17th World Congress of Soil Science

Queen Sirikit National Convention Center
14-21 August 2002, Thailand

Soil Science: Confronting New Realities in the 21st Century

PROGRAMME
Soil Science: Confronting New Realities in the 21st Century

Queen Sirikit National Convention Center
14-21 August 2002, Thailand

PROGRAMME
Supporting Organizations for the 17th World Congress of Soil Science

Organizers
Land Development Department, Ministry of Agriculture and Cooperatives (LDD)
The Soil and Fertilizer Society of Thailand (SFST)
The International Union of Soil Sciences (IUSS)

Co-organizers
Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC)
World Association of Soil and Water Conservation (WASWC)

Supporting Agencies

Thai Government Agencies
Office of the Permanent Secretary, Ministry of Agriculture and Cooperative (MOAC)
Office of the National Economic and Social Development Board
The Bureau of Budget
The Comptroller-General's Department
Department of Agriculture
Department of Agricultural Extension
The Royal Forest Department
Office of Environment Policy and Planning
Royal Thai Police
The Tourism Authority of Thailand
The Communications Authority of Thailand
Thai Airway International Public Company Limited
Kasetsart University
Khon Kaen University
Chiang Mai University
Prince of Songkhla University
King Mongkut’s Institute of Technology Ladkrabang
The Public Relations Department
The Airports Authority of Thailand
The Customs Department
Office of the 17th World Congress of Soil Science

International Agencies
International Atomic Energy Agency (IAEA)
Food and Agriculture Organization of the United Nations (FAO)
Swiss Agency for Development and Co-operation (SDC)
The Technical Centre for Agricultural and Rural Cooperation (CTA)
Activities of the 17th Word Congress of Soil Science during 14-21 August 2002 include Registration, IUSS Council Meetings, Scientific Presentation (including plenary keynote lectures, oral presentations and poster session of each individual Symposium), the opening and closing events, welcome party, gala dinner and the Congress Tours. The focal point is the scientific programme of 65 Symposia encompassing diverse topics and the plenary keynote lectures under the Congress Theme of

**Soil Science: Confronting New Realities in the 21st Century**

In creating of the Congress Scientific Programme, we tried to avoid repetition of Symposia Themes for the same period as much as possible. This was done in hopes that participants would be able to choose each session to attend more easily. Most of the Symposium Topics were proposed and selected under the present IUSS Structure of Commissions, Subcommissions and Working Groups. It is quite apparent that Soil Fertility is still the most popular theme soil scientists work on nowadays.

Aside from the Scientific Programme, the Congress offers other activities such as a Gala Dinner and Tours, both of which should be quite enjoyable. Another important aspect of the Congress Programme is the Council Meetings. The goal of these meetings is to improve the role and functioning of the Union on the world stage. All participants are encouraged to attend and contribute.

Irb Kheoruenromne

15 July 2002
## Content

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General Programme

The 17th World Congress of Soil Science consists of the following activities:

1. **Scientific Programme** includes Plenary Keynote Lectures in the afternoon of Wednesday 14 August 2002, oral presentation and poster session of scientific papers accepted in 65 Symposia of the Congress. The oral presentation takes place in six parallel rooms everyday during 15-21 August 2002 except on 18 August 2002, which has been reserved for all Congress day tours. Poster session of each Symposium takes place on the same day as the corresponding of the oral presentation and runs all day from 0700 hrs to 1800 hrs. Details are in the Scientific Programme section.

2. **International Union of Soil Sciences Council Meetings** have been scheduled in the afternoon and evening of most days during the Congress period (13-20 August 2002). Details are in the IUSS Council Meeting section.

3. **Opening Ceremony** takes place on Wednesday 14 August 2002 starting from 0900 hrs and continuing until noon. Details are in the Opening Ceremony section.

4. **Welcome Party** has been scheduled to take place during 1830-2130 hrs on Wednesday 14 August 2002 in the Plenary Hall of the Queen Sirikit National Convention Center. The Welcome Party will be hosted by the Minister of Agriculture and Cooperatives.

5. **Gala Dinner** has been scheduled to take place on Monday 19 August 2002 during 1800-2130 hrs, in Plenary Hall 2 of the Queen Sirikit National Convention Center.

6. **Closing Ceremony** will take place in the afternoon of Wednesday 21 August 2002. Details are in the Closing Ceremony section.

7. **The King and Soil Exhibition** has been scheduled to take place in front of the Plenary Hall. The exhibition is open to public everyday during the Congress period.

8. **Exhibition** will take place at Zone C in front of the Poster Session area. The exhibition includes:
   
   8.1 Soil Education Exhibition
   
   8.2 Scientific and Commercial Exhibition

   The exhibition is open to the public everyday during the Congress period.

9. **Tour Programme** is handled by the Congress Tour Committee at the Stand associated with the Registration Counter. The Mid-Congress Tours take place on Sunday 18 August 2002. The Tours leave the Hotels at 0730 hrs and return at 1800 hrs.
IUSS Council Meetings

I. Time Schedule

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<td>Tuesday, 13 August 02</td>
<td>1600–2000 hrs</td>
<td>Board Room 1</td>
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<td>Thursday, 15 August 02</td>
<td>1800–2100 hrs</td>
<td>Board Room 1</td>
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<td>Friday, 16 August 02</td>
<td>1800–2100 hrs</td>
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<tr>
<td>Saturday, 17 August 02</td>
<td>1800–2100 hrs</td>
<td>Board Room 1</td>
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<tr>
<td>Tuesday, 20 August 02</td>
<td>1800–2100 hrs</td>
<td>Board Room 1</td>
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II. Provisional Annotated Agenda

1. Welcome by the President
2. Short presentation of Council Members
3. Adoption of the agenda
4. Information about the 17th WCSS (Vice-President)
5. Information about the programme of the Council Meetings (Secretary-General)
6. Elections/Appointments of chairpersons and members of ad-hoc committees, acting during the 17th WCSS
   - Electoral Committee (see rules K1 and K2) for the elections of officers of Divisions and Commissions
   - Committee for Motions and Resolutions
   - Committee for Poster Evaluation
   - Committee for (others)
7. Changes in the scientific structure – re-definition of Commissions and new Commissions
   - Commission 1.1 "Soil macro- and micro-morphology" (see IUSS Bulletin 101, 76-77)
   - Commission 1.5 "Paleopedology" (see IUSS Bulletin 100, 46-47).
   - Commission 2.5 "Soil physical/chemical/biological (interfacial) interactions" (see IUSS Bulletin 101, 77-78)
   - Commission 2.6 "Pedometrics" (see IUSS Bulletin 100, 47-49)
8. Voting procedure for the elections of new IUSS Officers (Chairpersons of Divisions and Commissions)
9. Report of the Secretary-General and Treasurer (membership status, special accomplishments during the last 4 years, finances of the IUSS)
10. Elections of new Bureau Members (Secretary-General, Deputy Secretary-General <and Treasurer>) - Candidates will be named in time
11. Elections of Honorary Members
    According to the unanimous vote during the 1st Council Meeting on August 19, 1998, at the 16th WCSS in Montpellier, the candidates not elected at that time are still eligible at the 17th WCSS in Bangkok. Therefore there are 6 candidates from 1998 and 6 new candidates from 2002.
    It is proposed that 10 candidates are elected.
12. New IUSS Awards
- IUSS Dokuchaev Award for Basic Soil Science (see IUSS Bulletin 98, 39-40)
- IUSS Liebig Award for Applied Soil Science (see IUSS Bulletin 99, 44-45)

13. Standing Committees:
- Maintenance of existing Committees or establishment of new Committees
- Appointments/elections of Chairpersons and Members of Standing Committees by the Council

14. Working Groups
- Evaluation of WG activities (1998 - 2002) and decisions about their continuation (see Rules I)
- Installation of new WGs (see Rules I)

15. Membership in IUSS
- Actual state, subscriptions (decisions to be taken by the Council, see Rules L3)

16. Co-operation with ICSU
- IUSS liaison officer(s) and representatives in ICSU Bodies
  - General Assembly
  - SCOPE (so far Christian De Kimpe)
  - CODATA (so far Marc Van Meirvenne)

17. Changes to the Statutes (only discussion possible, postal voting required according to Rules M1):
  - Honorary Members (Rules B6)
    "up to 10 (instead of 5 so far) Honorary Members may be elected at any one IUSS World Congress".
  - Working Group elections (see Rules 12 / K1).
  - Other items

18. Publications of IUSS
- Bulletin
- Web-Site
- Co-operating Journals
- Others

19. Venue of the 19th WCSS 2010. There are two proposals:
- Brisbane/Australia by the Australian Soil Science Society Inc.;
- Beijing/China by the Chinese Soil Science Society

20. Results of the elections of new officers
   (Council takes notice)

21. Motions/resolutions at the Closing Ceremony
   (Council decides)

22. Any other business
Opening Ceremony

Wednesday 14 August 2002

0845 hrs Audience takes seat in the room

0900 hrs Her Royal Highness Princess Maha Chakri Sirindhorn arrives

0900-1000 hrs
- Report on the purpose of the 17th WCSS to Her Royal Highness Princess Maha Chakri Sirindhorn by Minister of Agriculture and Cooperatives
- Her Royal Highness Princess Maha Chakri Sirindhorn formally open the 17th WCSS
- A video presentation on *The Prosperity of Earth*
- Her Royal Highness Princess Maha Chakri Sirindhorn proceeds to formally open the Exhibition

1000 hrs Her Royal Highness Princess Maha Chakri Sirindhorn departs

1000-1030 hrs Break

1030-1130 hrs Welcome and Information
- Mr. Samak Sundaravej
  *Governor of Bangkok*

- Mr. Sima Morakul
  *Director General, Land Development Department, Chair of the Organizing Committee, 17th World Congress of Soil Science*

- Mr. Sompong Theerawong
  *President of International Union of Soil Sciences, President of the 17th World Congress of Soil Science*

- Professor Dr. Winfried E.H. Blum
  *Secretary General, International Union of Soil Sciences*

- Professor Dr. Irb Kheoruenromne
  *Vice-President, International Union of Soil Sciences, Chair of Secretariat 17th World Congress of Soil Science*
Closing Ceremony

Wednesday 21 August 2002

1330 hrs Audience takes seat in the Room

1340 hrs Arrival of Mr. Sompong Theerawong, President of the International Union of Soil Sciences (IUSS)

- Report of the Vice President of IUSS

- Report of the Director-General of Land Development Department, Chairman of the Organizing Committee

- Vote of thanks, Secretary General of IUSS

- Vote of thanks, President of IUSS

- Delivery of IUSS flag to Professor Dr. Donald L. Sparks

- Speech of Professor Dr. Donald L. Sparks

- Delivery of the 18th WCSS flag to Professor Dr. Gary Peterson

1500 hrs Closing address, President of IUSS
Plenary Keynote Lectures

Wednesday 14 August 2002

1330-1400 hrs  Soils in space and time: realities and challenges for the 21st Century
- Professor Dr. Tengiz F. Urushadze
  Present, Georgian Society of Soil Science, Georgia

1400-1430 hrs  Its about scale and interfaces: frontiers in basic soil science research
- Professor Dr. Donald L. Sparks
  President Elect IUSS, S. Hallock Du Pont Chair of Soil and Environmental Chemistry, Department of Plant and Soil Sciences, University of Delaware, USA

1430-1500 hrs  Soil science as a major player in world development
- Prof. Dr. Pedro A. Sanchez
  University of California, Berkeley, USA

1500-1520 hrs  Break

1520-1550 hrs  The role of soils in sustaining society and the environment—realities and challenges for the 21st century
- Professor Dr. Winfried E.H. Blum
  Secretary-General of IUSS, Institute of Soil Research, University of Agricultural Sciences, Vienna, Austria

1550-1620 hrs  Tropical soil science: realities and challenges
- Dr. Santhad Rojanasoonthon
  Fellow of the Royal Institute, Royal Project Foundation, Thailand

1620-1640 hrs  General Comments

1830-2130 hrs  Welcome Party
  Hosted by Minister of Agriculture and Cooperatives, Thailand
SYMPOSIA OF THE 17th WORLD CONGRESS OF SOIL SCIENCE

Commission I: Soil Physics
01 Effect of soil structure and properties on preferential flow dynamics and pollutant transport in soils
02 Landscape scale research: methodology, concepts and consequences for soil and water quality
03 Influence of biological activity on soil physical properties
04 Use of soil data in predicting soil physical properties: importance, limitations and conditions of validation

Commission II: Soil Chemistry
05 Properties, functions, and dynamics of organic matter in tropical soils
06 Frontiers in the chemistry and biochemistry of the soil rhizosphere
07 Effects of soil chemical and biochemical processes on soil global climate change
08 Use of molecular scale techniques in determining contaminant speciation and soil remediation

Commission III: Soil Biology
09 Composition of soil microbial and fauna communities: new insight from new technologies
10 Research to enhance carbon sequestration in soils
11 Microbial processes and populations in sub-merged soils
12 Manipulating soil microbial and enzymic activities

Commission IV: Soil Fertility and Plant Nutrition
13 Management of organic matter for soil fertility improvement in humid tropical environments
14 Soil fertility as an ecosystem concept
15 Perceptions of soil management: matching indigenous and scientific knowledge systems
16 Mechanisms and indicators for efficient nutrient use through integrated soil management
17 Use of natural nutrient sources and amendments: which, where, when and how?

