Soil Resilience and Sustainable Land Use for Small Holdings“, Dhaka, Bangladesh, October/November 1997

Information: Dr. Z. Karim, D.G., BRRI, G.P.O. Box 64, Ramna, Dhaka, Bangladesh;

E-mail: IRRD.Dhaka@DRIKTAP.TOOL.NL; Fax: 880-2-883416.

International Symposium: „Soil Systems Behavior in Space and Time“ (ISSS Commission V and ISSS WG-RB), Vienna, Austria, November 19-22, 1997.

Information: Dr. W.W. Wenzel, Institute of Soil Research,

University of Agriculture, Gregor Mendel-Str. 33, 1180 Vienna, Austria;

Tel. + Fax: +43-1-47654-3119.

1998

XVIth World Congress of Soil Science, Montpellier, France, August 20-26, 1998

Information: XVI World Congress of Soil Science, Congress Secretariat, 1101, Avenue Agropolis, 34394 Montpellier Cedex 5; France; Tel.: (+33)67 04 75 38; Fax: (+33)67 04 75 49

**INTERNATIONAL TRAINING COURSES
COURS INTERNATIONAUX DE FORMATION
INTERNATIONALE FORTBILDUNGSKURSE**

Plant and Soil Analysis for Laboratory Managers, The University of Reading,

UK, August 12 - September 20, 1996

Information: Dr. I. Mueller-Harvey, Faculty Analytical Laboratory, Department of Agriculture, The University of Reading, PO Box 236, Reading RG6 6AT, UK;

Tel.: +44-1734-316619; Fax: +44-1734-352421; E-mail: I. Mueller-Harvey@reading.ac.uk.

Short Course in Plant and Soil Analysis, Reading, UK, August 16 - September 9, 1996.

Information: Dr. I. Mueller-Harvey, Faculty Analytical Laboratory, **Department of Agriculture, The University of Reading**, Earley Gate, P.O.Box 236, Reading, RG6 6AT, UK.

Tel.: +44-1734-316-619; Fax: +44-1734-352-421; E-mail: I.Mueller-Harvey@reading.ac.uk

20th International Course on Nutrient Management for Sustainable Agriculture, Wageningen, The Netherlands, August 25 - September 21, 1996.

Information: **International Agricultural Centre (IAC)**, P.O. Box 88, Lawickse Allee 11, 6700 AB Wageningen, The Netherlands.

Tel.: +31-317-490111; Fax: +31-317-418552 (attention: tel. nos. may have changed!);

E-mail: iac@iac.agro.nl.

The University of Reading, U.K., offers a new 6-week course in Plant and Soil Analysis in September/October 1996

Information: Richard Baker, Course Tutor, University of Reading, 12 Laurel Drive, Tilehurst, Reading RG31 5DY. Tel.: +44-1734 425344; Fax: +44-1734 513000

35th International Course on Land Drainage, August 19 - November 29, 1996, International Institute for Land Reclamation and Improvement, Wageningen, The Netherlands.

Closing date for application: May 1, 1996

Information: The Registrar of ILRI, P.O.Box 45, 6700 AA Wageningen, The Netherlands.

7th International Postgraduate Course on Soil and Plant Analysis and Data Handling, Wageningen, the Netherlands, September 29 - November 30, 1996.

Information: **International Agricultural Centre (IAC)** P.O. Box 88, Lawickse Allee 11, 6700 AB Wageningen, The Netherlands.

Tel.: +31-317-490111; Fax: +31-317-418552; E-mail: IAC@IAC.AGRO.NL.

International Course on Microcomputer Applications in Land Drainage, December 2 - 20, 1996, International Institute for Land Reclamation and Improvement, Wageningen, The Netherlands.

Information: The Registrar of ILRI, P.O.Box 45, 6700 AA Wageningen, The Netherlands.

International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) offers a wide range of short- and long-term studies in the field of

- **Plant Production**
- **Animal Production**
- **Environment**
- **Agricultural Marketing**

Information: Instituto Agronómico Mediterráneo de Zaragoza; Apartado 202, 50080 Zaragoza, Spain.

Tel.: (34-76)57-60-13; Fax: (34-76)57-63-77

Universidad Autónoma de Madrid

Curso Master de Fertilizantes Y Medio Ambiente - Master Course „Fertilizers and Environment“

duration of the course: 2 months (200 hours) June/July

language: Spanish

Information: Prof. C. Cadahía, Dpto: Química Agrícola, Universidad Autónoma, Madrid-28049, España. Tel.: (+34)91-397-4823; Fax: -4187.

The University of Cape Town, Department of Geological Sciences, offers a MSc Course in Environmental Geochemistry.

Time schedule: 11 course modules of 1-3 weeks' duration between January and June, exam in July. Information: Dr. M.V. Fey, Department of Geological Sciences, University of Cape Town, Rondebosch, 7700, South Africa.

Tel.: 021 650 2903/2931; Fax 021 650 3783; E-mail: fey@geology.uct.ac.za.

ITC Postgraduate Diploma and MSc Degree Courses, Enschede, The Netherlands,

ITC offers a wide range of courses on

- Msc. Degree Course: Environmental Systems Analysis and Monitoring
- Postgraduate Diploma and MSc Degree Courses: Soil Survey and Applications of Soil Information
- Postgraduate Diploma Course: Rural and Land Ecology Survey
- Msc Degree Course: Rural and Land Ecology Survey
- Postgraduate Diploma and Msc. Degree Courses: Socio-Economic Information for Natural Resource Management.

Information: ITC, Student Registration Office, Attn. Mrs. A Scheggetman, P.O.Box 6, 7500 AA Enschede, The Netherlands, Tel: +31-(0)53-4874-205; Fax: +31-(0)53-4874-238;

Telex: 44525 itc nl; E-mail: scheggetman@itc.nl.

Post-Graduate Course: Remote Sensing and Natural Resources Evaluation, Istituto Agronomico per l'Oltremare, Florence, Italy.

Information: Istituto Agronomico per l'Oltremare, Via A. Cocchi, 4, 50131 Florence, Italy;

Tel.: 39-55-573-201; Fax: 39-55-580-314.

Silsoe College, Bedford, England, offers a wide range of post-graduate courses and studies, e.g.: Agribusiness Management and Technology (MSc.), Agroforestry (MSc.), Land Resource Management and Planning (MSc. and Postgraduate Diploma programmes), Engineering for Rural Development (MSc.), Agricultural Engineering (Agrochemicals Application Technology - MSc., etc.), Management for Agricultural Development (MSc.), Agricultural and Food Marketing (MSc. and PD), Agricultural Water Management (MSc.), Crop Production Technology (MSc.), Information Technology (MSc.), etc.

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Models for Assessing and Monitoring Groundwater Quality. B.J. Wagner, T.H. Illangasekare and K.H. Jensen, editors. IAHS publication No. 227. IAHS, Wallingford, 1995, ix + 250 p. ISBN 0-947571-39-6. Paperback.

This publication is the pre-published proceedings of Symposium H2 held at the XXI General Assembly of the International Union of Geodesy and Geophysics, in Boulder, 1995. The 28 papers include both applied and theoretical studies on modelling groundwater flow and contaminant transport, uncertainty analysis in flow and transport modelling, designing monitoring strategies for groundwater quality assessment, interpreting water quality data for characterizing groundwater quality, designing groundwater management strategies, and formulating groundwater policies. The papers are divided into three sections: Monitoring and assessing groundwater quality; Groundwater modelling and management; Stochastic groundwater modelling and model parameter estimation.

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Man's Influence on Freshwater Ecosystems and Water Use. G. Petts, editor. IAHS Publication No. 230. International Association of Hydrological Sciences, Wallingford, 1995, viii + 280 p. ISBN 0-947571-54-X. Paperback.

This publication is a selection of 31 papers for the International Symposium on Man's Influence on Freshwater Ecosystems and Water use (Symposium H5) held at the XXI General Assembly of the International Union of Geodesy and Geophysics in Boulder, 1995. They develop four themes: 1. Hydrological modelling and water resources management; 2. Integrated management of water quantity and quality; 3. Modelling and management of surface water and groundwater interactions; and 4. Water resources development for ecosystem sustainability. They illustrate many of the important directions in the hydrological sciences that must be rapidly advanced if sustainable water resource development is to prove a realistic goal.

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Modelling and Management of Sustainable Basin-Scale Water Resource Systems. S.P. Simonovic, Z. Kundzewicz, D. Rosbjerg and K. Takeuchi, editors. IAHS Publication No. 231. International Association of Hydrological Sciences, Wallingford, 1995, x + 434 p. ISBN 0-947571-59-0. Paperback.

This publication is the pre-published proceedings of the Symposium on Modelling and Management of Sustainable Basin-Scale Water Resource Systems (Symposium H6) held at the XXI General Assembly of the International Union of Geodesy and Geophysics in Boulder, 1995. It was proposed in response to the requirements imposed on the field of water resources by the new paradigm of sustainability.

The 48 papers provide a broad view of sustainability as it relates to water resources modelling and management. They are divided into three sections: Examples (17 papers); Modelling Tools (13 papers); and Relevant Issues (18 papers).

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Application of Tracers in Arid Zone Hydrology. E.M. Adar and Chr. Leibundgut, editors. IAHS Publication No. 232. International Association of Hydrological Sciences, Wallingford, 1995, ix + 452 p. ISBN 0-947571-64-7.

This publication is the proceedings of the First International Symposium on the Application of Tracers in Arid Zone Hydrology, Vienna 1994. It was jointly organized by the International Committee on Tracers (ICT) of the International Association of Hydrological Sciences (IAHS) and the International Atomic Energy Agency (IAEA). The aims were to present and to discuss methodological aspects of both natural and artificial tracers related to desert hydrology. The publication begins with a paper which addresses the related arid and semiarid zone projects of the utilization of environmental isotopes in water resources. A total of 37 papers are grouped under six topics: 1. Groundwater recharge; 2. Subsurface flow systems; 3. Modelling of hydrological systems; 4. Infiltration and percolation through the unsaturated zone; 5. Surface flow in dry areas; 6. Erosion and sediment transport in rivers.

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Assessing and Managing Health Risks from Drinking Water Contamination: Approaches and Applications. E.G. Reichard and G.A. Zapponi, editors. Publication No. 233. International Association of Hydrological Sciences, Wallingford, 1995, xii + 339 p. ISBN 0-947571-69-8. Paperback.

This publication is the result of an International Symposium in 1994, Rome, organized by the IAHS International Commission on Groundwater and the Istituto Superiore di Sanita, Rome. The objectives were to explore drinking water contamination health risks from multidisciplinary perspective and to exchange experiences in risk assessment and management from developed and developing countries.

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Current Condition of Ecosystem of Mongolia. I. Szabolcs. Map at scale 1:1,000,000 with explanatory booklet. Russian-Mongolian Complex Biological Expedition, with the assistance of UNEP, 1995.

The location of Mongolia within the bounds of subcontinental structures of Central Asia, Southern

Siberia and the Far East, between several sub-regions, allows to forecast the consequences of different anthropogenic impacts on these areas and to consider investigations already undertaken as an example for the regions concerned. The map reflects the ecological situation in Mongolia as a whole and in specific regions, also indicating anthropogenic processes and soil degradation. The main regularities of distribution of soil and vegetation are shown in different geomorphological patterns as well as the character of surface deposits, hydrological conditions and the feasibility of production. More than 300 types of ecosystems are covered.

The colour map is compiled on 15 sheets at the scale of 1:1,000,000 with matrix key. Computerized hard copies are published in 226 colours. The publication is a result of a 20-year long work of the Joint Soviet-Mongolian Integrated Biological Expedition of the Academies of the USSR and Mongolia. The methods used for the preparation of this up-to-date inventory can be used for monitoring a local, a regional, even the global environment. The map can provide useful data on the degree of anthropogenic pressure on the environment and forms a reliable cartographic basis for the development of regional and ecological programmes and plans for the different branches of industry, as well as for investigation and research.

Orders to: Peter Gunin, Chief of the Russian part of the Joint Russian-Mongolian Biological Expedition, Pyatnitskaya Str. 47, Bldg. 3, Moscow 109017, Russia. Tel/Fax: (7-095)233-0713, E-mail: pgunin@glas.apc.org

Die Charakterisierung der organischen Bodensubstanz durch morphologische und naßchemische Untersuchungen, CPMAS ¹³C-NMR-Spektroskopie sowie Pyrolyse-Feldionisation Massenspektrometrie. L. Beyer, Institut für Pflanzenernährung und Bodenkunde, Kiel, 1994, 165 S. ISSN 0933-680 X. Taschenbuch.

Dieses Buch beschäftigt sich mit Erfassung von Morphologie und Chemie der organische Bodensubstanz (OBS). Die OBS ist ein bedeutender ökologischer Faktor in Böden. Trotzdem ist das Wissen um die OBS noch immer sehr lückenhaft. Die vorliegende Arbeit beschäftigt sich deshalb mit Erfassung von Morphologie und Chemie der OBS.

Einer ausführlichen Darstellung des Wissensstandes bzgl. des Aufbaus der OBS von Böden folgt die exakte Arbeitsvorschrift einer naßchemischen Analytik. Mit dieser Anleitung wurde an 200 Proben der Gehalt an Streustoffen und Huminstoffen durch Extraktion bestimmt. Daneben wurden einfache Verfahren getestet, um deren Tauglichkeit zur Trennung von freien Streustoffen und Huminstoffkomplexen in der OBS für kostengünstige Reihenanalysen zu testen. An einer ausgewählten Anzahl der Proben wurden CPMAS ¹³C-NMR-Spektren erstellt und quantitativ ausgewertet. Vierzig Proben wurden der Pyrolyse-Feldionisation Massenspektrometrie (Py-FIMS) unterzogen. Die Ergebnisse wurden morphologische Kriterien und den naßchemischen Daten gegenübergestellt, untereinander verglichen und statische verrechnet.

Die quantitativen Analysen erlauben eine direkten

Vergleich von Bodenökosystemen. Die Koppelung der verschiedenen chemische Methoden kommt dem Ziel, die chemische Ab- und Umbauprozesse im Rahmen der Humifizierung zu erfassen am nächsten. Die Kombination mit morphologischen und biologischen Beobachtungen ermöglicht darüber hinaus weitreichende Einblicke in die Humusdynamik verschiedener Böden.

Preis: DEM 15 (+ Versandkosten)

Bestellungen an: Institut für Pflanzenernährung und Bodenkunde der Christian-Albrechts-Universität zu Kiel, Olshausenstrasse 40, D-24118 Kiel, Deutschland.

Layer Charge Characteristics of 2:1 Silicate Clay Minerals. CMS Workshop Lectures, Volume 6. A.R. Mermut, editor. The Clay Minerals Society, Boulder, 1994, viii + 134 p. ISBN 1-881208-07-9. Paperback

This publication is a collection of reviewed Workshop Lectures presented at a workshop of the Clay Mineral Society and the Soil Science Society of America in Minneapolis in 1992.

Layer charge is recognized as the most important single characteristic of 2:1 phyllosilicates. It indicates the mineral's capacity to retain cations and to adsorb water and various polar organic molecules. The affinity of clays for sorption of organic contaminants in aqueous systems is presently attracting considerable attention. The layer charge is also an important criterion for the classification of 2:1 clay minerals.

The present volume is mainly devoted to the alkylammonium ion-exchange technique to determine the layer charge of 2:1 phyllosilicates. This somewhat tedious method has been refined and is now more used for routine identification as it provides information not given by other techniques. The following papers are included: 1. Layer charge determination by alkylammonium ions. 2. Role of layer charge in organic contaminant sorption by organo-clays. 3. Evaluation of structural formulae and alkylammonium methods of determining layer charge. 4. Problems associated with layer charge characterization of 2:1 phyllosilicates. 5. The movement of neutral particles in charged media.

Price: USD 12 plus shipping USD 3 per item.

Orders to: see below.

Scanning Probe Microscopy of Clay Minerals. CMS Workshop Lectures, Volume 7, K.L. Nagy and A.E. Blum, editors. The Clay Minerals Society, Boulder, 1994, x + 239 p. ISBN 1-881208-08-7. Paperback

This volume in the Clay Mineral Society's series of Workshop Lectures is devoted to scanning probe microscopy (SPM), a still relatively new technique which has proven to be a useful and economical way to study mineral surfaces and morphologies. Advances in SPM have not only involved new instruments, but also more sophisticated applications. It is quickly developing into a mature subdiscipline of surface analysis and manipulation, and has secured itself a place in future analytical and manufacturing technology. The aim of this issue is to introduce the theory and operation of SPM to clay mineralogists, summarize previous work in mineralogy, and outline the advantages and limitations of SPM for future research

applications. It has the following chapters: 1. High resolution scanning probe microscopy: tip-surface interaction, artifacts, and applications in mineralogy and geochemistry. 2. Atomic and molecular scale imaging of layered and other mineral structures. 3. Mineral-water interactions: fluid cell applications of scanning force microscopy. 4. Determination of illite/smectite particle morphology using scanning force microscopy. 5. Application of morphological data obtained using scanning force microscopy to quantification of fibrous illite growth rates.

Price: USD 18 plus shipping USD 3 per item.

Orders to: The Clay Minerals Society, P.O.Box 4416, Boulder, CO 80306 U.S.A.

Fertiliser and Integrated Nutrient Recommendations for Balance and Efficiency. H.L.S. Tandon, editor. Fertilizer Development and Consultation Organisation, New Delhi, 1995, 106 p. ISBN 81-85116-41-5. Paperback.

This practical guidebook is the latest of an extensive series published by the Fertiliser Development and Consultation Organisation of India. It is aimed at a balanced and efficient use of fertilisers for sixteen major field crops occupying 70% of the total cropped area in India. The statewise recommendations provided deal with fertilisers, green manure, organic manures, and biofertilisers and represent the local state-of-the-art of the integrated nutrient management. The crops included are: rice, wheat, maize, sorghum, pearl millet, barley, chickpea, pigeonpea, greengram, blackgram, lentil, cotton, jute, sugarcane and tobacco.

The guide has been written for a wide range of readers such as field staff of fertiliser industry, extension officers, testing laboratories, NGOs, students and progressive farmers. Although locally oriented, the information may be useful elsewhere for those who are planning to draft similar guides.

Price: In India: INR 120/- (registered mail free); Outside India: USD 30 (registered airmail free)

Orders to: Fertiliser Development and Consultation Organisation, 204-204A Bhanot Corner, 1-2 Pamposh Enclave, New Delhi - 110048, India.

Suelos de Colombia. Origen, evolución, clasificación, distribución y uso. D. Malagon Castro, C. Pulido Roa, R. Dario Llinas Rivera, C. Chamorro Bello & J. Fernandez Lamus. Instituto Geografico Agustín Codazzi, Bogota, 1995, xxi + 632 p. ISBN 958-9067-00-X.

El inventario de los suelos del territorio Colombiano, que ha llevado a efecto el Instituto Geográfico Agustín Codazzi durante cinco décadas, es fuente permanente de consulta y base fecunda de datos para elaborar documentos de síntesis, con fundamento teórico en el conocimiento adquirido, para que sirvan como material básico en aspectos ecológicos, ambientales, agrícolas y agrologicos para la ejecución de proyectos de desarrollo; la información procesada es útil, además el campo docente, especialmente para los estudiosos de la geografía física del país.

