

Version 6/03/14

## Third International Salinity Forum Program

### Sunday – June 15, 2014

4:00-5:00 Early Registration

5:00-7:00 Reception

### Day 1 – Monday – June 16, 2014

8:00-8:30 Registration

8:30-9:00 Opening

Dr. Donald Suarez, Director, USDA-ARS Salinity Laboratory

Dr. Marylynn Yates, Dean, College of Natural & Agricultural Sciences

Dr. Doug Parker, Director, UC ANR, California Institute for Water Resources

9:00-9:40 Keynote – Dr. Daniel Hillel, 2012 World Food Prize Laureate

9:40-9:50 Break

9:50-11:50 Plenary Session

11:50-12:05 Discussion

12:05-1:15 Lunch (provided on-site)

Keynote – Dr. Ismahane Elouafi, Director General, International Center for Biosaline Agriculture, Dubai

1:15-2:55 Parallel Sessions

2:55-3:10 Discussion

3:10-3:30 Break

3:30-5:20 Parallel Sessions

5:20-5:35 Discussion

9:50-11:50 Plenary Session (Day 1 – Monday – June 16, 2014)

*Chair: Rana Munns, CSIRO Plant Industry, Canberra, and School of Plant Biology, University of Western Australia.*

(3.0) Salt Tolerance of Crop and Pasture Species

*Rana Munns, CSIRO Plant Industry, Canberra, and School of Plant Biology, University of Western Australia.*

(1.0) Social and Economic Impacts of Salinization

*Shoab Ismail, International Center for Biosaline Agriculture, Dubai, United Arab Emirates.*

(6.0) Mapping and Monitoring Salinity at Field and Regional Scales

*Dennis L. Corwin, U.S. Salinity Laboratory, USDA-ARS, Riverside, CA, USA; and Scott M. Lesch, Riverside Public Utilities – Resources Division, Riverside, CA, USA.*

(4.0) Regional Watershed and Basin Management Strategies for Salinity Control: Example of the Rio Grande

*Fred M. Phillips, Department of Earth and Environmental Science, New Mexico Institute of Mining and Technology, Socorro, NM, USA.*

**11:50-12:05 Discussion**

**12:05-1:15 Lunch**

## **Parallel Sessions**

### **Room 1**

**1:15-2:55 Plant Salt Tolerance** (Day 1 – Monday – June 16, 2014)

*Chair: Khaled Masmoudi, International Center for Biosaline Agriculture, Dubai, UAE.*

(7.3) Ion Transporters Play Key Role in Durum Wheat Salt Stress Tolerance

*K. Masmoudi, K. Feki, J.M. Pardo, S. Gouiaa, H. Khoudi, S. Ben Amar, H. Sentenac, A.A. Very, ICBA, Dubai, UAE.*

(88) Comparison of Salt Tolerant Alfalfa (*Medicago sativa*) Genotypes: Seed Germination, Emergence, and Dry Matter Yield and Mineral Composition of Mature Plants

*Inderjot Chahal, Sharon E. Benes, Department of Plant Science, California State University, Fresno, CA, USA; Daniel H. Putnam, Department of Plant Sciences, and Stephen R. Grattan, Department of Land, Air and Water Resources, University of California, Davis, CA, USA.*

(115) Lima Bean (*Phaseolus lunatus* L.) Plant Growth, Leaf Gas Exchange, Stomatal and Non-stomatal Limitations to Photosynthesis in Responses to Saline Irrigation Waters

*Xuan Liu and Donald L. Suarez, USDA-ARS, U.S. Salinity Laboratory, Riverside, CA, USA.*

(7) Evaluation of Different Radish (*Raphanus sativus*) Genotypes Under Different Saline Regimes

Muhammad Aslam Pervez, Samad Raza, C. M. Ayyub, *Muhammad Rashid Shaheen* and Madiha Butt, Institute of Horticultural Sciences, University of Agriculture, Faisalabad, Pakistan.

