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of the International Union of Soil Sciences

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INTERNATIONAL UNION OF SOIL SCIENCES

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A scientific union member of ICSU since: 1993.
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III. Soil Biology
Dr.J.K. Ladha, I.R.R.I., P.O. Box 933, 1099 Manila, Philippines; Fax: +632-845-0606 or -891-1292.

IV. Soil Fertility and Plant Nutrition
Prof.Dr. M.J. Swift, TSBF, P.O. Box 30592, Nairobi, Kenya.

V. Soil Genesis, Classification and Cartography
Prof.Dr. A.R. Mermut, University of Saskatchewan, Dept. of Soil Science, Saskatoon, Sask. S7N 5A8, Canada

VI. Soil Technology
Dr. P. Rengasamy, Univ. of Adelaide, Dpt. of Soil and Water, Walte Campus, PMB1, Glen Osmond S.A. 5064, Australia.

VII. Soil Mineralogy
Prof.Dr. K. Stahr, Inst. f. Standortlehre u. Bodenk., Univ. Hohenheim, Emil-Wolff-Str.27, 70599 Stuttgart, Germany

VIII. Soils and the Environment
Dr. Ch. de Kimpe, Agriculture Canada, Direction Générale de la Recherche Sir J. Carling Bldg. 725, 930 Carling Av., Ottawa, Ont. K1A 0C5, Canada

Bulletin

of the International Union of Soil Sciences

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CONTENTS

ERRATUM:

Prof.Dr. J.F. Gallardo Lancho asked us for the following corrections referring to Bulletin 100:

- the photo on page 80 shows Prof. Gerd WERNER, the organizer of theVI International Symposium and Field Workshop on Paleopedology.
- the photo on page 91 shows the participants of the 2nd CIQFA (see page 106).

VISIT THE NEW IUSS HOMEPAGE:

HTTP://WWW.IUSS.ORG

IMPORTANT NOTICE:

This Bulletin (No. 101) is the last but one which will be sent to former individual members of ISSS. After the next Bulletin, No. 102, which will appear before the end of the year 2002, only National Soil Science Societies and libraries will receive the IUSS Bulletin further on automatically. Those persons who still want to receive the IUSS Bulletin have to subscribe to it at a price of 25 US$ per year (2 issues), see subscription form at the end of this Bulletin.


17
การประชุมวิทยาศาสตร์ทางดินของโลก
World Congress of Soil Science
Congrès Mondial de Science du Sol
Bodenkundlicher Weltkongress
Congreso Mundial de la Ciencia del Suelo
WCSS
2002
14-21 August 2002, Thailand
Soil Science : Confronting New Realities in the 21st Century
E-mail : o.sfst@nontri.ku.ac.th http://www/17wcss.ku.ac.th

INVITATION

Dear Colleagues,

At this time, I would like to let you know that the Congress has received an overwhelming response from the world community of soil scientists and friends. It is a truly unique opportunity for all of us to join our efforts in order to confront the realities and meet the challenges of soil science in the 21st Century. Our cordial invitation to the 17th World Congress of Soil Science stands for all of you. On behalf of the IUSS and the Congress Organization, I can assure you that it will be a most friendly, warm and fruitful occasion. I hope to see all of you at the Congress.

Sompong Theerawong, President of the Congress
President of Soil and Fertilizer Society of Thailand
President of International Union of Soil Sciences

WELCOME ADDRESS

Dear Colleagues,

On behalf of the Organizing Committee of the 17th World Congress of Soil Science, it is my pleasure to present to you the Fifth Announcement for the Congress.

Thanks to the great efforts of all Symposium Convenors and Co-Convenors and the enthusiastic response from a great number of soil scientists (professionals and students) across the globe, the Congress is shaping up to be a truly momentous event. More than two thousand scientific papers have been submitted and are scheduled to be presented either orally or as posters. In pursuit of the Congress theme, "Soil Science: Confronting New Realities in the 21st Century", the papers will be presented in sixty-five different symposia, each of which covers a specific and important concern of soil science today.
In addition to the scientific events of the Congress, pre- mid- and post-Congress tours are organized to feature various environment - cum - culture attractions. Aside from a delightful ambience, the traditional Thai hospitality is also renowned for enhancing the utmost enchantment of AMAZING THAILAND – RENDEZ VOUS.

The Organizing Committee members have been doing their very best to ensure that this will be an enjoyable and fruitful Congress, as well as an exciting opportunity for visitors to experience the exotic beauty and cultural richness of Thailand.

We are looking forward to welcoming you all in August.

Sima Morakul, Director General of the Land Development Department, Ministry of Agriculture and Cooperatives, Chairman of the Organizing Committee

General Information

CONGRESS THEME	Soil Science: Confronting New Realities in the 21st Century
CONGRESS VENUE	Queen Sirikit National Convention Center (QSNCC), Thailand
CONGRESS DATE	14-21 August 2002

CONGRESS ACTIVITIES

1. Plenary Session (the 1st day)
2. Symposia of Commissions, Sub-Commissions and Working Groups (Six parallel Sym-

posia each day, half a day for each Symposium oral presentations)
3. Poster Session (related to 2)
4. Pre-Congress Tours, Mid-Congress Tours and Post-Congress Tours
4.1 Scientific/Cultural Tours in Thailand and other parts of Asia
4.2 Special tour programmes for accompanying persons of the participants
5. IUSS Business Meetings:
- Tuesday, 13 August, 14:00 - 18:00 hrs.
- Thursday, 15 August, 18:00 - 21:00 hrs.
- Saturday, 17 August, 18:00 - 21:00 hrs.
- Monday, 19 August, 18:00 - 21:00 hrs.
- Tuesday, 20 August, 18:00 - 21:00 hrs.

TENTATIVE PROGRAMME

DATE / TIME	**ACTIVITY**
13 AUGUST 2002 (Tuesday)	
1300-2000	On-site Registration
14 AUGUST 2002 (Wednesday)	
0830-1200	Opening Ceremony
0830-1730	On-site Registration
1330-1730	Plenary Lecture
15-17 AUGUST 2002	
Symposia: Morning Session	
0830-1010	First Part
1010-1030	Break
1030-1150	Second Part
1150-1300	Lunch
Poster Session	
1300-1400	Poster Papers
Symposia: Afternoon Session	
1400-1540	First Part
1540-1600	Break
1600-1720	Second Part
18 AUGUST 2002 (Sunday)	
All day	Mid-Congress Tours
19 AUGUST 2002 (Monday)	
1800-2200	GALA DINNER
19-20 AUGUST 2002	
Symposia Programme (Same as for 15-17 August 2002)	
21 AUGUST 2002 (Wednesday)	
Symposia: Morning Session	
0830-1010	First Part
1010-1030	Break
1030-1150	Second Part
Afternoon Programme	
1330-1500	Closing Ceremony

14-21 AUGUST 2002 On-site registration all day, everyday

REGISTRATION FEE

1. IUSS Members	350 USD	420 USD*
2. Non-IUSS Members	400 USD	480 USD*
3. Young Scientists	150 USD	180 USD*
(students under 30 years old with valid institution I.D. card)		
4. Accompanying person	150 USD	180 USD*

Registration fees (1-3) cover entries to all scientific events at the venue, Congress documents abstracts, Transactions of Symposia and welcome party. The accompanying person registration fee (4) covers entries to exhibition at the venue, welcome party and a complimentary day-tour programme.

*Registration fee rates increased by 20% after 14 February 2002

TIMETABLE AND DEADLINES

14 February 2002	Deadline for registration without late charge
31 May 2002	Final date for submitting full papers
15 July 2002	Final Announcement
14-21 August 2002	The 17th World Congress of Soil Science

Official Airline

THAI Airways International is appointed the Official Airline for the 17th World Congress of Soil Science and prepared to offer special airfare for participants. Please contact THAI's office in your area for assistance in travel arrangement. It is important to refer to an event code TG02081404 when contacting THAI's office.

SUPPORTING ORGANIZATIONS FOR THE 17th WORLD CONGRESS OF SOIL SCIENCE

Thai Agencies

1. Office of the Permanent Secretary, Ministry of Agriculture and Cooperatives (MOAC)
2. The Land Development Department (LDD)
3. The Soil and Fertilizer Society of Thailand (SFST)
4. Office of the National Economic and Social Development Board
5. The Bureau of Budget
6. The Comptroller-General's Department
7. Department of Agriculture
8. Department of Agricultural Extension
9. The Royal Forestry Department
10. Office of Environmental Policy and Planning
11. Royal Thai Police
12. The Tourism Authority of Thailand
13. The Communications Authority of Thailand
14. Thai Airways International Public Company Limited
15. Kasetsart University
16. Khon Kaen University
17. Chiang Mai University
18. Prince of Songkhla University
19. The Public Relations Department
20. The Airports Authority of Thailand
21. The Customs Department
22. Office of the 17th World Congress of Soil Science

International Agencies

1. International Union of Soil Sciences (IUSS)
2. International Atomic Energy Agency (IAEA)
3. Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC)

4. Swiss Agency for Development and Cooperation (SDC)
5. The Technical Centre for Agricultural and Rural Co-operation (CTA)
6. World Association of Soil and Water Conservation (WASWC)

17th WCSS PROGRAMME

Symposia and Date												
Rooms	Thursday 15		Friday 16		Saturday 17		Monday 19		Tuesday 20		Wednesday 21	
Oral Sessions	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
1	01	07	10	09	12	06	04	03	05	16	02	-
2	14(1)	14(2)	14(3)	19	21	33	08	15	17	20	11	-
3	18	22	43	39	31	35+36	24	32	28	23	13	-
4	25	29	46	48	34	38	40	53	30	26+27	42	-
5	37	44	55	51	50	41	59(1)	59(2)	45	57	63	-
6	49	65	56	64	52	58+60		62	64	61	-	-
Poster Sessions	01, 07, 14(1,2), 18, 22, 25, 29, 37, 44, 49, 65		09, 10, 14(3), 19, 39, 43, 46 48, 51, 55, 56, 64		06, 12, 21, 31, 33, 34, 35, 36, 38, 41, 50, 52, 58, 60		03, 04, 08, 15, 24, 32, 40, 47, 53, 59, 62		02, 05, 11, 13, 16, 17, 20, 23, 26, 27, 28, 30, 42, 45, 54, 7, 61, 63		-	
	All day											

SYMPOSIA

COMMISSIONS

I	SOIL PHYSICS		01-04
II	SOIL CHEMISTRY		
05-08			
III	SOIL BIOLOGY		09-12
IV	SOIL FERTILITY AND PLANT NUTRITION		13-17
V	SOIL GENESIS, CLASSIFICATION AND CARTOGRAPHY		18-21
VI	SOIL TECHNOLOGY		22-24
VII	SOIL MINERALOGY		25-28
VIII	SOIL AND THE ENVIRONMENT	1	29-32

SUBCOMMISSIONS

A	SALT AFFECTED SOILS	33-34
B	SOIL MICROMORPHOLOGY	35-36
C	SOIL EROSION AND SOIL WATER MANAGEMENT	37-38
E	FOREST SOILS	39-40
G	SOIL REMEDIATION	41-42

WORKING GROUPS

STANDING COMMITTEES

17thWCSS Symposia

I - SYMPOSIA IN RELATION WITH COMMISSIONS

COMMISSION I - SOIL PHYSICS

01 Effect of soil structure and properties on preferential flow dynamics and pollutant transport in soils Stress should be laid on the transport of aqueous solutions and contaminants that can affect soil and water quality and human health. Special attention will be given to combining soil structure data and measurements in order to model water and mass transfer. An important aspect should be to consider soil as a structured and non-rigid material in preferential flows.

Key words: soil structure, hydraulic conductivity, preferential flow, mass transfer, water quality, contaminants,

Convenor: Hans-Joerg Vogel, Univ. of Heidelberg,
Institute of Environmental Physics,
Im Neuenheimer Feld 229, D-69120, Heidelberg, Germany,
Tel: 49 6221 54-5481, secretary: 49 6221 54-6350,
Fax: 49 6221 54-6405,
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Phaholyothin Road, Chatuchak, Bangkok 10900,
Tel: 66 2 579-7516, Fax: 66 2 940-5942,
Email: somphob@doa.go.th

02 Landscape scale research: methodology, concepts and consequences for soil and water quality Papers dealing with research methodology according to the scale of investigation and the factors to be taken into account so as to understand and predict environmental problems. Particular attention should be paid to describing soil variability, the processes at this scale and their evolution over time.
Key words: catchment, field scale, runoff, soil variability, modelling, transport processes.
Convenor: Chris Moran,
Land and Water, GPO Box 1666, Canberra ACT 2601, Australia,
Tel: 61 2 6246 5926, Fax: 61 2 6246 5965,
Email:

25 Mineralogy and geochemistry of regolith
The transition of rock to soil is a long lasting sequence of processes. This is especially the case in landscapes of the tropics. Knowledge of neoformation changes taking place in the regolith allows not only a better understanding of weathering processes and mineral neoformation as a consequence of climate and the geochemical environment but also a better insight into the influence of mineralogy and geochemistry on fertility, hydrology, stability and contaminant mobility in soils.
Keywords: weathering, geochemical environment, tropical climate,secondary minerals
Convenor: Rob W. Fitzpatrick,
CSIRO, Div. of Soils, P.M.B. 2, Glen Osmond, S.A. 5064, Australia,
Email: rob.fitzpatrick@adl.clw.csiro.au
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Email: agrals@nontri.ku.ac.th

26 Reaction of soil minerals on changes of climate and land management Soil minerals are the memory of the soils, left to be recorded through the period of soil development. Climate and land management changes can alter the soil mineralogy as a whole or partially within the soil body. Soil environment changes such as drained acid sulfate soils, secondary saline soils, man made and rehabilitated mine soils affect mineral assemblages of soils including changes in the silicate, oxide, and carbonate in soils.
Keywords: heritage, soil memory, climatic marker, paleoenvironment, mineral stability, equilibrium
Convenor: Balwant Singh
Dept. of Agricultural Chemistry & Soil Science, The University of Sydney,
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27 Mineralogy and micromorphology of pedogenesis including isotope methods and dating of soil processes. The qualitative and quantitative assessment of soil genesis often needs insight into the changes in the nature of pedogenic minerals as well as their arrangement within the soil matrix. In order to reconstruct the conditions of active or past processes isotope abundance in soil minerals may be used for the assessment of environmental conditions and for age determination. Spectroscopic analysis of soil minerals are also widely used in this field of

Keywords: soil genesis, micromorphology of weathering and newformation, isotope fractionation

Convenor: Karl Stahr,
Inst. of Soil Science and Land Evaluation, Univ. of Hohenheim,
Emil-Wolff-Str. 27 D70593 Stuttgart, Germany,
Tel: 49 711 459-3980/1, Fax: 49 711 459-3117,
Email: kstahr@uni-hohenheim.de
Thai co-convenor: Chatchai Romsonthi,
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Tel: 66 2 222-6819, Fax: 66 2 226-5355,
Email: romson@su.ac.th

28 Soil mineralogy in relation to soil fertility and toxicity Modern electron optical, spectrometer and microanalytical methods bioavailability of nutrient and contaminant elements. Studies of fertilized soils the associations of sorbed phosphate with soil minerals can be distinguished. Such information is invaluable in research aimed at managing and remediating soils and sediments contaminated by nutrients and heavy metals.

Keywords: heavy metals, contamination, pollution, microanalysis, sorption with
Com. II, IV
Convenor: Bob Gilkes,
Soil Science and Plant Nutrition, The Univ. of Western Australia,
Nedlands, WA 6907, Australia,
Tel: 61 8 9380-2509, Fax: 61 8 9380-1050,
Email: bob.gilkes@uwa.edu.au
Thai co-convenor: Wanphen Wiriyakitnateekul,
Soil Analysis Div., Land Development Dept., Phaholyothin Road,
Chatuchak, Bangkok 10900,
Tel: 66 2 941-1968 ext. 1259, 1359,
Email: wwanphen@yahoo.com

COMMISSION VIII - SOIL AND THE ENVIRONMENT

29 Urban and sub-urban soils: specific risks for human health (Urban agriculture) There is a growing concern regarding the management of urban and sub-urban soils, which has been underestimated. Excess applications of fertilizers, pesticides, and hazardous wastes may have a direct impact on human health, and as sources of soil and groundwater contamination, they create a further risk for human health.

Keywords: urban agriculture, food production, heavy metal, plant uptake
Convenor: Jean-Louis Morel,
Institut National Polytechnique de Lorraine, Nancy, France,
Tel: 33 3 8359-5847, Fax: 33 3 8359-5791,
Email: morel@ensaia.u-nancy.fr
Thai co-convenor: Supamard Panichsakpatana,
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30 Food security and land use The world's population now exceeds 6 billion, and continues to increase. The responsibility of the agri-food sector is to assist in developing policies that will ensure safe food availability in a global market, considering that one third of the world's land is presently used for agricultural production. There are therefore very close links between food security and environmental issues that will be discussed in this symposium.
Keywords: sustainable intensive agriculture, productivity index, maximum yield, optimum yield
Convenor: Francis Andreux,
Sciences de la Terre, Universit? de Bourgogne, Dijon, France,
Tel: 33 3 8039-6364, Fax: 33 3 8039-6387,
Email: fandreux@u-bourgogne.fr
Thai co-convenor: Arnat Tancho,
Dept. of Soils and Fertilizer, Maejoe Univ., Chiang Mai 50290,
Tel/Fax: 66 53 498-164,
Email: arnat009@yahoo.com

31 Attitudes towards soil and land use; past and present Global issues such as soil degradation and sustaining soil functions in agro-ecosystems, bring social aspects to the technical knowledge base of soil science. Indigenous soil knowledge and "on-farm research", for example, broaden our approaches to use of soils. Concerns about environmental quality ask if stewartship or "wise use" is sufficient for long-term protection of our soil resource, or whether a "land ethic" is necessary. Among, and even within, each of the world's different societies, attitudes toward soil and land differ considerably. For many of us, soil is a natural resource for economic uses as well as having spiritual qualities, expressed in concepts such as "Mother Earth". Can a study of these differences guide us in confronting these new realities of the 21st century?
Keywords: global land ethic, on-farm research, indigenous soil knowledge, new teaching requirement
Convenor: Benno P. Warkentin,
Dept. of Crop and Soil Science, Oregon State Univ., Corvallis,
OR 97331,USA,
Tel: 1 (541) 737-3425, Fax: 1 (541) 737-5725,
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Thai co-convenor: Nitayaporn Tonmanee,
Soil Analysis Div., Land Development Dept., Phaholyothin Road,
Chatuchak, Bangkok 10900,
Tel: 66 2 941-1368 ext. 1366, 1386,
Email: ntyaporn@ldd.go.th

32 Soil indicators for sustainable land use Soil indicators are important for assisting decision-makers in the development of policies regarding land use and management. Indicators are also useful for monitoring our progress towards sustainable land use. Such indicators are being developed by several countries and also examined at the international (e.g. OCDE) level. The objective of the Symposium will be to evaluate the progress in the development and use of the soil quality indicators for sustainable development.
Keywords: soil quality, soil functions, soil health, land management
Convenor: Christian De Kimpe,
Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada,
Tel: 1 (613) 759-7824, Fax: 1 (613) 759-7769,

Email: dekimpec@em.agr.ca
Thai co-convenor: Jirapong Prasittiketh,
Soil Science Div., Dept. of Agriculture, Phaholyothin Road,
Chatuchak, Bangkok 10900,
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Email: jirapong@doa.go.th

II- SYMPOSIA IN RELATION WITH SUB-COMMISSIONS

A - SALT AFFECTED SOILS

33 Salt affected soils and the environment

This symposium will address the information on soil salinity including its development and distribution naturally or human induced into agricultural land, surface and underground water; and its impact on the environment. Papers dealing with research methodology, planning and management of salt-affected soils in inland and coastal and their impact on the environment including soil, water, quality, vegetation and crops and living organism are most welcome.

Keywords: salinity, water quality, wetlands, ecology, impact, restoration
Convenor: Jorge Battle-Sales,
Departamento Biologia Vegetal, Facultad de Farmacia, Universitat de
Valencia, Avda. Vicent Andres Estelles, 481000 Burjasot, Valencia, Spain,
Tel/Fax: 34 963 864-289,
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Thai co-convenor: Chaiyanam Dissataporn,
Soil Salinity Research Section, Land Development Dept., Phaholyothin Road,
Chatuchak, Bangkok 10900,
Tel: 66 2 579-5546, Fax: 66 2 562-0312,
Email: Chainam@ldd.go.th

34 Salinization, water management and policy

Soil salinization in suitable agriculture land has been expanded rapidly due to seawater aquaculture, pumping of underground water, seawater and freshwater irrigation development and mis-agricultural management. The discharged water into surface and underground water need to be properly managed. This symposium will deal with concepts, planning, and management policy, and monitoring technology to control salinization and introduce water management systems.

Keywords: salinization, brackish water, incentives, policy, irrigation, salinity control, modelling
Convenor: Donald Suarez,
USDA-ARS, US Salinity Laboratory, 450 Big Springs Road, Riverside CA
92507-4617, USA,
Tel: 1 (909) 369-4816, Fax: 1 (909) 342-4962,
Email: dsuarez@ussl.ars.usda.gov
Thai co-convenor: Sudarat Tripetchkul,
Div. of Natural Resource Management, School of Bioresources and
Technology, King Mongkut's Univ. of Technology Thonburi, Bangmod,
Thung Khru, Bangkok 10140,
Tel: 66 2 470-9811, Fax: 66 2 427-9623,
Email: Sudarut.Tri@kmutt.ac.th

B - SOIL MICROMORPHOLOGY

35 Soil micromorphology to quantify soil structure qualities

The characterization of the soil pore system; the types of soil structure and their changing following agricultural activity; soil pore system, water retention and water movement; soil porosity as an indicator of soil degradation aspects (compaction, crusting, etc.).

Keywords: micromorphometry, porosity, quantification, soil degradation.

Convenor: Fabio Terribile,
DISCA, Univ. of Napoli "Federico II", Via Universita 100,
80055 Portici (Na), Italy,
Tel: 39 081 771-7325, 39 081 788-5206, personal phone: 39
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Email: terribile@stat0.ispaim.na.cnr.it, terribil@unina.it
Thai co-convenor: Pramuanpong Sindhusen,
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36 Soil micromorphology and submicroscopy for interpretation of soil qualities

Micromorphology as a tool to deduce processes of soil formation and transformation; natural and human induced processes; chronology of past and present processes; influence of processes on soil quality; relation between soil management practices and micromorphological characteristics; micromorphology and experimental pedology; quantification of processes.

Keywords: micromorphology, pedogenic processes, chronology, micromorphometry.

Convenor: G. Stoops,
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C - SOIL EROSION AND SOIL WATER MANAGEMENT

37 Identification and determination of soil quality parameters to evaluate the sustainability and socioeconomic impacts

The soil and water conservation involve the productivity and socioeconomic development for agricultural sustainability under the specific agro-ecological condition. The parameters to evaluate soil quality should deal with the bio-physical characteristics as well as soil resilience and soil loss tolerance both on theoretical and methodological approaches.

Keywords: soil quality, health, productivity, and environmental functions; total impacts of degradation on soil quality; economic feasibility of restoring soil quality

Convenor: Sonia Carmela Falci Dechen,
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38 Advances integral modeling to make decision in soil conservation

At this decade, soil information systems for soil conservation is quite essential as well as the integral modeling in soil conservation for decision making. Strategies research should be made on a constructive and innovative direction on the concept of conservation and development for sustainable agriculture.

Keywords: Transforming information into decision aids; combining and sharing databases, models, and experiences; science-based and realistic scale conservation planning

Convenor: Fernando Delgado Espinoza,
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E - FOREST SOILS

39 melioration of degraded soils through afforestation

Vast areas of land which have previously been supporting forests, are degraded. inappropriate soil management (e.g., heavy machinery), mining, land pollution and inadequate drainage, has caused soil degradation by erosion, changing physical (compaction, reduced infiltration), chemical (salinity, excessive acidity, nutrient losses), and biological (soil C, microbial-activity, mineralization) properties in soils. Amelioration by afforestation is an important issue in 21st century.

Keywords: afforestation, erosion, mining, pollution, compaction, chemical and biological properties

Convenor: R. F. Huettl,
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40 New developments in the evaluation and management of forest soils

Evaluation of soils for forestry is required for proper selection, establishment and productivity of tree species. Due to limitation in the classical soil survey many recent developments in the field and laboratory techniques have occurred which included: remote sensing, radiometry, IR and NIR spectroscopy, stable isotope analysis. GIS and other land based techniques are used to assess soils on a regional scale. Potential use of these techniques and recent improvements in managing forest soils will be explored.

Keywords: forest management, site evaluation, remote sensing, isotopes, GIS

Convenors: Partap K. Khanna,

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G - SOIL REMEDIATION

41 Physicochemical techniques for remediation of contaminated soils

The symposium will focus on the validation and application of in situ remediation techniques that are based on changing the speciation and mobility of organic and inorganic pollutants in soils. Technologies involving active (e.g. electrochemical) and passive (e.g. use of soil amendments) will be covered. There will be special emphasis on the applications of these technologies under field conditions and how their use relates to current national criteria for soil remediation.

Keywords: soil remediation, electrochemistry, soil washing, soil amendments, field trials, legislation.

Convenor: N. J. Lepp,
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Thai co-convenor: Preeda Parkpian,
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42 Biological techniques for remediation of contaminated soils

This symposium will cover important aspects of fundamental research and innovative technologies for soil remediation, and include both Phyto- and Bioremediation. It will focus mainly on in situ techniques, risk assessment and legislative aspects relevant to bioremediation. Technologies covered will include land farming, composting, biopiling, air-sparging, biofilters, phytoremediation and phytoextraction. Target pollutants include inorganic pollutants, heavy metals, POPs, oils, petroleum hydrocarbons, etc.

Keywords: soil remediation, risk assessment, bioremediation, heavy metals, POPs, oils, petroleum hydrocarbons.

Convenor: Steve P. McGrath,
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Thai co-convenor: Pichit Pongsakul,
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Email: pich@doa.go.th

III- SYMPOSIA IN RELATION WITH WORKING GROUPS

CR: CRYOSOLS

43 Cryosols and cryogenic environments in the 21st Century

This symposium will focus on current research activities relating to Cryosols, with special attention being paid to those activities involving present-day issues such as global climate change at high latitudes and how the management and use of these soils affect the cryogenic environment. Since most Cryosols contain large amounts of carbon and ice, climatic changes and human activities may have a great effect on them. Therefore, future research activities should be directed towards acquiring a greater understanding of these soils and the associated environments in order to provide the information needed to deal with the diverse situations that may arise. The papers presented at this symposium will provide some indication of where we are and what we need to do to deal with some of the challenges facing us in the future.

Keywords: permafrost-affected soils, cryosols, permafrost, global climate change

Convenor: Charles Tarnocai,
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DM: WORLD SOILS AND TERRAIN DIGITAL DATA BASE

44 Global and national digital data bases on soil and terrain conditions, their compilation and uses

The IUSS Working Group on a World Soil and Terrain Digital Database (WG/DM) has been promoting the updating of geo-referenced information on soil patterns, landform and soil profile data. FAO, UNEP and ISRIC in cooperation with national institutes have produced such material at different levels of spatial resolution, as well as its ractical applications. The completion of this effort is now becoming urgent, e.g. in view of the Kyoto Protocol on Climate Change, for up-to-date, reliable and easily accessible information on land conditions. The WG/DM intends to have relevant papers published in a special issue of a peer-reviewed international Journal.

Keywords: digital soil information; carbon sequestration; land degradation; land use planning; food security.

Convenor: Wim Sombroek,
International Soil Reference and Information Center (ISRIC), PO Box
353, 6704 AJ, Wageningen,
The Netherlands
Tel: 0031 317 471773, Fax: 0031 717 471700,
Email: sombroek@isric.nl
Thai co-convenor: Taweesak VEARASILP,
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Email: vearasilp@access.inet.co.th

GC: SOILS AND GLOBAL CHANGE

45 Soil carbon dynamics and the greenhouse effect

The symposium will discuss state-of-the-knowledge in soil C dynamics in relation to the accelerated greenhouse effect. The principal objective is to deliberate the importance of world soils in the global C cycle in a warmer earth. Specific issues to be discussed include effects on soil C(inorganic and organic) dynamics of land use and management, soil erosion and sedimentation, and desertification control and soil restoration. Ancillary benefits of soil C sequestration, including on-site and off-site benefits, and societal value of C will also be debated.

Keywords: soil organic matter, greenhouse effect, soil restoration, soil quality, carbon sequestration.

Convenor: Rattan Lal,
School of Natural Resources, The Ohio State Univ., Columbus, OH 43210, USA,
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LD: LAND DEGRADATION AND DESERTIFICATION

46 Land degradation and desertification: confronting the realities of the 21st century

About 33% of the global land surface are subject to desertification. This is about 42 million km2 and affects more than 1 billion people. By 2020, if appropriate actions are not taken, the number of persons affected will be more than double. Asia and Africa will likely suffer the most. With a reduction of the ability of these regions to be self-sufficient in food, food security will emerge as a major global issue. This will stress more on the land resources including a net drain in soil nutrient resources and will be aggravated by climate change. The Symposium will address these and other issues with suggestions to mitigate the negative impacts.

Keywords: land degradation, desertification, food security, global climate change.

Convenor: Hari ESWARAN,
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Resources, PO Box 2890, Washington DC20013, USA,
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MO: INTERACTIONS OF SOIL MINERALS WITH ORGANICE COMPONENTS AND MICROORGANISMS

47 Soil mineral - organic component – microorganism interactions and the impact on the ecosystem and human welfare

The objective of this symposium is to provide a forum for interactions among soil and environmental scientists to integrate our knowledge on physical/chemical/biological interfacial interactions in soil systems and their impacts on human welfare which include global ion cycling and climatic changes, biodiversity, biological productivity and human nutrition,

geomedicine, biotechnology, ecotoxicology and human health, remediation and restoration technology, and celestial exploration.
Keywords: Mineral-organic component-microorganism interactions, interactive soil processes, porosity, transformation and transport, biomolecules, nutrients, pollutants, ecotoxicology, remediation, human health, global changes, space exploration. with Com. I, II, III, VII
Convenor: P.M. Huang,
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Tel: 1 (306) 966-6823, Fax: 1 (306) 966-6881,
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PM: PEDOMETRICS

48 Developments in Soil Data Processing
This symposium will focus on ongoing research results within the framework of pedometrics aiming at presenting the state-of-the-art in soil data processing. Topics include analysis of spatial and temporal variability of soil properties; development of decision support systems; assessment of error propagation; quantification of uncertainty and fuzziness of information and evaluation criteria; soil process simulation modelling; design and evaluation of sampling schemes and incorporation of exhaustively sampled information.
Keywords: soil data processing, decision support systems, error propagation, evaluation criteria, soil process, spatial variability, temporal variability
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Email: nchairat@ratree.psu.ac.th

PP: PALEOPEDOLOGY

49 Paleosols as a memory for understanding landscape history and environmental problems
This symposium focuses on unburied paleosols or relict soils formed under a different constellation of soil forming factors mainly a different climate and with it vegetation. The knowledge of their genesis is essential for understanding soil behaviour, landscape history and for a proper appreciation of many modern environmental problems.
Keywords: relict paleosol, paleosol memory, landscape history, environmental problems
Convenor: Arnt Bronger,
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Email: bronger@geographie.uni-kiel.de
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PS: PADDY SOILS FERTILLITY

50 Sustained paddy soil ecosystem: a global challenge

To discuss and exchange information on the current initiatives on bio-organic farming on paddy soils; to discuss cost-effective and sound technologies to improve productivity of derelict paddy soils; Evaluate the Valuation Techniques for Irrigation Water Use to resolve emerging conflicts on water demand and pricing between agriculture and urban and industrial sectors; to elaborate impacts of expanding the cultivation of paddy soils on food security and global climate change.

Keywords: food security; bio-organic farming; derelict paddy soils; water valuation and management; carrying capacity; environment and global climate change

Convenor: Rogelio N. Concepcion,
Bureau of Soils and Water Management, Elliptical Road, Visayas Ave.,
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PT: PEDOTECHNIQUE

51 Manufactured, Amended, and Intensively Tiled Soils and Substrates

Specific soil and substrate volumes and profiles like urban tree soils, sports grounds, potting soils, dikes, road sides, and revegetated and remediated areas. Measurements and description of initial conditions and source materials, and of final conditions; definition of allowable ranges of properties; development of processing equipment and procedures; optimization of specifications; testing unusual materials that are considered for installation.

Keywords: horticulture, urban horticulture, sports grounds, civil engineering, revegetation, remediation

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2 940-7073, 66 2 940-7391,
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RS: REMOTE SENSING FOR SOIL SURVEY

52 Remote Sensing for Data Fusion and GIS as Tools in Land Evaluation and Degradation Studies

This symposium deals with topics on application of remote sensing techniques to soil and land resources studies. The topics include databases for land resources information, surface modelling, extracting remote sensing data for soil chemical properties, DEM and GIS for soil mapping and combining remote sensing data with field data, changing monitoring, disaster management, multitemporal remote sensing-derived LAI as indicator of land qualities and multitemporal approaches to studies and to achieve sustainable land use.

Keywords: remote sensing techniques, data fusion, surface modelling, DEM, GIS, land evaluation

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SM: ENVIRONMENTAL SOIL MECHANICS

53 *Coupled hydraulic and mechanical processes in structured soils - a challenge to define sustainability*

The determination of hydraulic properties of structured soils requires amongst others pore or volume rigidity which neither by mechanical nor by pore water suction effects will be altered. However, natural soil processes like swelling and shrinkage or stress effects may induce soil volume , functions, and changes in ecological functions as soon as the internal strength (= history of the soil) is exceeded. During the symposium more detailed information about such coupled processes will be given.

Keywords: soil hydraulic properties, pore continuity changes, pore strength, mechanical stress, volume deformation

Convenor: Rainer Horn,
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Univ. Kiel, Olshausenstr, 40, 24118 Kiel, Germany,
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SP: SOIL AND GROUNDWATER POLLUTION

54 Vadose zone management strategies to prevent groundwater pollution

Chemical pollution generated by agricultural, industrial and municipal activities has contaminated soil and groundwater worldwide. Management strategies that target the rooting zone offer opportunities for preventing or limiting groundwater pollution and for soil remediation. The symposium is seeking papers on experimental and numerical modeling techniques that

focus on management of the vadose zone. Interdisciplinary contributions among soil physicists, chemists and biologists are encouraged.
Keywords: unsaturated zone, contaminant transport, vadose zone-groundwater coupling, soil remediation
Convenor: Jan W. Hopmans,
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SU: SOIL OF URBAN, INDUSTRIAL, TRAFFIC AND MINING AREAS

55 Improving knowledge about soils and their functions inurban, industrial and mining areas for a better life:
Humans are establishing a new environment for soils and create new soils. This is most pronounced in urban, industrial and mining areas. In these areas soils will go on to contribute essentially to life quality. We have to improve the knowledge for both: the features of these categories of soils and their potential to fulfill functions. In addition we have to learn more about the special fields of the use of soil information.
Keywords: soil functions, urban soils, industrial soils, mine soils, traffic soils, soil information, soil degradation, soil use, environment and soils
Convenor: Wolfgang Burghardt,
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STANDING COMMITTEES

STANDING COMMITTEE: EDUCATION IN SOIL SCIENCE (CES)

56 Soil education and public awareness
The symposium will deal with: how to speak about soil on global and interdisciplinary perspectives such as soil in the ecological and human systems, and presentation of examples of education experiences including field works. Specific topics include pedagogical strategies, formation of the teachers, educational role of soil science specialists.
Keywords: soil education, global soil, interdisciplinary approach, soil science teachers, soil science specialist, pedagogical strategies
Convenor: Mireille Dosso,
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FA: SOIL ORGANIC FERTILIZERS AND AMENDMENTS

57 Soil properties as influenced by the addition of organic fertilizers and amendments
The Symposium will focus on the influence of organic fertilizers and soil amendments on soil physical, chemical and physical properties, and soil fertility. It will also discuss the effect of these materials on soil development along with environmental issues related to their uses.
Keywords: organic fertilizers, soil amendments, soil properties, environmental issues
Convenor: Tom Sims,
Prof. of Soil and Environmental Chemistry, Dept. of Plant and Soil Sciences, Univ. of Delaware, Newark, DE
19717-1303, USA,
Tel: 1 (302) 831-1389, Fax: 1 (302) 831-0605,
Email: jtsims@udel.edu
Thai co-convenor: Pitayakon Limtong,
Soil and Water Conservation Div., Land Development
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Tel/Fax: 66 2 579-2875,
Email: pitaya@ldd.go.th

58 Soil organic fertilizers and amendments: an outlook on key environmental and sanitary issues
The symposium will encompass the discussion on different aspects of the effect of organic fertilizers and amendments added to the soils. These include the Kyoto Protocol, the role of soil organic fertilizers and amendments on the completion of nutrient cycles, recombinant DNA in soil from the use of organic fertilizers and amendments and the risk of TSE/BSE infection from the use of organic fertilizers made of animal residues.
Keywords: Kyoto Protocol, organic fertilizers, soil amendments, nutrient cycles, recombinant DNA, TSE/BSE infection, animal residues
Convenor: Paolo Sequi,
Istituto Sperimentale per la Nutrizione delle Piante, Via
della Navicella 2-4 00184 Roma, Italy,
Tel: 39 6 700-0720, Fax: 39 6 700-5711,
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Tel: 66 2 579-0679, Fax: 66 2 941-1565,
Email: scd_5@ldd.go.th

SPECIAL SYMPOSIUM

59 Towards integrated soil, water and nutrient management in cropping systems: the role of nuclear techniques
This Symposium focuses on soil organic matter dynamics and nutrient cycling, evaluation

and management of nutrient sources, water management and conservation, soil erosion and sedimentation, plant tolerance to environmental stress, environmental and pollution studies and advances in nuclear-based methodologies and instrumentation
Keywords: fertilizers, isotopes, plant nutrition, soil degradation, soil fertility, water
Convenor: Phillip Chalk,
Head, Soil and Water Management and Crop Nutrition Section, International Atomic Energy Agency, PO Box 100, A-1400 Vienna, Austria,
Tel: 43 1 2600-21648, Fax: 43 1 26007,
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Thai co-convenor: Sakorn Phongpan,
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Email: sakorn@doa.go.th

SG: SOILS AND GEOMEDICINE

60 Comparison of bedrocks, soils, chemical climate and pollution as geomedical factors
Much interest has been shown in recent years on the influence on human health from soil pollution. Less attention has been paid to health problems associated with natural chemical and physical factors of the soil and bedrock. Most frequently these problems are associated with local geochemistry, but influence of climate on the cycling of chemical substances in the environment may also play a significant role. The symposium will discuss the relative importance of these factors to human and animal health.
Keywords: geomedicine, bedrock, soil, health, natural factors, chemical climate, pollution.
Convenor: Eiliv Steinnes,
Dept. of Chemistry, Norwegian Univ. of Science and Technology,
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Email: Eiliv.Steinnes@chembio.ntnu.no
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Email: agrsdj@nontri.ku.ac.th

IC: INTERNATIONAL SOIL CONVENTION

61 Soil Convention
A background to the rising interest in the global community of the environmental benefits to soil through the introduction of a global policy for sustainable use of soils and an international environmental law instrument; the international actions for furthering sustainable use of soils; progress made in the development of the global sustainable soil convention.
Keywords: sustainable use of soils, soil convention, international environmental law and policy, soil and land degradation, global soil policy, sustainable land management
Convenor: Hans Hurni,
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Land Development Dept., Phaholyothin Road, Chatuchak, Bangkok 10900,
Tel/Fax: 66 2 562-0312,
Email: yuttchai@mozart.inet.co.th

62 WOCAT: World overview of conservation approaches and technologies

A multi-institutional, world-wide programme called WOCAT: World Overview of Conservation Approaches and Technologies was launched in 1992. To date, more than 25 institutions from over 20 countries have joined the WOCAT global network, and about 300 individuals have submitted databases on successful Technologies and Approaches in Soil and Water Conservation. Participants of this symposium will obtain an overview of current WOCAT activities and main results in different countries, with an emphasis on internet online data and on SE Asia.