El objetivo principal de la obra es la exposición de los fundamentos teóricos para entender y analizar el origen, la evolución y la distribución de los suelos y su aplicación a las condiciones colombianas. Como propósito complementario se busca resaltar el conoci-

miento integral de la formación de los suelos como requerimiento insustituible para conocerlos y entenderlos, en aras a utilizarlos con prácticas de manejo apropiadas y teniendo en cuenta, además, su desarrollo histórico; lo contrario implicaría guiar ciegamente su utilización.

Pedidos a: Instituto Geográfico „Agustin Codazzi“, Carrera 30 # 48-51, Apartado Aereo 53754, Bogota, Colombia.

Zonificación Ecológica-Económica: Instrumento para la Conservación y el Desarrollo Sostenible de los Recursos de la Amazonía. Memorias de la Reunión Regional, Manaus, Tratado de Cooperación Amazónica (TCA), Abril 1994, 382 p. SPT-TCA/NO. 26.

La creciente preocupación sobre la protección del medio ambiente en la Amazonía junto a la necesidad de elevar el nivel de vida de las poblaciones actuales y de respetar el derecho de las generaciones futuras, ha llevado a la búsqueda de instrumentos técnicos que hagan posible el desarrollo de políticas de uso sostenido de los recursos de la región. Respondiendo a esa preocupación, los Gobiernos de los países miembros del Tratado de Cooperación Amazónica (TCA) han dado carácter prioritario dentro de los Programas del Tratado, a la Evaluación de los Recursos Naturales Renovables, Zonificación Ecológica-Económica, y Monitoreo de las Alteraciones en el Uso de la Tierra.

La Secretaría del Tratado, auspició la reunión regional sobre „Zonificación Ecológica-Económica: Instrumento para la Conservación y el Desarrollo Sostenible de los recursos de la Amazonía“, que se llevó a cabo en Manaus, Brasil, del 25 al 29 de abril de 1994, con la participación de expertos internacionales y de la región amazónica. La presente publicación contiene el documento-memoria del mencionado taller, principalmente las exposiciones sobre zonificación ecológica-económica referidas a metodologías, experiencias nacionales y regionales, y alternativas de implementación, así como sistemas de información geográfica; en el entendido que la zonificación es parte del ordenamiento territorial y por ende una herramienta en la toma de decisiones para el uso adecuado del espacio amazónico.

Pedidos a: Tratado de Cooperación Amazónica, Secretaria Pro Tempore, Av. Prolongación Primavera 654, Characilla, Lima 33, Peru. Fax: + 511-4499-8718.

World in Transition: The Threat to Soils. Annual Report 1994. German Advisory Council on Global Change, Bonn, 1995, xv + 252 p. ISBN 3-87081-055-6. Paperback.

Soils form an essential basis for humanity, but have received too little attention to date. In differing respects, human activities lead in many parts of the world to various levels of soil degradation, from declining fertility to irreversible destruction. Many local processes cumulate to form a global environmental trend that must be counteracted with political action as a matter of urgency. The fact that the slow destruction of soils is a process barely perceptible to human senses has meant in turn that this topic is dealt with in the environmental debate as a somewhat marginal

issue. Therefore, the threat to soils must be accorded much greater significance on the environmental agenda - improved legal frameworks must be created, both nationally and internationally, for soils as an environmental asset.

This publication is divided into two sections. The first presents and comments on new development in various fields of Global Change. The second section deals with the global threat to soils. In addition to findings from natural science, special reference is made to international conventions that already exist or which are currently being negotiated.

The German Advisory Council on Global Change emphasises that, in view of the seriousness of the soil problems outlined in the Report, a new efficient institutional framework should now be established. For this reason the German Federal Government should decide in principle whether a differentiated „Soil Declaration“ suffices or whether a global „Soil Convention“ has to be striven for. This report provides the relevant arguments for both instruments. Global soil protection must obtain a similar attention on the international agenda, as has been achieved for climate policy.

Orders to: *Economica Verlag, Fontanestr. 12, 53173 Bonn, Germany.*

Mycorrhizae: biofertilizers for the future.

Proceedings of the Third National Conference on Mycorrhiza, March 1995. A. Adholeya and S. Singh, editors, Tata Energy Research Institute, New Delhi, 1995, xiv + 548 p. Paperback.

Mycorrhizal symbiosis has lately created a keen interest among scientists, including plant pathologists, mycologists, soil scientists, agronomists, plant geneticists, etc. Major efforts are now being concentrated towards the production of bulk inoculum of mycorrhizal biofertilizers for use in agriculture, forestry, horticulture, floriculture, etc. While many ectomycorrhizal fungi have been brought in pure cultures, arbuscular mycorrhizal (AM) fungi have till now, defied all attempts to bring them in pure culture synthetic media. Many efforts are being made all over the world to decode the genetical barrier to grow AM fungi on synthetic media, and it may not be long before we have these fungi on synthetic media for their bulk production. In India, though fundamental studies on molecular and biochemical level are scarce, much headway has been achieved in selecting suitable AM fungi for different crops and for different site conditions. Attempts are being made to determine the role of AM fungi in ameliorating soils polluted with industrial wastes. In this proceedings 129 papers are included: (i) distribution of mycorrhizal fungi under varying edapho-climatic conditions (28 papers); (ii) management of pest, mycorrhizae, and biocides for increased plant productivity (10 papers); (iii) soil/water pollution and mycorrhizae (4 papers); (iv) tripartite biological interactions involving rhizosphere flora, mycorrhizal fungi and plant roots (25 papers); (v) plant growth responses and mycorrhizal dependency (41 papers); (vi) physiology and biochemistry (25 papers) and (vii) role of mycorrhiza on difficult/disturbed sites (7 papers).

Price: USD 50.

Orders to: Tata Energy Research Institute (TERI),

Darbari Seth Block, Habitat Place, Lodhi Road, New Delhi - 110 003, India. Fax: + 91-11-4621770

Europe's Environment. The Dobřís Assessment. D. Stanners and P. Bourdeau, editors. European Environment Agency, Copenhagen, 1995, xxiv + 676 p. ISBN 92-826-5409-5. Paperback.

This book covers the state of the environment in a Europe of nearly 50 countries and presents comprehensive data which vary widely depending on topic and location from the late 1980s to 1993. It analyses different environmental themes relating to, inter alia, air, water, soil, nature, wildlife and urban areas. It looks at the pressures which have an impact on them, the human activities giving rise to those pressures and reviews the details of 12 prominent environmental problems of concern to Europe.

This publication is in full colour and includes over 150 maps, 130 photographs, 600 tables and figures, and numerous case studies and examples from across Europe. The report: (1) introduces the context and reporting techniques used; (2) assesses the state of the environment in eight fields, including air, water, soil, nature, wildlife and urban areas; (3) describes the pressures, such as emissions and wastes, which affect the environment; (4) examines the sources of environmental pressures resulting from human activities in eight different sectors (such as energy, transport, agriculture and tourism); (5) analyses the 12 most pressing environmental problems facing European countries; and (6) presents a summary of the main highlights and responses documented in the report. It has a useful index.

Price: ECU 55 (excluding VAT)

Orders to: See below.

Europe's Environment: Statistical Compendium for the Dobřís Assessment. Compiled by Eurostat, EC, a.o., 1995, 455 p. ISBN 92-827-4713-1. Paperback.

This book is the companion volume to Europe's Environment, The Dobřís Assessment. It provides statistical and methodological information. It covers both environmental topics as well as human activities.

Price: ECU 25 (excluding VAT).

Orders to: Earthscan Publications, 120 Pentonville Road, London N1 9JN, UK, European Environment Agency, Kongens Nytorv 6, DK-1050 Copenhagen K, Denmark, Office des publications officielles des Communautés européennes, 2, rue Mercier, L-2985 Luxembourg.

Clays Controlling the Environment. G.J. Churchman, R.W. Fitzpatrick and R.A. Eggleton, editors. CSIRO Publishing, East Melbourne, 1995, xviii + 526 p. ISBN 0-643-05536-3. Paperback.

This book contains 87 papers which were presented at the 10th International Clay Conference of the AIPEA, in Adelaide, 1993. In all 368 papers were presented at the Conference. Many of those not included here will be published elsewhere. The papers in this book are arranged according to the main themes followed during the Conference: Plenary Lecture (1 paper); Teaching (6 papers); Clays in industry and the environment (15 papers); Surface and interlayer reactions (15 papers); Clay mineral structures and chemi-

stry (11 papers); Methods (9 papers); Clays in geology (17 papers); Soil Mineralogy (13 papers). All these papers were subject to peer review. The emphasis of this book reflects the vital role that clays play in controlling natural, polluted and technological environments.

Price: AUD 130 plus AUD 6 for postage for Australia and New Zealand; USD 130 plus USD 6 for order from other countries.

Orders to: CSIRO Publishing, PO Box 1139, Collingwood 3066, Victoria, Australia.

Sustainable Regional Development Methodologies for Microregional Diagnostics. Literature Review. S. Sepulveda and R. Edwards. Inter-American Institute for Cooperation on Agriculture (ILCA), San Jose, 1995, 223 p. No. A1/SC-95-06). ISSN 0534-5391. Paperback.

This publication is part of ILCA's efforts to strengthen and update its rural development conceptual and methodological framework. In fact, the Institute is extensively upgrading its work instruments in order to improve its efficiency in areas pertaining to technical cooperation such as strategy design, policy/programs formulation and project preparation.

This publication is an extensive bibliographic review of diverse methodological approaches to partially manage a few dimensions of a „spatial diagnosis“. The work concentrates mostly upon those references published during the last several years in Latin America, the Caribbean, the U.S., and Canada.

This document is part of a series of publications that the Rural Development Program and the GTZ-ILCA Project have conceived in order to provide professionals with an easy access to the most recent information available on this topic and, at the same time, to contribute to building a set of practical working devices to ensure efficient service to rural people. *Orders to:* Inter-American Institute for Cooperation on Agriculture, P.O.Box 55-2200, Coronado, Costa Rica. Fax: + 506-229-26-59

IICA-GTZ Project of a Sustainable Development Database. Installation Guide. User's Guide. G.A. Astorga, San José, 1994, 17 p. + diskettes. Softbound.

The database and bibliographic bulletin are instruments to spread information on agricultural sustainability and natural resources, specially in member countries of the Inter-american Institute for Cooperation in Agriculture (IICA).

The database includes information on the following subjects: sustainable agriculture, agroforestry, tropical forests, commerce, conservation of resources, economic development, environmental deterioration, external debt, ecology, ecotourism, environmental impact, woods, forest management, agricultural policies, environmental policies, forestry policies, development projects, forestry resources, natural resources, silviculture, exploitation and land use systems. It is mostly on Latin America and the Caribbean.

The information in this database is in AGRIS format and uses the Mini micro CDS/ISIS Program version 3.07, which is explained in the Reference Manual Mini-micro CDS/ISIS (VERSION 3.0). CDS-ISIS is developed by UNESCO and available free of charge. It must be installed in an IBM personal computer or

compatible, with a PC-DOS or MS-DOS operative system.

Price: available free of charge by sending 5 diskettes, 3.5" (formatted IBM).

Orders to: Ms. Gerardina Araya Astorga, IICA-GTZ Project, Apartado 660-2200 Coronado, Costa Rica. Fax: + 506-229.1620. E-mail: gtz.iica@iica.ac.cr.

For the CDS/ISIS programme, direct your request to: UNESCO, CII/PGI - CDS/ISIS, 1, rue Miollis, F-75732 Paris Cedex 15, France; Telefax: + 33.1 43.06.16.40 (specify CDS/ISIS); E-Mail: g.delbigo@unesco.org.

Untersuchungen zur Modellierung der Bodenbildungsrate auf Opalinuston des Basler Tafeljura. P. Schwer. Basler Beiträge zur Physiogeographie, Physiographica, Band 18, Basel, 1994, xix +190 S.

Die Ausgangslage dieser Arbeit ist durch das von der Bodenerosion verursachte Ungleichgewicht zwischen natürlicher Bodenbildung und Bodenabtrag gegeben. Die Untersuchungen zur Bodenbildung wurden in den Jahren 1989 bis 1993 an einem pseudovergleyten Ton-Braunerde-Pelosol Boden mit Opalinuston als Ausgangssubstrat, Basler Tafeljura, Schweiz, ausgeführt. Ziel der Arbeit war, die Lage der für die Bodenbildung bedeutenden Verwitterungsfront bzw. Übergangszone Pedo-/Lithosphäre zu lokalisieren, die dort stattfindenden mineralogisch-geochemischen Prozesse zu charakterisieren sowie deren Größenordnungen und räumliche Ausdehnungen zu bestimmen. Ferner sollte ein methodisches Grundwerkzeug sowie ein allgemeingültiges Modell des Prozessgeschehens ausgearbeitet werden, welche die Bestimmung der Bodenbildungsrate eines beliebigen Standorts des Schweizer Jura erlauben. Mit Hilfe der Bodenbildungsrate kann ein Toleranzwert in t/ha für den tolerierbaren Bodenabtrag angegeben werden. Die Schwerpunkte der anorganisch ausgerichteten, analytischen Untersuchungen lagen in der Bodenphysik, -chemie und -mineralogie sowie Hydrochemie von Poren- und Sickerwässern.

Preis: CHF 30

Zu beziehen durch: Verlag Wepf & Co, Eisengasse 5, CH-4001 Basel, Schweiz.

Bodenkundliches Praktikum. Eine Einführung in pedologisches Arbeiten für Ökologen, insbesondere Land- und Forstwirte, und für Geowissenschaftler. 2., neubearbeitete Auflage. E. Schlichting, H-P. Blume, K. Stahr, Blackwell Wissenschafts-Verlag Berlin, Wien, 1995, 295 S. ISBN 3-8263-3042-0.

Ein bodenkundliches Praktikum soll dazu anleiten, im konkreten Fall mit Hilfe sinnvoller Untersuchungen, die wesentlichen Fragen der Bodenkunde zu beantworten: Wie entwickelt sich (ein) Boden aus (einem) Gestein, und welche Eigenschaften gewinnt er dabei für Organismen?

Mit derartigen Untersuchungen vertraut zu machen, ist Aufgabe dieses Praktikums. Es ist ein exemplarischer Abriss über Grundlagen, Technik und Auswertung bodenkundlicher Untersuchungsmethoden, der in diese zweiten Auflage im Hinblick auf die Methodik fünfgeleitet wurden: nach den erforderlichen Vorkenntnissen, nach den benötigten Gerätschaften und nach dem

Zeitaufwand, letztlich also nach der erzielbaren Exaktheit der zu ermittelnden Daten.

Einen breiten Raum nimmt die Interpretation der Daten ein. Im Feldbeobachtungsteil liegt dabei das Schwergewicht auf der Rekonstruktion der Bodenentwicklung und in einer Kennzeichnung der ökologischen Standortfaktoren. Im Labor- und Feldmeßteil werden dann nach weiterer Verrechnung und Darstellung der Analysenbefunde die Richtung, Intensität und Dauer bodenbildender Prozesse auf der einen, Durchwurzelbarkeit, Wasser-, Luft- und Nährstoffhaushalt auf der anderen Seite charakterisiert und bewertet. Daran schließt sich eine Ableitung boden- und umweltschonender Nutzungsmaßnahmen an. Da sich in der Bodenkunde genetische und ökologische Gesichtspunkte verbinden, wendet sich das Buch sowohl an die Studierenden der Land-Forst- und Gartenwirtschaft als auch der Bio- und Geowissenschaften sowie an die Umweltingenieure, um sie in bodenkundlichen Übungen und Praktika anzuleiten.

Preis: ATS 77.50

Zu beziehen durch: Blackwell Wissenschafts-Verlag, Kurfürstendamm 57, D-10707 Berlin, Deutschland oder Feldgasse 13, A-1238 Wien, Austria.

Modelling and Parameterization of the Soil-Plant-Atmosphere System. A comparison of potato growth models. P. Kabat, B. Marshall, B.J. van den Broek, J. Vos and H. van Keulen, editors. Wageningen Pers, Wageningen, 1995, vii+513 p. ISBN 90-74134-16-5. Hardbound.

Modelling groups participating in the case study exchanged information at the First International Potato Modelling Workshop in Wageningen in 1990. This book is the result of the Workshop and subsequent thorough analysis of the modelling approaches involved in the case study and extensive feedback from the individual model developers. Eight models ranging in complexity were compared in a potato modelling case study. Data sets were provided by the Scottish Crop Research Institute and focused primarily on potential yield, water constrained yield and nitrogen constrained yield.

The main objective of the case study was to present a league table of performance indicators for the wide variety of models used in the study by placing special emphasis on the parameterization and calibration procedures used. A modelling comparison case study with a common data set ensures valid comparison and encourages objective discussion about the applicability of the individual models.

The book consists of five sections: I. Introduction; II. Processes: considerations for parameterization and modelling (8 chapters); III. Description of the comparison case study (1 chapter); IV. Simulation models: Parameterization, calibration and validation (8 chapters); and V. Comparison and analysis of results (1 chapter).

Price: NLG 250 (excl. VAT and postal charges)

Orders to: see below.

Crop-Water-Simulation Models in Practice. Selected papers of the 2nd Workshop on Crop-Water-Models held at the occasion of the 15th Congress of the International Commission on Irrigation and Drainage (ICID) at the Hague, The Netherlands in

1993. L.S. Pereira, B.J. van den Broek, P. Kabat and R.G. Allen, editors. Wageningen Pers, Wageningen, 1995, vi+339 p. ISBN 90-74134-26-2. Hardbound.

This book contains selected and peer reviewed papers of the 2nd Workshop on Crop-Water-Models held in 1993. The models included in this publication have been calibrated and validated against field data and they are operational, i.e. users have access to and may rely on existing software for model implementations. The papers cover a large spectrum of modelling objectives, approaches and applications. The first group of models (6 papers) places primary emphasis on irrigation scheduling. The second group (7 papers) aims at a more detailed description of soil water fluxes, and often a more sophisticated approach is taken toward crop growth and yield formation. The last group (5 papers) concerns those models which can be applied on a large scale, particularly for the design or management of irrigation systems.

Price: NLG 218 (excluding VAT and postal charges)

Orders to: Wageningen Pers, P.O.Box 42, NL-6700 AA Wageningen, The Netherlands. Fax: +31.317.426044.

Paddy Fields in the World. T. Tabuchi and S. Hasegawa, editors. The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Tokyo, 1995, iv+353 p. ISBN 4-88980-077-8. Hardbound.

There are various types of paddy fields in the world influenced by climatic, geographical, cultural and socioeconomic conditions. It is necessary to create appropriate fields for rice production under specific natural and cultural conditions based upon a field survey and a comparative study of paddy fields around the world. The JSIDRE established a project on Paddy Field Engineering in 1989. This book consists of two parts. The results of the survey of individual paddy fields in 20 countries and regions are reported in part I: One general and five specific topics relevant to paddy field engineering are described in part II based on the comparative study.

Price: JPY 10,000; outside Japan USD 100 (incl. air delivered postage)

Orders to: Secretariat of the Japanese Society of Irrigation, Drainage and Reclamation Engineering, Nogyodobodu-kaikan, 34-4, Shimbashi 5-chome, Minato-ku, Tokyo 105, Japan. Fax: +81.3.34358494

GeoArchive. 1995. Geosystems, Didcot, R.F. Templeman, editor.

GeoArchive is a worldwide geoscience and hydroscience database containing references to thousands of published sources including maps, serials, book, conference proceedings and abstracts, doctoral dissertations, and technical reports. Up to 60,000 bibliographic citations (author, title, source details) are added annually from approximately 5,000 serials, and monographs from 3,000 publishers world wide. Comprehensive in scope, this database provides coverage of the entire field of geology, plus hydrology, environmental sciences, atmospheric science, oceanology and planetology.