(114) Field Evaluation of Avocado Rootstock Salt Tolerance

*Nydia Celis*, Donald L. Suarez, USDA Salinity Laboratory, Laosheng Wu, and Peggy Mauk, University of California, Riverside, USA.

**2:55-3:10 Discussion**

**3:10-3:30 Break**

### **Room 1**

**3:30-4:50 Improving Plant Salt Tolerance-Genetics and Breeding A** (Day 1 – Monday – June 16, 2014)

*Chair: Mark Tester, King Abdullah University of Science & Technology, Saudi Arabia.*

(7.2) Genetic Approaches to Develop Salt Tolerant Germplasm

*Mark Tester*, King Abdullah University of Science & Technology, Saudi Arabia.

(27) Evaluation and Comparison of Two Salinity Screening Techniques for Germination of Perennial Ryegrass (*Lolium perenne* L.) Seedlings Under Salinity Stress

*Eric Koch*, Stacy A. Bonos, William A. Meyer, Rutgers University, New Brunswick, NJ., USA.

(113) Salinity Tolerance of Five Commercial Cultivars of Strawberry (*Fragaria x ananassa* Duch).

*Jorge F.S. Ferreira*, Xuan Liu, Donald L. Suarez, US Salinity Laboratory, USDA-ARS, Riverside, CA, USA.

(95) Water, Osmotic and Turgor Potentials of the Halophyte *Atriplex nummularia* Lindl. Irrigated with Saline Water and Water Stress in Brazilian Northeast

*Edivan Rodrigues de Souza*, Hidelblandi Farias de Melo and Brivaldo Gomes de Almeida, Federal Rural University of Pernambuco, Rua Dom Manoel de Medeiros, Recife, Pernambuco, Brasil.

**4:50-5:05 Discussion**

### **Room 2**

**1:15-2:35 Economics and Management (A)** (Day 1 – Monday – June 16, 2014)

*Chair: Abdullah Dakheel, International Center for Biosaline Agriculture, Dubai, UAE.*

(1.1) Impact of Salinity on Agricultural Productivity and Water Resources at a Regional Scale: A Case Study from Oman

*Abdullah Dakheel*, International Center for Biosaline Agriculture, Dubai, UAE; Ahmad Al Bakri, Directorate General for Agricultural and Livestock Research, Oman; and Shoaib Ismail, International Center for Biosaline Agriculture, Dubai, UAE.

(1.4) Economic Feasibility Analysis of Water Reuse Projects as an Instrument to Reduce the Salinity Effects in Scarcity Areas

*F. Hernández-Sancho* and *A. Bellver-Domingo*, Water Economics Group, University of Valencia, Campus dels Tarongers, Valencia, Spain.

(105) Integrating Salinity Management with Biofuel/Energy Production in California using Perennial, Salt-Tolerant Grasses as Feedstocks

*Taiying Zhang*, Department of Plant Sciences, University of California, Davis, CA; and *Stephen Kaffka*, California Biomass Collaborative, USA.

(102) Bringing Land Back from the Brink: A Farm-Level Bio-economic Analysis of the Private and Public Benefits of Growing Biofuel Crops on Marginalized Land in the San Joaquin Valley

*Lucy Levers*, University of California, Riverside, USA.

**2:35-2:50 Discussion**

**2:50-3:00 Break**

### **Room 2**

**3:00-4:00 Economics and Management (B)** (Day 1 – Monday – June 16, 2014)

*Chair: Kurt A. Schwabe, University of California, Riverside, CA, USA.*

(1.2) The Economics of Salinity Management in Irrigated Agriculture: Drainage, Aquifer, and Climate Change Considerations

*Kurt A. Schwabe* and *Keith C. Knapp*, University of California, Riverside, CA, USA.

(19) Victorian Mallee “Cap and Trade” Approach to Manage Salinity Impacts from Irrigation Development

*D Jaensch*, Mallee Catchment Management Authority, Victoria, Australia.

