



ISTRO INFO

**A Publication of the
International Soil Tillage Research Organization**

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ISTRO INFO – March 2009

Winter in the northern hemisphere is gradually giving up its grip as plans are being made for another cropping season. Drought and fires in Australia have been in the U.S. news, but hopefully none of our ISTRO members have been severely affected. Those events do provide an opportunity, however, to again invite everyone to send me information about the challenges and experiences that you would like to share with all of our ISTRO members. It is through organizations such as ISTRO that everyone can gain a better understanding of what it means to be living and working in a “global economy” and to understand how our common soil and tillage problems are being addressed.

Our ISTRO President Engin Cakir and his Conference Planning Committee continue to be very busy working hard to prepare an excellent program for all of us in Izmir. Be sure to complete your early registration before March 15th to help them prepare and to save some money for your research programs. Currently, approximately 250 have registered for the Conference. If you are not among those who have sent in your registration but plan to attend, please do so as soon as possible.

In this issue of ISTRO INFO, be sure to read and pass on to qualified individuals the information from Dr. Per Schjonning regarding PhD. positions in environmental soil physics (especially soil compaction effects). Please note that the application deadline for two of the positions is March 31, 2009, so prompt action by qualified friends and colleagues will be very important. There are also important announcements of two upcoming conferences that may be of interest to many of our members.

Finally, in this issue you will find biographical information about the candidates who have been nominated for our ISTRO Board of Directors. In early April, a ballot will be sent to all members in good standing. Voting will be open until two weeks prior to our Triennial meeting in Izmir.

As always, please share this information with all your friends and co-workers, and invite them to join you as an ISTRO member.

Doug Karlen
Assistant Secretary General

18th Triennial Conference Information

For the most current information on the 18th Triennial ISTRO Conference please see the Congress website at: www.istro2009.ege.edu.tr. The Conference will be held June 15-19, 2009 in Izmir, Turkey, and will include various technical sessions, Working Group meetings, tours, and displays. Two different tours will also be offered. They are for a Field Day & City Tour on June 17th and Historical Site: Ephesus – House of Virgin Mary on June 18th.

The Conference will be held at Surmeli Efes Hotel & Resort in Selcuk, Izmir. This site is located about 60 km from the Adnan Menderes International Airport and is very close to the city centre. For more information about the venue, please view their website at: <http://www.surmelihotels.com/eng/SurmeliEfes/default.asp>. Registration and lodging as a package that also includes meals, banquet dinner, field day tour, and CD is:

Registration for:	Conference Only		Lodging & Conference	
	Early*	Late	Early*	Late
Members	€350	€450	€650	€750
Non-members	€400	€500	€700	€800
Students	€250	€350	€550	€650
Partners			€500	€600
Children (age 6-12)			€400	€500

*Early registration ends 3/15/2009. Also, hotel room prices are for one bed shared in double bed rooms. For single room, please add €25 per day to the room price.

Registration fees should be paid through the website (<http://www.istro2009.ege.edu.tr>) or directly to the following banking account: **AKBANK** (Euro Account) (Office of Ege University, **Office Code: 940**), Account Number: **940-07772**; IBAN Number: **TR40 0004 6009 4003 6000 0077 72**.

Young Researcher Scholarships

A total of 10 application packages were received for the four ISTRO Scholarships. The information provided by all of these “young scientists” is very impressive and will make the decision very difficult. Unfortunately, at least three additional potential applicants did not learn about the scholarship opportunities until several weeks after the closing date of December 31, 2009. Regrettably, we could not accept their applications, but if you know any of these individuals, please let them know that these are on-going programs for each of our Triennial meetings and that they should begin thinking now of applying for the 2012 meeting that will be held in Uruguay.