Orders to: Geosystems, PO Box 40, Didcot, Oxon, OX11 9BX, UK. Fax: +44 1235 813913.

ICRISAT in Print: a cumulative record of publica-

tions 1975-94. ICRISAT, India, 1994.

ICRISAT is a publisher of international repute. It has published the proceedings of over 90 workshops, more than 40 Information Bulletins, and 20 Research Bulletins on individual long-term research projects. More than 50 Plant Material Descriptions provide information on ICRISAT plant material released world-wide.

Full citations of all these types of publication are covered on three IBM PC-compatible 360 KB diskettes, that also contain software to enable the database to be easily and conveniently searched.

Price: HDC: USD 19.74; LDC USD 7.74

Orders to: Head, Information Management and Exchange Program, ICRISAT, Patancheru 502 324, Andhra Pradesh, India.

Arid Soil Research and Rehabilitation. Journal of Native and Agricultural Environments, volume 9, No. 3. J. Skujins, editor and J.F. Gallardo Lancho, guest-editor, 1995. Published by Taylor & Francis, 1995. ISSN 0890-3069.

This special issue of the journal contains selected papers from the 12th Latinoamerican Congress of Soil Science, held Salamanca, Spain, in September 1993. The theme of the congress was: „Evaluation of soils and soil degradation in relation to desertification“. The papers present the state of scientific endeavours and the diversity of scientific interest in arid and semiarid land problems in the Americas as well as in Europe and provide some insights into research needs and directions.

Orders to: Taylor & Francis, Rankine Road, Basingstoke, Hants RG24 0PR, England or Taylor & Francis, 1101 Vermont Avenue, N.W., Suite 200, Washington, DC 2000-3521, U.S.A.

Sylvopastoralisme et Développement de la Gestion traditionnelle à l'Aménagement. Parcours Demain. Numéro Spécial Juin 1995. Bulletin d'information sur les systèmes pastoraux du Nord de l'Afrique et du Sahel. juin 1995. CIHEAM/IAM-M, Montpellier, France. 164 p.

Cette numéro présente les rapports du 3e séminaire international du réseau PARCOURS, octobre 1994 à Tunisie.

Session 1: Pratiques et modes de gestion traditionnels (9 rapports); Méthodologies et techniques d'exploitation sylvopastorales (5 rapports); Recherches en agroforesterie et en sylvopastoralisme (3 rapports); Aménagement sylvopastoral (8 rapports).

Commandes à: CIHEAM/IAM-M, Réseau PARCOURS, BP 5056, F-34033 Montpellier Cedex 1, France.

Evaluación de la erosión hídrica mediante sistemas de información geográfica aplicación a la comunidad de Madrid. Tesis Doctoral. R. de Antonio García. Universidad Politécnica de Madrid. Escuela Técnica Superior de Ingenieros Agrónomos, 1994, xiv + 188 p.

Water erosion in the „Comunidad de Madrid“ (central Spain) has been evaluated, developing a methodology that allows to apply two erosion models using Geographic Information Systems. One model correspond to the qualitative methodology defined in

the project „Soil erosion risks and important land resources“ from the CORINE program; the other to the quantitative method established by the Universal Soil Loss Equation. A methodology has been developed and has been applied to the geographic area, allowing: the creation of a data base with precise information for the application of the models; the acquisition of all parameters involved in each method; the evaluation of water erosion in each 1 ha square cell; the classification of the evaluation results; the estimation of the affected areas according to erosion degrees; and the cartographic representation of erosive processes distribution. The results show the usefulness of a methodology that combines the use of erosion models with GIS because it allows to study the time variations in the erosion model; to analyze and keep up to date the large amounts of required information; to establish a standard methodology; to obtain graphic representations; and to serve as starting point for hydrologic and planning studies.

Orders to: Dr. R. de Antonio García, Universidad Politécnica de Madrid, Esc. Tecn. Sup. de Ingenieros Agrónomos, Depto Edafología, Ciudad Universitaria, 28040 Madrid, Spain.

Handbook for Agrohydrology. S. Miller. Natural Resources Institute, Chatham 1994, x + 281 p. ISBN 0-85954-389-7. Paperback in spiral binder.

This handbook provides detailed information on the practical aspects of hydrological research in agriculture. Theoretical methods for the estimation of flow peaks and volumes are evaluated. Techniques for the measurement of runoff and its associated meteorological variables are presented with details on equipment and circumstances of suitability, selection, manufacture and operation. Soil erosion and sedimentary processes are discussed in terms of both field data collection and the use of empirical formulae. Alternative field and laboratory methods of measuring soil moisture are described. Water harvesting techniques are discussed in the context of increasing catchment size, peak flows and runoff volumes, and the field data from research trials are given for each main category of water harvesting technique. The planning, design and construction of the field structures that are essential in water harvesting research and practice: bunds, ridges and waterways are discussed. Method of the analysis of hydro-meteorological data are described, illustrating both statistical and non-statistical techniques.

Price: GBP 30.

Orders to: Natural Resources Institute, Central Avenue, Chatham Maritime, Kent ME4 4TB, England.

Population and Environment in Arid Regions. IUSSP, Belgium, 1995.

This book includes the papers presented at the UNESCO/IUSSP/IGU seminar on „Population and Environment in Arid Regions“ held in Amman, Jordan, October 1994. It contains 4 Sections. Section 1: Human causes of desertification (6 papers); Section 2: Environmental problems of living in arid regions (6 papers); Section 3 (5 papers): Population dynamics in arid regions; Section 4 (5 papers): Population-environment management policies for arid region.

Orders to: International Union for the Scientific Study of Population, 34 rue des Augustins, B-4000 Liège, Belgium.

The role of Indigenous Range Management Knowledge for Desertification Control in Northern Kenya. G. Oba, EPOS, Research Report No 4, Linköping, 1994, 40 p. ISBN 91-506-1079-1. Paperback. (EPOS research report, ISSN 1104-4403)

The development of rangelands in Africa requires proper understanding of the indigenous range management knowledge of the pastoral people and the changes affecting it. Range management as traditionally practised has failed to improve the deteriorating conditions of the rangelands. This report presents a case study of the indigenous range management of pastoralists of Northern Kenya. Historical changes in land use are offered as a backdrop to the study of resource use strategies and the way in which interventions, through administrative realignment of borders and accelerated sedentarization, have caused desertification. Desertification control is based on proper understanding of the management of patchy range resources. The basis for indigenous range classification is highlighted and the factors which are used for rating range suitability discussed. The pastoralists use livestock performance as an important indicator of range suitability. The study compares different approaches and suggests better understanding of the indigenous knowledge of land use, to conduct desertification control measures in the dry lands of Kenya.

Orders to: EPOS, Environmental Policy and Society, Linköping University, S-581 83 Linköping, Sweden.

Moçambique: Carta Nacional de Solos, escala 1:1,000,000. Compilada pelo Departamento Terra e Agua. 1995.

The legend of this newly developed soil map of Moçambique consists of 53 different soil units. The map consists of 10 separate maps published by province. The explanatory text comprises the listing of the soils within their ecological setting and the description of the landscape and site. The soils are correlated in the FAO system and Soil Taxonomy. Limitations for agricultural use are mentioned, as well as their capability classification (USDA) and irrigation suitability (USBR). The map is digitized in ILWIS. *Orders to:* Instituto Nacional de Investigaçao Agronómica, Caixa Postal 3658, Maputo, Moçambique.

Modélisation Mathématique des Processus Pédologiques. Manuels Scientifiques et Techniques. H. Laudelout, C. Cheverry & R. Calvet. Actes Editions, Rabat, 1994, 264 p. ISBN 9981-801-07-0. Cartoné.

Cet ouvrage est le fruit d'une collaboration de huit années entre des équipes de Sciences du Sol de cinq pays différents. Il a été réalisé dans le cadre d'un projet Sciences et Technologies du Vivant pour les Pays en voie de Développement. Une série d'exemples de processus pédologiques est présentée avec une description des mécanismes de base pour leur modélisation mathématique. Deux langages de programmation, le BASIC et le FORTRAN, ont été utilisés.

Commandes à: Actes Editions, Institut Agronomique

et Vétérinaire Hassan II, B.P. 6202-Institut, 10 101 Rabat. Maroc. Fax + 212 7 778135 ou 778177.

Guide pour la Description des Sols. D. Baize et B. Jabiol. Institut National de la Recherche Agronomique, Paris, 1995, 375 p. ISBN 2-7380-0532-2. Paperback.

Ce guide pratique passe en revue toutes les étapes de la description des sols depuis le choix des emplacements à observer, du matériel à utiliser jusqu'au stockage, traitement et transmission des informations recueillies. Choisir les sites à étudier, préparer la prospection et la notation, décrire l'environnement naturel et humain, sont les points envisagés dans une première Partie. La descriptions des solums, horizon par horizon, forme le corps de l'ouvrage. Pour chaque rubrique, une réflexion conceptuelle et pratique est proposée. La troisième partie insiste sur les interprétations des observations en termes de pédogenèse, d'enracinement, d'excès d'eau, de réservoir en eau de désignation des sols, de rattachement à un référentiel général.

Prix: FF 189.

Orders to: INRA, Service des Editions, Route de St-Cyr - F-78026 Versailles Cedex, France.

Soil Science Simplified. H. Kohnke and D.P. Franzmeier. Waveland Press, Prospect Heights, 1995, x + 162 p. ISBN 0-88133-813-3. Paperback.

This revised fourth edition is updated with discussions of soil classification, soil morphology, and soil and the environment. Added is a new chapter on soil survey for understanding soil resources and to apply information presented in soil surveys to managing the soil environment. The book is especially written for those who want to get acquainted with the basic concepts of soils. *Price:* USD 6.95 plus USD 3 for shipping.

Orders to: Waveland Press, P.O. Box 400, Prospect Heights, IL 60070, U.S.A.

Combating Land Degradation in Sub-Saharan Africa. Lutte contre la Dégradation des Sols en Afrique au sud du Sahara. M.V.K. Sivakumar and J.B. Willis, editors. ICRISAT, Patancheru, 1995, 47 p. ISBN 92-9066-228-X. Paperback.

This book reports (in English and French) on a workshop held in January 1995 in Kenya to discuss a Desert Margins Initiative, aimed at developing sustainable natural resource management options to arrest land degradation in the desert margins of Sub-Saharan Africa. Development constraints in the desert margins of Botswana, Burkina Faso, Kenya, Mali, Namibia, and Niger are outlined. Following a statement of the goal and strategy, nine specific objectives and expected outcomes are given. Agreed organization and management proposals for the initiative are described.

Orders to: ICRISAT, Patancheru 502 324, Andhra Pradesh, India. Order code: CPE/F099.

Directory Agricultural Bibliographic Information Sources. S. Keenan and P.J. Wortley. Technical Centre for Agricultural and Rural Cooperation (CTA), Wageningen, 1994, x + 142 p. ISBN 92 9081 0963. Paperback.

This useful directory contains detailed information about 234 abstract journals, annotated bibliographic

reference publications, index journals, etc. These may provide a basis for the identification of available and accessible information, and may contribute to an increased exchange of information and improve the use of information resources in agricultural development, research, extension and training.

Orders to: Technical Centre for Agricultural and Rural Cooperation (CTA), P.O.Box 380, 6700 AJ Wageningen, The Netherlands.

Micronutrient Research & Agricultural Production. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1995, 164 p. ISBN 81-85116-39-3. Hardcover

In this book the results of research on the seven micronutrients, Boron (B), Chlorine (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo) and Zinc (Zn), essential for all plants, are synthesized and analyzed with a 3-fold objective (i) to take stock of available scientific information (ii) to bring out results for practical application and (iii) to identify the areas for further research.

This book is useful for those who are interested in sustainable agricultural production through broad-based balanced crop nutrition. Micronutrients cannot be left out in this issue!

Price: INR 275; outside India USD 60.

Orders to: Fertilizer Development and Consultation Organisation, 204-204A Bhanot Corner, Pamposh Enclave, New Delhi 110048, India.

Soil Microorganisms and Plant Growth, Third Edition. N.S. Subba Rao. Science Publishers, Lebanon, 1995, 335 p. ISBN 1-886106-18-5. Hardback.

It is well-known that soil microorganisms play a crucial role in the evolution of soil conditions which stimulate plant growth. Also, the importance of biological sources of nitrogen is very important. In this book the different aspects of soil microorganisms, nitrogen fixation, phosphorus nutrition and trace elements are dealt with, as well as the interaction between pesticides, microorganisms and plants. In this third edition some of the developments in the field of plant growth promoting rhizobacteria, genetics of nitrogen fixing microorganisms and non-leguminous plants in relation to root nodulation by *Frankia* have been added.

Price: USD 29.95.

Orders to: Science Publishers, 52 LaBombard Road North, Lebanon, NH 03766, U.S.A.

Nuclear Techniques in Soil-Plant Studies for Sustainable Agriculture and Environmental Preservation. International Atomic Energy Agency, Vienna, 1995, 735 p. ISBN 92-0-100895. Paperback.

This book contains the proceedings of a symposium jointly organized by the IAEA and FAO, in October 1994. The symposium is dedicated to the 30th Anniversary of the joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. The objective of the symposium was to assess progress in the use of nuclear and related techniques for studying various aspects of soil fertility and plant nutrition, environmental problems, the potential and limitations of existing methods, and the possibilities for further development. Session 1: Recent developments in ana-

lytical methods and equipment (2 papers). Session 2: Fertilizer use and management studies (8 papers). Session 3: Biological nitrogen fixation in sustainable cropping systems (7 papers). Session 4: Soil organic matter studies and nutrient cycling (7 papers). Session 5: Water use and management studies (7 papers). Session 6: Plant physiological aspects in crop production (8 papers). Session 7: Environmental pollution and preservation (5 papers). Session 8: Soil conservation, soil erosion and desertification (3 papers). The text of the 25 poster presentations are also included.

Price: ATS 2120

Orders to: International Atomic Energy Agency, Sales & Promotion Unit, Division of Publications, P.O.Box 100, A-1400 Vienna, Austria.

Water Management. Environmental Management in Developing Countries. Volume 1. H. Kluge, A. Bittner and J.H. Hohnholz, editors. Tübingen, 1994, 276 p. ISSN 0947-2487. Paperback.

This book is a first volume of a new series of proceedings based on final papers written by participants in the UNEP/UNESCO Postgraduate Training Course in Environmental Management, held at the Dresden University of Technology. This volume is dedicated to Water and contains 8 papers, a series occurring in developing countries.

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Waste Management. Environmental Management in Developing Countries. Volume 2. H. Kluge, A. Bittner and J.H. Hohnholz, editors. Tübingen, 1995, 214 p. ISSN 0947-2487. Paperback.

This Volume 2 is dedicated to Waste Management with 7 papers, including liquid and solid hazardous wastes and the role of recycling industrial waste.

Orders to: Institut für Wissenschaftliche Zusammenarbeit, Vogtshaldenstrasse 24, 72074 Tübingen, Germany; or: Technische Universität Dresden, UNEP/UNESCO/BMU Postgradualstudium, D-101062 Dresden, Germany.

Application of Advanced Information Technologies: Effective Management of Natural Resources. C.D. Heatwole, editor, American Society of Agricultural Engineers, St. Joseph, 1993, xi + 500 p. ISBN 0-929355-39-3. Softbound.

The proceedings of the conference on the application of advanced information technologies in the effective management of natural resources, held in June 1993 in Spokane, consists of eight sections: (1) information technologies in government agencies (5 papers); (2) shared archives and public works (7 papers); (3) decision support systems-I (14 papers); (4) geographic information systems-I (7 papers); (5) modelling techniques (4 papers); (6) decision support systems-II (10 papers); (7) remote sensing and image processing (5 papers) and (8) geographic information systems-II (4 papers).

Price: USD 46; ASAE Member: USD 36.50.

Orders to: ASAE, Dept. 1629, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

Breaking the Yield Barrier. K.G. Cassman, editor. International Rice Research Institute, Manila, 1994, vi + 141 p. ISBN 971-22-0056-6. Paperback.

This book contains the proceedings of a Workshop on Rice Yield Potential in Favorable Environments held in Manila 1993. It contains papers by IRRI scientists, and extended abstracts of the invited papers. Part I. Raising the rice yield ceiling cover past and present efforts to increase rice yield potential, identify gaps in our understanding of the determinants of yield potential, and point to avenues of greatest opportunity to make further research progress (4 papers). Part II. Extended abstracts of invited papers (8 papers). It contains also set of recommendations for future research as prepared by the participants.

Price: USD 12 (HCD); USD 3 (LDC) (plus postage).

Orders to: Division PR, Information Center, IRRI, P.O.Box 933, Manila 1099, Philippines.

Biogenic Trace Gases: Measuring Emissions from Soil and Water. P.A. Matson and R.C. Harriss, editors. Blackwell Science, Oxford, 1995, xi + 394 p. ISBN 0-632-03641-9. Paperback.

Trace gases are those which are present in the atmosphere at relatively low concentrations. Small changes in their concentrations can have profound implications for major atmospheric fluxes; and so can be used as indicators in studies of global change, global biogeochemical cycling and global warming. This book provides information about the range of currently available methods and approaches for measurement of trace gas exchange, current and future analytical methods, and modelling and extrapolation approaches. Introductory chapters look at the role of trace gases in global cycles; while later chapters go on to consider techniques for the measurement of gases in various environments and at a range of scales.

Price: GBP 26.50.

Orders to: Anna Rivers, Blackwell Science, Osney Mead, Oxford OX2 0EL, England.

Green Manure Production Systems for Asian Ricelands. J.K. Ladha and D.P. Garrity, editors. International Rice Research Institute, Manila, 1994, 195 p. ISBN 971-22-0060-4.

This publication contains selected papers from a International Rice Research Conference, held in 1992, to review advances in research in rice, to identify the field-level restraints, and to determine ways to overcome them. It also provides a focus for further research on green manure and contribute to its wider adoption on Asian rice farms.

Price: USD 26 (HDC); USD 7 (LDC) (plus postage)

Orders to: Division PR, Information Center, IRRI, P.O.Box 933, Manila 1099, Philippines.

Sustainable Groundnut Production in Southern and Eastern Africa. B.J. Ndunguru, G.L. Hildebrand and P. Subrahmanyam. International Crops Research Institute for the Semi-Arid Tropics, Patancheru, 162 p. ISBN 92-9066-309-X.

This publication contains the Proceedings of a Workshop held in Mbabane, 1994. Recent research on groundnut was reviewed, through presentations that discussed the role of four broad disciplines: Genetic Enhancement (8 papers); Crop Protection (9 papers); Agronomy and Cropping Systems (6 papers); and Technology Transfer (7 papers). The Workshop recommendations are summarized; priority areas

include characterization of drought-prone environments, establishment of drought nurseries, surveys on pests, diseases, and aflatoxin contamination, on-farm trials, and more effective technology transfer.

Orders to: International Crops Research Institute for the Semi-Arid Tropics, ICRISAT, Patancheru 502 324, Andhra Pradesh, India. (Order code CPE 096).

Microirrigation. ASAE, St. Joseph, 1995, 363 p. Softbound.

In commemoration of the 10 years between the Third and Fifth International Microirrigation Congress, ASAE has published this special compilation of microirrigation articles published from 1985 through 1994 in the Applied Engineering in Agriculture and Transactions of the ASAE.