(8) Evaluation of Salinity Offset Programs in Australia

*Tiho Ancev*, University of Sydney, Australia.

**4:00-4:15 Discussion**

### **Room 3**

**1:15-2:55 Regional Mapping-Soil and Water** (Day 1 – Monday – June 16, 2014)

*Chair: John Triantafilis, School of Biological, Earth and Environmental Sciences, The University of New South Wales, NSW, Australia.*

(6.2) Digital Soil Mapping of Salinity using EM Induction Instruments

*John Triantafilis* and *J. Huang*, School of Biological, Earth and Environmental Sciences, The University of New South Wales, NSW, Australia.

(36) Retrospective Monitoring of Soil Salinization with the use of a Problem-oriented System for the Analysis of Agrogenic Transformation of Soils in the South of Russia

*A. I. Rukhovich*, *M. S. Simakova*, *A. L. Kulyanitsa*, *D. I. Rukhovich*, *A. V. Bryzzhev*, *P. V. Koroleva*, *N. V. Kalinina*, *E. V. Vil'chevskaya*, *E. A. Dolinina*, and *O. N. Nikolaeva*, Soil Science Institute, Russian Academy of Agricultural Sciences, Moscow, Russia.

(35) Identification of the Trends of Soil Salinization via Comparison of the Maps for Different Dates  
*D. I. Rukhovich, E. V. Vil'chvevskaya, P. V. Koroleva, N. V. Kalinina, E. A. Dolinina, A. I. Rukhovich, O. N. Nikolaeva, and G. I. Chernousenko, Soil Science Institute, Russian Academy of Agricultural Sciences, Moscow, Russia.*

(34) A Digital Map of Soil Salinity in the Region of Middle Siberia  
*G.I. Chernousenko, N.V. Kalinina, D.I. Rukhovich, Soil Science Institute, Russian Academy of Agricultural Sciences, Moscow, Russia.*

(24) Brackish Groundwater as a Potential Resource  
*Jennifer S. Stanton, David W. Anning, Joseph D. Ayotte, Lester J. Williams, Virginia L. McGuire, Kevin F. Dennehy, U.S. Geological Survey, Lincoln, NE, USA.*

**2:55-3:10      Discussion**

**3:10-3:30      Break**

### **Room 3**

**3:30-4:30 Regional Mapping-Remote Sensing (Day 1 – Monday – June 16, 2014)**

*Chair: Alan Basist, Eyes on Earth, Inc., Asheville, North Carolina, USA.*

(6.1) Using Remote Sensing to Identify Regional Trends and Spatial Patterns of Salinization and Desertification.

*Alan Basist, Eyes on Earth, Inc. Asheville, NC, USA.*

(84) Digital Mapping of Soil Salinity in the Caspian Lowland (Russia) Based on Remote Sensing and Pattern Analysis

*M.V. Konyushkova, Eurasian Center for Food Security of Lomonosov Moscow State University, Russia and V.V. Dokuchaev Soil Science Institute, Moscow, Russia; U. Yu. Ulyumdzhiev, Faculty of Geography of Lomonosov Moscow State University, Russia; L.V. Rogovneva, V.V. Dokuchaev Soil Science Institute, Moscow, Russia.*

(30) Possibility and Expectation of Salinity Mapping using HISUI, A Case Study at Wheat Belt in Western Australia

*Chiaki Kobayashi, Infoserve Inc. Japan; and Norichika Asada, Japan Space Systems, Japan.*

**4:30-4:45      Discussion**

### **Room 4**

**1:15-2:55 Basin Level-Impacts and Management (B) (Day 1 – Monday – June 16, 2014)**

*Chair: Antonio Pulido Bosch, University of Almeria, Spain*

(6.5) Impact of Irrigation on Groundwater Salinity

*Antonio Pulido Bosch, University of Almeria, Spain.*

(61) Is Irrigation Part of the Solution to Managing Highly Saline Neutralized Acid Mine Drainage in the Vaal Basin, South Africa?

