

IUSS Bulletin

Bulletin of the International Union of Soil Sciences (IUSS) | November 2008



113



International Union of Soil Sciences (IUSS)

The IUSS Bulletin is the official Newsletter of the International Union of Soil Sciences. It is freely distributed through the IUSS website and a limited number of copies are printed. All contributions are welcome and should be sent to the editor.

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ISSN 0374-0447

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Editorial

The economic turmoil attracts an enormous of media attention – it is a global thing that may affect many of us personally (count your savings and stocks) or professionally (government budget cuts). In my most optimistic moods I think it could make the world more realistic and focus on matters that really matter and are real, and as such it may do some good for our discipline. The media emphasis on stocks, hedge funds or CEO bonuses were never things that could be exploited by the soil science community to justify the need for good soil science and the understanding of our most important natural resource: the soil.

Something else is going as well. There is re-appreciation of agriculture following global issues around food production, animal feed, biofuels, water scarcity and a range of others. Soil science has always had strong with agriculture and if it reacts promptly, the discipline will greatly benefit from that re-appreciation. In many parts of the world it already does and some sort of soil science renaissance is taking place. Years ago soils and soil degradation were seen as the problem hindering development – now soils are part of the solution and not the problem, as Alex McBratney recently put it. Let us hope that the economic turmoil will sooner or later result in the widespread realisation that good soils and good soil information is needed to resolve many of the global issues.

This IUSS Bulletin reflects here and there on these aspects. First a poem on mother earth inspired by the International Year of Planet Earth celebrations. The Year has sparked activities and resulted in media attention in many countries across the globe. This is followed by an extensive report of the IUSS Council Meeting in Brisbane, Australia by Stephen Nortcliff. Various voices in the IUSS emphasise the need for change in the IUSS to keep pace with the rapid change globally. Such change is imperative if the IUSS wishes to remain effective and linked to real world issues. Niek de Wit and Rattan Lal discuss about soil legislation in the EU and the USA – important areas of change that show that soils are on the policy agenda. Raphael Viscarra Rossel from CSIRO in Australia reports on proposal to establish a

global spectral library – new stuff that will appeal to many soil scientists across the world. I think this uniting call falls under soil science *crowdsourcing* and it is something that will enhance our efficiency and global impact. The well-known Five Questions to a Soil Scientist are answered by: Yuji Niino (Thailand), Stalin Torres (Venezuela), Eddy de Pauw (Syria) and Selim Kapur (Turkey). Johan Bouma discusses his three favourite soil science books followed by the recent awards and honours to Dan Yaalon (Israel), Noorallah G. Juma (Canada), Amy Brock, Adrienne Ryan, and Donald Sparks (USA).

This is the first IUSS Bulletin since the early 1970s with no New Publications section. Our colleague and good friend Hans van Baren who has written thousands of short reviews on new soil science publications is seriously ill, and was not able to contribute. I'll include some new books in each IUSS Alert whilst we are looking for a more permanent solution because the New Publications section is often the best read section of the IUSS Bulletin. If you wish to send Hans an e-mail or write him a letter, please send to: Drs. J. Hans V. van Baren, ISRIC – World Soil Information, P.O. Box 353, 6700 AJ Wageningen, The Netherlands, E-mail: hans.vanbaren@wur.nl

Alfred Hartemink

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The Planet Earth

Contribution to the International Year of Planet Earth

1

The Planet Earth came into being
From the womb of the Cosmos
And we from the womb of the Mother Earth.

Birth of the Mother Earth –
Evolution's unique feat in the Universe –
Fertilization of the Universe.

Fertilization of the Universe –
Sprouting of the seeds of Life –
Replication of genes.

Replication of genes –
Flowering of Life, fructification of Life –
Eternity of Life.

Spinning like a top on her axis,
Floating freely in the Cosmos,
Dancing in rhythm around the Sun,
The Planet Earth does away
All the entropy that could
Put our Cosmos in jeopardy.
The Planet Earth puts the whole Cosmos
Into a balance and maintains its Beauty.

All the vibrations of Life
Are reverberating within you.
All the symphony of Life
Is evolving within you.
All the love of Mother Earth
Is prospering within you.
Your balance and that of the Cosmos
Are one and the same.
Your evolution and that of the Cosmos
Are not different.
Your beauty infinite and that of the Mother Earth
Is one and inseparable.
You can preserve your beauty
And the beauty of your Cosmos
By adding to the beauty of the Planet Earth.

2

The Planet Earth
Was borne
To give birth to my mother,
My mother was borne
To give birth to me.
Mother Earth has brought the Evolution
Down to Earth –
The Evolution of eternity.

3

Beneath the blue sky
Prosper eternal love of the Earth.
Earth's love is flowing
In her rivers, in her springs.
Earth's boundless love
Is creating waves in the oceans.

Beneath the blue sky
Prosper eternal love of the Earth.
Earth's love is flowering
In gardens, in forests, in meadows
Love of the Earth mingles with life
As the fragrance does with flowers.

Beneath the blue sky
Prosper eternal love of the Earth.
Earth traps the sun falling on her
And with her green plants rooted in her soil
Prepares food for you.
Plants are her umbilical cord
That feeds you to live and sustain.

Beneath the blue sky
Prosper eternal love of the Earth.
Clouds float, clouds cool
Earth brings down drizzle and rains,
Quenches your thirst
And helps your hopes bloom.

Beneath the blue sky
Prosper eternal love of the Earth.
Earth's love is seen everywhere, in everything,
In the birds flying high,
In the song of a cuckoo,
In the colourful butterflies.

Beneath the blue sky
Prosper eternal love of the Earth.



UN Year of Planet Earth 2008

4

The Planet Earth –
A living organ of the Cosmos,
Responsible for the balance of the Cosmos.
Living Earth with
Such a great responsibility!
Only we can understand
The sweet onus on us,
Only we can understand
Our vital responsibilities
Of enhancing Life on Earth,
Of helping the Earth to preserve
Beauty and balance of our Cosmos!
Only we can understand
The vastness of ours,
The meaning of our responsibility,
The value of our existence.

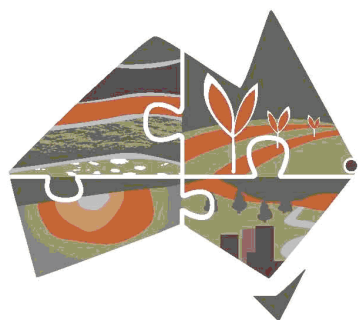
The Earth, we and the Cosmos
Are interconnected with each other.
As the living products of the Cosmic energy
And fed and reared by the Earth,
Only we can know
That we are responsible
For the Earth and for the Cosmos
And that the Earth and the Cosmos
Can live without us
But we can't live without them.

Only we can know
That the Earth is to sustain life
But whether with us or without us
That is the question.

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IUSS Council Meeting Agenda Report

The Senate Room, University of Queensland, St. Lucia, Brisbane, Queensland
IUSS Inter-Congress Council Meeting, 30 June, July 3 and July 4 2008



19th World Congress of Soil Science
Soil solutions for a changing world
BRISBANE AUSTRALIA 1 – 6 August 2010

Part 1

Monday 30 June 2008

The meeting was brought to order by the President, Roger Swift.

During the meeting the following individuals attended for all or part of the time:-

Lyn Abbott, Paul Bertsch, Winfried Blum, Wolfgang Burghardt, Brenda Buck, Flavio Camargo, Jean Chapelle, Doug Chung, Celine Collin Bellier, Martti Essala, Juan Flores-Margez, Jim Gauld, Bob Gilkes, Mike Grundy, Robin Harris, Treruo Higashi, Rainer Horn, Imamul Huq, Dr. Inubushi, Kye-Hoon Kim, John Kimble, Jiri Kulhavy, Alex McBratney, Mike McLaughlin, Neal Menzies, Ahmet Mermut, Erika Micheli, Paolo Nannipieri, Stephen Nortcliff, Marcello Pagliai, Toni Patti, Roland Poss, Steve Raine, Chuck Rice, Sandra Sa, Daniela Sauer, Chris Smith, Roger Swift, Ester Sztejn, Bob White, Larry Wilding, and Jae Eui Yang. 36 Members and Observers present

1. Introduction by the President Roger Swift

The President outlined a series of housekeeping matters including the voting procedure and distributed the voting cards to National Member representatives, Honorary Member representatives and the Executive Committee.

The programme for the week was outlined.

2. Minutes of the Council Meeting in Philadelphia July 2006

The Minutes of the meeting had been distributed and following normal practice were approved electronically. A summary of the key points had been

published in the Bulletin and presented on the IUSS website.

Some items which are linked to these Minutes are included in the published agenda. No additional matters arising from these Minutes were identified, but Members were asked to raise with the Secretary General any further matters that came to light during the day, which will be discussed on Thursday afternoon or Friday morning.


3. The Bureau met in May 2007 in St. Lucia, University of Queensland.

Matters discussed included:

Planning of the 19th WCSS; Divisional activities were discussed in detail; in particular attention was drawn to the lack of any real signs of activity in some Commissions. Following a prolonged period during which there was little response from the Chair of Division 4 an exchange of messages between the President and the Division 4 Chair, the individual involved voluntarily resigned and he was replaced by Lyn Abbott. The current suite of Working Groups was reviewed; a number appeared to be relatively inactive and the recommendation was that Council should consider closing down these WG. Additionally it was noted that there was a considerable overlap amongst the Working Groups and the some of the Working Groups seem to overlap with core Commission activity. Ideally WG should cut across Divisions or Commissions.

The election process was discussed and minor revisions made.

Chairs of Standing Committees were discussed and how the positions should be appointed.



The Bureau supported the proposal to cease printing the Bulletin, but recognised there was a limited need for published copies. IUSS Alerts were commended as an excellent innovation. Outreach activities were reviewed. IYPE, World Soil Council and the logo were discussed.

4. Executive Committee Meeting 29th June

The President outlined the key points raised at yesterday's Council Meeting. Many of the significant matters raised at this meeting will be addressed within the current meeting programme.

5. Report of the Secretary General

Stephen Nortcliff outlined in addition to links with National Members, the activities involving the SG and bodies outside the IUSS environment; increasingly important amongst these is our active involvement with ICSU.

ICSU (International Council of Science) is an organisation which brings together the National Academies and affiliated Unions to support and promote science in a global context. There is sometimes a potential tension within the ICSU 'family', because much of the funding comes from Academies, whilst the science input is predominantly from the Unions. Given the mix of membership of ICSU we have considered it important to have collaboration with other Unions and Academies.

ICSU frequently sends out reports which require a response from members, within IUSS this has principally been the role of the Executive Committee and a small number of members who are willing to review and respond in the often limited time frame available. An increasing but small body of members have indicated their willingness to comment on these reports and their support is recognised and appreciated by the Secretary General.

Within ICSU we are part of an important GeoUnions Grouping. This originally was a grouping to determine the voting groups for representation on the ICSU Executive Board, but in the case of the GeoUnions the activity has significantly widened and the group now meet and communicate across a broad range of matters, some not directly related to ICSU but of common interest to the Unions. The Unions currently involved in addition to IUSS are IUGS, IUGG, IGU, URSI, INQUA, AIU and ISPRS

Two areas in which individual from National Members have supported the IUSS involvement in ICSU activities are: the ICSU initiative on the Science of Health and Wellbeing where Chuck Rice has had and

continues to have a substantial involvement and the ICSU theme on Natural Hazards and Disasters where Ahmet Mermut contributed to a meeting in Paris during November 2007.

Partly as a consequence of our close ties with the ICSU GeoUnions we became a founding member of the International Year of Planet Earth (IYPE) which had been initiated by IUGS. This required a financial commitment, but has been successful in developing the links across the Geosciences and in particular as a focus for some of our outreach activities.

Outreach has been a developing theme during the last two years with both material developed in the context of IYPE and independently. We are pleased to recognise the support of members in translating some of these documents.

6. Report of the Deputy Secretary General, presented by Stephen Nortcliff

The report was in the form of a PowerPoint Presentation and included a review of activities by the Deputy-Secretary General (Alfred Hartemink) with a particular focus on web-based activities.

The Bulletin has long been a bi-annual means by which the Society and then the Union have communicated with members. When membership was by individual subscription rather than by national membership the practice had been to distribute two issues of the Bulletin each year to member. With the inevitable enlargement of the membership this became financially and logistically impracticable. The paper version of the Bulletin continued until Bulletin 111, but with a much restricted print run. The practice had developed that the Bulletin was placed on the IUSS website in pdf format. By 2006 the downloading of the pdf files had far outstripped the number of printed editions. And following an electronic ballot of Council Members it was agreed to switch to predominantly electronic publication of the Bulletin from 112, with a small number of paper versions distributed separately. With the shift to a primary electronic format the layout of the Bulletin has been changed including a move to two column format.

Given that the Bulletin provides an element of archival record of the Society and Union. The decision has been taken to scan the complete set of Bulletins and these are now accessible on the IUSS website.

The *IUSS website* first established in 2001 has developed rapidly and continues to do so (from July

2008 the size of the website has been significantly increased). The format of the website is changing and the amount of information held continues to increase. This appears to be much appreciated by the IUSS membership. There is a large amount of both current and archival material held on the site.

Outreach activities including IYPE have also been a key focus of activities both in paper format (although the aim has been to limit this) and in electronic format. Colleagues are thanked in the assistance provided in translating documents in to a range of languages.

The **Proceedings of WCSS** are a valuable part of the archives of the Union. Many of these documents are of very limited availability. To increase the access all the proceedings of the previous WCSS have been scanned and are accessible on the website. At present they are not indexed. To index the Proceedings the cost would be of the order of €200 000 and it was suggested IUSS should seek to find a sponsor to support this.

Following discussions at the Bureau meeting in May 2007, the DSG presented a series of possible options for new **IUSS logos**. Whilst the logos were illustrations of what might be introduced they were also an opportunity to raise the issue and encourage the membership to think about his matter.

Lyn Abbott proposed (seconded by Larry Wilding) that **'We congratulate Alfred Hartemink on his considerable efforts on developing the website, both in terms of its breadth and its accessibility.'** Approved unanimously.

A new logo?

Discussion on the proposal that we should consider developing a new logo was wide-ranging. Roger Swift reiterated that the Bureau had discussed this in 2007, agreeing that this should be discussed at the Council Meeting in 2008, but had not agreed that the change was necessary. The discussion that followed included the following points.

Roger Swift suggested that we need to consider why we are changing the logo.

Neil Menzies commented that it is often easy to decide that you may be dissatisfied with the current logo, but you need to be very careful in the process of the choice of a new logo which will stand the test of time. Rainer Horn stated that we need to maintain the current logo because it is part of the IUSS identity. Steve Raine stated that the current logo has evolved, but on a theme. Maybe the path forward would be to develop the current logo, changing

colours, adding some additional material. Winfried Blum - reiterated earlier comments that the logo has two functions:

- a. Corporate identity
- b. Outside identity – e.g. within ICSU the logo is well known and recognised.

The changes should be developments on the current logo rather than a completely new logo. During his time as SG he heard no adverse comments on the logo.

Larry Wilding suggested that the way forward was to develop the current logo which has an element of institutional memory. Wolfgang Burghardt expressed his satisfaction with the current logo which he saw as representing soil and life in a global context. Celine Collin Bellier stated that she considered the current logo outdated and lacking dynamism. Stephen Cattle considered the logo as austere and in need of change to something more dynamic. Robin Harris supported the notion of the connection between soil and life as with the current logo. Following this discussion the following motion was proposed by John Kimble (seconded by Ahmet Mermut) **'We keep the broad design of the current logo with modifications; for example changes in colour and possibly shape of the current logo'**

For: 26

Against: 4

7. Report of the Chair of Standing Committee on Budget and Finance

Robin Harris presented a PowerPoint Report Documents tabled:

- a. June 30 Document summarising the position in relation to the budget set for 2008
- b. June 30 Full Member IUSS subscription payments and related member numbers for 2007

Robin Harris reviewed each of the Tables in turn and provided a commentary on the Tables.

Part 1 Membership

With respect to subscriptions RH drew attention to Bye-Law 7.2. Some National Members pay directly related to the declared membership of their National Societies, others pay at rates above the quota determined by their membership numbers.

In relation to Membership dues there was wide ranging discussion, including the following points.

Paul Bertsch (USA) expressed concern about the proportion of IUSS dues paid by NAS, and would hope that some of the other National Members should increase the amount paid in relation to their dues.

Roger Swift highlighted that the number of poor

countries within IUSS is larger than many other Scientific Unions.

Flavio Camargo (Brazil) highlighted that not all Unions are supported by their National Academies so that the funding has to come from payments by members.

Within Group III there may be countries (e.g. China and India) for which the categorisation in Group III may not be appropriate.

In some cases the reported number of members per country probably does not necessarily reflect the true membership (e.g. China).

For non-dollar based countries the weakness of the dollar has been a 'windfall'.

Part 2 Overview of Budget

The effects of currency changes and increased expenses balanced against increased income were noted. Is the Outreach Campaign cost effective? We have to evaluate whether the expenditure on outreach is sustainable and justifiable. The target is for \$120 000 in the chequing account and \$160 000 in deposit.

Rainer Horn reinforced the need to focus on outreach. In Germany a group was established with an industry/soil protection focus, and this has resulted in an increased demand from industry for the services of soil scientist. He also stressed that the DBG receives funds for membership of IUSS from DFG and the amount is limited because of other demands.

Alex McBratney pointed out that the distribution of subscriptions was very unusual and this needs to be addressed. He also reinforced the impact of the US \$, and suggested that we need a 'hedging strategy' in terms of payments, e.g. payment in €.

We also need to think of raising funds from other areas. Erika Micheli drew attention to the use of funds for the benefit of Category III members. We endeavoured to do this in 2006, but our attempts were frustrated by the problems related to visas.

Winfried Blum suggested that we should seek a SG who is fully funded by an organisation. In relation to Outreach the greatest impact often arises when there is a large global problem. Things are changing at the present time in relation to the current food shortage and within Europe the problem of sealing. RSS suggested we need a corps of members who would be willing to act as spokespersons on behalf of IUSS to respond to the media on these issues.

It was suggested that rather than use the GNI we should perhaps use the graduate salary as the basis for determining the category of membership as this would

be a more objective basis related to ability to pay.

J. Kimble (seconded by L. Wilding) proposed the Motion: **'We require the Executive Committee to consider, as a matter of urgency, the fees paid by National Members, in particular the disproportionate contribution from the USA and to bring forward proposals.'**

Carried without opposition.

8. Presentation of the Accounts by the Treasurer Jim Gauld

The Treasurer prefaced his presentation with the following remarks:

A key task during his stewardship of the accounts has been to produce professionally audited accounts.

The financial management of the Union has progressed well because of the close links with Robin Harris (Chair of Budget and Finance).

It is increasingly important to deal promptly with payments and expenditure and to track their progress.

JG presented a PowerPoint presentation outlining the key features of the accounts.

He explained that IUSS runs a \$ account and he would argue against taking a risk with Union money through switching to other currencies (e.g. € or by making potentially risky investments).

