Technion -Faculty of Civil and Environmental Engineering

The Stephen and Nancy Grand Water Research Institute

The Dahlia Greidinger International Symposium - 2009

Crop Production in the 21st Century: Global Climate Change, Environmental Risks and Water Scarcity

March 2-5, 2009
Technion-IIT, Haifa, Israel

Symposium

Program

Organized and Supported by:

BARD, The United States - Israel
Binational Agricultural Research and Development Fund

and

The Dahlia Greidinger Memorial Fund

The Dahlia Greidinger Memorial Symposium 2009

Monday, March 2nd

8:00-9:00 **Registration** (for non-presenting participants)

9.00-9:30 **Greetings and Welcoming Remarks**

Prof. Avi Shaviv, Technion, Chair, Organizing Committee

Prof. Emeritus J. Hagin, Technion, Honoring the Memory of Dahlia Greidinger

Prof. Oded Shmueli, Technion Executive Vice President for Research

Prof. Yuval Eshdat, Chief Scientist of Ministry of Agriculture and Rural Development

Dr. Yeshayahu Bar-Or , Chief Scientist of Ministry of Environmental Protection

Prof. Raphael Semiat, Director of the Stephen and Nancy Grand Water Research Institute, Technion

Session 1
Global Climate Change and Water Issues
Chaired by David Broday

9:30-9:55 Pinhas Alpert, Tel Aviv University, *Overview of Global Climate Change with Focus over the Mediterranean*

9:55-10:20 Jan W. Hopmans, University of California, Davis, *Global Warming and its Impacts on Water Availability for Agriculture*

10:20-10:40 Arnon Karnieli, Ben-Gurion University, *Satellite-derived Drought Assessment: Merits and Limitations*

10:40-11:00 Michael Walter, Cornell University, *Water and Energy: Need for Planning Coordination*

11:00-11:20 ***Coffee Break***

Session 2
Agriculture and Global Changes
Chaired by Ahmed Nasser

11:20-11:50 Daniel Hillel, Columbia University, *The Actual and Potential Effects of Soil Management Practices on the Exacerbation or Mitigation of Global Warming*

11:50-12:10 Uri Shani, Israel Water Authority & Hebrew University, *National Water Resources Management under High Uncertainty and Severe Stress - The Role of Agriculture*

12:10-12:30 Nicole Wrage, Georg-August University, Goettingen, *Using Diversity in Times of Climate Change: Productivity, Nutrients and Water Use*

12:30-13:45 ***Lunch and Posters***

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Monday –Continued

13:45-14:05 Sharon Avrahami , Technion, *The Impact of Global Change on N_2O Emission Rates by Change in Environmental Conditions and in Microbial Community Structure*

14:05-14:25 Mordechai Shecter, Haifa University, *Economic Analysis of Climate-Change Impacts on Agricultural Profitability and Land Use: The Case of Israel*

14:25-15:15: Structured Discussion - Sessions 1 & 2 - Led by Michael Walter

15.15-15.30 ***Coffee Break***

Session 3
Irrigation, Plant Nutrition and Pollution
Chaired by Kashchandra G. Raghothama

15:30-15:55 Ramesh Kanwar, Iowa State University, *Best Agricultural Management Practices for Reducing Water Pollution and Hypoxia in Large Water Bodies in the World*

15:55-16:20 Luc Maene, International Fertilizer Industry Association, *Plant Nutrition Challenges and Opportunities for the Global Fertilizer Industry*

16:20-16:40 Uri Yermiyahu, Agricultural Research Organization, *On the Feasibility of Desalinating Water for Irrigation: Agricultural and Technological Perspectives*

16:40-17:00 Oded Achileah, Haifa Chemicals, *The Use of Potassium Nitrate for Increasing Water-use Efficiency and for Combating Salinity in Agricultural Crops*

17:00-17:20 Kashchandra G. Raghothama, Purdue University, *Plant Responses to Nutrient Stress and Water Deficiency*

17.20-17.40 Discussion - Session 3

Shuttle to Hotel

Tuesday, March 3rd

8:15-8:45 **Registration** (for non-presenting participants)

Session 4
Carbon Sequestration and Soil Productivity
Chaired by Dan Yakir

8:45-9:15 Timothy C. Strickland, USDA- Agricultural Research Service, *Conservation Tillage and Cover Cropping: Effects on Soil Carbon, Nitrogen and Crop Water Use in the Coastal Plain of Georgia*

9:15-9:35 Eyal Rotenberg and Dan Yakir, Weizmann Institute, *Afforestation in the Semi-arid Region during Climate Change: Tradeoffs among Carbon Sequestration Water Use and Surface Radiation Budgets*

Tuesday –Continued

9:35-9:55 Shimon Rachmilevitch, *Ben-Gurion University, Root Respiration in Response to High Soil Temperature and Competition and Its Affect on Global Carbon Metabolism*

9:55-10:15 Ellen Graber, Agricultural Research Organization, *Biochar for 21st Century Challenges: Carbon Sink, Soil Ameliorant, and Energy Source*

10.15-10.35: Discussion - Session 4

10:35-10:50 ***Coffee Break***

Session 5
Advances in Plant Sciences
Chaired by Peter Neumann

10:50-11:20 Thomas R. Sinclair, University of Florida, *Hydraulic Conductance Trait to Improve Crop Yield in Water-deficit Environments*

11:20-11:40 Menachem Moshelion, Hebrew University, *Improving Plant Stress Tolerance and Yield Production: Is the Tonoplast Aquaporin a Key to Isohydric to Anisohydric Conversion*