Commission V: Soil Genesis, Classification and Cartography
18 Anthropogenic factor of soil formation
19 Soil system and land use
20 Arid and semi-arid soils: records of past climates, carbon sequestration, genesis and management
21 Soil classification, accomplishments and future

Commission VI: Soil Technology
22 Technologies to overcome rootzone soil constraints
23 Models and parametric methods for predicting soil degradation
24 Use and abuse of industrial and urban wastes in agricultural soils

Commission VII: Soil Mineralogy
25 Mineralogy and geochemistry of regolith
26 Reaction of soil minerals on changes of climate and land management
27 Mineralogy and micromorphology of pedogenesis including isotope methods and dating of soil processes
28 Soil mineralogy in relation to soil fertility and toxicity

Commission VIII: Soil and the Environment
29 Urban and sub-urban soils: specific risks for human health (Urban agriculture)
30 Food security and land use
31 Attitudes towards soil and land use: past and present
32 Soil indicators for sustainable land use

Subcommission A: Salt Affected Soils
33 Salt affected soils and the environment
34 Salinization, water management and policy

Subcommission B: Soil Micromorphology
35 Soil micromorphology to quantify soil structure qualities
36 Soil micromorphology and submicroscopy for interpretation of soil qualities

Subcommission C: Soil and Water Conservation
37 Identification and determination of soil quality parameters to evaluate the sustainability and socioeconomic impacts
38 Advances integral modeling to make decision in soil conservation
Subcommission E: Forest Soils
39 Amelioration of degraded soils through afforestation
40 New developments in the evaluation and management of forest soils

Subcommission G: Soil Remediation
41 Techniques for remediation of contaminated soils: physicochemical techniques
42 Techniques for remediation of contaminated soils: biological techniques

Working Groups & Standing Committees
CR: Cryosols
43 Cryosols and cryogenic environments in the 21st Century

DM: World Soils and Terrain Digital Data Base
44 Global and national digital data bases on soil and terrain conditions, their compilation and uses

GC: Soils and Global Change
45 Soil carbon dynamics and the greenhouse effect

LD: Land Degradation and Desertification
46 Land degradation and desertification: confronting the realities of the 21st Century

MO: Interactions of Soil Minerals with Organic Components and Microorganisms
47 Soil mineral - organic component - microorganism interactions and the impact on the ecosystem and human welfare

PM: Pedometrics
48 Development in soil data processing

PP: Paleopedology
49 Paleosols as a memory for understanding landscape history and environmental problems

PS: Paddy Soils Fertility
50 Sustainable paddy soil ecosystem: a global challenge

PT: Pedotechnique
51 Manufactured, amended, and intensively tilled soils and substrates

RS: Remote Sensing for Soil Survey
52 Remote sensing for data fusion and GIS as tools in land evaluation and degradation studies

SM: Environmental Soil Mechanics
53 Coupled hydraulic and mechanical processes in structured soils: a challenge to define sustainability

SP: Soil and Groundwater Pollution
54 Vadose zone management strategies to prevent groundwater pollution

SU: Soil of Urban, Industrial, Traffic and Mining Areas
55 Improving knowledge about soils and their functions in urban, industrial and mining areas for a better life

CES: Education in Soil Science
56 Soil education and public awareness

FA: Soil Organic Fertilizers and Amendments
57 Soil properties as influenced by the addition of organic fertilizers and amendments
58 Soil organic fertilizers and amendments: an outlook on key environmental and sanitary issues

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

SG: Soils and Geomedicine
60 Comparison of bedrocks, soils, chemical climate and pollution as geomedical factors

IC: International Soil Convention
61 Soil convention
62 WOCAT: World overview of conservation approaches and technologies

AS: Acid Sulphate Soils
63 Acid sulphate soil management in tropical environments

RZ: Rhizosphere
64 Rhizosphere research: new challenges for soil scientists in the 21st Century
65 Soil functions in the biosphere
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**M** = Morning  
**A** = Afternoon
The Queen Sirikit National Convention Center comprises four main zones:

Zone A: Main Entrance, Reception Hall, Ballroom
Zone B: Plenary Hall, Meeting Rooms, Restaurants
Zone C: Light Exhibition Area, Boardrooms
Zone D: Office Space
Oral Session

PROGRAMME
Symposium 01

Effect of soil structure and properties on preferential flow dynamics and pollutant transport in soils

Thursday 15 August 2002

Morning Session

Chairs: VOGEL Hans-Joerg, JONGRUAYSUP Somphob
Secretary: TRELO-GES Vidhada

0830 - 0850 Introduction

0850 - 0910 Measurement and simulation of solute transport in structured soil integrated over pore and core scales

DENSKS Lynda K., ZHANG Jianxion, BENGough A. Glynn, STUTTER Marc, WATSON Helen, YOUNG Iain M., CRAWFORD John W., CHESSELL Joanna M., EDWARDS Anthony and BILLETT Mike F.

0910 - 0930 Preferential flow and field-scale transport of water and chemicals in different type of soils

Zhang Jiabao, ChENG Zhuhua and Xu Shaohui

0930 - 0950 Effect of dissolved and colloidal phase organic carbon on water flow in soils

TOTSCHE Kai U.

0950 - 1010 Principles and modeling of preferential flow dynamics in water repellent porous media

RITSEMA-Cooren J., VAN DAM Jos C., DEKKER Louis W. and OOSTINDIE K.

1010 - 1030 Break

1030 - 1050 Earthworm species and residue placement effects on macropore characteristics and preferential transport

GUPTA S.C., BHATTACHARJEE A., MONCRIEFF J.F. and BERRY E.C.

1050 - 1110 What measurable properties can predict preferential flow?

NIMMO J.R.

1110 - 1130 Preferential flow in structured soils: hydraulic functions derived from pore-scale processes

TULLER Markus and OR Dani

1130 - 1150 General discussion and conclusions
Symposium 02
Landscape scale research: methodology, concepts and consequences for soil and water quality

Wednesday 21 August 2002
Room: Ballroom

Morning Session

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<td>Introduction</td>
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<td>0850 - 0910</td>
<td>The role of pedogenesis in modelling geo-ecological evolution</td>
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<td>KÖNIGEL C.J., HEUVELINK G.B.M., KOOIJMAN A.M. and SEIJMONSBERGEN A.C.</td>
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<td>0910 - 0930</td>
<td>A method for determination of rate of soil formation in various watersheds</td>
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<td>KIMURA Ai and WAKATSUKI Toshiyuki</td>
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<td>0930 - 0950</td>
<td>Modelling hydrological processes in farmed landscapes</td>
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<td>VOLTZ Marc, MOUSSA Roger, ANDRIEUX Patrick, LAGACHERIE Philippe and LOUCHART Xavier</td>
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<td>0950 - 1010</td>
<td>Regional estimation of nitrogen transport in streamwater within the Chao Phraya River Basin</td>
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<td>PARAMEE Suparb and BASHKIN Vladimir</td>
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<td>1010 - 1030</td>
<td>Break</td>
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<td>1030 - 1050</td>
<td>A spatio-temporal simulation approach of organic carbon at landscape scale</td>
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<td>WALTER C., VISCARRA ROSSEL R.A. and McBRATNEY A.B.</td>
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<td>1050 - 1110</td>
<td>Plant and soil carbon, nitrogen and phosphorus on the Australian Continent</td>
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<td>KIRBY Mac, RAUPACH Mike, BARRETT Damian and BRIGGS Peter</td>
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<td>1110 - 1130</td>
<td>An integrated modelling approach to sustainable land use concepts</td>
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<td>in a low mountain range area</td>
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<td>FÖHRER N. and FREDE H.G.</td>
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<td>1130 - 1150</td>
<td>General discussion and conclusions</td>
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Symposium 03
Influence of biological activity on soil physical properties

Monday 19 August 2002
Afternoon Session
Room: Meeting Room 1

Chair: KAY Bev D., VIRAKORNPHANICH Prasop
Secretary: CHONGPRADITNUN Prphasri

1400 - 1420 Introduction

1420 - 1440 Physical processes affecting microbial habitats and activity in unsaturated porous media
OR Dani and FRIEDMAN Shmulik

1440 - 1500 Can biological activity dictate soil wetting, stability and preferential flow?
HALLETT Paul D., FEENEEY Debbie S., BAUMGARTL Thomas, RITZ Karl, WHEATLEY Ron E. and YOUNG Iain M.

1500 - 1520 Interactions between gas transport and biogeochemical processes: the effect of the soil structure
RENAULT Pierre, KHALIL Karima, DASSONVILLE Fabrice, MOHRATH Dalila, LENSI Robert, CHADCEUF Joël, CHENU Claire, BIDEL Luc, LAFOLIE François

1520 - 1540 Structural features induced by agricultural management and earthworm activity in relation to infiltration
LAMANDE M., HALLAIRE V., CURMI P., PERES G. and CLUZEAU D.

1540 - 1600 Break

1600 - 1620 Characterization of soil structure using critical water contents for net N mineralization
KAY B.D., DRURY C.F. and ZHANG T.

1620 - 1640 Managing termites and mulch for crusted soil rehabilitation in the Sahel
MANDO Abdoulaye, BRUSSAARD Lijbert and STROOSNIJDER Leo

1640 - 1700 The effects of crop rotation and plant residues on soil structure
BLAIR Nelly, FAULKNER R.D., TILL A.R., CROCKER G.J. and PRINCE K.E.

1700 - 1720 General discussion and conclusions
Symposium 04

Use of soil data in predicting soil physical properties: importance, limitations and conditions of validation

Monday 19 August 2002

Morning Session

Chairs : TESSIER Daniel, NA NAGARA Tawachai
Secretary : CHONGPRADITNUN Praphasri

0830 - 0850 Introduction

0850 - 0910 Translating available basic soil data into missing soil hydraulic characteristics
  WOSTEN Henk, NEMES Attila, PACHEPSKY Yakov, RAWLS Walter and ZEILIGUER Anatole

0910 - 0930 Predicting soil evaporation with a revised Ritchie equation from simple input parameters
  HOFFMAN J.E.

0930 - 0950 The dynamic of water retention curves caused by soil deformation
  BAUMGARTL Thomas

0950 - 1010 Estimating soil water retention using soil component additivity model
  ZEILIGUER Anatole M., NEMES Attila, PACHEPSKY Yakov A., RAWLS Walter, and WÖSTEN J.H.M.

1010-1030 Break

1030 - 1050 Compaction effects on least limiting water range and plant growth
  REINERT Dalvan J., WOLKOWSKI Richard P., LOWERY Birl and ARRAGIA Francisco J.

1050 - 1110 Predicting deep drainage using soil hydraulic properties and soil texture data
  GEE G.W. and WARD A.L.

1110 - 1130 Use of granular material theories to interpret structural changes in sandy soil
  HARTMANN Christian, POSS Roland, JANEAU Jean-Louis, BOURDON Emmanuel, LESTURGEZ Gregory and RATANAANUPAP Santi

1130 - 1150 General discussion and conclusions
Symposium 05

Properties, functions, and dynamics of organic matter in tropical soils

Tuesday 20 August 2002

Morning Session

Room: Ballroom

Chairs: MARTIN-NETO Ladislau, SUTHIPRADIT Sumalee
Secretary: EKKAJIT Seksan

0830 - 0850 Introduction

0850 - 0910 Land use and soil organic matter in Northeast Thailand: Microbial biomass, humic acid and mineral N
TANTRAKARNPONG Sunyut and VITYAKON Patmu

0910 - 0930 Effect of land management on soil organic matter content and quality and on earthworm communities
HAYNES Richard J. and DLA MINI Thebesile C

0930 - 0950 Combining organic/inorganic fertilisers for sustainable rice and wheat cropping systems in Thailand and Australia
WHITBREAD Anthony, KONBOON Yothin, BLAIR Graeme, LEFROY Rod and PROBERT Merv

0950 - 1010 Relevance of organic matter forms associated to particle size fractions for studying efficiency of soil carbon sequestration: examples for tropical agroecosystems
FELLER Christian

1010 - 1030 Break

1030 - 1050 Dynamics of labile organic matter under shifting cultivation in different bio-climatic conditions in humid Asia
FUNAKAWA Shinya, KAEMKHONGKHRA Thanmono and PULUNGONO Heru B.

1050 - 1110 Role of the chemistry of soil organic carbon in pesticide sorption in soils
AHMAD Riaz and KOOOKANA Raj

1110 - 1130 Impact of residue quality and location in soil on the C and N mineralisation of residues from cropping systems from Cerrados, Brazil
ABIVEN Samuel, RECOUS Sylvie, REYES Victor and OLIVER Robert

1130 - 1150 General discussion and conclusions

19
Symposium 06
Frontiers in the chemistry and biochemistry of the soil rhizosphere

Saturday 17 August 2002
Afternoon Session
Room: Ballroom

Chairs: HUANG Pan Ming, PRABUDDHAM Paiboon
Secretary: BOONSOOK Pinpetch

1400 - 1420 Introduction

1420 - 1440 Phosphorus mobilization by organic-acid exudation: processes governing benefits in rotational cropping
HENS Maarten and HOCKING Peter

1440 - 1500 Studies of humic fractions from a Mollisol soil
CLAPP C. Edward and HAYES Michael H.B.

1500 - 1520 Interaction between charge character and Cu²⁺ adsorption-desorption of soil with variable or permanent charge
LI Xue-Yuan, LING Wan-Ting and HE Ji-Zheng

1520 - 1540 Phosphate-induced cadmium release from soils
ONYATTA J.O. and HUANG P.M.

1540 - 1600 Break

1600 - 1620 Microbial interactions in the rhizosphere of bulbous rush colonizing acidic sediments
CHABBI Abad, KÜSEL Kirsten and TRINKWALTER Tanja

1620 - 1640 Investigation of compounds causing water repellency in the rhizosphere of sandy soils from a wide range of locations

1640 - 1700 Does rhizosphere phytase activity limit mineralisation of phosphorus from phytate?
GEORGE Tim, RICHARDSON Alan and SIMPSON Richard

1700 - 1720 General discussion and conclusions
Symposium 07
Effects of soil chemical and biochemical processes
on soil global climate change

Thursday 15 August 2002
Room: Ballroom

Afternoon Session

Chairs: PICCOLO Alessandro, KEERATIKASIKORN Pirmpoon
Secretary: SUVANNANG Nopmanee

1400 - 1420 Introduction

1420 - 1440 Identification and implication of amino acid enantiomers in prairie soils of North America along a climosequence
ZHANG Xudong, WANG Jingkuan, AMELUNG Wulf and ZECH Wolfgang

1440 - 1500 Changes in soil organic matter in Podzols with lowered groundwater-pyrolysis-GC/MS and micromorphology
BUURMAN Peter, DURAN Barbara, JONGMANS Antoine G., VAN BERGEN Pim F. and VAN LAGEN Barend

1500 - 1520 Sequestration of soil organic carbon by an “in situ” polymerization reaction
PICCOLO A., SPACCINI R., TAGLIATESTA P. and MOSCHETTI G.

1520 - 1540 Water regime of model forest ecosystems under elevated carbon dioxide and nitrogen deposition
SCHULIN Rainer, BUCHER-WALLIN Inga K. and SONNLEITNER Marion A.

1540 - 1600 Break

1600 - 1620 Reduction of methane emission from submerged paddy soils by water management in Thailand
SIRIRATPIRIYA Orawan and PRADUBSUK Suphasuk

1620 - 1640 Nitrification-denitrification loss and N\textsubscript{2}O emission from urea applied to crop-soil systems in the North China Plain
HONG Ding, CAI Guixin, WANG Yuesi and CHEN Deli

1640 - 1700 Straw management affecting methane emissions from different rice ecosystems
WASSMANN Reiner, BUENO Crisanta S., LANTIN Rhoda S., LU W.F., CHAREONSILP Niwat and OLK Daniel C.

1700 - 1720 General discussion and conclusions
Symposium 08
Use of molecular scale techniques in determining contaminant speciation and soil remediation

Monday 19 August 2002
Room: Meeting Room 1

Morning Session

Chairs: SPARKS Donald L., ATTANANDANA Tasnee
Secretary: WONGMANEEROJ Audthasit

0830 - 0850 Introduction

0850 - 0910 Invited paper
Sequestration of radionuclides during clay mineral weathering at high pH
CHOROVER Jon, CHOI Sunkyung, MUELLER Karl, CROSSON Garry and KARThIKEYAN K.G.

0910 - 0930 Association of radiocesium on different geobiochemical soil phases
KRUSE-IRMER Sven, VON WALDHAUSEN Constanze and GIANI Luise

0930 - 0950 Kinetics and mechanisms of nickel surface precipitation in multi-sorbent systems: a spectroscopic study
NACHTEGAAL Maarten and SPARKS Donald L.