Price: USD 35; USD 25 (ASAE Member).

Orders to: ASAE, Dept. 248, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

Understanding and Managing Ecotones. P.G. Risser, editor. Ecology International 1995:22. International Association for Ecology, Aiken, 1995, 102 p.

This Volume contains the Proceedings of the 3rd International SCOPE/UNEP Workshop on Ecotones held in Moscow, 1993. Ecotones are transitional areas within a landscape or between biomes at broader continental scales. These transitions have special characteristics of their own; for example, ecotones are frequently high in biological diversity, and they usually contain species found in adjacent communities as well as species unique to the ecotone. Also, ecotones can influence the flow of water and materials across the landscape and provide corridors for or barriers to the movement of plant and animals. Because of the recognition of these important attributes, the study of ecotones has increased during the past few years. The chapters in this publication bring together an international perspective on ecotones and their management. This has been an important but neglected area of both research and the development of management approaches. Future development of the field of ecotone management will use and build on the examples and recommendations contained in this volume.

Orders to: INTECOL Publications Office, Savannah River Ecology Laboratory, Aiken, SC 29802, U.S.A.

100 Jahre Agrar- und Umweltforschung Bad Lauchstädt. Geschichte der Forschungsstätte von 1895 bis 1995. E. Bahn, D. Eich, M. Körschens, A. Pfefferkorn, B.G. Teubner Verlagsgesellschaft, Stuttgart, Leipzig, 1995. ISBN 3-8154-3518-8. Taschenbuch.

Im vorliegenden Band wird die Entwicklung der Forschungsstätte beschrieben: von der Vorgeschichte ab 1855 über die Gründung einer Versuchswirtschaft bis zur Neustrukturierung nach der Wiedervereinigung Deutschlands. Es werden die Persönlichkeiten und Leistungen früherer Wissenschaftlergenerationen gewürdigt. Struktur, Aufgaben sowie wichtige Ergebnisse über den Zeitraum von 100 Jahren mitgeteilt und die Beziehungen zwischen der Universität Halle und Bad Lauchstädt dargestellt.

Bestellungen an: UFZ Umweltforschungszentrum, Permoserstrasse 15, D-04318 Leipzig, Deutschland.

Brazilian Perspectives on Sustainable Development of the Amazon Region. Man and the Biosphere Series, vol 15. M. Clüseren-Godt and I. Sachs, editors. UNESCO, Paris and Parthenon, Carnforth., xviii + 311 p. ISBN 92-3-103053-1 (UNESCO); ISBN 1-85070-576-3. Hardbound.

This book is concerned with Amazonian ecology, resource use and development, as perceived by researchers, scholars and resource managers from Brazil or who have for a long period lived and worked there. The book comprises thirteen chapters which, as an ensemble, provide multiple insights on Amazonia - climate and hydrology, urbanization processes, biological and ecological diversity, forests and agroforestry, rehabilitation of degraded land and water areas, extractive reserves and extractivism, fisheries and aquaculture, mining, agriculture, resource management and development planning. It will be of particular interest to all who are concerned with sustainable development of this important part of South America.

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Agroecology. The Science of Sustainable Agriculture, Second Edition. M.A. Altieri. Westview Press, Boulder, 1995, xii + 433 p. ISBN 0-8133-1718-5, Paperback; ISBN 0-8133-1717-7, Hardcover.

This new edition builds on the explosion of research on sustainable agriculture since the late 1980s, by separating myth from reality, the author extracts the key principles of sustainable agriculture and expounds on management systems that „really work. The book has been updated with the latest research results from around the world. It contains The theoretical basis of agricultural ecology; Design of alternative agricultural systems and technologies; Alternative production systems; Ecological management of insect pests, pathogens, and weeds.

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Southampton Row, London WC1B 4HH, UK.

Reversing the Spiral. The Population, Agriculture, and Environment Nexus in Sub-Saharan Africa. Directions in Development. K.M. Cleaver and G.A. Schreiber. The World Bank, Washington, 1994, xv + 293 p. ISBN 0-8213-2769-0. Paperback.

This book tests the hypothesis that rapid population growth, poor agricultural performance, and increasing environmental degradation are strongly interrelated. The finding - that this nexus is very much at work in Sub-Saharan Africa - tells us that the design of development efforts must come to reflect this reality. Solutions are complex. This study assesses successful and failed interventions. With that base, it recommends concrete and implementable strategies to intensify agriculture, increase demand for smaller families, reform land tenure practices, conserve the environment, and address the special problems of women.

The Supplement to Reversing the Spiral. (22 p.) presents a detailed statistical analysis supporting the argument of the book.

Price: USD 18.95 (Supplement USD 7.95)

Orders to: see below

Tanzania Agriculture. A World Bank Country Study. The World Bank, Washington D.C., 1994, xi + 244 p. ISBN 0-8213-3101-9. Paperback.

The report provides an overview of agro-ecological characteristics, the rural household, and the institutional framework which together determine Tanzania's agricultural development prospects. Section I sets the stage with a brief review of agricultural growth since the late 1960s, identifying the sector's performance under different policy regimes. Section II describes the natural resource base, land use, and the nature of the rural household, drawing on a recent Poverty Profile to identify disadvantaged regions and characterize the rural poor. Section III provides an assessment of the Government institutions, farmer cooperatives, and other enterprises which support agricultural development. Section IV starts with an assessment of the results of adjustment on agricultural production. In Section V, the report attempts to fit the characteristics of the various sub-sectors, the constraints to development and growth opportunities described in Section IV, to the Government's objectives for the sector. The final section provides a brief review of the potential role of Government in supporting and investing in agricultural development.

Price: USD 15.95

Orders to: see below.

Agriculture, Poverty, and Policy Reform in Sub-Saharan Africa. World Bank Discussion Papers 280. K.M. Cleaver, W.G. Donovan. The World Bank, Washington D.C., 1995, ix + 49 p. ISBN 0-8213-3189-2. Paperback.

This study examines the agricultural scenario in Sub-Saharan Africa over the past five years. Its aim is to assess the progress of agriculture, and in particular the implementation of various elements of a strategy for its development. Unfortunately agriculture has grown much more slowly than population, agricultural incomes have stagnated in real terms, or fallen. The major problems continue to be poor economic and agricultural policy, and inadequate public investment in infrastructure, rural education, agricultural services such as extension and research, and rural health. The countries that have stopped discrimination against agriculture through improved policies and better investment show the way for Sub-Saharan Africa as a whole, because it is in these countries in these years that rural poverty has been reduced.

Price: USD 7.95

Orders to: see below.

The World Bank and Irrigation. W.I. Jones. A World Bank Operations Evaluation Study. The World Bank, Washington D.C., 1995, xvi + 150 p. ISBN 0-8213-3249-X. Paperback.

This study proposes steps for improving Bank processes, including methods for better supervision and evaluation of investment projects; for addressing key

issues in system design and sustainability, such as water scarcity and operations and maintenance; and for dealing with issues of drainage, resettlement, catchment degradation, and project design in the humid tropics.

Price: USD 10.95

Orders to: The World Bank, Office of the Publisher, 1818 H Street, N.W., Washington, DC 20433, U.S.A., or national sales agents.

FAO Publications

The Role of IPNS in Sustainable and Environmentally Sound Agricultural Development. RAPA Publication 1993/13. FAO Regional Office for Asia and the Pacific, Bangkok, 1993, vii + 230 p. Paperback.

This volume contains the report of the Expert Consultation of the Asian Network on Bio and Organic Fertilizers, held at Serdang in September 1992. *Integrated Plant Nutrient Systems (IPNS)* should i.a. promote techniques to restore and maintain soil organic matter content, which involves soil preparation techniques, management of residues, and soil protection by other methods. Mineral fertilizers have a major role to play in increasing biomass production. IPNS consider the whole crop rotation with an approach of balance sheets.

The first part of this publication contains 12 country papers on the subject, a review of past and proposed network activities, and a chapter on conclusions and recommendations. Four fifth of the publication has the texts of the scientific papers presented at the expert consultation, from general papers to specific case studies in the countries concerned.

Orders to: Regional Soil Management and Fertilizer Use Officer, FAO Regional Office for Asia and the Pacific, Malivan Mansion, Phra Atit Road, Bangkok 10200, Thailand.

Onzième Réunion du Sous-Comité Ouest et Centre Africain de Corrélation des Sols pour la Mise en Valeur des Terres. Rapport sur les Ressources en Sols du Monde 77. FAO, Rome, 1994, iv + 236 p.

Cette réunion, tenue à Ségou en janvier 1993, a été consacrée aux problèmes de l'exploitation des sols hydromorphes dans la région: étendue, caractéristiques et contraintes la mise en valeur. Cette publication contient 17 communications, ainsi que les recommandations formulées par les participants, venus d'Afrique et d'Europe.

Commandes à: voir ci-dessous.

Cherish the Earth. Soil Management for Sustainable Agriculture and Environmental Protection in the Tropics. FAO, Rome, 1994, 33 p. Paperback.

The aim of this brochure is to summarize past and present soil management practices in the semi-arid, sub-humid and humid tropics, taking account of the importance of sustainability and the problems of environmental degradation which may accompany intensified use of the soil. It is intended to assist all those concerned with agricultural development and the environment to recognize the problems of soil degradation, and the compatibilities and incompatibilities of

increased agricultural production with protection of the environment. This brochure describes how, under lower demographic pressure in the past, soil management practices have evolved to provide sustainable soil management systems, adapting both to the environment and to existing social and economic circumstances. Sustainable soil management aims not only to maintain or improve soil productivity, but to avoid (and where necessary, to rectify) all forms of soil degradation so that damage to the environment is prevented.

Orders to: see below.

Land Degradation in South Asia: Its Severity, Causes and Effects upon the People. World Soil Resources Reports 78. UNDP, UNEP and FAO, Rome, 1994, viii + 100 p. ISBN 92-5-103595-4. Paperback.

This report gives an overview of land degradation in eight countries in South Asia (Afghanistan, Bangladesh, Bhutan, India, Iran, Nepal, Pakistan and Sri Lanka) and examines its severity, its causes and its effect on land productivity and the people in the region. It reviews the institutions and programmes in place to combat land degradation and makes proposals for strengthening them.

Orders to: see below.

FESLM: An International Framework for Evaluating Sustainable Land Management. World Soil Resources Report 73. A.J. Smyth and J. Dumanski. Food and Agricultural Organization, Rome, 1993, vii + 74 p. ISBN 92-5-103419-2. Paperback.

This publication outlines a strategic framework approach for evaluating sustainable land management. The framework is designed as a pathway to guide analysis of land use sustainability: it comprises a series of scientifically sound logical steps connecting all aspects of the land use - environmental, economic and social - which collectively determine whether that form of land management is sustainable or will lead to sustainability.

Orders to: see below

Status of Sulphur in Soils and Plants of Thirty Countries. World Soil Resources Report 79. H. Jansson. Food and Agriculture Organization, Rome, 1995, viii + 101 p. ISSN 0532-0488. Paperback.

This publication describes the sulphur status of soils and in plants from thirty countries. The data for S are based on two separate analyses: extraction of the element by AAAC-EDTA from soils and analyses of the two selected indicator crops, wheat and maize. To facilitate comparison of the relative abundance of sulphur in the cooperating countries the frequency distributions of the analytical data in three plant/soil content zones are given and data presented for participating countries in Europe, Latin America, Far East, Near East and Africa.

Orders to: FAO Publications Sales, Via delle Terme di Caracalla, 00100 Rome, Italy.

Progress and Problems in the Extension of Integrated Plant Nutrition Systems (IPNS) at Farm Level in Asia. Report of the Expert

Consultation of the Asian Network on Bio and Organic Fertilizers, Kandy, Sri Lanka, 1994, F.J. Dent and S. Gangwani, editors. Food and Agriculture Organization, Rome, Regional Office for Asia and the Pacific, Bangkok, RAPA Publication 1995/12, ii + 198 p. Paperback.

This publication contains the papers presented on the Expert Consultation of The Asian Network on Bio and Organic Fertilizers. Part 1 contains the report of the meeting. Part 2 has 15 papers about Integrated Plant Nutrition Systems practised in the region. There is an increase in the use of IPNS at the farm level, but there is still a lack of awareness of benefits in a number of countries. The lack of materials: seeds, biomass, inoculants, drug, etc. was especially apparent in nearly the whole region. The report also contains a list of conclusions and recommendations, and proposals for future activities of the network.

Requests to: dr. F.J. Dent, Regional Soil Management and Fertilizer Use Officer, FAO Regional Office for Asia and the Pacific, Maliwan Mansion, Phra Atit Road, Bangkok 10200, Thailand.

Site-Specific Management for Agricultural Systems. P.C. Robert, R.H. Rust and W.E. Larson, editors. American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, 1995, xiv + 993 p. Softcover. ISBN 0-89118-127-X.

This book contains the proceeding of the Second International Conference on Site-Specific Management for Agricultural Systems held in Minneapolis, in 1994. It provides an overview of current research and applications related to various aspects of site-specific crop management, namely, soil resources, managing variability, technology, profitability, environment, and technology transfer. Soil Specific Crop Management (SSCM) refers to a developing agricultural management system that promotes variable management practices within a specific field according to site or soil conditions. The program employs a system engineering approach to crop production where inputs are made on an „as needed“ basis. It is a holistic approach to micro manage spatial and temporal variability in agricultural landscapes based on integrated soil, plant, information, and engineering management technologies as well as economics. SSCM is still in its infancy and requires additional research, development, and educational efforts from both the private and public sectors. The outlook, however, is bright - a more profitable and sustainable agriculture while preserving the delicate balance between food production and the quality of our land and water resources.

Price: USD 30 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).
Orders to: see below.

Chemical Equilibrium and Reaction Models. SSSA Special Publication 42. R.H. Loeppert, A.P. Schwab and S. Goldberg, editors. Soil Science Society of America and American Society of Agronomy, Madison, 1995, xvii + 422 p., ISBN 0-89118-817-7. Softcover.

Kinetics and equilibria of chemical reactions at the plant-soil-water interface govern nutrient availability and fate and transport of chemicals in soil systems.

Ultimately, this determines the yield and quality of crops as well as the quality of our soil and water resources. Knowledge of today's complex soil systems has advanced remarkably because of the ability to mathematically model chemical reactions and their equilibrium states.

This volume is a compilation of papers, covering a wide range of models and discussing their development and applications. The development of chemical equilibrium and reaction models and their more recent availability for personal computers had eliminated the task of manually solving dozens of simultaneous thermodynamic equations and has opened up new research opportunities for soil chemists. This publication contains 19 chapters focusing on development of programs, adsorption models, coupling chemical equilibrium with transport, research applications, use of models in graduate instruction, and detailed descriptions of specific programs. The book contributes to the basis concepts of chemical equilibria and reactions in soil systems. It will be of value to those individuals entering the field as well as those individuals with vast experience.

Price: USD 30 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).
Orders to: see below.

Pedological Perspectives in Archaeological Research. SSSA Special Publication Number 44. M.E. Collins, B.J. Carter, B.G. Gladfelter, R.J. Southard, editors. Soil Science Society of America, Madison, 1995, xvii + 157 p., ISBN 0-89118-820-7. Softcover.

There is a natural relationship between soil science and archaeology that goes back to the days of ancient civilization. Chemical and physical soil characteristics at archaeological sites may suggest environmental conditions during the period of habitation as well as agricultural and cultural practices used by people. In addition, knowing about ancient soil management practices can help to understand how soils respond to long-term use.

This publication provides an overview of techniques and experiences from the application of pedology to archaeological research and will encourage interaction between pedologists and archaeologists and the use of new techniques in pedoarchaeological research.

Price: USD 30 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).
Orders to: see below.

Climate Change and Agriculture: Analysis of Potential International Impacts. ASA Special Publication Number 59. C. Rosenzweig, L. Hartwell Allen jr., L.A. Harper, S.T. Hollinger and J.W. Jones, editors. American Society of Agronomy, Madison, 1995, xvii + 382 p. ISBN 0-89118-126-1. Softcover.

Changes of climate, should they occur, are certain to affect crop production, either positively or negatively. The variables of concern are the temperature and water regimes - including the frequency and severity of rainstorms or droughts - governing plant growth. Although technological advances have enhanced productivity, agriculture remains vulnerable to unfavourable changes in climate.

The symposium, whose results are published herein, was held as part of the annual meeting of the ASA, CSSA and SSSA, held in Minneapolis, 1992. The symposium included studies from various countries representing every continent. This publication contains four sections: I. Experimental Studies (2 papers); II Simulation Methods and Issues (4 papers); III. Regional Studies (11 papers); IV. Economic Implications (1 paper).

Price: USD 34 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).

Orders to: see below

Bioremediation. Science and Applications. SSSA Special Publication Number 43. H.D. Skipper and R.F. Turco, editors. Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Madison, 1995, xiii + 322 p. ISBN 0-89118-819-3. Softcover.

The information presented in this book reflects the state-of-the-art of the science and technology of bioremediation and highlights areas that should be understood by practitioners. The ideas and applications discussed provide guidance and inspiration to all those interested in advancing the field of bioremediation to recover and preserve two of our most valuable natural resources - soil and water.

Price: USD 29 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).

Orders to: see below.

Agriculture and Environment: Bridging Food Production and Environmental Protection in Developing Countries. ASA Special Publication No. 60. A.S.R. Juo and R.D. Freed, editors. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, 1995, xvii + 275 p. ISBN 0-89118-125-3. Paperback.

This publication is a collection of papers presented at an ASA, CSSA, SSSA symposium in 1993, Cincinnati. Questions and answers from the discussion session are also recorded.

The objectives were: 1. Assess lessons learned in both developing and industrialized nations and their mutual applicability; 2. Discuss technological and policy options; 3. Evaluate social and cultural factors influencing the development and adoption of environmentally sound technologies, and 4. Identify information gaps and research and development needs.

Price: USD 25 (advance payment and 10 percent per book is required for all orders outside the U.S.A.).

Orders to: SSSA Headquarters, Attn: Book Order Department, 677 South Segoe Road, Madison, WI 53711-1086, U.S.A. Fax: + 1-608-273-2021.

Geoenvironment. An introduction.

U. Aswathanarayana. A.A. Balkema, Rotterdam and Brookfield, 1995, xix + 270 p. ISBN 90 5410 608 5. Hardbound.

Environmental knowledge has several dimensions - scientific, technological, ethical, social, economic, political, legal, etc. The focus of the present book is on the management of the geoenvironment. It seeks to explain how through an understanding of the environmental processes that take place in f.e. rock, soils, waters, sediments, air, the resources contained in them

could be managed sustainably. It contains for instance chapters on dynamics of geoenvironment; environment of soils, environment of water, sediments, air, mining and geoenvironment, and natural radiation environment. It provides a balanced coverage of the environmental problems of both the North (e.g. chemical pollution and water management) and the South (e.g. land degradation and water scarcity).

Price: NLG 160; USD 90; GBP 60

Orders to: see below.

Global Environmental Change. Perspectives of Remote Sensing and Geographic Information System. R.B. Singh, editor. A.A. Balkema, Rotterdam and Brookfield, 1995, ix + 321 p. ISBN 90 5410 704 9. Hardbound.

Geosphere-biosphere interaction of certain elements and compounds is a controlling factor in global environmental change. Exchanges are very complex because they involve: physical, chemical and relative processes in the atmosphere and lithosphere ecosystems.