Keywords: soil and water conservation (SWC), SWC technology, SWC approach, evaluation of SWC, standardised database, internet online data, decision-support system (DSS)

Convenor: Gathiru Kimaru,
Regional Land Management Unit (RELMA), P.O. Box 63403,
Nairobi, Kenya
Tel: 254 2 522575, Fax: 254 2 520762,
Email: g.kimaru@cgiar.org
Thai co-convenor: Samran Sombatpanit,
Deputy President, World Association of Soil and Water Conservation,
67/141 Amornphant 9, Soi Senanikom 1, Lat Phrao, Bangkok 10230,
Tel: 66 2 570-3641, Fax: 66 2 562-0732,
Email: sombatpanit@hotmail.com

AS: ACID SULPHATE SOILS

63 Acid sulphate soil management in tropical environments

This symposium will examine the management of acid sulphate soils in tropical environments. In particular papers are sought on the short and long-term environmental consequences of the use of these soils for agricultural production.

Keywords: acid sulphate soils, pH, pyrite, acidity, tropical environments

Convenor: Freeman Cook,
CSIRO Land and Water, 80 Meiers Road, Indooroopilly, QLD 4068,
Australia,
Tel: 61 7 3896 9465, Fax: 61 7 3896 9591,
Email: Freeman.Cook@dnr.qld.gov.au
Thai co-convenor: Jumpol Yuvaniyama,
Acid and Organic Soil Research Section, Land Development Dept.,
Phaholyothin Road, Chatuchak, Bangkok 10900,
Tel: 66 2 579-3504, Fax: 66 2 579-8521,
Email: scd_6@ldd.go.th

RZ: RHIZOSPHERE

64 Rhizosphere research: new challenges for soil scientists in the 21st Century

Plant roots and soil microorganisms are responsible for dramatic changes in physical, chemical and biological properties and processes in the rhizosphere. How important are these changes is a challenging question that we are now facing as we enter the 21st Century. This symposium which will be a forum for interdisciplinary contributions of soil physicists,

chemists and biologists will thus focus on new, quantitative data and approaches in rhizosphere research and on how to make use of the accumulated knowledge.
Keywords: bacteria, exudation, fungi, microorganism, microflora, rhizosphere, root, symbionts
Convenor: Philippe HINSINGER
INRA, UMR Sol & Environment, Place Viala, F-34060 Montpellier
Cedex 01, France,
Tel: 33 4 99 61 22 49, Fax: 33 4 67 63 26 14,
Email: hinsinge@ensam.inra.fr
Thai co-convenor: Thongchai MALA
Department of Soil Science, Kasetsart University Kamphaeng Saen
Campus, Nakhon Pathom 73140
Tel/Fax: 66 34 351893
Email: agrthm@nontri.ku.ac.th

65 Soil functions in the biosphere

This symposium emphasizes the role of soils in terrestrial ecosystems and in the whole biosphere; to clarify the parameters characterizing soil functioning in the ecosystem; to reveal feedback mechanisms providing for the sustainability of biogeochemical cycles in natural ecosystems and to understand the relationships that exist between pedosphere and others such as atmosphere, hydrosphere and lithosphere.
Keywords: soil functioning, ecosystem, biosphere, biogeochemical cycles, geospheres, sustainability.
Convenor: S. Ya. TROFIMOV
Soil Science Faculty, Moscow State University, Moscow, 119899, Russia
Tel/Fax: +7 095 932 11 82
Email: trof@soil.msu.ru
Thai co-convenor: Piboon KANGHAE
Department of Soil Science, Kasetsart University , Chatuchak. Bangkok 10900
Tel : 66 2 9428104 / 5, Fax : 662 9428106
Email: agrpik@nontri.ku.ac.th

POSTER SESSION

Content of each paper displayed on poster board should include:

1. Title of Paper
2. Author's name and affiliation
3. Abstract
4. Objectives
5. Materials and Methods
6. Important Findings
7. List of cited references

All characters on poster board should be legible from a distance of about 2 metres.

During the Poster Sessions, poster authors are supposed to be near their posters at designated time for presentation and discussion with other participants. The posters will be displayed each day parallel to the corresponding symposium in the exhibition hall. Details of date and time for setting up and removing the posters will be announced each day in front of the exhibition hall. Posters should be set up one hour before the start of the Poster Sessions at the latest. The actual area for display on board is 90 cm (horizontal) by 120 cm (vertical).

Guideline for Preparation of Manuscript

Format

Title in English, bold 18 point letters, centered, maximum of two lines.
Author(s) and contact address (es). Surnames of the author(s) in bold, 12 point capital letters, first names in bold 12 point letters. Name of the author presenting the paper at Congress must be underlined. Institution/s and full contact address (es) of the authors in 12 point letters.
Abstract, maximum of 500 words.
Keywords, maximum of six key words.
Introduction
Materials and Methods
Conclusion
Acknowledgements (if any)
References
Figures and Tables
Text in English, 12 point letters, with single spacing between the lines, justified. Times (New) Roman script; left and right margins spaced at 30 mm; top and bottom margins at 35 mm.

Details of Preparation
Typing :
The manuscript should be prepared by using Microsoft Word 95 or more recent version. Use only SI units and abbreviations in the text, figures and tables.
Length :
The length of the text including tables and figures must not exceed 10 pages. Headings and Subheadings: Any kind of format is acceptable, but it should be clear and systematic as to which ones are headings, subheadings and so on. They would finally be converted into one common format for the Transactions.
References :
References should be arranged alphabetically. In the text, references to literature should be made in alphabetical order by mentioning author and year; in the case of two authors, both should be mentioned, but with three or more only the name of the first author plus et al. should be given. Reference to personal communications should only be mentioned in the text.
Tables :
Tables should be self-explanatory and their captions should be clear and brief. They should be clear and brief. They should be numbered and cited in the text.
Figures and Illustrations :
Figures and illustration should be prepared in such a way that they will be legible. They should be numbered and cited in the text.

Submission of Full Paper
Email: fullpaper@17wcss.ku.ac.th

INSTRUCTIONS FOR CONGRESS TOURS

Final date for registration of Congress Tour without late charge is 30 April 2002 and tour cost must be paid when registering.

Final date for late tour registration is 31 July 2002. Late applicants to a tour (i.e., those registering between 1 May and 31 July 2002) will have to pay a surcharge of 20% of the tour cost.

Registered tour participants who cancel after 30 June 2002 will have a 20% processing fee deducted from their refund. However, if a tour is cancelled by the Congress, the registered participants would

have the option of changing to another tour or having their full payment refunded. (Tours will be cancelled if a minimum number of participants have not registered and paid)

I. PRE- AND POST-CONGRESS TOURS

Specific details of the tours will be provided to those who register.

A - Pre-Congress Tours
B - Post-Congress Tours

II. CONGRESS DAY TOURS

On Sunday, 18 August 2002, six special day tours will be conducted in Bangkok and surrounding areas. These tours offer not only an amazing variety of tourist spots but also scientific interests. So, while you are in Bangkok and have a full-day break during the Congress, why not spend it visiting some of the wonderful sites in and around Bangkok..
C - Congress Day Tours

I. PRE- AND POST-CONGRESS TOURS

A1, B1:	Northern Thailand Tours
A2, B2:	Northeast Thailand and Laos Tours
A3, B3:	Southeast Thailand Tours
A4, B4:	Southern Thailand Tours
A5:	~~Peninsular Malaysia Tour~~ CANCELLED
B5:	~~Taiwan Tour~~ CANCELLED
B6:	Yunnan Tour
B7:	~~South-Western Australia Tour~~ CANCELLED
B8:	Philippines Luzon Island Tour
B9:	~~Sabah Tour~~ CANCELLED

II Congress Day Tours

C1:	Acid Sulfate Soil Area and Ancient City
C2:	Mangrove Forest, Shrimp Farm, Salt-Making Field, Floating Market and Home-made Sugar from Coconut
C3:	Rose Garden, World's Tallest Buddhist Monument, Sugarcane Bowl and the Bridge over River Kwai
C4:	Temple and City Tour
C5:	Degraded Land Improvement Project and Pattaya
C6:	Acid Sulfate Soil Area, Vertisols Region and the Ancient City of Lop Buri

Spouse Programmes

A1, B1: Northern Thailand Tours
Duration: 6 days, 5 nights.
Itinerary: Bangkok - Phetchabun - Sukhothai - Lampang - Chiang Mai.
Distance: approximately 1,000 km

The excursion will emphasize the diversity of the regions beginning from the Central Plain via Pasak valley to the North. An important soil in the Central Plain is the acid sulfate soil. Management of these soils has been a major challenge.

Just north of Bangkok, reclamation of an acid sulfate soil for orchard farming will demonstrate some of the successes that have been achieved. The Pasak valley is characterized by a different landscape with soils derived from basic igneous rocks. These soils are intensively cultivated. Further north, the highlands of Pitsanulok and Chiang Mai present other land use and conservation problems. The area is greatly affected by human activities and mitigation technology to reduce land degradation will be demonstrated.

Traditional and cultural systems are very important to the region and participants will have an opportunity to appreciate how these affect land use and management. Historical and cultural sites like Sukhothai Historical Park, a world heritage center, handicraft manufacturing, elephants at work, hill tribe villages and ancient temples provide a glimpse of the traditions and heritage of the region.

Cost of each tour: Single US$ 700, Double US$ 600 per person.

A1- Northern Thailand Tour starts in Chiang Mai and ends in Bangkok from 8 August 2002 to 13 August 2002.
*** Price does not include flight to Chiang Mai.

B1- Northern Thailand Tour begins in Bangkok and ends in Chiang Mai
from 22 August 2002 to 27 August 2002.
*** Price does not include return flight to Bangkok.

Arrangements can be made for participants who would like to prolong their stay in Chiang Mai or arrive earlier.

A2, B2: Northeast Thailand and Laos Tours
Duration: 6 days, 5 nights
Itinerary: Bangkok - Buriram - Udon Thani - Nongkhai - Vientiane (Laos)
Distance: approximately 850 km
Both tours (A2, B2) start from Bangkok
A2: 08 - 13 August 2002
B2: 22 - 27 August 2002

Known as Isan in Thai, the Northeast presents diversity in terms of landscapes and soils, land use, history and cultural heritage. From Bangkok to the Northeast Plateau, we will visit orchard farming on typical Acid Sulfate Soils of the Bangkok Plain, a dairy farm, and pasture as well as rugged limestone landscape and soils at the escarpment front.

On the Northeast Plateau, the tour presents different kinds of landscape, soil type, land use and management. The region consists mainly of sedimentary rocks formed during late Cretaceous to Triassic. Typical sandy soils, lateritic soils, and salt-affected soils will be observed and management problems evaluated. Locally Tertiary basaltic terrain is present with different kind of landscapes and soils.

The famous Mekong River, bordering the Northeast and Laos, is a highlight of the tour. Historically, the river was the lifeline of communities along its banks, aspects of which can still be observed. Along the tour, different kinds of native vegetation like Dipterocarp and dry evergreen forests that are constantly being reduced through shifting cultivation and a variety of land use types including paddy rice, annual upland crops, and tree crops will be shown. This is also one of the few places in the world where inland salt harvesting is taking place and the economic and ecological dimensions of this will be presented.

Isan - the golden gateway to Indochina, is also a region of fascinating historical interest. Stunning and

amazing, the largest ancient Khmer style stone temple, a world prehistoric archaeological heritage center of Ban Chiang, and a well-preserved site of dinosaur fossils are among major Isan attractions. At Nongkhai province, a boat trip along the Mekong River will be arranged to enter Laos.

Cost of each tour: Single: US$ 800, Double: US$ 700 per person. (NOTE: Tour price does not include cost of return flight to Bangkok. Participants must have (visa for Laos).

A3, B3: Southeast Thailand Tours
Duration: 4 days, 3 nights
Itinerary: Bangkok - Pattaya - Chantaburi - Koh Chang Island - Bangkok
(Distance: approximately 400 km)
Both tours (A3, B3) start and end in Bangkok
A3 10 - 13 August 2002
B3 22 - 25 August 2002

This gem of a tour combines the study of landscapes, soils and agriculture with urbanization and industrialization along the southeast coast. Leaving Bangkok, we will traverse the Bangkok Plains with acid sulfate soils where land-use on one of the most acid soils of the world will be presented. The undulating granitic uplands present another major land-use problem. Intensive cassava (tapioca) cultivation is associated with some of the most extensive soil erosion problems and efforts to contain this will be demonstrated.

The tour will spend a night at Pattaya, an unrivalled beach resort with its fine sand, blue sky and limpid sea. However, the negative impacts of tourism are also readily evident. Further to the east, other aspects of land use and management on the granitic terrain will be shown. Near the gem-capital of Chantaburi, a sandy soil with spodic horizon will challenge conventional theories on soil genesis.

This is followed with a project on coastal zone management for aquaculture and mangrove conservation. Gem mining from the colluvial material derived from weathering products of Tertiary basalt will be visited along the trip to Chantaburi and impact on land is demonstrated. The area is famous for its fruits and a variety of fruits will be presented for tasting. The fruit culture dates back to several Centuries and this long tradition has been maintained and enhanced.

The last night is at an island resort that requires a short ferry ride to reach. The Koh Chang National Marine Park may have less social life when compared with Pattaya, but it affords a tranquil escape amid idyllic surroundings.

Cost of each tour: Single: US$ 500, Double: US$400 per person * Cost includes last night in Bangkok. Arrangements can be made for persons wishing to spend additional days at Koh Chang.

A4, B4: Southern Thailand Tours
Duration: 5 days, 4 nights.
Itinerary: Bangkok - Hua Hin - Surat Thani - Phang-nga - Phuket.
Distance: approximately 950 km

Peninsular Thailand is the neck of land connecting continental Thailand with the Malay Peninsula. The backbone is formed by granitic hills whose uplift also resulted in the exposure of sedimentary rocks like shale and sandstone. On the western coast, limestone hills form the classical tropical tower-karst topography. These haystacks are present inland and also dot the shallow waters of the Andaman Sea, giving a surrealistic charm unchallenged in the world.

The Pleistocene coastal areas are speckled with peat and mangrove swamps. The people, to diversify the agriculture and maximize the productive capacity of the land have exploited the combination of landform, climate and soils. Plantation agriculture dominates the southern part with rubber, oil palm, coconut, and fruit trees being the basis of the agro-economy. The coastal platform is also abundant with marine life, which is being managed for human consumption. Deforestation, urbanization, tourism, and mismanagement of land cumulatively threaten the environment.

The Southern Thailand Tour is designed to present a glimpse of tropical weathering and soils, the agriculture, and the land-people interaction. The land/sea interface is an integral part of the life of the coastal inhabitants.

Tourism along the coast and erosion in the uplands is threatening this fragile balance. Solutions to sustainable development are generally elusive and some will be presented. Participants will have an opportunity to study the change from rock to soil via the pallid, mottled zones, and geomorphic transformation of the land. Soils on recent marine and fluvial terraces, including wetlands show the diversity of soil resources and conditions of the region. Highlights of the tour include visits to plantations, supra - aqueous ecosystems, village in the sea, and the "island in the sun - Phuket"

Cost of each tour: Single: US$ 600, Double US$: 500 per person.
A4 starts in Phuket on 9 August 2002 and ends in Bangkok on 13 August 2002.
B4 starts in Bangkok on 22 August 2002 and ends in Phuket on 26 August 2002.

Arrangements can be made for participants wishing to stay additional days at the island resort of Phuket. Cost of flight from or to Bangkok not included in the price.

B6: Yunnan Tour

Duration: 7 days, 6 nights from 22 August 2002 to 28 August 2002
Itinerary: Bangkok - Kunming - Wang Jia - Yuanmou (Soil Forest) - Minority Village - Kunming
Distance: approximately 1,200 km

A frontier province in the southwest of China, Yunnan, straddles the Tropic of Cancer.

22 Aug. Arrive in Kunming
23 Aug. Depart Kunming for Wang Jia Catchment
24 Aug. Visit to The Stone Forest
25-26 Aug. Visit to The Soil Forest
27 Aug. Cultural day in Kunming (those needing to depart early may do so)
28 Aug. End of tour; depart Kunming

The SHASEA (Sustainable
Agriculture in South-East Asia) research team is investigating the effectiveness of soil conservation treatments validated in plot experiments in actual field conditions. This is being achieved by the development and scientific evaluation of modified and novel cropping practices in a representative highland catchment in northeast Yunnan.

The Wang Jia Catchment covers 57.2 hectares near Kedu, in Xundian County, northeast Yunnan. The project consists of an evaluation of the effects of modified cropping practices on maize productivity and soil properties. Selected soil conservation treatments have been implemented in the catchment and the environmental and socioeconomic impacts of environment management are being assessed. Evaluated effects include physical, chemical and ecological impacts, the conservation of natural resources, management of wastes, returns for stakeholders, poverty alleviation, income augmentation and rural

development. This holistic approach has not been attempted previously in the regions. The catchment is being used as an experimental area and training model for sustainable agricultural development in the South China highlands. Wang Jia is representative of about 85% of upland Yunnan and typifies the Yunnan countryside.

"The Three Forests of Yunnan", namely, the Stone Forest in Lunan Yu, the Soil Forest in Yuanmou and the Sand Forest in Luliand, are well-known for their exotic picturesque landscapes which will impress you forever.

Cost of the tour: Single: US$ 800, Double: US$ 700 per person.
Price does not include flight to and out of Kunming* Participants must have visa for China.

* B6 Tour participants are advised to book on Thai Airways flight TG 616, departing Bangkok at 12:00 hrs and arriving Kunming at 17:00 hrs on 22 August 2002. The return flight is up to the participant and can be booked for the 28 August 2002 or thereafter. Cost of the round trip air ticket (Bkk-Kunming-Bkk) is approximately 235 USD. Participants are advised to make their own flight bookings. However, if you require assistance in making your booking, please contact our office (o.sfst@ku.ac.th).

B8: Philippines Luzon Island Tour
Duration: 6 days and 5 nights from 22 August 2002 to 27 August 2002
Itinerary: Metro Manila - Mt. Pinatubo - -Banaue rice terraces - -Los Banos - -Manila
Distance: approximately 1,200 km.

As a consequence of the 1991 explosive volcanic eruption of Mt. Pinatubo, major portions of deposits on the surface of hills and mountains were mobilized due to heavy rains from 1992 up to 1999. Since then, the Lahar affected agricultural areas have continuously been rehabilitated by the Department of Agriculture to restore its productivity. On the way to Banaue we can see the grassland plains configured by the rolling hills, while rice fields are on the valleys and alluvial plains.

There is a zigzag road where the rain swept eroded mountains could be viewed. The slow climb accents the continuing problem of erosion not only of the mountains on one of the sides but also of the riverbanks on the other side. The Banaue Rice Terraces considered as one of the Eight wonders of the world covers an area of about 40,000 hectares which was constructed 2,500 years ago. Essentially, the system is based on the construction of stonewalled terraces along hilly slope to conserve soil and water. pyroclastic flow deposits.

The rice terraces are within the province of Ifugao, which is in the Cordillera Central Range. The uplift was greatly affected by diastrophism faults from northwest to northeast. At the southeastern side of the Cordillera, the volcanic formation consisting primarily of andesitic-basaltic

The International Rice Research Institute (IRRI) is located in Los Banos, Laguna, at the foot slope of Mt. Makiling, a dormant volcano. We expect the travel to be very long and tedious, but exhilarating and challenging. It is worth the effort and educational.

Cost of the tour: Single: US$ 700; Double; US$ 600 per person.
Price does not include flight to and from Manila.

II Congress Day Tours

During the congress, six special daily tours will be conducted in Bangkok and surrounding areas. These tours offer not only an amazing variety of touristic spots but also scientific interests. So, while you are

in Bangkok and have a full-day break during the Congress, why not spend it to visit some of the wonderful sites Bangkok and its vicinity has to offer.

C - Congress Day Tours

C1: Acid Sulfate Soil Area and Ancient City

Stretching north of Bangkok is a vast area of Acid Sulfate Soils, which is worthy to visit since it has been utilized not only for agriculture but also urbanization and industrialization.

Tour will also include a visit to Ayutthaya Ancient City and the Royal Summer Retreat of Bang-Pa-In, a fairy tale scene of architectural wonders. Ayutthaya was the Thai capital for 400 years until its destruction in 1707. The ruins of numerous temples offer wonderful scenery and are now one of the world heritage sites.

C2: Mangrove Forest, Shrimp Farm, Salt-Making Field, Floating Market and Home-made

Sugar from Coconut Just southwest of Bangkok, there occurs a wide strip of active tidal flats adjacent to the upper part of the Gulf of Thailand. Originally, Tropical Mangrove Forest occupied these areas. *To date, they have been opened to various uses and undoubtedly such human activities affect soil and* ecosystems.

During the trip, we will visit a shrimp farm, salt-making field, mixed orchard farming and coconut orchard on raised-bedding, and traditional factory for making sugar from coconut juice. Included in the tour, is a visit to the bustling floating market and view typical Thai life on the canals — these are unforgettable experiences.

C3: Rose Garden, World's Tallest Buddhist Monument, Sugarcane Bowl and the Bridge over River Kwai

The highlight of the tour is the visit to the famous Bridge over the River Kwai. Allied Prisoners Of War during World War II built it.

We will also visit a variety of interesting places like Rose Garden, a country resort, cultural center and beautiful theme park, and the Phra Pathom Chedi, the world's tallest Buddhist pagoda. Also en route are the vast areas of sugarcane plantations on alluvial fans with well-drained Alfisols. If time is available, we will visit a typical sugar factory located along the levee of the Maklong River.

C4: Temple and City Tour

The tour will be complimented with the Chao Phraya River cruise to witness traditional Thai houses, temples, hotels and towers along the river while enjoying fine luncheon. The tour will conclude with a shopping trip to Jim Thompson Thai House, a unique house of the legendary silk merchant, which contains collection of art objects displayed in a traditional Thai House setting.

C5: Degraded Land Improvement Project and Pattaya

On the east of Bangkok, there occurs Khao Hin Son Royal Development Study Center, initiated by His Majesty the King. At the center, we will visit the degraded land improvement project. Een route is Wat Yan Na Sung Worn, where 15 years ago, the land was degraded by severe erosion and supported very few plants. With great efforts, the area has been developed for recreation and faith. The tour will conclude at the Pattaya beach resort, a colorful and vibrant place that offers a lazy time at the beach and an enormous variety of water sports or on-shore entertainment.

C6: Acid Sulfate Soil Area, Vertisols Region and the Ancient City of Lop Buri

The trip commences with a site at Wang Noi, where an acid sulfate soil has been utilized for paddy and orchard farming under the Chao Phraya irrigation project. Further north from the Bangkok Plain is the rugged area of limestone, Terra Rosa, Mollisols and Vertisols that are exclusively used for various upland crops.

From there the tour will conclude with Lop Buri where some remarkable ruins dating from the pre-Thai Khmer period and from 17th century are located and where King Narai held court. Historically, Lop Buri is one of the most intriguing towns in the whole of Thailand.

The cost per person for each special day tour is 50 US$.
The tours will leave the hotels at 7.30 a.m. and return by 6.00 p.m.

Spouse Programmes

The 17th WCSS will have special programmes for spouses and accompanying persons. For more information about these programmes, please visit the following website: http://www.geocities.com/wcss-touristinfo/

There will also be a tourist information desk at the Congress where sightseeing tours can be arranged.

EXHIBITION

During the Congress, a commercial and non-commercial exhibition will be organized in order to pass on the most current information and products to the delegates. The exhibition will be set up in the exhibition hall of the Center.

Click on the link below to view the terms and conditions for exhibition at the 17th WCSS and to obtain a copy of the 17th WCSS Exhibition Application Form.

For further details regarding exhibitions at the 17th World Congress of Soil Science please contact:

The Secretariat, 17th WCSS,
17th WCSS Office, Kasetsart University,
P.O. Box 1048, Bangkok 10903
Tel: 66 2 940-5707/8,
Fax: 66 2 940-5788
Email : o.sfst@nontri.ku.ac.th
Attention Mr. Viroj Hirunyupakorn

17th WCSS Exhibition Application Form (including terms/conditions)

SYMPOSIA

RECOMMENDED HOTELS FOR THE 17th WCSS

CLASS A (USD 90-120)					
HOTEL NAME	ROOM TYPE	ROOM RATE		LOCATION	DISTANCE FROM HOTEL-QSNCC (km)
		Single	Twin		
Grand Pacific	Deluxe	90++	95++	Sukhumvit	3
Landmark Hotel	Superior	90++	95++	Sukhumvit	3
Re Royal Meridien	Deluxe	110++	120++	Ploenchit Rd.	5
Plaza Athenee	Superior	110++	120++	Wireless Rd.	2
Royal Orchid Sheraton	Superior	110++	120++	Siphya	6
JW Marriott Hotel	Deluxe	110++	120++	Sukhumvit	2
CLASS B (USD 60-80)					
Amari Atrium	Superior	70++	80++	New Petchburi	2
Amari Boulevard Hotel	Superior	60++	75++	Sukhumvit 5	3
The Arnoma	Superior Deluxe	65++ 75++	70++ 80++	Rajdamri	6
Le Meridien President	Deluxe	65++	70++	Ploenchit	5
The Montien Bangkok	Superior	70++	80++	Surawongse	4
Montien Riverside Hotel	Superior	70++	80++	Rama III	6
Novotel Lotus Hotel	Superior	75++	80++	Sukhumvit 33	2
Rembrandt Hotel	Superior	65++	75++	Sukhumvit 18	3
Windsor Suites Hotel	Sweet	60++	65++	Sukhumvit 20	3.5
CLASS C (USD 45-65)					
Bel Air Princess	Superior Deluxe	45++ 55++	45++ 55++	Sukhumvit 5	3
Fortune Hotel	Superior	50++	65++	Rachadaphisek	3

Four Wings Hotel Bangkok	Deluxe	55++	65++	Sukhumvit 26	3
Radisson	Superior	50++	60++	Rama IX	5
CLASS D (USD 31-50, Suite 60-80))					
Boss Tower	Studio One bdrm., kitchen Two bdrm., kitchen	40++ 60++ 70++		Rama IV	1.5
Jade Pavilion Hotel	Deluxe	31++	31++	Sukhumvit 22	2
Regency Park Hotel	Superior	39++	45++	Sukhumvit 22	2
SC Park Hotel	Superior Deluxe	35++ 40++	35++ 40++	Ramakamhaeng	4
Tai-Pan Hotel	Deluxe	40++	50++	Sukhumvit 23	2
The Somerset	Standard	40++	50++	Sukhumvit 15	2
Zenith	Superior	50/80++	50++/80++	Sukhumvit 3	2

Remarks:
1) The above rates are not inclusive of the 7% VAT and 10% service charge.
2) The above rates are inclusive of Am. breakfast and shuttle service between hotels and QSNCC.

17th WCSS PROGRAMME

Symposia and Date												
Rooms	Thursday 15		Friday 16		Saturday 17		Monday 19		Tuesday 20		Wednesday 21	
Oral Sessions	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
1	01	07	10	09	12	06	04	03	05	16	02	-
2	14(1)	14(2)	14(3)	19	21	33	08	15	17	20	11	-
3	18	22	43	39	31	35+36	24	32	28	23	13	-
4	25	29	46	48	34	38	40	53	30	26+27	42	-
5	37	44	55	51	50	41	59(1)	59(2)	45	57	63	-
6	49	65	56	64	52	58+60		62	64	61	-	-
Poster Sessions	01, 07, 14(1,2), 18, 22, 25, 29, 37, 44, 49, 65		09, 10, 14(3), 19, 39, 43, 46 48, 51, 55, 56, 64		06, 12, 21, 31, 33, 34, 35, 36, 38, 41, 50, 52, 58, 60		03, 04, 08, 15, 24, 32, 40, 47, 53, 59, 62		02, 05, 11, 13, 16, 17, 20, 23, 26, 27, 28, 30, 42, 45, 54, 7, 61, 63		-	
	All day											

COMMISSIONS

SUBCOMMISSIONS

WORKING GROUPS

STANDING COMMITTEES

17thWCSS Symposia

I - SYMPOSIA IN RELATION WITH COMMISSIONS

COMMISSION I - SOIL PHYSICS

01 Effect of soil structure and properties on preferential flow dynamics and pollutant transport in soils Stress should be laid on the transport of aqueous solutions and contaminants that can affect soil and water quality and human health. Special attention will be given to combining soil structure data and measurements in order to model water and mass transfer. An important aspect should be to consider soil as a structured and non-rigid material in preferential flows.
Key words: soil structure, hydraulic conductivity, preferential flow, mass transfer, water quality, contaminants,
Convenor: Hans-Joerg Vogel, Univ. of Heidelberg,
Institute of Environmental Physics,
Im Neuenheimer Feld 229, D-69120, Heidelberg, Germany,
Tel: 49 6221 54-5481, secretary: 49 6221 54-6350,
Fax: 49 6221 54-6405,
Email: hjvogel@iup.uni-heidelberg.de
Thai co-convenor: Somphob Jongruaysup,
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Phaholyothin Road, Chatuchak, Bangkok 10900,
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Email: somphob@doa.go.th

02 Landscape scale research: methodology, concepts and consequences for soil and water quality Papers dealing with research methodology according to the scale of investigation and the factors to be taken into account so as to understand and predict environmental problems. Particular attention should be paid to describing soil variability, the processes at this scale and their evolution over time.
Key words: catchment, field scale, runoff, soil variability, modelling, transport processes.
Convenor: Chris Moran,
Land and Water, GPO Box 1666, Canberra ACT 2601, Australia,
Tel: 61 2 6246 5926, Fax: 61 2 6246 5965,
Email:

25 Mineralogy and geochemistry of regolith
The transition of rock to soil is a long lasting sequence of processes. This is especially the case in landscapes of the tropics. Knowledge of neoformation changes taking place in the regolith allows not only a better understanding of weathering processes and mineral neoformation as a consequence of climate and the geochemical environment but also a better insight into the influence of mineralogy and geochemistry on fertility, hydrology, stability and contaminant mobility in soils.
Keywords: weathering, geochemical environment, tropical climate,secondary minerals
Convenor: Rob W. Fitzpatrick,
CSIRO, Div. of Soils, P.M.B. 2, Glen Osmond, S.A. 5064, Australia,
Email: rob.fitzpatrick@adl.clw.csiro.au
Thai co-convenor: Anchalee Suddhiprakarn,
Dept. of Soil Science, Fac. of Agriculture, Kasetsart Univ.,
Chatuchak, Bangkok 10900,
Tel: 66 2 942-8104/5, Fax: 66 2 942-8106,
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26 Reaction of soil minerals on changes of climate and land management Soil minerals are the memory of the soils, left to be recorded through the period of soil development. Climate and land management changes can alter the soil mineralogy as a whole or partially within the soil body. Soil environment changes such as drained acid sulfate soils, secondary saline soils, man made and rehabilitated mine soils affect mineral assemblages of soils including changes in the silicate, oxide, and carbonate in soils.
Keywords: heritage, soil memory, climatic marker, paleoenvironment, mineral stability, equilibrium
Convenor: Balwant Singh
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Tel: 61 2 9351 2237, Fax: 61 2 9351 5108
Email: b.singh@acss.usyd.edu.au
Thai co-convenor: Kannica Yoothong,
Soil and Fertilizer Society of Thailand, Dept. of Soil Science, Fac. of Agriculture, Kasetsart Univ., Chatuchak, Bangkok 10900,
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Email: o.sfst@nontri.ku.ac.th

27 Mineralogy and micromorphology of pedogenesis including isotope methods and dating of soil processes. The qualitative and quantitative assessment of soil genesis often needs insight into the changes in the nature of pedogenic minerals as well as their arrangement within the soil matrix. In order to reconstruct the conditions of active or past processes isotope abundance in soil minerals may be used for the assessment of environmental conditions and for age determination. Spectroscopic analysis of soil minerals are also widely used in this field of
Keywords: soil genesis, micromorphology of weathering and newformation, isotope fractionation
Convenor: Karl Stahr,
Inst. of Soil Science and Land Evaluation, Univ. of Hohenheim,
Emil-Wolff-Str. 27 D70593 Stuttgart, Germany,
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Thai co-convenor: Chatchai Romsonthi,
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Tel: 66 2 222-6819, Fax: 66 2 226-5355,
Email: romson@su.ac.th

28 Soil mineralogy in relation to soil fertility and toxicity Modern electron optical, spectrometer and microanalytical methods bioavailability of nutrient and contaminant elements. Studies of fertilized soils the associations of sorbed phosphate with soil minerals can be distinguished. Such information is invaluable in research aimed at managing and remediating soils and sediments contaminated by nutrients and heavy metals.
Keywords: heavy metals, contamination, pollution, microanalysis, sorption with
Com. II, IV
Convenor: Bob Gilkes,
Soil Science and Plant Nutrition, The Univ. of Western Australia,
Nedlands, WA 6907, Australia,
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Email: bob.gilkes@uwa.edu.au
Thai co-convenor: Wanphen Wiriyakitnateekul,
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COMMISSION VIII - SOIL AND THE ENVIRONMENT

29 Urban and sub-urban soils: specific risks for human health (Urban agriculture) There is a growing concern regarding the management of urban and sub-urban soils, which has been underestimated. Excess applications of fertilizers, pesticides, and hazardous wastes may have a direct impact on human health, and as sources of soil and groundwater contamination, they create a further risk for human health.
Keywords: urban agriculture, food production, heavy metal, plant uptake
Convenor: Jean-Louis Morel,
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Thai co-convenor: Supamard Panichsakpatana,
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Chatuchak, Bangkok 10900,
Tel: 66 2 579-6119, Fax: 66 2 942-8537,
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30 Food security and land use The world's population now exceeds 6 billion, and continues to increase. The responsibility of the agri-food sector is to assist in developing policies that will ensure safe food availability in a global market, considering that one third of the world's land is presently used for agricultural production. There are therefore very close links between food security and environmental issues that will be discussed in this symposium.
Keywords: sustainable intensive agriculture, productivity index, maximum yield, optimum yield
Convenor: Francis Andreux,
Sciences de la Terre, Universit? de Bourgogne, Dijon, France,
Tel: 33 3 8039-6364, Fax: 33 3 8039-6387,
Email: fandreux@u-bourgogne.fr
Thai co-convenor: Arnat Tancho,
Dept. of Soils and Fertilizer, Maejoe Univ., Chiang Mai 50290,
Tel/Fax: 66 53 498-164,
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31 Attitudes towards soil and land use; past and present Global issues such as soil degradation and sustaining soil functions in agro-ecosystems, bring social aspects to the technical knowledge base of soil science. Indigenous soil knowledge and "on-farm research", for example, broaden our approaches to use of soils. Concerns about environmental quality ask if stewartship or "wise use" is sufficient for long-term protection of our soil resource, or whether a "land ethic" is necessary. Among, and even within, each of the world's different societies, attitudes toward soil and land differ considerably. For many of us, soil is a natural resource for economic uses as well as having spiritual qualities, expressed in concepts such as "Mother Earth". Can a study of these differences guide us in confronting these new realities of the 21st century?
Keywords: global land ethic, on-farm research, indigenous soil knowledge, new teaching requirement
Convenor: Benno P. Warkentin,
Dept. of Crop and Soil Science, Oregon State Univ., Corvallis,