0950 - 1010 Long-term kinetics of the disappearance of Al tridecamer from a solution in the presence of humic acid
YAMAGUCHI Noriko U., HIRADATE Syuntaro and MIZOGUCHI Masaru

1010 - 1030 Break

1030 - 1050 In situ Mössbauer spectroscopy and soil solution monitoring to follow spatial and temporal iron dynamics
FEDER Frédéric, KLINGELHÖFER Göstar, TROLARD Fabienne and BOURRIÉ Guilhem

1050 - 1110 Hydrophobic sites in humic acids as detected by ESR of spin-label 5-SASL and $^{13}$C NMR of labeled oleic acid

1110 - 1130 Real time and remote monitoring of soil and water pollutants by mid-IR fibreoptics
SHAVIV Avraham, KENNY A., SHMULEVICH I., SINGHER L., REICHLIN Y. and KATZIR A.

1130 - 1150 General discussion and conclusions
Symposium 09
Composition of soil microbial and fauna communities:
new insight from new technologies

Friday 16 August 2002
Afternoon Session

Room: Ballroom

Chairs : BURNS Richard G., NOPAMORNBODI Omsub
Secretary: PITHUKDANTHAM Roongroj

1400 - 1420 Introduction

1420 - 1440 Phylogenetic classification and activities of cellulolytic soil bacteria isolated from long-term field experiments
WIRTH Stephan and ULRICH Andreas

1440 - 1500 Distribution and biodiversity of soybean rhizobia in the soils of Shennongjia forest reserve, China
CHEN Wenli and HUANG Qiaoyun

1500 - 1520 Ectomycorrhization of Acacia spp. by Pisolithus: effect on nodulation and on the rhizospheric bacteria
FULELE-LaURENTE E., DUPONNOIS R. and CHOTTE J.L.

1520 - 1540 Significance of indigenous arbuscular mycorrhiza on phosphorus influx of maize grown on an Oxisol
RAKSHIT Amikava, BHADORIA P.B.S., SINGH Satnam and CLAASSEN Norbert

1540 - 1600 Break

1600 - 1620 Composition of soil bacterial communities: new insight from old and new technologies
ZVYAGINTESEV Dmitri G., DOBROVOLSKAYA Tatiana G. and LYSAK Ludmila V.

1620 - 1640 Molecular bacterial ecology of Fe(III)-precipitates in a constructed wetland treating acid coal mine water
NICOMRAT Duongruitai, DICK Warren A. and TUOVINEN Olli H.

1640 - 1700 Protozoan diversity in soil and its influence on microbial functions that determine plant growth
GUPTA V.V.S.R. and ROPER M.M.

1700 - 1720 General discussion and conclusions
Symposium 10
Research to enhance carbon sequestration in soils

Friday 16 August 2002
Room: Ballroom

Morning Session

Chairs : METTING F. Blaine, BHROMSIRI Ampan
Secretary : HOMHUAL Wipa

0830 - 0850  Introduction

0850 - 0910  Terrestrial carbon sequestration potential
METTING F. Blaine, JACOBS Gary K., AMTHOR Jeffrey S. and DAHLMAN Roger

0910 - 0930  Carbon sequestration and dynamics in boreal forest and arable soils
KÖLLI Raimo

0930 - 0950  Carbon storage in Australian Vertisols
KNOWLES Thomas and SINGH Balwant

0950 - 1010  Carbon sequestration in agroforestry systems
NAIR P.K. Ramachandran and NAIR Vimala D.

1010 - 1030  Break

1030 - 1050  Spectroscopic calibrations for the determination of carbon in soils

1050 - 1110  Kinetics of organic inputs in soil carbon models
PANSU Marc, THURIES Laurent, LARR- LARROUY M. Christine and FELLER Christian

1110 - 1130  Characterizing dynamics of soil organic matter content with
eigenvalue and eigenvector
LIN Chenfang, SHIUE Huei W., CHANG Chia M. and TSENG Kuo-Jin

1130 - 1150  General discussion and conclusions
Symposium 11
Microbial processes and populations in submerged soils

Wednesday 21 August 2002
Morning Session
Room: Meeting Room 1

Chairs: BURESH Roland, NUNTAGIJ Achara
Secretary: CHENGAKSORN Chatsuda

0830 - 0850 Introduction

0850 - 0910 Contrasting microbial populations and genes in flooded and non-flooded habitats
TIEDJE James M.

0910 - 0930 Microbial processes regulating carbon cycling in subtropical wetlands
REDDY K., RAMESH, WRIGHT Alan, OGRAM Andy, DEBUSK William F. and NEWMAN Susan

0930 - 0950 Microbial biodiversity and processes in submerged soils
CONRAD Ralf

0950 - 1010 Nitrogen balances and biological N fixation in submerged rice soils
LADHA Jagdish Kumar and BURESH Roland

1010 - 1030 Break

1030 - 1050 The fate of fertilizer N in microbial biomass and soil organic fractions in California rice
HORWATH William R., BIRD J.A. and VAN KESSEL C.

1050 - 1110 Methane and nitrous oxide emissions from rice paddy fields
TSURUTA Haruy

1110 - 1130 Elevated carbon dioxide effects on microbial processes in submerged soil
INUBUSHI K., HOQUE M.M., CHENG W., KOBAYASHI K., YAGI K., SAKAI H., KIM H.Y. and OKADA M.

1130 - 1150 General discussion and conclusions
Symposium 12
Manipulating soil microbial and enzymic activities

Saturday 17 August 2002  Room: Plenary Hall 1
Morning Session

Chairs: BURNS Richard G., BOONKERD Nantakorn
Secretary: THAMCHAIPINAT Arinthip

0830 - 0850 Introduction


0930 - 0950 Substrate induced respiration in soils using $^{14}$C-labelled substrate MORRIS D.R. and SNYDER G.H.


1010 - 1030 Break

1030 - 1050 Potential for non-symbiotic N$_2$-fixation in different agroecological zones of Southern Australia GUPTA V.V.S.R., ROPER M.M. and ROGET D.K.

1050 - 1110 Influence of fungal inoculant type and water potential on degradation of pesticides FRAGOEIRO Silvia and MAGAN Naresh

1110 - 1130 Soil microhabitats: a new dimension of microbial diversity and activity KANDELER E., WERMBTER N., TSCHERKO D., STEMMER M., KIRCHMANN H., GERZABEK M.H., SESSITSCH A.

1130 - 1150 General discussion and conclusions
Symposium 13
Management of organic matter for soil fertility improvement in humid tropical environments

Wednesday 21 August 2002  Room: Plenary Hall 1
Morning Session

Chairs: VANLAUWE Bernard, SANMANEECHAI Manas
Secretary: ANONGRAK Niwat

0830 - 0850  Introduction

0850 - 0910  Improving fertilizer efficiency in the humid tropics through combination with organic amendments
    DIELS Jan, AHLOU Kouassi, IWUAFOR Emmanuel, LYASSE Omar, SANGINGA Nteranya, VANLAUWE Bernard, DECKERS Jozef and MERCKX Roel

0910 - 0930  Integrated use of inorganic and organic fertilizers in Wheat-T. aus-T. aman rice cropping pattern for sustained crop production
    HAQUE M.Q., RAHMAN M.H., BEGUM Rokeya and ISLAM M.F.

0930 - 0950  Dynamics of charge bearing soil organic matter fractions in highly weathered soils
    OORTS Koen, MERCKX Roel, VANLAUWE Bernard, SANGINGA Nteranya and DIELS Jan

0950 - 1010  Environmental impacts of tropical agricultural systems: N2O emissions and organic matter management
    BAGGS E.M., CADISCH G., VERCHOT L.V., MILLAR N. and NDUFA J.K.

1010 - 1030  Break

1030 - 1050  Long-term effects of organic and inorganic fertilizers use on N availability under intensive cropping system
    BRAR H.S., CHINA H.S., RANDHAWA P.S., DHILLON N.S. and BENIPAL D.S.

1050 - 1110  Organic resource management in sub-Saharan Africa: validation of a residue quality-driven decision support system
    VANLAUWE Bernard, PALM Cheryl A., MURWIRA Herbert K., MERCKX Roel and DELVE Rob

1110 - 1130  Beneficial effects of organic amendment on improving phosphorus availability and decreasing aluminium toxicity in two upland soils of Vietnam
    PHAN Thi Cong, Merckx, CONG Doan Sat and NGUYEN Quang Chon

1130 - 1150  General discussion and conclusions
Symposium 14(1)
Soil fertility as an ecosystem concept

Thursday 15 August 2002
Room: Plenary Hall 1

Morning Session

Chairs: SWIFT Mike, SUWANARIT Amnat
Secretary: PITHUKDANTHAM Roongroj

0830 - 0850 Introduction

0850 - 0910 Soil fertility as an ecosystem concept
Palm Cheryl and SWIFT Mike

0910 - 0930 Litterfall and nutrient flux in tropical rain forest, West Sumatra, Indonesia
HERMANSAH, AFLIZAR Zakaria, TSUGIYUKI Masunaga and TOSHIYUKI Wakasuki

0930 - 0950 Biochemical dynamics under different types of tropical seasonal forests in Western Thailand
HIRAI Keizo, TAKAHASHI Masanobu, LIMTONG Pitayakon and SUKSAWANG Songtum

0950 - 1010 Impact of short rotation forestry on soil fertility assessed by ecosystem input-output nutrient budgets
LACLAU Jean-Paul, RANGER Jacques, NZILA Jean de Dieu, BOUILLET Jean-Pierre and DELEPORTE Philippe

1010 - 1030 Break

1030 - 1050 Soil N constraints on productivity of eucalypt plantations with different harvest management
CORBEELS Marc and McMURTRIE Ross E.

1050 - 1110 Soil fertility and nutrient contamination of water in a hilly catena of Sri Lanka under intensive cropping
JAYAKODY A.N.

1110 - 1130 Efficiency of chelated zinc (Zn-EDTA) on the maintenance of Zn in soils in relation to yield and nutrition of rice (Oryza sativa L.)
DAS D.K., KARAK T. and KARMAKAR S.K.

1130 - 1150 General discussion and conclusions
Symposium 14(2)
Soil fertility as an ecosystem concept

Thursday 15 August 2002
Afternoon Session

Room: Plenary Hall 1

Chairs: SWIFT Mike, SUWANARIT Amnat
Secretary: PINIPAITOON Sutisa

1400 - 1420 Introduction

1420 - 1440 Linking litter quality with decomposer functionality for a better understanding of plant litter mineralisation
    NEERGAARD Andreas de and MAGID Jakob

1440 - 1500 Element cycling of Cambic Arenosols under beech forest and arable land with respect to ecosystem stability
    WETZEL H., SCHIMMEL C.G. and HORN R.

1500 - 1520 Agroforestry intervention on soil fertility management under the Nepalese hill farming systems
    NEUPANE Ramji Prasad

1520 - 1540 Taking into account plant quality in models which simulate C and N transformations in soils
    NICOLARDOT Bernard, MARY Bruno and HADIDI Kawtar

1540 - 1600 Break

1600 - 1620 Sustainability of sugarcane production evaluated based on organic matter cycle and nitrogen fixation
    ANDO Shotaro, MEUNCHANG Sompong, THIPPAYARUGGS Srisuda, PRASERTSAK Prephon, MATSUMOTO Naruo and YONEYAMA Tadakatsu

1620 - 1640 Tillage, liming, and straw management effects on N cycling in an acid soil
    SOON Y.K. and ARSHAD M.A.

1640 - 1700 Does biodiversity matter soil microbial communities and microbial function?
    VERCHOT Louis V., BOSSIO Deborah, SWIFT Mike, PRETTY Jules and BORELLI Teresa

1700 - 1720 General discussion and conclusions
Symposium 14(3)
Soil fertility as an ecosystem concept

Friday 16 August 2002
Morning Session

Chairs: SWIFT Mike, SUWANARIT Amnat
Secretary: NA BHADALUNG Nidchaporn

0830 - 0850 Introduction

0850 - 0910 Ecological processes in eroded soils under conservation and conventional tillage
COLEMAN David C., ADL Sina, REED Frederick and LACHNICTHT Sharon

0910 - 0930 Catch crops in organic farming systems without livestock husbandry: model simulations
MÜLLER Torsten, JENSEN Lars Stoumann, MAGID Jakob, NIELSEN Niels Erik, HANSEN Søren and THORUP-KRISTENSEN Kristian

0930 - 0950 Potassium leaching under different nitrogen managements
ALFARO Marta, JARVIS Steve and GREGORY Peter

0950 - 1010 Irrigation water and fertiliser interaction under water deficit conditions in sugarcane in Northern Ivory Coast
PÉNE Crépin B. and ASSA Désiré A.

1010 - 1030 Break

1030 - 1050 Assessment of the relative agronomic effectiveness of phosphate rock materials in a soybean-maize crop rotation using isotope techniques in field experiments
MAHISARAKUL J., SIRIPAIBOOL C., CLAIMON J. and PHANEE Pakkong

1050 - 1110 Comparison of capsule resin data and kinetic parameters with some static soil tests to predict K uptake by rice
KAVOOSI M., KALBASI M. and ALIAKBAR A.

1110 - 1130 Integrated nutrient management for different cropping patterns in Bangladesh
ISLAM M.S., SATTER M.A. and RAHMAN Md. Anisur

1130 - 1150 General discussion and conclusions
Symposium 15
Perceptions of soil management: matching indigenous and scientific knowledge systems

Monday 19 August 2002
Afternoon Session

Room: Ballroom

Chairs : RHOADES Robert, RUAYSOONGNERN Sawaeng
Secretary: SOONTHORNPAT Chanchira

1400 - 1420 Introduction

1420 - 1440 Indigenous and scientific conceptions of landuse management: a case study from Ecuador
RHOADES Robert E. and NAZAREA Virginia

1440 - 1500 Traditional farmers utilization of the soil of south-eastern coastal zone of Ghana, West Africa
AWADZI Theodore Wola

1500 - 1520 “Land moves and behaves”: indigenous discourse on sustainable land management in Mexico
ZINCK Joseph Alfred and BARRERA-BASSOLS Narciso

1520 - 1540 Soil fertility: from a natural heritage to a social construction; example of Gakoudi Village, Niger
DOSSO Mireille

1540 - 1600 Break

1600 - 1620 Sustainable soil fertility management by indigenous and scientific knowledge in the Sahel zone of Niger
HAYASHI Keiichi and WAKATSUKI Toshiyuki

1620 - 1640 Ethnopedological research: a worldwide review
BARRERA-BASSOLS Narciso and ZINCK Alfred

1640 - 1700 Beyond stewardship: from conservation to intrinsic soil value
WARKENTIN Benno P.

1700 - 1720 General discussion and conclusions
Symposium 16
Mechanisms and indicators for efficient nutrient use through integrated soil management

Tuesday 20 August 2002
Afternoon Session

Room: Plenary Hall 1

Chairs: THOMAS Richard J., OSOTSPA Yongyooth
Secretary: KONG-NGERN Rangsan

1400 - 1420 Introduction

1420 - 1440 Sustaining crop production in the developing world through "The Nutrient Buffer Power Concept"
NAIR Kodolh Prabhakaran

1440 - 1500 Integrated nutrient management for sustainable yield in rice-rice cropping system
ZAMANI S.K., JAHIRUDDIN M., PANAULLAH G.M., MIAN M.H. and ISLAM M.R.