*M van der Laan*, JG Annandale, MV Fey, PC de Jager and HM du Plessis, University of Pretoria, Hatfield, Pretoria, RSA.

(57) Land Management for Dryland Salinity Control in Montana, Northern Great Plains.

*Jane M. Holzer*, Scott K. Brown and Tera O. Ryan, Montana Salinity Control Association, Conrad, MT, USA.

(123) An Evaluation of the Effects of Selected Rangeland Conditions on the Sources and Transport of Dissolved Solids Delivered to Streams in the Upper Colorado River Basin (UCRB)

*C. Green Rossi*, USDOI Bureau of Land Management; *M. Weltz*, USDA ARS, Reno, NV; *K. Nouwapko*, University of Nevada; *S. Gagnon*, USDA National Agricultural Library, MD; *J. Makuch*, USDA National Agricultural Library, MD.

(94) Lower Vaal River Basin in South Africa: Review of long-term Irrigation Impacts on Salinization and Coinciding Management Interventions

*Van Rensburg, L.D.*, Barnard, J.H., Department of Soil, Crop and Climate Sciences, University of the Free State, Bloemfontein, South Africa; *Amour, R.J.*, Free State Agriculture, South Africa; and *Du Preez, C.C.*, Department of Soil, Crop and Climate Sciences, University of the Free State, Bloemfontein, South Africa.

**2:55-3:10 Discussion**

**3:10-3:25 Break**

#### **Room 4**

**3:25-4:45 Basin Level-Impacts and Management (A)** (Day 1 – Monday – June 16, 2014)

*Chair: Tapas Biswas, Hydrological Society of Canberra, Fyshwick, Canberra, Australia.*

(9.1) Old Basin Same Problems: Murray Darling Basin Salinity Impacts and Management Interventions  
*Tapas Biswas, Hydrological Society of Canberra, Fyshwick, Canberra, Australia.*

(120) River Salinity and Climate Change: Evidence from Coastal Bangladesh

*Susmita Dasgupta*, Development Research Group, The World Bank; *Farhana Akhter Kamal*, *Zahirul Huque Khan*, and *Sharifuzzaman Choudhury*, Coast, Port and Estuary Division, Institute of Water Modeling, Bangladesh; and *Ainun Nishat*, BRAC University, Bangladesh.

(66) Salt Interception Schemes – Salinity Management along the Lower River Murray, Australia

*Andrew Telfer*, Australian Water Environments, Adelaide, South Australia.

(76) Investigation of Alternative Water Management Strategies for Mitigating Saline Growing Conditions and Improving River Water Quality in an Irrigated River Valley

*Timothy K. Gates*, Colorado State University, Fort Collins, CO, USA; *Eric D. Morway* and *Richard G. Niswonger*, U.S. Geological Survey, Carson City, NV, USA.

**4:45-5:00 Discussion**

## **Room 5**

### **1:15-2:35 A Salinity Risk Management Approach-The Experience of the Murray Darling Basin, Australia (A) (Organized by MDBA) (Day 1 – Monday – June 16, 2014)**

Chair: Mark Potter, Goulburn-Murray Water, Tatura, Australia

(11.0) A Salinity Risk Management Approach-The Experience of the Murray Darling Basin, Australia  
*Peter Gibson*, Part of the Goulburn Broken Catchment Management Authority Community Engagement Structure, Tatura, Australia

(11.1) Basin-Scale Salinity Management in the Murray-Darling Basin: Successes and Challenges  
*Carl Walters*, Murray Darling Basin Authority, Canberra City, ACT, Australia

(11.2) Delivering the Basin Salinity Management Strategy in Victoria  
*Carl Walters*, Murray Darling Basin Authority, Canberra City, ACT, Australia, Susan Ryan, Department of Environment and Primary Industries, John Cooke, Tim Cummins and Associates, Nikki Gemmill, Department of Environment and Primary Industries, *Australia*