Stephen Cattle asked about the Divisional expenditure. It was explained that the decisions on how these funds were to be spent were the responsibility of the Divisions, but that the annual proposals were reviewed by the Treasurer and Secretary General. Before funds were transferred.

Alex McBratney asked whether the Commissions should be expected to run without any funding from IUSS. In response Winfried Blum outlined that in the development of the new scientific structure, the responsibility of supporting the Commissions was considered to be addressed through the Divisions.

Ahmet Mermut outlined that in Division 1 with 6 Commissions allocating \$500 to each Commission would spend 60% of the Division allocation. He noted that in 2007 most of the funds were spent in relation to the activities of the Division Chair.

Rainer Horn considered that in preparing their annual budgets Divisions it was imperative that Divisions seek expressions of potential expenditure from Commissions and Working Groups within their remit for a forthcoming year.

John Kimble that the Bye-Laws outline how the Divisions and Divisional Committees (Divisional Chair and Commission Chairs) use the funds allocated to

the Divisions. The meeting anticipated that the Divisional Committees would be fully involved in the development in the Divisional of the budget and should meet (virtually) at least once per year to develop the Divisional Programme of activities.

Lyn Abbott proposed (seconded by Winfried Blum) that **'The Report of the Budget and Finance Committee and the Audited Accounts be accepted.'**

This was agreed without opposition
Meeting closed at 17.10

Part 2

The Meeting reconvened on July 3 at 11.45 in the Senate Room of the University.

The President welcomed colleagues who were not present at our first meeting.

40 Members and observers were present.

The President proposed that the agenda should be modified with item 7 revisited, then proceed to the normal agenda.

Item 7a. Revision of Fee Structure

The background to the proposals for changes in the subscription rate was outlined by the Secretary General.

'Council increase subscriptions by a factor of 1.25. We would also encourage National Members to increase the numbers of their registered members.'

As riders to this:

- a. We encourage any National Member to make additional payments in accordance with the Bye-Laws. Where membership is paid by the National Academies we would encourage National Members to make additional payments.
- b. We must also ask that National Members to report more accurately their membership numbers, especially where they are understated.
- c. We also note that based on the GNI indicators some Category III countries had now moved in to category II. It was resolved that we should note these adjustments in Country categories and consider amending the associated membership payments in 2009.

This increased income would enable us to continue to promote the outreach programme and enable IUSS to provide increased funds for the Divisions/Commissions activities. In addition there are additional fees payable to organisations such as ICSU.

The Chair of B&F briefly outlined the details of the new proposals with reference to a revised spreadsheet and the earlier documents which had been cir-

culated from the B&F Committee.

The contribution of the USA to the total will significantly reduce.

The President stressed that these proposals were interim proposals until the Council Meeting in 2010.

It was noted that the actual numbers on the tabled document are indicative rather than accurate values. Some points of clarification from Members were provided by the President.

The motion was put to Council and carried.

For: 29

Against 0

Abstentions: 2

9. Report from Chair of Structure and Statutes

Frequency of Meetings

The proposal from ASSI was to hold Congresses every two years.

The Executive considered this proposal and considered that the shift to a two year cycle was an inappropriate move. We noted that in the ISSS days the Commissions were active in holding substantial international meetings during the period between Congresses.

Winfried Blum noted that we have a number of active regional groups which hold meetings, for example: Latin American Group, East and SE Asian Group, African Group, East African Group, West African Group, European Confederation of Soil Science Societies.

Rainer Horn requested that more details of meetings of other ICSU Unions should be reported on the IUSS websites.

Alex McBratney asked at what sort of level we expect change to take place in our discipline. In the 21st Century changes take place much more rapidly than in previous years and as a consequence the meetings should be more frequently.

Martti Essala suggests that increasing the frequency would increase the costs to members and probably reduce the attendance. The more formal involvement of regional groupings perhaps should be considered by the Executive Committee and the Committee on Structures and Statutes.

Stephen Cattle proposed (seconded by Ahmet Mer-mut) **'Council make the necessary arrangements to move to a two year cycle for WCSS meetings'**

For 2

Against 28

Rainer Horn proposed (seconded by Jean Chapelle) **'Council reiterates and wishes to ensure that Divisions, Commission and Working Groups should have at least one international meeting between WCSS.'**

For: 30

Against: 0

(It was noted that the funding allocated to Divisions and Commissions might be dependent upon the completion of these meetings).

Stephen Cattle proposed (seconded by Paul Bertsch) that **'The Executive Committee develop a full proposal for submission to Council to provide the necessary procedures and changes to Statutes and Bye-Laws and financial implications for the position of President to be elected separately from the hosting of the Congress.'**

For: 27

Against: 0

Abstentions: 3

There was a range of discussion on this topic; most expressions were in favour of this proposal, although there were differences in the details of how it might work. There was some concern that the removal of the Presidency of the hosting country might have some negative consequences in relation to the standing of the organisers of the host country, and may affect their fund raising activities. Neal Menzies pointed out that when Australia set up its committee to obtain the approval to hold the WCSS there was not any feeling of an necessary direct 'tie up' to the Presidency and much of the local support as obtained well in advance of having the Presidency.

It was noted that if this change was to occur a proper title and role (Vice President) on the Executive Committee should be defined for the senior representative from the host country.

The meeting adjourned for lunch at 13.30 and reconvened after lunch.

Cycle of post holder

This will be included in the proposal to review the Presidency.

Task Forces

The President be allowed to appoint 'Task Forces' to undertake activities such as Search Committees. These will be time limited to undertake a specific task. (This would be addressed by an amendment to the Bye Laws).

Winfried Blum proposed (seconded by Larry Wilding): **'The President or Council be able to create 'Task Forces' to advise for specific purposes for specific lengths of time.'**

For: 31

Against: 0

The Meeting agreed to the notion of producing a set of informative Appendices to the Statutes and Bye-Laws on matters such as submissions for Host Countries of WCSS, expectations of Commission Chairs, duties of Secretary General, Deputy Secretary General, etc.

John Kimble was thanked for his report and continuing work on matters related to Statutes and Structures.

10. Reports from Divisional Chairs

Division 1 – Ahmet Mermut (Chair of Division)

The general structure and outline of the Division was presented, with its 6 Commissions.

A list of meetings which have taken place or will take place in the near future linked to the Divisional activities was outlined (these are available on the IUSS website).

The proposed WG on Global Soil Change was outlined.

The use of funds to support individuals from Cuba and Africa to attend meetings hosted by Commissions within the Divisions, plus some support for 5 PG students to attend the Soil Micromorphology Meeting in China in September 2008.

The Division has also supported development of Commission websites.

The Symposia for the WCSS in 2010 was outlined.

The proposal for Divisional medals/awards raised by this Division was discussed later in the meeting.

Division 2 – Chris Smith (Second Vice Chair)

A brief summary of selected activities was presented (again details of meetings are provided on the IUSS website).

The procedures for arriving at the nomination of candidates as Officers in Division 2 was presented.

Overview of the proposed Symposia for the WCSS has highlighted some overlap and these proposals will be revised in the light of the discussions during the meeting here.

It was stressed that through the Division there are attempts to strengthen links between IUSS and The Soil Systems Group in European Geophysical Union. The Soil Mineralogy Commission probably needs to strengthen its links with unions and scientific organisations outside IUSS.

For the Symposia in 2010 it was suggested that it might be appropriate to have a sessions across the subjects of soil-water-energy, and there probably needs to be a refocusing of the topics in some cases. Within the Division there had been suggestions for a Soil Physics Awards (these Divisional Award Proposals were discussed later). It was proposed that each Commission should present an award for the best

poster within the Poster Symposia within their remit at the WCSS in 2010.

In discussion it was noted there appeared to be overlap between some of the planned symposia in the Divisions. The Divisional Chairs will meet to discuss the potential overlap.

Division 3 – Wolfgang Burghardt (Chair of Division)

The structure of the Division was outlined with 5 Commissions and 4 Working Groups.

Developing an electoral list proved to be a difficult task, particularly when endeavouring to obtain potential candidates from South and Latin America and the areas of Africa and the Middle East.

The Divisional and Commission proposals for the WCSS Symposia were outlined together with two cross-Divisional proposals. (1. Practical applications of basis soil science; 2. Precision techniques in relation to land use.)

Meetings attended by the Chair on behalf of the Division were outlined.

A list of Commission based meetings were listed, illustrating in part the different levels of activity in the Commissions.

The Division asked for some guidelines on the design of documents and materials to be presented to Council (this would be one of the informative Appendices added to the Statutes and Bye-Laws).

The Division expressed a wish to have dedicated space on the IUSS website. In the ensuing discussion this seemed feasible, but there is a need to ensure that information is kept up to date and topical.

Division 4 – Lyn Abbott (Chair of Division)

The structure of the Division was outlined. Division 4.4 is the least active, 4.5 the most active with a regular newsletter and a book on 'Soil and Culture' to be published in time for the WCSS.

Three of the Commissions are working together in the context of the ASSSI NZSS conference being in New Zealand in December 2008.

The Division has established an Advisory group to guide the activities of the Division and ensure continuity in the activities of the Division and Commissions.

This Division and its Commission functions with links to the public and the press and arrangements to allow this should be made by the organisers.

To meet the obligations of the Division the symposia will include panel discussions in addition to the normal paper presentations.

11. Election Process 2007-8

Stephen Nortcliff made a brief presentation about the election process and the problems arising from some

misunderstandings about the manner in which votes are recorded and forwarded to the SG. It was clear that not all of the submitted results actually reflected the votes cast by members of National Societies.

In the light of the subsequent discussion it was decided that: **T. Miano should be elected Vice Chair of Commission 2.2**

Proposed by Roger Swift (seconded by Winfried Blum)

12. The WCSS 2010

Conference Organisation

The Mike Grundy (Chair of the Organising Committee) presented the broad organisation provisional structure of the meeting from 1-6 August 2010.

'*Carillon*' is the Professional Conference Organising Company supporting the local Organising Committee in the development of the organisation of Congress locations, Accommodation, Management of bookings, etc.. All the information will be on the website www.19wcss.org.au

It is essential that National Members support the dissemination of this information to their members through their own websites and published material.

Sponsorship strategy was to target the 'top 10' sponsors. The Queensland Government has agreed to act as sponsor; a decision from the Federal Government is awaited. Once these are agreed other sponsors will begin to be approached in a cascading manner. There is a range of supporting activities proposed such as a specialist philatelic issue from Australia Post Office. An Art exhibition is planned, and there have been initial enquiries to bring forward part or all of the Smithsonian Soils Exhibition. A broad scientific text on Australian Soils and Landscapes has been mooted, it is hoped to launch a digital version of the Soils Map of Australia.

The Conference Tours are most likely to focus on pre-Conference Tours organised by State Soil Science Societies. There will be a full day tour on the first day of the Conference and a half day mid-conference.

Winfried Blum stated that the mid-Conference excursion might be a whole day, the internet access in the Conference Centre, an approved airline.

Rainer Horn asked about the cost and emphasised the importance of the internet access in the Conference Centre.

Chris Smith asked about the poster sessions, and whether there will be poster sessions as independent entities or directly linked to Symposia.

The proposal is that the cost of the Congress excursions will be included as part of the Conference Fee.

This should encourage participation and also remove a significant financial and planning uncertainty. Questions were raised about the appropriateness of this strategy.

There will be a student registration fee, and there will also be one-day registration fees.

The question was raised whether there will there be crèche facilities for young and slightly older children? It was reported that there has not been a full consideration of this matter, but it may not be financially feasible because of Federal and State laws and regulations.

Science Programme

Neil Menzies presented details of the Scientific Committee who are drawn from across Australia and stressed that the local Science Committee's role is one of co-ordination of the Divisional Committees suggestions.

Each day will begin with a Plenary Session to address the key themes of the Congress. It is proposed that one of the key speakers in these sessions will be from outside Soil Science and there will then be a talk by a Soil Scientist in response to the first speaker.

There might be a need to think more carefully about the programme on a particular day, for example focusing on one day a series of symposia which might have relevance to the press, the non-soil science scientists or the general public.

Poster Sessions – It was the opinion of many that in Philadelphia the poster sessions and associated presentation theatres did not work particularly well. The current suggestion is that the poster sessions will be linked to tea, coffee or beer times to encourage the involvement of participants. There will be some encouragement for poster presenters to present (format not yet defined) in a verbal manner the information in their poster.

Currently the broad structure of the week is 9 Plenary Sessions; 8 Divisional Symposia; 42 Commission Symposia; 10 Working Group Symposia.

Some lessons have been learnt from colleagues in the USA in respect of the format and timing of Pre-Conference Field Tours. These lessons will inform the planning of the longer pre-Conference tours.

13. Election of Honorary Members

At the request of the President, John Kimble briefly introduced the Statute B7. John highlighted that there were two criteria to be considered when electing Honorary Members:

Great distinction in Soil Science and substantial contribution to IUSS.

The list of Nominations had been previously circulated to all Council Members, additional copies were available.

Taking account of Statute B7, the full list of nominations had been considered by the Executive Committee at its meeting on 29th June and the following were recommended to Council:

Jaume Bech
Christian Feller
Kikuo Kimuiazawa
Kazutake Kyuna
John Ryan
B.A. Stewart
Victor Targulian
Tengiz Urushadze
Gyorgy Varallay
J.S.P. Yadav

Discussion amongst Council Members followed in which all the nominations were considered, in particular, attention was given to the contributions made to IUSS and its activities by the nominated individuals.

Following these discussions it was resolved to proceed to a vote of the Council Members by secret ballot. As a result of the secret ballot the following were elected as Honorary Members of IUSS:

Christian Feller
Kikuo Kumazawa
Kazutake Kyuma
John Ryan
B.A. Stewart
Victor Targulian
Gyorgy Varallay
J.S.P. Yadav


It was noted that Peter Bullock (United Kingdom), who had made a substantial contribution to Soil Science in addition to being very active in ISSS and IUSS had died between the receipt of his nomination and the formal presentation of the proposals at the Council Meeting. Arising from this Council reaffirmed that at the time of election, Honorary Members must be alive. This will be clarified in the Bye Laws.

Although guidance on the format of the nominations had been provided there was still considerable diversity in the style of nominations received. Guidance on the format of a nomination will be provided in an Appendix to the Bye Laws.

14. WCSS 2018

Brasil

Flavio Camargo made a short and illuminating presentation on behalf of the Brazilian Soil Science Society



outlining the activities of the Brazilian Society and the publications of the Society directed at a range of audiences. The proposal has strong support from a wide range of national and Regional bodies scientific, political and commercial within South and Latin America. Within Brasil there are 36 departments of Soil Science and 26 graduate Courses at Masters and Doctoral levels in Soil Science. Brasil faces many environmental problems where the solution lies to a degree in sustainable soil management. Brasil would be very pleased to host the WCSS in 2018.

Italy

Marcelo Pagliai made a presentation on behalf of the Italian Soil Science who wishes to be considered as hosts of the 2018 WCSS in Firenze. The Society has strong support from a number of National Ministries and regional bodies. The excellent Conference facilities available in Firenze were briefly outlined. There is very strong support from other colleagues in the Italian Soil Science Society who have been actively involved in the activities of IUSS. The President thanked Flavio and Marcelo for their brief but informative presentations and looked forward to fuller presentations at the Council Meeting in the 2010 WCSS. The meeting closed at 17.55

Part 3

The Meeting reconvened on July 4 at 09.00 in the Senate Room of the University.

15. The Smithsonian Soils Exhibit and related Outreach activities

Paul Bertsch (Chair of the US Soil Science Committee) drew attention to the Smithsonian Soils Exhibit within the Natural History Museum, 5000 sq. ft. exhibit which is likely to be seen by in excess of 6 million visitors. This will be based at the Smithsonian for 18 months. There is a fund raising campaign to develop a travelling exhibit based on the Smithsonian exhibit. The audience will be split between US nationals and visitors. A launch symposium 'Soil Sustaining Life on Planet Earth' on July 19 is organised by the US National Committee for Soil Sciences and co sponsored by IUSS and SSSA. This event to be held at the National Academy of Sciences in Washington, DC, will include four keynote presentations:- David Montgomery; Dan Richter; Diana Wall; and Rattan Lal. SSSA have developed a children's book based on soil.

It was suggested by the President that IUSS would be interested in promoting the book as an international text, possibly assisting with translations. Within the USA, in late June Resolution 440 was passed in the US Senate which recognised Soil as a key natural resource and Soil Scientists as key workers in the environmental management of the Earth's resources. In addition SSSA has established a Soils Policy Office; there is also a House Soils Caucus which enables soil scientists to inform staff members from Congress and Congressional Officers. SSSA has identified a 'rapid response team' through the SSSA Washington Policy Office to get a list of possible respondees to current scientific and environmental issues.

Council was also informed that the UN Commission on Sustainable Development has been holding a series of technical meetings in 2008. It was interesting to note that soils have featured in these discussions

16. The changing paradigm in Soil Science

Winfried Blum gave a brief presentation of the changing paradigms in Soil Science. He asked how the Soil Science community would respond to the changing focus of Soil Science. During the last 30 years of the last Century the emphasis shifted from a focus in food production towards environmental issues. This development had occurred in USA and also in Europe. The focus was on the protection of natural resources. This paradigm shift towards soils in an environmental context has been reinforced in recent years. It was identified in European political quarters however that we had not addressed sufficiently the 'knowledge-based bio-economy', highlighted by water shortage, food shortage, switch towards a more meat based economy rather than a direct grain based economy and an increased use of biofuels. This is coupled with a continuing growth in population and a shift from rural to urban settlements, which places more stress on the food production economy. In this context there are a number of stresses; food versus fuel; water shortages; energy costs (increasing fertiliser costs); population growth. At present there is an information gap amongst soil scientists in many of these areas; decisions are often taken by economists with little attention towards soil based issues. There is an increasing shift back to soil scientists being concerned with food production whilst at the same time taking account of the broader environmental issues. This fits very well with the theme for the 2010 WCSS.

17. The contributions of Honorary Members.

Stephen Nortcliff presented some of the thoughts sent to him by D.R. Nielsen.

The thoughts are for a much more active involvement of Honorary Members in actions of IUSS. Whilst recognising the substantial contributions made by our Honorary Members Council considered that the contributions were just part of the wide range of contributions.

Council invited a formal proposal from Don Nielsen to be circulated amongst Council Members.

18. Chairs of Standing Committees

The Executive Committee had considered a list of possible nominees for the Chairs of the Standing Committees. These had been noted but the President would continue to seek suggestions before making nominations before the next meeting of Council 2010 Congress John Kimble suggested that a Search Committee seek out a broader regional representation for membership of Standing Committees. The union also needs to consider the role of the other members of the Standing Committees and how their inputs may be optimised. A new Task Force will consider both the roles and responsibilities of the Standing Committees.

Council confirmed Jean Chapelle as a member of the Standing Committee on Structure and Statutes.

19. The position of Secretary General and Deputy Secretary General

The President indicated that he had established a Task Force/Search Committee for these positions with Don Sparks as Chair, with Winfried Blum and Bob Gilkes.

As a first task this group have produce a brief description of the SG position which has been circulated to Council. To date the discussions have been electronic coupled with a 60 minute conference call. In addition to having the appropriate skills, the holder of the position must have the institutional support for the candidate.