OR 97331,USA,
Tel: 1 (541) 737-3425, Fax: 1 (541) 737-5725,
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Thai co-convenor: Nitayaporn Tonmanee,
Soil Analysis Div., Land Development Dept., Phaholyothin Road,
Chatuchak, Bangkok 10900,
Tel: 66 2 941-1368 ext. 1366, 1386,
Email: ntyaporn@ldd.go.th

32 Soil indicators for sustainable land use Soil indicators are important for assisting decision-makers in the development of policies regarding land use and management. Indicators are also useful for monitoring our progress towards sustainable land use. Such indicators are being developed by several countries and also examined at the international (e.g. OCDE) level. The objective of the Symposium will be to evaluate the progress in the development and use of the soil quality indicators for sustainable development.
Keywords: soil quality, soil functions, soil health, land management
Convenor: Christian De Kimpe,
Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada,
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Email: dekimpec@em.agr.ca
Thai co-convenor: Jirapong Prasittiketh,
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Tel: 66 2 579-6512, Fax: 66 2 940-5942,
Email: jirapong@doa.go.th

II- SYMPOSIA IN RELATION WITH SUB-COMMISSIONS

A - SALT AFFECTED SOILS

33 Salt affected soils and the environment
This symposium will address the information on soil salinity including its development and distribution naturally or human induced into agricultural land, surface and underground water; and its impact on the environment. Papers dealing with research methodology, planning and management of salt-affected soils in inland and coastal and their impact on the environment including soil, water, quality, vegetation and crops and living organism are most welcome.
Keywords: salinity, water quality, wetlands, ecology, impact, restoration
Convenor: Jorge Battle-Sales,
Departamento Biologia Vegetal, Facultad de Farmacia, Universitat de
Valencia, Avda. Vicent Andres Estelles, 481000 Burjasot, Valencia, Spain,
Tel/Fax: 34 963 864-289,
Email: Jorge.Batlle@uv.es
Thai co-convenor: Chaiyanam Dissataporn,
Soil Salinity Research Section, Land Development Dept., Phaholyothin Road,
Chatuchak, Bangkok 10900,
Tel: 66 2 579-5546, Fax: 66 2 562-0312,
Email: Chainam@ldd.go.th

34 Salinization, water management and policy
Soil salinization in suitable agriculture land has been expanded rapidly due to seawater aquaculture, pumping of underground water, seawater and freshwater irrigation development and

mis-agricultural management. The discharged water into surface and underground water need to be properly managed. This symposium will deal with concepts, planning, and management policy, and monitoring technology to control salinization and introduce water management systems.
Keywords: salinization, brackish water, incentives, policy, irrigation, salinity control, modelling
Convenor: Donald Suarez,
USDA-ARS, US Salinity Laboratory, 450 Big Springs Road, Riverside CA 92507-4617, USA,
Tel: 1 (909) 369-4816, Fax: 1 (909) 342-4962,
Email: dsuarez@ussl.ars.usda.gov
Thai co-convenor: Sudarat Tripetchkul,
Div. of Natural Resource Management, School of Bioresources and Technology, King Mongkut's Univ. of Technology Thonburi, Bangmod, Thung Khru, Bangkok 10140,
Tel: 66 2 470-9811, Fax: 66 2 427-9623,
Email: Sudarut.Tri@kmutt.ac.th

B - SOIL MICROMORPHOLOGY

35 Soil micromorphology to quantify soil structure qualities
The characterization of the soil pore system; the types of soil structure and their changing following agricultural activity; soil pore system, water retention and water movement; soil porosity as an indicator of soil degradation aspects (compaction, crusting, etc.).
Keywords: micromorphometry, porosity, quantification, soil degradation.
Convenor: Fabio Terribile,
DISCA, Univ. of Napoli "Federico II", Via Universita 100, 80055 Portici (Na), Italy,
Tel: 39 081 771-7325, 39 081 788-5206, personal phone: 39 (0) 338 855-7986, Fax: 39 081 771-8045,
Email: terribile@stat0.ispaim.na.cnr.it, terribil@unina.it
Thai co-convenor: Pramuanpong Sindhusen,
Soil Analysis Div., Land Development Dept., Phaholyothin Road, Chatuchak, Bangkok 10900,
Tel: 66 2 579-0111 ext. 1369,
Email: pmpong@ldd.go.th

36 Soil micromorphology and submicroscopy for interpretation of soil qualities
Micromorphology as a tool to deduce processes of soil formation and transformation; natural and human induced processes; chronology of past and present processes; influence of processes on soil quality; relation between soil management practices and micromorphological characteristics; micromorphology and experimental pedology; quantification of processes.
Keywords: micromorphology, pedogenic processes, chronology, micromorphometry.
Convenor: G. Stoops,
Laboratorium voor Mineralogie, Petrologie en Micropedologie, Universiteit Gent, Krijgslaan 281,S8, B 9000 Belgium,
Tel: 32 (0) 9 264-4561, Fax: 32 (0) 9 264-4984,
Email: georges.stoops@rug.ac.be
Thai co-convenor: Kamolrat Iampornrat,
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C - SOIL EROSION AND SOIL WATER MANAGEMENT

37 Identification and determination of soil quality parameters to evaluate the sustainability and socioeconomic impacts

The soil and water conservation involve the productivity and socioeconomic development for agricultural sustainability under the specific agro-ecological condition. The parameters to evaluate soil quality should deal with the bio-physical characteristics as well as soil resilience and soil loss tolerance both on theoretical and methodological approaches.

Keywords: soil quality, health, productivity, and environmental functions; total impacts of degradation on soil quality; economic feasibility of restoring soil quality

Convenor: Sonia Carmela Falci Dechen,
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Thai co-convenor: Sawadee Boonchee,
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Rim, Chiang Mai 50180,
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38 Advances integral modeling to make decision in soil conservation

At this decade, soil information systems for soil conservation is quite essential as well as the integral modeling in soil conservation for decision making. Strategies research should be made on a constructive and innovative direction on the concept of conservation and development for sustainable agriculture.

Keywords: Transforming information into decision aids; combining and sharing databases, models, and experiences; science-based and realistic scale conservation planning

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E - FOREST SOILS

39 melioration of degraded soils through afforestation

Vast areas of land which have previously been supporting forests, are degraded. inappropriate soil management (e.g., heavy machinery), mining, land pollution and inadequate drainage, has caused soil degradation by erosion, changing physical (compaction, reduced infiltration), chemical (salinity, excessive acidity, nutrient losses), and biological (soil C, microbial-activity, mineralization) properties in soils. Amelioration by afforestation is an important issue in 21st century.

Keywords: afforestation, erosion, mining, pollution, compaction, chemical and biological properties

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40 New developments in the evaluation and management of forest soils

Evaluation of soils for forestry is required for proper selection, establishment and productivity of tree species. Due to limitation in the classical soil survey many recent developments in the field and laboratory techniques have occurred which included: remote sensing, radiometry, IR and NIR spectroscopy, stable isotope analysis. GIS and other land based techniques are used to assess soils on a regional scale. Potential use of these techniques and recent improvements in managing forest soils will be explored.

Keywords: forest management, site evaluation, remote sensing, isotopes, GIS

Convenors: Partap K. Khanna,
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Thai co-convenor: Pisal Wasuwanich,
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G - SOIL REMEDIATION

41 Physicochemical techniques for remediation of contaminated soils

The symposium will focus on the validation and application of in situ remediation techniques that are based on changing the speciation and mobility of organic and inorganic pollutants in soils. Technologies involving active (e.g. electrochemical) and passive (e.g. use of soil amendments) will be covered. There will be special emphasis on the applications of these technologies under field conditions and how their use relates to current national criteria for soil remediation.

Keywords: soil remediation, electrochemistry, soil washing, soil amendments, field trials, legislation.

Convenor: N. J. Lepp,
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Tel: 44 (0) 151 231-2027, Fax: 44 (0) 151 298-1014,
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Thai co-convenor: Preeda Parkpian,
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Khlong Luang, Pathum Thani 12120,
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Email: preeda@ait.ac.th

42 Biological techniques for remediation of contaminated soils

This symposium will cover important aspects of fundamental research and innovative technologies for soil remediation, and include both Phyto- and Bioremediation. It will focus mainly on in situ techniques, risk assessment and legislative aspects relevant to bioremedia-

tion. Technologies covered will include land farming, composting, biopiling, air-sparging, biofilters, phytoremediation and phytoextraction. Target pollutants include inorganic pollutants, heavy metals, POPs, oils, petroleum hydrocarbons, etc.
Keywords: soil remediation, risk assessment, bioremediation, heavy metals, POPs, oils, petroleum hydrocarbons.
Convenor: Steve P. McGrath,
IACR-Rothamsted, Harpenden, Herts, Al5 2JQ, UK,
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Email: pich@doa.go.th

III- SYMPOSIA IN RELATION WITH WORKING GROUPS

CR: CRYOSOLS

43 Cryosols and cryogenic environments in the 21st Century

This symposium will focus on current research activities relating to Cryosols, with special attention being paid to those activities involving present-day issues such as global climate change at high latitudes and how the management and use of these soils affect the cryogenic environment. Since most Cryosols contain large amounts of carbon and ice, climatic changes and human activities may have a great effect on them. Therefore, future research activities should be directed towards acquiring a greater understanding of these soils and the associated environments in order to provide the information needed to deal with the diverse situations that may arise. The papers presented at this symposium will provide some indication of where we are and what we need to do to deal with some of the challenges facing us in the future.
Keywords: permafrost-affected soils, cryosols, permafrost, global climate change
Convenor: Charles Tarnocai,
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Neatby Building, Rm. 1135, 960 Carling Avenue, Ottawa, Canada, K1A 0C6,
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DM: WORLD SOILS AND TERRAIN DIGITAL DATA BASE

44 Global and national digital data bases on soil and terrain conditions, their compilation and uses

The IUSS Working Group on a World Soil and Terrain Digital Database (WG/DM) has been promoting the updating of geo-referenced information on soil patterns, landform and soil profile data. FAO, UNEP and ISRIC in cooperation with national institutes have produced such material at different levels of spatial resolution, as well as its ractical applications. The completion of this effort is now becoming urgent, e.g. in view of the Kyoto Protocol on Climate Change, for up-to-date, reliable and easily accessible information on land conditions. The WG/DM intends to have relevant papers published in a special issue of a peer-reviewed

international Journal.
Keywords: digital soil information; carbon sequestration; land degradation; land use planning; food security.
Convenor: Wim Sombroek,
International Soil Reference and Information Center (ISRIC), PO Box 353, 6704 AJ, Wageningen,
The Netherlands
Tel: 0031 317 471773, Fax: 0031 717 471700,
Email: sombroek@isric.nl
Thai co-convenor: Taweesak VEARASILP,
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Tel/Fax: 66 2 579-8524,
Email: vearasilp@access.inet.co.th

GC: SOILS AND GLOBAL CHANGE

45 Soil carbon dynamics and the greenhouse effect

The symposium will discuss state-of-the-knowledge in soil C dynamics in relation to the accelerated greenhouse effect. The principal objective is to deliberate the importance of world soils in the global C cycle in a warmer earth. Specific issues to be discussed include effects on soil C(inorganic and organic) dynamics of land use and management, soil erosion and sedimentation, and desertification control and soil restoration. Ancillary benefits of soil C sequestration, including on-site and off-site benefits, and societal value of C will also be debated.
Keywords: soil organic matter, greenhouse effect, soil restoration, soil quality, carbon sequestration.
Convenor: Rattan Lal,
School of Natural Resources, The Ohio State Univ., Columbus, OH 43210, USA,
Tel: (Direct) 614 292-9069, (Office) 614 292-2265, Fax: 614 292-7432,
Email: Lal.1@osu.edu
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Email: prapai@doa.go.th

LD: LAND DEGRADATION AND DESERTIFICATION

46 Land degradation and desertification: confronting the realities of the 21st century

About 33% of the global land surface are subject to desertification. This is about 42 million km2 and affects more than 1 billion people. By 2020, if appropriate actions are not taken, the number of persons affected will be more than double. Asia and Africa will likely suffer the most. With a reduction of the ability of these regions to be self-sufficient in food, food security will emerge as a major global issue. This will stress more on the land resources including a net drain in soil nutrient resources and will be aggravated by climate change. The Symposium will address these and other issues with suggestions to mitigate the negative impacts.
Keywords: land degradation, desertification, food security, global climate change.
Convenor: Hari ESWARAN,
USDA Natural Resources Conservation Service, World Soil Resources, PO Box 2890, Washington DC20013, USA,
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Email: hari.eswaran@usda.gov

Thai co-convenor: Taweesak VEARASILP,
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MO: INTERACTIONS OF SOIL MINERALS WITH ORGANICE COMPONENTS AND MICROORGANISMS

47 Soil mineral - organic component – microorganism interactions and the impact on the ecosystem and human welfare

The objective of this symposium is to provide a forum for interactions among soil and environmental scientists to integrate our knowledge on physical/chemical/biological interfacial interactions in soil systems and their impacts on human welfare which include global ion cycling and climatic changes, biodiversity, biological productivity and human nutrition, geomedicine, biotechnology, ecotoxicology and human health, remediation and restoration technology, and celestial exploration.

Keywords: Mineral-organic component-microorganism interactions, interactive soil processes, porosity, transformation and transport, biomolecules, nutrients, pollutants, ecotoxicology, remediation, human health, global changes, space exploration. with Com. I, II, III, VII

Convenor: P.M. Huang,
Dept. of Soil Science, Univ. of Saskatchewan, 51
Campus Drive, Saskaloon SK S7N 5A8, Canada,
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Agriculture, Khon Kaen Univ., Muang, Khon Kaen
40002,
Tel: 66 43 364-639, Fax: 66 43 244-474,
Email: patma@kku.ac.th

PM: PEDOMETRICS

48 Developments in Soil Data Processing

This symposium will focus on ongoing research results within the framework of pedometrics aiming at presenting the state-of-the-art in soil data processing. Topics include analysis of spatial and temporal variability of soil properties; development of decision support systems; assessment of error propagation; quantification of uncertainty and fuzziness of information and evaluation criteria; soil process simulation modelling; design and evaluation of sampling schemes and incorporation of exhaustively sampled information.

Keywords: soil data processing, decision support systems, error propagation, evaluation criteria, soil process, spatial variability, temporal variability

Convenor: Marc Van Meirvenne,
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Thai co-convenor: Chairatna Nilnond,
Dept. of Earth Sci., Fac. of Nat. Res., Prince of Songkhla Univ., 15
Karnjanawanit Road, Hat Yai, Songkhla 90112,
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Email: nchairat@ratree.psu.ac.th

PP: PALEOPEDOLOGY

49 Paleosols as a memory for understanding landscape history and environmental problems
This symposium focuses on unburied paleosols or relict soils formed under a different constellation of soil forming factors mainly a different climate and with it vegetation. The knowledge of their genesis is essential for understanding soil behaviour, landscape history and for a proper appreciation of many modern environmental problems.
Keywords: relict paleosol, paleosol memory, landscape history, environmental problems
Convenor: Arnt Bronger,
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Email: bronger@geographie.uni-kiel.de
Thai co-convenor: Pornthiwa Kanyawongha,
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Tel/Fax: 66 2 326-6137,
Email: kkpornth@kmitl.ac.th

PS: PADDY SOILS FERTILLITY

50 Sustained paddy soil ecosystem: a global challenge
To discuss and exchange information on the current initiatives on bio-organic farming on paddy soils; to discuss cost-effective and sound technologies to improve productivity of derelict paddy soils; Evaluate the Valuation Techniques for Irrigation Water Use to resolve emerging conflicts on water demand and pricing between agriculture and urban and industrial sectors; to elaborate impacts of expanding the cultivation of paddy soils on food security and global climate change.
Keywords: food security; bio-organic farming; derelict paddy soils; water valuation and management; carrying capacity; environment and global climate change
Convenor: Rogelio N. Concepcion,
Bureau of Soils and Water Management, Elliptical Road, Visayas Ave.,
Quezon City, Philippines
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PT: PEDOTECHNIQUE

51 Manufactured, Amended, and Intensively Tiled Soils and Substrates
Specific soil and substrate volumes and profiles like urban tree soils, sports grounds, potting soils, dikes, road sides, and revegetated and remediated areas. Measurements and description of initial conditions and source materials, and of final conditions; definition of allowable ranges of properties; development of processing equipment and procedures; optimization of specifications; testing unusual materials that are considered for installation.
Keywords: horticulture, urban horticulture, sports grounds, civil engineering, revegetation, remediation

Convenor: Jos Koolen,
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2 940-7073, 66 2 940-7391,
Email: rrit@doa.go.th

RS: REMOTE SENSING FOR SOIL SURVEY

52 Remote Sensing for Data Fusion and GIS as Tools in Land Evaluation and Degradation Studies

This symposium deals with topics on application of remote sensing techniques to soil and land resources studies. The topics include databases for land resources information, surface modelling, extracting remote sensing data for soil chemical properties, DEM and GIS for soil mapping and combining remote sensing data with field data, changing monitoring, disaster management, multitemporal remote sensing-derived LAI as indicator of land qualities and multitemporal approaches to studies and to achieve sustainable land use.

Keywords: remote sensing techniques, data fusion, surface modelling, DEM, GIS, land evaluation

Convenor: Richard Escadafal,
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SM: ENVIRONMENTAL SOIL MECHANICS

53 Coupled hydraulic and mechanical processes in structured soils - a challenge to define sustainability

The determination of hydraulic properties of structured soils requires amongst others pore or volume rigidity which neither by mechanical nor by pore water suction effects will be altered. However, natural soil processes like swelling and shrinkage or stress effects may induce soil volume , functions, and changes in ecological functions as soon as the internal strength (= history of the soil) is exceeded. During the symposium more detailed information about such coupled processes will be given.

Keywords: soil hydraulic properties, pore continuity changes, pore strength, mechanical stress, volume deformation

Convenor: Rainer Horn,
Institute of Plant Nutrition and Soil Science, Christian Albrechts
Univ. Kiel, Olshausenstr, 40, 24118 Kiel, Germany,
Tel: 49 431 880-3190, Fax: 49 431 880-2941,
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Thai co-convenor: Warakorn Mairiang,
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SP: SOIL AND GROUNDWATER POLLUTION

54 Vadose zone management strategies to prevent groundwater pollution

Chemical pollution generated by agricultural, industrial and municipal activities has contaminated soil and groundwater worldwide. Management strategies that target the rooting zone offer opportunities for preventing or limiting groundwater pollution and for soil remediation. The symposium is seeking papers on experimental and numerical modeling techniques that focus on management of the vadose zone. Interdisciplinary contributions among soil physicists, chemists and biologists are encouraged.

Keywords: unsaturated zone, contaminant transport, vadose zone-groundwater coupling, soil remediation

Convenor: Jan W. Hopmans,
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Thai co-convenor: Kumut Sangkhasila,
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SU: SOIL OF URBAN, INDUSTRIAL, TRAFFIC AND MINING AREAS

55 Improving knowledge about soils and their functions inurban, industrial and mining areas for a better life:

Humans are establishing a new environment for soils and create new soils. This is most pronounced in urban, industrial and mining areas. In these areas soils will go on to contribute essentially to life quality. We have to improve the knowledge for both: the features of these categories of soils and their potential to fulfill functions. In addition we have to learn more about the special fields of the use of soil information.

Keywords: soil functions, urban soils, industrial soils, mine soils, traffic soils, soil information, soil degradation, soil use, environment and soils

Convenor: Wolfgang Burghardt,
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STANDING COMMITTEES

STANDING COMMITTEE: EDUCATION IN SOIL SCIENCE (CES)

56 Soil education and public awareness

The symposium will deal with: how to speak about soil on global and interdisciplinary perspectives such as soil in the ecological and human systems, and presentation of examples of education experiences including field works. Specific topics include pedagogical strategies, formation of the teachers, educational role of soil science specialists.

Keywords: soil education, global soil, interdisciplinary approach, soil science teachers, soil science specialist, pedagogical strategies

Convenor: Mireille Dosso,
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Email: agrchs@nontri.ku.ac.th

FA: SOIL ORGANIC FERTILIZERS AND AMENDMENTS

57 Soil properties as influenced by the addition of organic fertilizers and amendments

The Symposium will focus on the influence of organic fertilizers and soil amendments on soil physical, chemical and physical properties, and soil fertility. It will also discuss the effect of these materials on soil development along with environmental issues related to their uses.

Keywords: organic fertilizers, soil amendments, soil properties, environmental issues

Convenor: Tom Sims,
Prof. of Soil and Environmental Chemistry, Dept. of Plant and Soil Sciences, Univ. of Delaware, Newark, DE
19717-1303, USA,
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Thai co-convenor: Pitayakon Limtong,
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Email: pitaya@ldd.go.th

58 Soil organic fertilizers and amendments: an outlook on key environmental and sanitary issues

The symposium will encompass the discussion on different aspects of the effect of organic fertilizers and amendments added to the soils. These include the Kyoto Protocol, the role of soil organic fertilizers and amendments on the completion of nutrient cycles, recombinant DNA in soil from the use of organic fertilizers and amendments and the risk of TSE/BSE infection from the use of organic fertilizers made of animal residues.

Keywords: Kyoto Protocol, organic fertilizers, soil amendments, nutrient cycles, recombinant DNA, TSE/BSE infection, animal residues

Convenor: Paolo Sequi,
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SPECIAL SYMPOSIUM

59 Towards integrated soil, water and nutrient management in cropping systems: the role of nuclear techniques

This Symposium focuses on soil organic matter dynamics and nutrient cycling, evaluation and management of nutrient sources, water management and conservation, soil erosion and sedimentation, plant tolerance to environmental stress, environmental and pollution studies and advances in nuclear-based methodologies and instrumentation

Keywords: fertilizers, isotopes, plant nutrition, soil degradation, soil fertility, water

Convenor: Phillip Chalk,
Head, Soil and Water Management and Crop Nutrition Section, International Atomic Energy Agency, PO Box 100, A-1400 Vienna, Austria,
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Email: P.M.Chalk@iaea.org
Thai co-convenor: Sakorn Phongpan,
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SG: SOILS AND GEOMEDICINE

60 Comparison of bedrocks, soils, chemical climate and pollution as geomedical factors

Much interest has been shown in recent years on the influence on human health from soil pollution. Less attention has been paid to health problems associated with natural chemical and physical factors of the soil and bedrock. Most frequently these problems are associated with local geochemistry, but influence of climate on the cycling of chemical substances in the environment may also play a significant role. The symposium will discuss the relative importance of these factors to human and animal health.

Keywords: geomedicine, bedrock, soil, health, natural factors, chemical climate, pollution.

Convenor: Eiliv Steinnes,
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Email: Eiliv.Steinnes@chembio.ntnu.no
Thai co-convenor: Suradej Jintakanont,
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Email: agrsdj@nontri.ku.ac.th

IC: INTERNATIONAL SOIL CONVENTION

61 Soil Convention

A background to the rising interest in the global community of the environmental benefits to soil through the introduction of a global policy for sustainable use of soils and an international environmental law instrument; the international actions for furthering sustainable use of soils; progress made in the development of the global sustainable soil convention.

Keywords: sustainable use of soils, soil convention, international environmental law and policy, soil and land degradation, global soil policy, sustainable land management

Convenor: Hans Hurni,
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62 WOCAT: World overview of conservation approaches and technologies

A multi-institutional, world-wide programme called WOCAT: World Overview of Conservation Approaches and Technologies was launched in 1992. To date, more than 25 institutions from over 20 countries have joined the WOCAT global network, and about 300 individuals have submitted databases on successful Technologies and Approaches in Soil and Water Conservation. Participants of this symposium will obtain an overview of current WOCAT activities and main results in different countries, with an emphasis on internet online data and on SE Asia.

Keywords: soil and water conservation (SWC), SWC technology, SWC approach, evaluation of SWC, standardised database, internet online data, decision-support system (DSS)

Convenor: Gathiru Kimaru,
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Email: sombatpanit@hotmail.com

AS: ACID SULPHATE SOILS

63 Acid sulphate soil management in tropical environments

This symposium will examine the management of acid sulphate soils in tropical environments. In particular papers are sought on the short and long-term environmental consequences of the use of these soils for agricultural production.

Keywords: acid sulphate soils, pH, pyrite, acidity, tropical environments

Convenor: Freeman Cook,
CSIRO Land and Water, 80 Meiers Road, Indooroopilly, QLD 4068,
Australia,
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Email: Freeman.Cook@dnr.qld.gov.au

Thai co-convenor: Jumpol Yuvaniyama,
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Email: scd_6@ldd.go.th

RZ: RHIZOSPHERE

64 Rhizosphere research: new challenges for soil scientists in the 21st Century

Plant roots and soil microorganisms are responsible for dramatic changes in physical, chemical and biological properties and processes in the rhizosphere. How important are these changes is a challenging question that we are now facing as we enter the 21st Century. This symposium which will be a forum for interdisciplinary contributions of soil physicists, chemists and biologists will thus focus on new, quantitative data and approaches in rhizosphere research and on how to make use of the accumulated knowledge.

Keywords: bacteria, exudation, fungi, microorganism, microflora, rhizosphere, root, symbionts

Convenor: Philippe HINSINGER
INRA, UMR Sol & Environment, Place Viala, F-34060 Montpellier
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Department of Soil Science, Kasetsart University Kamphaeng Saen
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65 Soil functions in the biosphere

This symposium emphasizes the role of soils in terrestrial ecosystems and in the whole biosphere; to clarify the parameters characterizing soil functioning in the ecosystem; to reveal feedback mechanisms providing for the sustainability of biogeochemical cycles in natural ecosystems and to understand the relationships that exist between pedosphere and others such as atmosphere, hydrosphere and lithosphere.

Keywords: soil functioning, ecosystem, biosphere, biogeochemical cycles, geospheres, sustainability.

Convenor: S. Ya. TROFIMOV
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http://www.17wcss.ku.ac.th Email: o.sfst@nontri.ku.ac.th

Please also visit the Soil and Fertilizer Society of Thailand Website at
http://www.sfst.org

SYMPOSIUM ON THE IMPACT OF GMOs : SOIL MICROBIOLOGY AND NUTRIENT DYNAMICS

DATE 4 – 6 November 2002
VENUE University of Agricultural Sciences, Hall XX
Muthgasse 18, A-1190 Vienna, Austria

COMMITTEES

SCIENTIFIC COMMITTEE

CHAIRPERSON: A. Sessitsch
M.J. Bailey
P.A.H.M. Bakker
W.E.H. Blum
H. Gaugitsch
M.H. Gerzabek
D.C.M. Glandorf
P.R. Hirsch
E. Kandeler
B. Mahy
K.M. Nielsen
R.J. Seidler
P. Simonet
K. Smalla
G. Stotzky
W. Wackernagel
F. Widmer
N. von Wirén

ORGANISING COMMITTEE

CHAIRPERSON: W.E.H. Blum
H. Gaugitsch
M.H. Gerzabek
S. Klepsch
A. Sessitsch

TOPICS

- Transgenic plants and microorganisms
- Effects of transgenic plants on natural microbial communities
- Horizontal gene transfer
- Stability and binding of DNA in soil
- Soil Nutrient Dynamics

INFORMATION ON INTERNET: http://www.boku.ac.at/boden/igmo/igmo.html

The Workshop will be supported by the International Council for Science (ICSU) and other organisations.

IMPORTANT DATES AND DEADLINES

May 15th 2002:	Deadline for submitting abstracts
June 30th 2002:	Deadline for registration
End of August, 2002:	Final program
October 4th, 2002	Deadline for reservation of accommodation and social events

CALL FOR PAPERS

The preliminary program (see website) contains solicited presentations. We would welcome additional voluntary papers for each topic.

For further information please contact:

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Annual Soil-Ecological Excursion across West Siberia

Beginning in 1995, annual field trips through the southern part of Western Siberia have been organized for students, researchers, and lecturers from different universities throughout Europe. These field trips were initiated by Dr. Siewert (Soil Department, Berlin Technical University, Germany) and Dr. Barsukov (Institute of Soil Science and Agrochemistry, Novosibirsk, Russia) and vigorously supported by Prof. Gadjiev, the director of the same institute.

The primary goal of the field trip is the interdisciplinary exchange of experience and knowledge, and surmounting the language barrier by demonstrating the interrelationships of various undisturbed (by human activity) ecosystem components. The focus of the excursion is on soil formation processes resulting from the interaction of climate, vegetation and geological substrata. Characteristics of soil formation and ecosystem succession under continental climatic conditions, as well as the impressive wealth of unaltered or virtually untouched landscapes of great beauty, are compared with those of agricultural and forest plantations. In the course of the excursion 23-27 soil profiles are described using Russian, German, and WRB soil classification systems. Most of these soils represent unique local varieties and carry the signature of cryogenic processes. With regard to vegetation, the complete geobotanical description is presented for each site, including the dominant species, species significant to humans, and indicator species in particular. Such descriptions highlight the relationships between vegetation, soil, and climate factors. A few sites with extremely high biodiversity (up to 120 species of tall vascular plants per 100 square meters) are visited in the course of the excursion.

Currently, the excursion covers all latitude bioclimatic zones from the taiga to the southern forest steppe, including steppe ecosystems on the West Siberian Plain and all elevation belts from the tundra to the steppe and the Central Asian semi-desert zone in the Altai Mountains region (near the Mongolian border). Some of the most interesting ecosystems and regions visited in the course of the excursion include:

in the West Siberian Plain – one of the biggest expanses lowland in the world

- southern taiga subzone: dark coniferous forest including Siberian cedar
- azonal formation within the southern taiga subzone: the biggest peat bog ecosystem in the world
- forest-steppe zone: natural combination of primary birch forest islands and dry meadows
- azonal formation within forest-steppe zone: area of arid salted meadows and hyperhumid black taiga
- southern part of forest-steppe zone: true steppe ecosystem and famous Russian chernozem

in the Altai mountains – the biggest and most complex Siberian mountain range

- entral Asian semi-desert zone - looks like the northern part of the Gobi desert in Mongolia: unique plants on toxic soils, paleosols, Pleistocene lake deposits, and the late Pleistocene terminal moraine
- mountainous steppe belt: paradoxes of continental climate and previous historical landscape development – xerophyte grasses next to the spruce forest and peat mosses, permafrost, and seasonal frost
- mountainous forest-steppe belt: park-like Siberian larch forest with well-developed herbs layer on northern slopes in combination with mountain steppe on southern slopes - typical landscape of *continental mountains*
- mountainous forest and tundra belts: abrupt changes within a short distance from subalpine forest with high herbs to different types of mountainous tundra with recent and relic cryogenic features as well as different types of recent glaciers, solifluction, pingo, and alpine meadows.

The excursion is guided by experienced Russian scientists (e.g. soil specialists, a geobotanists, and geomorphologists) from the Institute of Soil Science and Agrochemistry, Central Siberian Botanical Garden, Novosibirsk, and Biology & Soil Department of the Tomsk State University, Tomsk. The guides inform participants throughout the excursion route, and because opinions and interpretations often vary among participants and guides, the outcome is often a highly instructive, expert debate.

Scientists and students who specialize in ecology, soil science, botany, geomorphology and other related disciplines are invited to take part in future excursions. Ideally, the group is made up of 40% under-

graduates, 40% graduate students, and at least 2 lecturers, satisfying both the educational- and research aims of the trip. More information regarding the excursion, including registration, is available at www.siberian-expedition.de or directly from the organizers via email (Dr. Siewert: cs@csiewert.de, Dr. Barsukov: paul@issa.nsc.ru).

The current excursion program is the result of seven years of field-trip experience, teamwork, and increasing support on part of the scientists from different countries and different fields of study. The active development of the excursion enables us to include new areas of increasing interest, to collect data about the region that are only rarely available in English, and to apply basic research in soil and vegetation sciences to such applications as global ecological problems and environmental protection. In the future we are planning to develop the excursion program of shorter duration that retains the unique opportunity to examine great diversity of lowland and mountain ecosystems and emphasizes interactions and interrelations between biotic and abiotic components of ecosystems.

Prof. I.M. Gadjiev,
Director of the Institute of Soil Science and Agrochemistry, Novosibirsk
Dr. Ch. Siewert and Dr. P. Barsukov,
Excursion Organizers

8th International Symposium on Soil and Plant Analysis `Challenges for Sustainable Development: The role of Soil, Plant and Water Analysis'

13-17 January 2003, South Africa

The 8th International Symposium on Soil and Plant Analysis will be held at the Lord Charles Hotel, which is located in Somerset West, Cape, South Africa, from Monday 13th of January 2003 to Friday 17th of January 2003. Training workshops and a welcome reception will be held on Monday 13th January 2003. The Symposium banquet is planned for Thursday 16th January. The Symposium will end on Friday 17th of January with the day excursions.

Topics will cover the following:

Workshops:	The interpretation of soil, leaf and sap analyses
	Latest trends in laboratory automation
	Soil fertility concepts for laboratory personnel
	Scanning NIR techniques and applications
	Soil testing in organically enriched soils and growth media
	Managing soil acidification
Plenary Sessions:	
	Different proficiency testing systems
	Organically enriched soils and growth media: production and analytical challenges
	New analytical techniques and approaches
	Appropriate agricultural systems for emerging farmers
	Micronutrients – future trends and requirements
	Smart sampling and precision farming
	Soil acidity and amelioration
	Pollution,salt affected soils and the environment

Some important dates to keep in mind:

Early bird registration	June 30, 2002
Abstract due	June 30, 2002
Authors notified	September 15, 2002
Manuscript due	January 15,2003
Final Manuscript due	July 31, 2003

For further and detailed information please consult our web page:http://www.ISSPA2003.com

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REPORT OF THE IUSS BUREAU 1998 – 2002

In compliance with the tradition, a report of the IUSS Secretariat and Treasury over the period between the last World Congress (Montpellier, France, August 1998) and the new Congress (Bangkok, Thailand, August 2002) is printed in the Bulletin immediately preceding the latter, together with reports from different Commissions, Sub-Commissions and Working Groups, as received.

Highlights of this report will be mentioned in the inaugural session of the 17th WCSS in Bangkok and details will be discussed and evaluated by the IUSS Council convened in Bangkok.

Towards a new scientific structure – from ISSS to IUSS

After the 16th World Congress of Soil Science in Montpellier the new administrative structure of IUSS came into force, which means that in a transition period from 1998 until 2002, each national member has to decide if it wants to join IUSS as a full member. After this, no further individual membership is possible, except from those countries which do not have a national soils organization.

It was also agreed upon in Montpellier that a new scientific structure should enter into vigour after the 17th WCSS in Bangkok, for which a Mid-Term Meeting took place in Bangkok in 2000, defining the new scientific structure of IUSS with 4 Divisions and 18 Commissions (see IUSS Bulletin No. 97), without changing for the moment the working group structure, which has to be re-organized after 2002.

Even with this step forward in the new scientific structure, new ideas came up, proposing changes and aiming at the introduction of three new Commissions, which will be discussed by the IUSS Council during the 17th WCSS in Bangkok (see proposals in Bulletins 100 and 101).

For this new structure to become operational, chairpersons, especially for Divisions and Commissions have to be elected during the 17th WCSS. In preparation of these elections and in compliance with the new Rules of the Union, interested members were asked to submit their applications for offices, and an almost complete list of candidates is now available for the voting procedure in Bangkok. - All members of IUSS are invited to participate actively in these elections, thus helping to install and to promote the new scientific structure of IUSS.

Scientific activities

Scientific activities between the two Congresses are reported by the Chairpersons of the 8 Commissions, the 7 Sub-Commissions and 18 Working Groups, in the annex to this report, as received upon request. From these reports it becomes clear that the scientific activities of the different Commissions, Sub-Commissions and Working Groups varied considerably during the last four years.

In total, around 70 inter-congress activities were reported, showing that many scientific bodies of IUSS were very active inbetween the two world congresses.

Within these scientific activities, core activities took place, e.g. for the further consolidation and deepening of the World Reference Base for Soil Resources, which was published during the 16th WCSS in Montpellier, in three volumes. Other scientific activities were dedicated to reaching out to other International Unions or different branches of science. - The new scientific structure will foster this development and create an ideal platform for new activities during the years to come.

International cooperation

During the last four years, intensive co-operation took place with members of the ICSU family, especially IGU, but also IUBS, IUGG, IUPAC and others, see the respective reports in the Bulletins of the last four years.

The co-operation with ICSU's Interdisciplinary Bodies and their projects, as e.g. the International Geosphere-Biosphere Programme (IGBP) and here especially in view of the role of soil, Global Change of Terrestrial Ecosystems (GCTE) and Land Use Cover Change (LUCC) can be mentioned.