PhD. Positions in Environmental Soil Physics are Available

A group of Nordic researchers has joined forces in a mutual project on the long-term effects of subsoil compaction on important soil functions. The project will run from 2009 to 2012 and includes Aarhus University (AU, Denmark), Swedish University of Agricultural Sciences (SLU, Sweden), University of Helsinki (UH, Finland), and Norwegian University of Life Sciences (UMB, Norway). The climate of the Nordic countries is characterized by wet conditions in the autumn, winter, and spring. Most traffic situations in arable agriculture therefore imply a high risk of soil compaction. It has been shown that the risk/probability of subsoil compaction with commonly used machinery in modern, Nordic agriculture is nearly 100% for spring slurry application and more than 60% in sugar beet harvesting. Soil compaction modifies soil structure and affects a range of important ecological functions. Compaction may induce preferential flow in macropores, which has been shown to facilitate transport of otherwise immobile pollutants such as phosphorus and pesticides to receiving water bodies. Soil compaction is known to reduce soil aeration, hence increasing the risk of emissions of the greenhouse gas N_2O through denitrification at anaerobic sites. There is, however, an urgent need to increase our knowledge of the compaction effects on the extent of these key environmental functions.

The new project will address the above-mentioned soil functions by investigating existing, long-term soil compaction field experiments. We hypothesize that soil compaction:

- (a) increases the frequency of preferential flow events in macropores, and therefore increases the leaching of otherwise relatively immobile agrochemicals, and**
- (b) affects the structure and functioning of subsoil denitrifier communities, which may increase the contribution of subsoil denitrification to the N₂O soil-atmosphere flux.**

A total of ~12 senior researchers will share forces in an intensive and coordinated programme of field and lab measurements of soil physical, chemical, and microbial characteristics, N₂O emission, and hydraulic functions. Three PhD. students will be attached to the project and hosted by AU, SLU, and UH universities, respectively. We therefore are looking for strong PhD. candidates to work within this international team of researchers. The available positions are:

PhD. position 1: *Soil pore characteristics and its hydraulic properties as affected by traffic-induced compaction and distortion* (Aarhus University, Denmark)

This PhD. study will focus on mechanical stress effects on soil distortion and modification of the soil pore system as quantified by water flow and solute transport processes. The experimental work includes standard physical characterization of compacted and reference soil as well as measurements of near-saturated and saturated hydraulic conductivity, irrigation studies with tracers, and quantification of colloid leaching. Therefore, we wish to employ a PhD. student with a background in soil physics, soil mechanics, soil hydrology, or related fields. More information on this position may be found at www.stair.agrproject.dk or by contacting Per.Schjonning@agrsci.dk. The deadline for application is March 31, 2009, with the position to start as soon as possible thereafter.

PhD. position 2: *Compaction effects on water flow, solute transport and denitrification* (Swedish University of Agricultural Sciences, Sweden)

This PhD. study will focus on compaction effects on pore size distribution, hydraulic properties, and denitrification. The work includes experimental and modeling studies of compaction effects on (i) water and solute transport and (ii) denitrification. Applicants should have a MSc degree or equivalent in Environmental Science,

Hydrology, Civil Engineering, or similar subject, with good knowledge of soil physics. The applicant should be able to communicate well in written and spoken English, and modeling and programming skills are also desirable. The deadline of application is April 30, 2009. The position will be announced at www.slu.se. For more information please contact Professor Nicholas Jarvis (Nicholas.Jarvis@mark.slu.se) or Dr. Thomas Keller (Thomas.Keller@mark.slu.se).

PhD. position 3: *Persistence of subsoil compaction – long-term effects of field traffic on soil functioning and greenhouse gas emissions* (University of Helsinki, Finland)

This PhD. study will focus on the persistence of subsoil compaction as quantified by the long-term effects of compaction on soil physical properties, biopores, crop yield, and greenhouse gas emissions. The experimental work includes standard soil physical measurements, determination of greenhouse gas emissions and biopores, irrigation studies with dye, and gas diffusion measurements. The PhD. work can also exploit our developments on soil strain measurement to determine 3D soil displacement during heavy loading. Therefore, we wish to employ a PhD. student with a background in soil physics, soil mechanics, agricultural engineering, or related fields. More info: Professor Laura Alakukku (laura.alakukku@helsinki.fi). The deadline for application is March 31, 2009, with the position to start as soon as possible thereafter.