This book contains 26 of the papers presented at the Seminar on „Monitoring Geosystems - Perspectives for the 21st Century“, organized by the International Geographical Union in New Delhi, 1991. The contents is broad and discusses a.o.: Role of geographical monitoring and forecasting in ecosystems modelling and management; Human response to environmental degradation in endangered areas; Remote sensing based ecosystems dynamic model; Issues in environmental management for sustainable development in Nigeria; coastal land use change and the resulting impact on environment; Land use change, diversification of agriculture and agroforestry in Northwest India.

Price: NLG 174.90; USD 95.00; GBP 66

Orders to: see below

Glacial Deposits in North-East Europe. J. Ehlers, S. Kozarski and P.L. Gibbard, editors. Balkema, Rotterdam, Brookfield, 1995, 626 p. ISBN 90 5410 189 X. Hardback.

This book provides an extensive overview of the Quaternary glaciations in northeastern Europe. It is the result of a project that started in 1985. According to the first editor it is the first overview which includes the formerly socialistic states since Rankama published the first volume of *The Quaternary* in 1965. It covers Belarus, Czech Republic, Estonia, Finland, Latvia, Lithuania, Poland, Russia, Ukraine, and the eastern part of Germany (former G.D.R.). Twelve years after the publication of the volume on northwestern Europe the connection between the two parts of Europe can be made.

A wide variety in subjects is presented. To mention a few: glacial history, various ice flow stages, structure and sedimentological aspects of ice marginal deposits, lithological composition of glacial deposits, geomorphological aspects of glacial landscapes, stratigraphy, glaciotectonics, fabric analysis, deglaciation of specific areas etc.

Simply putting that the book is well illustrated is an understatement since it includes not only over 400 very illustrative maps, diagrams and pictures; some of the colour plates are marvellous, e.g. the gravel filled

Weichselian ice-wedge cast in the Bitterfeld brown coal, the one showing the Neva Stage end moraine crossing the frozen northern Lake Onega or the colour plates presenting cryogenically induced lignite diapirs that cut the Main Terrace complex, the superjacent Saalian I till and the lower part of the Weichselian loess.

For soil scientists paleosols may be of interest. The attention that is given to paleosols is for the greater part limited to the eastern part of Germany, where they are considered an important tool in Pleistocene stratigraphy. It raises the question whether paleosols have been neglected or do not play such a role in neighbouring countries where comparable changes in the Pleistocene climate and deglaciations undoubtedly must have led to the development of (now paleo-) soils.

Over one thousand references, about 5000 index entries on text, figures, maps, plates and tables and a list of the 60 authors that are responsible for the 54 articles complete this well produced book, which is a most valuable source of information for those interested in the glacial history of this part of Europe.

J.A.K.Boerma, Wageningen

Price: NLG 243.80.

Orders to: A.A. Balkema, P.O.Box 1675, 3000 BR Rotterdam, Netherlands (fax: +31.10.4235947); A.A. Balkema Publishers, Old Post Road, Brookfield, VT 05036, USA (fax: +1.802.276.3837).

Long-Term Experiments in Agricultural and Ecological Sciences. R.A. Leigh and A.E. Johnston, editors. CAB International, Wallingford, 1994, vii + 428 p. ISBN 0 85198 933 0. Hardbound.

This book is based on the proceedings of the conference organized to celebrate the 150th anniversary of Rothamsted Experimental Station, 1993. During these 150 years of agricultural research a unique set of field experiments have run continuously for all or most of that time. Long-term experiments are often based on an initial hypothesis, and then analysis of the data provides new hypotheses and insights that can be answered by further work that adds to the data set and starts a new cycle of hypothesis and measurement. Thus it becomes clear from the various chapters that short-term experimental approaches could not have provided the same information.

The book consists of 22 chapters and covers a wide range of topics including descriptions of various long-term experiments in the USA, Australia, Eastern Europe and Africa, as well as studies at Rothamsted. It includes chapters on long-term studies of climate-vegetation relationships, tropical forest dynamics, bird populations and planktonic communities as monitors of marine environmental science.

Price: GBP 60.00 (USD 110.00, Americas only)

Orders to: see below.

Feeding and Greening the World. The role of International Agricultural Research. D.E. Tribe. CAB International, Wallingford, 1994, xiii + 274 p. ISBN 0 85198 920 9. Paperback.

This book draws attention to the decline in funding for international agricultural research and to the enormous folly that this represents. It is a plea to politicians and bureaucrats, in developed and developing

countries alike, to revise their present policies before it is too late. It examines the threats posed by rapid population growth, global poverty, widespread hunger and environmental degradation, and concludes that budgets for agricultural research should be revitalized as a matter of urgency. Among the many issues examined are genetic engineering, sustainable agriculture, management practices, as well as who pays and who benefits.

Price: GBP 18.50; USD 33.50 (Americas only)

Orders to: see below.

Modeling the Impact of Climate Change on Rice Production in Asia. R.B. Matthews, M.J. Kropff, D. Bachelet and H.H. van Laar, editors. CAB International, Wallingford, 1995, xv + 289 p. ISBN 0 85198 959 4. Hardbound.

This book is the outcome of a collaborative study between the EPA (United States Environmental Protection Agency's, Environmental Research Laboratory and the International Rice Research Institute. It quantifies the impact of climate change on rice production using crop simulation models and integrates existing knowledge of the effects of increased levels of carbon dioxide and temperature. Detailed scenarios are provided for selected rice-producing countries in Asia.

The book has three parts. Part I: Climate Change and Rice; Part II: The Impact of Climate on Rice Production in Selected Asian Countries; Part III: The Impact of Global Climate Change on Rice Production in Asia: Conclusions of the Study; Summary and Limitations.

Price: GBP 49.95; USD 90 (Americas only)

Orders to: See below.

The Economics of Organic Farming: An International Perspective. N. Lampkin and S. Padel, editors. CAB International, Wallingford, 1995, xvi + 468 p. ISBN 0 85198 911 X. Hardbound.

This book provides the first comprehensive international review of the economics of organic farming. It covers the physical and financial performance of organic farms, the special features of adoption and the transition process, the implications of widespread adoption, and the analysis of policy implications and initiatives in the UK, USA, Canada, Australia, Germany, Denmark and Switzerland. The factual information and empirical data from the studies reported make this book valuable. Part 1: Organic farming concepts, history and research issues; Part 2: Organic farming as a business; Part 3: Converting to organic farming: The economics of the transition process; Part 4: Widespread conversion to organic farming; Modelling the regional impacts and Part 5: Organic farming and agricultural policy.

Price: GBP 55; USD 99 (Americas only)

Orders to: see below

Biological Monitoring of the Environment. A Manual of Methods. J. Salanki, D. Jeffrey and G.M. Hughes. CAB International, Wallingford, 1994, 167 p. ISBN 0-85198-893-8. Paperback.

Biological monitoring of the environment uses living systems and living processes to predict, detect and quantify the harmful effects of water, soil and air pollution. This manual provides a collection of

methods tested under various conditions as being suitable for practical use in monitoring environmental pollutants or pollution. Papers have been written mostly by members of the IUBS Interdisciplinary Commission on Bioindicators and fall into six categories: microbiology, cell biology, botany, zoology, comparative biochemistry/physiology, and hydrobiology. The organisms assessed include bacteria, fungi, algae, fish, insects and several other invertebrate groups, in aerial, terrestrial and aquatic ecosystems. Some papers provide relevant theoretical background while others are very practical in focus. Methods for use in both field studies and/or laboratory testing are included.

Price: GBP 19.95; USD 34 (Americas only)

Orders to: see below.

Soil Protozoa. J.F. Darbyshire, editor. CAB International, Wallingford, 1994, ix + 209 p. ISBN 0-85198-884-9. Hardback.

Protozoa are active components of the soil microfauna. For example, they may stimulate bacterial metabolism and some fungal metabolites can lyse protozoa. They may be predators of bacteria and hence have a role in biological control. Their presence in groundwater can be used as an indicator of pollution, while they are also used to treat sewage in the activated-sludge and reed-bed processes. They are believed to be major secondary decomposers in soil and increased knowledge about these microorganisms is important to sustain soil fertility and food production. This book is the first in English for 65 years devoted entirely to soil protozoology. It is written by experienced microbiologists and should be of interest to protozoologists, other microbiologists, and soil scientists.

Price: GBP 37.50 (USD 62.50 Americas only)

Orders to: see below.

Estimating Fertilizer Requirements. A Quantitative Approach. J.D. Colwell. CAB International, Wallingford, 1994, x + 262 p. ISBN 0-85198-905-5. Hardback.

Farmers apply fertilizers to crops in order to produce maximum economic return. To attain this, it is important that fertilizer requirements can be estimated accurately. The prevention of excessive use of fertilizers on economic grounds also has the beneficial consequence of minimizing environmental pollution of groundwaters through the leaching of unused fertilizers. This book is intended for both the agricultural scientist who is engaged in research on the use of fertilizers in crop production and consultants who might assist with the interpretation of statistical data. Relevant mathematical and statistical procedures are described, indicating their bases and limitations, and how they may be used or misused. Some basic knowledge of statistics is assumed on the part of the reader. Many of the procedures have been developed by the author from experience in soil fertility projects in Australia, Canada, the USA and a number of developing countries.

Price: GBP 35.00 (USD 59.50 Americas only)

Orders to: see below.

Conserving Soil Resources. European perspectives. R.J. Rickson, editor. CAB International, Wallingford, 1994, ix + 425 p. ISBN 0-85198-948-9. Hardback.

Environmental degradation in Europe is attracting increasing concern, especially from farmers, scientists and policy makers. This book, a collection of refereed papers from the First International Congress of the European Society for Soil Conservation, covers the assessment, prediction and modelling of soil degradation, and the strategies used to combat the problem.

The current status of soil degradation is reported at both national and local levels, and is related to natural processes such as desertification or to mismanagement of the environment through agricultural or industrial activities. The consequences of soil degradation include loss of soil, fertility and nutrients, declining land productivity and the detrimental effects of sediment and associated contaminants on water quality. There are critiques of the traditional methodologies used in soil erosion research, including the use of erodibility and erosivity indices, rainfall simulation and experimental erosion plots. Other technologies such as geographical information systems and remote sensing are also applied to the study of degradation processes. As well as chapters concerned with existing soil erosion models, a new European Soil Erosion Model (EUROSEM) is described and tested. The diverse nature of conservation measures currently used in Europe is presented, ranging from evaluation of traditional methods such as bench terracing and the use of vegetation, through to novel products such as soil conditioners and geotextiles.

Price: GBP 49.95 (USD 85.00 Americas only)

Orders to: see below.

Biodiversity and Global Change. O.T. Solbrig, H.M. van Emden and P.G.W.J. van Oordt (editors). CAB International, Wallingford, 1994, 230 p. ISBN 0-85198-931-4. Paperback.

The objective of this book is to assess biodiversity loss in the context of global change. The book was originally published in 1992 and is now reprinted with minor revisions and corrections. The first three chapters deal with organizational, political and general questions. These are followed by consideration of the meaning and practical consequences of complexity and non-linearity, the significance for biodiversity studies of advances in molecular biology and population genetics, and interactions between the biota and the atmosphere. The third part of the book assesses overall biodiversity and biodiversity in microorganisms, marine systems, terrestrial systems and in the past. Three chapters dealing with the management of biodiversity conclude the book, which addresses a topical issue, of interest to a wide range of biological and environmental scientists.

Price: GBP 19.95 (USD 33.00 Americas only)

Orders to: see below.

Salinisation of Land and Water Resources. Human causes, extent, management & case studies. F. Ghassemi, A.J. Jakeman and H.A. Nix. CAB International, Wallingford, 1995, xviii + 526 p. ISBN 0-85198-906-3. Hardback.

The book assesses the extent, human causes and management of salinisation. The first part of the book provides an extended review of general issues, including a history of secondary salinisation, followed by a discussion of the trends in area irrigated, the process

of salinisation, extent of land and water salinisation and their associated environmental, economic and social damages. Management options adopted by different countries are also discussed. The second and major part of the book consists of case studies of individual countries, showing why salinity occurs in each one. The book is wide ranging in its scope and is aimed at senior students and research workers in geography, crop and soil science, irrigation engineering and environmental studies.

Price: GBP 50.00 (USD 115.00 Americas only)

Orders to: CAB International, Wallingford, Oxon OX10 8DE, UK. Fax: + 44.1491 826090; CAB International, 845 North Park Avenue, Tucson, AZ 85719, USA. Fax: + 1.520.6213816.

Land Mosaics. The Ecology of Landscapes and Regions. R.T.T. Forman. Cambridge University Press, Cambridge, 1995, xx + 632 p. ISBN 0 521 47462 0. Paperback; 0 521 47980 0, Hardback.

Animals, plants, water, wind, materials and people flow at different rates, according to spatial patterns common to almost all landscapes and regions. This book explores the ecology of heterogeneous land areas, where natural processes and human activities spatially interact, to produce an ever-changing mosaic. There are ideas and applications for planning, conservation, design, management, sustainability and policy. Spatial solutions are provided for many of society's land-use objectives. Contents: Part I. Landscapes and regions; Part II. Patches; Part III. Corridors; Part IV. Mosaics and flows; Part V. Changing mosaics. It has a list over nearly 2000 references.

Price: GBP 24.95 (paperback); GBP 65.00 (hardback); USD 39.95 (paperback); USD 110.00 (hardback)

Orders to: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, UK.; or: Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211, U.S.A.

Biogeochemistry of Global Change. Radiatively active trace gases. R.S. Oremland, editor. Chapman & Hall, New York, London, 1993, xiii + 879 p. ISBN 0-412-04141-3. Hardback.

While climatologists may disagree with regard to the extent, significance, and potential disruptive effects of global climate change caused by human activities, there is general agreement that some degree of change will occur. The cause of human-induced climate change is related to the increased abundance of radiatively active trace gases. This interdisciplinary volume draws on the expertise of physical, chemical, environmental, and biological scientists in an effort to determine the extent to which industrial and natural activity can influence the character and abundance of gases that affect atmospheric warming. Investigators in many fields are trying to account for the sources, sinks, and feedbacks for atmospheric trace gases and to incorporate such information into physicochemical models for global warming.

Price: GBP 79.

Orders to: see below

Microprobe Techniques in the Earth Sciences. The Mineralogical Society Series No. 6. P.J. Potts, J.F.W. Fowles, S.J.B. Reed, M.R. Cave, editors. Chapman &

Hall, London, 1995, xi + 419 p. ISBN 0 412 55100 4. Paperback.

The aim of the Mineralogical Society Series is to provide up-to-date reviews through specialized contributions of leading experts. Each volume is purpose-designed, illustrated and serves as a reference tool. Six titles are available up till now.

This book covers the range of microanalytical techniques available for the analysis of geological samples, principally in research applications. It consists of 10 contributions on the following subjects: Microanalysis from 1950 to the 1990s; Electron microprobe microanalysis; Analytical electron microscopy; The nuclear microprobe-PIXE, PIGE, RBS, NRA and ERDA; Synchrotron X-ray microanalysis; Ion microprobe analysis in geology; Mineral microanalysis by laser-probe inductively coupled plasma mass spectrometry; Ar-Ar dating by laser microprobe; Stable isotope ratio measurement using a laser microprobe and Micro-Raman spectroscopy in the Earth Sciences.

Price: GBP 29.95

Orders to: see below.

Heavy Metals in Soils. Second edition. J. Alloway, editor. Blackie Academic & Professional, London, 1995, iv + 368 p. ISBN 0 7514 0198 6. Hardbound.

This second edition is thoroughly revised and updated and provides a comprehensive review in two sections: Section I: General Principles; Soil processes and the behaviour of heavy metals; The origin of heavy metals in soils; Methods of analysis for heavy metals in soils; Section II: Arsenic; Cadmium; Chromium and Nickel; Copper; Lead; Manganese and Cobalt; Mercury; Selenium; Zinc; Other less abundant elements of potential environment significance; Appendices. As with the first edition, published in 1990, this book will become a standard source of reference for agricultural and environmental scientists, including soil scientists.

Price: GBP 75

Orders: see below

Chemical Speciation in the Environment. A.M. Ure, C.M. Davidson, editors. Blackie Academic & Professional, London, 1995, xiii + 408 p. ISBN 0-7514-0021-1. Hardbound.

A knowledge of chemical speciation, the form a chemical takes in a particular situation, is critical to the understanding of the chemistry of environmental and biological systems.

This book provides an overview of the current status of speciation science, with indications of how the field may develop in the future, and presents the analytical methods available for investigating speciation. It is divided in two parts. Part I deals with General strategies for speciation, Direct methods of metal speciation, Hybrid methods of speciation, Prediction chemical speciation and computer simulation; Part II discusses specification of metals in the atmosphere, Speciation in fresh waters, Speciation in soils, Speciation of trace metals in sediments and combustion waste, Speciation of radionuclides, The speciation of metals in biological systems, Trends and developments.

Price: GBP 79

Orders: see below.

Plant-Microbe Interactions. Volume 1. G. Stacey, N.T. Keen, editors. Chapman & Hall, New York, 1995, xiii + 316 p. ISBN 0-412-98881. Hardbound.

This book is the first volume of a series covering all aspects of plant-microbe interactions. The series will include such topics as beneficial plant symbioses, plant pathology, plant genetics, molecular biology, agronomy, ecology and phytochemistry. Many plant-microbe interactions have agronomic importance because of either beneficial or detrimental effects. *Although these systems have been the subject of research for many years, recently there has been a tremendous increase in our knowledge of them.*

This volume features on Molecular Cloning of Plant Disease Resistance Genes, Transgenic Plants for Disease Control, Systemic Acquired Resistance, Interactions of Grasses with Endophytic Epichloë Species and Hybrids, Pathogenesis and Sexual development of the Smut Fungi, Current Concepts in the Use of Bacteria for Biological Disease Control: Mechanisms and Antifungal Metabolites, Legume Signals to Rhizobial Symbionts: A New Approach for Defining Rhizosphere Colonization, Nodulation Factors.

Price: GBP 39

Orders to: Chapman & Hall, 2-6 Boundary Row, London, SE1 8HN, UK; Blackie Academic & Professional, Wester Cleddens Road, Bishopbriggs, Glasgow G64 2NZ, UK; Chapman & Hall USA, 115 Fifth Avenue, New York, NY 10003, USA.

Climate Change Research. Evaluation and Policy Implications. Studies in Environmental Science 65A and 65B. S. Zwerver, R.S.A.R. van Rompaey, M.T.J. Kok and M.M. Berk, editors. Elsevier, Amsterdam, 1995, xxvii + 1463 p. ISBN 0-444-82143-0. Hardcover.

Climate change is more and more considered to be a major global environmental risk. To stimulate the participation of Dutch scientists in the international research effort a programme was established jointly by Ministries involved in Dutch policy actions. The aim of this scientific long term, policy-oriented National Research Programme on Global Air Pollution and Climate Change (NRP) was to support Dutch and international climate change policy.

To conclude the first phase of the NRP, an international conference was held in Maastricht, December 1994. The proceedings of this conference covers a wide range of subjects, and includes: key note papers of internationally leading scientists on relevant aspects of the climate problem; assessments of NRP research on the climate system, the causes of potential change in the system, the possible effects and consequences of climate change, and possible alternative policy actions (including technological and/or social); and short papers of the NRP projects and other ongoing research projects, with final conclusions per project. The contributions given an excellent impression of both the state-of-the-art of climate change research in general as well as the projects carried out during the first phase. Also in the second phase of the continued programme (till 2001) emphasis will be put on careful programming and accurate evaluation and presentation of the research projects. In particular the *incorporation of the projects and their results within*

international joint efforts will be promoted.