Moreover, a new initiative was started by IGBP, together with the International Human Dimension Programme (IHDP) and the International Programme on Climate Change (IPCC), called Global Environmental Change and Food Systems (GECaFS), in which soil scientists play a prominent role, see also a report in this Bulletin.

The Committee on History, Philosophy and Sociology of Soil Science was active in the co-operation with the International Union of History and Philosophy of Science. The Committee on Education in Soil Science organized an international workshop in Osnabrueck, during the WORLD-EXPO 2000 in Germany.

Administration and Finances

Because of the administrative change from ISSS to IUSS, no exact figures about the actual membership of IUSS can be given, as many national societies have not yet officially expressed their wish to join IUSS, even though they might be interested in doing so. We therefore hope very much that this process can be concluded in 2002, giving us a clear figure for the membership of IUSS, which will then consist of most of the world's national soil science societies and their members. At the moment, it can be presumed that about 45 000 to 50 000 members will be gathered under the umbrella of IUSS after the conclusion of this process.

Regarding the financial situation, please see the report of the IUSS Treasurer on the subsequent pages. From this report, it becomes evident that the financial situation of IUSS can be regarded as consolidated, with some reserves in case of necessity.

We do hope that this process of consolidation will continue, thus allowing IUSS to finance its own activities, the secretarial work, travels of the officers, including the activities of the new Chaipersons of Divisions, which will play an important role in promoting soil scientific activities more intensively across Divisions and Commissions, liaising with other Unions of the ICSU family, thus developing towards new horizons of soil science.

The voluntary contribution of the Austrian Ministry of Agriculture, Forestry, Environment and Water, with donations of approximately 22 000 US$ per year since 1990 will cease with the year 2002, which means that the new Secretary-General and his secretariat will have to look for other financial sources.

Necrologue

Since 1998, several prominent members of our Union passed away and were remembered in the "In Memoriam" section of the Bulletin, among them the IUSS Honorary Members Philippe Duchaufour, G. Barbier, and Ernest Gordon Hallsworth.

Bulletin

8 issues of the IUSS Bulletin, including the present one, were published since the Congress in Mont-

pellier and we do hope that the technical quality as well as the speed of delivery could be improved during the last four years.

It is important to mention here that according to the new statutes of IUSS and the decisions by the Council, the former individual members of IUSS will no longer receive the Bulletin of IUSS after 2002 (after Bulletin No. 102). The Bulletins will only be sent to national members and libraries who have subscribed it at a price of 50 US$ per year.

But we offer herewith the possibility for those members of national societies who wish to continue receiving this Bulletin further on, to subscribe to it at a price of 25 US$ per year (individual subscriptions), which means 12.50 US$ per issue. For this purpose, a subscription form has been included at the end of this Bulletin.

Thanks

The three Bureau officers wish to thank all members for the confidence and the moral support received over the past four years. Two of them, the Secretary-General and the Deputy Secretary-General, will not continue after the 17th WCSS in Bangkok, the Treasurer has promised to stay on for some time, in order to facilitate the transition period between the old and the new Bureau. We especially thank Mrs. Herma Exner, who, during all this time, worked for our Union at the Secretariat-General in Vienna with enthusiasm.

Financial Report of IUSS

1998-2002

In the years after the World Soils Congress in Montpellier, the situation regarding IUSS receipts was characterized by the introduction of the new mode of payment (change from individual membership to membership of national societies). Nevertheless, a relevant increase of the Union's assets in view of future activities remained one of the main goals for the period of 1998-2001.

This goal was reached with a balance of 256 959 US$ as of December 31, 2001. 206 932 US$ of this amount are tied at the bank.

Financial development (outline) for the time 1998-2002 (in US$):

year	**1998**	**1999**	**2000**	**2001**	**2002**
balance (Jan.1)	106 076	146 355	163 316	173 223	256 959
surplus (Dec. 12)	+ 40 279	+ 16 961	+ 9 907	+ 83 736	
tied amounts (bank)	84 179	110 340	118 357	141 550	206 932

Therefore, the margin for expenses was narrow and only comprised the printing and mailing of the Bulletin, some essential administrative work, and some support funds for the Mid-Term Meeting. The receipts from ICSU were largely earmarked for special purposes, e.g. contributions to travel costs and smaller amounts for meetings and publications.

The annual accounts were audited as of March 31 of each year and were submitted to ICSU for approval. We thank Prof. Dr. P. Fitze from the Geographical Institute of the University of Zurich (Switzerland) for acting as auditor of our accounts. The accounts for each year of the reporting period were approved without objection.

REPORTS OF IUSS COMMISSIONS, SUB-COMMISSIONS AND WORKING GROUPS 1998-2002

IUSS COMMISSION II – SOIL CHEMISTRY

1998–2002

Commission II – Soil Chemistry has been planning symposia for the 17th World Congress of Soil Science in Bangkok, Thailand, August 14-21, 2002, and discussing the need for a new commission in Division 2, (Soil Properties of Processes) of IUSS. Four symposia, focusing on frontiers in soil chemistry, are planned at the 17th WCSS. These are: "Properties, functions, and dynamics of organic matter in topical soils" convened by Ladislav Martin-Neto and Sumalee Suthipradit; "Frontiers in the chemistry and biochemistry of the soil rhizosphere" covened by P.M. Huang and Paiboon Prabuddham; "Effects of soil chemical and biochemical processes on soil global climate change" convened by Alessandro Piccolo and Pirmpoon Keerati-Kasikoru; and "Use of molecular scale techniques in determining contaminant speciation and soil remediation" convened by Donald L. Sparks and Tasnee Attanandana.

A number of soil chemists and biochemists from around the world, after discussion at the 3rd International Symposium of IUSS Working Group MO (Interactions of Soil Minerals with Organic Components and Microorganisms) in Naples, Italy have proposed a new commission (C 2.5) within Division 2, "Soil/Physical/Chemical/Biological Interfacial Interactions." The rationale for this proposed commission is that physical, chemical and biological processes in soils are not independent processes but rather interactive processes in soil environments. To improve our scientific knowledge of soil resources and its application to remediation and long term management, it is important to study soil organization and function not only though subdisciplines of soil sciences but also through interactive soil approaches. These fundamental interactive soil processes have enormous impacts on ecosystem productivity, and human welfare. The proposed commission will be discussed and recommended for establishment at the 17TH WCSS.

Donald Sparks
Chair, Commission II

IUSS COMMISSION III - SOIL BIOLOGY

1998 - 2002

There has been important activities in area of Soil Biology during last four years. At the 2000 Annual Meetings of American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, the Plenary Session was devoted to soil biology. Dr. Diana Wall, Professor and Director of the Natural Resource Ecology Laboratory, at Colorado State University spoke on "Linking the

Agricultural and Ecological Stars: Creating the Beacon for Sustainability". Dr. Wall addressed the importance of soil bidiversity for ecosystems and society. At the same meeting Prof. James E. Tiedje, Professor at Michigan State University and the past president (1994 – 1998) of Soil Biology Commission delivered the Francis E. Clark Lecture on "Frontiers in Soil Biology". Prof. Tiedje explained how the soil environment is an important frontier in integrating biology with its environment, because of the challenge presented by the soil's physical, chemical and biological complexity. In addition the commission III officers organized sessions on Soil Biology at the two other international meetings: International conference on Managing Natural Resources for Sustainable Agricultural Production in the 21st Century, New Delhi India Feb. 4-18, 2000, and International Symposium on Microbial Ecology, Amsterdam, The Netherlands August 26-31 2001.

Commission III officers were also responsible for shaping the soil biology programs for the 17th World Congress of Soil Science in the year 2002 in Bangkok. Following four symposia are being organized during the Bangkok congress.

1. Composition of Soil Microbial and Fauna Communities: New Insight from New Technologies
2. Research to Enhance Carbon Sequestration in Soils
3. Microbial Processes and Populations in Submerged Soils.
4. Manipulating Soil Microbial and Enzymic Activities.

Commission III officers also participated in the discussion on restructuring the ISSS.

J.K. Ladha
Chair, Commission III

IUSS COMMISSION V – SOIL GENESIS; CLASSIFICATION AND CARTOGRAPHY

1998-2002

The commission was involved in the following international activities:

Participated in the IUSS council meeting in 1999 in Vienna on the new structure of the IUSS and provided inputs for the formation of the new Divisions, especially Division I "Soil in Space and Time.

Organized the VIth International Meeting on Soils with Mediterranean Type of Climate in Barcelona Spain in June 1999. Since its inception this was the forth International meeting that the Chairman has organized it. The meeting attracted 400 participants from around the world, interested in Soils with Mediterranean Climate use and management.

April 2000 participated in the IUSS midterm Council meeting in Bangkok, Thailand. Presented a paper on the future of Soil Genesis, Morphology, and Classification. In May 2000 Commission was represented in a workshop on Land Degradation in Prague, Czech Republic.

Represented the Commission V in Moscow meeting in August 2001 on Soil Bio-geo-chemistry. Participated one day field trip and provided input for discussions. The Commission also supported very strongly a meeting on Soil Classification, in Valenza Hungary in October 2001.

Organized the VIth International Meeting on Soils with Mediterranean Type of Climate in Bari, Italy in September 2001. About 250 people have participated in this meeting. Commission also supported the organization of the International Micromorphology meeting in June 2001 in Gent, Belgium.

Visited several times southern Spain and initiated a meeting on Soils of Arid regions use and management, which will take place in September 2002 in Mucia Spain. Commission V also supported International Conference on Land degradation in Rio de Janeiro, Brazil and the next Conference in the year 2004 again in Murcia Spain.

He visited Research Centers related to soil science in Azerbaijan, Kazakstan, and Uzbekistan.

The Commission had a very productive term and attention was given to the developing countries, so that they can be made the greater soil science community. The Chairman has enjoyed the close cooperation with other officers of the Commission V as well as collaboration with other Commissions, Subcommissions, and working groups.

A. R. Mermut
Chair, Commission V

IUSS COMMISSION VIII - SOIL AND THE ENVIRONMENT

1998-2002

AREAS OF INTEREST AND ACTIVITIES

Members of Commission VIII are involved in several files that are attracting large public interest at the present time, and which are discussed in different fora. Climate change, for example, is a major issue for human activities and it is also highly relevant to soil scientists in the context of environmental sustainability. Indeed, climate change may have a significant impact on the availability of land to conduct human activities, especially the production of food and fiber. Atmospheric composition is largely influenced by human activities, and it is essential to investigate the contribution of soil processes to the release and/or fixation of greenhouse gases. Considerable efforts were devoted in most recent years on demonstrating the possibility of sequestering carbon dioxide as organic matter in forest and agricultural soils. This is a case where the soil contribution to solving the issue of limiting or reducing carbon dioxide emissions to the atmosphere will be also very beneficial to soil quality. Soil scientists were extensively involved in the development of policies that led to the adoption of agricultural soil as carbon sinks. This was supported by the publication of the IPCC document on land use and land use changes in agriculture and forestry. This document emphasizes the major contribution of soil science at the intersection of atmosphere, lithosphere, biosphere and hydrosphere.
Effects of human activities on the maintenance of effective soil functions under different land uses are major topics of consideration by this Commission, often in collaboration with other Commissions and Working Groups. Food production, from the points of view of food security and quality, is another area of ongoing interest. However, and although agricultural production remains a central focal point of activities for soil science, land conversion for urban and industrial development, and waste disposal and recycling are also matters of investigation and concerns. Inappropriate land use or management is leading to the contamination of the water resource, and it is therefore important to make the linkage between human activities and the sustainable use of all natural resources. Soil quality and its improvement, best management practices and land use that also protects vulnerable areas are important areas of consideration.

The Symposia organized for the World Congress of Soil Science illustrate the scope and extent of topics relevant to Commission VIII, at the present time and for the future:

- urban and sub-urban soils: specific risks for human health, with a focus on urban agriculture
- food security and land use

- exploring the attitudes towards soil and land use
- soil indicators for sustainable land use.

Several more symposia organized by other Commissions and Working Groups will have a significant input and contribution from Commission VIII.

During the last four years, contacts were maintained with international organizations involved in the area of soils and the environment, such as INQUA and its soil carbon program, the Alliance pour un Monde Responsable et Solidaire which is developing the Soil Campaign. These are two examples of major initiatives at the world level that emphasize the interaction between humans and soils. Understanding the soil processes, and how such processes are affected by human activities, are of great concern for Commission VIII. Sustainability of natural resources will rely largely on the scientific achievements in this area. Increasing efforts will be necessary in the future in order to secure the sustainable use of all natural resources. There is an interrelation among all natural resources that must be further investigated. Water may become scarce in several areas in the future considering the proposed scenarios under climate change, and soil scientists will be expected to play a significant role in the development of better use practices for the protection of this resource through better land use and management.

Indicators of sustainable land use will be increasingly important in the future, both for research that will be responsible for developing such indicators applicable at a large scale, and for policy makers who have the responsibility of maintaining the sustainability of soil productivity in the context of a safer environment.

During the last four years, Commission VIII was involved in the organization and active participation of several conferences and meetings

1999: Commission VIII participated in the Scientific Committee of the 6th Conference on Soils with a Mediterranean type of Climate that took place in Barcelona, Spain. There was a focus on environmental issues and the need to interpret soil issues in a global context.
1999: Commission VIII was invited to present a report on its activities at the 15th Latin America Congress of Soil Science that took place in Pucon, Chile.
2000: Commission VIII participated in the International Symposium on Soil Science: Accomplishments and Changing Paradigm towards the 21st Century, that took place in Bangkok, Thailand.
2000: Commission VIII participated in the organizing Committee of the Third symposium of the Working Group MO "Interactions of Soil Minerals with Organic Components and Microorganisms" that took place in Napoli-Capri, Italy. C. De Kimpe was invited to present a keynote address summarizing the Symposium and looking at future perspectives in this research area.
2000: Commission VIII was involved in the organization of the International Symposium on Urban soils that took place in Essen, Germany. There was a strong interest for this specific area of humans-soil interactions.
2001: Commission VIII participated in the organization of the II Congress of Environmental Chemistry and Physics that took place in la Havana, Cuba.
2001: Commission VIII participated in the Scientic Committee that organized the International Symposium on the Functions of soils in the Geosphere-Biosphere Systems that took place in Moscow, Russia. The focus was on the soil-humans interactions and their impacts on ecosystems.
2002 : Commission VIII contributed to the organization of an International Symposium on Soil and the Environment, that took place in Antananarivo, Madagascar, on the occasion of the 100th anniversary of the Académie des Sciences de Madagascar.

CHALLENGES AHEAD

The increasing world's population will put increased pressure on the natural resources. Soil, through its specific functions, is contributing extensively to the efficient maintenance of the quality of the nat-

ural capital. This role will undoubtedly increase in the future. The challenges in the future were summarized by the IUSS General secretary in his address during the Bangkok Symposium on the future of soil science in the 21st Century:

- understanding of soil in space and time
- understanding of soil properties and processes
- understanding of soil use and management and its benefits to human societies
- societal and environmental issues of soils.

The societal and environmental issues of soils are becoming more and more important at all levels. It will be a new challenge for soil scientists to cope with those multiple interactions and propose innovative solutions that will ensure the sustainability of natural resources and the well being of the world's population. Under the new structure of IUSS, soil-environment interactions will be considered from different points of view. Human activities and their impacts are cutting across many aspects of land use and management that were addressed by several Com missions and Working Groups. The new structure of IUSS provides a framework that clarifies the contribution made by soil science. It will be a challenge for soil scientists to synthesize this information and contribute to the development of sound policies.

Christian De Kimpe
Chair, Commission VIII

ACTIVITY OF THE CRYOSOL WORKING GROUP (CWG) during the International Conference 'Extreme Phenomena in Cryosphere: Basic and Applied Aspects',

12-15 MAY 2002, Pushchino, Russia

1. Dr. J. Kimble presented the plenary lecture that was co-authored by S. Goryachkin, C. Tarnocai, and S. Waltman- "Extreme phenomena and application of the Northern Circumpolar Soil Database: evaluation of soil vulnerability". The possibility of Northern Circumpolar Soil Database for applied purposes was demonstrated. Several questions were asked and there was a great deal of interests in this database and its applications.

2. The member of the Cryosol working groups of IUSS & IPA held a meeting as many of the ones present in Pushchino were not at the March Meeting in Lincoln, Nebraska. The members present were (S. Goryachkin, J. Brown, D. Gilichinsky, J. Kimble, D. Konyushkov and E. M. Pfeifer) and some specialists involved in the work on the monograph and circumpolar soil database (S. Gubin, S. Maximovich). The co-chair of CWG S. Goryachkin reviewed the working group meeting held in Lincoln, USA, March 2002. He pointed out that there was again a unanimous decision to save the name "CRYOSOL Working Group" for use in the IUSS and IPA from the meeting in Lincoln. Letter was prepared and sent to the IPA leadership by signed by the co-chairs of the working group. J. Brown again pointed out that according to IPA rules the working group after 10-years activity should change both the priorities of the work and the name. The other CWG members supported the idea of the change of CWG priorities for 2003-2008 period, however, they agreed with the decision in Lincoln to save the well-known name "Cryosol working group". Finally, everybody supported this idea with the obligatory changes in CWG activity plan for 2003-2008.

J. Kimble said that it had been decided in Lincoln to nominate Dr. Sergey Goryachkin as the chairman of CWG for IUSS. Participants of CWG meeting in Pushchino agreed with this decision. As there was not any other candidates he will become the chair of the IUSS Cryosol Working Group.

The IPA requires co-chairs and the group agreed that the two nominees would be S. Goryachkin and E. M. Pfeifer. This will need to be finalized at the IPA meeting in Zurich. Sergey and Eva and John talked about the terms of reference to meet the IPA requirements. It was recommended that S. V. Goryachkin and E. M. Pfeifer will prepare the proposal or changing the CWG priorities and terms of reference and it would be presented to the at the CWG meeting in Bangkok. They will then be presented to IPA in Zurich in 2003.

J. Kimble also updated the members present on the state of the Cryosol monograph. The chapters are now undergoing an English edit and being set into book format. The completed chapters will be returned to the section leaders and they will return them to the chapter leads for finial corrections and checking. This will be done with a short as possible turn around. As no publisher has been identified he also asked if it could be possible to publish this book in Russia with the hope of reducing the cost of the book. David Gilichinsky agreed to find out the possibilities and prices from Russian publishing houses. The IUSS and IPA newsletters would be used to advertise the book. He is also checking with publishers in the US and Gabriele Broll is checking on other possibilities in Europe.

3. The CWG members took part in the round table discussion "Circumpolar monitoring of active layer and observation of permafrost temperatures in boreholes" (co-chairs J. Brown, A. Pavlov). The proposal to measure the depth of organic soil horizons was discussed. S. V. Goryachkin, J. Brown, D. A. Gilichinsky, J. Kimble, E. M. Pfeifer

STATUS REPORT ON INTER-CONGRESS ACTIVITIES OF IUSS WORKING GROUP MO "INTERACTIONS OF SOIL MINERALS WITH ORGANIC COMPONENTS AND MICROORGANISMS" (1998-2002)

January 25, 2002

GENERAL REPORT

The International Society of Soil Science (ISSS) established the Working Group MO in 1990 when the ISSS Congress was held in Kyoto, Japan. The objective of this Working Group is to promote research and teaching on the interactions of soil minerals with organic components and microorganisms and the impact on the production of foodstuffs and fibers, the sustainability of the environment, and ecosystem health including human health on the global scale. Since its establishment in 1990, the Working Group has organized three inter-congress international symposia and four symposia during the congresses. The Working Group also has co-sponsored four workshops and symposia. Further, the activities of the Working Group have resulted in the publication of five books and the co-sponsored publication of three books and one special issue of a scientific journal.
The inter-congress activities (1998-2002) of the Working Group MO are outlined below:

The Working Group MO Third International Symposium

Soil Mineral – Organic Matter – Microorganism Interactions and Ecosystem Health. Naples-Capri, Italy, May 22-26, 2000.

The Theme of the Symposium included the chemical speciation, dynamics and bioavailability of metals, metalloids and organics, ecology of microorganisms and their metabolites, enzymes and other biopolymers, and the impact on ecosystem health. The aim of this symposium was to provide a forum for the interactions of soil chemists, soil mineralogists, soil microbiologists, soil biochemists, environmental scientists and toxicologists to stimulate and promote discussion, exchange of information on many topics of mutual interest in this important area of science and to stimulate research leading to

an integration of knowledge on soil minerals, organic components and microorganisms, and their impact on ecosystem health. This symposium was co-sponsored by Commissions II (Soil Chemistry), III (Soil Biology), VII (Soil Mineralogy) and VIII (Soils and the Environments) of IUSS, by the University of Naples, and by the Working Group "NAMOX" of Società Italiana di Scienza del Suolo. More than 220 scientists from 33 countries participated in this scientific event. One hundred and seventy five papers were presented at this Symposium. The members of the Symposium Organizing Committee were A. Violante (Chairman), P.M. Huang, J.-M. Bollag, C. de Kimpe, and L. Gianfreda. The papers that were presented at the Symposium have been reviewed by external referees and editors. The accepted papers are being published in two books by Elsevier.

The Working Group MO Co-sponsored Symposia

(1) Humic Substances in Soil and Related Environments. The First Symposium of the Canadian Chapter of the International Humic Substances Society, Charlottetown, PEI, Canada, August 10, 1999.

The aim of this symposium was to promote the fields of humic substances in soil and related environments. The papers addressed the issues on the in situ analysis of organic matter in soils, formation and transformation of humic substances, their sorption of natural and anthropogenic organic compounds, humic substances and metal dynamics, and the impact of efficient composting treatments on ecosystem health. The convenor of this symposium was P.M. Huang.

(2) Dynamics and Transformations of Organic Matter in the Environment. The Second Symposium of the Canadian Chapter of the International Humic Substances Society, Guelph, Ontario, Canada, August 3, 2001.

The objective of this symposium was to address the issues on the role of soil mineral-organic matter-microorganism interactions in dynamics and transformations of organic matter in the environment. This Symposium provided a forum for the interaction of soil chemists, soil biochemists, soil microbiologists, soil mineralogists and environmental scientists across Canada. The Convenor of the Symposium was R.P. Voroney.

3. The Working Group MO Publications

(1) Berthelin, J., P.M. Huang, J.-M. Bollag, and F. Andreux (eds.) 1999. Effect of Mineral- Organic-Microorganism Interactions on Soil and Freshwater Environments. Plenum, New York. 378 pp.
(2) Violante, A., P.M. Huang, J.-M. Bollag, and L Gianfreda (eds.) 2002. Soil Mineral-Organic Matter- Microorganism Interactions and Ecosystem Health. Elsevier Science, B.V. Amsterdam (in press). Two books: Volumes I and II.

The Working Group MO Co-sponsored Publications

(1) Huang, P.M. (Guest Editor), M.A. Arshad, H. Dinel, and T.B. Goh (Associate Editors), 2001. Humic Substances in Soil and Related Environments. Special Issue, Canadian Journal of Soil Science 81: 247-369.
(2) Huang, P.M., J.-M. Bollag, and N. Senesi (eds.) 2002. Interactions of Soil Particles with Microorganisms and the Impact on the Terrestrial Ecosystem. IUPAC Series on Analytical and Physical Chemistry of Environmental Systems. John Wiley & Sons, Chichester, UK, (in press).

FUTURE ACTIVITIES

The Working Group MO is planning to organize its Fourth International Symposium on the impact of soil mineral- organic component- microorganism interactions on ecosystem restoration in China in 2004.

The Working Group MO is also planning to co-sponsor the Seventh International Conference of Biogeochemistry of Trace Elements in Sweden in 2003.

RECOMMENDATIONS

It is recommended that the IUSS Working Group MO be continued to fulfill its mission to promote research and teaching on the interactions of soil minerals with organic components and microorganisms and the impact on agricultural sustainability, environmental quality, and ecosystems health.

In view of the significance and eternal nature of mineral – organic component – microorganism interactions and interactive physical, chemical, and biological processes in soil and related environments, it is further recommended that a new "Commission C2.5 Soil Physical / Chemical / Biological Interfacial Interactions" be established in IUSS Division D2 - Soil Properties and Processes.

P.M. Huang, Chairman
IUSS Working Group MO

WG: PP - Paleopedology, Chairperson: A. Bronger
Report on inter-congress activities 1998-2002

Paleopedology is regarded as the study of paleosols, which have been somewhat loosely defined as soils formed on a landscape during the geologic past. We distinguish *buried paleosols* or fossil soils from *non-buried paleosols* or relict soils. One of the most important uses of buried Quaternary paleosols has been the paleoclimatic interpretation of the multiple soils in long loess sequences of Central and Eastern Europe, Central Asia, China, USA and Argentina. These sequences have provided detailed records of a climatic history of the last 2.6 million years. This is one of the task of paleopedology mainly in the Internat. Quaternary Association (INQUA), where we have the status of a Commission.
Non buried paleosols or relict soils show two or more sets of properties which can be related to different combinations of soil-forming factors (esp. different climates and with it vegetation) through sets of offen incompatible soil forming processes. Incompatibility of processes implies two or more environmentally different periods of soil development.Thus also non-buried paleosols play an important role for a full and correct understanding of landscape history, which is essential for a proper appreciation of many modern environmental problems. „Paleosols as a memory for understanding landscape history and environmental problems„ will be a symposium (No. 49) during the World Congress of Soil Science August 2002 in Bangkok.

The aim of our International Symposia and Field Workshops on Paleopedology (ISFWP) is to exchange ideas and concepts, to focus the discussion and to built up an active core group (as large as possible) of members of the Paleopedology Commission (INQUA) or Working Group (in IUSS). In the period 1998-2002 we had the following symposia:
IV. ISFWP „Paleosols and climatic change„ was held in Lanzhou, China, July 27-30, 1998, attended by 30 participants from China and 35 participants from 11 foreing countries. A pre-Conference excursion (July 17-26) went to Xinjiang Province, a post-Conference excursion (July 30 - August 07) to the north-eastern Tibetan Plateau.
During the INQUA Congress in Durban, South Africa, August 3-11, 1999 the Commission on Paleopedology (WG in IUSS) had a main symposium „Paleosol sequences as evidence of long- and short term climatic cycles„ and two afternoon workshops.
V ISFWP „Paleosols and modern soils as stages of continuous soil formation„ was held in Suzdal, Russia, partly together with the III Congress of Docucaev Soil Science Society of Russian Academy of Science, July 10-16, 2000, attended by 45 participants from 6 countries.

VI ISFWP, held in Chapingo near Mexico City, October 8-11, 2001, attended by 46 participants from 10 countries. A pre-Conference excursion (October 6-7) studied tephra-paleosol sequences in the Nevada de Toluca area. A post-Conference excursion (October 12-13) studied modern soils of Sierra Nevada, relict polygenetic Luvisols with tepetates (indurated horizons in volcanic sediments) and tephra-palesol sequences in the Tlaxcala area.

The WG (Commission in INQUA) intends to get the papers, presented on its symposia, published in international reviewed journals. Reviewed papers of the II ISFWP in Champaign. IL, USA 1993 were published in *Quaternary International*, Vol. 51/52, pp. 1-221, 1998.

Twelve reviewed papers, presented at a Paleopedology Symposium „Reconstruction and Climatic Implications of Quaternary Paleosol Sequences„ during the XIV INQUA Congress 1995 in Berlin were published in CATENA, Vol. 34, pp. 1-207, 1998.

Thirty-eight reviewed papers, mainly presented at the IV ISFWP in Lanzhou, China 1998 were published in *Chinese Science Bulletin*, Vol. 44, Suppl. 1, pp. 1-263, 1999.

Fifteen reviewed papers, presented at the III ISFWP, held together with Comm. V of the ISSS 1997 in Rauischholzhausen, Germany are published in a special issue „Recent and paleo-pedogenesis as tools for modelling past and future global change„ in CATENA, Vol. 43, pp. 1-259, 2000.

Reviewed papers, presented at a Paleopedology Symposium „Records in soils of environmental and anthropgenic changes„ held at the World Congress of Soil Science at Montpellier, France 1998 were published partly in CATENA, vol. 41, pp. 163-276, 2001 (eight papers), partly in *Quaternary International*, Vol. 78, pp. 1-70, 2001 (seven papers).

A. Bronger

IUSS WORKING GROUP SOILS AND GEOMEDICINE (WGSG)

This is to keep you informed about the activities of our Working Group since Prof. Låg´s death:

1. As you know, a symposium on Geomedical problems in developing countries was arranged in Oslo 28-29 October jointly between the Norwegian Academy of Science and Letters and our IUSS Working Group.Proceeding from that symposium has been published by the Academy, and I amsending you a copy by post.

2. Another joint symposium on Natural Ionizing Radiation and Health was held in Oslo 5-6 June 2001. Proceedings from the meeting are on the way, and I shall send you a copy when it becomes available.

3. I participated in a seminar on Health and the Geochemical Environment in Uppsala, Sweden, 4-6 September, 2000. The meeting was arranged by Dr. Olle Selinus, Chairman of the "International Working Groupon Medical Geology" belonging to IUGS. This group has several common issues of interest with the IUSS WG, and I see possibilities of future collaboration between the two groups. Their activities may be viewed on their home page:

http://home.swipnet.se/medicalgeology

4. Symposium 60: Soils and Geomedicine at the 17th WCSS has been met with considerable interest, and a number of oral and poster presentations will be given. I shall be chairing the session, and you are welcome to attend.

Prof. Dr. Eiliv Steinnes
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Report on the activities of the IUSS Working Group
SU - Soils of Urban, Industrial, Traffic and Mining Areas

In 1998 at Montpellier during the 16th World Congress of Soil Science the Working Group 'SU - Soils of Urban, Industrial, Traffic and Mining Areas' of the International Union of Soil Science was established. The working group SU/SUITMA- is linked to Commission V (Soil Genesis, Classification and Cartography) and VIII (Soils and the Environment). The first Conference of the Working Group SU was held in Essen, Germany, from July 12 to 18, 2000 in co-operation DBG-Deutsche Bodenkundliche Gesellschaft/German Soil Science Society and AFES – Assocation Francaise pour l' Etude du Sol/French Soil Science Society.

The SU-Conference comprised in 3 days oral and poster presentations, Small Group Discussions on the objectives of the conference themes, Research Partner Mediation Event and in addition 5 one day excursions. The number of contributions was 214. Among them have been 19 from German Cities.

The Conference was attended by 161 colleagues, 64 from Germany included. They came from 37 countries. It was a great pleasure, that they did find the way from all Europe and particular from Eastern Europe to Essen. A great advantage for the SU-Conference was the participation of colleagues from Africa, Asia, Australia, South and North America. It was a strong demonstration of the necessity that soil science has to go into cities all over the world. According to this the motto of the conference was 'the CITY has SOILS/ die STADT hat BOEDEN – the CITY needs SOILS/die STADT braucht BOEDEN'.

Participants of excursion 'Urban Soil Use' in the mine worker village Gelsenkirchen-Schüngelberg to see Hortisols and storm water infiltration ditches

There is already a strong interest of the German Federal Government, the Government of the State North-Rhine Westphalia and particularly of the city planning offices in urban soils. Dr. Woiwode from the Federal Ministry of Environment did give an introduction about this by illuminating the new German Soil Protection law from 1998. Secretary of State Mrs. Friedrich showed the successful implementation of urban soil research in the activities of the state North-Rhine Westphalia and Dr. Wiese

Participants in front of the hard coal mining spoil heap Schurenbachhalde, an example of soil landscape designed by artists.

von Ofen of the International Federation for Housing and Planning did give an introduction of the ideas of city planning related to soils. Prof. Blum of IUSS presented the challenges for soil science which are waiting in urban areas and must be coped.

There were three major themes of the conference. A – the Unknown Urban Soil – Detection, Resources and Face. The contributions to this were already numerous. They concerned field and laboratory methods, historical urban soils, field survey and soil maps, classification of urban soils, man-made substrates.

Definite lower was the number of contributions to B – Application of Soil Information. Obviously until now this field of work was only exemplary discovered by soil scientists. On the conference treated were sludge and waste, storm water infiltration, vegetable gardens, green areas, playing grounds and city planning.

The third main focus C – Soil Quality and Problems had a very good resonance. The great number of contributions did deal with soil quality, soil degradation, soil protection, soils of biotops/pedotops, soil remediation, specific problems of industrial, traffic and mining areas.

Two of the 22 sub-themes in total did lack contributions: the key theme City management and soils (A) and Burial ground (B). For us soil scientists it means that we have to encourage research about these very important themes.

The contributions showed the large field of research which is waiting for soil science in urban areas. In part it could be pointed out only roughly, in part already extended studies were presented.

The conference had also the aim to show urban soils and to discuss their features and problems in the field. The large old industrial area of the Ruhr with its heavy and chemical industry and hard coal mining areas is very qualified for that purpose. This very important part was realized by 5 excursions, A – Modified soils (by stratification, mixing, compaction, contamination, humus accumulation, fine earth reduction by skeleton content, ground water lowering), B – Soils from man-made substrates (ruble,

waste, sludge, ash, slag, thermal cleaned soil), C – Urban soil use (park forest, vegetable garden, play ground, storm water infiltration, biotop), D – Extreme contaminated soils, soils as sources of fine dust (PM_{10}), E – Soils from hard coal mining and soil reclamation. Totally 25 soil profiles had been presented and discussed. 9 additional sites had been visited.

One of the important resumes of the conference was the appeal to strengthen and organize the field of urban, industrial, traffic and mining soil science world wide by the establishment of national and regional SU - working groups under the roof of soil science societies. Further on cities and companies of industry, traffic and mining should play an active role in the development of urban soil science. For more information see from time to time <http://www.suitma.de>.

The success of the First SU Conference was the result of cooperation with many colleagues all over the world who managed the scientific sessions and of the members of the Working Group Urban Soils of the German Soils Science Society who managed the small discussion groups, and all the coworkers of the Department of Soil Technology of the University Essen. The Conference was supported by the University of Essen, the Deutsche Forschungsgemeinschaft (DFG - German Science Foundation), Sponsoring Association for the City of Essen, State of Nothrhine Westfalia, City of Essen, Umweltschutz Nord, Privat Brauerei Stauder.

The Proceedings of the first SUITMA Conference were published in 3 Volumes of 1098 pages. They can be ordered from Prof. Dr. W. Burghardt, Fb.9, Soil Technology, Universität Essen, 45117 Essen, Germany, Fax. +49 201 183 2390, e-mail: wolfgang.burghardt@uni-essen.de. Price 45 US$ plus postage.

On the 17th Congress of Soil Science in Bankog, from August 14 – 21. The working group SU will arrange **Symposia No.55: Improving knowledge about soils and their functions in urban, industrial and mining areas for a better life.**

The **Second SUITMA Conference** will be performed in Nancy, France, in July 2003, organized by Prof. Dr. Morel, ENSAIA., Co-chairperson of WG SU. Details of the conference will be worked out in March 2002 on a meeting in Nancy.

Wolfgang Burghardt
(Chairperson of IUSS Working Group SU/SUITMA)

Note of the editor: This report already appeared partly in Bulletin 99

PROPOSALS FOR NEW COMMISSIONS

PROPOSAL FOR A COMMISSION ON MICROPEDOLOGY

History

Micropedological investigations of soils were developed over sixty years ago with the pioneering work of Dr. Walter Kubiena. The developments began with techniques to prepare thin-sections of soils and other materials with a concomitant evolution in the concepts, descriptive language, and the interpretive aspects of the science. This *in vitro* study of soils soon had a wide range of applications including in archaeology and environmental sciences. By the mid-sixties quantification of features in thin-sections was already advanced. Towards the end of the sixties, with the advent of sub-microscopic techniques, another tool was available for soil scientists.

Early in the development of micropedology researchers felt the need to exchange ideas about concepts, methods, techniques and results. A first working meeting took place in Braunschweig (Germany) in 1958, followed by one in Arnhem (The Netherlands) (1964) and in Wroclaw (Poland) (1969). These meetings were organised by individual research institutes or universities, independently of the International Soil Science Society (ISSS). During the Wroclaw meeting a working group was created to develop a uniform and coherent system of concepts in order to coordinate the development of terminology. The group was supported in the beginning by UNESCO and accepted by ISSS where it obtained a status of Working Group and later that of Sub-commission B. International Working Meetings on Micromorphology were further organised under the auspices and rules of the ISSS, as inter-congress meetings. These included: Kingston (Ontario) (1973), Granada (Spain) (1977), London (UK) (1981), Paris (France) (1985), San Antonio (Texas) (1988), Townsville (Australia) (1992), Moscow (Russia) (1996) and Gent (Belgium) (2001). During all the ISSS International Congresses, meetings of the Subcommission and special symposia were organised. It is evident that the Sub-commission has not only contributed to the science of micromorphology but also contributed to the goal and vision of ISSS.

The need for an individual status

Although papers on micropedology are presented at the international congresses of ISSS in different commissions (mainly in commission I, V and VII), the bulk of the contributions are concentrated in the meetings of the Subcommission and symposia during the ISSS-congresses, and especially in the previously mentioned International Working Meetings on Micropedology. Papers dealing with concepts, methods and ways of interpretation are generally inappropriate for the wider audience of a Congress and are generally presented at the focused Working Meeting of the Sub-Commission.