The aim is to produce a list of possible candidates by late 2009 which will be circulated.

20. World Soil Day

Stephen Nortcliff outlined the very limited progress towards the formal establishment of World Soil Day. We may need to take further action on this possibly through a different 'political' pathway, although it would be good to maintain the link with the Thai monarchy because of the Royal Family's commit-

ment to soil and soil conservation. Within Germany there is some political progress on moving this issue forward through the Minister of Agriculture in Schleswig Holstein and UBA.

21. Review of Existing Working Groups

Acid Sulphate Soils – Continue

Cryosols – Continue

Digital Soil Mapping – Continue

IASUS – has finished its active life

Land Degradation – At the meeting it was recommended this WG be discontinued because of inactivity. It was subsequently reported that the leadership of this WG and under the new leadership the WG was active and they were organising the 5th International Conference on Land Degradation in Bari, September 2008.

WRB – Continue

Salt Affected Soils – Continue

Forest Soils – Continue

Urban Soils – Continue

Acceptance of these decisions was proposed by Lyn Abbott (seconded by Winfried Blum).

For: 26

Against: 0

22. Proposed Working Groups

Paddy Soils – Establish a new Working Group (For: 26; against: 0)

Rare Soils – Best accommodated within the current Division 4 structure (possibly more accurately described as 'Heritage soils') (For: 26; against: 0)

Proximal Soil Sensing – Establish a new Working Group (For: 24; against: 0; Abstentions: 2).

Global Soil Change – Establish a new Working Group (For: 19; against: 6; Abstentions: 1)

Council considers that this Working Group addresses issues across all Divisions and asks the Divisional Chairs to consider the appointment of WG Officers.

22. The 20th WCSS

Jae E. Yang made a PowerPoint presentation outline the state of current plans for the 20th WCSS.

Council confirmed the appointment of President Elect and Vice-President Elect,

President Elect: Dr. Jae E. Yang

Vice President Elect: Dr. Kye-Hoon John Kim

23. Prizes and Awards

Winfried Blum outlined that within IUSS we have two IUSS prizes the **Dokuchaev Prize** and the **Liebig Prize**, which are awarded every four years on the

recommendation of the Standing Committee on Prizes and Awards.

In addition to these IUSS prizes we have established prizes within Division 1 in Micromorphology (Kubiena Prize) and Pedometrics (Webster Prize).

Divisions 2 and 3 had discussed the development of Commission and Division Prizes. This development was welcomed.

Following discussions on Prizes and Awards it was proposed: **'That we maintain the two main Prizes (Dokuchaiev and Liebig Awards) as IUSS Prizes, but that the other prizes should be managed by the Divisions, with any financial prize and medals funded by the Divisions. IUSS Council would receive reports from the Division and adopt the recommendation made by Divisional Committees.'**

Proposed by Winfried Blum (seconded by Jean Chapelle).

For: 26

Against: 0

These awards would be presented at the WCSS.

24. Co-operating Journals

Stephen Nortcliff briefly outlined the history of the Co-operating Journals within the history of ISSS and subsequently IUSS.

Professor Inubushi (Japan) asked what were the procedures required to propose a Journal be a Co-operating Journal. Specifically with respect to the Japanese Journal of Soil Science and Plant Nutrition, the meeting suggested that there should be a correspondence between the Japanese Soil Science Society, the Publisher of their Journal (Blackwells) and the Secretary General.

25. Nomenclature and Taxonomy

Paul Bertsch on behalf of the US National Committee raised that IUSS on behalf of Soil Science needs to address the problem of our lack of a common language within the Soil Science community, particularly in relation to the taxonomy of soils.

There followed some discussion of the background and structure of the Soil Taxonomy and the World Reference Base, in particular stressing that WRB was originally designed to act as an 'umbrella' for National Soil Classification Systems, rather than as a specific soil classification system.

'Council recommends that IUSS through its WRB Working Group should make steps towards the establishment of uniform definitional observations and criteria and appropriate quantification within the various soil classification systems.'

Proposed by Winfried Blum (seconded by Rainer Horn).

For: 26

Against: 0

26. Council expressed a Vote of Thanks

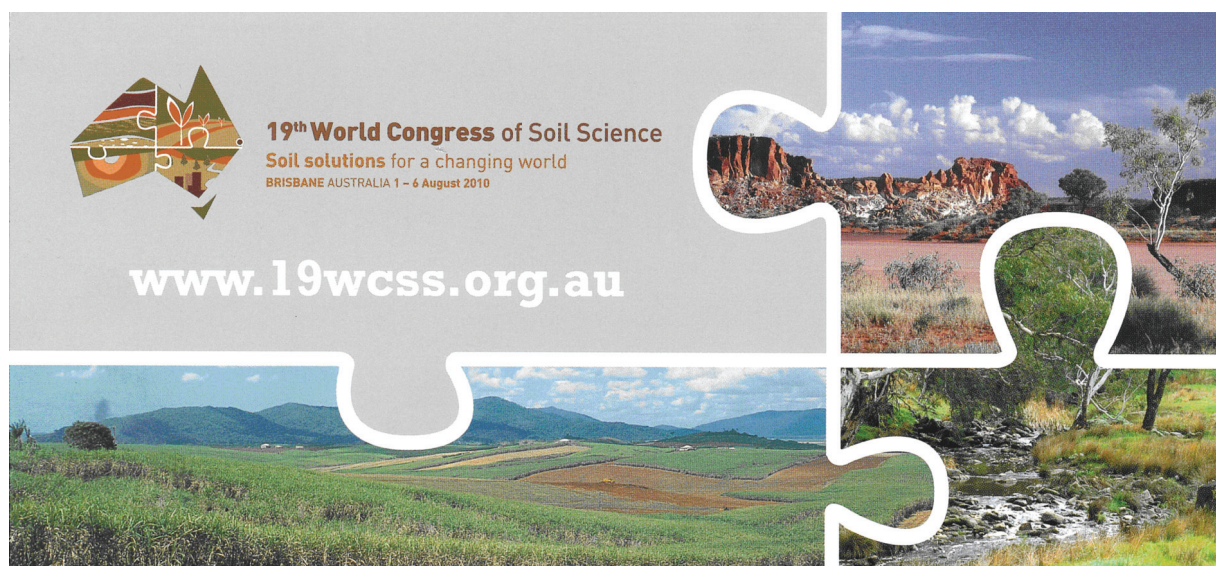
to Peter Kopittke and his colleagues for their support during the meeting.

27. The President thanked colleagues

for their participation in the meeting.

Meeting Closed 12.57.

Stephen Nortcliff,
Secretary General
July 2008, Reading



IUSS Alerts

May – October 2008

International Union of Soil Sciences



Information for and from the global soil science community

IUSS Alerts are e-mailed to more than 12,000 people in over 100 countries. If you have information to share please send it to alfred.hartemink@wur.nl Below are the still relevant contributions that appeared in the IUSS Alerts between November 2007 and April 2008.

Nicely written



Have you ever wondered why so many scientific articles are difficult to read? How can busy scientists find and learn from well-written papers? The Good Paper Journal Club run by *Nature* editors and a group of scientists is a collaborative online effort to help promote good scientific writing. Any scientist can join the group, select papers to be posted on the site and then discuss them online, and highlight the parts considered to be nice written. No soil science papers posted yet!

New portrait of the Earth



A new global portrait has been taken from space details Earth's land cover with a very high resolution. ESA, in partnership with the UN Food and Agriculture Organisation, recently presented the preliminary version of the map to scientists in Italy. This map, which will be made available to the public upon its completion in July, has a resolution 10 times sharper than any of its predecessors. The GlobCover product will be the first freely available product at 300m resolution, for further information click http://www.esa.int/esaCP/SEMZ16L26DF_index_0.html

The Global Earth Observations System of Systems

THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS



The Global Earth Observation System of Systems (GEOSS) is an inter-governmental initiative to achieve comprehensive, coordinated and sustained observations of the Earth system. It aims to improve monitoring of the changing state of the planet, increase understanding of complex Earth processes and enhance prediction of the Earth system. With a focus on access and sharing of Earth observation data and products, there has been significant advancement in the definition of interoperability standards and mechanisms for the allocation and use of data and information products, and in the synergetic system development resulting in improved data access and data sharing. The GEO Web Portal and Clearinghouse aim to provide a single interface for access to GEOSS data and information; and GEONET-Cast, a satellite-based dissemination system, allows users to access real-time, global, Earth observation data and derived information.

Guidelines on Nitrogen Management in Agricultural Systems



This publication is the fourth in the IAEA Training Course Series produced by the Soil and Water Management and Crop Nutrition Sub-Programme. It was conceived as a technically oriented document for a tar-

get audience comprising soil and environmental scientists and technicians, agronomists, ecologists, extension workers, and upper-level undergraduate and graduate students in these disciplines, staff of non-governmental organizations (NGOs) and other stakeholders involved in sustainable agricultural development at local, national, regional and international levels. The manual (237 pp) can be freely downloaded, click http://www.esa.int/esaCP/SEMZ16L26DF_index_0.html

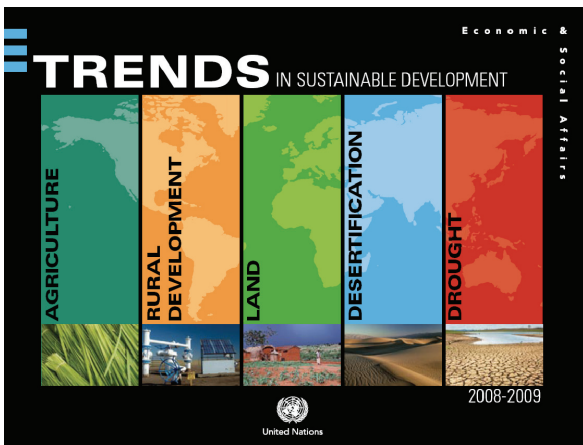
New Newsletter



A new issue of Pedometron - The Newsletter of the Pedometrics Commission of the IUSS – has been published. This newsletter contains: an editorial from the Chair, Murray Lark, Call for Best paper 2007, Report from HRDSSM Sydney, Report from EGU Vienna, Another Journey on the Road

to Pedometrics, Soil Bibliometrics, Headbanging, Statistical Distribution of Humus, Upcoming Events, Alex's Preferred Pedometrics Paper, Book Review, Profiles, and Pedomathemagica. See www.pedometrics.org and all Pedometron are also on www.iuss.org

UN issues 2 reports on the World Food Crises

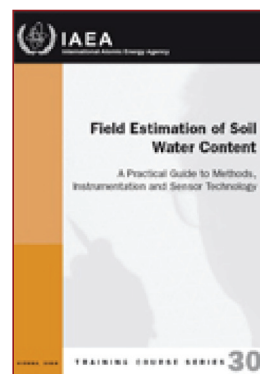


U.N. economists released two reports recently which point toward disturbing long-term trends in Third World agricultural productivity and rural development that are playing a role in the current global food crisis. The two studies found that agriculture spending is four times more beneficial to economic growth than money spent in other sec-

tors. They also show public expenditures and foreign aid directed at farming in the developing world has lagged for decades. The downturn was most acute in sub-Saharan Africa, where agricultural productivity has hardly increased since the 1960s despite rapid population growth. The U.N. experts hope to use the two reports, "Trends in Sustainable Development" and "Trends in Sustainable Development – Africa" to push governments into action and policy changes to help alleviate food price spikes. Report highlights include: Public spending on agriculture, relative to gross domestic product (GDP), has fallen everywhere in the developing world except Asia; the proportion of foreign aid spending directed at agriculture is now at its lowest level ever. Food exports from Latin America have boomed, especially from Brazil. But most nations in the world are now net food importers. East Asia and sub-Saharan Africa have both switched from being net exporters to being importers; Growth in production yields has slowed in much of the developing world, and food subsidies and import tariffs in the United States, Europe, Japan and other developed nations are still impediments to productivity growth in the poorest countries, particularly in Africa. Funding to the consultative group has stagnated since 1990. Only 42 pages and a quite a bit on soils in this report!

Field Estimation of Soil Water Content

A Practical Guide to Methods, Instrumentation and Sensor Technology



This publication is part of IAEA's Training Course Series produced by the Soil and Water Management and Crop Nutrition Sub-Programme. This Guideline is the product of an international study conducted by IAEA comparing the advantages and disadvantages inherent in the various soil water measuring techniques. These techniques include electromagnetic (EM), soil moisture neutron probe (SMNP), electrical resistance and gravimetric methods. The manual (131 pp) can be freely downloaded <http://www-pub.iaea.org/mtcd/publications/Publications.asp?publd=7801>

clusions. Environmental Performance of Agriculture in OECD Countries since 1990 - providing complete coverage of the OECD agri-environmental indicators by environmental themes and across the 30 member countries since 1990. More about this: http://www.oecd.org/document/56/0,3343,en_2649_33793_40374392_1_1_1_37401,00.html

New on the IUSS website

Several new sections have been added to the IUSS website in recent months:

IUSS Bulletins

All IUSS bulletins number 1 (1952) to 112 (May 2008) are now as PDF on the web: 1952-1974 (F.A. van Baren), 1974-1978 (R. Dudal), 1978-1990 (W.G. Sombroek), 1990-2002 (W. Blum).

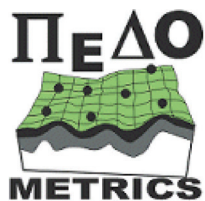
World Soil Congresses

All World Soil Science Congress proceedings have been scanned and are available as PDF. About half of all proceedings are downloadable from the IUSS website – each book is a PDF and the files are sometimes huge (up to 500 Mb). As all PDFs exceed 25 Gb the website is being migrated to another server – eventually it will all be on the IUSS website.

IUSS Information

Pictures and historical documents have been scanned and these include the ISSS reconstruction from 1950, old membership lists, historical accounts and over 50 high resolution pictures from 1909 to 1990.

Best Paper in Pedometrics 2007



Nominations have been made for the, “Best Paper in Pedometrics 2007”. We urge all members of IUSS to examine these papers, and to vote by email to b.minasny@usyd.edu.au with “Best Paper 2007” in the subject line. List the papers by number (as below) in order of preference, with the paper you regard as the most worthy winner listed first. The vote will end on 30th November 2008. Certificates will be presented at *Pedometrics 2009* in Beijing.

1. Kerry, R. & Oliver, M.A. 2007. The analysis of ranked observations of soil structure using indicator geostatistics. *Geoderma*, 140, 397–416.
2. Lark, R.M. 2007. Inference about soil variability from the structure of the best wavelet packet basis.

European Journal of Soil Science, 58, 822–831.

3. Li, W. 2007. Transiograms for characterizing spatial variability of soil classes. *Soil Science Society of America Journal*, 71, 881–893.

4. Viscarra Rossel, R.A., Taylor, H.J. & McBratney, A.B. 2007. Multivariate calibration of hyperspectral -ray energy spectra for proximal soil sensing. *European Journal of Soil Science*, 58, 343–353.

5. Weller, U., Zipprich, M., Sommer, M., Zu Castell, W. & Wehrhan, M. 2007. Mapping clay content across boundaries at the landscape scale with electromagnetic induction. *Soil Science Society of America Journal*, 71, 1740–1747.

The abstracts and PDFs of these papers are available at www.pedometrics.org/best_paper_2007.asp

Some Special Issues

Ecological indicators at multiple scales, Edited by Giovanni Zurlini and Philippe Girardin *Ecological Indicators*, Volume 8, Issue 6, Pages 781-862 (November 2008)

Mercury Cycling and Bioaccumulation in the Environment, Edited by Reed Harris, Karen Kidd and Jamie Shanley *Environmental Pollution*, Volume 154, Issue 1, Pages 1-154 (July 2008)

Radionuclides in soils, 1960 to 2006: A view from the World Congress of Soil Science, Edited by Edward R. Landa and Shigeo Uchida. *Journal of Environmental Radioactivity*, Volume 99, Issue 6, Pages 873-1010 (June 2008)

Soils and Waste Management: A Challenge to Climate Change, Edited by Claudio Mondini, Miguel A. Sánchez-Monedero, Maria Luz Cayuela and Ed Stentiford *Waste Management*, Volume 28, Issue 4, Pages 671-774 (2008)

Modelling Pedogenesis, Edited by S. Cornu, A. Samouëlian and J. Phillips. *Geoderma*, Volume 145, Issues 3-4, Pages 177-504 (15 June 2008)

Antarctic Soils and Soil Forming Processes in a Changing Environment, Edited by James G. Bockheim and Megan Balks. *Geoderma*, Volume 144, Issues 1-2, Pages 1-414 (15 March 2008)

Fire Effects on Soil Properties, Edited by X. Úbeda and J. Mataix-Solera. *Catena*, Volume 74, Issue 3, Pages 175-334 (15 August 2008)

Free access to scientific literature

If your library has no subscriptions to your favourite scientific journals then there are various ways to get to the papers:



TEEAL is a project of Cornell University's Albert R. Mann Library in cooperation with over 60 major scientific publishers, societies and index providers. TEEAL contains: 130+ agricultural journals, Full-text articles, 1993-2008 coverage, Index database, Offline tool (no Internet or phone line required). It works on a stand alone PC or network, more info click <http://www.teeal.org/index.html>



The AGORA program, set up by FAO together with major publishers, enables developing countries to gain access to a digital library collection in the fields of food, agriculture, environmental science and related social sciences. AGORA provides a collection of 1278 journals to institutions in 107 countries. AGORA is designed to enhance the scholarship of the many thousands of students, faculty and researchers in agriculture and life sciences in the developing world, more info click <http://www.aginternetwork.org/en/>

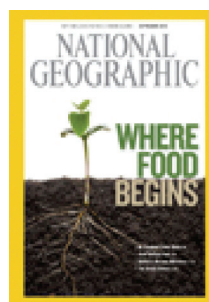


Online Access to Research in the Environment (OARE), an international public-private consortium coordinated by the United Nations Environment Programme (UNEP), Yale University, and leading science and technology publishers, enables developing countries to gain access to one of the world's largest collections of environmental science research. Over 1,300 peer reviewed titles owned and published by over 340 publishing houses and scholarly societies are now available in more than 100 low income countries, more info click <http://www.oare-sciences.org/en/>



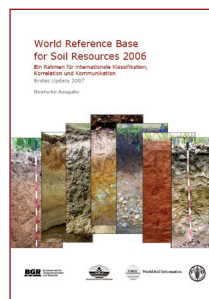
INASP's Mission is to enable a sustainable network of stakeholders that owns and drives access, use, dissemination and communication of research information. As part of the Programme for the Enhancement of Research Information (PERI) publishers and networks of libraries work together to enable access to scholarly information using ICTs within the developing and emerging countries. This project includes: over 20,000 full text online journals, many of the world's leading citation, bibliographic and reference databases, document delivery from over 20,000 research journals, CD-ROM (or DVD) format can be provided where they are available, more info click <http://www.inasp.info/file/105/access-to-journals-and-research-content.html>

National Geographic – cover story on soils



The September issue of the National Geographic Magazine has a cover story on soils, entitled: Where food begins. Inside the magazine there is a long article: "Our Good Earth - The future rests on soil. Can we protect it?" with stories from North and South America, Africa and China and as always, with nice pictures. There is also story on soil degradation in Haiti. Both the article and pictures can be viewed online for free at www.nationalgeographic.com. The website contains also a little interactive quiz, click <http://ngm.nationalgeographic.com/2008/09/soil/quiz-interactive> The English edition of the National Geographic is read by 40 million readers – but there are editions in many languages and all have the Soil story on the cover!