11:40-12:00 Rony Wallach, Hebrew University, *The Patterns of Synchronized Physiologically-induced Oscillations in Whole-Plant Transpiration and Their Role under Drought Conditions*

12:00-12:20 Alon Samach, Hebrew University, *A Mechanism that Times the Switch to Reproduction in Plants Is Sensitive to Moderate Changes in Ambient Temperatures*

12:20–13:00 ***Lunch***

13:00–14:00 ***Official Poster Session***

(Presenters are requested to install posters on Monday or, at the very latest ,on Tuesday morning)

14:00-14:20 Shabtai Cohen, Agricultural Research Organization, *Iso and Anisohydric Responses to Shading; Predicting Water Use under Screens*

14:20-14:40 Yigal Elad, Agricultural Research Organization, *Assessment of the Effect of Climate Change on the Interactions of Plant, Pathogen and Microorganisms*

14:40-15:20 Structured Discussion - Session 5 - Led by Tom Sinclair

Shuttle to Hotel

19:30 ***Reception for Invited Participants at the Greidinger Residence***

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Wednesday, March 4th

8.15-8.45: Registration

Session 6
Water Resources Management
Chaired by Amjad Aleiwi

8:45-9:15 Daniel P. Loucks, Cornell University, *Managing Water for a Sustainable Life*

9:15-9:40 Sylvana Li, USDA, Foreign Agricultural Service, *Challenges and Opportunities for Developing International Collaborative Programs to Solve Water Quantity and Water Quality Issues of 21st Century*

9:40-10:00 Davor Romic, University of Zagreb, *Management Technologies for Soil and Water Resources*

10:00-10:20 Eran Friedler**, Technion,** *Combination of Catchment Basin Modeling and Economic Analysis to Determine Optimal Rehabilitation Strategies for Multiple Use Trans-boundary Streams*

10:20-10:40: ***Coffee Break***

10:40-11:30 Structured Discussion - Session 6 - Led by Sylvana Li

11:30-13:00 ***Official Poster Session***

13:00-14:00 ***Lunch***

14:00-14:45 Poster Summary, Discussion and Graduate Student Awards - Led by Alex Furman

Session 7
Advances in Soil-Water-Plant Modeling
Chaired by David Russo

14:45-15:15 Holger Meinke, Wageningen University, *Modelling that Integrates across Scales and Disciplines*

15:15-15:35 Avi Ostfeld, Technion, *Modeling Water Resources Systems: Traditional and New Perspectives*

15:35-15:55 Uri Shavit, Technion, *Detailed Modeling as an Essential Step in developing New Analysis Techniques: The Isotope Pairing Technique (IPT) Case Study*

15:55-16:15 ***Coffee Break***

16:15-16:35 Moshe Silverbush, Ben-Gurion University, *Nitrate Influx Kinetics to Various Components of the Corn Intact Root System: Data Acquisition for Uptake Modeling*

16:35-16:55 Matthias Langensiepen, Humboldt-University of Berlin, *Crop Water Requirements from the Penman-Monteith Model: Sensitivity to Canopy Parameters*

16:55- 17:15 Renduo Zhang, Zhongshan University, *Relationships between Soil Carbon Sequestration and the Climate Change as Well as Elevated Atmospheric CO_2*

17:15-17:45 Discussion - Session7

Shuttle to Hotel

Thursday, March 5th

8:15-8:45 **Registration**

Session 8
Irrigation with Reclaimed Wastewater
Chaired by Anat Lowengart-Aycicegi

8:45-9:00 Avi Shaviv, Technion, *Use of Reclaimed Wastewater for Irrigation in Israel*

9:00-9:15 Nirit Bernstein, Agricultural Research Organization, *Potential Microbial Risks Associated with Utilization of Treated Effluent for Agricultural Irrigation*

9:15-9:30 Uri Zoller, Haifa University, Oranim, *Selected EDCS and Carcinogenic Pollutants in Israel's Aquatic Environment: Implications for Sustainable Water Reuse in Agriculture*

9:30-9:45 Yael Laor, Agricultural Research Organization, *Threats and Viable Solutions for Olive Mill Wastewater in Israel: Some Economical, Environmental and Practical Considerations*

9:45-10:00 Dan Zaslavsky, Technion, *Irrigation with Sewage Water – Yes or No?*

10:00-10:20 Gurbachan Singh, Central Soil Salinity Institute, India, *Reuse of Waste Water in Agriculture: The Indian Experience*

10:20-10:40 ***Coffee Break***

10:40 -11:15 **Discussion: Limitations to Wastewater Irrigation -Led by Daniel P. Loucks**

Session 9
Advances in Irrigation
Chaired by Shabtai Cohen

11:15-11:45 Terry Howell, USDA- Agricultural Research Service, *Advanced Irrigation Engineering: Precision and Precise*

11:45-12:05 Nurit Agam , Agricultural Research Organization, *Thermal Remote Sensing of Crop Water Status: Pros and Cons of Two Different Approaches*

12:05-12:25 Alex Furman, Technion, *High Resolution Monitoring of Root Zone and Vadose Zone Processes*

12:25-12:45 Shmulik Friedman, Agricultural Research Organization, *Relative Water Uptake as a Criterion for the Design of Trickle Irrigation Systems*

12:45-13:05 Shmuel Assouline, Agricultural Research Organization, *Water Quality-Water Quantity Substitution Approach: Impact on Water Uptake, Active Root Volume and Solute Leaching under Daily Drip Irrigation*

13:05-13:20 **Short Discussion**

13:20-14:15 ***Lunch***

14:15- 15:15 **Panel Discussion**
Led by Ramesh Kanwar and Avi Shaviv