As has been shown, the science of Micromorphology has evolved from the morphological study of soils at the microscopic scale to a much wider range of techniques with applications in many other sciences. In this respect, it may be appropriate to refer to the original name of the science, namely "Micropedology". As used today, it continues to evaluate soil morphology at the microscopic and submicroscopic scales but in addition it not only has become quantitative but is also used as an analytical tool of material science. Some of the ancillary techniques available include Scanning Electron Microscopy, Electron Microprobe, X-ray Diffraction Analysis, Infrared techniques, micro-chemical tests, tomography and others. The advances in information technology are now enabling better quantification and the development of databases. Micropedological data is now included as an integral part of national soil information systems and used for a wide array of applications.

Micropedology as a science and because of its application possibilities, cuts across many other sciences. It is and will continue to remain as a basic science of the pedologist but its appeal to other disciplines widens the application of soil science techniques as a whole. This must be nourished and enhanced and this is the vision of the current Sub-Commission on Soil Micromorphology.

Conclusion

Division 2 (Soil Properties and Processes) is a new Division created in the structure of the International Union of Soil Science (IUSS). The proposed Commissions are the four basic sciences – physics, chemistry, biology, and mineralogy. It would be extremely appropriate to include micromorphology or micropedology as the 5th Commission for the reasons provided earlier. With a group of active and dedicated soil scientists, this Commission would continue to remain at the cutting-edge of the science and bring credit to the IUSS.

Prof. Dr. George Stoops (Belgium)
Elected Chairman of Subcommission B

PROPOSAL FOR ESTABLISHING NEW COMMISSION C2.5

SOIL PHYSICAL/CHEMICAL/BIOLOGICAL INTERFACIAL INTERACTIONS IN IUSS DIVISION D2-SOIL PROPERTIES AND PROCESSES

Justification

On April 21, 2000, the IUSS Council approved the organization of the IUSS scientific structure: D1. Soil in Space and Time, D2. Soil Properties and Processes, D3. Soil Use and Management, and D4. The Role of Soils in Sustaining Society and the Environment. There are four commissions in Division D2, i.e., C2.1 Soil Physics, C2.2 Soil Chemistry, C2.3 Soil Biology, and C2.4 Soil Mineralogy. These four commissions deal with the disciplines of Soil Physics, Soil Chemistry, Soil Biology and Soil Mineralogy. However, physical, chemical, and biological processes are not independent processes but rather interactive processes in soil environments. Soils can be defined as complex interactive biogeochemical reactors, reservoirs of organisms (mainly microorganisms), and major compartment of the terrestrial ecosystems under the influence of anthropogenic activities. To improve our scientific knowledge on soil resources and also its application to remediation and long-term management, it is of major importance and interest to study soil organization and function not only through the subdisciplines of Soil Sciences but also through interactive approaches. The study of the interactions between soil constituents and soil organisms has to be considered at different scales, namely, from molecular level to field/landscape systems and is, indeed, essential to stimulating further research to uncover the dynamics and mechanisms of soil processes. Therefore, we are missing an important link in the IUSS scientific structure at the commission level to deal with physical/chemical/biological interfacial interactions in the soil systems. These fundamental interactive soil processes have enormous impacts on ecosystem productivity, services, and integrity, and human welfare.

The International Society of Soil Science (ISSS) established the Working Group MO "Interactions of Soil Minerals with Organic Components and Microorganisms" in 1990 when the ISSS Congress was held in Kyoto, Japan. The objective of this Working Group is to promote research and teaching on (1) the interactions of the three major (solid) components of soils, namely, minerals, organic components and microorganisms which should not be considered as separate entities but rather a united system, and (2) the impact of the interactions on the production of foodstuffs and fibers, the sustainability of the environment, and ecosystem health including human health on the global scale. Since its establishment in 1990, the Working Group has organized three inter-congress international symposia and four symposia during the congresses. The Working Group also has co-sponsored four workshops and symposia. Further, the activities of the Working Group have resulted in the publication of five books and the co-sponsored publication of three books and one special issue of a scientific journal. At the Third

International Symposium of IUSS Working Group MO, May 22-26, 2000, in Naples, Italy, a special meeting was held to discuss the significance of establishing a new Commission C2.5 Soil Physical/Chemical/Biological Interfacial Interactions in IUSS D2 Soil Properties and Processes. After considerable discussions on the proposal, it was agreed that the establishment of a new commission on interactive processes of the soil in IUSS Division D2 Soil Properties and Processes would provide this missing link in the IUSS structure at the commission level on a permanent basis and facilitate fundamental major breakthroughs in Soil Sciences for the 21st Century.

Mandate and Major Research Thrusts

The mandate and major research thrusts of the proposed new Commission C2.5 were intensely discussed by participants at the above-mentioned special meeting and then very carefully scrutinized by the Committee which consisted of five members, i.e., D.L. Sparks, C. De Kimpe, J.-M Bollag, J. Berthelin and P.M. Huang.

The mandate and major research thrusts of the proposed new Commission C2.5 Soil Physical/Chemical/Biological Interfacial Interactions in IUSS Division D2 are as follows:

The proposed commission deals with interactive processes occurring in soil with the goal of advancing the understanding on physical/chemical/biological interfacial systems. Major research thrusts include: (1) mineral and biological catalysis and enzyme-mineral interactions leading to humus and organo-mineral complex formation, (2) surface reactions of micro- and macro-biota and biomolecules with soil particles, (3) the effect of soil interactive processes on the structure, dynamics, and activities of microbial communities, and (4) ecological impacts of soil interactive processes on (a) porosity formation by structure or organization development and on (b) biogeochemical transformation and transport of chemical and biological components at different spatial scales from regional to global.

Molecular- and macroscopic-scale methods will be used and innovative methods will be developed to investigate interactive processes of the soil.

Recommendation

In view of the significance and eternal nature of mineral-organic component-microorganism interactions and interactive physical, chemical, and biological processes in soil and related environments, we very strongly recommend that a new Commission C2.5 Soil Physical/Chemical/Biological Interfacial Interactions be established in IUSS Division D2 Soil Properties and Processes.

D.L. Sparks (USA),
C. DeKimpe (Canada),
J.-M. Bollag (USA),
J. Berthelin (France), and
P.M. Huang (Canada).

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Chairperson: Dr. Rogelio N. Concepcion, Bureau of Soils and Water Management SRDC, Building, Elliptical Road, Diliman, Quezon City, Philippines; <bswm@phil.gn.apc.org>.

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Chairperson: Prof.Dr. J. Deckers, Wildenhoge 13, 3020 Winksele, Belgium; <seppe.deckers@agr.kuleuven.ac.be>.

WORKING GROUP RS:

Chairperson: Dr. Richard Escadafal, CESBIO, 18, av. Edouard Belin, 31401 Toulouse Cedex, France <richard.escadafal@cesbio.cnes.fr>.

WORKING GROUP RZ:

Chairperson: Dr. Ph. Hinsinger, INRA UFR de Science du Sol, Place Viala, 34060 Montpellier Cedex 2, France; < — >.

WORKING GROUP SG:

Chairperson: Prof. E. Steinnes (co-chair), Dept. of Chemistry, Norwegian University of Science & Technology, 7034 Trondheim, Norway; <eiliv.steinnes@chembio.ntnu.no>.

WORKING GROUP SM:

Chairperson: Prof Dr. R. Horn, Inst. f. Pflanzenernährung u. Bodenkunde, Olshausenstr. 40, 24118 Kiel, Germany; <rhorn@soils.uni-kiel.de>.

WORKING GROUP SP:

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WORKING GROUP SU:

Chairperson: Prof.Dr. W. Burghardt, Univ. GH Essen, Inst. of Ecology, Universitätsstr.5, 45117 Essen, Germany, <wolfgang.burghardt@uni-essen.de>

STANDING COMMITTEE ON STATUTE AND STRUCTURE (CSS):

Chairperson: Prof.Dr.P.B.Tinker, GCTE Associate Project Office, Deptmt. of Plant Sciences, University of Oxford, South Parks Road, Oxford OX1 3RB, UK; <bernard.tinker@btinternet.com>.

STANDING COMMITTEE ON INTERNATIONAL PROGRAMMES (CIP):

Chairperson: Dr. J. Kimble, SCS/NSSC, Federal Bldg., Room 152, 100 Centennial Mall North, Lincoln, NE 68508-3866, USA; <john.kimble@nssc.nrcs.usda.gov>.

STANDING COMMITTEE ON STANDARDIZATION (CST):

Chairperson: Dr. S. Nortcliff, Dept. of Soil Sci., Univ. of Reading, Whiteknights, P.O.Box 233, Reading RG6 2DW, UK; <s.nortcliff@reading.ac.uk>

STANDING COMMITTEE ON BUDGET AND FINANCES (CBF):

Chairperson: Prof.Dr.W.R. Gardner, 1 Shadow Mountain Dr., Logan, Utah 84321, USA, <wgardner@cc.usu.edu>.

STANDING COMMITTEE ON EDUCATION IN SOIL SCIENCE (CES):

Chairperson: Prof.Dr. M. Dosso, CNEARC, 1101 Av. Agropolis, B.P. 5098, 34033 Montpellier Cédex, France; <dosso@cnearc.fr>.

STANDING COMMITTEE ON THE HISTORY, PHILOSOPHY AND SOCIOLOGY OF SOIL SCIENCE (CHP):

Chairperson: Prof.Dr. D.H. Yaalon, Institute of Earth Sciences, Hebrew University, Givat Ram Campus, Jerusalem 91904, Israel; Telefax: +972-2-5662-581. <yaalon@vms.huji.ac.il>.

IUSS-COMMITTEES AND REPRESENTATIVES

Committee on Statute and Structure (CSS), to ensure correct application of Statutes and Bylaws of IUSS, *and to propose changes in the organizational structure as required.*

Chairperson: Prof.Dr. P.B. Tinker, U.K; <bernard.tinker@btinternet.com>.

Members: Prof.Dr. W.E.H. Blum (Austria), Dr. S. El-Swaify (USA), Dr. N.N. Goswami (India), Prof.Dr. K.H. Hartge (Germany), Prof. Dr. K. Kyuma (Japan), Dr. F.N. Muchena (Kenya), Prof.Dr. I. Pla-Sentis (Venezuela), Dr. W.G. Sombroek (The Netherlands) and Prof.Dr. G. Varallyay (Hungary).

Committee on Interdisciplinary Cooperation (CIC), to liaise with international organizations and to promote joint programmes.

Chairperson: Dr. John M. Kimble, USDA-NRCS-NSSC, Federal Bldg. Room 152, 100 Centennial Mall North, Lincoln, NE 68508-3866, USA; <john.kimble@nsc.nrcs.usda.gov>.

Members: Dr. I.P. Abrol (India), Dr. R.W. Arnold (USA), Prof.Dr. W.E.H. Blum (Austria), Prof.Dr. A.M. Elgala (Egypt), Dr. A. Gennadiev (Russia), Dr. D.J. Greenland (UK), Prof.Dr. K. Kyuma (Japan), Dr. H.U. Neue (Philippines), Prof.Dr. P.A. Sanchez (USA), Prof.Dr. H.W. Scharpenseel (Germany), Dr. W.G. Sombroek (The Netherlands), Prof. J.W.B. Stewart (Canada), Prof.Dr. P.B. Tinker (UK), Dr. G. Vachaud (France), Prof.Dr. G. Varallyay (Hungary), Prof.Dr. D.H. Yaalon (Israel).

Committee on Standardization (CST), to liaise with the International Standardization Organization (ISO, Geneve-Switzerland) and its Technical Committee on Soil Quality (ISO/TC 190, NNI, Delft, The Netherlands).

Chairperson: Dr. Stephen Nortcliff, Dptmt. of Soil Science, PO Box 233, Whiteknights, The University of Reading, Reading, RG6 6DW, UK; <s.nortcliff@reading.ac.uk>.
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), Dr. A. Mtimet (Tunisia, Subcomm. F), vacancy (Subcomm. G).

Committee on Budget and Finances (CBF), instead of ad-hoc committees at Congresses.
Chairperson: Dr. W.R. Gardner, College of Natural Resources, Univ. of California, Berkeley, CA 94720, USA; <wgardner@cc.usu.edu>.
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
Chairperson: Prof.Dr. M. Dosso, CNEARC, B.P. 5089, 1101 Av. Agropolis, 34033 Montpellier, France; <dosso@cnearc.fr>.
Members: Rabah Lahmar (Algeria), Pamela Hazelton (Australia), Stephen Nortcliff (Great Britain), John Hatzopoulos (Greece), Mamadou Khouma (Senegal), Angélique Lansu (The Netherlands), Bruce James (USA).

Committee on History, Philosophy and Sociology of Soil Science (CHP)
Chairperson: Prof.Dr. Dan H. Yaalon, Inst. of Earth Sciences, The Hebrew University, Jerusalem 91 904, Israel; Fax: +972-2-566-2581; <yaalon@vms.huji.ac.il>.
Members: to be defined

IUSS Representatives in Committees/Commissions of International Organizations:

ICSU-SCOPE	Scientific Committee on Problems of the Environment: Dr. F. Fournier (France).
ICSU-CSFS:	Scientific Committee on Sciences for Food Security: Prof.Dr.W.E.H. Blum, (Austria).
ICSU-IBN	International Biosciences Networks: Prof.Dr. P.A. Sanchez (USA).
ICSU-IGBP	International Geosphere-Biosphere Programme: Dr. J. Kimble (USA)
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.).
IUBS-UNESCO-TSBF	Dr. J. Kimble, USA

CD-ROM "Land Resources of Russia"

Integrated Information System for Sustainable Use of Natural Resources: Contribution to Chapter 10 of Agenda 21 (UNCED) and to the Rio+10 Summit

Vladimir Stolbovoi
International Institute for Applied Systems Analysis, Laxenburg, Austria

Today's dynamic society has been facing increasingly complex, closely interrelated, and rapidly spreading problems. Policy-decision makers, scientists, and practitioners around the world are looking for tools to undertake proper, timely, and adequately complicated solutions. The question on what information should be used to meet the challenges of today's world is debated and unresolved. The IIASA Forestry Project, in close collaboration with the Russian Academy of Sciences provide an example of the first country-scale integrated information system to support sustainable use of land resources in line with Chapter 10 of Agenda 21 (UNCED) and contribute to the Rio+10 Summit.

Land in the concept of the CD-ROM is a complex system of interrelated live supporting elements above and below the earth's surface. Data describing the land is integrated in complete, complex, spatially and temporary consistent fashion. It captures both national traditions and data formats with international standards allowing both domestic and global analysis to be performed. The CD-ROM introduces the most important topics that fall under jurisdiction of the international conventions, e.g., climate change, desertification, biodiversity, and wetlands. All of the databases have been formatted and uniformed to meet the various requirements to be handled by modern information technologies including GIS tools, and modeling.

Russia occupies 1,709 million hectares of land, about one-seventh of the global land area. This vast land contains a large diversity of natural and socioeconomic conditions that are reflected in country-wide inventories. Numerous scientists and various governmental organizations and institutions conducted long-term inventories and research aimed at gathering reliable and comprehensive information on the country's land resources. Systematic research was carried out with respect to Siberia and the Far East of Russia within the framework of the settlement program at the end of the 19th and 20th centuries, under the Government's Plan for Electrification of Russia (GOELRO), the establishment of collective farming (Collectivization) in the 1930s and 1940s, the "Plan for transforming nature" (end of the 1950s), and the "Plan for development of virgin and abundant lands" (early 1960s). During the last decades, substantial investigations were undertaken, among others, by the Council on Productive Facilities (SOPS) of the Russian Academy of Sciences, and by special government surveys on land (ROSKOMZEM), forests (ROSKOMLES), and land amelioration (MINVODHOZ). These efforts have resulted in a large volume of well-documented and published, mapped and descriptive data and stored archive information. However, due to various reasons this valuable information is not widely used by policymakers and scientists of the country and is practically unknown abroad. In many cases, major global international programs suffer from a data deficit on Russian land. These international programs are often forced to develop their own databases on Russian land based on accessible data of varying qualities. This has resulted in a large number of contradicting figures describing the land of Russia.

This CD-ROM contains the latest available data collection on three major themes; socioeconomic (statistics and infrastructure), biophysical conditions (climate, hydrology, permafrost, relief, lithology, vegetation, soils, biodiversity, wetlands, and land cover), and land endowment (land use, agriculture, forest use, desertification, land productivity, and land degradation). This data originates from different well-recognized national sources. The databases presented are illustrated with maps, descriptive text and an explanatory glossary. For users interested in further details of a topic, basic references are provided.

The CD-ROM contains diverse information on the soils of Russia. First, a complete correlation of the country soils with FAO (1988), WRB (1998), and Soil Taxonomy (1999) is given and accompanied

by maps. The general soil geographical distribution across Russia is described. Each soil is characterized by analytical data from a reference soil profile. Special attention is paid to the emission of CO_2, methane production, carbon density, and carbon pools.
The data on the CD-ROM is available for downloading in the form of WinZip files. These zip files contain ARC/INFO GIS export files, .bil image files and .dbf database files. Various GIS, remote sensing and database packages can access these files. MS-Explorer 5+ and Netscape 4.5+ browsers support these pages.
The CD-ROM is recommended for scientists and policymakers dealing with land characteristics and analysis of natural resources. The CD-ROM also provides relevant information for educational purposes.
For questions and comments regarding the CD-ROM on Land Resources of Russia, please contact Dr. Vladimir Stolbovoi at IIASA's Forestry Project at stolbov@iiasa.ac.at.

Chinese Soil Taxonomy

China, with a land area exceeding 9.6 million km^2, has a wide range of environmental and physiographic conditions resulting in a wide array of soils. Chinese culture has traditionally been cognizant of the value of the soil resource and many of their soil descriptive terms and management practices date back several thousand years. Compiling the information and structuring a rational system of soil classification has occupied Chinese soil scientists since the development of science. Modern systems have their roots in the 1930's with the joint classification work with the United States. Since then Chinese scientists have built on the experience from around the world and commenced developing a genetic system in 1954. During the last few decades, systematic studies were initiated on defined soil groups and these led to the development of the current Chinese Soil Taxonomy.
The Institute of Soil Science and the Chinese Academy of Sciences, with funding support from the National Natural Science Foundation of China, published their new soil classification system in 2001. An English version of the monograph is available from Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China.
The building blocks of the system are quantitatively defined 33 diagnostic horizons and 25 diagnostic characteristics. They have introduced 'diagnostic evidence' to express diagnostic features that fail the requirements of the above definitions and use them at lower categoric levels to identify intergrades and extragrades. The categories of the system are the order, suborder, group and subgroup, with the order category having 14 classes of soils. There is a strong resemblance to U. S. Soil Taxonomy in structure and many of the definitions but there are also significant differences that are more appropriate for their soil conditions. However, acceptable correlations with the U. S. Soil Taxonomy or to the World Reference Base can be made in most cases.
A significant innovation in the system is the introduction of the order of Anthrosols, which occupies a second position in the key, after the Histosols. The concept of, and the need for, such a class has been debated in international circles for several decades but it is only in the Chinese system that specific, and quasi-quantitative definitions are given. Though the definition of the anthropic horizons can probably be improved with a larger database, the concepts and principles are attractive and may well serve as a base for more detailed studies and incorporation in other classification systems.
Another deviation from other systems is the use of clay activity to define some of the orders. The Vertosols, Ferralosols, and the Ferrosols are defined by clay activity and a few subordinate properties. This implies that the Argosols (Alfisols) and the Cambosols (Inceptisols) lack vertic properties and have a clay activity greater than 24 $cmol/kg^{-1}$. The traditional emphasis is retained in the order of Spodosols, Andosols (Andisols), Aridosols (Aridisols), Gleyosols (wet soils), Isohumosols (Mollisols), and Primosols (Entisols). In addition, salt-affected soils have a special place in the order of Halosols. There is a tendency to overload the lower categories with criteria, thereby introducing cumbersome terminology. An example is, "Fimic Phosphi-Lithomorphic Isohumosols". This may partly result from

translation from the original Chinese text. Being the first edition of the system, the terminology will become refined and manageable in future versions.
Taken as a whole, the new Chinese Soil Taxonomy is not only a great improvement on previous systems but is also an indication of the desire of Chinese soil scientists to become more congruent with developments in other parts of the world. Their challenge was to retain some of the intrinsic characteristics of their previous systems that had served them well but simultaneously capture recent advances in other parts of the world. This is not an easy task and the result is laudable.
China is the only country in Asia with a national system and being the largest country of the continent with a cadre of soil scientists dedicated to Pedology, it has an opportunity to extend its system to the rest of Asia. The need for a common language and a unified database of soils is greater today than ever before and the Chinese can provide the leadership to bring this about. The Chinese Soil Taxonomy is a first step in that direction as it has the ingredients to become the Asian Soil Taxonomy.

Hari Eswaran
USDA Natural Resources Conservation Service
Washington DC, USA

Prizes of the Third World Academy of Sciences (TWAS)

The TWAS Prizes, which were launched in 1985, are among the most noteworthy prizes in science in the developing world. The Academy has recently expanded the fields in which the prizes will be given and we are now encouraging individuals and scientific organizations of excellence to submit nomination forms. Prizes will be granted in the following fields: biology, chemistry, mathematics, physics, agricultural science, earth sciences, engineering sciences and medical sciences. Each prize carries a US$10,000 award and a plaque highlighting the recipient's major contributions to his or her field. The prizes usually are given at major event - for example, the TWAS General Meeting - where recipients are asked to present a lecture in honour of receiving the award.
For additional information about the TWAS Prizes, please contact
Ms. Helen Grant, the Third World Academy of Sciences (TWAS),
c/o The Abdus Salam International Centre for Theoretical Physics (ICTP),
Strada Costiera 11, 1-34104 Trieste, Italy;
phone: + 39 040 2240 387; fax: + 39 040 224559; website: www.twas.org.

Soil and Plant Analysis Puzzle

The puzzle was prepared by Yash P. Kalra and Joel A. Crumbaugh, Canadian Forest Service, Edmonton. It is based on a puzzle written by Albert Einstein on nationalities, houses, cigarettes, pets, and beverages.

Facts

1. There are 5 laboratories of 5 different colors arranged in a straight row.
2. Within each laboratory works a different chemist, all of a different nationality.
3. Each of the 5 chemists analyzes a different soil, a different type of grain, and uses a different type of analytical technique.
4. You are facing the row of laboratories and read left to right.

Hints

1. The American works in the red laboratory.
2. The Australian uses ICP-AES.
3. The Canadian analyzes podzolic soil.
4. The green laboratory is on the left of the white laboratory.
5. The green laboratory chemist analyzes gleysolic soil.
6. The chemist who analyzes oats uses GC.
7. The chemist of the yellow laboratory analyzes barley.
8. The chemist working in the laboratory right in the middle analyzes luvisolic soil.
9. The Dutch works in the first laboratory.
10. The chemist who analyzes corn works next to the one who uses AA.
11. The chemist who uses FE works next to the one who analyzes barley.
12. The chemist who analyzes wheat also analyzes solonetzic soil.
13. The Indian analyzes rye.
14. The Dutch works next to the blue laboratory.
15. The chemist who analyzes corn has a neighbor who analyzes chernozemic soil.

The Question

Who uses HPLC ?

For the answer, please see next page

Soil and Plant Analysis Puzzle

Answer: Indian

Yellow	Blue	Red	Green	White
Dutch	Canadian	American	**Indian**	Australian
Chernozem	Podzol	Luvisol	Gleysol	Solonetz
Barley	Corn	Oats	Rye	Wheat
AA	FE	GC	HPLC	ICP-AES

III INTERNATIONAL FORUM ON THE IMPORTANCE OF CHEMISTRY IN THE AGRONOMY

(III FORO INTERNACIONAL SOBRE LA IMPORTANCIA DE LA QUIMICA EN AGRONOMIA)

The III International Forum on the importance of Chemistry in the Agronomy (*III Foro Internacional sobre la importancia de la Química en Agronomía)* was held at the *Universidad Nacional de Chapingo (*Texcoco, México) on January 22 to 24, 2002. This Forum was organised by Prfs. José A. ANAYA and Moisés CUEVAS (both from the *Universidad Autónoma de Chapingo*, UACH).

- On the first day, the session focused on "Soil organic matter: Importance on soil properties and fertility, and education"; two keynotes, presented by the Prf. L.B. REYES and J.F. GALLARDO, served as introduction to the contributions.
- On the second day, the session dealt with "Organic agriculture and sustainable development: The future of the agrochemicals"; the two introductory key-notes were presented by Dr. T.J. GUZMAN and C. RIUS.
- On the third day a round-table, consisting of the Prf. J.D.D.M. NETO, E. AGUILAR, G. ALMAGUER, R. DECELIS, M. CUEVAS and (acting as moderator) Dr. J.F. GALLARDO discussed different programs dealing with agriculture and rural development in Brasil and México.

A short field workshop was also scheduled to discuss some experiences on organic/ecological agriculture in the district of Texcoco. In addition, a theatrical play was performed by students of the Faculty of Agronomy from the *Universidad Autónoma Juárez*, Tabasco (Southern México).

In all the sessions, discussions were open and very interesting.
This III Forum was closed by a Jazz session, performed by professors belonging to the UACH. I want to congratulate the organisers on the nice work and the participation of students belonging to different Universities of México.

Juan F. GALLARDO LANCHO
<jgallard@usal.es> (*C.S.I.C.*, Salamanca 37071, Spain).

7th International Symposium on Soil and Plant Analysis, Edmonton, July 2001

The 7th International Symposium on Soil and Plant Analysis was held at the Westin hotel in Edmonton, Alberta, Canada, July 21-27, 2001 (Theme: *Fine tuning soil and plant analysis for economic and environmental betterment*). It brought together about 200 scientists from around the globe. This is the first time that this biennial event was held in Canada and we were proud and honored to host it here in Edmonton. In recognition, Mayor Bill Smith proclaimed Tuesday, July 24 as the"*International Soil and Plant Analysis Day*". I had been looking forward to this event ever since the *Council on Soil and Plant Analysis* awarded the right to Edmonton to host the 7th ISSPA. The program included tours, training workshops, instrument expo, and plenary and poster sessions. Ted Peck received the prestigious J. Benton Jones, Jr. Award for his significant contributions in the development and advancement of soil testing and plant analysis.

The Symposium Organizing Committee included Todd Cardwell (USA), Joel Crumbaugh (Canada), David Edwards (Australia), Ivor Edwards (Canada), Yash Kalra (Canada), William McGill (Canada), Geri Mitchell-Edwards (Canada), Rosalie Strachan (Australia), and Byron Vaughan (USA). Anette Palm managed the symposium from Germany. Leonie Nadeau (Canada) was the master of ceremonies.

The pre-symposium tour on July 21 and 22 offered an introduction to the Rocky Mountains of Canada (the Canadian Rockies) and some of the spectacular scenery for which the Jasper National Park and the Banff National Park are known world-wide. The mid-symposium tour on July 26 included a visit to the largest waste recycling facility in North America. Then the tour proceeded to Hubbles Lake where we saw and discussed research into the use of compost to enhance agricultural crop production or maintain land capability during or following reclamation. The final stop of the tour was the Breton Plots. These plots were established in 1929. They are the only continuous, long-term plots on Gray Luvisolic soils in Canada and possibly in the world. The accompanying persons' tour on July 24 included Drumheller, location of the Royal

Pre-symposium tour of the Canadian Rockies

Turrell Museum of Paleontology (repository of the largest collection of dinosaur fossils in the world). The surrounding badlands have unique rock formations resulting from 10,000 years of post-glacial weathering. On July 25 the accompanying persons visited the Muttart Conservatory, Edmonton's collection of flora from different climatic regimes around the world. Each climatic regime is housed in a pyramidal structure and outside floral gardens are vivid reminders of the species that are grown successfully here at this latitude (53^0 33' N). The afternoon visit to the Fort Edmonton Park enabled the participants to rub shoulders with the early (18th century) fur traders on whose business Edmonton was founded along the North Saskatchewan River.

There were eight training workshops: North American Proficiency Testing Program for soil, plant, and water analysis laboratories (Robert Miller and Janice Kotuby-Amacher, USA), method validation and

related laboratory quality assurance (Jon De Vries and Deneen Rief, USA), latest developments in laboratory automation for soils and plant analysis (Kees Hollaar, the Netherlands), applications and modernization of flow injection analysis and ion chromatography (Shreekant Karmarkar, USA), improving sample throughput in atomic absorption and inductively coupled plasma spectroscopy (Byron Vaughan, USA), use of high performance liquid chromatography for soil and plant analysis (Sham Goyal, USA), ion exchange membranes: from plant root simulators to routine soil testing devices (Ken Greer, Catharine Macleod, and Jeff Schoenau, Canada), and plant analysis, sampling, preparation, interpretation, and recommendations (Owen Plank, USA).

The five plenary and poster sessions included proficiency testing for soil and plant analysis, soil acidity, economic and environmental aspects of soil and plant analysis, diagnostic methods, and advanced analytical technologies and instrumentation. Thirteen plenary papers were presented: Proficiency testing for soil and plant analysis in Australasia (George Rayment, Australia), North American Proficiency Testing program for soil, plant, and water analysis laboratories (Robert Miller, USA), Wageningen Evaluating Programs for Analytical Laboratories (Dirkje van Dijk, the Netherlands), farming with acidity (Malcolm Sumner, USA), soil fertility and management of acid coastal plain soils for crop production (Vincent Haby, USA), rationale of the economy of soil testing (Bernardo van Raij, Brazil), quality of animal and human life as affected by selenium management of soils and crops (Umesh Gupta, Canada), environmental and economic fertilizer recommendations for crops in the 21st century (Parviz Soltanpour, USA), diagnostic methods to evaluate the nutrient status of garlic, onion and broccoli (Manuel Sandoval, Mexico), virtual soil testing: is it possible? (Rigas Karamanos , Canada), use of high performance liquid chromatography for soil and plant analysis (Sham Goyal, USA), soil organic matter dynamics: unifying measurable variables and kinetic concepts (William McGill, Canada), and analytical problems associated with coal mine land reclamation (Donald Pluth, Canada). A total of 141 papers were accepted by the Program Committee for presentation in the poster sessions. The plenary sessions were chaired by David Edwards (Australia), Bernardo van Raij (Brazil), Dirkje van Dijk (the Netherlands), Byron Vaughan (USA), and Arri van Vuuren (South Africa). The poster sessions were coordinated by John Ryan (Syria), Ashok Alva (USA), Bernie Mandac (Philippines), Joel Crumbaugh (Canada), and Katalin Sardi (Hungary).

The 8th International Symposium on Soil and Plant Analysis will be held in Cape Town, South Africa, January 13-17, 2003 (www.isspa2003.com).

Yash P. Kalra (Canada), Chair, Symposium Organizing Committee

ALBANIAN SOIL SCIENCE ASSOCIATION

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TO: Dr. Luca Montanarella

EARTH DAY CELEBRATION IN ALBANIA

On April 22, 2002 the Albanian Soil Science Association, Soil Science Institute in collaboration with the Ministry of Environment, Agricultural University, The Center for Geographic Studies, Faculty of Geology, etc., organized a massive activity dedicated to the Earth Day with participation of about 200 persons. In this activity participated the President of Republic of Albania Prof. Dr. Rexhep Mejdani, Minister of Agriculture and Food Agron Duka, Deputy Minister of Environment Tatjana Hema, members of parliament, representatives from various Ministries and from international organizations, students, etc.

The President of Albanian Soil Science Association and at the same time Director of Soil Science Institute, Prof. Dr. Sherif Lushaj, evoked the history of this day and the responsibilities deriving in the current conditions that Albania has less land and in hilly and mountainous terrain, environment problems and the outreach objectives for unification of different institutions, awareness to the government organs about the environment and land, the objective to declare the year 2002 as the year of land and environment protection, approaching of community in this process, protection against erosion, preparation of clear protection policies, land use and administration.

In this activity were presented posters from 12 main institutions that deal with land problems in Albania and distributed books and brochures related to land management.

The President of Albania, Prof. Dr. Rexhep Mejdani, addressed to the participants and requested from the government organs and research institutions to follow the priorities for land protection and use, to intensify the scientific studies and make aware the community of this important resources. The Minister of Agriculture and Food, Agron Duka, presented the strategy of the Ministry of Agriculture and Food for the land. In the end, the participants accepted a program for coordination of activities on land.

The news on this event was broadcasted by the state National Albanian TV and 6 other private TV stations and also published by several newspapers.

Prof. Dr. Sherif LUSHAJ
President of Albanian Soil Science Association
Director of Soil Science Institute

Croatian Society of Soil Sciences

On February 28th 2002, the Croatian Society of Soil Sciences elected a new National Board for the period 2002-2004:

President:	Ass. Prof. Ivica Kisic (email: ikisic@agr.hr)
Secretary:	Ass. Prof. Stjepan Husnjak (email: shusnjak@agr.hr)
Treasurer:	Darko Baksic, M.Sc.
Board Members:	Ass. Prof. Zdenko Loncaric
	Dr. Boris Vrbek

The address of the Society is:

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Sociedad Cubana de la Ciencia del Suelo
Cuban Soil Science Society (CSSS)

The V Congress of the CSSS took place in Varadero, in November 2001 and was elected a new Board. At the same time eight scientics were elected as Honorary Members of the CSSS, seven of them from Cuba and one from Russia.
This is the new Board for the next period:

President:	Dr. Ramón Rivera Espinosa
Vice-President:	Dr.Olegario Muñiz Ugarte
Secretary:	Dr. Alberto Hernández Jiménez
Treasurer:	MSc. Sigfredo Hernández Ortega
Members:	Dr. Fernando Ortega Sastriques
	Dr. Rafael Martínez Viera
	Dr. Julio Gandarilla Benítez
	Dr. Greco Cid Lazo
	Dr. Rafael Villegas Delgado

These are the new Honorary Members of the CSSS:

Acad. Dr. Lev Ljubojevich Shishov (Russian)
Dr. Alberto Hernández Jiménez
Dr. Juan Miguel Pérez Jiménez
Dr. Fernando Ortega Sastriques
Dr. Rafael Martínez Viera
Ing. Abilio Cárdenas García
Dr. Víctor Paneque Pérez
Dr. Juan Paneque Pérez

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Dr. Alberto Hernández Jiménez
Secretary CSSS

International Conference of the Czech Society of Soil Science and Joint Meeting of the Czech Society of Soil Science and the Soil Science Society of America was held in Prague in 2001

Czech Society of Soil Science, Division of Soil Science of the Czech Academy of Agricultural Sciences, Czech University of Agriculture in Prague and Research Institute for Soil and Water Conservation in Prague, in cooperation with the Soil Science Society of America, organized between September 16 and 20, 2001 in Prague the International Conference of the Czech Society of Soil Science and Joint Meeting of the Czech Society of Soil Science and the Soil Science Society of America (SSSA) with general theme "*Soil Science: Past, Present and Future*".
Scientific session of the conference was divided to four topics. In the first topic, *Interpretation of soil data at different scales in time and space*, some recent methods for soil data evaluation were presented, like state-space approach (L.C. Timm), or multivariate geostatistics (L. Bor?vka), as well as modern scale-specific methods for the measurement of soil properties (J.W. Hopmans). Some papers were devoted to forest soils, especially their acidification (J. Hru?ka) and CO_2 production (P. Formánek). The second topic, *Soil geografical information systems*, included presentation of the state and development of soil survey and soil GIS in the Czech Republic (J. Kozák), and application of information systems on alluvial soils of Southern Moravia (S. Tewari). In the frame of the third topic, *Transport processes in soil with a special reference to preferential flow*, contributions dealing with broader overview of water

and solute transport in soil were presented (L.W. Dekker, F. Dole?al), as well as papers describing transport models and their errors (S. Matula, C.J. Ritsema, M. Boger). Some special problems of soil water transport were also presented (M. Kutílek). The fourth topic, *Heavy metals and organic pollutants in soils*, included papers on soil pollution monitoring (M. Sá?ka, V. Podrázsk?), papers dealing with different indicators of soil pollution (D.C. Adriano, N. Jordanova), and also a study on lead desorption (W.E. Dubbin). In total, 24 oral papers were presented; other 13 contributions were presented as posters. In addition to Czech and American scientists, there were participants from Austria, the Netherlands, the United Kingdom, Brazil, Israel, Hungary, and Slovakia. The organization and final program of the conference were strongly affected by the tragic events in New York of the 11th of September 2001. Only four soil scientists from the U.S.A. finally came, instead of 14 expected. Also Dr. Robert J. Luxmoore, the President of the SSSA, had to cancel his participation, even if he was involved in preparation and supporting of the meeting.

Both scientific and cultural program of the conference enabled exchange of ideas and information and creation of international contacts. Proceedings of the conference were prepared on CD and are available from the author of this notice. You can find more information on the new web page of the Czech Society of Soil Science (www.pedologie.cz).

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Danish Society of Soil Science

At the General Assembly on Thursday 18th April 2002, at the KVL (Royal Veterinary and Agricultural University); Prof. Henrik Breuning-Madsen was reelected as secretary.

Therefore the board consists of:

Chairman: Professor Ole K. Borggaard,
Chemistry Department,
Royal Veterinary and Agricultural University,
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Phone +4535282419
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Treasurer: Senior scientist Lars Vesterdal,
Forest and Landscape Research Centre,
Hørsholm Kongevej 11,
DK-2970 Hørsholm.

Secretary: Professor Henrik Breuning-Madsen,
Institute of Geography, University of Copenhagen,
Øster Voldgade 10, DK-1350 Copenhagen K.