World Reference Base for Soil Resources - Now in German



The World Reference Base for Soil Resources (WRB) became in 1998 the official soil classification system of the IUSS. In order to improve access of the WRB for German speaking scientists and administrators, it was proposed during the 18th World Congress of Soil Science in 2006

to provide a German edition. The Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) decided to prepare such a German version and the translation was done by Peter Schad of the TU München. The German WRB edition is available [here](#), and for a paperback, please send an e-mail to Info@bgr.de or Rainer.Baritz@bgr.de

i-Podsol casts



The US National Academies has an entertaining series of podcasts that puts the spotlight on high-impact work and focuses on a range of critical issues in science, engineering and medicine. A

ten minutes podcast on soil highlights the importance and use of soils and includes an interview with Sally Brown. Regrettably the d**t and soil are tabled again; no other scientific discipline would use such word for its object of study and passion. Anyway, for the podcast click <http://media.nap.edu/podcasts/nax74dirton-soil.mp3>

There are also several podcasts on of the Soil Association, click <http://www.soilassociation.org/podcasts> For some other podcasts on soil click http://www.catchmentknowledgeexchange.net.au/mambo/index.php?option=com_content&task=blogcategory&id=58&Itemid=122 and <https://www.soils.org/podcasts/>.

And if you like the speediest lecture in physics go <https://www.soils.org/podcasts/> and listen to Michael van Drempt in “A fundamental misunderstanding”. Keep listening folks.

Global land cover

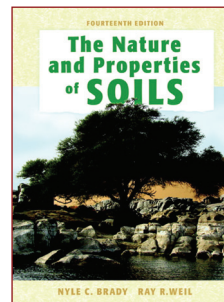


The Global Land Cover Facility (GLCF) provides earth science data and products to help everyone to better understand

global environmental systems. In particular, the GLCF develops and distributes remotely sensed satellite data and products that explain land cover from the local to global scales. Primary data and products available at the GLCF are free to anyone via FTP. Online datasets may be accessed electronically through the Earth Science Data Interface. The majority of users accessing GLCF datasets (certainly not all) come from many communities. GLCF research fo-

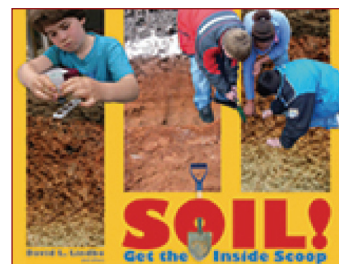
cuses on determining land cover and land cover change around the world. Land cover is the discernible vegetation, geologic, hydrologic or anthropogenic features on the planet’s land surface. These features, such as forests, urban area, croplands and sand dunes, can be measured and categorized using satellite imagery. Land cover change can be assessed by comparing one area with two images taken at different dates. Determining where, when, how much and why change occurs with land cover is a crucial scientific concern. It is imperative that appropriate tools be made available to better manage and adapt to change. More information click <http://glcf.umd.acs.umd.edu/index.shtml>

Couple of new books



Nyle C. Brady and Ray R. Weil. 2008. The Nature and Properties of Soils. 14 ed. Pearson-Prentice Hall. 990 pp. ISBN: 13-978-0-13-227938-3. The 14th edition is thoroughly updated and expanded to include all the important advances in soil science. The

book is accompanied by a companion website available at no extra charge. This website includes practice quizzes with feedback for every chapter, color version of the photographs in the book and annotated hot links to hundreds of relevant soils websites. New features in the 14th edition: In addition to more than 350 two color illustrations, the number of color plates has been increase to 111 high quality full color images that illustrate pedological phenomena, nutrient deficiencies, soil landscapes and soil management practices. More information click http://wps.prenhall.com/chet_brady_nature-andp_14/



The soil Science Society of America has produced a colourful children book on soils, entitled “Soil – Get the inside scoop”. From this book: “Go underground into the living world of soil. Explore how soil is part of our life—the food we eat, the air we breathe, the water we drink, the houses we live in, and how it even helps to control our climate and

protect our rivers and streams. Find out how a soil becomes a soil, why some soils are good for growing things and others are not, why you can pour sand but not clay. Then, take an around-the-world trip and dig into dry soils, wet soils, deep soils, and even frozen soils. Along the way, meet the scientists who work with soil every day. And find out why they think soil is so much fun.” Click here for a PDF with the table of contents, more details see www.soils.org

Climate Change

Do you like blogging and do you like to know more about climate change? Climate Feedback is a blog hosted by Nature Reports: Climate Change to facilitate lively and informative discussion on the science and wider implications of global warming. The blog aims to be an informal forum for debate and commentary on climate science in the Nature journals and others, in the news, and in the world at large. More info click <http://blogs.nature.com/climate-feedback/>

Evaluators of geologically based World Heritage sites



Each year, as an Advisory Body to the UNESCO World Heritage Committee for natural heritage, IUCN (the International Union for Conservation of Nature) is required to evaluate new nominations for the UNESCO World Heritage List. IUCN's year-long evaluation process involves seeking comments from international experts on the global importance and integrity of the nominated sites, whether they are nominated for their geological, biological or scenic values. In the evaluation of geological sites, IUCN works closely with the International Union of Geological Sciences in order to identify expert reviewers that are interested in providing a technical, desk top review of one of the new proposals nominated for geological values. Occasionally reviewers are asked to participate in actual on-site evaluations. Your volunteer input as a reviewer into IUCN's evaluation process will contribute to the conservation of globally outstanding geological heritage as well as to IUCN's efforts to maintain the credibility of the

World Heritage Convention by providing high quality technical advice to the World Heritage Committee. If you would like to be added to the IUGS database of evaluators please contact the IUGS Secretary General (pbobrows@nrcan.gc.ca) with full details regarding your contact coordinates (email, mailing address, telephone, etc.) and a clear indication of your particular area of geo-specialization.



The EU Soil Thematic Strategy: outline and current situation in the debate

by **Niek de Wit**

European Commission, Directorate-General for Environment, Unit B1 - Agriculture, Forests and Soil

Introduction

Soil provides us with food, biomass and raw materials. It serves as a platform for human activities and landscape and as an archive of heritage and plays a central role as a habitat and gene pool. It stores, filters and transforms many substances, including water, nutrients and carbon. In fact, it is the biggest carbon store in the world (1,500 gigatonnes). These functions must be protected because of both their socio-economic and environmental importance.

Soil is subject to a series of degradation processes or threats. These include erosion, decline in organic matter, local and diffuse contamination, sealing, compaction, decline in biodiversity, salinisation, floods and landslides. A combination of some of these threats can ultimately lead to desertification under arid or sub-arid climatic conditions.

Given the importance of soil and the need to prevent further soil degradation, the Sixth Environment Action Programme called for the development of a Thematic Strategy for Soil Protection. On 22 September 2006 the European Commission published the Thematic Strategy for soil protection ('the strategy'). This strategy contains three documents: a Communication, a proposal for a Framework directive and an Impact assessment.

Objective of the strategy

Against this background, the Commission considers that a comprehensive EU strategy for soil protection is required. This strategy should take into account all the different functions that soils can perform, their variability and complexity and the range of different degradation processes to which they can be subject, while also considering socio-economic aspects.

The overall objective is protection and sustainable use of soil, based on the following guiding principles:

Preventing further soil degradation and preserving its functions:

when soil is used and its functions are exploited, action has to be taken on soil use and management patterns, and

when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source.

Restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil.

To achieve these objectives, action is required at different levels – local, national and European. Therefore the Commission proposes establishing a targeted policy to close the gap and ensure comprehensive soil protection. In doing so, the Commission is fully conscious of the need to respect the principles of subsidiarity and of taking decisions and action at the most appropriate level. Soil is a prime example of the need to think global and act local.

Actions and means

The strategy proposed by the Commission is built around four key pillars:

1. framework legislation with protection and sustainable use of soil as its principal aim;
2. integration of soil protection in the formulation and implementation of national and Community policies;
3. closing the current recognised knowledge gap in certain areas of soil protection through research supported by Community and national research programmes;
4. increasing public awareness of the need to protect soil.

Because of the fact that the proposal for a Framework Directive is in the centre of the political discussions, it is described hereafter in further detail.

Legislative proposal

Having examined different options, the Commission proposes a Framework Directive as the best means

of ensuring a comprehensive approach to soil protection whilst fully respecting subsidiarity. Member States will be required to take specific measures to address soil threats, but the Directive will leave to them ample freedom on how to implement this requirement. This means that risk acceptability, the level of ambition regarding the targets to be achieved and the choice of measures to reach those targets are left to Member States.

This recognises that certain threats, such as erosion, organic matter decline, compaction, salinisation and landslides, occur in specific risk areas which must be identified. For contamination and sealing, a national or regional approach is more appropriate. The proposal sets up a framework for adopting, at the appropriate geographical and administrative level, plans to address the threats where they occur.

Erosion, organic matter decline, salinisation, compaction and landslides

Erosion, organic matter decline, salinisation, compaction and landslides are addressed taking the following approach:



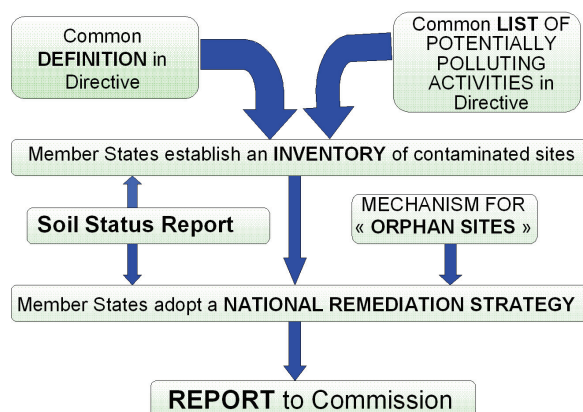
The proposed Directive will require Member States to identify risk areas on the basis of common elements to be taken into account, set risk reduction targets for those areas and establish programmes of measures to achieve them. For identifying risk areas, the Commission encourages Member States to use existing monitoring schemes. Over time a more harmonised monitoring approach and methodology may be developed, exploiting ongoing work of the European Soil Bureau Network on harmonisation of methodologies. Risk acceptability and measures will vary in response to the severity of the degradation processes, local conditions and socio-economic considerations.

Programmes can build on measures already implemented in national and Community contexts, such as cross-compliance and rural development under

the CAP. Member States will be free to combine approaches to combat concurrent threats. This will be particularly beneficial for Member States addressing desertification under the UNCCD and will avoid duplication of effort.

Contamination

With respect to management of contamination, an approach based on the following approach is envisaged:



On the basis of a common definition of contaminated sites (i.e. sites which pose significant risk to human health and the environment), its application by the Member States, and a common list of potentially polluting activities, Member States will be required to identify the contaminated sites on their territory and establish a national remediation strategy. This strategy will be based on sound and transparent prioritisation of the sites to be remediated, aiming at reducing soil contamination and the risk caused by it and including a mechanism to fund the remediation of orphan sites. This is complemented by a soil status report that has to be prepared for the transaction of sites where a potentially contaminating activity has taken or is taking place. The Directive also addresses prevention of contamination via a requirement to limit the introduction of dangerous substances into the soil.


Sealing

In order to achieve a more rational use of soil, Member States will be required to take appropriate measures to limit sealing by rehabilitating brownfield sites and to mitigate its effects by using construction techniques that allow maintaining as many soil functions as possible.

The current situation in the debate

European Parliament

On 14 November 2007 the European Parliament voted its First Reading position, including numerous



amendments to the proposed Framework directive. This position can be summarized as follows.

the European Parliament supports all the objectives for soil protection, preservation, restoration and soil functions as set out in the Commission proposal

the European Parliament supports a package of provisions on the prevention of the soil degradation;

the European Parliament proposes, in addition to the original proposal of the Commission, a package of provisions on the monitoring and identification of soil degradation ('priority' areas for agriculture, identification of contaminated sites);

the European Parliament supports a package of provisions to combat soil degradation, to restoration of degraded soils and on the re-establishment of soil functions, comparable to the Commission proposal;

the European Parliament supports a package of measures, comparable with the original proposal of the Commission to ensure the integration of soil protection into other policy areas as well as public participation and awareness;

Although the text, as adopted by the European Parliament, leaves more flexibility to the Member States in several parts of the directive, all key elements of the proposal of the Commission were maintained. In addition, the European Parliament introduced specific provisions, which strengthen the proposal. Therefore, the text adopted in First Reading by the European Parliament represents an added value as compared to existing EU legislation, thus ensuring a higher level of soil protection.

European Council

Although the German Federal Government initiated discussions on soil protection at the EU level in 1998, and although the German minister for Environment still in July 2006 expressed his support for a Soil Framework Directive, during the preparation of the Council meeting of the Ministers for the environment of 20 December 2007 The German Government decided to vote against the Soil Framework Directive based on the subsidiarity principle, by claiming that soil protection did not legitimize legal action at the EU-level; it should be regulated at the national level exclusively. Moreover, the government succeeded in convincing Austria, the Netherlands, Great Britain and France to form a blocking minority that finally rejected the compromise proposal prepared by the Portuguese presidency.

From these four Member States, like Germany, Austria and The Netherlands referred to the subsidiarity principle, while Great Britain and France based there

rejection rather on the proportionality principle, as well as on technical grounds.

Nevertheless, France was of the opinion that the Portuguese presidency was moving in the right direction and stated that its compromise proposal could serve as a basis for further negotiations. This means that the soil framework directive did not fail completely, but that the negotiations can be resumed, particularly since all 22 remaining Member States requested for a Soil Framework Directive and also the European Parliament position represents a clear vote in favour. Meanwhile, the French Presidency has resumed negotiations in September 2008, based on a new compromise text and with the aim of reaching consensus. They have made it clear though that given the controversies it might take quite some time to reach an agreement. It is therefore at this stage neither clear when the Soil Framework Directive will be adopted, nor what its precise content will be.



The USA Soil Resolution

by Rattan Lal

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As President of the Soil Science Society of America (2007), one of my top priorities was to raise the profile of soil science professions (see CSA News, Sept 2007, V 52, P 11). The global trend since 1970s indicates a strong decline in student enrollment, decrease in number of soil science faculty positions at the academic and research institutions, elimination of soil science departments and graduate programs and their merger with environment programs and other disciplines, and dwindling financial support by both national /bilateral programs and other funding organizations. I felt an important need to enhance awareness about the plight of the soil science professions among policy makers so that some positive measures can be adopted to reverse the declining trends. This can be done by making soil science relevant to the societal needs, using original and innovative ideas in addressing emerging (climate change) and persistent (food insecurity), global issues, developing high quality and credible academic and research programs to attract the best and brightest students, and create strong linkages with other disciplines on themes of mutual interest. The goal has been to revitalize the soil science profession.

I had an opportunity to attend a meeting about carbon dynamics in soils of Scandinavia held in Lillhammer, Norway from 28 Sept to 1st October. During this meeting I learned that the European Parliament is considering adoption of the Soil Protection Resolution. I was able to obtain a copy of the Resolution during my visit to the European Commission in Brussels, Belgium in June 2007 from Mr Luca Marmo. This document provided me an incentive to draft the Soil Resolution specifically relevant to USA. The draft Resolution was given to the President Elect (Dr Gary Peterson, Past President Dr Mary Collins) and the Board of the Soil Science Society of America for review and comments. The revised document was given to Dr Karl Glasener and Ms Caron Gala Bijl, of

the Science Policy Office of SSSA in Washington, DC for further processing. With approval of Ellen Bergfeld and Board of SSSA, Karl and Caron established contacts with Congressional staff and other support groups. Karl and Caron also arranged a meeting for me to discuss the Resolution with Senator Sherrod Brown (D-OH). His staff, Mr Joe Shultz, along with Caron and Karl sought political support from a diverse group in both Houses.

On June 23rd 2008, Senator Sherrod Brown was joined by co-sponsoring Senators (George Voinovich R-OH, Kent Conrad D-ND, Charles Grassley R-IA, Russ Feingold D-WI, Tom Harkin D-IA, and Ken Salazar D-CO) to get the Resolution approved unanimously by the U.S. Senate.

This is a landmark and a historic Resolution. It states that soil is an essential natural resource and soil science professionals are playing a critical role in managing and sustaining it. I am glad that US policy makers have recognized the important role that soils play in improving the environment and as an engine of economic development while advancing global food security. It is also hoped that the Resolution will serve as a role model for similar policies to be adopted by other nations. More importantly, it is hoped that it will strengthen the soil science professions and reverse the declining trends in student enrollment, faculty positions and funding support for research and development.

Below is the text of the Resolution:

110th CONGRESS, 2d Session, S. RES. 440

Recognizing soil as an essential natural resource, and soils professionals as playing a critical role in managing our Nation's soil resources.

IN THE SENATE OF THE UNITED STATES

January 31, 2008

Mr. Brown (For Himself, Mr. Voinovich, Mr. Grassley, Mr. Salazar, Mr. Feingold, Mr. Conrad, And Mr. Harkin) submitted the following resolution; which was referred to the Committee on Agriculture, Nutrition, and Forestry, June 23, 2008, Committee discharged; considered and agreed to:



Resolution

Recognizing soil as an essential natural resource, and soils professionals as playing a critical role in managing our Nation's soil resources.

Whereas soil, plant, animal, and human health are intricately linked and the sustainable use of soil affects climate, water and air quality, human health, biodiversity, food safety, and agricultural production; Whereas soil is a dynamic system which performs many functions and services vital to human activities and ecosystems;

Whereas, despite soil's importance to human health, the environment, nutrition and food, feed, fiber, and fuel production, there is little public awareness of the importance of soil protection;

Whereas the degradation of soil can be rapid, while the formation and regeneration processes can be very slow;

Whereas protection of United States soil based on the principles of preservation and enhancement of soil functions, prevention of soil degradation, mitigation of detrimental use, and restoration of degraded soils is essential to the long-term prosperity of the United States;

Whereas legislation in the areas of organic, industrial, chemical, biological, and medical waste pollution prevention and control should consider soil protection provisions;

Whereas legislation on climate change, water quality, agriculture, and rural development should offer a coherent and effective legislative framework for common principles and objectives that are aimed at protection and sustainable use of soils in the United States;

Whereas soil contamination coupled with poor or inappropriate soil management practices continues to leave contaminated sites unremediated; and

Whereas soil can be managed in a sustainable manner, which preserves its capacity to deliver ecological, economic, and social benefits, while maintaining its value for future generations: Now, therefore, be it *Resolved*, That the Senate:

(1) recognizes it as necessary to improve knowledge, exchange information, and develop and implement best practices for soil management, soil restoration, carbon sequestration, and long-term use of the Nation's soil resources;

(2) recognizes the important role of soil scientists and soils professionals, who are well-equipped with the information and experience needed to address the issues of today and those of tomorrow in managing the Nation's soil resources;

(3) commends soil scientists and soils professionals for their efforts to promote education, outreach, and awareness necessary for generating more public interest in and appreciation for soils; and

(4) acknowledges the promise of soil scientists and soils professionals to continue to enrich the lives of all Americans by improving stewardship of the soil, combating soil degradation, and ensuring the future protection and sustainable use of our air, soil, and water resources.