The new Nordic project has been named “POSEIDON” and is organized in a matrix of four national coordinators (Denmark: Per Schjønning, overall project coordinator; Sweden: Thomas Keller; Norway: Trond Børresen; Finland: Laura Alakukku) and two topic coordinators (soil aeration and greenhouse gas: Peter Dörsch; hydraulic conductivity and non-equilibrium water flow: Nick Jarvis). For more information on the project, please contact Per.Schjonning@agrsci.dk.

International Soil Tillage and Ecology Conference

The Bulgarian Soil Tillage Organization (a branch of ISTRO) invites ISTRO members and their colleagues to participate in an international conference on September 1 to 5, 2009, at the “*Orhided*” hotel, in Albena. The conference themes are:

1. Soil tillage and degradation processes

2. Cropping systems and global climatic changes
3. Energy crops – technologies and ecological aspects
4. Agricultural engineering and energy saving technologies

The conference fee will be 250 € (Euro) for ISTRO members and 180 € for students. For lodging, there are single rooms (35 €) and double rooms (45 €) available with “all inclusive service.” There is also transportation from the international airports in Varna, Burgas, and Sofia. The conference will include visits to the scientific experimental station and farms in the region. A post-conference tour will provide an opportunity to visit historical and archeological places.

Important deadlines for participating in this international conference include:

- March 30, 2009 – submitting registration form and abstracts (~180 words)
- April 4, 2009 – notification of accepted abstracts
- May 31, 2009 – submission of registration fee and full papers
- June 30, 2009 – development of the final program

All conference correspondence will be conducted by email.

For more information, please see www.tillage.hit.bg or contact the conference secretariats (Dr. M. Benkova, Dr. P. Yankov) at istrobg@mail.bg or istrobg@gmail.com. The organizing committee: Dr. Totka Mitova (Chairman and President of the Bulgarian Soil Tillage Research Organization), Professor M. Teoharov (Director of the Soil Science Institute), Professor N. Kolev (Scientific Secretary of the Bulgarian Agricultural Academy) or Professor H. Beloev (Rector of the University “Angel Kanchev”) can also provide you with additional information.

Estonia Risks in Agriculture Conference

The Estonian Branch of ISTRO Branch and the Estonian Research Institute of Agriculture (www.eria.ee) in collaboration with the Scientific Creative Association “SCA Ecofiller” and non-profit Organization “Estonian Excellence Centre for Rural Development” are organizing a Risks in Agriculture: Environmental and Economic Consequences conference for June 8-10, 2010, in Tallinn, Estonia. Tallinn can be

reached by direct flight, bus, train, and boats from Helsinki or Stockholm. English will be the official language for the Conference.

Several topics related to Agricultural Risks will be addressed. This includes: weather, soil compaction, weeds, crop damage and diseases, bacilluses, vermin, etc. Complex interactions associated with the machine-soil-plant system, energy, and environmental/economic consequences of adapted tillage systems will be discussed.

For more information please contact Dr. Hab. Eng. At edvin.nugis@eria.ee.

Biographical Information for ISTRO Board Nominees

In early April, a ballot will be sent to all ISTRO members who are current with their dues and considered to be in good standing with the organization. The ballot will include nominations for a President Elect that will set in motion the location for the ISTRO meeting in 2015. A new Assistant Secretary General will be elected as I will become the Secretary General, if approved by acclamation, following the meeting in Izmir. Allen Torbert will be on the ballot to remain as our Treasurer. There are also two nominations (Jean Roger-Estrade and Peter Weisskopf) for one position on the Board of Directors for ISTRO. Other changes to the Board in 2009 will include: Oswaldo Ernst, who will become President; Engin Cakir, who will become Past President, and the departure of Jan van den Akker, Laura Alakuku, and Rainer Horn who will leave the Board. To be sure that you are in good standing and will receive a ballot, please check with our Treasurer Allen Torbert (Allen.Torbert@ars.usda.gov) if you do not know your dues status.