(11.3) The Shepparton Irrigation Region (Victoria, Australia) Salinity Story  
*Carl Walters* and *Helen Murdoch*, Goulburn Broken Catchment Management Authority, Mark Potter and James Burkitt, Goulburn-Murray Water

### **2:35-2:50 Discussion**

## **Room 5**

### **3:30-4:30 A Salinity Risk Management Approach-The Experience of the Murray Darling Basin, Australia (B) (Organized by MDBA) (Day 1 – Monday – June 16, 2014)**

Chair: *Carl Walters*, Murray Darling Basin Authority, Canberra, Australia

(11.4) Continually Adapting to the Salinity Risk – The Shepparton Irrigation Region (Victoria, Australia).  
*James Burkitt* and *Mark Potter*, Goulburn-Murray Water, *Carl Walters*, Goulburn Broken Catchment Management Authority, Tatura, Australia

(11.5) Operating Salinity Mitigation Infrastructure to Manage Risk (Shepparton Irrigation Region, Victoria, Australia)  
*Mark Potter* and *James Burkitt*, Goulburn-Murray Water; *Carl Walters*, Goulburn Broken Catchment Management Authority, Tatura, Australia

(11.6) The Landholder Experience – The Shepparton Irrigation Region (Victoria, Australia).  
*Helen Murdoch* and *Carl Walters*, Goulburn Broken Catchment Management Authority, *Mark Potter* and *James Burkitt*, Goulburn-Murray Water, Tatura, Australia

### **4:30-4:45 Discussion**

## **Day 2 – Tuesday – June 17, 2014**

<b>8:30-10:00</b>	<b>Plenary Session</b>
<b>10:00-10:15</b>	<b>Discussion</b>
<b>10:15-10:30</b>	<b>Break</b>
<b>10:30-11:50</b>	<b>Parallel Sessions</b>
<b>11:50-12:05</b>	<b>Discussion</b>
<b>12:05-1:05</b>	<b>Lunch (provided on-site)</b> <b>Keynote: Dr. Michal Artzy, Head - Leon Recanati Institute for Maritime Studies and Sir Maurice and Lady Irene Hatter Laboratory for Coastal and Harbour Archaeology, University of Haifa, Israel</b>
<b>1:05-2:25</b>	<b>Parallel Sessions</b>
<b>2:25-2:40</b>	<b>Discussion</b>
<b>2:40-2:55</b>	<b>Break</b>
<b>2:55-4:55</b>	<b>Parallel Sessions</b>
<b>4:55-5:10</b>	<b>Discussion</b>
<b>5:10-6:00</b>	<b>Poster Session</b>
<b>6:30-9:30</b>	<b>Banquet</b>



**8:30-10:00 Plenary Session** (Day 2 – Tuesday – June 17, 2014)

*Chair: Shoiab Ismail, International Center for Biosaline Agriculture (ICBA), Dubai, UAE*

**(7.0) Understanding and Improving Plant Salt Tolerance**

Xiaohong Zhu, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, Indiana, USA; and *Jian-Kang Zhu*, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, Indiana, USA and Shanghai Center for Plant Stress Biology, Shanghai Institutes of Biological Sciences, Chinese Academy of Sciences, Shanghai, China.

**(9.0) The Aral Sea Basin: A Case Study in Salinity Problems in Arid Central Asia**

*Philip Micklin*, Western Michigan University, Kalamazoo, Michigan, USA.

**(2.0) Sustainable Soil Management under Irrigation with Saline Waters**

*Donald L. Suarez*, USDA-ARS Salinity Laboratory, Riverside CA, USA.

**10:00-10:15 Discussion**

**10:15-10:30 Break**

**Parallel Sessions**

**Room 1**

**10:30-11:50 Improving Plant Salt Tolerance-Genetics and Breeding (B)** (Day 2 – Tuesday – June 17, 2014)

*Chair: Glenn B. Gregorio, International Rice Research Institute (IRRI), Los Baños, Philippines.*

**(7.1) Salt-Proof Rice Varieties**

*Glenn B. Gregorio*, International Rice Research Institute (IRRI), Los Baños, Philippines.