The Soil Spectroscopy Group and the development of a global spectral library

by **Raphael Viscarra Rossel**

CSIRO Land and Water, Australia
Raphael.Viscarra-Rossel@csiro.au

This collaborative project aims to develop a **global** soil spectral library and establish a community of practice for soil spectroscopy to help it progress from almost purely a research tool to a more widely adopted and useful technique for soil analysis, proximal soil sensing, soil monitoring and digital soil mapping.

The initiative was started in April 2008 and the proposal was for the project to be conducted in a number of stages to investigate the following:

1. global soil diversity and variation can be characterised using diffuse reflectance spectra,
2. soil spectral calibrations can be used to predict soil properties globally and
3. soil spectroscopy can be a useful tool for digital soil mapping.

The soil spectral library is being developed using legacy soil organic carbon (OC) and clay content data and vis-NIR (350-2500nm) spectra, but in the future the group also aims to include mid-IR (2500-25000nm) spectra.

Presently, the group has more than 40 collaborators from six continents and 20 countries (Table 1) and the library consists of 5223 spectra from 43 countries. There are some 193 countries in the world so we only have spectra 22% countries, some of which are poorly represented with only very few spectra (Figure 1). We would like to encourage participation from as many countries as possible and particularly from Central and South America, Russia and Eastern Europe, Africa, Asia and Canada.

The requirements for contributing spectra to the global library are:

- Spectra collected in the range 350 to 2500nm every 1 nm – at this stage preferably using an ASD instrument such as the FieldSpec, Agrispec, TerraSpec, etc.

- Corresponding soil organic carbon and clay data noting what analytical techniques were used
- Coordinates (in WGS84 format) for each sample
- Indication of soil type (preferably WRB classification) for each sample
- Access to the soil samples in the future for mid-IR scanning

If you do not have access to a spectrometer and would like to join the group, we can arrange to have the soils scanned at CSIRO in Australia. We have done this for a number of countries already.

The group and some preliminary results were presented at the 3rd Global Workshop on Digital Soil Mapping in Logan Utah 29 September to 3 October 2008. The presentation can be viewed here.

From this presentation you can see that vis-NIR spectra can be used to say something about soil type. For example if you look at the four clusters, the first group (in red) represents the more organic soils, group 2 and 3 (in green and blue respectively) are more mineral soils and group 4 (in orange) representing the smaller number of calcareous soils from Iran and southern France. The correspondence analysis attempts to show the continents and then the countries that have similar spectra with relation to the four general types of soils identified by the four clusters. The convex hull analysis of the principal component scores (Islam et al., 2003) attempts to measure soil variation by relating the area of the convex hull for each continent/country to the variation in soil OC and clay content. It also shows the differences in the spectra and soil for each continent/country. The calibrations of the spectra to soil organic carbon (RMSE = 1%) and clay content (RMSE 9%) look encouraging, remembering that the dataset includes measurements of OC and clay that were made using different laboratory techniques, in different laboratories and by different people and the instruments used to collect the spectra were also different (although from the same manufacturer). Interested parties from any country are welcome to

Collaborators	Continent/Country
EUROPE	
Bosse Stenberg, Jan Eriksson	SWEDEN
Anton Thomsen, Maria Knadel	DENMARK
Harm Bartholomeus	NETHERLANDS
ISRIC samples	
Antoine Stevens, Valerie Genot, Bas van Wesemael	BELGIUM
Youssef Fouad, Christian Walter	FRANCE (Brittany)
Cecile GOMEZ, Philippe Lagacherie	FRANCE (Herauld)
Cesar Guerrero	SPAIN
Thorsten Behrens	GERMANY
Kristin Boetcher, Thomas Kemper	ITALY
NORTH AMERICA	
David Brown, Ken Sudduth, Newell Kitchen, Brent Myers, Sabine Grunwald	US
Martial Bernoux, Didier Brunet, Bernard Barthes	MARTINIQUE
SOUTH AMERICA	
Alexandre Dematte	BRAZIL
AFRICA	
Keith Shepherd, Andrew Sila	KENYA
ISRIC samples	
Aichi Hamouda	TUNISIA
Martial Bernoux, Didier Brunet, Bernard Barthes	MADAGASCAR
SENEGAL	
ASIA	
Zhou Shi	CHINA
Eyal Ben Dor	ISRAEL
Hakim Absolou	IRAN
OCEANIA	
Raphael Viscarra Rossel	AUSTRALIA
Carolyn Hedley, Bambang Kusumo, Mike Hedley, Mike Tuhey	NEW ZEALAND

Table 1. Names and countries of the participants in the global soil spectral library project

join us in this initiative. For more information please contact Raphael VISCARRA ROSSEL raphael.viscarrarossel@csiro.au

The Soil Spectroscopy Group
<http://groups.google.com/group/soil-spectroscopy>

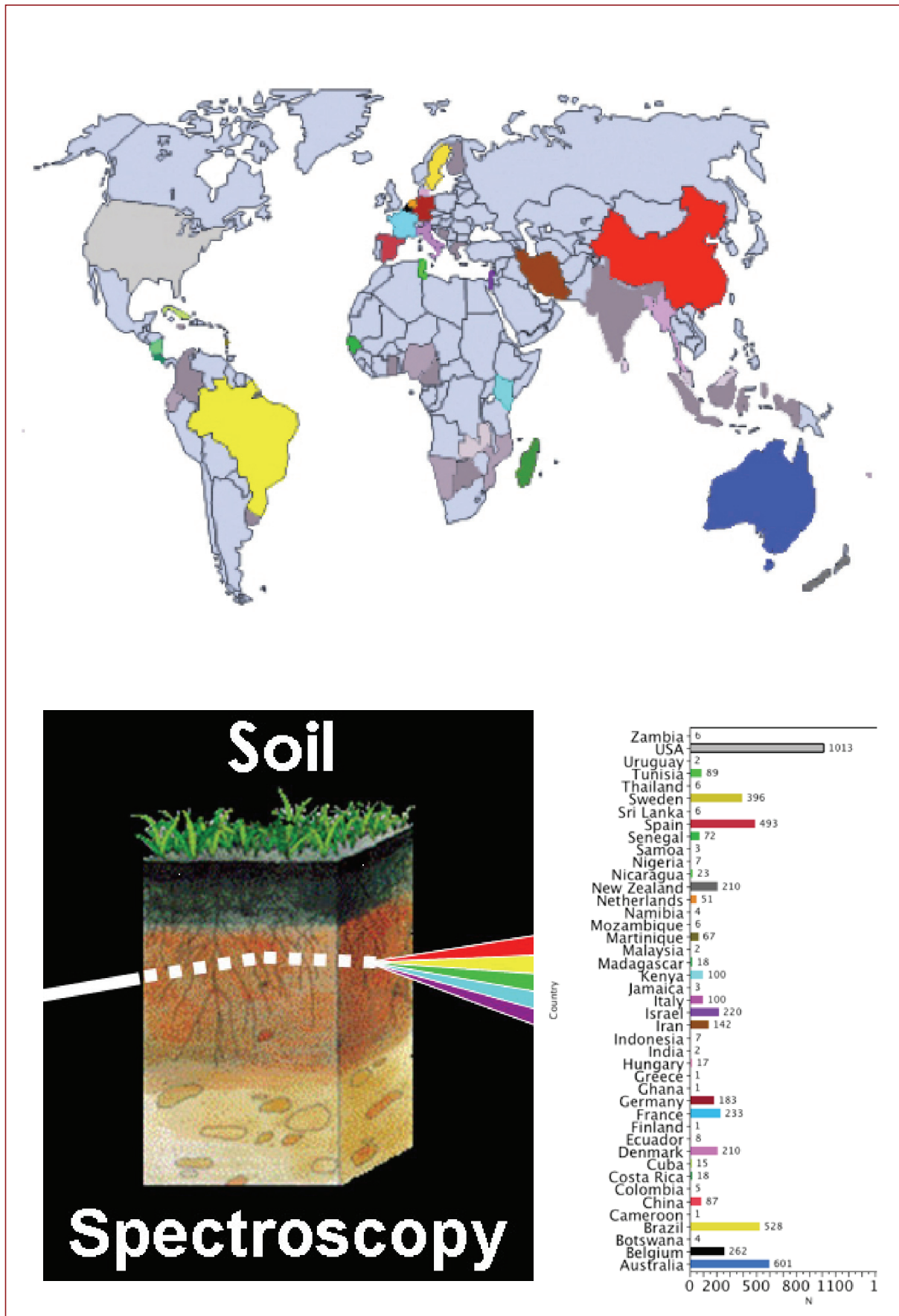


Figure 1. The number of spectra in the global spectral library for each of the 43 countries.

Five questions to a soil scientist

Five Questions to Yuji Niino



Age: 49 years
Position: Land Management Officer, FAO Regional Office for Asia and the Pacific
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Tel. +66-2-697-4213
Fax. +66-2-697-4445
E-mail: Yuji.Niino@fao.org

1. When did you decide to study soil science?

I became interested in soils during my undergraduate studies, but decided to study soil science after serving two years as a volunteer (JOCV/JICA) in Ghana realizing its crucial importance of soil management and conservation for food security in Africa.

2. Who has been your most influential teacher?

There are many who gave me insights and fascination of studying the soil science, but Anthony Juo who provided with the visions of soil science to contribute to farmers in the developing countries led me to my current profession. His philosophy on bringing of equity to this world and struggling to reduce starving people who suffer despite of development of modern technology, science and wealth contributed in understanding and improvement of trop-

ical soil management and the ecological and environmental problems of the world with his holistic approach.

3. What do you find most exciting about soil science?

Soil which sustains life is the most critical natural resource on earth, and its properties are so dynamic and integrated. Understanding soil properties from macro to micro scales which tells us of its history, behaviour and response to the environment and management is quite interesting. Land degradation has been global phenomena and challenging to reverse its trend, but hopefully we may find solutions.

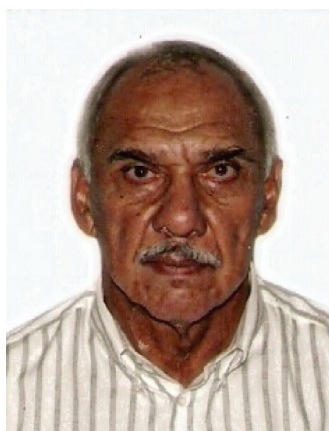
4. How would you stimulate teenagers and young graduates to study soil science?

Soil science is a science of dynamic ecosystems which can be observed in different scales and time with all scientific principles. Thus, its functions, impacts and value in our life and ecosystem to be emphasized in class and field in more visible ways such as microscopic imageries of clay minerals, micro-morphological features, soil water movement, micro fauna, etc. which otherwise not visible and also in macro scale such as land cover changes by satellite imageries. The experiences may help them connected to “unseen” soil properties and interests. Possible attractive soil science majored professions also need to be promoted.

5. How do you see the future of soil science?

It may become more important as it is an interdisciplinary science and the key contributor to address global issues of land degradation, climate change, food security and poverty alleviation. In more local scale, soil, water and atmospheric pollutions and urban agriculture may find soil science as a key component. Certainly recent energy crisis and climate change renewed importance of soil function as a carbon sink and ecosystem regulator.

Five Questions to Stalin Torres



Age: 61 years
Position: Director del Centro de Información y Referencia de Suelos(CIRS). Information and Reference Soil Centre, Chief
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E-mail: torress@agr.ucv.ve; torrespernalete@gmail.com

1. When did you decide to study soil science?

I decided to study Soil Science when I Was finishing my career as an Agricultural Engineer and I started to take some orientation courses related to Soil Science. From that moment on began my interest in that discipline.

2. Who had been your most influential teacher?

My most influential teacher was Antonio Mayorca, who was my Agrology teacher and who just coming from Belgium where he finished his Magister studies. In addition, when I was studying Agronomy I worked with Dr. Juan Comerma, who further influenced my about my interest to study Soil Science.

3. What do you find most exciting about Soil Science?

The fact that I found most exciting was to recognize the meaning of soil as a support of life on the planet earth, besides that it is a very integral discipline that requires the knowledge of subjects such as climate, geology, geomorphology, crops, land use, vegetation, etc.

4. How would you stimulate teenagers to study Soil Science?

The way to stimulate young people is to strengthen the emphasis about the importance of the soil resource in supporting life on the planet, its impact

and importance in aspects as global warming, water production and conservation besides the necessity of preserving the soil for the well being of the future generations as a guarantee of the production of food stuff. We need more innovation practices in the teaching processes.

5. How do you see the future of Soil Science?

The future of our discipline will depend on the effort that each of us can make in our field of endeavor toward a real progress in Soil Science, showing itself as the life saving discipline, studying it more intensively in an integral way including all phenomena in which the soil is involved, particularly everything related to the water cycle and the global warming, the soil as the source and sink (as filter) and not only as a body yielding food. Besides that, a big effort should be made to gain the information that eventually will reach a lot of users and that at the same time it have the possibility to avail the computer's speed and the capability and related technologies as geographic information systems (GIS), to produce useful information for all the users and not only for specialists.


Five Questions to Eddy De Pauw



Age: 59 years
Position: Head, GIS Unit
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1. When did you decide to study soil science?

At the end of my M.Sc studies in geology at the Uni-



versity of Ghent I was clueless about what to do next. At the time the prospects for a fresh geologist were to move to Australia, Canada or South Africa, to hang on at a University, or to become a teacher. I was more interested to work in developing countries and as there were job prospects for soil scientists in UN organizations, I did a M.Sc. in Soil Survey at the ITC for Postgraduate Soil Scientists in Ghent in 1972.

2. Who has been your most influential teacher?

I think that honor should be partitioned between two eminent soil scientists, Prof. René Tavernier and Prof. Karel Sys. As an undergraduate student, Tavernier's enticing earth science lectures convinced me to make a mid-course change from chemistry to geology, and afterwards to get the Soil Survey M.Sc. Later on, at the crossroad between different career options, he persuaded me to take a job in FAO as associate expert soil survey in what was probably the best possible place to start, Southern Sudan. The work of Prof. Sys on land evaluation methods made me realize that soils are important in their own right, but that the information can only be used optimally if combined with other data sources. The basic land evaluation techniques he developed are still used today, and I help my counterparts in national research institutes to upgrade and adapt them to their local conditions and make use of the superb power of GIS.

3. What do you find most exciting about soil science?

My field experience gave lots of opportunities for reality checking the synthetic view from the classroom and the deductive approaches of land evaluation. Interaction with local farmers - participatory methods *avant-la-lettre* - made it obvious that the reality was much more complex than could be glimpsed from the course syllabi. It only started to make sense by taking a more holistic perspective, looking also at climate, terrain, land use and farming systems information and putting it all together using GIS. The evolution from making soil maps to mapping soil properties is a very welcome development. This may revive a somewhat moribund discipline - in many developing countries the discipline is quite literally dying off together with the retired soil surveyors - by integrating local and expert knowledge about soil-climate-landscape-land use relationships with field work, secondary data sources and advanced statistical methods.

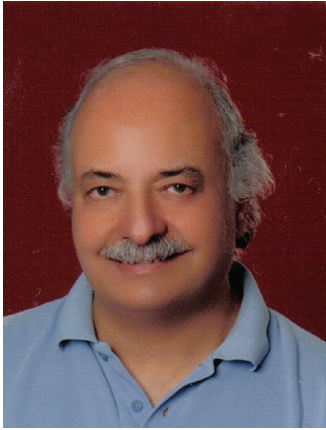
4. How would you stimulate teenagers and young graduates to study soil science?

Putting a soils module into a high school geography curriculum can certainly help teenagers to see it as a key natural resource. As for young graduates, one successful mechanism to hook them onto soil science is through internships in international organizations or research institutes. The latter can provide the students with a research topic that addresses a concrete soil management problem, includes field work, requires interaction with farmers, and offer a supportive work environment and good supervision. Of course, whatever romance with soil science may bloom will only last if there are jobs for soil scientists in the society at large, not just in universities, and that is currently a bit of a problem.

5. How do you see the future of soil science?

I am struck by the fact that in so many countries they still use soil maps from the 60s-70s. With such long depreciation period this indicates that the much belittled systematic soil surveys of the past were not such a bad investment after all. At the same time they point to a need to update this valuable information in its more transient properties, e.g. salinity or soil carbon mapping. So many natural resource management studies are currently flawed by either a lack of soil data or by errors propagating from inappropriately used soil maps. Looking at the possible role of soils in modifying the global carbon source-sink balance, the need to save water and the consequences of land degradation in the context of climate change, especially in the vulnerable drylands, the need for soil information can only grow in the future. The new mapping tools for updating our soil inventories are now in the research stage and could be operational in developing countries 5-10 years from now. But it is going to require a lot of convincing decision-makers that an investment in the rejuvenation of soil mapping will be a good one.

Five Questions to Selim Kapur



Age: 62 years
Position: Professor in the Soil Science Department and Chairman of the Department of Archaeometry
Address: University of Çukurova, Departments of Soil Science and Archaeometry, 01330, Balcali, Adana (Turkey)
E-mail: kapurs@cu.edu.tr

1. When did you decide to study soil science?

As a boy, it was my great lust to play with the mud of the Ankara Clay and wonder why it was that sticky when wet and extra firm when dry as well as being so red-something which still stirs my curiosity. And later it was the second and third 5-year Development Plans of the country, which were mainly concerned with agriculture and primarily with the preparation of the reconnaissance soil maps of Turkey with all foreign aid poring over to soil survey. This was the moment for a life-time decision, it was the mud in the hand and the cash in the pocket.

2. Who has been your most influential teacher?

The star of my ideals in Soil Science has always been my dear teacher Dr. E. A. FitzPatrick (with a capital 'P'). He gave me a tool to lead me in my difficult days that were followed by great satisfaction in the visual world of soils. I later had the opportunity to add to my knowledge from the FitzPatrick School of Thought some highly valuable knowledge from Dr. A. Jongerius (STIBOKA) on soil structure and its significance in soil quality. Dr. Hari Eswaran was the hard teacher who tried in vain to teach me how to make use of what I had learned up to now.

3. What do you find most exciting about soil science?

I have found with time, that with our basic background in soil science and conceptual approach we micromorphologists have obtained in the course of studying all visual properties of soils, we managed to attain a quality in interpreting all microstructural phenomena in a variety of materials from bones to ceramics and from sediments to concrete. This I find highly challenging for the sake of developing the integrated scientific media that would bring together many disciplines in interpreting processes related to changes soils and/or materials encounter. Combating Land Degradation and Desertification is another upcoming topic with a unique impetus in environmental management, which is based on soil security.