Xinhua Peng – nominee for President Elect

Dr. Xinhua Peng is currently a Marie Curie Experienced Researcher at the School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Ireland. He graduated in 1995 with a Bachelor of Geography Education (with first class honor) from Hunan Normal University, Changsha, China, and then worked for two years as a middle school teacher in his hometown before attending Hunan Agricultural University from 1997 to 2000 where he obtained a Master's degree in Soil Science. Dr. Peng then moved to the Institute of Soil Science, Chinese Academy of Sciences,

Nanjing and completed his PhD. on the effects of soil organic carbon pools on aggregate formation and stability after vegetative restoration in 2003. Dr. Peng was awarded a Max-Planck fellowship for 2004 to 2006 at Christian Albrechts University, Kiel, Germany. This was followed by another two-year DFG Fellowship at the same institute. During his four-year postdoctoral study with Prof. Rainer Horn, Dr. Peng worked primarily on the dynamics of soil structure as affected by hydraulic and mechanical stresses. For 2008 through 2009, Dr. Peng joined the project of *Cryptosporidium* and focused on the fate and transport of *Cryptosporidium parvum* oocysts in the environment. This work will terminate at the end of 2009, after which he is planning to go back to China where he will continue soil-related problems. He is also looking forward to hosting the ISTRO 2015 meetings and welcoming our members to China at that time.

Dr. Peng has been a member of ISTRO and has served on the Editorial Board of *Soil & Tillage Research* since 2006. He is a member of the German Soil Science Society and the Chinese Soil Science Society. He has been the co-supervisor of two PhD. and four Master theses. Dr. Peng has published several papers in international peer-reviewed journals and authored numerous conference papers. He has refereed many original papers from over six different journals. His research interests include modeling the dynamics of soil structure as affected by hydraulic and mechanical stresses and its consequences on the fate and transport of bio-chemical pollutants at multiple scales.

Blair McKenzie – nominee for Assistant Secretary General

Dr. Blair McKenzie is a principal research scientist in the Environment-Plant Interactions Programme of the Scottish Crop Research Institute, Dundee, UK. He graduated in 1984 with a Bachelor of Agricultural Science (with first class honours) from the University of Adelaide and completed a PhD. on the interactions of earthworms with soil physical properties in 1989 at the same institution. He worked for the South Australian Department of Agriculture before being appointed to a lectureship in soil physics at La Trobe University in Melbourne in 1989. He was promoted to senior lecturer in 1997. In 2003 he was appointed to what was then the Plant-Soil Interactions

Programme at SCRI. He has served for a period as programme leader and also acted as coordinator of the Management of Genes and Organisms in the Environment Theme.

Dr. McKenzie's research interests include soil structure and strength, their modification and interaction with plant roots, water, and soil fauna. He has applied these interests in different locations including Australian, Indonesia, Germany, and the UK for a range of agricultural industries including commercial cereal cropping, dairying, viticulture, subsistence rice farming, and for environmental protection. He has taught many aspects of soil science and soil management to all levels: from postgraduate and undergraduate at universities, through technical training to practical courses for farmers and land managers.

Dr. McKenzie has been a member of ISTRO since 1991 and is a member of the Australian and British Societies of Soil Science. He has been the major supervisor six successful PhD. theses, an external examiner of PhD. theses submitted to 6 different universities, and served as a reviewer for 16 different journals. He has held honorary appointments at the University of Melbourne, Australia; AFRC Silsoe Research Institute UK; Christian Albrechts University, Kiel, Germany; and currently holds an honorary lectureship at the University of Dundee, UK. He has published nearly 40 articles in refereed journals as well as numerous technical and conference papers.