1500 - 1520 Developing biophysical and socio-economic tools for assessing soil fertility
TRIPATHI B.P. and ELLIS-JONES Jim

1520 - 1540 Integrated nutrient management strategies in Eastern Uganda
ESILABA A.O., BYALEBEKA J.B., NAKIGANDA A., MUBIRU S., DELVE R.J., SSALU H. and MIBULULE M.

1540 - 1600 Break

1600 - 1620 Bio indicators of land quality in the tropics: an attempt to integrate soil and vegetation approaches
MASSE Dominique, CHOTTE Jean-Luc, and PONTANIER Roger

1620 - 1640 Nutrient budgets: sustainability assessment of rainfed rice systems in Northeast Thailand and variability along microtopographic catenae
KONBOONYO, WINDHOLD J.D. and LEFROY R.D.B.

1640 - 1700 Ecological models of fertility of soils suitable for tea planting with purpose of their management
MAMMEDOVA Sara

1700 - 1720 General discussion and conclusions
Symposium 17
Use of natural nutrient sources and amendments:
which, where, when and how?

Tuesday 20 August 2002
Room: Plenary Hall 1

Morning Session

Chairs: JANSSEN Bert, ROONAMPOI Pradit
Secretary: CHATCHAISIRI Kanda

0830 - 0850 Introduction

0850 - 0910 Occurrence and properties of apatite in fresh tephras and its utilization by plants
NANZYO Masami

0910 - 0930 Phosphatic guano combined with steel slag as effective way for direct application of phosphatic guano to acid soil
SUWARNO and GOTO Itsuo

0930 - 0950 Partial acidulation of phosphate rock: an approach to improve low grade and less reactive materials
NARAYANASAMY G. and DR. BISWAS

0950 - 1010 Elemental sulfur as nutrient for crops in the Pampean Mollisols of Argentina
MELGAR Ricardo J, LAVANDERA Javier and CAMOZZI M. Elena

1010 - 1030 Break

1030 - 1050 Using coal-derived substances to improve the fertility of some acidic soils
PATTI Antonio F., JACKSON W. Roy, ISSA Javier (G) and MARSHALL Marc

1050 - 1110 Amelioration of soil fertility in variable-charge dominated soils
BONIAO Renato D. SHAMSHUDDIN Jusop, VAN RANST Eric, ZAYYAH Siti I. and SYED Omar Syed R

1110 - 1130 Nutrient stocks and nutrient cycling of fallows in the humid lowlands of Papua New Guinea
HARTEMINK A.E.

1130 - 1150 General discussion and conclusions
Symposium 18
Anthropogenic factor of soil formation

Thursday 15 August 2002
Room: Meeting Room 1
Morning Session

Chairs: DUDAL Rudi, PRAMOJANEE Paiboon
Secretary: TAKASHIMA Tidarat Rieko

0830 - 0850 Introduction

0850 - 0910 The human factor of soil formation
DUDAL R., NACHTERGALELE F.O. and PURNELL M.F.

0910 - 0930 Anthropogenic soils in the US: conclusions from an international workshop
AHRENS R.J., DITZLER C. and ENGEL R.J.

0930 - 0950 Anthropogenic soils of China
ZITONG Gong, ZHANG Ganlin and ZHANG Xuelei

0950 - 1010 Soils, human activities and landscape relation in Anai river watershed, West Sumatra, Indonesia
KAMIDOHZONO Akira, DARMAWAN, MASUNAGA Tsugiyuki and WAKATSUKI Toshiyuki

1010 - 1030 Break

1030 - 1050 Terra Preta and Terra Mulata: pre-Columbian Amazon kitchen middens and agricultural fields, their sustainability and their replication
SOMBROEK Wim, KERN Dirse, RODRIGUES Tarcicio, CRAVO Manoel da Silva, JARBAS Tony Cunha, WOODS William and GLASER Bruno

1050 - 1110 C-rich sandy Ap horizons of Northwest Europe contain a large fraction of very stable organic matter
KIRCHMANN Holger and SPRINGOB Günther

1110 - 1130 Plagganthrepts in Northwest Russia? genesis, morphology and properties
GIANI Luise, CHERTOVO Oleg, GEBHARDT Christine, KALININA Olga, NADPOROZHSKAYA Marina and TOLKDORF-LIENEMANN Eva

1130 - 1150 General discussion and conclusions
Symposium 19
Soil system and land use

Friday 16 August 2002
Afternoon Session

Room: Plenary Hall I

Chairs: RUELLEN Alain, ALVA Ashok
Secretary: PANIKORN Vanida

1400 - 1420 Introduction

1420 - 1440 Invited paper
Relations between soil system and cropping systems on a small watershed in Parana (Brazil)
Palmans Bart, Van Houdt Els, DOSSO Mireille, RALISCH Ricardo,
Jouve Philippe and Tavares Filho Joao

1440 - 1500 Toposequence as influenced by land use in the inland valley watershed of Ashanti region, Ghana
ANNA PREETIE Ebenezer and WAKATSUKI Toshuyuki

1500 - 1520 Sustainability of agrarian systems in relation to soils on Amazonian forest pioneer fronts (Marabá, Brazil)
GRIMALDI Catherine, CURMI Pierre, DOSSO Mireille, Jouve Philippe and SIMOES Aquiles

1520 - 1540 Soil survey for sustainable farming of a major tropical highland zone in Kenya
D'COSTA V.P. and OMOTO W.

1540 - 1600 Break

1600 - 1620 The derived savanna of SW-Nigeria: soil characterisation and use
OKUSAMI Temiipe A.

1620 - 1640 Use of rehabilitated quarry detritus for the study of forest-soil system development
REINTAM Luit and KAAE Elmar

1640 - 1700 Romanian soil resources and food security
LUPU ELS, MIHALACHE M., RADI Alexandra, IlIE I. and MUSAT M.

1700 - 1720 General discussion and conclusions
Symposium 20
Arid and semi-arid soils: records of past climates, carbon sequestration, genesis and management

Tuesday 20 August 2002
Afternoon Session

Room: Ballroom

Chairs: BUCK Brenda, WARAMIT Worapong
Secretary: KANJANATHANASET Khamchai

1400 - 1420 Introduction

1420 - 1440 Pedogenic carbonate: links between biotic and abiotic CaCO₃
MONGER H. Curtis

1440 - 1500 Effect of soil humic substances on the sequestration of carbon in acid-affected soils of South-Eastern Australia
YAZAWA Y., OHMORI H., HIRTH J., SLATTERY B. and YAMAGUCHI T.

1500 - 1520 Morphology, SEM and stable isotopic analyses of pedogenic gypsum, USA and Jordan
BUCK Brenda J., VAN HOESEN John, KHRESAT Sa'reb and RAWAJFH Zahir

1520 - 1540 Contribution of termites to the formation of hardpans in soils of arid and semi-arid regions of South Africa
ELLIS F.

1540 - 1600 Break

1600 - 1620 Salinity types of the soils related to climatic and lithogenic microzones in Central Iran
AKHLAYAN GHALIBAF Mohammad

1620 - 1640 Management of arid soils of the Badia region of Northeastern Jordan for sustainable agriculture
RAWAJFH Zahir, KHRESAT S.A., BUCK B. and MONGER H C.

1640 - 1700 Organic matter accumulation in soils of the semiarid pampa of Argentina
BUSCHIAZZO D E., HEVIA G G., HEPPER E.N., URIOSTE A M. and ANTON E L.

1700 - 1720 General discussion and conclusions
# Symposium 21
## Soil classification, accomplishments and future

**Saturday 17 August 2002**  
**Room:** Ballroom  
**Morning Session**

**Chairs:** PAZOS Mabel Susana, VIJARNSORN Pisoot  
**Secretary:** SRISUPHA-OLARN Tanapol

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<td>0830 - 0850</td>
<td>Introduction</td>
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| 0850 - 0910 | Classification of pedological systems: a challenge for the future of soil science  
  *RUellan Alain* |
| 0910 - 0930 | Pedogenetic classification from soil-landscape modelling  
  *McBratney Alex., B. and Minasny Budiman* |
| 0930 - 0950 | Reappraisal of the pedon concept for Vertisols: consociations or complexes?  
  *Wilding L.P., Kovda I.V., Morgun E.G. and Williams D.* |
| 0950 - 1010 | Horizon identification  
  *Fitzpatrick Ewart Adsil* |
| 1010 - 1030 | Break                                                                   |
| 1030 - 1050 | Northern circumpolar soil database and derived soil maps in different classification systems  
  *Goryachkin Sergey, Stolbovoi Vladimir, Tarnocai Charles, Kimble John, Broll Gabriele, Jakobsen Bjarne, Montanarella Luca, Naumov Evgeny and Arnoldussen Arnold* |
| 1050 - 1110 | An experience in correlating world reference base for soil resources with national soil classifications  
  *Krasilnikov Pavel* |
| 1110 - 1130 | Towards a rationale in the world reference base for soil resources  
  *Deckers Jozef, Driessen Paul, Nachtergaele Freddy, Spaargaren Otto and Berding Frank* |
| 1130 - 1150 | General discussion and conclusions                                      |
Symposium 22
Technologies to overcome rootzone soil constraints

Thursday 15 August 2002
Afternoon Session

Room: Meeting Room 1

Chairs: RENGASAMY Pichu, POOVARODOM Sumitra
Secretary: CHOMSANTAE Naowarat

1400 - 1420 Introduction

1420 - 1440 Rootzone soil constraints: an overview
RENGASAMY Pichu and VADAKATTU Gupta

1440 - 1500 Mechanical impedance to root growth and phosphorus uptake
NADIN Habib

1500 - 1520 Improving maize productivity and conserving soil on sloping land in Yunnan Province, P.R. China
HUANG Bizhi, WU Bozhi, LIU Liguang, HOCKING Trevor J., FULLEN Michael A. and MITCHELL David J.

1520 - 1540 Alleviation of root zone constraints through foliar application of zinc and boron for grapes
PRABU P.C. and SINGARAM P.

1540 - 1600 Break

1600 - 1620 Dry soil tillage tines RS8 and IR12: two efficient tools for zaï technique mechanisation in the Sahel
BARRO Albert, ZOUGMORE Robert, TAONDA S. Jean Baptiste and ZIGANI-OUEDRAOGO Patricia

1620 - 1640 Plinthite development in upland agriculture soils in Ghana
ASIAMAHR D.

1640 - 1700 Subsoil constraints to cropping on the alkaline soils in the Mallee region of Southern Australia
O’LEARY Garry J., RENGASAMY Pichu and ROGET David

1700 - 1720 General discussion and conclusions
**Symposium 23**
Models and parametric methods for predicting soil degradation

**Tuesday 20 August 2002**
**Afternoon Session**

**Room:** Meeting Room 1

**Chairs:** ELLIOTT Edward T., YONCHALERMCHAI Chao

**Secretary:** KAEWMANO Chuthamard

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<td>Introduction</td>
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<td>1420</td>
<td>Behaviour of gully erosion in relation to catchment characteristics in foothills of lower Shivaliks <strong>KUKAL S.S. and MATHARU G.S.</strong></td>
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<td>1440</td>
<td>Quantifying parameters for the maximum rubber production potential model in East Thailand <strong>PRATUMMINTRA Somjate, VAN RANST Eric, VERPLANCKE Hubert, SHAMSHUDDIN Jusop, THEERAVATANASUK Kannikar and KESAWAPITAK Prasat</strong></td>
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<td>1500</td>
<td>Vertical distribution of wind-eroded sediment over a smooth, bare field in Central Iran <strong>KARIMZADEH Hamid Reza and JALALIAN Ahmad</strong></td>
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<td>1520</td>
<td>General discussion and conclusions</td>
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Symposium 24
Use and abuse of industrial and urban wastes in agricultural soils

Monday 19 August 2002
Room: Meeting Room 2
Morning Session

Chairs: HUGHES Jeffrey, NUNTAGIJ Itthisuntorn
Secretary: THAYMUANG Wipawan

0830 - 0850 Introduction

0850 - 0910 An improvement on soil fertility by municipal organic waste and Panicum maximum TD 58 grass
CHUASA VA THI Thammared and TRELO-GES Vidhaya

0910 - 0930 Effect of flyash on the performance of wheat on Ustochrepts of sub-humid plains of India
TOTAWAT K.L., NAGAR G.L., JAT S.L. and JANGIR R.K.

0930 - 0950 Effect of bauxite residue (red mud) on the availability of phosphorus in very sandy soils
SNARS Katherine, GILKES Robert and HUGHES Jeffrey

0950 - 1010 Heavy metals in extracted soil solutions
DIBONITOM.. BREWARD N., SMITH B.M., CROUTN.M.J. and YOUNG S.D.

1010 - 1030 Break

1030 - 1050 Simultaneous sludge stabilization and metal removal by metal hyper-accumulator plants
WU Qi Tang, SAMAKE Moussa, MO Cehui and MOREL Jean-Louis

1050 - 1110 Alkaline stabilized biosolids as an organic amendment for continuous spring barley on two contrasting soils
CHRISTIE Peter, EASSON D. Lindsay and WASSON Elizabeth Anne

1110 - 1130 Effect of irrigation by untreated sewage effluents on the micro and potentially toxic elements in soils and plants
BRAR M.S., KHURANA M P S. and KANSAI B.D

1130 - 1150 General discussion and conclusions
Symposium 25
Mineralogy and geochemistry of regolith

Thursday 15 August 2002
Room: Meeting Room 2

Morning Session

Chairs : FITZPATRICK Rob W., SUDDHIPRAKARN Anchalee
Secretary : LAOSUWAN Pornpana

0830 - 0850  Introduction

0850 - 0910  Chemical weathering in Australasia with emphasis on the humid tropics especially in Papua New Guinea
RUXTON Bryan P.

0910 - 0930  Weathering sequences of contrasting mafic and felsic parent materials in the Georgia piedmont, US
HAMILTON-WOOD D.A., WEST L.T. and SCHROEDER P.A.

0930 - 0950  Particle comminution and aeolian addition in young dune sand soils
ORNBERG Per

0950 - 1010  Mineralogy and colour of concretions in Thai lateritic soils
WATANABE KHEOURUENNE I., SUDDHIPRAKARN A. and GILKES R.J.

1010 - 1030  Break

1030 - 1050  Chemical and geological characterization of a mine site in Central Italy
BASILIO Marco, GARAIZZO Claudio, GIULIANO Veronica, LA GIOIA Cataldo, PASSARIELLO Bruno, RICCARDI Carmela and SPICAGLIA Sergio

1050 - 1110  The intercalation behaviour of standard kaolins and soil kaolins from Australia, Indonesia and Thailand
HUGHES Jeffrey, GILKES Robert and HART Robert

1110 - 1130  Origin of 2:1 mineral in Japanese Andosols and its role in agriculture
SAIGUSA Masahiko and MATSUHAMA Nobuhiko

1130 - 1150  General discussion and conclusions
Symposium 26

Reaction of soil minerals on changes of climate and land management

Tuesday 20 August 2002
Afternoon Session

Room: Meeting Room 2

Chairs: SINGH Balwant, YOOTHONG Kannica
Secretary: ANONGRAK Niwat

1400 - 1420
Introduction

1420 - 1440
Effects of land use change and land management on soil clays
BAIN Derek C.