4. How would you stimulate teenagers and young graduates to study soil science?

I would encourage the relevant Ministries and the Universities in the country together with TEMA (The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats) to develop educational programs as field trips as well as periodic camps for the youth to learn more on soil science. TEMA has already devoted numerous programs for youths throughout Turkey together with the relevant bodies, which can be good examples to other countries. Among these the ones concerning the amalgamated education of the farmers and the representatives of the youth are of high merit.

5. How do you see the future of Soil Science?

I am highly optimistic in regard of the lead soil science has taken to promote the determination of the indicators of land degradation and desertification and modes of implementation by numerous bodies through international meetings and training. However the peak of the impact foreseen via soil science would be the widespread integration of the components of soil and crop quality to the agendas of the leading world establishments that are fighting land degradation.



The favorite soil science books

Johan Bouma

(The Netherlands)

I start with the Handbook of Soil Science, with Editor in Chief Malcolm E. Sumner of the year 2000 (CRC press). It gives a good overview of the various disciplines and also pays attention to interdisciplinarity, be it in a somewhat classical manner by focusing on various problem areas such as e.g. salinity, erosion and waste application. Some chapters, such as the ones on soil databases could use an update. It would be good to plan an update by 2010! Still, this is a book with lots of interesting information on the entire range of soil science activities

The second one is Methods of Soil Analysis by the Soil Science Society of America (SSSA Book Series :5), where I have affinity with Part 4: Physical Methods, edited by J.H.Dane and G.C.Topp. This was updated in 2006 and contains unique descriptions of an attractive up-to-date array of modern methods to be used in soil research.

The third one is quite different: Daniel J.Hillel. Out of the Earth. Civilization and the life of the soil. Published in 1991,(The Free Press) it still has not lost its relevance as it describes Man's role on God's earth. Lessons of the past logically lead into an analysis of problems of the present. Danny Hillel is a wonderful writer and this book , and some of his newer ones, make good and inspiring reading.

Honors and awards

Dan Yaalon



The distinguished and widely traveled pedologist Dan H. Yaalon from the Earth Sciences Institute of the Hebrew University in Jerusalem, Israel was honored by the Geological Society of America during the Joint Session of GSA and SSSA in Houston, Texas in October 2008 by a Honorary Fellowship of the GSA, awarded annually to one or two non-American-residents for outstanding service to geosciences.

Dan Yaalon is well known for his many contributions on the effect of desert dust to soils and loess during the Quaternary, particularly in semiarid and mediterranean regions. He has been one of the sponsors and leaders of the INQUA and ISSS (now IUSS) Paleopedology Commission which was responsible for the first International Paleosol Symposium in Amsterdam (1970) and he published the 1971 *Paleopedology – Origin, Nature and Dating of Paleosols* book. Later he initiated the History, Philosophy and Sociology of Soil Science Commission of the IUSS (and

IUHS), publishing the first english language book on *History of Soil Science – International Perspectives* (Catena Verlag 1997). Both groups continue to be very active.

Already in 1966 he published in *Soil Science* (with B.Yaron) a paper drawing attention to the need of considering the manifold human induced soil changes in pedology, which is becoming a major topic of current pedological research. Prof. Yaalon has been for many years an editor of *Catena*, *Geoderma*, *Soil Science* and other journals.

Together with his students and colleagues he contributed significantly to the modern study of the soils of Israel.

Noorallah G. Juma



Dr. Noorallah Juma retired after 25 years, as an academic staff member, from the Department of Renewable Resources, University of Alberta. Over his tenure, he taught Soil Microbiology, Soil Biochemistry, Soil Ecology, General Soil Science, Soil Remediation, Soil Fertility, and Environmentally Sustainable Agriculture. To position Soil Science in the context of Earth System Science, he launched 'The Pedosphere and Its Dynamics: A Systems Approach to Soil Science' series with the publication in 1999 of Volume 1 titled '*Introduction to Soil Science and Soil Resources*'. This textbook has web-

based interactivity for enhanced learning. With these activities Dr. Juma has become a global educator.

His research interests are in carbon & nitrogen transformations in soil; simulation modeling of C and N cycling; interactions of microflora and fauna in agroecosystems, nutrient cycling, and soil structure formation. He has published on phosphatase activity of plant roots and soil, N mineralization and immobilization, soil fauna in agroecosystems, root growth and rhizo-deposition, carbon sequestration and greenhouse gas evolution in long-term crop rotations, soil structure redevelopment in eroded soils, and crop growth and microbial activities in soils along toposesquences. He has used stable and radioactive isotope tracers and simulation modelling to determine the flux of C and N in different pools. In 2004, he added an environmental thrust to his research program by studying pressurized at-grade private sewage treatment systems. Thus, he linked Soil Science to Human and Ecosystem Health.

His outreach program is local, regional, and global. He taught 'Introduction to Soils and Soils Resources' to professionals from Industry, Government and the Private Sector through the Faculty of Extension, from 1998 to 2000. He developed the Landscape Ecology Network, and coordinated the Landscape Ecology Seminar Series, sponsored by the Department of Renewable Resources, from 1995 to 2001. His Land-Econet E-mail distribution list is being maintained and used. As part of his continuing efforts to inform society about Soil Science he served for several years as curator of soils collections. In this role he enhanced, to

museum quality, a display of monoliths depicting the Canadian system of soil classification. He digitized the extensive monolith display prepared for the 1978 ISSS Congress in Edmonton, and he archived it with Museum and Collection Services of the University of Alberta. Recently he developed displays of monoliths from Indonesia, Sri Lanka, and Thailand, and complemented these with relevant maps and charts. He prepared an inventory of these, and other, collections for the website of the Department of Renewable Resources.

His web resources at the University of Alberta include his course administrative web sites and research sites such as the University of Alberta Breton Plots. The textbook resides at Pedosphere.com and enables him to address Soil Science problems at a global scale. The internet has allowed him to reach a wide audience from different disciplines and in different parts of the world. He also maintains a number of national and international contacts.

Dr. Juma now holds the status of Professor Emeritus of Soil Science in the Department of Renewable Resources, University of Alberta. He is actively pursuing his interests in global Soil Science education and distance learning. From this perspective, he has just changed computers!

Amy Brock, Adrienne Ryan

The first ever "Young Micromorphologist Publication Award" was presented to 2 young scientists: Adrienne L. Ryan, for her paper: "Do Sand Dunes of the Lower Lachlan floodplain Contain the Same Dust that Produced Parna?" Australian Journal of Soil Re-



Photo: From left to right: Rosa Poch (Chair of Award Committee); Amy Brock, Adrienne Ryan, Brenda Buck (Chair, IUSS Commission 1.1).

search, 2006, 44:769-781; and Amy L. Brock for her paper "New Formation Process for Calcic Pendants from Pahrnagat Valley, Nevada, USA, and Implication for Dating Quaternary Landforms" *Quaternary Research*, 2005, 63:359-367. Adrienne is a Ph.D. Candidate at the University of Sydney, Australia; and Amy Brock is an Assistant Professor at Western Illinois University, USA. These awards were presented at the 13th International Conference on Soil Micro-morphology, Chengdu China, Sept. 11-16, 2008.

Donald Sparks



Donald L. Sparks, S. Hallock du Pont Chair of Plant and Soil Sciences and the director of the Center for Critical Zone Research at UD, has been elected a geochemistry fellow by the Geochemical Society and the European Association for Geochemistry. This significant honor is awarded to less than one percent of the membership of the combined societies each year.

"Our societies bestow this honor upon outstanding scientists who over the years have made a major contribution to the field of geochemistry," said Martin Goldhaber, president of the Geochemical Society and a senior scientist with the U.S. Geologic Survey. Sparks is a leader in the areas of kinetics of geochemical processes and the application of synchrotron radiation techniques to study fate and transport of metals and nutrients in soils and other natural systems.

The Geochemical Society is a nonprofit scientific society founded to encourage the application of chemistry to the solution of geological and cosmological problems. The European Association of Geochemistry was founded to promote geochemical research and study in Europe.

"This is a great honor particularly with a society that is comprised of world class scientists," Sparks said. "I

am honored that my colleagues took it upon themselves to nominate me."

Sparks was nominated by Alexandra Navrotsky, Edward Roessler Chair of Mathematical and Physical Sciences, Director of the Nanomaterials in the Environment, Agriculture, and Technology Organized Research Unity, and distinguished professor of ceramic, earth, and environmental materials chemistry at the University of California at Davis. Navrotsky is also a member of the National Academy of Sciences, according to which she is "known for her difficult and elegant calorimetric measurements of complex oxide compounds and for interpretation and application of the measurements to a large number of problems in Earth physics, chemistry and materials science."

Navrotsky said, "One of my reasons for nominating Professor Sparks is that his research is really unique in terms of applying fundamental geochemistry to very practical environmental problems related to soils, agriculture, pollutant transport and others. Very few people work in both fields."


She added, "From the point of view of the Geochemical Society, showing how what we do is broadly applicable as well as being good science, it is very appropriate for someone such as Dr. Sparks to be honored for such a breadth of scope. The other thing is that in addition to being a great scientist with a world reputation, he's a darn nice guy. He really helps his colleagues and students and is tremendously accessible."

In addition to this fellowship, Sparks is a fellow of the American Association for the Advancement of Science (AAAS)—a very prestigious award. He is also a fellow of the Soil Science Society of America and the American Society of Agronomy, holding the highest honors given by both societies.

Sparks said, "It is nice to be elected as a fellow of your 'home' society, but it is also an honor to be recognized by societies that represent other fields of science."

The Geochemical Fellow program was established in 1996. In addition to Sparks, six other fellows are named this year, bringing the total number of fellows to 164. Other notable past fellows include Robert Berner and Karl Turekian (Yale University), Francois Morel (Princeton University), Jill Banfield and Garrison Sposito (University of California Berkeley), and Michael Hochella (Virginia Tech).

In July, the new fellows will be introduced at the Goldschmidt Conference—the premier international geochemistry conference—in Vancouver, Canada.



The conference is expected to draw approximately 2200 participants from almost 50 countries.

Sparks attended the University of Kentucky where he received a bachelor's degree in agronomy and a master's in soil science. In 1979, he completed his doctoral degree in soil science at Virginia Tech, upon which he moved to Delaware and began working at UD as an assistant professor of soil chemistry.

Sparks said, "I want to acknowledge that I have been extremely fortunate over the years to have a fantastic group of graduate students and post docs who have contributed to our research. Without their efforts, this would not be possible."

"One of my proudest accomplishments was as the recipient of UD's Francis Alison Award," Sparks said. The Allison award is the highest award that a faculty member can receive and is given for distinguished achievements in scholarship and one's profession, teaching, dedication, and services to the university and the mentoring of students.

Sparks was the first recipient of UD's Doctoral Student Advising and Mentoring Award. Sparks said, "This was and is still really meaningful to me, as my work with graduate students has been so fulfilling." To date, Sparks has advised over 70 graduate students and postdoctoral researchers.

In 2002, Sparks was designated as a "highly cited researcher" by the Institute of Scientific Information (ISI). The basic mission of ISI [www.ISIHighlyCited.com] as a database publishing company is to provide comprehensive coverage of the world's most important and influential research. Sparks shares this honor with seven other UD professors: Herbert Allen, civil and environmental engineering; Jack Baroudi, accounting and management information systems; John Boyer (retired), marine and earth studies; Tsu-Wei Chou, mechanical engineering; Dominic DiToro, civil and environmental engineering; David Kirchman, marine and earth studies; and David Mason, food and resource economics.

Sparks has published three textbooks and over 170 refereed papers.

Obituary

Professor Peter Bullock 1937-2008



A leading soil scientist who tirelessly promoted the importance of soil.


Professor Peter Bullock was a hugely distinguished, influential and inspirational soil scientist with a prestigious professional career spanning some 50 years. His professional experience included: soil mapping and land evaluation, soil mineralogy, soil genesis, land degradation and global environmental change. He worked in the UK and the USA as well as visiting some 20 other countries on a professional basis.

Peter Bullock rose to become a leading figure in UK soil science and one who was universally liked and admired by all who knew him. He took over directorship of the Soil Survey of England and Wales at Rothamsted Experimental Station in 1986, at a time when the organisation was threatened with closure, and won its reprieve. This led to its successful transfer to the then Cranfield Institute of Technology two years later. His courageous and charismatic leader-

ship was a major factor in ensuring the continued existence of a research institute focused on English and Welsh soil resources. The National Soil Resources Institute at Cranfield University today is the direct descendant of the Soil Survey of England and Wales. Born in 1937, Peter Bullock developed his early interest in the natural environment studying Geography at Birmingham University. He joined the fledgling Soil Survey of England and Wales (SSEW) in 1958 to work as a soil surveyor during which time he was based in Yorkshire. In 1963, he returned to university to study for a Masters in Agricultural Chemistry at Leeds University. A year later he was awarded a prestigious Fulbright Scholarship which took him to Cornell University to read for his Doctorate in Agronomy, focused on clay translocation in soils. He worked briefly for the United States Department of Agriculture Soil Conservation Service as a field soil surveyor in New York State before returning to the UK in 1967 to take up the position of Head of the Mineralogy Section in SSEW based at Rothamsted Experimental Station in Harpenden. Rothamsted allowed him the opportunity to indulge both his scientific and sporting interests and he was a key and enthusiastic member of the Cricket team for many years.

In his new post, Bullock developed facilities for study of the microscopic structure and morphology of UK soils in support of soil mapping and classification and became a leading world expert in the field of soil micromorphology. He went on to produce, among other things, the first major atlas of soil thin-sections as well as a systematic terminology for their description. He led work on the development of soil thin-section technologies and initiated much of the early work on computerised image analysis of soil micromorphology. Acknowledgement of his widespread expertise in this area saw him become first Secretary-General of the International Commission on Soil Micromorphology and then its President in 1978.

In 1981, Bullock joined the Council of the British Society of Soil Science, cemented his strong association with this society which was to continue



throughout his career. He later served as its President for the years 1995 - 96. Bullock had taken on the wider remit of Head of Research in SSEW when, in 1984, the decision was taken to withdraw funding from the country's main programme of strategic soil mapping. Faced with the imminent closure of SSEW, Bullock was put in charge of a campaign to save the organisation. His single-minded determination and charismatic leadership led to a tapered reduction in funding and a lifeline transfer to the Silsoe campus of Cranfield Institute of Technology, then home to the National College of Agricultural Engineering. He became Director of SSEW in 1986 and then of the Soil Survey and Land Research Centre, following the move to Cranfield in 1987.

Bullock's reputation as a leading and influential soil scientist grew through this period. He chaired the important Natural Environmental Research Council (NERC) Review Committee. In 1988, he became the Chairman of the Heads of Soils Surveys Committee of the European Union a role in which he worked to align the activities of the soil survey organisations across Europe. This led into his chairmanship of the Advisory Committee of the European Soil Bureau in 1996. In 1991, he became a member of the UK Climate Change Impacts Review Group, recognising the role that soil systems have in the wider debate on climate change that was then only just then coming to public awareness.

Bullock's growing influence on governmental and international scientific bodies continued in 1994 when he became a Special Adviser to the Royal Commission of Environmental Pollution (RCEP) in their seminal inquiry into the sustainable use of soil. This was followed by his invitation to join the prestigious Intergovernmental Panel on Climate Change (IPCC) as Coordinator of Impacts on Soils and Land Use. Following on from this he served as a member of the Department of the Environment Climate Change Impacts Review Group. He served as a member of the Governing Body of the Biotechnology and Biological Sciences Research Council's (BBSRC) Institute of Grassland and Environmental Research and he subsequently joined the BBSRC Senior Appointments Review Committee. In 1997, Peter joined the Core Committee of the International Union of Soil Science (IUSS) Working Group on Land Degradation and Desertification.

Upon his retirement in 1997 after eleven years as Director of the Soil Survey of England and Wales and latterly the Soil Survey and Land Research Centre, Bullock was made Emeritus Professor of Soil Science

in Cranfield University. He continued his association with IUSS becoming a member of their Core Committee of the Working Group on Land Degradation and Desertification. In 2005 he was a joint author of a seminal European Commission Publication on the Soil Resources of Europe.

Despite retirement, Bullock retained an active interest in the work of the National Soil Resources Institute at Cranfield. He focused his energy on a number of projects. He was instrumental in the launch of the World Soil Survey Archive and Collection (WOSSAC) – a unique and global repository of soil survey materials collated from over 250 territories worldwide and held at Cranfield University.

Peter's final major contribution was through his work in the development of the widely acknowledged 'Soil-Net' educational Internet portal, a resource aimed at school teachers and their students. His texts have been consulted online by users in hundreds of schools worldwide.


Peter was an ardent sportsman, and in later years supporter of both cricket and football. He became a member of the MCC watching as many test matches as time permitted. He was also a season ticketholder at Luton Town Football Club whose terraces he also often frequented.

S. Hallett

THANK YOU, PETER

I stand beside a soil pit with head bowed. I look at the layers exposed at the edge of this void. What is this void if not a miraculous window into the mysteries of stories contained in the physical, chemical and biological properties of soils? I am reminded that often this is how I pray. I take a sample of soil and hold it in my hand and close my eyes. I am whisked to places I will never visit, to thoughts I've never met, and to sounds from an incomprehensible universe.

Without warning my eyes are flushed with tears of joy and thanksgiving – my soul has reached out to touch that of Peter Bullock. I think I have always loved his soul. Our earthly paths seldom crossed, but mental pathways were welcome encounters. We had been students at Cornell University learning more about how to decipher lessons before our eyes, then as teachers striving to excite others about the stories that stretch one's imagination – histories held a moment in your hand that encompassed tens and hundreds of thousands of years – creations so pow-



erful that held us spellbound. And later we each had the honor of leading national soil survey programs, traveling far and wide, meeting people in many walks of life, and basking in the opportunities to experience tidbits of the terrestrial treasure chest of Pedology.

If you ever met Peter I hope you remember his keen sense of humor and his wonderful laugh – always a memory to brighten your day. Peter was a visionary, a champion of the future, of the right things, and was compassionate. Yes I love the values he held and shared with those who watched and listened. Once on the steps of a city park in Mexico he was talking to my Helen about the tragic journey of their son and the love and pride he was for him, Pat, and Allison. Tears flowed all around as we reveled in God's gifts of family relationships in a universe of eternities.

Now I open wide my hand and eyes, and sense the energy and beauty of having been within the circle of Peter Bullock's influence. We will miss his presence but cherish always his personal touches along that part of his soul's journey. Bless you, our dear friend, and thank you.

Dick Arnold

Reports of meetings

4th Brazilian Symposium on Soil Teaching



Strengthen the soil approach at different educational levels and pay more attention to scientific outreach

Those were the main recommendations from the 4th Brazilian Symposium on Soil Teaching, that happened last May in Piracicaba, São Paulo. The IV Symposium counted 118 participants from different parts of the country and brought together people working on soil subjects at formal and not formal education, including scientific outreach. The IV Symposium happened after an interruption of eleven years and showed a change and widening in its focus: not only soil science teaching at high education, but also, and mainly, soil approaches at basic education. 65% of the posters presented dealt with it, including experiences with teachers updating courses, materials and methods used to approach soils in schools and related spaces. Strong attention was given to the exchange of experiences by means

of presentations, collective discussions, a panel of challenges, small workshops and a field visit. From those exchanges it was already created a discussion group to update and qualify the various actions and activities. Special publications are on way, since an informative bulletin to refereed scientific papers. Also it was indicated the regular continuity of the Symposiums each two years. The V Symposium will be held in Curitiba, at the Universidade Federal do Paraná, that houses the *Solo na Escola* (<http://www.escola.agrarias.ufpr.br>), an extension programme very active among basic education schools. A final document with 16 recommendations was approved and can be consulted at the site of the Brazilian Soil Science Society (www.sbcs.org.br).