Ole K. Borggaard

SOIL SCIENCE SOCIETY OF GHANA

The 17th Annual General Meeting (AGM) and International Conference of the Soil Science Society of Ghana was held at the Volta River Authority (VRA) Conference Hall in Tamale, the capital of the Northern Region of Ghana from February 26 - March 2, 2001. The meeting, was hosted by the Savanna Agricultural Research Institute of the Council for Scientific and Industrial Research (CSIR).

The conference with the theme: "Managing soil resources of the Tropics for sustainable agricultural productivity" was officially opened by the Northern Regional Minister and chaired by Prof. Emmanuel Owusu- Bennoah, Deputy Director-General of the CSIR in charge of Agriculture, Fisheries and Forestry. The Presidential Address was delivered by Prof. D. K. Acquaye, Immediate Past President of the Society.

Over 150 scientists drawn from Africa, Europe and America attended and presented more than 100 papers in all the major fields of soil science and related disciplines in two concurrent oral sessions. In a pre-conference tour, participants visited some historic sites in Northern Ghana and also had the opportunity of looking at some savanna soil profiles.

Four invited papers were presented on the following to set the tone for the conference: "Soil fertility", by Prof. B. H. Janssen, "Soil and water", by Prof. Mensah Bonsu, "Effect of carbon sequestration on soil fertility and sustainable production in tropical soils", by Prof. J. Kimble, "Soil, water and nutrient management and conservation needs for sustainable agricultural productivity in Ghana", by Dr. Charles Quansah.

Six plenary sessions were held on the following themes to consolidate the outcomes of the conference:

- Aspects of soil chemistry and fertility for sustainable agricultural productivity in the tropics - Chairman: Prof. B. H. Janssen;
- Soil water scarcity and vulnerability: strategies for managing soil water reserves in the tropics - Chairman: Dr. Charles Quansah;
- Investing in knowledge on soil resources of the tropics: soil survey and classification - Chairman: Dr. R. D. Asiamah;
- Sustaining the environment through judicious soil and land use - Chairman: Prof. J. Kimble;
- Promoting knowledge partnership through participatory technology development - Chairman: Dr. H. Loos;
- Exploitation of renewable soil resources - Chairman: Dr. R. J. Carsky

The following persons were elected to the National Executive Committee for a two-year term:

i.	President	Dr. R. D. Asiamah
ii.	Vice-President	Dr. M. R. Appiah
iii.	Secretary	Mr. C. Dela Dedzoe
iv.	Assistant Secretary	Dr. Matthias Fosu
v.	Treasurer	Dr. Charles Quansah
vi.	Publicity Secretary	Dr. Daniel Okae-Anti
vii.	Northern Sector Representative	Mr. A. A. Abunyewa
viii.	Eastern Regional Representative	Dr. K. Ofori-Frimpong
ix.	Central & Western Regional Representative	Prof. P. K. Kwakye
x.	Ashanti & Brong Ahafo Regional Representative	Dr. J. T. Adomako
xi.	Greater Accra & Volta Regional Representative	Dr. (Mrs.) Bertha Gana
xii.	Ex-Officio Member	Prof. D. K. Acquaye

The conference was formally closed by Prof. W. S. Alhassan, former Director-General of the CSIR. The next meeting is scheduled for July, 2003.

Christian Dela Dedzoe, National Secretary,
soils@africaonline.com.gh

Indian Society of Soil Science

New officers elected for the year 2002:

President:	Dr. P.K. Chhonkar
Vice Presidents:	Dr. A.K. Singh, Dr. M.S. Brar
Secretary:	Dr. G. Narayanasamy
Joint Secretary:	Dr. R.K. Rattan
Assistant Secretary:	Dr. Dhyan Singh
Treasurer:	Dr. S.S. Balloli
Chief Editor:	Dr. N.N. Goswami

G. Narayanasamy

66th Annual Convention of the Indian Society of Soil Science

The 66th Annual Convention of the Indian Society of Soil Science (ISSS) was held at the Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, Udaipur from 30th Oct. - 2nd Nov., 2001.

At the inaugural ceremony, His Excellency, the Governor of Rajasthan, Hon'ble Justice Anshuman Singh was the Chief Guest. Dr. A. S. Faroda, Vice Chancellor of the University, many distinguished guests, and nearly 450 delegates joined the function. Dr. P.K. Chhonkar, President, ISSS extended a warm welcome to all. Justice Anshuman Singh presented the Fellowship and various Awards of ISSS for 2001. The Fellowship of ISSS was conferred on:
(i) Dr. Dilip Kumar Pal, Nagpur, Maharashtra; (ii) Dr. Saroj Kumar Sanyal, Mohanpur, West Bengal; (iii) Dr. M.S. Brar, Ludhiana, Punjab and (iv) Dr. Narendra Kumar Tomar, Hisar, Haryana. Dr. A.V. Rao, Jodhpur, Rajasthan was the recipient of the 12th International Congress Commemoration Award and Dr. Damodar Reddy, Bhopal, was awarded the Golden Jubilee Commemoration Young Scientist Award.
Mr. Justice Anshuman Singh in his address appreciated the service rendered by the ISSS in promoting the cause of natural resource management in India for maintaining agricultural production and productivity. He, however, pointed to the emerging issue of environmental degradation facing India, which is home to 18% of the world population (one billion plus) and 15% of the livestock population but has to fend for itself from the 2% of geographical area and 1.5% of forest wealth on this planet. The inaugural function came to a close with a vote of thanks by Dr. B.N. Swami, President of Udaipur Chapter of ISSS.

Two special lectures were organized during this Annual Convention. The 19th Prof. J.N. Mukherjee-ISSS Foundation Lecture was delivered by Dr. S.K. Sanyal on 'Colloid chemical properties of soil humic substances: A relook' and the 28th Dr. R.V. Tamhane Memorial Lecture was delivered by Dr. J.C. Katyal on "Fertilizer use situation in India".

A Special Seminar on "Developments in the technology and usage of Indian phosphate rocks" was arranged on 31st October 2001. Six lead articles covering the various regions of India were included in this Seminar, which was chaired by Dr. J.S.P. Yadav, a Past-President of ISSS. A publication comprising these presentations will be brought out as Bulletin of ISSS. A National Seminar on 'Developments in Soil Science - 2001' was organized in which 375 oral and poster presentation were presented.

Inaugural ceremony: Dr. B.N. Swami (behind the podium),
front row, seated left to right: Dr. G. Narayanasamy, Dr. A.S. Faroda, Mr. Justice Anshuman Singh, and Dr. P.K. Chhonkar]

The 66th Annual General Body Meeting of ISSS was chaired by Dr. P.K. Chhonkar, President of ISSS and attended by nearly 150 members of the Society.

A concluding session was held on 2nd November 2001. Dr. P.K. Chhonkar delivered the Presidential Address, in which, among other points, he expressed the following views: Soil Scientists must assume a greater and pro-active role in identifying the topical problems and evolve solutions to these problem on priority. The myth of organic and biodynamic farming needs to be explored on the basis of scientifically generated data. Disproportionately large space is occupied by soil fertility research in the domain of Soil Science in India. This crowds out other subdisciplines and stunts their growth. The information technology available in the country must be used in Soil Science research more intensively.

A field trip was organized on 3rd November 2001 in which about 100 delegates participated.

G. Narayanasamy

Iranian Society of Soil Science

The 7th Iranian Congress of Soil Science was held from 26 to 29 August, 2001 at the University of Shahre-Kord.

About 400 renowned scientists, academicians, specialists and students from all over the country attended the meeting. A total of 235 research papers were presented as oral contributions or posters during the Congress in the plenary session and the following sessions:

1. Soil genesis and classification
2. Land evaluation
3. Soil physics
4. Soil conservation and sustainable uses
5. Soil fertility and plant nutrition
6. Soil chemistry and pollution
7. Soil biology
8. Soil organic matter
9. New technology in soil science

In his opening statement, Dr. M.H. Roozitalab, the President of the Soil Science Society of Iran reiterated the importance of sustainable use and management of soil resources and the challenges facing the country with regard to climate change, land degradation, water depletion and erosion of biodiversities to attain food security and to utilize natural resources in a sustainable manner.

In the final session of the Congress, a 10-point resolution was prepared for submission to all stakeholders involved in soil policy formulation, decision making process, soil education, research and technology development, land-use planning, soil conservation and watershed management to coordinate their programmes and activities in a concerted effort to protect and utilize soil resources.

During the Congress, the General Assembly of the Soil Science Society of Iran was held and a new Board of Directors was elected:

President:	Dr. M.H. Roozitalab
Vice-President:	Dr. N.A. Karimian
Treasurer:	Eng. M.H. Banaie
Secretary:	Eng. M.R. Balali
Board Members:	Dr. M. Karimian Eghbal
	Dr. G.H. Haghnia
	Dr. M.R. Neishaboori
Auditors:	Dr. A. Fotovat
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M.H. Roozitalab, Iran

Annual Meeting of the American Society of Agronomy, Charlotte

The 93rd Annual Meeting of the American Society of Agronomy (ASA), 46th Annual Meeting of the Crop Science Society of America (CSSA), and the 65th Annual Meeting of the Soil Science Society of America (SSSA) were held in Charlotte, North Carolina, USA, October 21-25, 2001. Charlotte, the "Queen City of the South" lies near the highest peak east of the Mississippi and the beautiful beaches of the coast. It was the site of the first signing of the National Declaration of Independence on May 20, 1775. Charlotte is the nation's second largest financial center.

Most of the meeting activities took place at the Charlotte Convention Center. Some activities were also held at the Charlotte Hilton and the Marriott City Center Hotel. So much to do, so little time. It was a huge meeting with several simultaneous sessions. You have to be selective. If you try to take in too many activities, you will be "conferenced out" rather quickly. The 488-page Annual Meetings Program was helpful in planning my participation in different activities. On Sunday evening, ASA-CSSA-SSSA held the first part of their joint plenary session that focused on the theme Sustaining Earth and its People: Translating Science into Practice. The second half of the plenary session took place Monday afternoon. This joint session highlighted the central role of soil, land, and biological resources in sustaining society and assuring adequate future agricultural productivity and environmental stability. The Mixer on Sunday night was a great opportunity early in the week to greet old pals and make new ones. The meeting of S205.1 Council on history, philosophy, and sociology of soil science earlier that day was very interesting. Monday started with my participation in the 8:30 a.m. North American Proficiency Testing (NAPT) Oversight Committee (S890) meeting. It was followed by three meetings that I chaired (1) S889 Committee (Coordination of Official Methods of Soil Analysis) (2) Soil and Plant Analysis Council Board of Directors meeting, and (3) Soil and Plant Analysis Council Annual Business meeting. An Evening Canadian was an excellent opportunity for us to catch up on the goings on at various agricultural universities and research institutions in Canada. The 6:30 a.m. Soil Testing and Plant Analysis Breakfast Meeting on Tuesday included these reports: Committee S889, Committee S890, Soil and Plant Analysis Council, regional activities and the North American Soil Test Summary. Right after this meeting, I participated in a very useful Laboratory Analysis Workshop organized by Robert O. Miller and Janice Kotuby-Amacher at the CEM Training Facility in Mathews, North Carolina. It covered topics such as soil scooping techniques, automated pH determination, quality control/quality assurance, plant analysis digestion techniques, improving analytical performance for ICP analysis, managing analytical work, soil phosphorus method variability, and dealing with difficult clients. I have the distinction of being (probably) the first chemist in Canada to use MDS-81D model for microwave digestion of forestry foliage samples and publish the results in the 1980s. So it was nice to see how these ovens are manufactured.

Microwave technology has come a long way from the first generation MDS-81D. A tour of the CEM facilities convinced us that CEM is the worldwide leader in advanced microwave laboratory instrumentation. We were impressed by the MARS 5(tm) (Microwave Accelerated Reaction System), a High Throughput Closed Vessel Microwave Digestion System. The MARS 5 can help eliminate the sample preparation bottleneck for AA, ICP and ICP-MS. I availed this opportunity to discuss issues related to environmental samples with CEM's Leslie Rhodes, Applications Chemist. At the ASA-CSSA-SSSA meetings, there were approximately 3,700 attendees from around the globe. CSSA and SSSA awards were presented during the Awards Luncheons on Tuesday. ASA awards were presented at the gala evening on Wednesday. A total of 2,900 papers were presented. In addition to several symposia and poster sessions, workshops and tours were offered. There were a number of exhibits and publisher displays. A CD-ROM of the 2001 Annual Meetings Abstracts containing abstracts of most of the papers could be purchased from the ASA-CSSA-SSSA Headquarters Office at $16.00 per copy. A series of food functions and board and committee meetings were held. There were other functions as well, e.g., Cornell Thirsty Bear Reception, Michigan State University Spartan Reception, etc. The Association of Women in Soil Science, Iranian Society of Agricultural and Life Science Professionals of North America, Association of Chinese Plant and Soil Scientists in North America, USDA-ARS

Scientists, and other groups also held meetings. At the Association of Agricultural Scientists of Indian Origin (AASIO) meeting on Tuesday evening, R.S. Paroda gave a thought-provoking presentation on "Shaping agricultural science for rainbow revolution in India"; P.K. Nair's presentation dealt with "Agro-forestry: The re-marriage of crops and trees".

Congratulations to Darrell W. Nelson, David A. Sleper, and Robert J. Luxmoore who completed their terms as Presidents of ASA, CSSA, and SSSA, respectively. Charles W. Stuber, Vivien G. Allen, and John W. Doran assumed 2001-2002 presidencies. Presidents-Elect are Robert G. Hoeft, P. Stephen Baenziger, and Michael J. Singer. The tri-societies' officers, organizers, and headquarters staff are to be congratulated on excellent meetings. The next three meetings are scheduled for Indianapolis, Indiana (November 10-14, 2002), Denver, Colorado (November 2-6 2003), and Seattle, Washington (October 31-November 4, 2004). For further information: The American Society of Agronomy, 677 S. Segoe Rd., Madison, Wisconsin 53711-1086, USA, phone (608) 273-8090, fax (608) 273-2021. To access this information on the World Wide Web, point your browser to agronomy.org, crops.org, or soils.org.

Yash P. Kalra, Canada
President, Soil and Plant Analysis Council

115th AOAC INTERNATIONAL Annual Meeting, Kansas City, September 2001

The 115th AOAC (Association of Analytical Communities) Annual Meeting and Exposition was held September 8-13, 2001 in Kansas City, Missouri, USA. More than 750 analytical chemists and others from industry, government and academia from around the world attended the meeting. The President's Reception and Awards Ceremony on Sunday night was a gala function. I always enjoy the lively European Party on Wednesday nights at these annual meetings; an excellent opportunity to form a strong network of highly competent international chemists. The technical aspects of the meeting were superb. There were several symposia, workshops, and committee meetings. I was particularly interested in the sessions on genetically modified food products, methods validation, and leadership development and training program. Since I have served as a Study Director for soil analysis methods, it was interesting for me to note that AOAC spends around US$50,000 per method to maintain an internationally recognized system for the validation of analytical methodology. There were about 100 companies exhibiting their products and services.

The following courses were offered: Quality assurance for microbiological laboratories, principles of statistics and uncertainty, quality assurance for analytical laboratories, auditing ISO laboratory systems, and ISO 17025 management systems for the laboratory. They were designed to provide high-quality, hands-on training that emphasized practical, real-world solutions to everyday problems encountered in the laboratory.

Committee on Sections members from North America and overseas at the September 8 meeting

Congratulations to Michael H. Brodsky on successfully completing his term as our President. Thomas L. Jensen of the Nebraska State Department of Agriculture, became the President for the 2001-2002 term. The 116th AOAC INTERNATIONAL Annual Meeting and Exposition will be held September 22-26, 2002 at the Regal Biltmore Hotel in Los Angeles, California, USA. For more information, visit the AOAC website at http://www.aoac.org, phone 1-800-379-2622 (toll-free within North America) or 301-924-7077 (worldwide), or fax: 301-924-7089.

Yash P. Kalra (Canada), President, AOAC INTERNATIONAL PNW

Workshop of the Western Enviro-Agricultural Laboratory Association, Edmonton

The 13th Annual Workshop of the Western Enviro-Agricultural Laboratory Association (WEALA) was held at the Alberta Research Council, Edmonton, Alberta, Canada on April 11, 2002. The theme of the meeting was "The environmental aspects of accelerated oil sands development in Alberta". The Workshop included the following presentations:
(1) Accelerated development of Alberta's oil sands (Technical, social and economic issues): Wayne McKee
(2) Environmental challenges faced as a result of accelerated oil sands development: Don Klym
(3) Deposition of acid and acid- forming substances in the oil sands region (Impact of accelerated oil sand development): Ron Pauls
(4) Water quality and distribution (Issues faced as a result of accelerated oil sand development): Bryan Kemper
(5) Total disturbances of mined lands (Impact of accelerated oil sand development): Clara Qualizza
(6) The regulatory response to accelerated oil sands development (A provincial perspective): Mike Boyd
(7) Environmental aspects of accelerated oil sands development (Consulting companies' perspective): Ken Foster and
(8) Analytical aspects of accelerated oil sands development: John Ashworth. There was a stimulating panel discussion at the end of the formal presentations. Salim Abboud and his committee are to be complimented on an excellent program.

*The Association held its Annual Business Meeting following the Workshop. The results of recently-*conducted round robin study on the determination of carbon in soils were discussed. Brenda Chomin (President), Joel A. Crumbaugh (Vice President), and Wayne Rae (Secretary/Treasurer) completed their terms on the 2001-2002 Executive. The Executive for 2002-2003 consists of Joel A. Crumbaugh (President), James LeBlanc (Vice President), and Brenda Chomin (Secretary/Treasurer). The next business meeting is scheduled for October 2, 2002 at the Northern Forestry Centre, Canadian Forest Service, Natural Resources Canada, Edmonton. The 14th Annual Workshop will be held in early 2003.

Yash P. Kalra, Past President
Joel A. Crumbaugh, President

GLOBAL ENVIRONMENTAL CHANGE AND FOOD SYSTEMS (GECaFS)

Human activity is changing the world's climate and leading to other globally-important environmental changes such as changes in supplies of freshwater, in the cycling of nitrogen and carbon, in biodiversity and in soils. The impact of these biophysical changes (collectively termed "Global Environmental Change", GEC; see box) will bring additional complications to the already difficult task of providing sufficient food of the right quantity and quality to many sections of society.

> Global environmental change (GEC) includes independent and interactive changes in the physical and biophysical environment. Such changes may be occurring at either (i) a global scale (e.g. change in atmospheric composition, climate mean values and variability, and sea-level rise) or (ii) a local scale but are very widespread (e.g. changes in water use and/or land-use intensification leading to soil and ecosystem degradation).

Not all individuals and sections of society are equally vulnerable to GEC. Their capacity to cope with existing variability in biophysical and socio-economic systems, and their ability to perceive GEC and adapt food systems accordingly vary considerably. This is because these factors are controlled by the flexibility with which food provision (i.e. the supply, availability and access to food and related, essential resources) is mediated by institutions governing how biophysical and socio-economic factors interact (e.g. land tenure, access to credit, exploitation rights of renewable resources, etc.). Different adaptation strategies will in turn lead to different consequences for socio-economic well-being and the environment.

It is against this background that three international global change research programmes[1] have launched a new, joint project "Global Environmental Change and Food Systems" (GECAFS)[2].

The Project is being developed in the context of three "fundamental questions" of interest to science, policy and society at large:

1. *Given changing demands for food, how will GEC additionally affect food provision and vulnerability in different regions and among different social groups?*

2. *How might different societies and different categories of producers adapt their food systems to cope with both GEC and changing demands?*

3. *What would be the environmental and socioeconomic consequences of adaptations to these changes?*

GECAFS Science themes

Three inter-related science themes are derived from the fundamental questions (Figure 1):

Theme 1 - Impacts: Effects of Global Environmental Change on Food Provision

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1 The International Geosphere-Biosphere Programme (IGBP, which deals primarily with natural sciences: http://www.igbp.kva.se/), the International Human Dimensions of Global Environmental Change (IHDP, involving social sciences: http://www.uni-bonn.de/IHDP) and the World Climate Research Programme (WCRP, involving climate sciences: http://www.wmo.ch/web/wcrp/wcrp-home.html).

2 Following a two-year planning phase, which included a series of international workshops, the Chairs and Directors of IGBP, IHDP & WCRP (the GECAFS Sponsoring Programmes) formally launched the joint project with effect from 15 July 2001. Detailed research planning will commence in early 2002. (Further information on GECAFS can be found at http://gecafs.org)

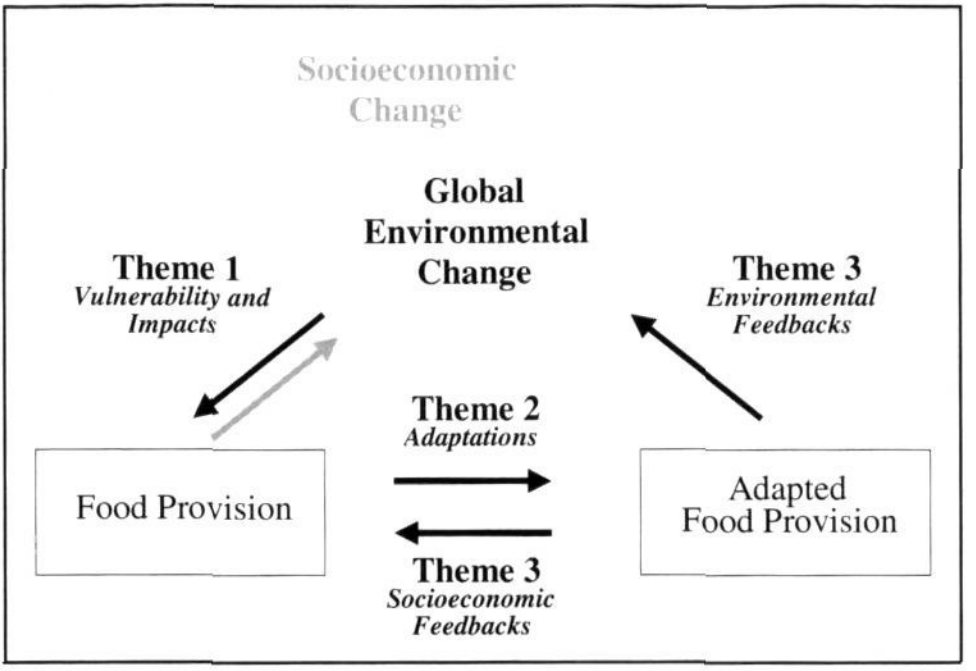

Figure 1 A diagrammatic representation of the three GECAFS science themes. Black text and arrows show the main features of GECAFS, with ongoing socioeconomic change and feedback of current food provision systems to GEC shown in grey.

Theme 2 - Vulnerability and Adaptations: Global Environmental Change and Options for Enhancing Food Provision
Theme 3 - Feedbacks: Environmental and Socio-economic Consequences of Adapting Food Systems

Of ultimate interest is the link between GEC and societal well-being (rather than the link with food systems *per se*) but this has to be addressed via a series of researchable issues to allow understanding of the relationships between GEC and food systems. The ultimate causes of GEC are largely due to social, economic and political drivers, and GEC changes occur within a broad socio-economic context at a wide range of spatial and temporal scales (e.g. changes in trade, demography, urbanisation and political stability; see Figure 1). Such considerations have to set the "base-line" comprehensive scenarios against which the additional effects of GEC needs to be assessed. This requires an innovative, interdisciplinary approach.

What is the role for Soil Science in GECAFS?

The GECAFS agenda will need to draw together wide-ranging specialisms from the climate, social and natural sciences – and soil scientists will have a variety of valuable roles. These could be either as direct contributions to individual research projects, or as input to one or more of the IGBP Core Projects and/or research partners (e.g. the CGIAR) with which GECAFS will collaborate.

First, what is the potential for direct input into GECAFS? Land-based GECAFS research projects will require a variety of natural resource information, including soils, combined in GIS at national to sub-continental level. This will need to be brought together with a other types of data and information (e.g.

climate, demography, institutions and policies and economic performance) to build sets of "scenarios" of future conditions. These scenarios will then define the boundaries within which analyses of trade-offs between environmental and socioeconomic goals can be undertaken for a range of possible management options. *Direct* links between soil science and GECAFS are therefore most likely in the development of spatially-explicate soil attribute databases, e.g. soil organic carbon "maps". Many parameters of interest are not however measured directly (e.g. erosivity) so it is likely that information will need to be derived from information sources such as the FAO, ISRIC/SOTER and the IGBP-DIS Global Soils Data Product. In this regard, soil scientists will be crucial in collating and interpreting existing information in support of scenario development.

Second, how might soil scientists be indirectly involved? There are many *indirect* ways in which soil scientists can contribute to GECAFS. Soil science is central in many national and international research efforts, including several IGBP Core Projects (e.g. GCTE[3]). GECAFS will build on, and add value to, this substantial effort by using products to which soil scientists have made contributions, such as improved models for cropping systems or green-house gas flux. This approach is very much in the spirit of one of the project's key "Guiding Principles" which states that GECAFS will not aim to "replace" research being carried out in other initiatives, (e.g. the research on soil organic matter modelling being coordinated by GCTE-SOMNET) but draw upon it and link it to other disciplines within a broader framework.

While there are several ways in which GECAFS can and needs to benefit from the inputs of soil scientists, collaboration should not been seen as being a "one-way" road. GECAFS should be seen by soil scientists as a way of developing soil science agendas by helping to identify new areas of research and establishing new interdisciplinary and institutional partnerships. Both GECAFS and soil science have much to gain from an active collaboration.

John Ingram, GECAFS Executive Officer, NERC-Centre for Ecology & Hydrology, UK
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3 Global Change and Terrestrial Ecosystems (GCTE, one of the Core Projects of IGBP) includes a Soils Activity within the GCTE Agroecology Focus (http://mwnta.nmw.ac.uk/GCTEFocus3/).

APPOINTMENTS, HONOURS, PERSONAL NEWS

Yash P. Kalra, Canadian Forest Service-Northern Forestry Centre Soil Chemist, was presented with a Community Ambassador Award by Economic Development Edmonton (EDE).

Dr Ernest Gordon Hallsworth Scientist and Teacher 1/10/1913 – 14/2/2002

Ernest Gordon Hallsworth was a loving husband, a caring father, a great teacher, a man of supreme optimism and a leader who encouraged all adventurous scientific research. He was also a witty raconteur, a genial host and an excellent and adventurous cook. Until a few years ago Gordon, as he was known, still enjoyed tennis and badminton. He was born in Ashton under Lyne in Greater Manchester in 1913 and was educated at Ashton Grammar School and the University of Leeds from where he graduated with first class Honors in Chemistry. He was subsequently awarded a PhD and on the basis of his pedological studies in New South Wales received the Doctor of Science degree at the University of Leeds.. His first appointment was as assistant lecturer in Agricultural Chemistry at the University of Leeds during the years 1936-40. He was appointed as a Lecturer /Senior Lecturer at the University of Sydney where he trained many prominent Australian Soil Scientists.. During his period in Sydney he married Elaine Seddon in 1942 (dec.1970).

He returned to England in 1951 to an appointment as Professor of Agricultural Chemistry and Dean of the School of Agriculture at the University of Nottingham School of Agriculture at Sutton Bonington. He remained there until 1964 and was Dean of the School for nine years. Before his appointment, the Sutton Bonington Agricultural College had been a centre where aspiring young farmers were trained and studied for diplomas in agriculture. The University of Nottingham had recently acquired the College and established it as its School of Agriculture. Dr Hallsworth guided the College, recruited first class academic staff, and was responsible for a comprehensive building and re-equipment programme. Under his guidance the School prospered and attracted a constant stream of undergraduates and post-

Dr Hallsworth receiving the USSR Dokuchaev Medal in 1984 from Dr David Chittleborough, President of the Soil Science Society of South Australia.

graduates, eager to study at what became recognised as probably the leading Agricultural faculty in the British universities. In 1960, during his time at Sutton Bonington, he had a sabbatical year as Visiting Professor of Soil Science at the University of Western Australia.

He returned permanently to Australia in 1964, when he was appointed by CSIRO as Chief of their Division of Soils (1964-73) with headquarters in Adelaide and regional laboratories in Canberra, Perth, Brisbane and Hobart. During his tenure as Chief (1964 – 1973), the Division enhanced its already outstanding reputation as a research organisation, in Australia and internationally. In 1968, an International Society of Soil Science Congress was staged in Adelaide. Dr Hallsworth was at this time the President of the International Society and was the President of the Congress, which was a great success and attracted about 1,500 soil scientists from around the world. He was responsible for the construction of new laboratories for the Division at Canberra and Perth and, for the first time, a substantial soil research laboratory was established by the Division in the tropical north of Australia, at Townsville. In 1971 he was seconded to be Australia's Chief Scientific Liaison Officer in London. On his return in 1973 he was made the Chairman of the Land Research Laboratories, which embraced three CSIRO Divisions, the Division of Soils in Adelaide, the Division of Land Use Research in Canberra, and the Division of Land Management in Perth, and he served in this capacity until his retirement in 1978. It was during this period (1976) that he married Merrily Ramly in Adelaide.

On retirement from CSIRO he returned to England as Professorial Fellow at the University of Sussex Science Policy Unit and established his home away from home at Blackboys, near Uckfield in Sussex. On his return to Australia he and Merrily built a new home annexed to an historic home on the Old Belair Road at Mitcham, South Australia..

During his long and distinguished career he was appointed to many national and international Scientific Advisory bodies. He was appointed Director of the "Save Our Soils" project of the International Federation of Institutes of Advanced Studies (IFIAS); President of the International Society of Soil Science 1964-68 and was made an honorary life member in 1986; Fellow of the World Academy of Arts and Science; a Foundation Fellow of the Australian Academy of Technical Science and Engineering and a member of the Académie d'Agriculture de France . He was Scientific Adviser to Prime Minister Malcolm Fraser and Australia's first representative on the O.E.C.D. Committee on Science Policy. He was an external examiner for the West Indies University.

Dr. Hallsworth was honored by many countries for his scientific contributions. He was awarded the Dokuchaev Medal by the All Union Society of Soil Science (USSR), the Prescott Medal by the Australian Society of Soil Science and the Schermerborn Medal from the International Training Centre, Groeningen, Holland. He published or edited many books on Soil Science, Experimental Pedology, Nutrition and Conservation. The quality and eminence of the scientists he trained in Australia and overseas will be his greatest memorial. During his retirement he wrote the monograph "*Anatomy, Physiology and Psychology of Erosion*".

Gordon will be sadly missed by his wife Merrily, his stepson Paul, his daughter Cherry and two sons Peter and Michael, his stepdaughter Kartini and his nine grandchildren and two great-grandchildren in Australia and England.

Reg M. Taylor

RAYMOND FREDERICK ISBELL
18 Dec. 1928 - 28 Dec. 2001

Ray Isbell died after a long illness in December 2001. He was born in Rockhampton on 18 December 1928, the eldest of three sons of Fred and Olive Isbell. He grew up on the family cattle property, 'Havilah', outside Colinsville and was educated by correspondence and coached by Olive who had taught at Bowen High School. Although Havilah was an hour from Colinsville, the bush roads and poor transport of the time made the property very isolated. With no telephone and no young friends, Ray's young life would have been lonely by today's standards. There were few comforts on the station and everything that could be was reused. Ray became a hoarder in later life and was reluctant to throw anything away; he also developed a love of reading during these years.

Olive was always concerned about Ray's social isolation and sent him to Rockhampton Grammar School in grade seven. He found it difficult to adjust to boarding school and, in 1942, he was transferred to the Church of England Boys Grammar School, 'Churchie'. He liked to recall his first day at the school when he was given a pick and shovel and told to dig an air-raid trench on the school oval – he said it was his first real pedological experience.

Ray did well academically at Churchie and was dux of grade eight (the old scholarship year) and is recognized on the school Honour Board. He then studied science at the University of Queensland and lived at Union College. He followed his first degree with a Masters Degree in Science, majoring in geology. Ray frequently recalled how much he enjoyed his university life.

Ray and his brother, Graham, started buying property in the Boonah district in 1973 so they could apply their love of the land and they set up Fig Tree Droughtmaster Stud to breed fine cattle. The properties became an absorbing interest and Ray's expertise in soils made a big impact on the success of the venture. He introduced grasses such as Callide Rhodes to the district and the first dung beetles were also released in the late 1970s through Ray and Graham's friendship with Angus McQueen, a CSIRO entomologist in Rockhampton.

Ray's first job, in 1952, was with the Bureau of Investigation in Brisbane which later became amalgamated with the Department of Primary Industries. Early in 1958, he joined CSIRO as a Research Scientist, initially working in the old CSIRO laboratories in the city. His work focussed on the soils and land use of the Brigalow region of eastern Australia and these studies and his previous work with the Queensland Bureau of Investigation resulted in his receiving the Edgeworth David Medal in 1962.

He was moved to Townsville in 1963 to set up and lead the Division of Soils at what were later called the Davies laboratories. He remained there for the rest of his career.

Initially he was responsible for collation of major parts of Sheets 4 and 7 of the Atlas of Australian Soils. The Townsville program expanded under Ray's leadership and vision to include studies of the distribution, morphology and chemical and physical fertility of tropical soils. By the mid-1970s, he was nurturing an internationally respected team of chemists, physicists and pedologists committed to studies and management of the soils of the semi-arid tropics. During this time too, his influence and authority were such that he was awarded the Australian Medal of Agricultural Science [1976]; he became a Fellow of the Australian Institute of Agricultural Science in 1979. He never married and his commitment to CSIRO, and his young team was total. The Townsville group became his second family and his descriptions of the activities of 'that Williams' or 'that Coventry' had elements of exasperation and affection that were peculiarly parental. The team reciprocated and the quality of the soils research in Townsville over almost 3 decades is testament to his judgment of young people, his great influence as mentor, and the great affection that he generated.

He was also participating at this time in international initiatives in South America and, in collaboration with the USDA, in the application of Soil Taxonomy to the characteristically highly weathered soils of the tropics.

Ray Isbell's enduring legacy, however, will be his wider influence on Australian soil description and classification. As an influential member of the old Soil and Land Resources Sub-Committee of the Australian Committee of Soil Conservation, he perceived that agreement was required between the fiercely independent state authorities responsible for land resource management if any nationally

agreed ways to describe and classify soils was to develop. Ray's persistence and personal authority was central in the conception of the Australian Soil and Land Survey Handbooks that ensured that methodologies were agreed and common across Australia. The new classification of Australian soils, which he initially drove almost single handedly, was then based on the methods of these handbooks. Development of the national soil classification system was grueling and technically demanding but Ray was a good listener, and he communicated regularly with pedologists not only in Australia and New Zealand but also across world. in his quest to devise the classification. He built networks and established a rapport with a younger generation of pedologists as he tested the classification during its three approximations. Always ready to share his knowledge, he inspired colleagues during his field visits to assess the many classification challenges presented. One of his golden rules was to describe and interpret the soil profile accurately so that it could be classified with a minimum of fuss. The result was a unique personal understanding of Australian soils and this knowledge, combined with his great diplomacy and excellent judgement, has produced the best and, to date, most widely accepted national classification of Australian soils.

In retirement, but supported by CSIRO, Ray worked tirelessly to share his knowledge of Australian soils and landscapes. He continued to publish and maintained an active dialogue with soil scientists around the world. He continued to refine the Classification and, although clearly ill and almost totally dependent on his friends for personal help and transport, he actively contributed to the Australian Collaborative Land Evaluation Program. During this time he adopted the CSIRO Canberra pedology group and again became a valued mentor, teacher and friend.

During this time too, he contributed significantly to 'Australian Soil', a book to be published later this year.

Hari Eswaran, USA

Prof. Emmanuel SERVAT

1922-2001

Emmanuel Eugène Servat was born on January 14, 1922 in Biert, France. He started studying agronomy in 1941, but due to the war he had to interrupt his studies.

After the war he was among the first students to be admitted at the École Nationale d'Agriculture of Montpellier, in 1945. In 1946 he received the title "Ingénieur Agricole" as well as the title "Licencié des Sciences", as he had at the same time followed a course of studies at the University.

At the École Nationale d'Agriculture he joined the Laboratory of Geology and Physics. From 1952 to 1954 he worked in Lebanon, where he acquired a lot of useful experience. After his return to Montpellier he became director of the Laboratory of Geology and Physics, and in 1964 he was made full professor. At that time Prof. Servat strongly furthered cartographic work, insisting that the legends to the soil maps should not only contain the scientifc terms, but also explanations accessible to the broad public.

Due to his extraordinary professional experience, he was invited to various countries, e.g. Italy, Belgium and Spain. He took part in a number of congresses and published – on his own or in collaboration with other colleagues – several articles on methodological questions of cartography.

Prof. Servat was an excellent teacher, easy to listen to, who used to illustrate his lectures with many examples from his broad practical experience. He was loved and admired by his many students. Even after his retirement, he worked indefatigably, e.g. for the INAO (Institut National des Appellations d'Origine), throughout the south of France.

It must also be mentioned that he was made Chevalier du Mérite Agricole (1954), Officier (1973), Chevalier des palmes Académiques (1964) and he also received the "Mérite Libanais". He was a corresponding member of the French Academy of Agriculture and from 1977 to 1987 he was a member of the scientific committee of the Cévennes National Park.