Jean Roger-Estrade – nominee for ISTRO Board of Directors

Dr. Jean Roger-Estrade (born in 1959) is head professor at AgroParisTech, (France). He obtained his Agronomist Engineer's Degree from this institution in 1982, and received a Ph. D (in agronomic sciences) in 1995. He is teaching soil and agronomic sciences to undergraduate and graduate students, with, for the later, a special interest for the modeling of the effects of cropping systems on soil condition. His research interests are soil tillage, soil physical conditions, soil ecology, effects of tillage on pest dynamics. Research activities cover field experimentation and modeling of soil structure and its consequences on water transfer, soil biology and weeds. He is now assistant director of the INRA agronomy research unit at Grignon. Currently he participates to research programs for INRA and the French Ministry of Environment about soil sensitivity to compaction and effects of global change on cultivated soil

properties. Dr. Roger-Estrade is the member of four scientific councils (INA P-G, National School for Agronomics in Dijon, Picardie, Champagne-Ardennes University). He is co-author of 40 papers in refereed scientific publications and has published more than 50 other scientific publications. Up to now he has supervised 15 PhD. students and more than 40 master/diploma students. He serves as a referee for three international journals and is a member of French and European soil science and agronomy societies.

Peter Weisskopf – nominee for ISTRO Board of Directors

Dr. Peter Weisskopf (born in 1957) is leader of the soil fertility and soil protection research group at the Swiss Federal Research Station ART (Agroscope Reckenholz-Tanikon). He obtained his Degree as Agronomist Engineer from the Swiss Federal Institute of Technology at Zurich in 1981 and received his Ph.D. on “conservation of biological aspects of soil productivity” from the same institution in 1985.

Besides leading the research group, he is doing research work on physical soil properties and their interactions with soil functions and soil management. Research activities cover on-site field research on farms, model field experiments for applied research and the testing and development of methods for physical soil analysis. His research topics cover: a) interactions between physical soil state and weather on soil environment, b) the prevention and alleviation of mechanical impacts on soil structure by modeling soil stability and improving management methods, c) monitoring physical soil properties by direct measurements and d) modeling effects of soil management techniques on farm level on soil properties.

Dr. Weisskopf is involved in teaching agricultural aspects of soil science for undergraduate and graduate students at several institutions and holds courses on aspects of sustainable soil management for advisors and farmers. Because the Research Station ART is part of the Swiss Federal Office for Agriculture, he is called to discuss aspects of agricultural politics related to the sustainable management of soil fertility; he is also member of the steering committee of the Swiss Soil Monitoring Network. Since 2000 Dr. Weisskopf published as author or co-author 15 articles in reviewed scientific journals and books as well as more than 100 articles in proceedings

and non-reviewed scientific and agricultural journals. He serves as referee for several journals and is a member of three European soil science societies.

China Submits Proposal for 2015 ISTRO Conference

The ISTRO Board of Directors will be reviewing a proposal to hold the 2015 ISTRO conference in Nanjing, China. The city of Nanjing is one of six oldest capitals in Chinese history and is famous for its rich culture, long history, and beautiful landscapes. Be watching for more information as this exciting event unfolds.

Final Comments

As we begin 2009, the challenges we face can sometimes seem overwhelming as agriculture is now being called upon to meet not only food, feed, and fiber needs, but also fuel, wildlife preservation, environmental buffering, community development, and a host of other needs. Fortunately through professional organizations such as ISTRO we all have allies and friends working on these same issues around the globe. Therefore, as we approach our next Triennial Conference, I encourage all of you to either attend or find a colleague who will be attending and send your ideas with him/her to the meeting. New ideas for research, questions on how to solve a lingering problem, or how to better communicate with policy makers wherever you are can always be shared through not only the meetings, but also newsletters such as ISTRO INFO. Decide now to have your voice heard now and in the future. ISTRO depends on YOU!

Doug Karlen

Assistant Secretary General