1440 - 1500
Iron-rich precipitates in mine drainage environments: mineralogical characteristics and case studies
MURAD Enver

1500 - 1520
Behavior of inherited minerals and climate-induced soil change: red-colored soils of European Russia
LESISOVAIA Sofia and GAGARINA Elvira

1520 - 1540
General discussion and conclusions

1540 - 1600
Break

1600 - 1610
Papers from Symposium 27
### Symposium 27

Mineralogy and micromorphology of pedogenesis including isotope methods and dating of soil processes

**Tuesday 20 August 2002**  
**Room: Meeting Room 2**

**Afternoon Session**

**Chairs**: STAHR Karl, ROMSONTTHI Chatchai  
**Secretary**: ANONGRAK Niwat

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<td>Break</td>
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<tr>
<td>1600 - 1610</td>
<td>Introduction</td>
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| 1610 - 1630 | Methodological approaches analysing Paleosol sequence from early tertiary till Holocene in the carstic limestone area of the Swabian Alb - Southwest Germany  
  **STAHR Karl, KALLIS Peter and ZAREI Mehdi** |
| 1630 - 1650 | Iron pan formation in burial mounds, Denmark  
  **BREUNING-MADSEN Henrik, HOLST Mads Kohler and RASMUSSEN Marianne** |
| 1650 - 1710 | Andic soil properties in non-volcanic areas: a variety of Andosols or a separate soil forming process?  
  **BAUMLER Rupert, TSHERING DORJI, CASPARI Thomas, NORBU Chencho and BAILIE Ian** |
| 1710 - 1720 | General discussion and conclusions                                               |
Symposium 28
Soil mineralogy in relation to soil fertility and toxicity

Tuesday 20 August 2002
Morning Session

Room: Meeting Room 1

Chairs: GILKES Bob, WIRIYAKITNATEEKUL Wanphen
Secretary: HOMYAMYEN Kannika

0830 - 0850 Introduction

0850 - 0910 Pyrite in acid sulfate soils: transformation and inhibition of its oxidation by application of natural materials
SHA MSHUDDIN Jusop and SARWANI Muhrizal

0910 - 0930 Distribution of trace elements and porosity in soil horizons at the aggregate scale
CORNU Sophie, COUSIN Isabelle, DESCHATRETTES Valerie, SALVADOR-BLANES Sebastien, SABYMcolas and CLOZEL Blondine

0930 - 0950 Potassium release and fixation behavior of mineralogically different soils of India
MAJUMDAR Kaushik, SANYAL S.K. and DATTA Shivali

0950 - 1010 Studies of synthetic copper containing goethite
HUYNH Trong, TONG Andrew R., SINGH Balwant and KENNEDY Brendan J

1010 - 1030 Break

1030 - 1050 A solid solution model for Fe"II-Fe"III-Mg green rust "fougerite": structural and geochemical constraints
BOURRIE Guilhem, TROLARD Fabienne, REFAIT Philippe and FEDER Frederic

1050 - 1110 Clay mineralogy of some Thai Ultisols
KANKET Wimolnan, SUDDHIPRAKARN A., KHEORUENROMNE I. and GILKES R.J

1110 - 1130 Internal morphology and surface area of natural manganese oxides
DIXON Joe B. and KIM Jae Gon

1130 - 1150 General discussion and conclusions
Symposium 29

Urban and sub-urban soils: specific risks for human health
(Urban agriculture)

Thursday 15 August 2002

Afternoon Session

Chairs: MOREL Jean-Louis, PANICHSAKPATANA Supamard
Secretary: ROONGTANAKIAT Nualchavee

1400 - 1420 Introduction

1420 - 1440 100 years spreading of urban waste water on market-garden soils close to Paris (France); subsequent impacts and hazards

BAIZE Denis, LAMY Isabelle, OORT Folkert van, DERF Christelle,
CHAUSSET Rémi, SAPPIN-DIOTER Valérie, BERMOND Alain, BOURGEOIS Serge, SCHMITT Catherine and SCHWARTZ Christophe

1440 - 1500 Data on soil pollution for urban planning

VRSCAJ Borut, ZUPAN Marko and LOBNIK Franc

1500 - 1520 Transfer of heavy metals from sludge amended soil to vegetables and leachates

SUKREEYAPONGSE O., PANICHSAKPATANA S., and HANSEN H.C.B.

1520 - 1540 Aqua regia extractable heavy metals in surface agricultural soils within an urban area

ROMIC Marija and ROMIC Davor

1540 - 1600 Break

1600 - 1620 Simulation of nitrogen transport, transformation and uptake in soil-water-crop system

REN Li, MA Jinhua, GONG Yuanchi and STAHR K

1620 - 1640 General discussion and conclusions
Symposium 30
Food security and land use

Tuesday 20 August 2002
Morning Session

Chair: ANDREUX Francis, TANCHO Arnat
Secretary: THONGYON Raviya

0830 - 0850 Introduction

0850 - 0910 Targeted yield approach for fertilizer requirements of onion in Vertisols
SONAR Kashinath and KADAMB Bhagwan

0910 - 0930 Improving the sustainability of cassava-based cropping systems in Asia: a farmer participatory approach to technology development and dissemination
HOWELER Reinhardt H., WATANANONTA Watana and TRAN Ngoc Nguyen

0930 - 0950 Utilisation of distillery effluent in coastal sandy soil to improve soil fertility and yield of sugarcane
SUBASH CHANDRA BOSE, BASKAR M., GOPAL H., KAYALVIZHI C., SIVANANDHAM M. and RAVINDRAN K.

0950 - 1010 Agrolandscape zones of wheat security production in Kazakhstan
TAZHIBAYEVA Tamara and ABUGALIYEVA Aigul

1010 - 1030 Break

1030 - 1050 Water dynamics of ebb tide agriculture in Northeast Brazil
ANTONINO Antonio C.D., HAMMECKER Claude, MONTENEGRO Suzuna M.G.L., NETTO André Masciul, ANGULO-JARAMILLO R and LIRA C.A.B.O.

1050 - 1110 Study of a peculiar type of manganese-rich Oxisols in the Haut-Ogooué, Gabon (West Africa): interest for the reclamation of the mining site of Bangombé
BOUASSILA Christian, LEVEQUE Jean, EDOU MINKO Ambroise, ROUILLIER James, NZIENGU Patromise and ANDREUX Francis

1110 - 1130 Landfill restoration for sustainable waste management and land utilization
WONG Ming H.

1130 - 1150 General discussion and conclusions
Symposium 31
Attitudes towards soil and land use: past and present

Saturday 17 August 2002
Morning Session

Room: Meeting Room 1

Chairs: WARKENTIN Benno P., TONMANEE Nitayaporn
Secretary: CHARUNWORAPAN Chanida

0830 - 0850  Introduction

0850 - 0910  Sustainable development of rice ecosystem with the balance of local wisdom and the reduction of greenhouse gases emission in Thailand
SIRIRATPIRIYA Chomnan, PRADUBSUK Suphatuk,
KUPKANCHANAKUL Tawee, ZUNGSONTIPORN Siriporn,
IAMSUPASITSompoch and NANEYOD Boonmee

0910 - 0930  Soil knowledge embodied in a Native American runoff agroecosystem
SANDOR J.A., NORTON J.B., PAWLUK R.R., HOMBURG J.A.,
MUECHRATH D.A., WHITE C.S., WILLIAMS S.E., HAVENER C.I. and
STAHL P.D.

0930 - 0950  A history of perceiving the soil in the Amazon Basin
WINKLERPRINS Antoinette M.G.A.

0950 - 1010  Tropical soil and land use management research and methodologies:
changing trends and attitudes
LATHAM Marc

1010 - 1030  Break

1030 - 1050  Soil science and land use in Canada
ANDERSON Darwin W. and JANZEN Henry H.

1050 - 1110  Integration of local soil knowledge for improved soil management strategies
BARRIOS Edmundo, DELVE Robert J., TREJO Moren T. and
THOMAS Richard J.

1110 - 1130  Land use in Sri Lanka: past, present and future
MAPA R.B., KUMARARAGAMAGE D., GUNARATHINE W.D.L and
DASSANAYAKE A.R.

1130 - 1150  General discussion and conclusions
Symposium 32
Soil indicators for sustainable land use

Monday 19 August 2002
Afternoon Session

Room: Meeting Room 2

Chairs: DE KIMPE Christian, PRASITTIKETH Jirapong
Secretary: HANSAKDI Ekkanit

1400 - 1420 Introduction
Soil indicators for sustainable land use
DE KIMPE Christian R. and PRASITTIKETH Jirapong

1420 - 1440 Chemical and biochemical indicators of managed agricultural soils
SANNO Filomena, COLOMBO Claudio, PALUMBO Giuseppe and
GIANFREDA Liliana

1440 - 1500 Using power analysis to identify soil quality indicators
MILTON Nui, MURPHY Daniel, BRAIMBRIDGE Matthew, OSLER Graeme,
JASPER David and ABBOTT Lynette

1500 - 1520 Hot-water carbon is an integrated indicator of soil quality
GHANI Anwar, DEXTER Moira and PERROTT KEN W.

1520 - 1540 Nutrient balance changes as an indicator of sustainable agriculture
SYERS Keith J., SHELDICK William and LINGARD John

1540 - 1600 Break

1600 - 1620 Soil quality indicators in a long term crop-pasture rotation experiment in Uruguay
MORÓN Alejandro and SAWCHIK Jorge

1620 - 1640 Characteristic changes of cultivated soils in Japan for the 20 years
NAKAI Makoto and OBARA Hiroshi

1640 - 1700 Development of indicators for soil quality at the European level
HUBER Sigbert and FREUDENSCHUSS Alexandra

1700 - 1720 General discussion and conclusions
Symposium 33
Salt affected soils and the environment

Saturday 17 August 2002 Room: Plenary Hall 1
Afternoon Session

Chairs: ARUNIN Somsri, DISSATAPORN Chaiyanun
Secretary: YAMCLEE Promote

1400 - 1420 Introduction

1420 - 1440 Environmental stresses induced by salinity/alkalinity in the
Carpathian Basin (Central Europe)
Várallyay György

1440 - 1500 Effect of wetland transformation on groundwater quality and soil
salinization in neighbouring agricultural areas
BATTLE-SALES Jorge, HURTADO Amparo and BATTLE-MONTERO Estrella

1500 - 1520 Irrigation drainage water management options: San Joaquin valley
case study
TANJI Kenneth K., WALLENDER Wesley W. and ROLLINS Larry T

1520 - 1540 A simple empirical method to evaluate the electrical conductivity of
soils and waters by TDR
ARRIGHIERI Roberta

1540 - 1600 Break

Chairs: BATTLE-SALES Jorge, IM-ERB Rungson
Secretary: PONGWICHIAN Pirat

1600 - 1620 Use of native grass to minimise groundwater recharge in hill country
of Southeastern Australia
RAJAM. JOHNSTON W H and HOLMBER G. M

1620 - 1640 Reclamation of saline bare soils by leaching and barley production
KHOSHGOFTARMANESH A.H. and SHARIATMADARI H

1640 - 1700 Amelioration of saline alkali soils using peat and weathered coal
NISHIZAKI Yasushi, KAWAKAMI Hiroshi, WADA Hidenori, YAMADA Parida
and YAMAGUCHI Tatsuki

1700 - 1720 General discussion and conclusions
Symposium 34
Salinization, water management and policy

Saturday 17 August 2002
Room: Meeting Room 2

Morning Session

Chairs: SUAREZ Donald, TRIPETCHKUL Sudarat
Secretary: HARVEY Withers Narumon

0830 - 0850 Introduction

0850 - 0910 Spatio-temporal changes in soil salinity status in lowland areas with shallow groundwater
TÓTH Tibor and KUTI László

0910 - 0930 Prognosis of salt water regime in the Changjiang River estuary under impacts of large water projects
YANG Jingsong, SHAO Aijun and LIU Guangming

0930 - 0950 Measuring and mapping soil salinity in the Darling River Valley
TRIANTAFILIS J., AHMED M.F., MALIK R. and GWILLEM O.

0950 - 1010 Evaluation of management practices for use of low quality waters for irrigation: model simulations
SUAREZ Donald L.

1010 - 1030 Break

1030 - 1050 Conjunctive use of fresh and salty water in cotton and wheat in South West Punjab
SINGH C.J., AUJLA M.S., SAINI K.S., BUTTAR G.S. and BRAR J.S.

1050 - 1110 Using forages and livestock to manage drainage water in the San Joaquin Valley
KAFFKA S.R., OSTER J.D. and CORWIN D.L.

1110 - 1130 Effect of swelling and overburden weight on hydraulic conductivity of a restructured saline sodic clay
NASERI Abd Ali and RYCROFT David

1130 - 1150 General discussion and conclusions
Symposium 35
Soil micromorphology to quantify soil structure qualities

Saturday 17 August 2002
Afternoon Session

Chairs: TERRIBILE Fabio, SINDHUSEN Pramuanpong
Secretary: CHENYAPANICH Somjai

1400 - 1410 Introduction

1410 - 1430 Determination of soil hydraulic conductivity with MRB signatures from X-ray CT scan images
ANDERSON Stephen H., GANTZER Clark J. and CHENG Zhanqi

1430 - 1450 Simulation of spatial distribution of bacteria in relation to 3-D heterogeneous soil structure
WU Keijin, NUNAN Naoise, RITZ Karl, CRAWFORD John W. and YOUNG Iain M.

1450 - 1510 Soil pore geometry changes in surface horizons under different irrigation regimes
TEDESCHI Anna, MELE Giacomo and TERRIBILE Fabio

1510 - 1530 Conjugate microstructural and hydrodynamic evolution of a soil crust during its formation
COUSIN Isabelle, MALAM ISSA Oumarou and LE BISSONNAIS Yves

1530 - 1540 General discussion and conclusions

1540 - 1600 Break

1600 - 1720 Papers from Symposium 36
Symposium 36
Soil micromorphology and submicroscopy for interpretation of soil qualities

Saturday 17 August 2002
Afternoon Session
Room: Meeting Room 1

Chairs: STOOPS Georges, IAMPOORN RAT Kamolrat
Secretary: KHAMNUNGKIJ Jutharat

1400 - 1540 Papers from Symposium 35

1540 - 1600 Break

1600 - 1610 Introduction

1610 - 1630 Different factors impact on gypsum crust crystallization pattern and rate under experimental condition
JAFARZADEH Ali Asshar

1630 - 1650 Sequences of illuviation cutans' formation in Albeluvisols
BRONNIKOVA Maria and TARGULIAN Viktor

1650 - 1710 Proposal for redefining and extension of concepts and terminology of the ISSS "handbook on soil thin section description"
STOOPS G.