**(31) Salt Tolerance Mechanism in Quinoa: Seed Respiration Pattern, Ionic Relations and Yield Perspectives**

*I. Afzal*, Department of Crop Physiology, University of Agriculture, Faisalabad, Pakistan; P.H. N. Bello, Department of Plant Sciences, University of California, Davis, USA; S.M.A. Basra, Department of Crop Physiology, University of Agriculture, Faisalabad, Pakistan and K.J. Bradford, Department of Plant Sciences, University of California, Davis, USA.

**(122) Exploring Genetic Diversity of Core Set Rice Germplasms Using their Physiological Responses Against Salinity**

*TR Kwon*, National Academy of Agricultural Science/RDA, Suwon, Korea; *SK Lee*, National Academy of Agricultural Science/RDA, Suwon, Korea; *YJ Park*, Kongju National University, Kongju, Korea; *SY Lee*, National Academy of Agricultural Science/RDA, Suwon, Korea, *IS Yoon*, National Academy of Agricultural Science/RDA, Suwon, Korea; and *MH Nam*, Metabolmic Center, Korea Basic Science Institute, Daejeon, Korea.

(58) Applications of Artificial Neural Network Models as Decision Support Tools for Salinity Management of Avocado

*David E. Crowley, Julie Escalera, Ariel Dinar, Water Science and Policy Center, Department of Environmental Sciences, University of California, Riverside, CA, and Mary Lu Arpaia, Department of Botany and Plant Sciences, University of California, Riverside, CA, USA.*

**11:50-12:05 Discussion**

**Room 1**

**1:05-2:25 Plants and Salinity-Water quality (A)** (Day 2 – Tuesday – June 17, 2014)

*Chair: Jelte Rozema, Systems Ecology, Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, The Netherlands.*

(3.5) Global Perspective of Crop Cultivation on Salinized Soils, Saving Fresh Water

*Jelte Rozema, Yuancheng Zhang, Hongxiu Li, Bas Bruning, Diana Katschnig, Rob Broekman and Bin Ji. Systems Ecology, Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, The Netherlands.*

(10) Alternative Use of Saline Water to Grow Algae for Food, Feed and Biofuel

*Jalal Rastegary, Abbas Ghassemi, Saeid A. Shirazi, Tracey Fernandez, Institute for Energy and the Environment, New Mexico State University, Las Cruces, NM. USA.*

(118) Salt and Nitrate Leaching from Cool and Warm-season Turfgrasses Irrigated with Tailored Water  
*Elena Sevostianova and Bernd Leinauer, University of New Mexico, Las Cruces, NM, USA.*

(111) Saline Water Irrigation under Different Drought Conditions

*Selda Ors, Ataturk University, Department of Agricultural Structures and Irrigation, 25240, Erzurum, Turkey; Donald L. Suarez, USDA-ARS Salinity Laboratory, Riverside, CA, USA.*

**2:25- 2:40 Discussion**

**2:40-2:55 Break**

**Room 1**

**2:55- 4:35 Basin Level-Impacts and Management (D)** (DAY 2 – Tuesday – June 17, 2014)

*Chair: Andrew Telfer, Australian Water Environments, Adelaide, South Australia.*

(65) The Floodplain Salt Cycle – Systemising Salt Storage and Release Processes in the Lower Murray Floodplain, Australia

*Andrew Telfer, Rob Burnell, Australian Water Environments, Adelaide, South Australia; Juliette Woods, National Centre for Groundwater Research and Training, Flinders University, Adelaide, South Australia; and Tapas Biswas, Murray Darling Basin Authority, Canberra, ACT, Australia.*

(74) Characterization of Nonpoint Source Pathways of Salt, Se and B in the Pariette Draw Watershed, Utah

*Jean M. Morrison, Michele L. Tuttle, Juli Fahy, U.S. Geological Survey, Denver, CO, USA.*

(79) Large Scale Evaluation of Agricultural Salinity Status: Israel as a Case Study  
*Eran Raveh*, Agricultural Research Organization, Institute of Plant Sciences, Bet Dagan, Israel.