The secret of Prof. Servat's success was his strong will, his impressing personality, his experience and his ability to take the right decisions. Prof. Servat will always be remembered as one of the great soil scientists of France.

(shortened from: Bulletin de Liaison de l'Association Française pour l'Etude du Sol, No. 62 – mars 2002, J.-P. Legros, M. Bornand, G. Callot, J.-C. Favrot, J. Servant)

Prof. Dr. Dumitru Teaci

During 2001, Romanian Soil science community suffered a heavy loss by the sudden death of Prof. Dr. Dumitru Teaci a prominent soil scientist of recognised national and international value.
Prof. Dumitru Teaci was born in Republic of Moldavia in 1926 in a farmer family. He obtained agricultural engineer degrees at Timisoara Agricultural University, and got his Sc. D and Ph. D in agronomic at Bucharest Agricultural University.
In 1951 he started his professional activity as soil surveyor in Banat (Western part of Romania). After a short period of time he was appointed in the Ministry of Agriculture – Land Resource Direction, where organised the first nation wide team with charge to do large scale (1:10 000) soil mapping of the whole agricultural land of the country. Under his direct co-ordination the first territorial Centres for soil survey in Bucharest, Cluj and Timisoara have been settled.
Since the beginning of the sixth decade of the 20th century he moved to the Institute of Agronomic Researches of Romania and later on (in 1970) to the new created Research Institute for Soil Science and Agrochemistry (RISSA) as head of Land Evaluation Development where he worked until 1976 when was promoted as General Secretary of the Academy of Agricultural and Forestry Sciences. He becomes member of this Academy in 1990. He acted as professor at the Faculty of Civil Construction – Bucharest, at the Faculty of Geology and after 1990 at the Ecological University.
Although retired in 1990 he continued to work until his death.
Prof. Dr. Dumitru Teaci was a dynamic and complex personality.
He was interested in several fields of soil science (soil mapping, soil classification, soil genesis, a.o.) however his main contribution concern soil rating and land evaluation. He is the founder of the Romanian System of soil rating and land evaluation. This system is based on quantitative parameters and uses a scale of 0-100 points (marks) to express the suitability of lands for different agricultural field crops and uses. As a basic spatial (mapping) unit for assessing land suitability Prof. Dumitru Teaci developed the concept of Ecologically Homogeneous Territory (EHT) defined as a piece (area) of land into which the soil and other physical parameters (e.g. slope, aspect, climate ground water), are uniform within a given range of variability.
Among other important of his achievements one must also mention the definition and characterisation of Romania Agroecosystems.
He is author of a large number of scientific papers and books in the field of pedology, ecology and general agriculture.
By the passing away of Prof. Dumitru Teaci the Romanian Soil Science community losses not only one of its most representative personality but also one of its symbols, because Prof. Teaci identified himself with the Romanian soil science.

Dr. Ioan Munteanu

MEETINGS, CONFERENCES, SYMPOSIA

Important Notice

IUSS, as a Scientific Union Member of the International Council for Science (ICSU), subscribes to the principle of free movement of bona fide scientists; patronage or sponsoring will therefore automatically be withdrawn if the country of venue denies or purposely delays visa awarding to any IUSS member who wishes to participate in the meeting concerned.

2002

6th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites, Thessaloniki, Greece, June 3-7, 2002.
Information: Dr. Panagiotis Misaelides, Assoc. Professor, Dept. of Chemistry, Aristotle University, P.O. Box 1547, GR-54006 Thessaloniki, Greece; Tel: +30-31-99-77-89; Fax: +30-31-99-77-53; E-mail: misaelid@chem.auth.gr.

International Meeting on Mountain Ecosystems: "The Tropical Mountains Toward 2020: Water, Life, and Production", 5-7 June 2002, Huaraz, Peru.
Information: Maria Cecilia Rozas; E-mail: mrozas@rree.gob.pe;
Internet: http://www.mtnforum.org/calendar/events/0206imma.htm.

8th New Phytologist Symposium "Impacts of Soil Microbes on Plant Population Dynamics and Productivity", Helsinki, Finland, 9-14 June, 2002.
Information: Dr. Robin Sen (Docent), Department of Biosciences, Division of General Microbiology, The Viikki Biocenter, P.O. BOX 56 (Viikinkaari 9C), FIN-00014 University of Helsinki, Finland; Tel: +358 9 19159221/59223; Fax: +358 9 19159262; E-mail: robin.sen@helsinki.fi; Web site: http://www.biocenter.helsinki.fi/nps2002/

World Food Summit, Rome, Italy, June 10-13, 2002.
Information: Fax: +39-06-570-55249; E-mail: food-summit@fao.org;
Website: http://www.fao.org/worldfoodsummit.

International Conference on Sustainable Land Use and Management, Çanakkale, Turkey, June 10-13, 2002.
Information: Ilhami Bayramin, Ankara Üniversitesi, Ziraat Fakültesi, Toprak Bölümü, 06110 Ankara, Türkiye; Tel.: +90-312-317-05-50 ext: 1420; +90-312-317-84-65;
E-mail: conference2002@toprak.org.tr; Website: http://ozel.gop.edu.tr/ciec2002.

***Soil and Environmental Chemistry Workshop, AOAC INTERNATIONAL Pacific Northwest* Regional Section Annual Meeting**, Tacoma, WA, USA, June 20-21, 2002.
Information: Yash P. Kalra, Canadian Forest Service, Northern Forestry Centre, 5320 122nd Street, Edmonton, AB T6H 3S5, Canada, Phone (780) 435-7220; Fax: (780) 435-7359, E-mail: ykalra@nrcan.gc.ca (web site http://www.aoacpacnw.com).

"Profitable Soil Substitutes for Landscapers and Composters", Birmingham, UK, July 4, 2002.
Information: Buzz Carter, E-mail: buzz@idexmedia.com; Tel.: (+44)(0)208-675-4745; Fax: (+44)(0)208-675-9240; Website: http://www.idexmedia.com/

Soil and Water Conservation Society 2002 Annual Conference, Indianapolis, USA, July 13-17, 2002.
Information: Soil and Water Conservation Society, 7515 NE Ankeny Road, Ankeny, Iowa 50021-9764; Tel.: +1-515-289-2331; Fax: +1-515-289-1227; E-mail: Webmaster@swcs.org; Website: http://www.swcs.org.

6th International Conference on Precision Agriculture and Other Resources Management, Minneapolis, USA, July 14-17, 2002.
Information: Kellen Sullivan, Fax: +1-612-624-4223; sullivan@soils.umn.edu.

International Humic Substances Society 20th Anniversary Conference: "Humic Substances - Nature's Most Versatile Materials", Boston, USA, July 21-26, 2002.
Dr. Elham A. Ghabbour, Barnett Institute, 341 Mugar Hall, Northeastern University, 360 Huntington Ave., Boston, MA 02115, Tel: +1-617-373-7988; Fax: +1-617-373-2855; e-mail: eghabbou@lynx.neu.edu; Website: www.hagroup.neu.edu.

ICAR5 and GCTE-SEN Joint Meeting, Lubbock, Texas, USA, July 22-25, 2002.
Information: ICAR5/GCTE-SEN, c/o Dr. Ted Zobeck, 3810 4th Street, Lubbock, TX 79415, USA, Tel.: +1-806-723-5240; Fax: +1-806-723-5272; E-mail: tzobek@Lbk.ars.usda.gov; Website: http://www.lbk.ars.usda.gov/wewc/icar5/icar5home.html.

3rd International Conference on Water Resources and Environment Research, Dresden, Germany, July 22-26, 2002.
Information: Cathleen Schimmek, Gisela Schöler, Conference Secretariat ICWRER 2002, Institute of Hydrology and Meteorology, Dresden University of Technology, Wuerzburger Str. 46, 01187 Dresden, Germany; Tel.: +49-351-463-3931; Fax: +49-351-463-7162; E-mail: icwrer2002@mailbox.tu-dresden.de.

Humic Substances Seminar VI, Boston, USA, July 27, 2002.
Information: Dr. Elham A. Ghabbour, Barnett Institute, 341 Mugar Hall, Northeastern University, 360 Huntington Ave., Boston, MA 02115, Tel: +1-617-373-7988; Fax: +1-617-373-2855; e-mail: eghabbou@lynx.neu.edu; Website: www.hagroup.neu.edu.

17th World Congress of Soil Science"Soil Science: Confronting New Realities in the 21st Century", Bangkok, Thailand, August 14-20, 2002.
Information: 17th World Congress of Soil Science, Kasetsart Golden Jubilee Administration and Information Center (1st floor), Kasetsart University, P.O. Box 1048, Bangkok 10903, Thailand; Fax: (662)940-5788; E-mail: o.sfst@nontri.ku.ac.th; Web: http://www.17wcss.ku.ac.th.

World Summit on Sustainable Development, Johannesburg, South Africa, August 26 -September 4, 2002.
Information: Andrey Vasilyev, DESA, New York; Tel.: +1-212-963-5949; E-mail: vasilyev@un.org; Website: http://www.johannesburgsummit.org/

International Conference on Soils Under Global Change – a Challenge for the 21st Century, Constanta, Romania, September 3-6, 2002.
Information: Research Institute for Soil Science and Agrochemistry, Bd. Marasti 61, Bucharest 71331, Romania; Tel: +40-1-22417-90 ext. 268; Fax: +40-1-222-5979; E-mail: r.enache@icpa.ro.

2nd International Conference on Sustainable Agriculture for Food, Energy and Industry, Beijing, China, September 8-13, 2002.
Information: Dr. Fan Zengxing, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, China; Tel. and Fax: +86-10-82593128; E-mail: ISAConfe@hotmail.com; lidj@ns.ibcas.ac.cn.

International Conference on Sustainable Agriculture for Dry Areas for the Second Millennium, Shijiazhuang, China, September 15-19, 2002.
Information: Catherine Vachon, Lethbridge Research Center, Agriculture and Agri-Food Canada, Tel.: +1-403-317-2257; Fax: +1-403-382-3156;
Website: http://res2.agr.ca/lethbridge/hebei/confindex.htm.

International Workshop on Vulnerability of Water Resources to Environmental Change, Beijing, China, September 16-19, 2002.
Information: Dr. Xia Jun, Leading Professor, Chief of Hydrology & Water Resources Branch, Institute of Geographical Science & Natural Resources, Anwai, Datun Road, 917 Building, 100101, Beijing, P.R. China; Tel./Fax: +86-10-64856534; E-mail: jxia_mail@263.net, xiaj@igsnrr.ac.cn.

International Rice Congress, Beijing, China, September 20-26, 2002.
Information: www.cgiar.org/irri/irc2002/index.htm

International Symposium on Sustainable Use and Management of Soils in Arid and Semiarid Regions. Murcia, Spain, 22-26 September, 2002.
Information: Prof. Dr. Angel Faz Cano, Secretary Organization Committee, Department of Agricultural Production, The Polytechnic University of Cartagena, Paseo Alfonso XIII, 48. 30.203 Cartagena, Murcia, Spain; Tel.: 34-968-325440; Fax: 34-968-325435; Email: sumass2002@upct.es; Web Page: http://www.upct.es/sumass2002; http://www.um.es/sumass2002

International Colloquium "Landuse management, erosion and carbon sequestration", Montpellier, France 24-28 September, 2002.
Information: Dr. Eric Roose, IRD, BP 5045, 34032 Montpellier, France; Tel.: (+33)467-416265; Fax: (+33)467-416294; E-mail: roose@mpl.ird.fr.

3rd Mediterranean Clay Meeting, Jerusalem, Israel, September 30 – October 3, 2002.
Information: Dr. Zev Gerstl, Director, Institute of Soil, Water and Environmental Chemistry, Volcani Center, ARO, P.O.B. 6, Bet Dagan, 50250, Israel; Tel.: +972-3-968-3272; Fax: +972-3-960-4017; E-mail: zgerstl@volcani.agri.gov.il; Ms. Sue Salomon, Secretary: soil@agri.huji.ac.il; Website: http://www.agri.huji.ac.il/clay_meeting/

IFDC – Integrated Soil Fertility Management in the Tropics, Togo, October 7-12, 2002.
Information: IFDC – International Fertilizer Development Center, Director, Human Resource Development, Tel.: +1-256-381-6600; E-mail: hrd@ifdc.org; Website: www.ifdc.org.

IPI Golden Jubilee Congress: "Feed the soil to feed the people – the role of potash in sustainable agriculture", Basel, Switzerland, October 8-10, 2002.
Information: International Potash Institute, Schneidergasse 27, P.O. Box 1609, CH-4001 Basel, Switzerland; Tel.: +41-61-261-29-22; Fax: +41-61-261-29-25; E-mail: ipi@iprolink.ch; Website: *www.ipipotash.org*.

32nd IAH Congress on Groundwater and Human Development, Mar del Plata, Argentina, October 21-25, 2002.
Information: Dr. Emilia Bocanegra, Centro de Geología de Costas y del Cuaternario, Facultad de Ciencias Exactas y Naturales, Univesidad Nacional de Mar del Plata, Argentina; Tel.: +54-223-475-4060; Fax: +54-223-475-3150; E-mail: ebocaneg@mdp.edu.ar.

3rd International Symposium on sustainable Agro-environmental Systems: New Technologies and Applications, Cairo, Egypt, October 26-28, 2002.
Information: Prof. Sami Abdel-Rachman, Sympsoium Organizer/Secretary General, National Authority for Remote Sensing and Space Sciences (NARSS), 23 Joseph Brows Tito st., Elnozha Elgedida,

Cairo, Egypt. P.O. Box: 1564 Alf-Maskan; Tel.: (202)2964386 – 2975688; Fax: (202)2964387 – 2964385; E-mail: sirahman@intouch.com.

3rd International Symposium on Sustainable Agro-Environmental Systems: New technologies and applications, Cairo, Egypt, October 26-29, 2002.
Information: Prof. Sami Abdel-Rahman, Symposium Organizer/Secretary General
Tel: (202) 2964386 – 2975688; Fax: (202) 2975688 – 2964385; Email: sirahman@intouch.com www.agro.narss.org

Symposium on the Impact of GMOs: "Soil Microbiology and Nutrient Dynamics", Vienna, Austria, November 4-6, 2002.
Information: Institute of Soil Research, University of Agricultural Sciences, Vienna, Gregor Mendel-Str. 33, 1180 Vienna, Austria; Tel.: +43(0)1-47654-3118 or -3103; Fax: +43(0)1-47891-10; E-mail: iuss@edv1.boku.ac.at; Website: http://www.boku.ac.at/boden/igmo/igmo.html.

Golden Jubilee Conference of the New Zealand Soil Science Society, Wellington, New Zealand, November 25-29, 2002.
Information: Mrs. Janet Simes, Tel.: +64-4-562-8792; Fax: -562-7252; E-mail: organiser@conferences.co.nz. or
Mrs. Lynne Mason, Soil and Physical Sciences Group, PO Box 84, Lincoln University, Canterbury, New Zealand, Tel.: +64-3-325-2811; Fax: +64-3-325-3607; E-mail: MasonL@lincolnl.ac.nz.

Second International Agronomy Congress: "Balancing Food and Environment Security - A Continuing Challenge", New Delhi, India, November 26-30, 2002.
Information: Dr. R. C. Gautam, Secretary, Indian Society of Agronomy, Indian Agricultural Research Institute, New Delhi-110 012, India; Phone: 91-11-5742283, Fax: 91-11-5742283 E-mail: rcg@iari.ernet.in; ipsahlaw@nda.vsnl.net.in; Website: www.agrosoc.com.

2003

Golden Jubilee 50th Anniversary Congress of the Soil Science Society of South Africa, Stellenbosch, Cape Town, South Africa, January 20-24, 2003.
Information: Deborah McTeer, Conference Management Centre, University of Cape Town Faculty of Health Sciences, Anzio Rd., Observatory 7925, Cape Town, South Africa. Tel.: +27-21-406-6348; Fax: +27-21-448-6263; E-mail: deborah@curie.uct.ac.za.

International Conference on the Hydrology of the Mediterranean and Semi-arid Regions, Montpellier, France, April 7-10, 2003.
Information: Muriel Tapiau, Conference 2003, Laboratoire HydroSciences Montpellier, UMR 5569, BP 5045, F-34032 Montpellier Cedex, France; Tel.: +33-4-6714-9020; Fax: +33-4-6714-9010; montpellier2003@msem.univ-montp2.fr.

International Conference: "Framing Land Use Dynamics", Utrecht, The Netherlands, April 16-18, 2003.
Information: http://networks.geog.uu.nl/conference

2nd International Conference on River Basin Management, Las Palmas, Gran Canaria, Spain, April 28-30, 2003.
Information: Conference Secretariat, River Basin03, Wessex Institute of Technology, Ashurst Lodge, Ashurst Southampton, SO40 7AA, UK; Tel.: +44(0)-238-029-3223; Fax: +44(0)238-029-2853; E-mail: shobbs@wessex.ac.uk; Website: http://www.wessex.ac.uk/conferences/2003/riverbasin03/

2nd International Conference on Water Resources Management, Las Palmas, Gran Canaria, Spain, April 30 – May 2, 2003.
Information: Conference Secretariat, Water Resources03, Wessex Institute of Technology, Ashurst Lodge, Ashurst Southampton, SO40 7AA, UK; Tel.: +44(0)-238-029-3223; Fax: +44(0)238-029-2853; E-mail: shobbs@wessex.ac.uk; Website: http://www.wessex.ac.uk/conferences/2003/waterresources03/

9th Nordic IHSS Symposium on "Abundance and Functions of Natural Organic Matter Species in Soil and Water", Sundsvall, Sweden, May 19-21, 2003.
Information: Dept. of Natural and Environmental Sciences, Mid Sweden University, IHSS Nordic Chapter, SE-851 70 Sundsvall, Sweden; E-mail: NordicIHSS@kep.mh.se; Web-site: http://www.ntm.mh.se/nordic_ihss.

EUROCLAY 2003, Modena, Italy, June 15-19, 2003.
Information: Maria Franca Brigatti, Dipartimento di Scienza della Terra, Università di Modena e Reggio, Largo S. Eufemia 19, 41100 Modena, Italy. E-mail: ec2003@unimo.it; Fax: +39-059-2055887; www.unimo.it/euroclay2003.

7th International Conference on the Biogeochemistry of Trace Elements (ICOBTE), Uppsala, Sweden, June 15-19, 2003.
Information: Conference Secretariat, SLU Conference, Swedish University of Agricultural Sciences, P.O. Box 7059, SE-750 07 Uppsala, Sweden; Fax: +46-18-67-35-30; E-mail: 7thICOBTE@slu.se.

7th International Conference on Modelling, Monitoring and Prediction of Water Pollution: "Water Pollutin 2003", Cadiz, Spain, June 18-20, 2003.
Information: Rachel Green, Water Pollution 2003, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, Tel.: +44(0)238-029-3223; Tax: +44(0)238-029-2853; E-mail: rgreen@wessex.ac.uk.

XXIII General Assembly of the International Union of Geodesy and Geophysics with IAHS symposia and workshops, Sapporo, Japan, June 30 - July 11, 2003.
Information: IUGG2003 LOC Office, Deep Sea Research Department, Japan Marine Science and Technology Center (JAMSTEC), 2-15 Natsushima-cho; Yokosuka, Kanagawa 237-0061; Japan. E-mail: iugg_service@jamstec.go.jp; Website: http://www.jamstec.go.jp/jamstec-e/iugg/htm/frist.htm.

10th North American Forest Soils Conference: Forest Soils Research: Theory, Reality and Role in Technology Transfer, Sault Ste. Marie, Ontario, Canada, July 20-24, 2003.
Information: 10th North American Forest Soils Conference, c/o Dr. Mary Beth Adams, USDA Forest Service, P.O. Box 404, Parsons, WC 26287, USA; E-mail: mbadams@fs.fed.us; Website: http://www.fs.fed.us/forestsoilsconference.

International Conference on Managing Soils for Food Security, Human Health and the Environment: "Emerging Strategies for Poverty Alleviation", Accra, Ghana, July 27-August 2, 2003.
Information: Soil Science Society of Ghana, c/o Department of Soil Science, Faculty of Agriculture, University of Ghana, Legon, Accra, Ghana; E-mail: soilagm@hotmail.com, Fax: +233-21-500467.

Congress of the Polish Society of Soil Science & International Conference: Soil in the Environment, Kraków, Poland, September 9-12, 2003.
Information: Prof. dr hab. Stefan Skiba, Dr Andrzej Kacprzak, Zak ad Gleboznawstwa i Geografii Gleb IG UJ, ul. Grodzka 64, 31-044 Kraków, Poland; tel: +48-12-431-18-21, fax: +48-12-422-55-78; e-mail: kongres@grodzki.phils.uj.edu.pl ; website: http://www.geo.uj.edu.pl/soil.

12th World Forestry Congress, Québec City, Québec, Canada, September 21-28, 2003; Information: Webpage: http://www.wfc2003.org/

2005

19th International Congress on Irrigation and Drainage (ICID), Beijing, China, September 10-18, 2005.
Information: Chinese National Committee on Irrigation and Drainage, No. 20 West Chegongzhuang Road, Beijing 100044, China; Tel.:+86-10-6841-5522/6841-6506; E-mail: cncid@iwhr.com

INTERNATIONAL TRAINING COURSES

ISO 17025 course: "How to Accredit your Laboratory – Practical Aspects of Gaining Accreditation". Either 12-14 Nov. 2002 or 11-13 March 2003, Reading, UK.
Information: Dr. I. Mueller-Harvey, Analytical Laboratory, Agriculture, the University of Reading, P.O. Box 236, Reading RG6 5AT, UK; Fax: (+44)118-935-2421; E-mail: i.mueller-harvey@reading.ac.uk.

The Vrije Universiteit Brussel, Belgium, *offers a 2-year* ***Master Programme in Human Ecology***
(1 year short course also possible, leading to a Postgraduate Diploma in Human Ecology)
Information: Serge Gillot, Admissions Administrator, VUB, Human Ecology Department (GF), Laarbeeklaan 103, B-1090 Brussels, Belgium; Tel.: +32-2-477-4281; Fax: +32-2-477-4964; E-mail: sgillot@meko.vub.ac.be; Website: http://meko.vub.ac.be/~gronsse/

FGRA – Formation en Gestion de la Recherche Agricule Pour les Chefs de Programmes des Systemes Nationaux de Recherche Agricole, organisé par le Conseil Nationale de Recherche Agricole (CNRA), Abidjan, Côte d'Ivoire, 5-17 novembre 2001.
Information: Zenete Peixoto França, Chef du service de la formation ISNAR, B.P. 93375, 2509 AJ, La Haye, Pays-Bas; Tél: +31-70349-6100; Fax: +31-7038-19677; E-mail: isnar@cgiar.org.

The International Centre for Development Oriented Research in Agriculture (ICRA), offers "Professional Training in Interdisciplinary Team Research in Agriculture" (13 weeks knowledge acquisition in Wageningen, NL, and 13 weeks professional experience in Africa/Asia/Latin America.
Information: ICRA – P.O. Box 88, 6700 AB Wageningen, The Netherlands. Tel.: +31-317-422938; Fax: +31-317-427046; E-mail: icra@iac.agro.nl; http://icra.agropolis.fr.

The International Fertilizer Development Center offers various training programs/study tours in the USA, Africa, Asia, South America and Europe.
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Information: Director, Human Resource Development, International Fertilizer Development Center, P.O. Box 2040, Muscle Shoals, Alabama 35662, USA.
Tel: +1-256-381-6600; Fax: +1-256-381-7408; E-mail: hrd@ ifdc.org; Website: http://www.ifdc.org.

The International Institute for Aerospace Survey and Earth Sciences (ITC) offers, among others, the following courses (MSc and Professional Master degrees, modular system of courses):
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Tel.: +31-53-487-42-05; Fax: +31-53-487-42-38; E-mail: education@itc.nl.
Webpage: http://www.itc.nl/education

The University of Gent and the Free University of Brussels, Belgium offer:
International Interuniversity Post-Graduate Programmes in Physical Land Resources. Diploma and Master Courses.

Information: Programme Secretariat, Physical Land Resources, Krijgslaan 281 (S8), B-9000 Gent, Belgium; Tel: +32-9-264-46-18; Fax: +32-9-264-49-91; E-mail: PLRprog.adm@rug.ac.be, Website: http://allserv.rug.ac.be/~amtanghe/PLRprog.html.
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The Katholieke Universiteit Leuven and the Vrije Universiteit Brussel offer, among others a:
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iupware@agr.kuleuven,ac.be.
or: Laboratory of Hydrology, V.U. B., Pleinlaan 2, 1050 Brussel, Belgium. Tel: +32-2-629-30-21; Fax: +32-2-629-30-22; E-mail: fdesmedt@vub.ac.be.
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Information: ITC, Student Registration Office, P.O.Box 6, 7500 AA Enschede, The Netherlands, Tel: +31-(0)53-487-42-05; Fax: +31-(0)53-487-42-38; E-mail: education@itc.nl;
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Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford MK45 4DT, U.K.; Tel: (0525) 860428; Fax: (0525) 861527; Telex: 826383 silcam g

External Programme, MSc, PG Diploma and other programmes related to Environment, Biodiversity, Sustainable Agriculture, Rural Change, Applied Economics and Agribusiness and Food Management. Information: External Programme, Imperial College at Wye, **University of London**, Ashford, Kent TN25 5AH, UK (Tel: +44 (0)20 759 42680; Fax: +44 (01233) 812138; email: epadmin@ic,ac.uk)

The University of East Anglia, Norwich, UK, offers a specialist training for development. Tailor-made courses are organized in different fields, e.g.:

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It also offers a 10-week **Short Course on Sustainable Information Systems**.
Information: The Overseas Development Group, University of East Anglia, Norwich NR4 7TJ United Kingdom; Tel: +44-1603-456-410; Fax: +44-1603-505-262; Telex: +51-317210 BUREAU G ODG/UEA; E-mail: odg.train.@uea.ac.uk.

The Wageningen Agricultural University offers an International Postgraduate Programme in different fields, e.g.:
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Information: Ms. Jeanine W.M. Hermans,Dean, Office for International Students, Wageningen Agricultural Unversity, P.O. Box 453, 6700 AL Wageningen, The Netherlands; Tel.: +31-317-483618 or -483433; Fax: +31-317-484464; E-mail: Office@DOIS.SZ.WAU.NL; HTTP://WWW.WAU.NL/; Internet for education and student information: HTTP://WWW.WAU.NL/WAUEDUC.HTML

The Soil Science Department, Faculty of Agriculture, of the Minia University, Minia, Egypt, organizes the following International Courses:
- **International Course on Soil and Plant Analysis** (in cooperation with the Royal Tropical Institute, Amsterdam, The Netherlands;
- **International Training Course for Extension Workers on Soil and Water Problems**;
- **International Training Course on Water Analysis for Agricultural Purposes;**

Information: Prof.Dr. M. A. Kishk, Minia University, Faculty of Agriculture, Service Laboratory for Soil, Plant & Water Analysis, Minia, Egypt. Tel and Fax: +20-86-345-394; Fax: +20-86-322-182.

International Institute for Land Reclamation and Improvement (ILRI)
offers international short courses (1-12 weeks) e.g. on:
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- Land Drainage;
- Land and Water Management
- Computer Applications in Irrigation;
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etc.
Information: ILRI, Training Coordinator, Lawickse Allee 11, P.O.Box 45, 6700 AA Wageningen, The Netherlands. Fax: +31-317-495590; E-mail:ilri@ilri.nl

Lincoln University, New Zealand
MSc Course on Resource Management, New Zealand, 2 years.
Information: Lincoln University, International Centre, P.O.Box 94, Canterbury, New Zealand.
Fax: +64-3-3253879; E-mail: wwwic@lincoln.ac.nz.

Cranfield University, United Kingdom
- Msc Course on Land Resource Management, United Kingdom, 1 year.
- Msc Course on Soil Physics and Soil Management, United Kingdom, 3 months.
- Msc Course on Soil Conservation, United Kingdom, 10 weeks
- MSc Course on Land Resource Management, United Kingdom, 1 year.
- Water Management, United Kingdom, 3 months.

Information: Cranfield University, School of Agriculture, Food and Environment, Admissions Office, Silsoe, Bedford MK45 4DT, UK. Fax: +44-1525-863316; E-mail: admissions@cranfield.ac.uk.

CNEARC, France
Techniques d'Irrigation. France, 5 semaines.
Centre National d'Etudes Agronomiques des Régions Chaude (CNEARC), B.P. 5098, F-340033 Montpellier Cedex 01, France.
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CATIE
- Desarrollo rural basado en el manejo de ecosistemas naturales tropicales, Costa Rica,
- Gestión Ambiental. Costa Rica, 2 semanas.

Information: CATIE, Coordinator, Programma de Educación, Apartado 126, Area de Capacitación, Turrialba, Costa Rica. Fax: +506-5561533; E-mail: capacita@computa.catie.ac.cr.

Université des Sciences Agronomiques
Diplôme en Gestion et Développement des Milieux Intertropicaux, Belgique, 1 année.
Information: Université des Sciences Agronomiques, Passage des Déportés 2, B-5030 Gembloux, Belgique.
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Master Courses in Applied Environmental Geoscience at the University of Tuebingen, Germany
Information: Dr. C.I. McDermott M.Sc. (AEG Course Administrator) Chair of Applied Geology, Sigwart Str. 10, 72074 Tuebingen, Germany; E-mail: chris.mcdermott@uni-tuebingen.de; Tel: (+49) (0)7071-2978921; Fax: (+49) (0)7071-5059.
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IV Curso Internacional de Postgrado en "Manejo de Suelos Tropicales"
Universitat de Lleida-Centre Tecnologic Forestal de Catalunya, Solsona (Lleida). España. 7 Mayo-1 Junio del 2001
Participantes: Ing. Agrónomos, Ing. Forestales, Biólogos, Geógrafos, Licenciados en Ciencias Ambientales, especialmente de América Latina y España, que esten trabajando o piensen trabajar en la investigación, desarrollo y aplicación de sistemas y prácticas de manejo y conservación de suelos en zonas tropicales y subtropicales.
Profesores: Invitados internacionales con amplia experiencia en diferentes zonas tropicales del mundo.
Información: Secretaría del Curso. Email: Cursosctfc@lisu.lleida.net
Dirección del curso: Prof. Dr. Ildefonso Pla Sentís. Dept. de Medi Ambient i Ciencies del Sol. UdL. Av. Alcalde Rovira Roure, 177. E-25198 Lleida. España; Email: Ipla@macs.udl.es; Fax: +(34)(973)-702613

Programa de Doctorado en "Medio Ambiente y Ciencia del Suelo"
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Información: Prof. Dr. Ildefonso Pla Sentís. Coordinador del Programa de Doctorado. Dept. de Medi Ambient i Ciències del Sòl. Universitat de Lleida. Av. Alcalde Rovira Roure, 177. E-25198 Lleida. España; Email: Ipla@macs.UdL.es ; Fax: +(34)(973)-702613

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Size: Eight issues per year, in two volumes of about 750 pages.
Publisher: Springer Verlag, Berlin-Heidelberg-New-York-Tokyo. - Editor-in-Chief: Prof.Dr. J.C.G. Ottow, Giessen, Germany.
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4. GEODERMA, an International Journal of Soil Science. - Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands. - Editors-in-Chief: H. Insam, Innsbruck, Austria, A.B. McBratney, Sydney, Australia, K. McSweeney, Madison, USA and Prof. D.L. Sparks, Newark, USA - Webpage: http://www.elsevier.com/locate/geoderma
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5. JOURNAL OF PLANT NUTRITION & SOIL SCIENCE/ZEITSCHRIFT FÜR PFLANZENERNÄHRUNG UND BODENKUNDE, international journal covering all aspects of plant nutrition and soil science. - Size: 6 issues per year.
Publisher: Wiley-VCH, Weinheim, Germany. - Editors-in-chief: Prof.Dr. W. Fischer, Hannover, Germany, Prof.Dr. H. Beringer, Hofgeismar, Germany.
Personal subscription rate for IUSS members: 58.80 EUR, including postage.

6. PEDOBIOLOGIA, international journal, focusing on soil biology, especially on soil zoology and microbiology. - Publisher: Urban & Fischer, Jena. - Editors-in-chief: Prof. S. Scheu, Darmstadt, Prof. J. Lussenhop, Chicago, Dr. J. Schauermann, Göttingen.
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Soil Mineralogy with Environmental Applications. Soil Science Society of America Book Series number 7. J. Dixon and D.G. Schulze, editors. Soil Science Society of America, Madison, 2002, 866 p. ISBN 0-89111-839-8.

The first five chapters of this new volume in the SSSA Book Series present principles and illustrations of mineral properties and crystallography, surface chemistry, mineral–solution equilibria, soil

organic matter, and methods of soil mineral analysis. The following seventeen chapters present soil mineralogy in a uniform chapter outline devoted to various mineral groups based on their chemical composition and structural properties. The final six chapters are devoted to applications of soil mineralogy to our understanding of soil taxonomy, soil tectonics (movement), radionuclides in soils, and pesticides in soils.

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Publications of the SOVEUR Project.

The Mapping of Soil and Terrain Vulnerability in Eastern and Central Europe (SOVEUR) project calls for the development of an environmental information system for this region. Using this system and auxiliary information on climate, land use and the type of soil pollution, the status of human-induced soil degradation and the areas considered vulnerable to defined pollution scenarios have been mapped at a scale of 1:2.5 million. The SOVEUR project is a joint FAO-ISRIC activity, coordinated at ISRIC by N.H. Batjes. It is carried out in close cooperation with the countries involved: Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovak Republic and Ukraine.

For further information, contact N.H. Batjes, ISRIC, P.O. Box 353, 6700 AJ Wageningen, The Netherlands. E-mail: batjes@isric.nl. See also the homepage: www.isric.org.

Soil Degradation Status and Vulnerability Assessment for Central and Eastern Europe: Preliminary Results of the SOVEUR Project. Proceedings of the concluding workshop, Busteni, October 1999. N.H. Batjes, editor. ISRIC, Wageningen, 2000, vii + 100 p. Softcover.

The main aim of the concluding workshop was to present preliminary results of the SOVEUR project, to reach agreement on issues of border correlation, to set deadlines for delivering the final revisions and products, and to formulate recommendations for future activities. An important achievement of the project has been to help strengthening cooperation between national, environmental organizations throughout the region. This publication contains the report of the workshop, the introductory papers and the contributions of the workshop participants from the countries involved.

Soil Data Derived from SOTER for Environmental Studies in Central and Eastern Europe (SOVEUR Project; Version 1.0). Report 2000/02. N.H. Batjes. ISRIC, Wageningen, 2000, iii + 27 p. Softcover.

A uniform set of derived soil data is required for the "vulnerability" component of the SOVEUR project. To this avail, data from 662 soil profile descriptions held in the Soil and Terrain Database (SOTER) compiled for the SOVEUR project area, were clustered first according to their classification in the revised FAO legend. Twenty-two major soil groups occur, corresponding with 83 different soil units. This set was expanded with 1271 profiles, and following a screening on database integrity and consistency, the resulting 1933 profile descriptions were submitted to a statistical analysis that included an outlier rejection-schema. Derived statistics for 17 soil attributes, commonly required for studies of environmental change, are presented by soil unit and depth zone. Simple taxo-transfer rules are introduced to fill some of the gaps that remained in the derived data. The results are presented digitally, as summary files of derived soil data.

Soil Vulnerability to Diffuse Pollution in Central and Eastern Europe (SOVEUR Project; Version 1.0). Report 2000/03 N.H. Batjes. ISRIC, 2000, iii + 55 p. Softcover.

This report presents a procedure for assessing the relative vulnerability of soils to diffuse pollution, using the 'vulnerability to heavy metal mobilization, inducible by acid deposition' as an example. The resulting maps should be seen as first approximations, as no field-validation was possible within the framework of the SOVEUR project. Additional maps of soil vulnerability can easily be generated, using the available 'parametric overviews of derived soil properties', in combination with specialist knowledge of contaminant behaviour. In a GIS, the vulnerability maps can be overlain onto a map of current or anticipated (accumulated) loadings to show where so-called Chemical Time Bombs are prone to occur. Exploratory analyses of soil vulnerability at the (sub)continental level, as adopted for the 1:2.5 million scale SOVEUR project, can pro-

vide the basis for identifying areas considered at risk from diffuse pollution once auxiliary databases on heavy metal loadings and acid deposition become freely accessible.

SOTER Summary file for Central and Eastern Europe. (SOVEUR Project; Version 1.0). Report 2000/06. N.H. Batjes. ISRIC, Wageningen, 2000, ii + 12 p. Softcover.
This summary file has been compiled to aid end-users with limited programming experience. It has been derived from the full-scale Soil and Terrain (SOTER) database and a set of "derived soil properties" for the SOVEUR region. The file can serve as input for a wide range of environmental studies, at an observational scale.