Price: NLG 490; USD 306.25

Orders to: see below.

Elements of Spatial Data Quality. S.C. Guptill and J.L. Morrison, editors. Elsevier Science, Oxford, 1995, xv + 202 p. ISBN 0 08 042432 5. Hardcover.

Spatial data quality is a key issue in an era where current electronic technologies and communications networks such as Internet allow easy access to digital data in spatial form.

This book provides guidelines for the use of digital spatial data. This is the first comprehensive definition of the major elements involved in spatial data quality which is multi-dimensional and uses much more than simply positional accuracy. Definition is only the first step. The next step is measuring spatial data quality in each of its dimensions in order to reach a final stage where the quality of spatial data can be incorporated in operational routines for analysis and visualizations of spatial data sets. This stage has not yet been achieved, but an important contribution is recorded in this book.

Price: GBP 85

Orders to: see below.

Thematic Mapping from Satellite Imagery: a Guidebook = Cartographie Thématique dérivée des Images Satellitaires: un Guide. J. Denègre, editor. Elsevier Science, Oxford, 1994, xxvi + 269 p. ISBN 0 08 04351 5. Hardbound.

This guide book is the result of a major international co-operative effort of specialists from many nations and its purpose is to draw on practical application experience to formulate general rules for cartographic production from satellite imagery. This book is bilingual in English and French.

Price: GBP 72; USD 115.00

Orders to: see below

Biomass for Energy, Environment, Agriculture and Industry. 3 Volumes. Ph. Chartier, A.A.C-M. Beenackers, G. Grassi, editors. Elsevier Science, Tarrytown, Oxford, 1995, 2850 p. ISBN 0-08-042135-0. Hardbound.

These 3 volumes contain the proceedings of the 8th European Community Conference, held in Vienna, October 1994. Subjects covered include: biomass resource base, electricity and heat generation, transportation fuels, chemicals from biomass, products from bio- and thermochemical conversion technologies, economics, environmental aspects and opportunities for implementation worldwide, in particular in developing countries.

Price: USD 440 (U.S.A. and Canada), GBP 195 (elsewhere)

Orders to: see below

Fundamentals of Ecological Modelling. 2nd edition. Development in Environmental Modelling 19. S.E. Jørgensen. Elsevier, Amsterdam, New York, 1994, vii + 628 p. + disk. ISBN 0-444-81578-3 (Paperback) 0-444-81572-4 9 (Hardback)

This book is a completely revised version of the 1986 edition. It is considerably expanded and is accompanied by a diskette with modelling program-

mes. The work presents a general introduction to the rapidly growing field of ecological and environmental modelling. Its aim is to give on the one hand an overview of the field and on the other to teach the reader to develop his own models. These objectives are met by covering the following points: discussion of the modelling procedure in detail and presentation of the development of models step by step; presentation of most model types by use of theory, overview tables on applications, complexity, examples and illustrations; presentation of both simple and complex models; and a available software, that contains several small models the reader can use for training in the elementary steps of modelling. Furthermore, the individual chapters can be read independently.

Price: NLG 240, USD 137.25 (PB); NLG 410, USD 234.25 (HB)

Orders to: see below.

Crop Production and Crop Protection. Estimated losses in major food and cash crops. E.-C. Oerke, H.-W. Dehne, F. Schönbeck and A. Weber. Elsevier, Amsterdam, New York, 1994, xxii + 808 p. ISBN 0-444-82095-7. Hardback.

The objective of this book is to provide information to be used as a basis for evaluating the fragile, shaky structure of global food production. The volume analyses the data by region and by intensity of cultivation, and furnishes information about the yield response, giving some indication of the health of the plants. Plant health does not just mean relative freedom from biotic and abiotic damage-causing factors; it also means the ability of green plants to cope with a certain degree of stress without loss of yield. This should be the spur to modern phytomedical research into plant health, which means studying plants in the complex environment created by all relevant and interdependent factors. When developing methods not only for controlling pests and diseases directly, but also for promoting plant health, a blinkered approach must be avoided and due consideration must be given in phytophysiology.

Price: NLG 229, USD 165.75

Orders to: see below.

Soil Conservation and Silviculture. Development in Soil Science 23. J. Dvořák and L. Novák (editors). Elsevier, Amsterdam, New York, 1994, 399 p. ISBN 0-444-98792-4. Hardback.

This book deals with the conservation and improvement of the forest soil. Much emphasis is placed on the use of vegetation in soil conservation afforestation. The first part of the book focuses on the issues of soil erosion and methods of erosion control, in particular the protection of agricultural and forest soils. The main types and manifestations of erosion are specified and described. Different erosion factors are shown in detail, including the possibilities of qualitative and quantitative determination. Special attention is paid to the precipitation-to-runoff relationships and information on these factors is used for erosion analysis. A detailed review of the regularities of water and wind erosion and the possibilities of the modelling thereof is also presented. In the second part of the book the main emphasis is on the management and control of the destructive action of torrents. Other

topics covered included gully control and stabilization, the increase in landslides and management of landslide areas.

Price: NLG 390, USD 223.

Orders to: see below.

Atmospheric Deposition. In relation to acidification and Eutrophication. J.W. Erismann and G.P.J. Draaijers. Elsevier Science, Amsterdam, New York, 1995, 442 p. ISBN 0444-82247-X. Hardbound.

In this book the research on atmospheric deposition of the Dutch Priority Programme on Acidification Research is summarised. This has resulted in detailed deposition maps for the Netherlands and Europe. The book is intended for those who measure or model atmospheric deposition and ecologists interested in exposure from atmospheric deposition, as well as policy-makers and students.

Price: NLG 275, USD 161.75

Orders to: see below.

Acid Rain Research: Do We Have Enough Answers? Studies in Environmental Science 64. G.J. Heij and J.W. Erismann, editors. Elsevier Science, Amsterdam, Lausanne, 1995, xiv + 502 p. ISBN 0-444-82038-8. Hardbound.

The book represents the Proceedings of the International Specialty Conference held in the Netherlands, October 1994. The conference was focused on: Atmospheric deposition (17 chapters); Effects of acid deposition on forest ecosystems in the Netherlands (6 chapters); Future of acidification research (7 chapters). It provides a valuable conclusion to the coordinated research on acidification in the Netherlands from 1985 to 1994. Special attention is given to: trace gases; ammonia; particle deposition; and the overall assessment of deposition loads to ecosystems and soils.

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Orders to: Elsevier Science, P.O.Box 211, 1000 AE Amsterdam, The Netherlands; *or:* Elsevier Science, P.O.Box 945, Madison square station New York, NY 10159-0945, U.S.A.; *or:* Elsevier Science Japan, Tsunashima Building Annes, 3-20-12 Yushima, Bunkyo-ku, Tokyo 113, Japan

Plant-Soil Interactions at Low Ph: Principles and Management. Developments in Plant and Soil Sciences, Volume 64. R.A. Date, N.J. Grundon, G.E. Rayment and M.E. Probert, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1995, xiv + 822 p. ISBN 0-7923-3198-2. Hardcover.

The understanding of plant-soil interactions in acid soils is important for improved food production in many parts of the world. The context of the book touches on basic and applied aspects of the physics, chemistry and biology of acid soils and their effect on growth of plants. It contains a large section on management of acid soils for plant (food) production and on socio-economic aspects of management of acid soils. This is important because a large portion of the world's acid soils occur in less developed countries.

This book is partly reprinted from *Plant and Soil*, volume 171, No.1 (1995). It contains a substantial number of papers, including nine invited reviews, presented at the Third International Symposium of Plant-

Soil Interactions at Low pH in Brisbane, Australia in 1993. The major themes include chemistry and physics of acid soils, microbial and faunal activity in acid soils, mechanisms of acid tolerance of plants, selection and breeding of acid-tolerant plants, diagnosis and correction of acid soil infertility, socio-economic aspects of acid soils management and management systems of agriculture, horticulture and forestry on acid soils.

Price: NLG 650; USD 481; GBP 299

Orders to: see below

Neural Nets: Applications in Geography. The GeoJournal Library 29. B.C. Hewitson and R.G. Crane, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1994, xi + 194 p. ISBN 0-7923-2746-2. Hardback.

Neural nets offer a new strategy for spatial analysis, and their application holds enormous potential for the geographic sciences. This volume presents an introduction to neural nets that describes some of the basic concepts, as well as providing a more mathematical treatise for those wishing further details on neural net architecture. The bulk of the text, however, is devoted to descriptions of neural net applications in such broad-ranging fields as census analysis, predicting the spread of AIDS, describing synoptic controls on mountain snowfall, examining the relationships between atmospheric circulation and tropical rainfall, and the remote sensing of polar cloud and sea ice characteristics.

Price: NLG 125; GBP 47.50

Orders to: see below.

IMAGE 2.0. Integrated Modeling of Global Climate Change. J. Alcamo, editor. Kluwer Academic Publishers, Dordrecht, Boston, 1994, xi + 321 p. ISBN 0-7923-2860-4. Hardback.

The main purpose of this publication is to document the development and testing of the IMAGE 2.0 model, together with a selection of its applications. One of the main objectives of IMAGE 2.0 is to link science with policy, but in this publication the scientific rather than policy aspects of the model are emphasized, because a strong scientific foundation is necessary before a model can be useful for policy analysis. IMAGE 2.0 is a type of earth systems model, a new category of simulation tool made possible by two recent developments. The first is rapid progress in understanding the workings of the global system based on new data that is rapidly becoming available. The second is the increase in power and utility of computer hardware and software which has allowed more and more institutes and researchers to handle the simulations of large geographic and dynamic systems.

Price: NLG 220; USD 128; GBP 84

Orders to: see below.

Assessing the Impacts of Climate Change on Natural Resource Systems. K.D. Frederick and N.J. Rosenberg, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1994, v + 219 p. ISBN 0-7923-3211-3. Hardback.

This volume characterizes the current state of natural science and socioeconomic modeling of the impacts of climate change and current climate varia-

bility on forests, grasslands, and water. It identifies what can be done currently with impact assessments and suggests how to undertake such assessments. Impediments to linking biophysical and socioeconomic models into integrated assessments for policy purposes are identified, and recommendations for future research activities to improve the state of the art and remove these impediments to model integration are provided. The text is reprinted from *Climatic Change*, Vol.28, nos 1-2, 1994.

Price: NLG 155; USD 115; GBP 76.

Orders to: see below.

Managing Environmental Disputes. Network Management as an Alternative. P. Glasbergen (editor). Kluwer Academic Publishers, Dordrecht, Boston, 1995, viii + 191 p. ISBN 0-7923-3034-X. Hardback.

The perspective of sustainable development is a source of inspiration for many, who see it as a call to cooperative action. But in practice, policies intended to further this goal often generate conflicts of interest. The ensuing disputes occur among governmental organizations; but disputes also arise between public authorities, private interest groups and the environmental movement. In the opinion of the authors, the fact that environmental policy can provoke such conflict may be attributed largely to decision-making procedures in our society. They are convinced that a new approach to managing environmental disputes is needed in order to deal effectively with environmental problems. This book presents a viable alternative: network management. In the chapters that follow, the reader will find a theoretical underpinning for this new approach and some practical illustrations of its effectiveness. The potential of network management in environmental disputes is explored on the basis of case studies. The authors intend to link theoretical insights to empirical findings.

Price: NLG 150; USD 96; GBP 63.

Orders to: see below

The Significance and Regulation of Soil Biodiversity. Proceedings of the International Symposium on Soil Biodiversity, Michigan State University. H.P. Collins, G.P. Robertson and M.J. Klug (editors). Kluwer Academic Publishers, Dordrecht, Boston, 1995, vii + 295 p. ISBN 0-7923-3138-9. Hardbound.

This book (Volume 63, Development in Plant and Soil Sciences) addresses the extent and regulation of soil biodiversity and describes initial approaches to the linking of soil biodiversity and ecosystem function. It presents the discussions of a group of soil biologists and ecosystem ecologists in which they synthesize available information, present innovative methodologies, and develop cross-tax and cross-habitat collaborations to advance the understanding of soil biodiversity. The book has the following section: Biodiversity and Ecosystem processes (3 papers); Microbial Population Dynamics (13 papers); Soil Fauna relationships (9 papers). The book is partly reprinted from *Plant and Soil*, Volume 170, No. 1 (1995).

Price: NLG 240; USD 170; GBP 108.

Orders to: Kluwer Academic Publishers Group, PO

Box 322, 3300 AH Dordrecht, The Netherlands; or: Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061, U.S.A.

Earthworm Ecology and Biogeography in North America. P.F. Hendrix, editor. Lewis Publishers, Boca Raton, Ann Arbor, 1995, 244 p. ISBN 1-56670-053-1. Hardbound.

It is generally recognized that where earthworms are abundant they can exert significant influence on the structure and function of soils. Compared to other biogeographic regions of the Earth, however, little is known about the earthworm fauna of the western hemisphere and their role in soil processes.

This book is a comprehensive review and analysis of the state of understanding of earthworm biogeography and ecology in North and Central America. Nine chapters provide a general review of current understanding, an assessment of research problems, recent developments and advances, and priorities for future research and applications.

Price: GBP 69.00; USD 120.75

Orders to: see below.

Subirrigation and Controlled Drainage. H.W. Belcher and F.M. D'Itri, editors. Lewis Publishers, Boca Raton, Ann Arbor, 1995, xii + 482 p. ISBN 1-56670-139-2. Hardbound

This publication provides the proceedings of an International Conference on Subirrigation and Controlled Drainage, held in Lansing, Michigan, 1991. The Conference looked at four different areas 1. Subirrigation/Controlled Drainage System Planning, Design and Operation Issues (10 papers); 2 Economic/Production Impact of Subirrigation/Controlled Drainage (5 papers); 3. Environmental Impact of Subirrigation/Controlled Drainage (6 papers); 4. Barriers to Implementation of Subirrigation/Controlled Drainage (5 papers) and 5. Field Systems (3 papers).

Price: GBP 55.00

Orders to: see below.

Metal Speciation and Contamination of Soil. H.E. Allen, C.P. Huang, G.W. Wailey and A.R. Bowers, editors. Lewis Publishers, Boca Raton, Ann Arbor, 1995, xvii + 358 p. ISBN 0-87371-697-3. Hardbound.

This book resulted from a Workshop on Metal Speciation and Contamination of Soils held at Jekyll Island, Georgia in May 1991. The workshop assembled a cadre of experts in soil physical chemistry, environmental chemistry, microbiology, engineering, oceanography, forestry, and geochemistry. This book contains most of the invited contributions, which provide an overview of metal speciation and contamination of soils from theoretical, experimental and pragmatic perspectives. The book provides an insight into the biogeochemical processes governing the behaviour, transport and bioavailability of heavy metals in contaminated soils. It presents a global perspective and assesses the magnitude of the soil contamination problem, and summarises a decade of research on metal contaminants dispersed in the aquatic environment of major rivers in China.

Price: GBP 49.50

Orders to: see below.

Soil Amendments. Impacts on Biotic Systems. J.E. Rechcigl, editor. Lewis Publishers, Boca Raton, Ann Arbor, 1995, 321 p. ISBN 0-87371-860-7. Hardbound.

In this book the various effects of soil amendments on biotic systems are discussed. It gives a comprehensive and balanced synthesis of our knowledge pertaining to the environmental effects of soil amendments on biotic systems, including crops, livestock, wildlife, forestry, aquatic systems, and human beings. Separate chapters focus on the remedial effects of alternative farming systems and biotechnology with reference to specific biotic systems. The last chapter deals with the regulatory aspects of soil amendments.

Price: GBP 65

Orders to: see below

Practical Handbook of Soil, Vadose zone and Groundwater Contamination. Assessment, Prevention and Remediation. J. Russell Boulding. Lewis Publishers, Boca Raton, Ann Arbor, 1995, x + 948 p. ISBN 1-56670-051-5. Hardcover.

This book looks at all aspects of the fate and transport of contaminants in soil and groundwater. Guidance is provided for selecting the most appropriate monitoring and remediation procedures, all of which are based on comprehensive field and laboratory studies. It contains three parts and 6 appendixes and a practical Key Word Index. Part I: Basic Concepts; Part II: Assessment and Monitoring; Part III: Use of Models and Computers in Contaminant Investigations; Part III: Prevention and Remediation. The book can be used both for reviewing fundamental concepts, and providing a thorough introduction to this huge topic.

Price: GBP 55

Orders to: see below.

Practical Techniques for Laboratory Analysis. J.A. Poppiti. Lewis Publishers, Boca Raton, Ann Arbor, 1994, 188 p. ISBN 0-87371-361-3. Hardbound.

This book presents an overview of day-to-day operations of laboratories, emphasising commercial laboratories that cater to the environmental community. Divided into three parts, it focuses on: Laboratory Operations - Design and Management; The Metals Laboratory; The Organic Laboratory. It provides practical information on working in laboratories; it contains the knowledge of laboratory managers and practising chemists from different countries. It also presents a „know why“ verses a „know how“ logic. The appendix contains an example ASCII files from GC/MS data Systems for export to Laboratory Information Management System (LIMS) and a plan for the preparation of a Quality Assurance Project.

Price: GBP 49.50

Orders to: see below

Landscape Restoration Handbook. D. Harker, S. Evans, M. Evans and K. Harker. Lewis Publishers, Boca Raton, Ann Arbor, 1993, 620 p. ISBN 0-87371-952-2. Hardback.

This book is an important component of The Audubon Cooperative Sanctuary System. It offers a cooperative approach to actively care for and protect our environment. It is designed to encourage landow-

ners and managers to become actively involved in conservation and wildlife enhancement, and to publicly recognize those who are involved in conservation and wildlife enhancement activities. The book contains six chapters: 1. Naturalizing the managed landscape; 2. Greenlinks; 3. Principles for maintaining and restoring natural diversity; 4. Principles and practices of natural landscaping; 5. Ecological restoration; 6. Natural regions of the United States and their dominant ecological communities, plus three appendices on natural regions and dominant ecological communities, woody and herbaceous plant matrices and nursery sources for native plants and seeds.

Price: GBP 61.50; DFL 185

Orders to: see below

Sustainable Agriculture Systems. J.L. Hatfield and D.L. Karlen. Lewis Publishers, Boca Raton, 1994, xii + 316 p. ISBN 1-56670-049-3. Hardback.

The role of agriculture in the next century will be to provide food for an ever increasing world population while ensuring that the natural resources, water and soil, are not only conserved, but enhanced. There is a need to embellish the ideas of land stewardship and create an atmosphere in which conservation and enhancement of resources are the norm rather than the exception. The authors are committed to improving the understanding of the components within agricultural systems and then evaluating how these concepts could be incorporated into sustainable systems. These concepts range from water to insect management and include discussions of both the economics and sociology of agricultural enterprises.

Price: GBP 70.

Orders to: see below.

Soil Sampling and Methods of Analysis. M.R. Carter, editor. Lewis Publishers, Boca Raton, 1993, xix + 823 p. ISBN 0-87371-861-5. Hardback.