(89) An Overview of Aspects Related to Land Use and Dryland Salinity of the Berg River Catchment of South Africa  
*WP de Clercq*, Soil Science, Stellenbosch University, Matieland, RSA.

(93) Saltwater Contamination and Soil Productivity at the Southern Margin of the Venice Lagoon, Italy  
*Elia Scudiero*, Department of Agronomy, Food, Natural Resources, Animals, and Environment (DAFNAE), University of Padua, Legnaro Italy and USDA-ARS, United States Salinity Laboratory, Riverside, CA, USA ;  
*Pietro Teatini*, Department of Civil, Environmental, and Architectural Engineering (ICEA), University of Padua, Padua, Italy; *Federica Braga*, Institute of Marine Sciences (ISMAR), National Research Council, Venezia, Italy; and *Francesco Morari*, Department of Agronomy, Food, Natural resources, Animals, and Environment (DAFNAE), University of Padua, Legnaro Italy.

**4:35-4:50 Discussion**

## **Room 2**

**10:30-11:50 Economics and Management (D)** (Day 2 – Tuesday – June 17, 2014)

*Chair: Khalil Ammar, International Center for Biosaline Agriculture, Dubai, UAE.*

(4.1) Integrated Water Management to Control Seawater Intrusion in Coastal Agricultural Areas  
*Khalil Ammar*, International Center for Biosaline Agriculture, Dubai, UAE.

(1.5) Sustainability Economics of Groundwater Usage and Management: Quantity and Quality  
*Keith Knapp*, University of California, Riverside, CA, USA; and *Brad Franklin*, IWMI, India.

(101) A Bioeconomic Model of Perennial Production with Deficit Irrigation and Saline Water  
*Brad Franklin*, IWMI, India; *Kurt Schwabe*, *Keith Knapp*, University of California, Riverside, CA, USA.

(83) A Coupled Agronomic – Economic Model to Evaluate Options for Managing Variable Salinity Irrigation Water: The Case for Dates and Bell Peppers in the Arava Valley  
*Effi Tripler*, Central and Northern Arava R&D; and *Alon Ben-Gal*, Agricultural Research Organization, Gilat, Israel.

**11:50-12:05 Discussion**

## **Room 2**

**1:05-2:25 Economics and Management (E)** (Day 2 – Tuesday – June 17, 2014)

*Chair: Mark Norton, Water Resources and Planning Department, Santa Ana Watershed Project Authority, CA, USA.*

(2) Appraisal of a Brine Line from the Santa Ana Watershed to the Salton Sea  
*Mark R. Norton*, Water Resources and Planning Department, Santa Ana Watershed Project Authority, CA, USA.

(97) Conservation Potential of Salinity Mitigation Strategies and Realized Economic Benefits  
*Tama Snow*, URS Corporation; David Merritt, URS Corporation; John Dickey, RPSS, PlanTierra; Edward Harvey, Harvey Economics, CA, USA.

(54) Getting the Salt Out: Convincing Residents to Remove Water Softeners  
*Preeti Ghuman*; and John Boyd, Los Angeles County Sanitation Districts, CA, USA.

(1) SAWPA's Collaborative Nitrogen and TDS Task Force – 21st Century Approach to Groundwater Management  
*Mark R. Norton*, Water Resources and Planning Department, Santa Ana Watershed Project Authority, CA, USA.

**2:25-2:40 Discussion**

**2:40-2:55 Break**

### **Room 3**

**10:30-11:10 Soil Salinity-Reclamation (A)** (Day 2 – Tuesday – June 17, 2014)

*Chair: D. K. Sharma, Central Soil Salinity Research Institute, Karnal, India.*

(2.2) Sustainable Management of Salt-affected Soils in India: Strategies and Approaches  
*D. K. Sharma*, Central Soil Salinity Research Institute, Karnal, India.