1710 - 1720 General discussion and conclusions
Symposium 37
Identification and determination of soil quality parameters
to evaluate the sustainability and socioeconomic impacts

Thursday 15 August 2002
Room: Meeting Room 3

Morning Session

Chairs: GABRIELS Donald, BOONCHEE Sawatdee
Secretary: KANCHANADUL Vasuthep

0830 - 0850 Introduction

0850 - 0910 Soil conservation and crop productivity in Yunnan Province, P.R. China
MILNE Eleanor, FÜLLEN Michael A., HOCKING Trevor J., MITCHELL David J., WU Bozhi, LIU Liguang and ZHAO Yan

0910 - 0930 Amelioration of compacted subsoil layer by tillage rotation and its effect on productivity
MALINDA David and DARLING Rick

0930 - 0950 Soil resistance under different tillage methods
KISK Ivica, BASIC Ferdo, MESIC Milan and BUTORAC Andjelka

0950 - 1010 Crop residues and vegetative barriers: promising technologies for soil erosion control in Oaxaca, Mexico
RUIZ V.J., BRAVO E.M. and LOAEZA R.G.

1010 - 1030 Break

1030 - 1050 Soil biochemical and structural characteristics in native and tilled Brazilian Cerrado soils
STOTT Diane E. and GREEN V. Steven

1050 - 1110 Gully erosion monitoring in Sao Luis City, Maranhao State, Brazil
GUERRA Antonio Jose Teixeira, MENDONÇA Jane K.S., REGO Marcelo and ALVES Heana S.

1110 - 1130 The phosphorus enrichment ratio of overfertilized soils
SCALENGHE Riccardo, BARBERIS Elisabetta and EDWARDS Anthony C

1130 - 1150 General discussion and conclusions
Symposium 38
Advanced integral modeling to make decision in soil conservation

Saturday 17 August 2002
Room: Meeting Room 2
Afternoon Session

Chairs: DELGADO Fernando, PLA SENTIS Ildefonso
Secretary: TANTASIRIN Chatchai

1400 – 1410 Introduction

1410 - 1440 Keynote lecture
Modelling for planning soil and water conservation: a critical review
PLA-SENTIS Ildefonso

1440 - 1500 Application of USLE to the prediction of eutrophic components losses in soil erosion processes
MIHARA Machito, UENO Takashi and YAMAUCHI Yuichiro

1500 - 1520 Watershed-scale terrain analysis for determining nutrient loss potential
BRYANT Ray B., GIASSON Elvio and DEGLORIA Stephen D.

1520 - 1540 Towards soil detachability determination under Divergent Rain Induced Flow Transportation (DRIFT)
ALEXANDRE Carlos and FERREIRA Alfredo G.

1540 - 1600 Break

Chairs: PLA SENTIS Ildefonso, DELGADO Fernando
Secretary: TANTASIRIN Chatchai

1600 - 1620 A framework to make decisions in soil conservation for tropical mountains
DELGADO Fernando

1620 - 1640 Knowledge-based system for soil conservation and land resources management in agriculture
TA-OUN Mongkon, PRUANGKA Suttipong and DAUD Mohamed

1640 - 1700 Soil indicator systems: the basis for soil conservation decisions
FRIELINGHAUS Monika, PIORR Hans-Peter and MÜLLER Lothar

1700 - 1720 General discussion and conclusions
Symposium 39
Amelioration of degraded soils through afforestation

Friday 16 August 2002

Afternoon Session

Room: Meeting Room 1

Chairs: HUETTL Reinhard F., THAIUTSA Bunvong
Secretary: WACHRINRAT Chongrak

1400 - 1420 Introduction

1420 - 1440 Production of biomass in an alley cropping system
HUETTL Reinhard F., GRÜNEWALD Holger and SCHNEIDER B. Uwe

1440 - 1500 Secondary development stages of soils formed on inland dunes under pine woodlands
JANKOWSKI Michał and BEDNAREK Renata

1500 - 1520 Significance of symbiotic microorganisms in re-vegetation process in Lahar area of Mt. Pinatubo
SAITO Masanori, MINAMISAWA Kiwamu and BARRAQUIO Wilfredo

1520 - 1540 Soil nutrient status and root intensity in plantations of exotic tree species on highland soils in Northern Thailand
POOLSIRI Roongreang, GLATZEL Gerhard, SIEGHARDT Monika and THAIUTSA Bunvong

1540 - 1600 Break

1600 - 1620 Assessment of techniques of rehabilitation on a logged-over lowland tropical forest
MOKHTARUDDIN A.M., MASWAR, MAJID N.M., KAMIL YUSOF M.M., FARIDAH HANUM I., AZANI A.M. and KOBAYASHI S.

1620 - 1640 Managing soil fertility in eucalypt plantations in China
XU Daping and DELL Bernie

1640 - 1700 Trace metals in the forest floor, litterfall patterns and topography
MANNA Sylvie, COURCHESNE François, ROY André, TURMEL Marie-Claude and CÔTÉ Benoit

1700 - 1720 General discussion and conclusions
Symposium 40
New developments in the evaluation and management of forest soils

Monday 19 August 2002
Room: Meeting Room 3
Morning Session

Chairs: KHANNA Partap K., WASUWANICH Pisal
Secretary: WICHIENNOPPARAT Wilawan

0830 – 0850 Introduction

0850 – 0910 Composition and quality of forest soil nitrogen as revealed by $^{14}$N- and $^{15}$N-NMR spectroscopy

\textit{XU} Zhi-hong, MAO Xi-an, MATHERS Nicole and LUO Ren-sheng

0910 – 0930 Movement of $^{15}$N-labelled harvest residues in the first 2 years of hoop pine plantations

\textit{BLUMFIELD} Tim and \textit{XU} Zhi-hong

0930 – 0950 Spatial variability and isotopic studies of the prairie-forest transition in Louisiana

\textit{BEKELE} Asfaw, \textit{HUDNALL} Wayne H. and \textit{TIARKS} Allan

0950 – 1010 Evaluation of site quality index for teak plantation in Thailand

\textit{SAKURAI} Katsutoshi, \textit{YAMADA} Yuhki, \textit{TULAPHITAK} Thepparit, \textit{JUNHTOTAI} Kriengsak, \textit{WACHARINTARAT} Chongrak, \textit{TEEJUNTUK} Sakhan and \textit{SAHUNALU} Pongsak

1010 – 1030 Break

1030 – 1050 A comparison of the carbon balance in the soil between a natural forest and a young teak plantation

\textit{TAKAHASHI} Masamichi, \textit{LIMTONG} Pitayakon, \textit{SUKSAWANG} Songtam and \textit{HIRAI} Keizo

1050 – 1110 Clear-cutting effects on soil organic matter content and quality in a temperate maritime pine forest a spatial and temporal assessment


1110 – 1130 A pedo-geomorphic approach for predicting drought deaths in \textit{Eucalyptus globulus} (Labill.) plantations

\textit{HARPER R.J.}, \textit{McGRATH J.F.} and \textit{CARTER J.O.}

1130 – 1150 General discussion and conclusions
Symposium 41
Techniques for remediation of contaminated soils:
physicochemical techniques

Saturday 17 August 2002
Room: Meeting Room 3

Afternoon Session

Chairs: LEPP Nicholas W., PARKPIAN Preeda
Secretary: SANGTHONG Prapit

1400 - 1420 Introduction

1420 - 1440 In situ remediation of metal-contaminated soils: chemical, biological and isotopic assessments
McLAUGHLIN Mike, FERGUSON Verity, HAMON Rebecca, McGrath Steve, LOMBI Enzo, BROWN Sally, CHRISTIANSEN Barbara, VANGRONSVELD Jaco and RUTTENS Ann

1440 - 1500 In situ fixation of metals and metalloids using iron-rich co-products
LOMBI Enzo, ZHAO Fang-Jie and MCGRATH Steve P.

1500 - 1520 An electrokinetic removal of copper and chromium from wood preservation industry contaminated soil
RIBEIRO Alexandra, VELIZAROVA Emiliya, REFFEGA Antonio and CASTRO Adelia

1520 - 1540 Pig manure as co-composting material for remediation of PAH contaminated soil
WONG J.W.C., WAN C.K. and FANG M.

1540 - 1600 Break

1600 - 1620 Australian approaches to improving methods for the analysis of TPH contamination in soil
BUDDHADASA Saman C., BARONE Sebastion, BIGGER Stephen W. and ORBELL John D.

1620 - 1640 The use of physical and biological methods to remediate soils at a former Tar Distillery
LEPP Nicholas W., EDWARDS Robert, COOK J.D., ROUTLEDGE Philip and ROUTLEDGE Robert

1640 - 1700 General discussion and conclusions
Symposium 42

Techniques for remediation of contaminated soils: biological techniques

Wednesday 21 August 2002

Morning Session

Chairs: McGrath Steve P., Pongsakul Pichit
Secretary: Likhanaon Bhavana

0830 - 0850 Introduction

0850 - 0910 Natural remediation processes: bioavailability interactions in contaminated soils
   Adriano D.C., Bolan N.S., Koo Bon Jun, Naidu R., Leliev D. van der, Van Gronsveld J. and Wenzel W.

0910 - 0930 Phytoremediation of selenium and other trace elements in soil and water
   Terry Norman

0930 - 0950 Biotransfer possibilities of selenium from plants used in phytoremediation
   Banuelos G.S., Vickermand B., Trumble J.T., Shannon M.C., Davis C.D. and Finley J.W.

0950 - 1010 The impact of application of chlorates in longan plantations on the environment and the remedy
   Ongprasert Somchai, Sutikoolabud Pathipan and Aumtong Supathida

1010 - 1030 Break

1030 - 1050 Hyperaccumulation of cadmium and zinc: physiological background and phytoextraction potential
   Lombi Enzo, Zhao Fang-Jie, Dunham Sarah J. and McGrath Steve P.

1050 - 1110 Role of arbuscular mycorrhizal fungi in alleviation of Zn phytotoxicity and mineral nutrition of host plants
   Ji Xuan, Chen Baodong, Feng Gu and Christine Peter

1110 - 1130 Bioremediation on salinity land
   Kirdmanee Chalermpol, Mosaleeyanon Kriengkrai, Wanitchananan Praderm and Wanussakul Ruenruedee

1130 - 1150 General discussion and conclusions
Symposium 43
Cryosols and cryogenic environments in the 21st Century

Friday 16 August 2002
Room: Meeting Room 1

Morning Session

Chairs: TARNOCAI Charles, PHIMSARN Sathien
Secretary: THONGWITY Pensri

0830 - 0850 Introduction

0850 - 0910 Cryosols in a changing environment: their role and research needs
TARNOCAI Charles

0910 - 0930 Morphogenesis of Cryosols and associated soils in the alpine zone
of Tienshan, West China
PING Chien-Lu, ZHAO Lin, PAETZOLD Ronald, KIMBLE John,
WANG Shaoling and YE Baisheng

0930 - 0950 Cryogenic sector of the geoderma and its internal structure
KONYUSHKOV Dmitri Ye and SOKOLOV Ilia A

0950 - 1010 Turf hummocks on Ellesmere Island, Canada
BROLL Gabriele and TARNOCAI Charles

1010 - 1030 Break

1030 - 1050 Permafrost distribution and soil climate in the Glacial Lake Agassiz
basin in North-central Manitoba, Canada
VELDHUIS Hugo, EILERS Robert G. and MILLS Gordon F.

1050 - 1110 The fate and effects of hydrocarbons in Antarctic soil: preliminary
results of an experimental fuel spill
BAULKS Megan R., HOLMES David J. and AISLABIE Jackie

1110 - 1130 General discussion and conclusions
Symposium 44
Global and national digital databases
on soil and terrain conditions, their compilation and uses

Thursday 15 August 2002
Room: Meeting Room 3

Afternoon Session

Chairs: SOMBROEK Wim, VEARASILP Taweesak
Secretary: THAYMUANG Wipawan

1400 - 1420 Introduction

1420 - 1440 World soil and terrain database (SOTER): past, present and future
  NACHTERGAEL Freddy O. and OLDEMAN L. Roel

1440 - 1500 A method for generalization of a soil geographical database: the
  example of the transfer of the European database EUSIS at 1:1 m to
  the world SOTER program at 1:5 m
  KING Dominique, SABY Nicolas, LE BAS Christine,
  NACHTERGAEL Freddy, VAN ENGELEN Vincent, EIMBERCK Micheline,
  JAMAGNE Marcel, LAMBERT Jean Jacques and MONTANARELLA Luca

1500 - 1520 SOTER as a tool for land use planning: experiences in West Africa
  and future applications
  HERRMANN L., GRAEF F., IGUE M., WELLER U., GAISER T., HAMMEL K.
  and STAHR K.

1520 - 1540 Digitized natural landscape units and associated soil point data as
  framework for Amazon biomass and biodiversity assessment
  RAMALHO FILHO António, DE SOUZA CARVALHO Albertino, CAMARGO
  DE MIRANDA Luiz and SOMBROEK Wim

1540 - 1600 Break

1600 - 1620 Applications of the small-scale and large-scale SOTER databases in
  Hainan, China
  ZHANG Gan-Lin, GONG Zi-Tong, ZHANG Xue-lei, ZHAO Yu-guo,
  Qi Zhiping, VAN ENGELEN Vincent and MANTEL Stephan

1620 - 1640 Development of world soils and terrain digital databases for South
  Africa
  SAMADI Massoud, BEUKES Hein and REMMELZWAAL Arie

1640 - 1700 ASRIS - Australian soil resources information system
  JOHNSTON R.M., BLEYS E., BARRY S.J., BUI E.N. and MCDONALD W.

1700 - 1720 General discussion and conclusions
# Symposium 45

## Soil carbon dynamics and the greenhouse effect

### Tuesday 20 August 2002

#### Room: Meeting Room 3

#### Morning Session

**Chairs**: KIMBLE John, CHAIROJ Prapai  
**Secretary**: LUANMANEE Suphakarn

<table>
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<tr>
<th>Time</th>
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<tr>
<td>0830 - 0850</td>
<td>Introduction</td>
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| 0850 - 0910 | Influence of land-use management on soil carbon stores in South-western Australia  
*MENDHAM Daniel S., GROVE Tim S. and O'CONNELL Anthony M.* |
| 0910 - 0930 | Soil carbon stocks among natural and manmade land use systems:  
a comparative analysis  
*NAGARAJA M.S., REDDY G.V.P. and RAVINDRANATH N.H.* |
| 0930 - 0950 | Influence of disturbance on soil C dynamics in Canadian boreal forests  
*BHATTI J.S. and APPS M.J.* |
| 0950 - 1010 | Simulation of SOM balance of Eastern Europe arable lands based on  
EuroSOMNET database  
*SIROTENKO Oleg, SHEVTSOVA Lyudmila, ROMANENKOV Vladimir, SMITH Pete, SMITH Jo U., ASHMAN Mark and LEACH Penny* |
| 1010 - 1030 | Break                                                                  |
| 1030 - 1050 | Paired site sampling to estimate soil organic carbon changes  
following land clearing in Queensland  
*HARMS Ben, DALAL Ram and POINTON Shane* |
| 1050 - 1110 | Effects of soil microorganisms on the behavior of CO₂ and O₂ gases  
in soil  
*FUJIKAWA Tomonori and MIYAZAKI Tsuyoshi* |
| 1110 - 1130 | An assessment of potential carbon storage in the soils of France  
*ARROUAYS Dominique, LE BAS Christine, BALESSENT Jérôme and GAILLARD Jocelyn* |
| 1130 - 1150 | General discussion and conclusions                                      |

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

Friday 16 August 2002
Room: Meeting Room 2
Morning Session

Chairs: ESWARAN Hari, VEARASILP Taweesak
Secretary: PANIKORN Vanida

0830 - 0850 Introduction

0850 - 0910 Soil degradation due to heavy metal accumulation under long term fertilization
PALANIAPIAN Muthuvel, SHANMUGAM Kamaraj and PONNUSAMY Santhi

0910 - 0930 Soil degradation and desertification in the Western Sierra Madre of Mexico
GONZALEZ-BARRIOS J.L., DESCROIX L., VIRAMONTES D. and ANAYA E.