Soil Degradation in Central and Eastern Europe: The Assessment of the Status of Human-Induced Soil Degradation. (SOVEUR Project; Version 1.0). Report 2000/05. ISRIC, Wageningen, 2000. Softcover.
As part of the SOVEUR Project, the assessment of soil degradation in the region at a scale of 1:2.5 million aims to produce a geographical overview of the current status of soil degradation, with emphasis on soil pollution. The current report presents the results of this assessment. At the scale of this assessment it is difficult to provide quantative criteria, in particular for soil pollution, considering the enormous variety in pollution types and impacts, but also in the criteria in so far they exist. The criteria for the assessment of pollution applied here follows as much as possible the standards used previously for the other types of degradation, but separate classes and descriptions have been defined for the degree and the impact of pollution. The assessment serves as a means to increase awareness on soil degradation status in general and on the status of pollution in particular. In view of the scale and the available data, the inventory is based on experts' estimates, giving an overall impression of the status of soil degradation in the region. This information may help to increase awareness of the problem and to facilitate the identification of specific areas considered at risk from soil pollution.

Soil and Terrain Database, Land Degradation Status and Soil Vulnerability Assessment for Central and Eastern Europe. Version 1.0. (1:2.5 million scale). FAO Land and Water Digital Media Series 10. FAO,Rome, 2000. CD-ROM.
This CD-ROM contains the spatial and attribute databases and the technical reports produced during the execution of the SOVEUR project between 1997 and 2000. The databases compiled contain: (1) a harmonized soil and terrain database for 13 countries in the SOVEUR region at 1:2.5 million scale, compiled following the SOTER principles, including georeferenced soil profile data; (2) a database ands associated maps on the status of soil degradation in the region, including an evaluation of the extent, type, severity, causes and trends; and (3) a database and associated maps on the vulnerability to pollution, in particular by 11 metals: Cd, Mn, Ni, Co, Zn, Cu, Cr, Pb, Hg, Fe and Al.
All the coverages are in geographical position (latitude/longitude). The technical reports included cover the various technical documentation and guidelines prepared for the compilation of the various spatial databases. They also contain proceedings of two workshops.
A "Shareware" directory contains subdirectories with executable files that permit downloading of shareware versions of Acrobat 4.0 and the ACDSee graphics viewer, needed to consult the technical reports and the image files that show selected map outputs of the SOVEUR project.
Orders for the CD-ROM to: Sales and Marketing Group, FAO, Viale delle Terme di Caracalla, I-00100 Rome, Italy. Fax: +39-06-57053360. E-mail: publications-sales@fao.org.

Interactions between Soil Particles and Microorganisms. Impact on the Terrestrial Ecosystem. IUPAC Series on Analytical and Physical Chemistry of Environmental Systems volume 8. P.M. Huang, J.-M. Bollag and N. Senesi, editors. John Wiley & Sons, Chichester, 2002, xvi + 566 p. ISBN 0-471-60790-8. Hardcover.
The main purpose of the IUPAC series is to make chemists and other scientists aware of the most important bio-physicochemical conditions and processes that define the behavior of environmental systems. Thus the volumes emphasize the fundamental theoretical concepts of environmental and bioenvironmental processes, taking into account their specific aspects such as physical and chemical heterogeneity. Another goal of the series is to discuss the analytical tools, which exits or should be developed to study these processes.
The present volume focuses in 12 chapters on major elements of the analytical and physical chemistry of soil particles in their interaction with microorganisms and organic components in the medium, at the molecular and microscopic levels and the impact on the terrestrial ecosystem. The book covers an overview on interactions of soil particles and microorganisms, a fractal approach for studying interactions between soil particles and microorganisms, microbial mobilization of metals from minerals, fine-grained mineral development and bioremediation, and the impact of the various interactions on formation of metal oxides, development of aggregates, ion cycling and organic pollutant transformation, rhizosphere chemistry and biology, and anaerobic and transport processes in the terrestrial environment. The contributions in this book, which is cosponsored by IUSS, are well illustrated, have good introductions to the chapters, conclusions and recommendations, and all have extensive lists of references. It provides the scientific community with a critical evaluation of state-of-the-art research on the subject matter, with the goal of advancing the understanding of reactions and processes at the interface between chemistry and biology of soil and related environments.
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The International Bibliography on Rice Research, 1951-2000. International Rice Research Institute, Los Baños, 2000. CD-ROM.
This database contains more than 200,000 references to the world's technical rice literature, both published and unpublished, and written in more than 80 languages. The system requirements are: Disk space 40 mb, memory 16 mb of RAM for Windows 95 and 32 mb for Windows 98, CD ROM drive 8x or higher, Super VGA monitor.
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Proceedings of the Sixth International Conference on the Biogeochemistry of Trace Elements (ICOBTE 2001). CD-ROM, 672 p. text, 15 p. author index.
This CD-ROM contains the abstracts of the Plenary presentations (8 abstracts); Special oral symposia (21 abstracts); General oral sessions (351 abstracts); Special poster sessions (15 abstracts) and General poster sessions (357 abstracts). The following topics are discussed: biosorption of trace elements, bioavailability of metals, chemical remediation, adsorption reactions on soils and sediments, diagenetic transformations, bioavailability, content and distribution of arsenic, chemistry of trace elements in flyash, ecotoxicology, groundwater, phytoremediation, biological and mineral soil amendments, transport in soils and waters, and metal-mineral interactions with microorganisms.
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Global Soil Data Products CD-ROM (IGBP-DIS). Available online at: http:// www.daac.ornl.gov. This product represents an international effort to prepare a data set that incorporates the most complete and consistent information on soil distributions and their properties. The CD-ROM includes the SoilData System, the Global Pedon Database, and the FAO Interpreted Surfaces. Partners in this activity are the USDA, CSIR, FAO, IBBP-DIS and ISRIC.
The CD-ROM is described on: http://daac.ornl.gov/soils/igbp.html.

Biological Soil Crusts: Structure, Function, and Management. Ecological Studies 150. J. Belnap and O.L. Lange, editors. Springer-Verlag, Berlin, Heidelberg, 2001, xviii + 503 p., with 141 figures, 64 in colour, and 30 tables. ISBN 3-540-41075-9. ISSN 0070-8356. Hardcover.
In arid and semiarid lands throughout the world, where the cover of vegetation is sparse or absent, the open spaces between the higher plants are generally not bare of anthropic life, but covered by a community of highly specialized organisms. This soil-surface community consists of cyan bacteria, algae, lichens, mosses, micro fungi, and other bacteria in differing proportions. Cyanobacterial and micro fungal filaments, rhizome and rhizomorphs of lichens, and the rhizinae and protonemata of bryophytes weave throughout the top few millimeters of soil, gluing loose soil particles together. This forms a crust to a few centimeters thick that stabilizes and protects soil surface from erosive forces. These crusts occur in all hot, cool, and cold-arid and semiarid regions of the world, and may constitute up to more than 70 percent of the living cover. Biological soil crusts have only recently been recognized as having a major influence on terrestrial ecosystems. This well-illustrated book has the following parts: (I) Taxonomic composition, Ecology and biogeography of soil-crust communities (12 papers); (!!) Heterotrophic components of soil crusts (2 papers); (III) Structure of biological soil crusts: microscale to landscape (3 papers); (IV) Biological soil crusts as an ecosystem component: carbon and nitrogen acquisition and interaction with vascular plants (4 papers); (V) Soil stability and hydrology as influence by soil crusts (5 papers); (VI) Disturbance to biological soil crusts: resistance, resilience and restoration (2 papers); (VII) Monitoring and management of biological soil crusts (4 papers); and (VIII) Conclusions.
The book contains a subject index and a taxonomic index.
Price: EUR 129.00, plus VAT.
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Quality in Chemical Measurements. Training Concepts and Teaching Materials. N. Neidhart and W. Wegscheider, editors. Springer-Verlag, Berlin, Heidelberg, 2000, xiv + 177 p. ISBN 3-540-65994-3. Hardcover. With CD-ROM.
Analytical data influence our daily life and nowadays criteria for assessing quality of chemical measurements must be classified as socio-politically relevant; thus Analytical Chemistry becomes part of general education. At this point in time where the introduction of accreditation/recognition in the Higher Education sector is imminent, it is already clear that there are too few academics having the necessary qualifications to carry out its implementation. For this, and other reasons – in particular the growing economic and socio-political significance of Analytical Chemistry – the teaching of the subject must be expanded.
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Soil Cover and Land Use in Ukraine. V.M Starodubtsev, O.A. Kolodyazhnyy, L.R. Petrenko, M.M. Titenko and I.S. Yezlovetska. National Agricultural University of Ukraine am Ukrainian Land and Resource Management Center. Nora Print, Kyiv, 2000, 98 p. ISBN 966-7010-85-6. Softcover.
This brief course of lectures for university students considers the main soil distribution in Ukraine, the soil zoning, soil productivity end the use of the soil for farming. It contains information about the major soil units in the various soil-climatic zones. Much attention is given to soil conservation. Separate chapters deal with the improvement of acid, alkaline and eroded soils. Due attention is also given to the role of organic matter and its loss caused by long-term agricultural use of the soil. The final chapter considers the use of remote sensing and GIS for land survey and management.
Orders to: Prof. V. Starodubtsev, P.O. Box 127, Box 616/3, Kiev 03127, Ukraine. E-mail: vmstar@chat.ru.

State of the World 2002. C. Flavin, H. French, G. Gardner a.o. L. Starke editor. Special World Summit Edition with a foreword by UN Secretary-General Kofi Annan. The Worldwatch Institute. W.W. Norton & Company, New York and London, 2002, xxii + 265 p. ISBN 0-393-32279-3. Softcover. Softcover.
This 19th edition of the well-known State of the World series is made in preparation for the World Summit on Sustainable Development in September 2002 in Johannesburg. This edition, with a challenging foreword by the Secretary-General of the UN Kofi Annan, evaluates what has been achieved since the 1992 Earth Summit in Rio de Janeiro. How much progress has been made toward the goals set out 10 years ago? It is stated that ten years after Rio, economic and environmental marginalization still afflict billions of people. Pressures on the world's natural systems, from global warming to the depletion and degradation of resources have further destabilized societies. Although the report highlights a number of social and environmental advances since Rio, many other important trends continue to worsen. As major impediments that have slowed progress towards building a sustainable world over the last decade are mentioned: Environmental policies remain a low priority; foreign aid spending is stagnating; and third world indebtedness is getting worse. The authors also shed light on the possibilities for change and how existing technologies and resources can help solve many of the most pressing problems.
Price: USD 15.95, plus USD 4.00 handling and postage in the U.S. and USD 5.00 outside.
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Modern Spatiotemporal Geostatistics. G. Christakos. Oxford University Press, Oxford and New York, 2000, xvi + 288 p. ISBN 0-19-513895-3. Hardcover.
Stochastic characterization of spatial and temporal attributes began as a collection of mathematical concepts and methods developed originally in the 1930's through 1950's. G. Matheron coined the term "geostatistics" to refer to these developments and applied them in the mining exploration context. Later, geostatistical techniques were used in hydrogeology, environmental sciences, etc. It is recognized that the techniques of classical geostatistics, which have been used for several decades, have reached their limit and the time has come for some alternative approaches to be given a chance. This book is an introduction to the fundamentals of modern spatiotemporal geostatistics. Modern geostatistics is viewed in this book as a group of spatiotemporal concepts and methods, which are the products of the advancement of the epistemic status of stochastic data analysis. The latter is considered from a novel perspective promoting the view that a deeper understanding of a theory of knowledge is an important prerequisite for the development of improved mathematical models of scientific mapping. A spatio-temporal map, e.g., should depend on what we know about the natural variable it represents, as well as how we know it. As is discussed in this book, modern geostatistical approaches can be developed that are consistent with the above epistemic framework. The main focus of the book is the Bayesian maximum entropy (BME) approach for studying spatiotemporal geostatistical variables.
Price: GBP 47.50; USD 60.00.
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Soil Mechanics Laboratory Manual. Sixth edition. B.M. Das. Oxford University Press, New York and Oxford, 2002, 277 p. ISBN 0-19-515046-5. With CD-ROM. Softcover.
Proper laboratory testing of soils to determine their physical properties is an integral part in the design and construction of structural foundations, the placement and improvement of soil properties, and the specification and quality control of soil compaction works. Learning to perform laboratory tests of soils plays an important role in the geotechnical engineering profession.
The present book includes eighteen laboratory procedures that cover the essential properties of soils and their behavior under stress and strain, as well as explanations, procedures, sample calculations, and completed and blank data sheets. The manual provides a detailed discussion of the American Association of State Highway and Transportation Officials (AASHTO) Classification System and the Unified Soil Classification System updated to conform to recent American Society for Testing and Materials (ASTM) specifications. To improve ease and accessibility of use, this new edition includes not only the stand-alone version of the Soil Mechanics Laboratory Test software, but also the ready-made Microsoft Excel templates designed to perform the same calculations. With the convenience of point and click data entry, these interactive programs

can be sued to collect, organize, and evaluate data for each of the book's eighteen labs. The resulting tables can be printed with their corresponding graphs, creating easily generated reports that display and analyze data obtained from the manual's laboratory tests.
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The Next Green Revolution. Essential Steps to a Healthy, Sustainable Agriculture. J.E. Horne and M. McDermott. Food Products Press, Binghamton, 2001, xix + 312 p. ISBN 1-56022-886-5. Softcover.
This is a practical introduction to sustainable agriculture from an American perspective. What does it mean and why is it needed? It synthesizes the goals of sustainable agriculture into eight steps – soil health and erosion; water quality and use; organic waste management; crop and livestock adaptation; biodiversity; pest management; energy use; farm diversification; and profitability. It presents a convincing critique or the current agricultural system and an introduction to an alternative system, which gives more consideration to future generations. Interwoven are the authors' reflections on social justice, quality of life, and how farmers and rural communities are inextricably linked.
For a complete list of contents, see the homepage www.haworthpress.com.
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Allelopathy in Agroecosystems. R.K. Kohli, H.P. Singh and D.R. Batish, editors. Food Products Press, Binghamton, 2001, xvii + 447 p. ISBN 1-56022-091-0, softcover; 1-56022-090-2, hardcover.
Biochemical interactions between plants (allelopathy) and from plants to other organisms influence growth and development in communities. Scientists worldwide have recognized these biochemical activities because they offer alternative uses in agriculture, including decreased reliance on synthetic herbicides, insecticides, and nematocides. More than thirty different classes of secondary and natural products have been identified as allopathic compounds. These compounds either individually or combined in an array of compounds such as are founds in natural circumstances mediate these growth effects.
Allelopathy is a component of most natural communities and agroecosystems, but frequently it is unrecognized. The adverse effects may reduce production in agricultural fields and managed forest systems. There is a need for evaluating these allelochemical effects of prior plants, residues, associated plants, and autotoxicity that may occur in cropping systems. Allelopathic interactions in agricultural fields also influence soil microbial ecology, nutrient dynamics and various biotic and abiotic factors. Although several papers, reviews, compendia and books on the theme of allelopathy have already been written, its comprehensive status especially in relation to agroecosystems, has remained neglected. Further, the progress in this field has been so much that it requires regular update inviting thoughts on current issues of improving cropping pattern, tillage, crop protection and preservation of genetic diversity. The present book, also published as a special issue of the Journal of Crop Production, includes 20 chapters presenting a comprehensive treatise on the topic.
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Land under Pressure. The Impact of Water Erosion on Food Production in Ethiopia. B.G.J.S. Sonneveld. Thesis, Free University, Amsterdam. Shaker Publishing, Maastricht, 2002, 249 p. ISBN 90-423-0192-9. Softcover.
The natural conditions of the Ethiopian Highlands generally offer a favourable environment for agricultural development and human settlement. However, its population densities and herd sizes are now the highest in Africa and continue to grow rapidly. This severe pressure on the land results in widespread soil degradation, mainly caused by water erosion. The threat of degraded soils, incapable of producing enough food, together with the probable outbreak of violent conflicts over scarce land, will likely wreak havoc on future generations. Calls for soil conservation seem justified, but require solid evidence of the detrimental impact of water erosion on food production before they warrant a place on the political agenda. This thesis aims to develop a reliable relationship between soil degradation and agricultural production at a national scale, the level where the most important decisions on soil conservation are made. Using non-parametric and parametric estimation techniques, the thesis reviews and develops three spatial water erosion models. These models assess soil degradation in its geographical dependance on biophysical variables and land use, reproducing soil losses or expert assessments. Integrating the water erosion models in an economic model with migration enables the evaluation of the food security situation under different scenarios for the coming 30 years. It is shown that transregional migration increases agricultural production and endorses the cultivation of now underutilized areas. The introduction of new technologies will boost food supply, but water erosion control remains indispensable for sustaining this production.
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Methane Emissions from Major Rice Ecosystems in Asia. Developments in Plant and Soil Sciences 91. R. Wassmann, R.S. Lantin and H.-U. Neue, editors. Kluwer Academic Publishers, Dordrecht, Boston, 2000, xi + 395 p. ISBN 0-7923-6759-6. Hardcover.

Reprinted from Nutrient Cycling in Agroecosystems, vol. 58, nos. 1-3, 2000.
Rice production is affected by changing climate conditions and has the dual role of contributing to global warming through emissions of the greenhouse gas methane. Climate change has been recognized as a major threat for the global environment. Due to insufficient data, rice-growing countries are faced with the problem of complying with the UN Convention on climate Change to compile a national inventory off emissions and to explore mitigation options. Given the expected doubling of rice production in Asia, the need to evaluate the interaction between climate change and rice production is critical to form a sound basis for future directions of technology developments.
The present book discusses these issues and is comprised of two sections. The first documents a comprehensive overview of the results achieved from an interregional research effort to quantify methane emission from major rice ecosystems and identify efficient mitigation options. This research broadened understanding of the contribution of rice cultivation to methane emissions and clarified that emissions are relatively low except for specific rice ecosystems and that these high emissions could be ameliorated without sacricing yield. The second section represents inputs for future modeling approaches in the role of rice cultivators. The expanded database generated by other projects are reflected in modeling efforts.
Price: EUR 91.00; USD 95.00; GBP 60.00.
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Managing Organic Matter in Tropical Soils: Scope and Limitations. Developments in Plant and Soil Sciences, volume 93. Proceedings of a Workshop organized by the Center for Development Research at the University of Bonn (ZEF Bonn) – Germany, 7-10 June, 1999. C. Martius, H. Tiessen van P.L.G. Vlek, editors. Kluwer Academic Publishers, Dordrecht, Boston, 2001, 235 p. ISBN 1-4020-0455-9. Hardcover. Reprinted from Nutrient Cycling in Agroecosystems, vol. 61, nos. 1-2, 2001.
Soil Organic matter is a reservoir for plant nutrients, provides water-holding capacity, stabilizes soil structure against compaction and erosion, and thus determines soil productivity. All agriculture to some degree depends on soil organic matter. It has long been known that soil organic matter declines when land is taken into cultivation, and that the productivity of new agricultural land is governed by fertility contributions from decomposing natural organic matter. The expansion of agriculture to ever new and more fragile lands, particularly in the tropical regions, causes environmental degradation with local effects on soil quality, regional effects on landscape integrity and water quality, and global effects on carbon cycles and the atmosphere. This book summarizes current knowledge of the properties and dynamics of soil organic matter in the tropics, its role in determining soil quality, its stability and turnover, and the options for management in the context of tropical landuse systems. Maintenance of organic matter is critical for preventing land degradation. Case studies and practical applications are therefore an important part of the book, as are the exploration of future directions in research and management.
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Soil Physics Companion. A.W. Warrick, editor. CRC Press, Boca Raton, London, 2002, 389 p. ISBN 0-8493-0837-2. Hardcover.
This well-written and produced book includes the descriptions of the physical aspects of the soil system and of transport processes. The usual physical setting is at or just below the soil surface, but most of concepts and descriptions are valid to all depths and for all similar geological materials. This book contains nine chapters addressing the most significant topics of contemporary soil physics.
Chapters 1, 2 and 7 emphasize the soil solids. Included are descriptions of the matrix as well necessary definitions to describe both static and dynamic aspects of the soils. At the start, the soil is considered as static to facilitate quantification of mass, particle size and surface areas. Later the dynamics of tillage and temporal variations due the natural and human actions are examined. Soil water is the primary theme of Chapters 3 and 4, a major part of Chapters 5 and 6, and important for the other chapters as well. Along with general principles, measurement methodology and instruments are discussed for determining both soil water content and potential. Energy balance and the thermal regime are the topics of Chapter 5. Appropriate definitions, measurement techniques and the transport of energy are given. Inclued is a detailed description of the soil-plant-atmosphere interface, which represents a common convergence point for many of the world's problems of food production, water resources and environmental pollution, including global warming. Separate chapters are devoted to solute transport and soil-gas movement. Solute transport is fundamental in terms of environmental pollution, nutrient management and soil quality. Gas movement historically emphasized soil aeration relevant for cultural practices and microorganisms; today, it is also a major consideration for soil remediation and global gases. Spatial variability is treated in Chapter 9 in recognition of the importance of the heterogeneity of all soil properties. In soil physics, the development of the quantitative aspects of variation is necessary for both site quaracterization and for predictions into the future. This has been an active area for connecting soil systems to varied disciplines, including remote sensing, hydrology and resource management.
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Soil Pattern as a Key Controlling Factor of Water Erosion. Special issue of CATENA, vol. 46, issues 2-3, 2002. A.-V. Auzet, J. Poesen and C. Valentin, editors. Elsevier, Amsterdam, London, pp 85-220. ISSN 0341-8162.

The 16th World Congress of Soil Science, held in Montpellier in 1998, emphasized the relationships between human societies and the soil cover. Among these relationships, soil and water conservation is a well-identified challenge, which has given rise to more than 50 years research on soil erosion around the world. One of the main concerns is to allow sustainable soil cultivation. To address this issue, plot and field scale experimentation, measurements and modeling have enriched our knowledge of (1) the effects of factors in combination and (2) the processes themselves.

This special issue of Geoderma reflects the flavour of the symposium "soil patterns as a key controlling factor of water and/of wind erosion", which was organized with the aim to encourage the scientific community to contribute in organizing current knowledge in soil hydrology and soil erosion to a "cross-scale" objective, crucial as a human scale sustainable challenge. Soil patterning was mainly understood as micro-scale "surface characteristics", rather than courser scale aspects of surface and soil profile characteristics. Submitted papers only focused on water erosion.

Orders to: see below.

Soil Liquid Phase Composition. V.V. Snakin, A.A. Prisyazhnaya and E. Kovácz-Láng. Elsevier, Amsterdam, London, 2001, 316 p. ISBN 0-444-50675-6. Hardcover.

The liquid phase of soil (soil solution) is a very thin, penetrating and all-embracing water layer. It has the most extensive surface among the biosphere components and interacts with all these components. Investigation of the soil liquid phase can be of great significance in environmental research. According to the authors, the soil liquid phase investigations have not become an efficient instrument in ecology or applied soil science, despite extensive soil solution data. This is due to the difficulties in studying soil solutions in unchanged state, spatial heterogeneity of soil properties and dynamic composition of soil solutions responding to environmental changes.

The present study is devoted to search and back-up of new approaches to soil liquid phase analysis and aims to find out the role of soil liquid phase in the functioning of natural and agricultural ecosystems in recent soil formation, formation of primary biological production, and in bio-geochemical turnover of elements. Direct investigation of soil liquid phase is the determination of the concentration (activity) of ions and redox potential in situ, while the analysis of soil solution implies that the solution is extracted from the soil. The authors have limited themselves mainly to the development of ideas and theories as well as certain results of Russian schools of soil science and ecology on problems of studying the soil liquid phase. The references contain mainly articles in Russian.

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Essential Soil Science. A clear and concise introduction to soil science. M.R. Ashman and G. Puri. Blackwell Science, 2002, viii + 198 p. ISBN 0-632-04885-9. Softcover.

This textbook is aimed at students who need to acquire a clear and concise overview of soil science quickly. Many soil science textbooks still cater for a traditional student market where students embark on a three years of study in a narrow discipline. However, the growth in modular degree schemes has meant that soil science is now often taught as a self-standing unit as part of a broad-based degree course. This informative guide will be particularly useful for students who do not possess a traditional scientific background, such as those studying geography, environmental science, ecology and agriculture, who want to quickly understand both the underlying principles and practical management aspects of soil science.

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Plant Roots. The Hidden Half. Third edition. Books in Soils, Plants, and the Environment. Y. Waisel, A. Eshel and U. Kafkafi, editors. Marcel Dekker, New York and Basel, 2002, xx + 1120 p. ISBN 0-8247-0631-5. Hardcover. Ordering code: PA030217.

Roots, the "hidden half" of plants, serve a multitude of functions. They are responsible for anchorage, supply the plants with water and nutrients, and exchange various growth substances with the shoots. The root-soil interface is the site where most interactions between the plant and their environment occur. Roots constitute a major source of organic material for the soil and thus affect its structure, aeration, and biological activities.

The interest of the editors in the development and function of plant roots stems from the academic desire to understand their role in plant life, as well as from the important aspects they have. Most agricultural investment is spent to provide conducive conditions for the growth of roots of crop plants. Functional and healthy plant roots are essential for production of many of the resources on which human properity depends. The objectives of the present monograph are multiple: to review the recent contributions to the knowledge of the structure and function of roots, to outline the frontiers of root sciences, to point out the areas where gaps in knowledge exist, and to indicate the direction toward which basic and applied root research should proceed in the future.

The book serves as a major source of information for root scientists, botanists, plant physiologists, microbiologists, soil scientists, and those engaged in related

professions. It presents a multidisciplinary view of the filed of plant roots and its state of the art. It covers various aspects of root origin, root structure, development and behavior, the interactions between roots and their environment, and the various uses of roots. The book contains 59 chapters, in which the following themes are covered: (I) The origin and characteristics of roots (2 papers); The root system: structure and development (1 papers); Root genetics (4 papers); (IV) Research techniques for root studies ((5 papers); (V) The regulation of root growth (9 papers); (VI) Physiological aspects of root systems (9 papers); (VII) Root growth under stress (6 papers); (VIII) Root-rhizosphere interactions (6 papers); (IX) Roots of various ecological groups (4 papers); and (X) Roots of economic value (3 papers).
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Landscape Ecology Applied in Land Evaluation, Development and Conservation. Some worldwide selected examples. Papers for the IALE: invited, selected and edited by D. van der Zee and I.S. Zonneveld. ITC Publication no. 81, IALE publication MM-1. ITC, Enschede, 2001, x + 412 p. ISBN 90-6164-197-7. Softcover.
The idea for this book was born at the third world congress in 1993 of the International Association of Landscape Ecology (IALE), where it was proposed to compose a book with papers about applied landscape ecology from countries other than that from North America and Europe, from where so far most of these studies had come. The papers should deal with land(scape) as a four-dimensional entity (not a study of soil or water or vegetation alone). Practical problems of use of the land(scape) should be dealt with, be it for production, conservation or habitation, linked to how the ecological (systems-) approach is appropriate to solve such problems.
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Bridging Wallace's Line: The Environmental and Cultural History and Dynamics of the SE-Asian-Australian Region. *Advances in Geoecology 34.* P. Kershaw, B. David, N. Tapper, D. Penny and J. Brown, editors. Catena Verlag, Reiskirchen, 2002, viii + 360 p. ISBN 3-923381-47-6. Hardcover.
The book starts with an introductory chapter providing the context for examination of the various linkages within the SE Asian-Australian region from the physical, biological and social sciences point of view. The main body of the book is divided in three parts. Part 1 includes contributions that explore present-day processes or long-term geological frameworks, providing contextual information for the later contributions that concentrate on the dynamics of the environment and people during the Quaternary. It includes background reviews on geology and plant biogeography, and also on the climate dynamics of the Maritime Continent, an area of increasing importance in understanding global climate change. Part 2 focuses on physical and biological changes in SE Asia-Australia during the Quaternary period, a time when modern humans and their ancestors have been present in the region. It provides a partial framework for understanding human occupation, but also reveals something about the nature, timing, and degree of human occupation. Pollen records offer evidence of transformations in vegetation patterning in relation to climate change, sea level fluctuations, biomass burning and the effects of mountain glaciers. These environmental dynamics provide a framework for the colonization and adaptation of Homo erectus and H. sapiens across the region explored in Part 3. This volume challenges long-held assumptions of essential difference across the SE Asia-Australia divide, bridging Wallace's Line with a fuller exploration of regional dynamics with global implications.
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Management of Tropical Plantation-Forests and their Soil-Litter System. Litter, Biota and Soil-Nutrient Dynamics. M.V. Reddy, editor. Science Publishers, Enfield and Plymouth, 2002, xix + 423 p. ISBN 1-57808-176-9. Hardcover.
There is a global recognition of the need to promote and expand sustainable plantation forestry and farm forestry in the tropics. While areas under native forests are diminishing, those under planted forests are increasing. In a broad sense, the latter include industrial plantations for pulp or timber, farm forests and agro-forests, woodlots for fuel, and plantations established for envi-

ronmental benefits such as land rehabilitation, biodiversity rejuvenation, catchment protection, and, more recently, for sequestering carbon. There is good basis to state that planted forests, if judiciously managed, offer great opportunities for sustainable land use from which people can receive multiple benefits.
The soil-litter biota system and the processes that govern nutrient dynamics have been a popular area of research in all ecosystems. Because planted forests are expanding in the tropics and they are subject to a myriad of operations – small and large – it is important that the best use is being made of existing knowledge, recognizing the critical importance of soil and litter to sustained productivity and ecosystem functions. This book has brought together information about the interplay between soil, litter and biota that drives fundamental processes. Results from a wide range of plantations representing various biophysical environments are discussed. The volume will be a source of information for environmental biologists, soil scientists, soil ecologists en forestry experts with an interest in the tropics.
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Integrated Plant Nutrient Management in Sub-Saharan Africa: From Concept to Practice. B. Vanlauwe, J. Diels, N. Sanginga and R. Merckx, editors. CABI Publishing in association with the International Institute of Tropical Agriculture, 2002, xiii + 352 p. ISBN 0-85199-576-4. Hardcover.
Integrated nutrient management is currently a major area of interest for the agricultural research community in Africa. As the search for options to arrest soil fertility degradation in Sub-Saharan Africa (SSA) gathers speed, strategies need to be developed to increase agricultural production, while safeguarding the environment for future generations. An in-depth diagnosis and re-definition of the problems associated with the ever-increasing nutrient depletion in SSA formed the basis of the Balanced Nutrient Management Systems (BNMS) project, a collaborative effort between IITA, Ibadan, Nigeria and the Katholieke Universiteit Leuven, Belgium. Previous collaboration had focused on soil organic matter as a key parameter in soil fertility in tropical regions. Without challenging this, evidence shows that only a combination of organic and inorganic fertilizers will lead to acceptable and sustainable solutions in the long run. The ongoing collaboration therefore aims at developing and testing management practices that maintain or improve soil nutrient balances by promoting the use of locally available sources of plant nutrients, maximizing their use efficiency and optimizing their combination with inorganic fertilizers. This book contains a compilation of peer-reviewed papers presented at the International Symposium on Balanced Nutrient Management Systems, held in Cotonou, October 2000. In five parts covering different aspects of the Integrated Nutrient Management approach, it marks the end of the first phase of collaborative research on Balanced Nutrient Management Systems for the Moist and Humid Zones of Africa, and includes recommendations, providing essential reading for crop and soil scientists.
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People, Plants and Protected Areas. A guide to in-situ management. J. Tuxill and G.P. Nabhan. Earthscan Publications, London and Sterling, 2001, xiv + 248 p. ISBN 1-85383-782-2. Softcover.
Conservation of plant resources is often focused solely on seed banks and botanical gardens. This book presents a comprehensive conservation strategy that complements this ex situ approach with practical guidance on in situ management and conservation of plant resources. Drawing on concepts from forestry, agricultural sciences, anthropology, ecology and ethnobiology, this practical and multidisciplinary book facilitates better management of protected areas and illustrates new approaches to conservation of plants within their natural habitats. It highlights the collaboration necessary between the conservation professionals and local communities involved, and focuses on how to set priorities and plan for monitoring and evaluation of plant resource management.
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Agroecological Innovations. Increasing Food Production with Participatory Development. N. Uphoff, editor. Earthscan Publications, London and Sterling, 2002, xviii + 306 p. ISBN 1-85383-857-8 (softcover); 1-85383-856-X (hardcover).
By the middle of the 21st century, world food production will need to be at least twice what it is now if we are to meet both economic demand and human needs. Everyone has a stake in the continued expansion of food production around the world – in ways that do not (further) degrade our natural resource base. While having adequate food supply is not a sufficient condition to ensure food security and economic prosperity, it is a necessary one. With a growing shortage of land per capita and a serious shortage of water for agriculture, doubling food production will be a formidable task. At a meeting in 1997, professional from half a dozen disciplines were not convinced that expanding production along the present technological trajectory would ensure food security in ways that are environmentally acceptable and socially desirable, or maybe even economically sustainable. Proponents of agroecological approaches argued that these could contribute significantly to meeting world food needs. In April 1999, an international conference was held in Bellagio, Italy, to discuss the above-mentioned issues. Since only a tiny fraction of the resources put into mainstream agricultural development have thus far been invested in agroecological approaches, it is difficult to

draw firm conclusions. But the case studies presented at the conference provided evidence of impressive possibilities for increasing production using mostly local resources and knowledge. Most case studies focused on African experiences. If agroecological approaches can raise food production under such adverse soil and water conditions, they will accomplish gains where conventional modern agricultural methods have largely failed over the past 40 years. The case studies from Latin America and Asia were different from, but consistent with, what is being learned from Africa.
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Encyclopedia of Global Change - Environmental Change and Human Society. A.S. Goudie, editor-in-chief. D.J. Cuff, associate editor. Oxford University Press, 2002. Volume 1, 710 p.; volume 2, 669 p. ISBN: 0-19-510825-6 (set); 0-19-514518-6 (vol. 1); 0-19-514519-4 (vol. 2). Hardcover.
These two massive volumes, each well over 650 pages thick, present a comprehensive and interdisciplinary guide to the Earth's environment, set in the context of global environmental change. The Encyclopaedia includes over 300 entries, organized in alphabetical order. In order to facilitate access to this wealth of information, volume 2 contains a synoptic outline of contents, which define broad conceptual categories, as well as an extensive index. The main conceptual categories are: (a) Front Matter; (b) Concepts of Global Change; (c) Earth and Earth Systems, including 'Principal Articles', 'Geological Processes', 'Atmosphere', 'Ocean' and 'Biosphere'; (d) Human Factors, which include 'Human Populations', 'Agriculture and Fishing', 'Industrial Activity', 'Social, Cultural and Ideological Factors', and 'Hazards and Human Health'; (e) Resources, which starts with a principal article followed by 'Water and Air', Land and land Use', Mineral and Energy resources'; (f) Responses to Global Change, including 'Scientific and Technological Tools', and 'Economic and Social Policies'; (g) Agreements, Associations, and Institutions; (h) selected Biographies (e.g., Svante Arrhenius); and, 20 case studies such as Deforestation of Amazonia and Desiccation of the Aral Sea. In view of the variety and quality of the information presented, the readership of the Encyclopaedia of Global Change will certainly include academic researchers, high school and university students, policy makers in government and industry, as well as general readers interested in the subject of global environmental change.
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BÖDEN UND BODENFUNKTIONEN in Ökosystemen, Landschaften und Ballungsgebieten. H. J. Fiedler, 2001, FORUM EIPOS Bd. 7 (ISBN 3-8169-1875-1), Expert-Verlag, Renningen-Malmsheim
Vorliegende Publikation ist gegliedert in Einleitung, Definition, Aufbau und Bedeutung der Boden, Bodenbestandteile, Bodenbildende Faktoren und Prozesse, Bodeneigenschaften, Bodenklassifikationssysteme und bodengeographische Einheiten, Bodenökologie und Bodenkultur, Bodenschutz und Bodensanierung und Geschichte der Bodenkunde, mit 118 Darstellungen, 41 Übersichten und 78 Tabellen. Das Werk besitzt ein umfangreiches Literaturverzeichnis (548 Zitate), sowie einen Anhang mit Maßeinheiten und Umrechnungen, ein Sachregister und Boden-Farbtafeln. Es ist von seinem Aufbau und Inhalt her für Studierende sowie für Fachkräfte und Spezialisten auf dem Gebiet der Bodenökologie und Umweltwissenschaft sowie Land-, Forst- und Wasserwirtschaft als Lektüre zu empfehlen. Das Buch umfasst 612 Seiten und kostet 80,78 bzw. sfr 144,—.

Proceedings of the Third International Conference on Land Degradation and Meeting of the IUSS Subcommission C – Soil and Water Conservation (ICLD3) – Rio de Janeiro, 17-21 September, 2001. A. Ramalho-Filho; S.C.F. Dechen; H. Eswaran; B. Madari; P.L.O. de A. Machado; A.A. Franco; M.F.C. Saldanha; M.E.C. Claessen; S.G. Tôsto. Embrapa Solos, Brazilian Soil Science Society, Rio de Janeiro, 2001. ISBN 85-85864-09-5, CD-ROM.
Land degradation is an important issue to all countries owing to its adverse impacts on land productivity, food security, climate change, environmental sustainability, and eventually the quality of life. The ICLD3 Conference provided a forum for discussions on factors and causes of land degradation and its impacts and consequences on land use and society. Exchange of ideas on new solutions using currently available knowledge and technology, and possibilities of national and international legal systems also took place during the meetings. The discussions were organized into eight symposia, which structure was adopted on the CD-ROM as well: Conceptual Framework, The Land Resource Base, Land Degradation Assessment, Case Studies of Land Degradation: Lessons Learned, Monitoring Land Quality and Global Climate Change, Conserving the Land, Rehabilitating Degraded Land, Regulating Sustainable Land Use.
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