Cristine Carole Muggler

Chair of the Soil Science Teaching Commission of the Brazilian Society of Soil Science (cmuggler@ufv.br)

The 5th International Conference on Land Degradation

The 5th International Conference on Land Degradation (5th ICLD) was successfully held at the Mediterranean Agronomic Institute of Bari (MAI-B), Italy in 18-22 September 2008. About 100 participants from 37 countries from around the world attended. Dr.



Participants of the 5th ICLD during the Opening Ceremony held at Fiera del Levante in Bari

Cosimo Lacirignola, director of the Mediterranean Agronomic Institute of Bari and President of the Fiera del Levante welcomed all the participants during the opening ceremony. He paid particular attention to the important role of the decision makers especially in the implementation of scientific results. A total of 43 oral and 50 poster presentations were made covering all continents. Keynote papers were provided by Dr. Luca Montanarella (EC-JRC Ispra, Italy), Prof. Raoul Ponce-Hernandez (Trent University, Canada), Prof. Ahmet Mermut (University of Saskatchewan Canada/ Harran University, Sanlurfa Turkey), Christy van Beek (ALTERRA, The Netherlands), Gerd Dercon (IAEA Vienna, Austria), Sally Bunning (FAO, LADA, Rome, Italy), Dr. Ben Sonneveld (Vrije Universiteit, Amsterdam, The Netherlands), and Prof. Selim Kapur (University of Çukurova, Adana, Turkey).

The theme of the conference: *“Moving ahead from assessments to actions: Could we win the struggle land degradation?”* was thoroughly discussed and debated. The main outcome is that such fight could be won if the right policy instruments are put in place and most importantly when local people stakeholders and decision makers act together. This way it is possible to make a change and to reverse the trend. There are many success stories in the sustainable management of natural resources in the world.

Conference participants agreed that environmental measures, which include interventions in the range

of agricultural, forest, land, water and livestock sectors, should be assessed on both productivity and ecological functions and on the effects they have on ecosystem stability. Soil conservation and restoration should be one component of an integrated ecosystem management strategy that should include also water, biodiversity, livelihoods and human impacts on ecosystems.

A major outcome of the conference was that research findings and their use in scenario development for guiding policy should be validated by long term monitoring systems and addressing land degradation requires consideration of both biophysical and socio-economic aspects since there is evidence that often the latter are determinant, especially in determining land use options. Recent positive trends in reducing soil erosion or improving fertility (notably in the EU countries and the Americas) through protective soil cover, restoring soil organic matter and reducing compaction, provide good examples to be followed in other regions and for addressing other land degradation processes such as chemical degradation for instance. The positive results should be used to further emphasise the urgent needs for further actions worldwide to accelerate and scale up progress and not the opposite to induce complacency.

The Conference draw special attention to the fact that not all soil and water conservation measures work well, as there are plenty of examples of failures due to being ill-adapted in terms of limited impact. Improved land resources management measures should build on scientific evidence, local innovation



From the left: Prof. Selim Kapur, Dr. Pandi Zdruli Dr. Marcello Pagliai and Prof. Angel Faz Cano

and knowledge and be locally tested and validated before being applied at larger scale. Natural resource base should continue be a priority for national Governments and international organisations. Africa and some Latin American countries requires particular attention due to limited resources and research capacities, and evidence of little progress over recent decades to stimulate agricultural and economic growth and to address the cumulative pressures of expanding populations, food insecurity and political instability.

As the International Union of Soil Science has re-established the Working Group on Land Degradation (WG-LD), conference participants have agreed that the WG-LD report primarily to Divisions I and subsequently Divisions III and IV, as well as to the Secretary General of the IUSS. The conference unanimously elected the following individuals to lead the WG-LD: Dr. Marcello Pagliai (Chair, Italy) and Prof. Angel Faz Cano (Vice Chair, Spain), Prof. Selim Kapur (Secretary, Turkey), Dr. Pandi Zdruli (Deputy Secretary, Italy).

An internationally known publisher will publish a special issue of about 30-50 Selected Papers presented during the 5th ICLD. The 6th International Conference on Land Degradation will be held in Egypt in autumn 2111. Finally, great appreciation was expressed for the excellent organisation and warm hospitality shown by the MAI of Bari.

Pandi Zdruli

Marcello Pagliai

Selim Kapur

Angel Faz Cano (WG-LD)

3rd Global Workshop on Digital Soil Mapping

The 3rd Global Workshop on Digital Soil Mapping, "Digital Soil Mapping: Bridging Research, Production, and Environmental Application" took place 30 September through 3 October 2008 on the campus of Utah State University in Logan, Utah, USA (DSM 2008; <http://dsmusa.org>). Digital soil mapping is the generation of georeferenced soil databases by quantitative modeling of field, laboratory, and environmental data. The IUSS Working Group on Digital Soil Mapping (<http://www.digitalsoilmapping.org/>) organizes biennial Global Workshops on Digital Soil Mapping in alternate years with the conferences of IUSS commission 1.5 Pedometrics (<http://www.pedometrics.org/>). DSM 2008 in Utah, USA, followed DSM 2006 in Rio de

Janeiro, Brazil, and DSM 2004 in Montpellier, France. The goal of DSM 2008 was to explore the state-of-the-art in digital soil mapping and to develop strategies for bridging cutting-edge research, production soil mapping, and environmental applications of digital soil data. DSM 2008 attracted 99 participants from 20 countries representing all populated continents. The workshop was kicked off by the field trip on 30 September. About 50 participants traveled from the bottom of Cache Valley to the top of the Bear River Range, exploring the origins of the Basin and Range, the Great Basin, Pleistocene pluvial Lake Bonneville, orographic climate effect and alpine glaciation, the Sevier thrust belt, and the Middle Rocky Mountains. We observed and discussed clayey sodic soils in deep-water deposits of Lake Bonneville, the use of Landsat spectral data for digital soil mapping of saline and wet soils on the shores of the Great Salt Lake, soils illustrating the dramatic effects of aspect on organic matter accumulation and carbonate translocation on steep slopes, the factors influencing rapid cementation of soil horizons by calcium carbonate, and the impacts of aspen (broadleaf) vs. conifer vegetation on soil development. (French visitors were surprised to see Paris and Montpellier from the overlook at the final stop – Paris and Montpellier, Idaho.)

The workshop program spanning 1-3 October was organized into seven session themes (<http://dsmusa.org/programm.pdf>): 1) Evaluating and using legacy data in digital soil mapping; 2) Exploring new sampling schemes and environmental covariates in digital soil mapping; 3) Using integrated sensors or other new technologies for inferring soil properties or status; 4) Innovative inference systems (new methodologies for predicting soil classes and properties, and estimating uncertainties); 5) Global Digital Soil Mapping; 6) Using digital soil mapping products and their uncertainties for soil assessment and environmental applications; and 7) Protocol and capacity building for making digital soil mapping operational. The importance of our work during DSM 2008 was framed by the inspiring keynote presentation by Dr. Alfred Hartemink (ISRIC World Soil Information, Netherlands), "Soils are Back on the Global Agenda." Each session theme was launched by a keynote presentation, followed by short presentations and 30 minutes of focused discussion. Keynote speakers for the sessions 1 through 7, respectively, were Dr. Alan Hewitt (Landcare Research, New Zealand), Dr. Janis Boettinger (Utah State University, USA), Dr. Raphael Viscarra-Rossel (CSIRO, Australia), Dr. Thorsten Behrens



Prof. Janis Boettinger in the field explaining the first principle of digital soil mapping.

(University of Tübingen, Germany), Dr. Alex McBratney (University of Sydney, Australia), Dr. John Triantifilis (University of New South Wales, Australia), and Dr. Sabine Grunwald (University of Florida, USA). The workshop inspired participants to manifest the future of DSM from diverse perspectives, using innovative approaches, and addressing the ultimate challenge of creating and delivering a global digital soil map.

The organizers sincerely thank participants for traveling to Logan, Utah, USA, to make DSM 2008 a successful and productive endeavor. We look forward to seeing you at DSM 2010!

Annual Meeting of the AOAC INTERNATIONAL Pacific Northwest Section

The 28th Annual Meeting* of the AOAC INTERNATIONAL Pacific Northwest Section was held at the University of Puget Sound, Tacoma, Washington, USA on June 18-19, 2008. The overall purpose of the meeting was to foster the exchange of ideas and recent research findings. We had a diverse program that was of interest to analytical communities, regulators, researchers, and industry members. The at-

tendees came from universities, federal, state and provincial research stations, private laboratories, and government agencies, representing a broad array of interests and disciplines.

The theme of the Annual Meeting was "Data defensibility and generating quality results". The program included keynote presentations by national and international speakers in the plenary sessions. Papers were also presented in the following Seminars: Soil and Environmental Chemistry; Microbiology; **Marine and Freshwater Toxins and Seafood Contaminants**; **Quality Assurance for the Chemistry Laboratory**; and Chemical Analysis of Industrial Contaminants, Pesticide Residues and Alkaloids. The Soil and Environmental Chemistry Seminars included the following presentations: Future of Soil Analysis; Total Kjeldahl Nitrogen: Automation for a Robust, Popular Method; Microwave Extraction of Pesticides, PAH's and TPH's by the new USEPA method; and Pipetting, Ergonomics, and You.

The following training workshops were presented: Validation and Import of Methods, Single Laboratory Validation of Microbiological Methods, Laboratory Safety, and Measurement of Uncertainty. New this year was the Poster Session that highlighted the latest scientific research in different fields. It was held in conjunction



Yash P. Kalra, Chair, Pacific Northwest Section, presented the "Award of Excellence" plaques to Ed Paski, Nancy Hill, Peggy Knight, and Carlos Abeyta, Jr. (l to r) for their significant contributions to the Section.

with the Vendor Expo (an exhibition of scientific equipment, supplies and services). At the reception, the attendees participated in the quiz, "Are you smarter than your fellow chemist or microbiologist?"

The Executive Committee for 2007-2008 included Yash P. Kalra (Chair), Jim Hungerford (Chair-Elect), Carlos Abeyta, Jr. (Past Chair), Mike Grant and Fred Krick (Treasurers), and Nancy Hill (Secretary). The members of the Planning Committee of the Annual Meeting were Carlos Abeyta, Jr., Roy Araki, Don Bark, Sharon Brunelle, Sue Coffey, Vinod Gaur, Mike Grant, Nancy Hill, Jerry Hirsch, Jinxin Hu, Jim Hungerford, Yash P. Kalra, Fred Krick, Jennifer Lui, Heidi Marks, Mike Owen, Virginia Palomo, Ed Paski, Marshall Pattee, Josephine Pompey, and Steve Reimer.

The next Annual Meeting will be held on June 16-17, 2009. Further information will be available on our website (www.aoacpacnw.com).

(*Full report is published in the September/October 2008 issue of the *Inside Laboratory Management*, AOAC INTERNATIONAL, Gaithersburg, Maryland, USA).

*Yash P. Kalra, Chair
Pacific Northwest Section
Edmonton, Alberta, Canada*

13th International Conference on Soil Micromorphology

The 13th International Conference on Soil Micromorphology, was held in Chengdu, China, Sept. 11-16. This was the 1st such meeting ever held in Asia. This meeting, held every 4 years, is one of the major activities of IUSS Commission 1.1, Soil Micromorphology and Morphology. This year, there were participants from 26 countries, with 181 published abstracts. This was an important and timely location for this meeting as the Chinese Soil Science Society now boasts a membership of over 100,000. Support for this meeting was obtained by the National Natural Science Foundation of China, the Chinese Academy of Sciences, the Institute of Mountain Hazards & Environment, and the Shaanxi Normal University. Excellent lectures and posters were presented on all aspects of soil micromorphology including climate change, applied applications for agro-environment sustainability, soil, water and air pollution, paleopedology, interactions among soil biota and minerals, loess, archaeology, extreme environments, soil genesis and classification, and emerging technologies in ultra-micro techniques. The opening ceremony was followed by 14 keynote lectures and 2 additional



days of 2 concurrent oral sessions and posters. Remembrances were given for two extraordinary scientists who have died recently, Geoff Humphreys (given by Rosa Poch) and Peter Bullock (given by Georges Stoops). Daniela Sauer arranged for symbolic candles to be lighted during the following symposia in their honor. The mid-conference fieldtrip examined the famous 'ancient paddy soils' and 'purple soils' near Chengdu as well as giving participants the rare opportunity to view endangered pandas at a nearby research station. Post-conference tours explored such sights as the Three Gorges Dam, the Xi'an Terra Cotta Warriors, the Great Wall, and many other exciting cultural and scientific stops. The 14th International Conference on Soil Micromorphology will be held in Lleida Spain, 2012, and is being organized by Rosa Poch.

Two awards were given during the Commission 1.1 Business Meeting: The first ever "Young Micromorphologist Publication Award" was presented to 2 young scientists: Adrienne L. Ryan, for her paper: "Do Sand Dunes of the Lower Lachlan floodplain Contain the Same Dust that Produced Parna?" *Australian Journal of Soil Research*, 2006, 44:769-781; and Amy L. Brock for her paper "New Formation Process for Calcic Pendants from Pahrangat Valley, Nevada, USA, and Implication for Dating Quaternary Landforms" *Quaternary Research*, 2005, 63:359-367. This award will be given again in addition to the Ku-

biena Medal during the 19th World Congress of Soil Science in 2010 Brisbane, Australia.

More information on the notes from the business meeting, upcoming awards, meetings, and other activities can be found on IUSS Commission 1.1 webpage <http://www.agry.purdue.edu/pedology/iuss/>

EUROSOIL 2008

August 25-29, 2008

The Congress EUROSOIL 2008 was jointly organised by the soil science societies of Austria, Croatia, the Czech Republic, Hungary, Slovakia, Slovenia and Switzerland, under the chairmanship of Prof. Winfried E.H. Blum, at the Technical University Vienna /Austria.

About 1500 scientists from 77 countries participated with approx. 650 oral and 750 poster presentations, organised within 30 symposia and 13 workshops. Moreover, 3 technical excursions took place.

26 presidents of national soil science societies or their representatives participated in the Council Meeting of ECSSS, with the main outcome:

The next venue for EUROSOIL 2012 will be Bari/Italy. The next President and Vice-President of ECSSS will be Prof. Dr. Nicola Senesi, from the University of Bari as President and Prof. Teodoro Miano, from the same University, as Vice-President. Congratulations to both!

For EUROSOIL 2016, the Polish Soil Science Society



presented its bid for the city of Olsztin, in Masuria, in the north-east of Poland.

The 10 best posters were awarded a prize from the organisers (diploma and 200 €).

An additional prize was provided by the international journal "Biology and Fertility of Soils" (Springer), providing a free copy of this journal to the winner and free electronic access to further journals by Springer.

A motion in support of the European Framework Directive for Soil Protection, prepared by the French Soil Science Society, was unanimously accepted by the Council of ECSSS and unanimously backed by the participants of the Congress at the Closing Ceremony:

Motion to support the EU Framework Directive on soils
Soil is a vital, non-renewable resource, providing essential goods and services to human-life and ecosystems. For instance, soil plays a major role in climate change, food, fiber and energy supply, water regulation, biodiversity, and human health. Therefore, it is essential to maintain and preserve the soil functions for the sustainable development of our societies.

Long-term soil sustainability is endangered by numerous threats that have been listed in the proposal of a European directive for soil protection.

The over 1500 participants of the EUROSIL congress held in Vienna (August 25-29, 2008), soil scientists from 77 countries, including the representatives of the 43 European national soil science societies, consider that a unique legal and political framework for soil protection is an absolute necessity to preserve soil resource at the European level.

We therefore urge the French Presidency to resume the discussions aiming to reach a political agreement in the Environmental Council on 20 October. We request the 5 Member States that could not agree with the Portuguese Compromise text on 20 December 2007 to reconsider their position for the sake of preserving this precious natural resource.

Inaugural International Conference on Hydropedology

Both soil science and hydrology are at a critical threshold of advancing frontiers and exploring breakthroughs. Synergies are expected by bridging classical pedology with soil physics, hydrology, geomorphology, and other related bio- and geosciences to address complex soil and water interactions across spatial and temporal scales. Holistic study of the earth's Critical Zone (i.e., the critical interface between the surficial solid earth and its fluid envelopes, which ranges from the top of the vegetation to the bottom of aquifers) demands an interdisciplinary systems approach to tackle a wide array of environmental, ecological, agricultural, geological, and natural resource issues that are of high societal importance. In this spirit, and with a goal of promoting integration between disparate fields and fostering new collaboration, the 1st International Conference on Hydropedology was held at the Pennsylvania State University – University Park campus in July 28-31, 2008. The conference theme was "*Water and Soil: Key to Sustaining the Earth's Critical Zone.*" The International Union of Soil Sciences (IUSS) Working Group on Hydropedology organized this meeting with sponsorships from the U.S. Department of Agriculture (USDA) National Research Initiative, multiple units of Penn State Univ. (College of Agricultural Sciences, Dept. of Crop and Soil Sciences, Penn State Institutes for Energy and the Environment, and Environmental and Natural Resources Institute), USDA Natural Resources Conservation Service's National Water and Climate Center, and three companies (Decagon Devices, RDS Inc., and UGT).

This was a focused interdisciplinary conference with 145 participants from over 20 countries (covering all continents except Antarctica). A total of 110 abstracts were received. A large number of leading scientists from diverse fields (including pedology, soil physics, and other branches of soil science; watershed hydrology, ecohydrology, hydrogeology, remote sensing hydrology, and other subdisciplines of hydrology; geomorphology, geochemistry, microbial ecology, botany, agricultural engineering, and other related bio- and geosciences) participated and presented their perspectives on various issues related to hydropedology. The three-day program, plus the fourth day field trip, gave the participants opportunities to analyze what has been accomplished in hydropedology and to discuss ways of advancing this emerging field and collaborations across scientific



disciplines. While multiple interpretations of the term “hydropedology” appeared during the conference, it became clear that the main goal of hydropedology is to understand interactive hydrologic and pedologic processes across scales and their impacts on biogeochemical cycling and ecological functioning in the earth system. Two fundamental questions at the “heart” of hydropedology are:

How do soil architecture and the distribution of soils over the landscape exert a first-order control on hydrologic processes and the associated biogeochemical and ecological dynamics across spatio-temporal scales in the surface and shallow subsurface?

How does landscape water, and the associated transport of energy, chemicals and sediment by flowing water, influence soil genesis, evolution, variability, and functions?

Through presentations and discussion, it was evident that hydropedology emphasizes *in situ* soils in the landscape, where distinct pedogenic features (e.g., peds, horizons, and catenae), environmental variables (e.g., climate, landforms, and organisms), and anthropogenic

impacts (e.g., land use and management) interact, thereby determining landscape water availability and quality. The conference participants suggested that, whereas the focus of hydropedology must be clear, its boundary with adjacent disciplines is better left “fuzzy” in order to avoid building walls that would block interdisciplinary collaborations.