Soil as a natural resource is a complex body made up of interacting mineral, organic, water and air components with both biotic and abiotic features. From a practical viewpoint, soil is nonrenewable; thus, its characterization is of prime importance in regard to conservation strategies. Soil Science, the study of soil as a natural resource, is interdisciplinary in character. The need to describe and understand soil material requires the continued development of suitable analytical methods to characterize soil chemical, physical, and biological properties. This publication contains 75 chapters covering a wide range of recommended and updated methods for soil chemical, biological, and physical analysis, including methods for characterization of organic and frozen soils. The book is published for the Canadian Society of Soil Science. It aims to establish a middle ground between the so called „cook-book“ approach and the comprehensive, in-depth type of manual.

Price: GBP 61.

Orders to: see below.

Soils and Environmental Quality. G.M. Pierzynski, J.T. Sims and G.F. Vance. Lewis Publishers, Boca Raton, 1994, 313 p. ISBN 0-87371-680-9. Hardback.

This book first provides an overview of basic soil science, hydrology, atmospheric chemistry, and the

classification of pollutants. This is followed by comprehensive discussions of the role of soils in the biogeochemical cycling of major elements and compounds of environmental concern. Nitrogen, phosphorus, sulfur, trace elements, organic chemicals, greenhouse gases, and acid precipitation are discussed in depth. Interactions of these potential pollutants with soils and the aquatic and atmospheric environments are emphasized. Methods of soil management or remediation to minimize or correct pollution are presented. The concept of risk assessment is reviewed using several contemporary examples, such as pesticide concentrations in drinking water and contamination of soils by trace elements in organic wastes.

Price: GBP 57.

Orders to: see below

Soil Processes and Water Quality. R. Lal and B.A. Stewart, editors. Lewis Publishers, Boca Raton, 1994, 416 p. ISBN 0-87371-980-8. Hardback.

Agrochemicals and agricultural practices have a tremendous impact on environmental quality, and particularly on the quality of water. This book examines principles and practices that minimize the risks of water pollution without reducing the efficiency of agricultural activities. Practices such as the use of fertilisers, agrochemicals and pest control measures are examined for the ways in which they affect water quality. There is also extensive coverage of runoff and sediment pollution. Ten chapters address the important processes involved. A state-of-the-art review addresses the importance of macropore flow on water quality and the mechanism involved in transport of agricultural chemicals to the ground water. Attention is also given to water quality modelling in relation to soil management and agricultural practices.

Price: GBP 57.50.

Orders to: see below.

Soils and Global Change. R. Lal, J. Kimble, E. Levine and B.A. Stewart, editors. Lewis Publishers, Boca Raton, 1995. 440 p. ISBN 1-56670-118-X. Hardback.

The chapters in this book are presented to emphasize the importance of managing soils properly with an awareness of their effect on global change and, specifically, the greenhouse effect. It provides the scientific community with valuable information about how soil management affects carbon ecosystems. Issues which deal with policy options and their effect on soil management and decisions which need to be made with regards to the best utilization of the pedosphere (soil resources) are also addressed. The information is an attempt to address the gaps in our knowledge of the role of soil management and policy options in global change, and at the same time, to present a „state of the art“ compendium of our present knowledge on these issues.

Price: GBP 65.

Orders to: see below.

Subsoil Management Techniques. N.S. Jayawardane and B.A. Stewart, editors. Lewis Publishers, Raton, 1994. 350 p. ISBN 1-56670-020-5. Hardback.

This practical guide is an „in the field“ guide for anyone dealing with agricultural soils and environmental quality, and in particular soil improvement. It

gives a wealth of information on successful methods and techniques for improving and sustaining subsoils quality, including types of minimum tillage systems and soil water regulation.

Price: GBP 66.

Orders to: see below.

Field Sampling Methods for Remedial Investigations. M.E. Byrnes, Lewis Publishers, Boca Raton, 1994, 254 p. ISBN 0-87371-698-1. Hardbound.

This book is a guide to develop effective field sampling programmes. It offers technical information on the most effective remedial investigation methods currently in use. It provides guidance on the development of an effective field sampling program, and Standard Operating Procedures (SOPs). SOPs have been provided for sampling techniques which do not require specialized academic training, such as soil, sediment, surface water, groundwater, and drum sampling. For more specialized investigative techniques such as underground drainage surveying and some types of soil-gas surveying, information has been provided to help the reader to understand how the technique works and under what conditions it can be used most effectively. The methods and procedures are acknowledged by the U.S. Environmental Protection Agency (EPA) as reputable techniques.

Price: GBP 57.50

Orders to: Times Mirror International Publishers, Lynton House, 7-12 Tavistock Square, London WC1H 9LM, U.K. or CRC Press, 2000 Corporate Blvd., Boca Raton, FL 33431, U.S.A.

Chemical Equilibria and Kinetics in Soils. G. Sposito. Oxford University Press, Oxford, New York, 1994, xii + 268 p. ISBN 0-19-507564-1. Hardback.

This is a revised and expanded textbook version of *The Thermodynamics of Soil Solutions* by the same author. The need for revision was based especially on a growing awareness that the quantitative description of soils in terms of the behaviour of their chemical species cannot be considered complete without adequate characterization of the rates of the chemical reactions they sustain. Full recognition must be given and full account taken of the fact that few chemical transformations of importance in natural soils go to completion exclusively outside the time domain of their observation at laboratory or field scales. A critical implication of this fact is that one must distinguish carefully between thermodynamic chemical species, sufficient in number and variety to represent the stoichiometry of a chemical transformation between stable states, and kinetic chemical species, required to depict completely the mechanisms of the transformation.

This textbook is intended primarily as a critical introduction to the use of chemical thermodynamics and kinetics for describing reactions in the soil solution. Although the discussion in this book is self-contained, it does presume exposure to thermodynamics and kinetics as taught in basic courses on physical chemistry.

Price: GBP 40

Orders to: see below.

Sustainable Settlement in the Brazilian Amazon. A.L. Ozório de Almeida and J.S. Campari. Oxford

University Press, Oxford, New York, 1995, ix + 189 p. ISBN 0-19-521104-9. Hardcover.

The book, published for the World Bank, is about small farmers in the Brazilian Amazon and how to raise their incomes while reducing resource degradation. The starting point is the observation that whereas those farmers who deforested the Amazon during the 1970s and 1980s had migrated there from outside the basin, most of the small farmer deforesters of today have apparently come from within the region. The authors examine the changing character of the Amazon frontier based on field surveys conducted during 20 years of settlement experience. The findings reveal that much of the Amazonian frontier land cleared by pioneers in the 1970s is becoming agriculturally unproductive. Good farming methods must be promoted and deforestation must be penalized. They recommend the implementation of innovative economic policies and forms of cooperation between environmental and economic agencies, at both local and international levels. The aim should be to raise agricultural incomes and reduce environmental aggression.

Price: USD 32.95

Orders to: see below

Soils and Soil Fertility. 5th edition. F.R. Troeh and L.M. Thompson. Oxford University Press, Oxford, New York, 1993, vii + 462 p. ISBN 0-19-508328-8. Hardback.

The fifth edition of this book is intended as an introduction to the topic for students in soil science, agronomy, agriculture, and related disciplines. Broad in scope, this accessible text includes chapters on such topics as soil chemistry, organic matter, mineralogy, and water management, as well as more specialized areas such as urban and rural land use, artificial soils for greenhouses, and turf grass. The new edition has been thoroughly updated and includes more than forty new figures and many new tables. Environmental concerns are brought together and addressed in an individual chapter. Study questions have been added to the end of each chapter and a glossary is included.

Price: GBP 37.50

Orders to: see below.

Nitrogen Management in Irrigated Agriculture. R.S. Rauschkolb and A.G. Hornsby. Oxford University Press, Oxford, New York, 1994, xi + 251 p. ISBN 0-19-507835-7. Hardback.

Agricultural production systems are exceedingly complex with numerous factors that must be considered in relation to nitrogen management in irrigated agriculture. Various forms of nitrogen in fertilizer do not all react in the same way in soil or water. In this book, considerable emphasis has been placed on the differences that exist as they affect the reactions in soils, availability to plants, and the types of losses the fertilizers undergo. The crop is another feature of the agricultural production system that plays a major role in the determination of nitrogen-use efficiency and the amount of carryover. Plants are incapable of removing all of the available nitrogen from the soil-water matrix. This has a special significance in relation to environmental protection.

The movement of water through the soil profile, the essentiality of water for growth and development,

and the different mobilities of various forms of nitrogen in soils are features of the system that are stressed because of their importance to the manipulation of nitrogen supplies in order to enhance the utilization of nitrogen by plants. In view of potential environmental degradation from nitrogen, the concentration that may be reaching the water supplies and the mass emission are discussed.

In this book both system and management variables have been discussed from the standpoint that *there is a wide range of conditions to be found for each of the variables*. In combination one can expect to find a continuum of possibilities from very low to very high nitrogen-use efficiency in the agricultural production system, with a thorough knowledge of the system variables and how the management variables that are available can be used, it is possible to operate at peak efficiency for any given set of conditions. When operating at peak efficiency, the least amount of environmental degradation that it is possible to achieve will be the result.

Apart from the introduction and a summary, the book contains 5 chapters on the following system variables (soils, crops, irrigation systems, nitrogen, and environment) and 7 chapters on management variables (placement, equipment, rate of nitrogen application, source of nitrogen, irrigation management, timing of nitrogen application, and energy).

Price: GBP 37.50

Orders to: Oxford University Press, Inc., 200 Madison Avenue, New York, NY 10016, U.S.A. or: Oxford University Press, Walton Street, Oxford OX2 6DP, England.

Geocology. An Evolutionary Approach. R.J. Huggett. Routledge, London, New York, 1995, xx + 320 p. ISBN 0-415-08710-4. Paperback.

This book investigates the structure and function of geosystems, using a simple dynamic systems model, 'brash', as a conceptual and analytical tool. The geocosphere is defined as interacting terrestrial life and life-support systems - the biosphere, toposphere, atmosphere, pedosphere and hydrosphere. The time rate of change of each geocospheric component depends on the state of all others, plus the effect of cosmic, geological and other forcing factors, which lie outside the geocosphere. The 'brash' formula supplies an analytical, as well as a conceptual framework for studying geocospheric change. Part I introduces geocosystems, describing their hierarchical structure and ideas about their interdependence and integrity and the rest is concerned with internal and external influences on life and soils within geocosystems. Part II explores internal or 'ecological' interactions between geocosystems and their near-surface environment. Part III prospects the role of external factors (ecological, geological, and cosmic) as agencies disturbing the dynamics of geocosystems.

Price: GBP 16.99 (paperback); GBP 50 (hardbound); USD 24.95 (paperback); USD 65 (hardbound)

Orders to: Routledge, 11 New Fetter Lane, London EC4P 4EE, UK; or: Routledge, 29 West 35th Street, New York, NY 10001, U.S.A.

Innovative Site Remediation Technology. This is a new series of eight volumes about the profession-

wide, consensus based assessment of innovative site remediation and hazardous waste treatment technologies. It is published by Springer-Verlag, jointly with the American Academy of Environmental Engineers. The series contains the following volumes: Vol. 1. Bioremediation; Vol. 2. Chemical Treatment; Vol. 3. Soil Washing/Soil Flushing; Vol. 4. Stabilization/Solidification; Vol. 5. Solvent/Chemical Extraction; Vol. 6. Thermal Desorption; Vol. 7. Thermal Destruction and Vol. 8. Vacuum Vapor Extraction.

Bioremediation. W.C. Anderson, editor. Springer-Verlag Berlin, Heidelberg, xx + 288 p. ISBN 3-540-59218-0. Hardcover.

Bioremediation exploits the ability of certain microorganisms - heterotrophic bacteria and fungi - to degrade hazardous organic materials to innocuous materials such as carbon dioxide, methane, water, inorganic salts, and biomass. Microorganisms may derive the carbon and energy required for growth through biodegradation of organic contaminants, or, transform more complex, synthetic chemicals through fortuitous cometabolism.

The processes discussed in this monograph are (1) Natural bioremediation or intrinsic bioremediation depends on indigenous microflora to degrade contaminants using only nutrients and electron acceptors available in situ. However, biodegradation rates will be less than optimal if the microbes' nutritional and physiological requirements are not met. (2) Enhanced bioremediation technologies increase biodegradation rates by supplying those nutrients, electron acceptors, or other factors that are rate limiting.

Price: DEM 88 (hardcover); DEM 75 (softcover).
Orders to: Springer-Verlag, Tiergartenstrasse 17, D-69121 Heidelberg, Germany or: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Pesticide Properties in the Environment. A.G. Hornsby, R.D. Wauchope, A. Herner, editors. Springer-Verlag, Berlin, Heidelberg, 1995, 240 p. + diskette. ISBN 3-540-94353-6. Hardcover.

Identifying and remediating environmental contamination is a complex and very expensive problem worldwide. Pollution of soil and water by pesticides is a significant issue that persists for years after the pesticide application ceases. The present publication is a database compiled from extensive literature searches. It presents data on hundreds of pesticides, including their common, commercial, and scientific names, their chemical formulas, and their environmental properties including water solubility, field half-life, sorption coefficient, and vapour pressure. All data is carefully cited to original references, and is presented both in printed form and as an electronic database.

Price: DEM 84; ATS 613.20; CHF 81
Orders to: see below.

Origin and Mineralogy of Clays. Clays and the Environment. B. Velde, editor. Springer-Verlag, Berlin, Heidelberg, 1995, xiii + 334 p. ISBN 3-540-58012-3. Hardbound.

This book, the first of two volumes, attempts to lay the basis of understanding the why and what of clay minerals. The origins of clays are described in their chemical and geographic context, while the cycle of

geological dispersion and concentration is discussed with regard to the type of clays that can be formed and where they can be found. The change and eventual destruction of clay minerals in the cycle of sedimentation, burial, and rock-forming is described, an explanation is given of the origin of clays which are useful to manufacturing (hydrothermal alteration). A brief explanation of the nomenclature and chemical differences between clays is given to start the beginner on his way.

This publication has the following chapters: 1. Geology of Clays; 2. Composition and Mineralogy of Clay Minerals; 3. Origin of Clays by Rock Weathering and Soil Formation; 4. Erosion, Sedimentation and Sedimentary Origin of Clays; 5. Compaction and Diagenesis; 6. Hydrothermal Alteration by Veins; 7. Formation of Clay Minerals in Hydrothermal Environments.

Price: DEM 138; ATS 1.007,40; CHF 132,50

Orders to: see below.

Environmental Geophysics. A practical guide. D. Vogelsang. Springer-Verlag, Berlin, New York, 1995, viii + 173 p. ISBN 3-540-57993-1. Hardback.

Applied geophysics was developed to search for the raw materials needed by industry. Today it is also used to investigate the extent and nature of buried contaminated waste and leachates. This book describes in detail and in simple language the possibilities, advantages, and shortcomings of geophysical methods in investigations of ground water, soils and rocks. Case histories from the US and all over the world are discussed and illustrated, and cost estimates for geophysical surveys and criteria for the choice of methods and the compilation of tenders are provided. The book will enable engineers, scientists, and lawyers to appraise the possibilities of geophysics in the assessment of environmental risks and, as such, is also of importance to soil scientists who are increasing involved in environmental problems.

Price: DEM 98; ATS 764,40; CHF 98.

Orders to: see below

Desertification. Natural Background and Human Mismanagement. 2nd edition. M. Mainguet. Springer-Verlag, Berlin, New York, 1994, xvi + 314 p. ISBN 3-540-57746-7 (German edition) 0-387-57746-7 (US edition). Hardback.

After UNCED (Rio de Janeiro, 1992), a second edition of this book was necessary. With many corrections, amendments and additions, it takes scientific progress into account. The author also presents a chapter in which the results of UNCED are analyzed. Controversial, and often discussed with passion and even vehemence, desertification defined by UNCED is a problem on whose solution the survival of millions of humans is dependent. This book aims at an understanding of what is commonly called „desertification“ - a term which as a connotation of irreversibility, spreading and emergence of desert-like landscapes - „land degradation“ is proposed to replace it. The author, who has a long experience in drought-prone areas in Africa and elsewhere, presents in this book the history of land degradation and what might be done to remedy the resulting decrease of soil productivity.

Price: DEM 98; ATS 764,40; CHF 94,50.

Orders to: see below.

Pesticides in Ground and Surface Water. Chemistry of Plant Protection 9. H. Börner, editor. Springer-Verlag, Berlin, New York, 1994, xi + 294 p. ISBN 3-540-58180-4 (German edition) 0-387-58180-4 (US edition). Hardback.

Pesticides in soils and in ground, surface and drinking water are a hot topic under continuing discussion. This volume draws together information on all key issues on the fate and behaviour of pesticides in water systems and soils. The scope of the practice-oriented contributions and the eminence of contributing authors make it an important source for researchers and practitioners in the plant protection and crop science field.

Price: DEM 198, ATS 1544,40; CHF 198.

Orders to: see below.

Soil Responses to Climate Change. NATO ASI Series I, Global Environmental Change 23. M.D.A. Rounsevell and P.J. Loveland, editors. Springer-Verlag, Berlin, New York, 1994, x + 312 p. ISBN 3-540-58373-4 (German edition) 0-387-58373-4 (US edition). Hardback.

This volume has resulted from the papers and discussions of a NATO Advanced Research Workshop held at Cranfield University in September 1993. The principal aim of the workshop was to address the central role soils will play in mediating both the overall responses of ecosystems to predicted climate change, and the rates at which these responses will occur. This aim arose from the clear need to highlight the importance of soils and soil processes in environmental change research and their contribution to the proper understanding of ecosystem behaviour. In doing so, the Workshop attempted to emphasise the dynamic nature of soils and to encourage treatment of soils as ecosystems in their own right. This collection of papers is intended to cover the wide range of scientific disciplines covered by Soil Science including the chemistry, physics and biology of soils, and further emphasises the inter-disciplinary nature of ecosystem studies.

Price: DEM 198, ATS 1544,40; CHF 198.

Orders to: see below.

Clays in Crustal Environments. Isotope dating and tracing. N. Clauer and S. Chaudhuri. Springer-Verlag, Berlin, New York, 1995, xii + 359 p. ISBN 3-540-58151-0 (German edition) 0-387-58151-0 (US edition). Hardback.

Clay minerals form in a wide variety of crustal environments, e.g. in soil profiles, in sediments at the surface and in deeply buried sedimentary deposits, and under regional, contact and hydrothermal metamorphism conditions. The book provides information about the dynamics of isotope systems in clays and helps to understand the physical and chemical parameters in the transfer of masses within the crustal domain.

Price: DEM 148; ATS 1154,40; CHF 142,50.

Orders to: see below.

Biogeodynamics of Pollutants in Soils and Sediments. Risk assessment of delayed and non-

linear responses. Environmental Science. W. Salomons and W.M. Stigliani, editors. Springer-Verlag, Berlin, New York, 1995, xiv + 352 p. ISBN 3-540-58732-2 (German edition) 0-387-58732-2 (US edition). Hardback.

In the USA, Western and Central Europe, many large-scale polluted sites are too large to be cleaned up economically with available technologies. Moreover, new sites are also being created with little concern for environmental protection. A long-term view is essential so the retention of contaminants is not diminished and we understand the potential for large-scale contaminant mobilization at these sites triggered by changing environmental conditions. The soil-sediment system as a dynamic entity can be described as biogeo-dynamics. This book provides information for predicting long-term changes and making risk assessments and describes the approach of geochemical engineering to handling large-scale polluted sites.

Price: DEM 138; ATS 1007.40; CHF 132.50.

Orders to: see below.

Heavy Metals. Problem and Solutions. W. Salomons, U. Förstner and P. Mader, editors. Springer-Verlag, Berlin, Heidelberg, 1995, 412 p. ISBN 3-540-58508-7. Hardback.