0930 - 0950 Degradation of soils in Azerbaijan
BABAYEV M.

0950 - 1010 Characterization of land degradation in Central Argentina with hyperspectral AVIRIS and EO-1 data
HUETE Alfredo, GAO Xiang, KIM Ho Jin, MIURA Tomoaki, BORGHI Carlos and OJEDA Ricardo

1010 - 1030 Break

1030 - 1050 Desertification study at life-size scale: human-soil interactions on land degradation in semi-arid West Africa
TANAKA Uera, MIYAZAKI Hidetoshi, NODA Etsuko and KOSAKI Takashi

1050 - 1110 Overview of environmental and natural resource degradation of agriculture in Bangladesh
ALI Md. Mahsin and WAKATSUKI Toshikazu

1110 - 1130 Natural restoration of degraded grazing land
ZOEBISCH M. and MASRI Z

1130 - 1150 General discussion and conclusions
Symposium 47

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

Monday 19 August 2002
Room: Meeting Room 4

Morning Session

Chairs: HUANG Pan Ming, VITYAKON Patma
Secretary: VICHIENSANTH Puntipa

0830 - 0850 Introduction

0850 - 0910 Soil minerals and organic components: impact on biological processes, human welfare and nutrition
   HAIIDER K. and GUGGENBERGER G.

0910 - 0930 Maillard reaction catalyzed by δ-MnO_2: a significant mechanism in formation of “unknown nitrogen” in soils
   JOKIC A., SCHULTEN H.R., SCHNITZER M. and HUANG P.M.

0930 - 0950 The effect of organic matter and chemical properties on sulphate adsorption in Chilean volcanic soils
   MORA M.L., SHENE C., DEMANET R. and VIOLANTE A.

0950 - 1010 Factors affecting arsenate adsorption/desorption on/from variable charge minerals and soils
   VIOLANTE Antonio, PIGNA Massimo and RAGUSA Raffaella

1010 - 1030 Break

1030 - 1050 Sequential fractionation of Cu, Zn and Cd in soils in the absence and presence of rhizobia
   HUANG Qiaoyun, CHEN Wenli and GUO Xuejun

1050 - 1110 Impact of soil minerals - organic component - microorganisms interactions on restoration of terrestrial ecosystems
   BOLLAG Jean-Marc, BERTHELIN Jacques, ADRIANO Domy and HUANG P.M.

1110 - 1130 Olive oil mills waste waters and clay minerals interactions: organics transformation and clay particles aggregation
   D'ACQUI Luigi P., SPARVOLI Enzo, AGNELLI Alberto and SANTI Carolina A.

1130 - 1150 General discussion and conclusions
Symposium 48
Development in soil data processing

Friday 16 August 2002

Room: Meeting Room 2

Afternoon Session

Chairs: VAN MEIRVENNE Marc, NILNOND Chairatna
Secretary: KAEWMANO Chuthamard

1400 - 1420 Introduction

1420 - 1440 Determining optimized unit size for clean-up in contaminated soils based on dispersion variance
LEE Dar-Yuan, JUANG Kai-Wei and TSENG Chieng-Chih

1440 - 1500 Modeling spatio-temporal changes in soil salinity and water-logging in Marvdasht Plain, Iran
MOAMENI Aziz and STEIN Alfred

1500 - 1520 Soil inference systems
MINASNY Budiman and McBRATNEY Alex. B.

1520 - 1540 Mapping soil properties from an existing national soil data set using freely available ancillary data
HENGL Tomislav, ROSSITER David G. and HUSNJAK Stjepan

1540 - 1600 Break

1600 - 1620 Assessment of soil thickness spatial uncertainty using simulation techniques
BOURENNANE Hocine and KING Dominique

1620 - 1640 Towards a quantitative assessment of soil organic carbon using proximally sensed digital imagery
VISCARRA ROSSEL Raphael A. and WALTER Christian

1640 - 1700 New approaches to the exploitation of former soil survey data
BORUVKA Lubos, KOZAK Josef, NEMECEK Jan and PENIZEK Vit

1700 - 1720 General discussion and conclusions
Symposium 49
Paleosols as a memory for understanding landscape history and environmental problems

Thursday 15 August 2002
Room: Meeting Room 4

Morning Session

Chairs: BRONGER Arnt, KANYAWONGHA Pornthiwa
Secretary: PHANCHINDAWAN Naree

0830 - 0850 Introduction

0850 - 0910 Pleistocene periglacial slope deposits influenced by geology and relief in the Rhenish Massif, Germany
SAUER Daniela, SCHOLTEN Thomas, SPIES Ernst-Dieter and FELIX-HENNINGSSEN Peter

0910 - 0930 Relict soils as paleoclimatic indicators: examples from the Austrian Alps and the Central Andes
VEIT Heinz

0930 - 0950 Pedogenetic processes in loess sediments in Serbia and Milankovich's astronomic theory
PROTIC N.J. and KOSTIC N.M.

0950 - 1010 Physical, geochemical and mineralogical indicators of aging in quaternary soils of Central Italy
COSTANTINI Edoardo A.C., ANGELONE Massimo and DAMIANI Damiano

1010 - 1030 Break

1030 - 1050 Paleosols and new approaches to paleoenvironment reconstruction
DERGACHEVA Maria

1050 - 1110 Vetusols and Paleosols: natural versus man-induced environmental change in the Atlantic coastal region of Morocco
BRONGER A. and SEDOV S.N.

1110 - 1130 Loess-like deposits at Blayney, South-eastern Australia
HUMPHREYS Geoff S., HESSE Paul P., PETERSON Elizabeth K., CAMPBELL James and CONAGHAN Patrick J.

1130 - 1150 General discussion and conclusions
Symposium 50
Sustainable paddy soil ecosystem: a global challenge

Saturday 17 August 2002
Morning Session

Room: Meeting Room 3

Chairs: CONCEPCION Rogelio N., SAENJAN Patcharee
Secretary: CHIDTHAISONG Amnat

0830 - 0850 Introduction

0850 - 0910 Methane emission from Thai farmers’ paddy fields as a basis for appropriate mitigation technologies
SAENJAN Patcharee, TULAPHITAK Duangsamarn, TULAPHITAK Thepparat, TANGCHUPONG Sompetchai and JEARAKONGMAN Suwat

0910 - 0930 Methane production and population dynamics of acetoclastic methanogens in relation to atmospheric methane in paddy field
CHA WANAKUL Sansanee, CHAI PRASERT Pawinee, KERDCHOECHUEN Orunin, TOWPRA YOONSIRINTHORNTAP and TANTICHAREON Morakot

0930 - 0950 Stable carbon isotope fractionation during methanogenesis in California paddy field
CHIDTHAISONG Amnat, McMILLAN Andrew L. and TYLER Stanley C.

0950 - 1010 The role of organic matter quality in nitrogen cycling and yield trends in intensively cropped paddy soils
OLK D.C. and CASSMAN K.G.

1010 - 1030 Break

1030 - 1050 Nutrient release from straw of three rice (Oryza sativa L.) varieties and the impact on the growth of rice
PANGGA Gina Villegas and BLAIR Graeme J.

1050 - 1110 Dispersion of soil fertility in a field where was consolidated 37 years ago and influence for rice yield
HINATOMI Yoko, OHNISHI Munao and WAKATSUKI Toshiyuki

1110 - 1130 Spatial variability of soil properties and rice yield in paddies: is precision agriculture worth practicing?
YANAI Junta, J.E.E Cheung Keen, UMEDA Miki and KOSAKI Takashi

1130 - 1150 General discussion and conclusions
Symposium 51
Manufactured, amended, and intensively tilled soils and substrates

Friday 16 August 2002
Afternoon Session

Room: Meeting Room 3

Chairs: KOOLEN Jos, KESAWAPITAK Prasat
Secretary: CHUAYBUDDA Rattanachart

1400 - 1410 Introduction

1410 - 1430 Influence of type of organic material on strength of sport turfs
BOS O.F., WOLLESWINKEL A.P. and KOOLEN A.J.

1430 - 1450 Estimating generalized soil-water characteristics from particle size
distribution organic matter content and bulk density
BASSIRANI Nasrollah and GILL G.S.

1450 - 1510 Relationships between mechanical properties, penetration resistance
and bulk density in reconstituted Anthroposols
JEAN-PIERRE Rossignol and DEBAYLE Christophe

1510 - 1530 Usability of brown coal for improvement of physical and water
properties of sandy soil
MACIEJEWSKA Alina and KWIAKTOWSKA Jolanta

1530 - 1540 General discussion and conclusions

1540 - 1600 Break
Symposium 52
Remote sensing for data fusion and GIS as tools in land evaluation and degradation studies

Saturday 17 August 2002
Morning Session

Room: Meeting Room 4

Chairs: ESCADAFAL Richard, POPAN Apisak
Secretary: THANG-BUTRE Denchai

0830 - 0850 Introduction

0850 - 0910 Continental-scale spatial modelling of soil properties
BUI Elisabeth, HENDERSON Brent, MORAN Chris and JOHNSTON Robyn

0910 - 0930 Prediction of the soil organic carbon content at micro-, meso- and macroscales by digital terrain modelling
FLORINSKY Igor V. and EILERS Robert G.

0930 - 0950 Remote sensing and modeling of topsoil properties: a clue for assessing land degradation
FARIFTEH Jamshid and FARSHAD Abbas

0950 - 1010 Quantitative pedogenic approach on soilscapes by relief analysis, geophysics and remote sensing
SOMMER Michael, WEHRHAN Marc, ZIPPRICH Matthias, ZU CASTELL Wolfgang and WELLER Ulrich

1010 - 1030 Break

1030 - 1050 Spectral unmixing versus spectral angle mapper for land degradation assessment: a case study in Southern Spain
SHRESTHA D.P., MARGATE D.E., ANH H.V. and Van DER MEER F.

1050 - 1110 Mapping salt affected areas in Northeast Thailand using LANDSAT - 5 TM data
SLUKCHAN Siamak, KATAWATIN Raengsuk, JANTHOTHAI Krangsuk and WICHAIWIT Po kha

1110 - 1130 A detailed study on GIS aided (soil) "environmental" capacity of Farsala District in Larissa, Greece
LEVENTIS Themistocles and FOTOPOULOU Christos

1130 - 1150 General discussion and conclusions
Symposium 53
Coupled hydraulic and mechanical processes in structured soils: a challenge to define sustainability

Monday 19 August 2002

Afternoon Session

Chairs: HORN Rainer, MAIRAING Warakorn
Secretary: TAKASHIMA Tidarat Risiko

1400 - 1420 Introduction

1420 - 1440 Stress strain effects in structured unsaturated soils on coupled mechanical and hydraulic processes
HORN Rainer

1440 - 1500 Modeling the shrinkage curve of a soil clay matrix
CHERTKOV Victor Ya.

1500 - 1520 Wide range reduction in water permeability by compression and pore-structural change of soils
ISHIZUKA Makiko and MIYAZAKI Tsuyoshi

1520 - 1540 Shearing-induced changes in saturated hydraulic conductivity under different soil conditions
ZHANG Bin and HORN R.

1540 - 1600 Break

1600 - 1620 The results of heat and water transfer study in soil-plant-air system
GERAYZADE A.P.

1620 - 1640 Electrical fields and soil properties
POZDNYAKOV Anatoly and POZDNYAKOVA Larisa

1640 - 1700 Mechanical stability of soils derived from marsh sediments
FLEIGE H. and HORN R.

1700 - 1720 General discussion and conclusions
Symposium 54

Vadose zone management strategies to prevent groundwater pollution

Tuesday 20 August 2002

Morning Session

Chairs : HOPMANS Jan W., SANGKHASILA Kumut
Secretary : JEW Nitirat

0830 - 0850 Introduction

0850 - 0910 Evaporative self-mulching of soil and moisture diffusivity function
GLOBUS A.M., NEUSYPINA T.A. and TOPAZH A.G.

0910 - 0930 Nitrate contamination of groundwater under different anthropogenic activities
THIND H.S. and KANSAL B.D.

0930 - 0950 Effects of pressure and density on the transport of gas-phase chemicals in the vadose zone
ROLSTON Dennis E., ALTEVOGT Andrew S. and WHITAKER Stephen

0950 - 1010 Measurements of convective chemical fluxes in vadose zone by suction controlled lysimeter
KOSUGI Ken'ichirou and KATSUYAMA Masanori

1010 - 1030 Break

1030 - 1050 Development of improved water and nutrient management strategies through strategic modeling
BRISTOW Keith L., HOPMANS Jan W., COTE Claire M., CHARLESWORTH Philip B., THORBURN Peter J. and COOK Freeman J.

1050 - 1110 Model of vadose zone solute transport with root water and solute uptake
SCHOUPS Gerrit and HOPMANS Jan W.

1110 - 1130 Role of ditches on water exchanges between two shallow groundwaters in an agricultural catchment
MAROFI Safar, MOUSSA Roger and VOLTZ Marc

1130 - 1150 General discussion and conclusions
Symposium 55

Improving knowledge about soils and their functions in urban, industrial and mining areas for a better life

Friday 16 August 2002
Morning Session

Room: Meeting Room 3

Chairs: BURGHARDT Wolfgang, TANAVUD Charichai
Secretary: SRISUPHA-OLARN Tanapol

0830 - 0850 Introduction

0850 - 0910 Chemical content of the humic acids from Chernozems of the urbanized territories
BEZUGLOVA Olga and GORBOV Sergey

0910 - 0930 Peculiarities of soil structure in urban, industrial and mining areas and their effects on soil functions
BURGHARDT Wolfgang

0930 - 0950 Urban pollution management using soil and stormwater infiltration devices
HAZELTON P. and BEECHAM S.

0950 - 1010 Long term on-site experiments and mass balances in waste water treatment by multi-soil-layering system
SATO Kuniaki, IHA Yoshihisa, LUANMANEE Supakarn, MASUNAGA Tsugiuki and WAKATSUKI Toshiyuki

1010 - 1030 Break

1030 - 1050 The concept of controlled afforestation of dredged sediment landfills polluted with heavy metals
VANDECASTEELE Bart and DE VOS Bruno

1050 - 1110 Heavy metal load of soils around Mae Moh lignite mining, Thailand
WONGYAI K. and BASHKIN V.N.