The conference began with five invited keynote presentations on the “big picture” pertinent to hydropedology, including 1) *Frontiers of Mars Exploration – “Follow the Water”* by Raymond Arvidson (Washington University in Saint Louis) (note that hydropedology goes beyond our home planet and into extraterrestrial environments), 2) *The Dependence of Watershed Processes on the Evolution of the Critical Zone* by William Dietrich (UC Berkeley), 3) *Streamflow Generation Theory in the Headwaters: a Hydropedology Approach* by Jeffery McDonnell (Oregon State University), 4) *Hydropedology as a Foundation for Environmental Policy and Regulations* by Johan Bouma (Wageningen University), and 5) *Digital Soil Mapping and Hydropedology* by Alex McBrat-

ney (University of Sydney). The subsequent presentations were grouped into the following five sessions spread over two and half days: 1) Emerging concepts and theories in soil science, hydrology, and related disciplines; 2) Frontiers of integrated and multiscale models of soils and hydrologic systems; 3) Advanced monitoring, sensing, mapping, and visualization of the subsurface; 4) Integrated studies of the earth's Critical Zone and its relations to hydrology; and 5) Cutting-edge applications and innovative education/outreach related to hydrology. Poster sessions, breakout discussions, and evening featured presentations were also included in the conference program. Some research priorities highlighted during the conference include:

- Potential conceptual breakthroughs in hillslope/catchment hydrology, including subsurface excess theory, preferential flow networks, and dynamic boundary conditions
- Quantification of soil architecture, landscape patterns, and their functional manifestations as a new basis for landscape-soil-hydrology research across scales, which should be explicitly considered for scalable processes and tools
- Investigation of the continuous field assumption vs. the discrete object approach to incorporate flow and transport pathways, patterns, residence times, and networks into models
- Coupling hydrology and biogeochemistry to identify "hot spots" and "hot moments" of chemical reaction, nutrient cycling, ecological functioning, and microbial activity as triggered by soil hydrologic conditions and limited by transport and pathways in the field
- Joining of pedology (with field expertise and without Soil Taxonomy luggage) with soil physics/hydrology (quantitative, process-orientated but without abstract excesses)
- Technology advancements in new tools and sensors, sensor/monitoring networks, and spatially/temporally continuous imaging/monitoring of the subsurface
- Development of a common platform to share data, information, and model with interoperable format
- Three best posters were selected by voting from the participants. They were (in the order from the 1st to 3rd prize):
 - Takahiro Sayama (Kyoto Univ., Japan) and Jeffrey McDonnell (Oregon State Univ.): *The effect of soil depth distribution on the age, origin and flow-path of water at the catchment scale: A virtual experiment approach*

- Michael Jones, Stephen Carpenter (USDA-NRCS), Michael Harman, James Thompson, and Eugenia Pena-Yewtukhiw (West Virginia Univ.): *Seasonal Infiltration and Subsurface Water Dynamics across Benchmark Soil Catenas of Eastern West Virginia*
- Horst Gerke, Michael Sommer, Sylvia Koszinski, and Thomas Kalettka (ZALF-Institute of Landscape Hydrology, Germany): *Structures and hydrologic function of soil landscapes with kettle holes*

The field trip included a show-and-tell visit to the Shale Hills Critical Zone Observatory (CZO), one of the first three CZOs established in the U.S. by National Science Foundation (NSF). Other field destinations included Kepler Farm (including a demonstration of geophysical tools and precision agriculture practices in relation to hydrology), Penn State's long-operating "Living Filter" (showcasing the use of natural soils for filtering treated wastewater and the resulting changes in soils), and pyrite remediation at the adjacent I-99 construction site (illustrating the impacts of exposed pyrite on water quality in the area). "The kinds of initial steps and results shown at the Shale Hills CZO and the synergy amongst the CZO PIs, students and collaborators are the reasons for optimism on the future of CZOs," commented Dr. Jun Abrajano, Head of Surface Earth Processes Section of NSF, who attended the conference.

An additional objective of the conference was to charter a roadmap for international collaboration to advance the frontiers of hydrology and its contributions to the larger scope of Critical Zone science. A new initiative to foster a global alliance for Monitoring, Mapping, and Modeling of the Critical Zone (called the "3M" initiative) was proposed by the Hydrology Working Group. This initiative follows the example of the Mauna Loa Observatory that first alerted the world to the anthropogenic contribution to the "greenhouse effect" and global warming. The famous "Keeling Curve" of long-term CO₂ data demonstrated the value of continuous recording of a seemingly routine atmospheric measurement, which turned out to be a vital sign of the earth's changing climate. The discovery of "acid rain" in North America through long-term monitoring at Hubbard Brook is another role model for the proposed initiative ¾ which calls for a networked long-term recording of the health of our land via near real-time monitoring, precision mapping, and process-based modeling of its "blood pressure," temperature, respiration, and other vital signs of global land change. While often hidden underfoot, soils are fundamental to the earth's ecosystems and the sustainability of human society. Therefore, serious efforts must be taken to monitor soil



change and its diverse functions over space and time. At the closing session of the conference, representatives from the NSF and USDA spoke about the potential funding opportunities.

This inaugural conference contributed to the celebration of the International Year of Planet Earth. It also marked the 125th anniversary of the birth of modern soil science with the 1883 publication of soil-forming theory by V.V. Dokuchaev. A book and a special issue of two journals (*Journal of Hydrology* and *Hydrology and Earth System Science*) are planned to publish selected papers from this conference. In addition, a DVD, containing the conference proceedings (presentations, posters, video tapes, and photos), will be produced. The IUSS Hydrology Working Group has decided that the 2nd International Conference on Hydrology will be held in Germany in 2012. Between now and then, a dedicated website (<http://hydrology.psu.edu/>) will be used to continue dialogs started at the conference and maintain communications about hydrology-related activities to the community. Several related scientific activities have already been planned in the following years.

For more information, please contact Henry Lin (henrylin@psu.edu, 814-865-6726).

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Conservation Agriculture training at CIMMYT

From May 26th to July 27th, the Center for Maize and Wheat Improvement (CIMMYT) successfully hosted a five-week course in conservation agriculture (CA) for visiting scientists titled "Laying the ground for sustainable and productive cropping systems."

Participants from China, Ethiopia and Romania learned about resource conserving technologies in irrigated and rainfed wheat and maize production systems, including reduced tillage and crop residue management strategies.

Tesfay Araya, who is expected to be the first conservation agriculture specialist in northern Ethiopia, commented on the interdisciplinary theme of the program: "It was a very holistic approach, with diverse content from a number of disciplines from breeders, soil specialists, agronomists, crop protection people and so on."

With the chance to work directly with the Cropping Systems Management team at CIMMYT's research stations and in nearby farmers' fields, the visitors developed skills in trial planning, management and monitoring. There was also first-hand opportunity to initiate individual research, as each participant had to define a clear research objective and draft a paper for future publication. "We learned skills in publishing, writing, reviewing data...we didn't miss anything," said Mr. Araya.

Participants took away with them lessons learned for application in their home countries. "I saw people here working together with good communication," said Mr. Araya. "That's the most important thing, and it's very unique." For Zhang Bin, from China, im-



plementation of CA was a consideration. "When I go back I will do research on conservation agriculture, and if I have good results I will demonstrate it to farmers and try to transfer the technology to them." Since 1996 CIMMYT has hosted over 86 course participants and 30 visiting scientists from 26 countries in its Conservation Agriculture research area. Long-term courses and research are conducted at CIMMYT's headquarters in El Batán and at its research station in Ciudad Obregon, Mexico.

The next course is scheduled for May 25th to June 26th in 2009. For more information, please contact Petr Kosina (pkosina@cgiar.org) or visit : http://www.cimmyt.org/english/wps/events/course_s/pdf/announcement_CA_course_2009.pdf

Investing in Sustainable Crop Intensification: The Case for Improving Soil Health

This workshop was held at FAO, Rome, 22-24 July 2008, arranged jointly by TAA, FAO, FARA, assisted by ICRAF, CIRAD, ACT, KARI, EMBRAPA, GFAR. Following recommendations made at the conclusion of the initial TAA Workshop at Newcastle University, UK, on 30 and 31 March 2007, the organizers of this 'follow-on' 3-day Technical Workshop invited stakeholders concerned with agricultural development in the tropics, subtropics and elsewhere to consider the demonstrated potentials of Conservation Agriculture (CA) to improve soil health, and hence productivity and sustainability, as a basis for crop and agriculture intensification and managing ecosystem services. The Workshop was attended by some 100 stakeholders, representing governments and inter-

governmental institutions, the private sector, farmers and NGOs from 40 countries.

The Workshop objectives were:

- To describe the principles of Conservation Agriculture and demonstrate its benefits for farmers and societies so as to widen attention of potentially-supportive decision-makers in the broad fields of Field Practice & Development; Science & Technology, and Policy & Financing.
- To discuss, suggest and agree the chief forms of interlinking decisions and action which would provide positive encouragement of, and support to, farmers to make and sustain their transition to CA systems according to their specific situations;
- To pave the way for comparable forums to develop and function at continental, national and local levels;
- To favour the development of an inter-connected 'Community of Practice' around the subjects.

On the first day, two initial presentations provided a conceptual and a global overview of Conservation Agriculture which, in its ideal form, combines (a) permanent soil cover with organic materials such as crop residues, (b) no-till planting/seeding through the cover with minimal soil disturbance, (c) crop sequences including legumes. This was followed by illustrations from the field showing successful cases of CA and the relevant features they have in common which are favourable for scaling. Cases from each region – Latin America (Brazil, Paraguay and Argentina), Asia (China, Kazakhstan and N.Korea), Africa (Tanzania, Kenya, Tunisia, Swaziland, Madagascar) - were presented, covering different agro-ecologic and socio-economic settings, each illustrating the basic principles and practices leading to soil health improvement and agricultural intensification based on conservation-effective practices.

The global area under such systems now totals some 100 million ha (Table 1). Its spread contributes to the stability of landscapes and ecosystems which provide both plant products and water simultaneously, on a sustainable basis. Quantified data on its effects show that its adoption contributes to alleviating problems posed by climate change, population increase, hunger, and rising costs of inputs and agricultural products.


The subsequent two days were spent on discussing the implications and opportunities for 'mainstream-

ing' these conservation-effective agricultural practices replacing other methods of intensive farming that are now widely practised but detrimental to soil health and long-term productivity, and hence non-sustainable. The consensus of the Workshop was that tillage-based farming, has unsustainable elements, whose continued promotion and application endangers global capacities to respond to global concerns.

The Workshop delegates agreed that ample evidence now exists of successes of Conservation Agri-

Conservation Agriculture area in 1,000 [ha]				
	1988-1991	1993-1996	1998-2001	2003-2007
Argentina	500.0	3,950.1	15,000.8	19,719.4
CA area (%)	1.8	13.9	51.5	66.8
Australia	400.0			9,000.0
CA area (%)	0.8			18.1
Bolivia				550.0
CA area (%)				16.9
Brazil	1,350.0	8,847.0	18,744.5	25,501.7
CA area (%)	2.3	13.5	28.2	38.3
Canada	1,951.2	4,591.8	8,823.5	13,480.8
CA area (%)	3.8	8.8	16.9	25.9
Chile				120.0
CA area (%)				5.2
China				100.0
CA area (%)				0.1
Colombia				102.0
CA area (%)				2.8
France	50.0			150.0
CA area (%)	0.3			0.8
Kazakhstan				1,790.6
CA area (%)				8.0
Mexico				22.8
CA area (%)				0.1
New Zealand	75.0			
CA area (%)	2.0			
Paraguay		200.0	1,200.0	2,094.0
CA area (%)		7.4	33.4	48.7
South Africa				300.0
CA area (%)				1.9
Spain				300.0
CA area (%)				1.6
United Kingdom	275.0			
CA area (%)	3.9			
United States of America	6,839.2	17,361.0	21,124.6	25,252.4
CA area (%)	3.7	9.6	11.8	14.3
Uruguay			753.5	1,082.3
CA area (%)			53.4	76.7
Venezuela (Bolivarian Republic of)				300.0
CA area (%)				8.7
World total	11,440.3	34,949.9	65,646.9	99,866.0

Table 1: Conservation Agriculture adoption by country over the last 20 years in ha and in percent of total arable land (source: FAO AQUASTAT 2008)



culture in Latin America, Asia and Africa to justify major investment of human and financial resources in catalysing a shift, from tillage-based management systems to those based on the principles of CA. This shift will lead to reduced machinery and energy use, a rise in soil organic matter content and biotic activity, reduced carbon emissions, reduced erosion, increased crop water availability (and in these ways reduce impact of drought), improved recharging of aquifers and reduce the impact of the apparent increased volatility in weather associated with climate change. It will reduce production costs and contribute to more reliable harvest reducing risk especially for the small holder.

The main outcome of the Workshop is the Framework for Action document entitled: "Investing in Agriculture Intensification: the Role of Conservation Agriculture" (available under "events" at www.fao.org/ag/ca/). The Framework presents the joint thinking of Workshop delegates on actions that would help empower many more farmers to engage in management methods centred on a fundamental shift in tillage methods that will enable land to be farmed more intensively, sustainably and profitably.

In order to disseminate knowledge, raise understanding, share expertise, and support diverse initiatives, the participants wish to establish a multi-stakeholder knowledge-management system, in the form of a system of "Communities of Practice" (CoP), guided by a Facilitating Group. The latter's tasks would be initially to determine appropriate organisational and administrative arrangements, and identify possible sources of adequate financial support. This would enable establishment of a multi-functional presence on the internet that can both provide information about CA and support interactive exchanges between CoP participants. A network of associated CoPs could provide focus on: knowledge for CA (e.g. documentation, exchange of experiences etc.), advocacy for CA (e.g. public and professional communication, policy dialogues, etc.), application for CA (e.g. training modules, cumulation of experiences, etc.); education for CA (e.g. curriculum improvement in primary and secondary education, enrichment of university and professional education, etc.).

Support for these CoPs might be worked out with several different institutions which are becoming higher-level stakeholders in CA such as GFAR, UNEP, international farmer organizations, and UNESCO, universities and NGOs. FAO is the international or-

ganization with the broadest interest and stake in CA and has indicated its willingness to provide the administrative support base for the overall CA-CoP. A first activity for the Facilitating Group would be the preparation of policy support papers on CA, which could be used in discussions with donor agencies, international organizations, professional organizations, private sector and others.

Theodor Friedrich

Amir Kassam

Francis Shaxson

(on behalf of the Workshop delegates)



Upcoming meetings

2008

16th National and 4th International congress of soil science, 16-21 Nov **Peru**

Interaction of soil minerals with organic components, 24-29 Nov **Chile**

Sediment dynamics in changing environments, 1-5 Dec **New Zealand**

International meeting of soil enzymology, 11-12 Dec **Spain**

2009

Fourth World Congress on Conservation Agriculture, 4-7 Feb **India**

Integrated Assess. of Agriculture and Sust. Dev., 10-12 Mar **Netherlands**

14th International Clay Conference, 12-20 June **Italy**

Meeting on Soils with Mediterranean Type of Climate, 22-26 June **Lebanon**

16th Nitrogen Workshop, 28 June-1 July **Italy**

7th International Conference on Geomorphology, 6-11 July **Australia**

11th International Symposium on Soil and Plant Analysis, 21-25 July **USA**

Pedometrics 2009, 26-28 Aug **China**

International conference on cryopedology, 14-20 Sept **Russia**

Salinization conference, 20-23 Sept **Hungary**

Biohydrology 2009: Biology and soil hydrology interactions, 21-24 Sept **Slovakia**

ASA-CSSA-SSSA International annual meeting, 1-5 Nov **USA**

Soil geography: New horizons, 16-20 Nov **Mexico**

XVIII Congreso Latinoamericano de la Ciencia del Suelo, 16-20 Nov **Costa Rica**

2010

19th World Congress of Soil Science, Brisbane, 1-6 Aug **Australia**

ASA-CSSA-SSSA International annual meeting, 31 Oct-4 Nov **USA**

IUSS Honorary members

Year	Member	Country	Year	Member	Country	
1924	L. Cayeux †	France	1986	H. Jenny †	USA	
	K. Glinka †	USSR		D. Kirkham †	USA	
	Jos. Kopecky †	Czechoslovakia		S.K. Mukherjee †	India	
	E. Ramann †	Germany		R. Tavernier †	Belgium	
	Sir John Russell †	UK		1990	G. Aubert †	France
	S. Winogradski †	USSR			E.G. Hallsworth †	Australia
1927	P. Treitz †	Hungary	J.S. Kanwar	India		
1935	E.A. Mitscherlich †	Germany	P. Schachtschabel †	Germany		
	A. d'Sigmond †	Hungary	R.W. Simonson	USA		
	J. Stoklasa †	Czechoslovakia	I. Szabolcs †	Hungary		
	G. Wiegner †	Switzerland	1998	G.H. Bolt	Netherlands	
1950	A. Demolon †	France		R. Dudal	Belgium	
	D.J. Hissink †	Netherlands	K.H. Hartge	Germany		
	W.P. Kelley †	USA	M. Kutilek	Czech Rep.		
1954	S. Mattson †	Sweden	J. Quirk	Australia		
	E. Truog †	USA	W.G. Sombroek †	Netherlands		
1956	G. Bertrand †	France	K. Wada	Japan		
	E.C.J. Mohr †	Netherlands	D.H. Yaalon	Israel		
1960	F.A. Bear †	USA	S.V. Zonn †	Russia		
1964	J.A. Prescott †	Australia	2002	R.W. Arnold	USA	
	1968	F. Hardy †		UK	G.V. Dobrovolsky	Russia
W.L. Kubiena †		Germany	W. Gardner	USA		
L.A. Richards †		USA	H.M. Hamdi †	Egypt		
A.A. Rode †		USSR	L.A.L. Sarmiento	Colombia		
1974		R. Bradfield †	USA	F. Mancini	Italy	
		G.V. Jacks †	UK	B.S. Nosko	Ukraine	
	Ch.E. Kellogg †	USA	R. Rosell	Argentina		
	M.K. Kononova †	USSR	A. Ruellan	France		
	A. Oudin †	France	A. Tanaka	Japan		
	F. Scheffer †	Germany	P.B.H. Tinker	UK		
1978	G. Barbier †	France	2006	W.E.H. Blum	Austria	
	V. Ignatieff †	Canada		H-P. Blume	Germany	
	Y. Ishizuka †	Japan		J. Bouma	Netherlands	
	L. Krolkowski †	Poland		S-J. Cho	South Korea	
	L. Vettori †	Brazil		J. Glinski	Poland	
1982	Ph. Duchaufour †	France	M.G.H. Jamagne	France		
	W. Flaig †	Germany	D.R. Nielsen	USA		
	V. Kovda †	USSR	J.H.V. van Baren	Netherlands		
	E. Mueckenhausen †	Germany	L.P. Wilding	USA		
	E.W. Russell †	UK				