This book is divided into three sections dealing with basic geochemical processes, remediation and case studies. The basic geochemical processes are discussed with respect to mobility in the environment and impact as well as methods to derive guidelines for heavy metals. Remediation focuses on currently available methods to treat contaminated sediments and soils. In addition, it considers the concept of geochemical engineering for remediation of large areas contaminated by metals. A number of case studies of polluted sediments and soils and their environmental impact highlight the principles discussed in the first two sections.

Price: DEM 148.00; ATS 1.080,40; CHF 142,50.

Orders to: see below.

Analysis of Pesticides in Ground and Surface Water I. H.-J. Stan, editor. Chemistry of Plant Protection, Volume 11, Springer-Verlag, Berlin, Heidelberg, 1995, xii + 268 p. ISBN 3-540-58794-2. Hardcover.

This book describes in an authoritative way all aspects of modern analysis of pesticides in water by the consequent use of hyphenated techniques like GC-AED or HPLC-MS. Besides chapters on analytical techniques, this book has chapters on sampling, extraction, and assurance of data quality.

Price: DEM 228; ATS 1778,40; CHF 215.

Orders to: see below

Tropical Forests: Management and Ecology. Ecological Studies 112. A.E. Lugo and C. Lowe, editors. Springer-Verlag, Berlin, New York, 1995, xiv + 461 p. ISBN 0-387-94320-X (USA ed.), ISBN 3-549-94320-X (German ed.). Hardback.

Although tropical forests are widely recognized as the most species-rich terrestrial ecosystem on earth and include many of the world's most endangered habitats and organisms, they remain poorly understood. This book addresses the need for a synthesis of

information on both the ecological and socio-economic aspects of human use of tropical forests. It was prepared to recognize the tradition of research at the USDA Forest Service Institute of Tropical Forestry in Puerto Rico. It is divided in four sections: The problem and background (3 chapters); Long-term ecological research in Puerto Rico (7 chapters); Research areas that require increased focus in the tropics (4 chapters) and Direction for future research in tropical forests (3 chapters).

Price: DEM 168; ATS 1.226,40; CHF 158.

Orders to: Springer-Verlag, Tiergartenstrasse 17, D-69121 Heidelberg, Germany or Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Entropy, Environment and Resources. An Essay in Physico-Economics. M. Faber, H. Niemes and G. Stephan, 2nd edition, translated from German. Springer-Verlag, Berlin, Heidelberg, 1995, xiv + 205 p. ISBN 3-540-58984-8. Softcover.

In this publication environmental protection and resource use is analyzed in a comprehensive framework where not only economic but also natural scientific aspects are taken into consideration. An attempt is made to incorporate the irreversibility of economic processes. The authors utilize a natural scientific variable, entropy, to characterize the economic system and the environment. The environmental protection and resource use are analyzed in combination, and a replacement of techniques over time is also analyzed. The authors investigate the use of the environment both as a supplier of resources and as a recipient of pollutants with the help of thermodynamic relationships.

Price: DEM 45; ATS 351.00; CHF 45

Orders to: Springer-Verlag, Tiergartenstrasse 17, D-69121 Heidelberg, Germany; or: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Geomorphology and Land Management in a Changing Environment. D.F.M. McGregor and D.A. Thompson, editors. John Wiley & Sons, Chichester, New York, 1995, xi + 339 p. ISBN 0-471-95511-6. Hardbound.

This book elucidates the environmental effects of land management practices in terms of the geomorphological systems in which they take place and in context of an environment subject of uncertainty and change. It reviews the progress of 'applied geomorphology' in addressing the issues of practical applicability of geomorphology; and then focuses on four major themes within this interaction: ground instability and land management; the effect of land use on the hydrological and erosional response of geomorphological systems; modelling geomorphological responses to environment change; and geomorphological aspects of the management of environmental risk. So this book offers a insight into the range and utility of geomorphological research, and signposts for environmental planners and decision makers at all levels.

Price: GBP 65.00; USD 105.00

Orders to: see below.

Phosphorus in the Global Environment. Transfers, Cycles and Management. SCOPE 54, H. Tiessen, editor. John Wiley & Sons, Chichester, New York,

1995, xii + 462 p. ISBN 0-471-95691-0. Hardbound.

Phosphorus is one of the world's vital but relatively scarce resources, which is a limiting factor in plant (and therefore food and fibre) production. This volume brings together data and concepts on the transfers and transformations of phosphorus.

Although the phrase „biogeochemical cycle“ is commonly used to describe the fate of elements in the environment, it has become apparent that for phosphorus, linear transfers from land to rivers to lakes and seas are more typical. In some regions, these transfers are augmented by the addition of mined phosphates and manures, and surplus phosphates need to be managed with care. Environmental managers need to incorporate an understanding of phosphorus transfers into their decision making. An integrated approach by terrestrial and aquatic scientists is needed. The use of waterbodies as sensitive and fragile indicators of phosphorus losses from surrounding watersheds is an important step towards a comprehensive scientific approach, to which socio-economic considerations are added.

This book contains the proceedings of the four regional workshops in Africa, Asia, Europe and South America, in which 240 scientists have synthesised data available in major ecosystems of each region considered; and then integrated in a final synthesis workshop in Hungary, 1993.

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People and Environment in Africa. T. Binns, editor. John Wiley & Sons, Chichester, New York, 1995, xi + 274 p. ISBN 0-471-95530-2 (ppc); ISBN 0-471-95100-5 (pbk).

People-environment relationships in Africa, are often misunderstood and distorted. They are frequently seen as victims of the environment and prime movers in the progressive exhaustion and degradation of environmental resources. These tensions and problems do exist but the human-environment interface in Africa does have positive aspects, and this book seeks to provide a balanced introduction to this key topic.

The authors adopted a thematic and regional approach to these problems. The book is divided into four Sections. Section I: General Issues (5 papers); Section II: North, East and Central Africa (6 papers); Section III: West Africa (7 papers); Section IV: Southern Africa (6 papers). It is well-illustrated and documented written for students and teachers of Geography, African Studies and Development.

Price: GBP 16.99 (paperback); USD 27.95 (paperback)

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Restoration of Temperate Wetlands. B.D. Wheeler, S.C. Shaw, W.J. Fojt and R.A. Robertson, John Wiley & Sons, Chichester, New York, 1995, 562 p. ISBN 0-471-95105-6. Hardbound.

In 1993, a symposium was held at the University of Sheffield (England) to consider and review current knowledge on the science of wetland restoration. This book is based around some of the paper and posters presented with a small amount of supplementary material to help fill some gaps in the programme. This

book is not about wetland 'issues' but about aspects of ecological science as applied to wetland restoration, rather a broad snapshot of much current information and experience concerning this. Authors identify the problems of wetland restoration as well as the opportunities; the lack of knowledge as well as established information. In some cases they reveal how small is the fund of knowledge available and how difficult it can be to make informed decisions.

The book contains an introduction and 12 chapters entitled: (1) the soil ecosystem: physical and chemical boundaries; (2) the soil ecosystem: biological participants; (3) energy transformations and metabolic activities of soil microbes; (4) process control in soil; (5) soil enzymes as indicators of ecosystem status; (6) microbial interactions in soil and community development and resilience; (7) the rhizosphere/mycorrhizosphere; (8) introduction to the biogeochemical cycles; (9) the carbon cycle; (10) the nitrogen cycle: soil-based processes; (11) nitrogen fixation; the gateway to soil nitrogen cycling; (12) symbiotic nitrogen fixation; (13) denitrification; (14) the sulphur and related biogeochemical cycles.

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Social Aspects of Sustainable Dryland Management. D. Stiles, editor. John Wiley & Sons, Chichester, New York, 1995, xii + 313 p. ISBN 0-471-95633-3. Hardbound.

This book attempts to address the overall problem of land degradation and provides ways in which dryland productivity and viability can be increased and managed for future years. It bases the results on case studies and field research projects, and encourages a greater involvement from the local population in developing methods of management of their own natural resources. It seeks to show that land management must develop around the priorities, needs and objectives of the people; it seeks to benefit and emphasises the need to involve local people in solving the problems of resource degradation, so that research and modern technologies can be developed with their participation. In the issue on dryland management is discussed the neglect of women and the factors that render them vulnerable. The book recognises the value of indigenous knowledge in sustainable development, so that such knowledge systems can become the starting point from which to plan management strategies and new technological adaptations.

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Effects of Acid Rain on Forest Processes. D.L. Godbold and A. Hüttermann, editors. John Wiley & Sons, New York, Chichester, 1994, x + 419 p. ISBN 0-471-51768-2. Hardback.

This volume investigates the influence of acidification on forest soil, rhizosphere, and plant life, and on the processes linking them. Because European forests have suffered the effects of acid rain years ahead of those in North America, this book will provide a valuable glimpse of what may lie ahead in North America.

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It has become increasingly clear that the major influence of acid deposition is indirect, i.e., the effects are mediated by changes in soil chemistry that influence all other processes.

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Environmental Analysis. R.N. Reeve. John Wiley & Sons, New York, Chichester, 1994, xx + 263 p. ISBN 0-471-93833-5. Hardback.

As the study of the environment has become increasingly important, so the number of analytical techniques employed has grown dramatically. This book is a textbook which surveys the most important analytical chemistry methods now used in this field. All the main areas of environmental analysis are covered.

The first two chapters introduce the concepts necessary for a study of the environment. They enable the reader to gain an understanding of how pollutants may be transported in the environment, and the role of analytical chemistry in the monitoring of these pollutants. The remaining six chapters cover the analysis of water, solid and atmospheric samples. The special problems of ultra-trace analysis are also considered. A number of problems are included at the end of each chapter.

This book is a volume of the ACOL series (Analytical Chemistry by Open Learning). The series provides a coverage of analytical chemistry, covering basic concepts, classical methods, instrumental techniques and applications. It is designed for training, continuing education and updating of all technical staff concerned with analytical chemistry. Further information on ACOL materials and courses may be obtained from: ACOL-BIOTOL Office, University of Greenwich, Avery Hill Road, London SE9 2HB, U.K. Price: GBP 19.50

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Land Use and the Causes of Global Warming. W.N. Adger and K. Brown. John Wiley & Sons, New York, Chichester, 1994, x + 271 p. ISBN 0-471-94885-3. Hardback.

This publication reviews the global emissions of greenhouse gases from land use sources, highlighting the uncertainties in estimating both the magnitude of the fluxes and the scale of land use change. Policies of afforestation, policies to encourage the halting of deforestation and changing management practices in agriculture are all examined from the perspectives of feasibility, cost and equity. The authors illustrate how all land use policies are multi-objective but that the reduction of greenhouse gas emissions must be a key element in forestry and agriculture policy on a global basis.

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Dryland Forestry. Planning and Management. P.F. Ffolliott, K.N. Brooks, H.M. Gregersen and A.L. Lundgren. John Wiley & Sons, New York, Chichester, 1995, xviii + 453 p. ISBN 0-471-54800-6. Hardback.

The primary objective of the book is to present the kinds of information required to understand and integrate biophysical and socioeconomic components into

environmentally sound, sustainable forest management practices in dryland environments. To achieve this objective the book furnishes: 1) Basic knowledge of important disciplines involved in the practice of forestry in the dryland regions of the world; 2) Forest management practices appropriate to specific situations; and 3) Practical experiences to problem solving in planning and implementing forest management practices in dryland environments. The book has been organized into five parts, each of which addresses a specific set of issues that relate to forestry and the management of trees and shrubs for multiple benefits and sustainable development of dryland regions. It has been written for upper-level and graduate students in forestry-related, conservation, and natural resource curricula.

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The Role of Nonliving Organic Matter in the Earth's Carbon Cycle. R.G. Zepp and Ch. Sonntag, editors. John Wiley & Sons, Chichester, New York, 1995, xvi + 342 p. ISBN 0-471-95463-2. Hardback.

This Dahlem volume considers how best to characterise and quantify pools and fluxes of Nonliving Organic Matter (NLOM), the role of NLOM cycling on a global scale, human and climatic perturbations of interactions between NLOM and nutrients, biological, chemical, and physical processes that affect the persistence of NLOM in the environment. NLOM comprises the bulk of the organic carbon stored in the terrestrial biosphere and a major part of the organic carbon in the sea. Organic substances, which include litter, marine detritus, dissolved organic matter, and soil organic matter, have diverse effects on the Earth's biogeochemical processes and serve as a major reservoir of biospheric carbon, which can be transformed to carbon dioxide, methane and other 'greenhouse' gases. Given this broad spectrum of effects, efforts to adapt to or benefit from global change require a better understanding and ability to predict the role of NLOM in the global environment. The Dahlem Workshop was held in Berlin from 12-17 September 1993.

Price: GBP 70, USD 112.

Orders to: see below.

Agricultural Sustainability. Economic, environmental and statistical considerations. V. Barnett, R. Payne and R. Steiner, editors. John Wiley & Sons, New York, Chichester, 1995, xii + 266 p. ISBN 0-471-95009-2. Hardback.

It was against the background of lack of precision in defining the sustainability concept that the Rockefeller Foundation commissioned an international research study on sustainability to exploit the wealth of potential information in established long-term experiments. Six major centres of long-term experiments were invited to conduct detailed studies of their data and to address the issue of definition and, in particular, to make proposals on how to measure sustainability in quantitative terms. The book has been structured as a comprehensive and unified contribution to this important issue. Part I considers basic issues of definition and the choice of appropriate economic and statistical methodology. Part II presents the

results of the six research studies. Part III draws together the conclusions, addresses the thorny issue of environmental externalities and makes proposals for future research and implementation.

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Image Analysis for the Biological Sciences. C.A. Glasbey and G.W. Horgan. John Wiley & Sons, Chichester, New York, 1995, xi + 218 p. ISBN 0-471-93726-6. Hardback.

Image analysis is the extraction of information from pictures. Using a variety of statistical and computational procedures, the authors describe methods of image display, filtering and enhancement, segmentation, mathematical morphology and measurement. The statistical techniques appropriate for a diverse range of applications are demonstrated, with emphasis on the aspects relevant to the biological sciences. The use of computers for quantitative analysis of visual data is discussed, with sample algorithms provided, and guidance is given on the criteria for choosing hardware and software for specific applications. The data sets used are available by anonymous FTP (file transfer) on the Internet.

Price: GBP 29.95.

Orders to: see below.

Soil Microbiology. R.L. Tate. John Wiley & Sons, New York, Chichester, 1995, xviii + 398 p. ISBN 0-471-57868-1. Hardback.

The basic information that soil microbiology provides is exemplified by the necessities that arise from managing the long under-valued soil ecosystem. A myriad of environmental complications have been produced that can be solved only by applying the primary principles of soil microbiology. Answering complex question emerging from the reclamation of polluted or contaminated soil as well as the requirement to manage properly less impacted, terrestrial ecosystems requires an appreciation of the delicate balance between the soil microbial community and its environment. This habitat of the soil microbe not only includes the minerals and organic matter of the soil matrix but also encompasses levels of life occurring therein or indeed thereupon. This book provides a clear understanding of the principles upon which the discipline of soil microbiology is built as well as illuminate their use in current soil-related environmental problems. The principles of the science are essential for answering soil-related questions throughout our society. Hence, a conscious attempt has been made to apply soil microbiology to the grander array of environmental science problems facing our society. The book shows that soil microbiology has reached sufficient maturity to provide an underpinning of newly emerging disciplines such as the environmental sciences.

Price: GBP 45.95

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Soil Nutrient Bioavailability. A Mechanistic Approach. 2nd edition. S.A. Barber. John Wiley & Sons, New York, Chichester, 1995, viii + 414 p. ISBN 0-471-58747-8. Hardback.

The first chapters outline the reactions of nutrients with the soil and plant roots that are important in determining the nutrient flux into the root and they provide chemical and biological principles that help with the understanding of later chapters. The mathematical model and its parameters are discussed and then used to assess the availability of many nutrients, including minor elements. The material is presented in such a way that this book can be used by a wide audience.

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Salt-Affected Soils in China. Wang Zunqin, et al.; Science Press, Beijing, 1993, 574 + XII p, Table of contents + 12 pages of colour photographs. ISBN 7-03-003794-4/5 116 (hardback).

The fundamental monograph does not only summarize the present knowledge on salt affected soils in China but also deals with the principal problems of soil salinization and salt affected soils. The book is written in Chinese, but an 85-page summary in English is available containing the table of contents, explanation of all chapters as well as full English titles of colour photos, black-and-white photos, tables and figures, so the interpretation of the text and the full material of the monograph is possible for non-Chinese readers as well. In Chapter 1 the conditions of soil salinization are described including climatic, geomorphological, lithological, hydrological, hydrogeological and biological factors, furthermore anthropogenic effects, including economic activities. Chapter 2 characterizes the processes of soil salinization, covering maritime and dryland salinization as well as secondary salinization. Particular attention is paid to the alkalization processes. In Chapter 3 the classification and characteristics of saline and alkali soils are described. The authors applied mainly the natural genetical classification systems. In Chapter 4 the different salt affected soils and their regional distribution in china are characterized. Chapter 5 covers the relationship between salts and plant, while in Chapter 6 the monitoring and prediction of salt and water dynamics in soil are characterized. As a logical follow-up, in Chapter 7 and 8 the methods of comprehensive prevention and control of soil salinization and alkalization can be found. Although the extended English summary makes possible the understanding of this exceptional book, the English edition of the monograph would be most useful.

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Polish Journal of Environmental Studies. „HARD“
Dr.hab. Jerzy Radecki, Editor in Chief. 1995.

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Orders to: Polish Journal of Environmental Studies, „HARD“, Post-office box, 10-718 Olsztyn 5, Poland.

Trends in Plant Science. Monthly issue by Elsevier Trends Journals, Oxford. Andrew Sugden, Managing Editor, Vol. 1, January 1996.

Trends in Plant Science is a response to the sustained and dynamic expansion of plant science that has taken place over the past decade. It will provide broad and timely coverage of current research developments, ranging across all the major subject areas - molecular and cell biology, pathology, physiology and ecology, systematics and evolution, and applied plant science. Research News will feature reports on individual new papers and recent conferences. Reviews will provide chronicles of recent progress in rapidly moving fields. The Update section will include a miscellany of articles on new books, software techniques and internet services. Perspectives will feature opinion and essays on the contemporary plant science scene.

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Environment and Development Economics. Cambridge University Press, Cambridge, C. Perrings, editor. 1996. ISSN 1355-770X.

This new quarterly journal, published in association with the Beijer Institute, aims to provide a forum for the results of the growing body of research into the linkages between economic development and environmental change. It encourages submission of two categories of papers. The first comprises scientific papers. The second environmental policy discussion papers. Each issue of the journal includes a section containing non-technical summaries of all papers in the Theory and Applications and Policy sections. It also contains book reviews, and review essays designed to bring relevant regional literatures to the attention of a wider readership.

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Fruits, Fruit and horticultural production in tropical and mediterranean regions. C. Loison-Cabot, editor-in-chief. ISSN 0248-1298.

This well-established journal of CIRAD will now be published by Publications Elsevier, Paris. It is due to appear on a monthly basis throughout 1996, in order to re-establish a regular publication schedule. The languages are English and French. It publishes articles on the production of economically important fruit and vegetables. Other species presently receiving increasing attention in diversification projects are also considered. Subjects treated are: cultivations methods, fertilization, irrigation, disease control, comparison of varieties, plant improvement, product transformation.

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