1110 - 1130 Development of soil chemistry and element cycles at afforested post-mining sites
SCHAAF Wolfgang

1130 - 1150 General discussion and conclusions
Symposium 56

Soil education and public awareness

Friday 16 August 2002

Morning Session

Chairs : DOSSO Mireille, SUWANNARAT Chairerk
Secretary : THONGYON Raviya

0830 - 0850 Introduction

0850 - 0910 Invited paper
Introducing the concept of soil biological fertility to land managers: a soil biology education program
ABBOTT Lyn, MILTON Nui, MURPHY Daniel and HAQ Krys

0910 - 0930 Soil, support and provision for the plants: a project for the elementary and the high school education
REYES-SÁNCHEZ Laura Bertha and VIDAL JIMÉNEZ Leslie

0930 - 0950 Soil education and public awareness: an international SOS2 campaign
RABAHI Lahmar, DOSSO Mireille and RUELLAN Alain

0950 - 1010 Scientific aspects of the United Nations Convention to combat desertification
TAHOUN Salah A.

1010 - 1030 Break

1030 - 1050 General discussion and conclusions
Symposium 57
Soil properties as influenced by the addition of organic fertilizers and amendments

Tuesday 20 August 2002
Afternoon Session
Room: Meeting Room 3

Chairs: SIMS Tom, LIMTONG Pitayakon
Secretary: LEAUNGVUTIVIROG Chaveevan

1400 - 1420 Introduction

1420 - 1440 Near-infra-red spectroscopy (NIR) for characterisation of plant residue quality: a new approach for predicting decomposition and nitrogen release in agricultural soils
JENSEN Lars S., PEDERSEN Anders, STENBERG Bo, LUNDSTROM Christina, BRELAND Tor A., HENRIKSEN Trond M., PALMASON Fridrik, GUDMUNSON Jon and SALO Tapio

1440 - 1500 Effect of paddy-upland crop rotation with various fertilizations on soil physical and chemical properties
WANG M.C. and YANG C.H.

1500 - 1520 Sewage sludge-coir pith pellets: a source of organic manure
KRISHNASAMY R., SOMASUNDARAM J. and SAVITHRI P.

1520 - 1540 Soil fertility comparison among organic and conventional managed citrus orchards in Sicily
CANALI Stefano, TRINCHERA Alessandra, DI BARTOLOMEO Emanuela, NISINI Luigi, BENEDETTI Anna and INTRIGLIOLO Francesco

1540 - 1600 Break

1600 - 1620 Leaching of nitrogen from manures and inorganic fertilizer
BERGSTROM Lars and KIRCHMANN Holger

1620 - 1640 Enhanced biological cycling of phosphorus increases its availability to crops in low-input sub-Saharan farming systems
AYAGA George and BROOKES Phil

1640 - 1700 Co-application of biosolids and water treatment residuals
O’CONNOR George A. and ELLIOTT Herschel A.

1700 - 1720 General discussion and conclusions
Symposium 58
Soil organic fertilizers and amendments: an outlook on key environmental and sanitary issues

Saturday 17 August 2002
Afternoon Session
Room: Meeting Room 4

Chairs: SEQUI Paolo, PIRIVAPRIN Siangjeaw
Secretary: LEAUNGVUTIVIROG Chaveevan

1400 - 1410 Introduction

1410 - 1430 The application of precautionary principle to soil environmental and sanitary issues
TITTARELLI Fabio

1430 - 1450 Co-compost production from agricultural wastes and sewage sludge
EL-HOUSSEINI M., FAHMY Soheir S. and ALLAME H.

1450 - 1510 Influence of composted manure and salinity on growth and nutrient content of maize tissue
IRSHAD M., YAMAMOTO S., ENJI A.E. and HONNA T.

1510 - 1530 Evaluation of atmosphere CO₂ enrichment from Italian agricultural soils: first results
SEQUI Paolo, BENEDETTI Anna and POMPILI Letizia

1530 - 1540 General discussion and conclusions

1540 - 1600 Break

1600 - 1720 Papers from Symposium 60
Symposium 59(1)
Towards integrated soil, water and nutrient management in cropping systems: the role of nuclear techniques

Monday 19 August 2002
Morning Session

Room: Plenary Hall 1

Chairs: PHONGPAN Sakorn, CHALK Phillip
Secretary: CHUAYBUDDA Rattanachart

0830 - 0850 Introduction

0850 - 0910 Towards integrated soil, water and nutrient management in cropping systems: the role of nuclear techniques
CHALK Phillip, ZAPATA Felipe and KEERTHISINGHE Gamini

0910 - 0930 Use of stable isotopes in assessing belowground contributions to N and soil organic matter dynamics
CADISCH G., NDUFA J.K., YASMIN K., MUTUO P., BAGGS E.M., KEERTHISINGHE G. and ALBRECHT A.

0930 - 0950 Influence of crop rotation and soil tillage system in the organic C balance in an Oxisol (Typic Haplorthox)
URQUIAGA Segundo, SISTI Claudia, SANTOS Henrique dos, KOCHIANN Rainoldo, ALVES Bruno J.R. and BODDEY Robert M.

0950 - 1010 Use of $^{15}$N dilution to study effects of soil temperature on N mineralisation, immobilisation and nitrification
RECOUS S., LUXHOI J., FILLERY I.R.P., JENSEN L.S. and MARY B.

1010 - 1030 Break

1030 - 1050 Isotopic techniques, on-farm methods and simulation: can these help resource-poor farmers on degraded lands
RAMANA M.V., REGO T.J., KUMAR RAO J.V.D.K., MYERS R.J.K., KHADKE K.M., PARDHASARADHI G. and VENKATARATNAM N.

1050 - 1110 Biological N$_2$ fixing capacity of *Gliricidia sepium* and *Calliandra calothyrsus* and impact of alleys of them and reference species on performance of coffee
GUNARATNE W.D.L. and HEENKENDA A.P.

1110 - 1130 Use of $^{35}$S-sulphur to monitor the dynamics and transformations of sulphur in soil
WU Jinshui, SYERS J. Keith and O’DONNELL Anthony G.

1130 - 1150 General discussion and conclusions
Symposium 59(2)
Towards integrated soil, water and nutrient management in cropping systems: the role of nuclear techniques

Monday 19 August 2002
Afternoon Session

Room: Plenary Hall 1

Chairs: CHALIK Phillip, PHONGPAN Sakorn
Secretary: THONGWITY Pensri

1400 - 1420 Introduction

1420 - 1440 Impact of irrigation and fertilization on NO₃ leaching and soil-ground water contamination in Lebanon
DARWISH Talal, ATALLAH Therese, El Khadb M and HAJHASAN Salah

1440 - 1500 Comparison of soil moisture sensors between neutron probe, Diviner 2000 and TDR under tomato crops
HENG L.K., CAYCI G., KUTUK C., ARRILLAGA J. L. and MOUTONNET P

1500 - 1520 Estimating soil erosion using fallout caesium-137 in cultivated land at the watershed of Maximo River, Cuba
BRIGIDO Flores Osvaldo, GANDARILLA Benitez Julio, MONTAVAN Estudia Adelina and BARRERAS Caballero Aldo

1520 - 1540 Use of isotopic techniques for environmental issues in soil science
GERZABEK Martin H, ULLAH Shah M. and HABERHAUER Georg

1540 - 1600 Break

1600 - 1620 Stable sulphur isotope ratio as an indicator of atmospheric sulphur inputs to agricultural systems
ZHAO Fumin and MCGRATH Steve

1620 - 1640 Nitrate retention and nitrogen isotope discrimination in a riparian buffer zone
DEKOND Karel, BOECKX Pascal, VAN CLEEMPUT Oswald, HOFMAN Georges and DE TROCH Francois

1640 - 1700 Innovations in the use of isotopes of sulfur in soil/plant/water/animal studies
BLAIR Graeme, MURAOKA Takashi and TILL Ray

1700 - 1720 General discussion and conclusions
Symposium 60
Comparison of bedrocks, soils, chemical climate and pollution as geomedical factors

Saturday 17 August 2002
Room: Meeting Room 4
Afternoon Session

Chairs: STEINNES Eiliv, JINTAKANONT Suradej
Secretary: THONGYON Raviya

1400 - 1540 Papers from Symposium 58

1540 - 1600 Break

1600 - 1610 Introduction

1610 - 1630 Biogeochemical cycling of iodine and selenium and potential geomedical relevance
STEINNES Eiliv

1630 - 1650 Geologic nitrogen as a non-point source of nitrate in natural waters
DAHLGREN Randy A. and HOLLOWAY JoAnn M.

1650 - 1710 Selenium fertilization and food chain quality
HARTIKAINEN Helmi

1710 - 1720 General discussion and conclusions
Symposium 61
Soil Convention

Tuesday 20 August 2002
Afternoon Session

Room: Meeting Room 4

Chairs: HURNI Hans, ANULUXITIPUN Yuttachai
Secretary: THIANPOPIRIG Samsarits

1400 - 1420 Introduction

1420 - 1440 Current international actions for furthering the sustainable use of soils
HURNI Hans

1440 - 1500 Pedosphere, global changes and environmental quality of soil
ZHAOOieuo

1500 - 1520 A preliminary assessment of the human impact on land systems of the world
ESWARAN Hari and REICH Paul

1520 - 1540 Report on the activities of the IUSS working group: international actions on sustainable use of soil
MEYER Konrad H.

1540 - 1600 Break

1600 - 1620 Building land and soil synergies
MACKENSEN Jens and CHEVALIER Claudiane

1620 - 1640 General discussion and conclusions
Symposium 62
WOCAT: World overview of conservation approaches and technologies

Monday 19 August 2002
Afternoon Session

Room: Meeting Room 4

Chairs: KIMARU Gathiru, SOMBATPANIT Samran
Secretary: THAYMUANG Wipawan

1400 - 1420 Introduction

1420 - 1440 WOCAT in Eastern Africa Region: documenting and disseminating conservation approaches and technologies
KIMARU Gathiru

1440 - 1500 WOCAT program in the Philippines
RONDAL. Jose and LABIOS Romeo

1500 - 1520 WOCAT - a potential tool for conservation education
ZOEBISCH M. and SOMBATPANIT S.

1520 - 1540 Effects of long-term grazing exclusion on controlling soil erosion
MOHAMMADI J., ESKANDARI Z. and VARDANJANI Nosroutallah Esmaali

1540 - 1600 Break

1600 - 1620 Embankment stabilization of reservoirs by vetiver hedgerows and other conservation practices
JAJAWAT S., IMPITHUKSA V., POLIAN P. and PUENGPANICH P.

1620 - 1640 A protocol for large-area diagnostic surveillance of soil degradation
WALSH Markus G. and SHEPHERD Keith D.

1640 - 1700 Digital soil database of Honduras: a decision tool to support improved land use
AYARZA Miguel A., TREJO Marco Tulio, BARRETO Hector and MEJIA O.

1700 - 1720 General discussion and conclusions
Symposium 63

Acid sulphate soil management in tropical environments

Wednesday 21 August 2002

Morning Session

Room: Meeting Room 3

Chairs : COOK Freeman, YUVANIYAMA Jumpol
Secretary : JINTARIDTH Bunjirduk

0830 - 0850 Introduction

0850 - 0910 His Majesty the King's initiation on improvement of acid sulphate soil in Thailand: the Klaeng Din project
  VIJARNSORN Piyarat, ROJANASOONTHON Sonthad and SRIJANTR Phongsan

0910 - 0930 Cropping systems on acid sulphate soils in the central plains of Thailand: constraints and remedies
  CHO K.M., RANAKUMARACHCHI S.L. and ZOEBISCH M.A.

0930 - 0950 Influence of aluminium on soil quality
  THANGAVELU P. and SUBBURAM V.

0950 - 1010 The geochemistry of Australian tropical acid sulfate soils and their environmental hazard
  HICKS Warren, BOWMAN Greg and FITZPATRICK Rob

1010 - 1030 Break

1030 - 1050 A case study on the relationship between the sulfur forms and acidity in acid sulphate soils
  ZHANG Jia'en and WO Shiming

1050 - 1110 Changes of acid sulfate soil properties and water quality as affected by reclamation in a tidal backswamp area
  ANDA Markus and SISWANTO Agus B.

1110 - 1130 Diagenetic and mineralogical processes in acid sulfate soils: implications for environmental significance
  FITZPATRICK Robert, SKWARNECKI Marian, RAVEN Mark, MERRY Richard and BONIFACIO Eleonora

1130 - 1150 General discussion and conclusions
Symposium 64
Rhizosphere research: new challenges for soil scientists in the 21st Century

Friday 16 August 2002
Afternoon Session

Room: Meeting Room 4

Chairs: HINSINGER Philippe, MALA Thongchat
Secretary: LAOSUWAN Pornpana

1400 - 1420  Introduction

1420 - 1440  Roots regulate ion transport in the rhizosphere to counteract reduced mobility in dry soil
STEINGROBE Bernd, LIEBERSBACH Horst and CLAASSEN Norbert

1440 - 1500  Rhizosphere research: a tool for creating phosphorus efficient crop varieties
GAHOONIA Tara Singh and NIELSEN Niels Erik

1500 - 1520  Release of protons/bicarbonate ions in the rhizosphere of two bean genotypes as affected by P deficiency
TANG Caixian, DREVON Jean-Jacques, JAILLARD Benoit, SOUCHE Grard and HINSINGER Philippe

1520 - 1540  Dynamics of rhizosphere-microbial communities as related to root exudation in P-deficient Lupinus albus
MARSCHNER Petra, NEUMANN Günter and KANIA Angelika

1540 - 1600  Break

1600 - 1620  Solid phase metal fractionation as affected by organic matter in the rhizosphere of forested soils
SEGUY Yvonne, COL-ROCHESNE François, GAGNOY Christian, MARTIN Ronald R. and COBRAN George R.

1620 - 1640  Mobilisation of zinc by plants as affected by soil and rhizosphere pH
STRACZEK Anne, LOOSEMORE Nancy, BRAT Jean François, HINSINGER Philippe, Valérie SAPPIN-DIDIER, VANSUTT Gérard and JAILLARD Benoit

1640 - 1700  An approach to study rhizosphere processes under major cropping systems in China
ZHANG Fusuo, SHEN Jianho, LI Long and LIU Xuejun

1700 - 1720  General discussion and conclusions
Symposium 65
Soil functions in the biosphere

Thursday 15 August 2002
Afternoon Session

Room: Meeting Room 4

Chairs: TROFIMOV Sergey Ya., KANGHAE Piboon
Secretary: HOMYAMYEN Kannika

1400 - 1420 Introduction

1420 - 1440 Soil pore space as communication channel between the geosphere, the atmosphere and the biosphere
BLUM Winfried E.H.

1440 - 1500 Soil functions in managed ecosystems: the need for a balance
DE KIMPE Christian

1500 - 1520 Impact of forest plantations on soil functions in the biosphere: case studies in South Africa
ROZANOV Andrei and FEY Martin

1520 - 1540 Entropy based triangle for designing sustainable soil management
OLESCHKO Klaudia, KORVIN Gabor and FIGUEROA Benjamin

1540 - 1600 Break

1600 - 1620 Model estimates of soil organic carbon storage in agricultural land in China
TANG Huaiun, QIU Jianjun, VAN RANST Eric and LI Changsheng

1620 - 1640 Soils as biotic source of nitrous oxide in the biosphere
STEPANOVA L.

1640 - 1700 Soil functions in the biosphere: to what extent ecosystem processes are regulated by soil?
TROFIMOV Sergey, DOROFFEVA Ekaterina, FOKIN Alexey and LUIZIKOV Andrey

1700 - 1720 General discussion and conclusions