(37) Saline-Sodic Soil Reclamation and Irrigation-Drainage Sustainability in the Songnen Plain, Northeast China  
*Zhichun Wang*, Fan Yang, Chunming Chi, Fenghua An, Changwei Zhao and Yunhe Wang, Da'an Sodic Land Experimental Station; Da'an, Jilin, Northeast Institute of Geography and Agricultural Ecology, Chinese Academy of Sciences, Changchun, China.

**11:10-11:25 Discussion**

### **Room 3**

**1:05-2:25 Soil Salinity-Reclamation (B)** (Day 2 – Tuesday – June 17, 2014)

*Chair: Juan R. Gonzalez Cena, Agricultural and Biological Engineering, The University of Arizona, Tucson, AZ.*

(14) Soil Erosion Characteristics of Ditch Banks during Reclamation of a Sodic/saline Soil in a Coastal Region of China: Field Investigation and Rainfall Simulation  
*She Dongli*, Fei Yuanhang, Key Laboratory of Efficient Irrigation-Drainage and Agricultural Soil-Water Environment in Southern China, Ministry of Education, College of Water Conservancy and Hydropower Engineering, Hohai University, Nanjing, China; Liu Zhipeng, College of Resources and Environmental Sciences, Nanjing Agricultural University, Nanjing, China; Liu Dongdong, Shao Guangcheng, Key Laboratory of Efficient Irrigation-Drainage and Agricultural Soil-Water Environment in Southern China, Ministry of Education, College of Water Conservancy and Hydropower Engineering, Hohai University, Nanjing, China.

(99) Sequential Flooding for Salt Leaching – A Field Study

*Juan R. Gonzalez Cena*, Agricultural and Biological Engineering, The University of Arizona, Tucson, AZ; Markus Tuller, Soil, Water and Environmental Science, The University of Arizona, Tucson, AZ, USA; and Donald C. Slack, Agricultural and Biological Engineering, The University of Arizona, Tucson, AZ, USA.

(107) Emulating Volcanism to Create a New Class of Recycled Water

*Terry R. Gong*, Harmon Systems International, LLC & Earth Renaissance Technologies, LLC, USA.

(75) Effects of Degraded Water for Irrigation on Soil Microbial Communities

*A. M. Ibekwe*, *A. Gonzalez*, and *D. L. Suarez*, USDA-ARS-United States Salinity Laboratory, Riverside CA, USA.

**2:25-2:40 Discussion**

**2:40-2:55 Break**

#### **Room 4**

**10:30-11:50 Recycled-treated water/Impact** (Day 2 – Tuesday – June 17, 2014)

*Chair: Daniel Schlenk, Department of Environmental Sciences, University of California, Riverside, USA.*

(5.2) Potential Impacts of Brine Discharge to Surface Waters

*Daniel Schlenk*, Department of Environmental Sciences, University of California, Riverside, USA.

(8.4) Emerging Contaminants in Soil and Crops Irrigated with Recycled Water

*Jay Gan*, *Sherry Wu*, *Laurel Dodgen*, and *Jeremy Conkle*, Department of Environmental Sciences, University of California, Riverside, CA, USA.

(116) Effects of Secondary Treated Wastewater on Infiltration; Impact of Dissolved Organic Carbon, SAR and pH

*Alberto Gonzalez-Rubio*, University of California, Riverside; and *Donald L. Suarez* USDA-ARS Salinity Laboratory, Riverside CA, USA.

(48) Impacts of long-term reclaimed water irrigation on soil salinity accumulation in urban green land of Beijing

*Meie Wang*, *ShidanLv*, and *Weiping Chen*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China

**11:50-12:05 Discussion**

#### **Room 4**

**1:05-2:25 Recycled-treated water/Processes** (Day 2 – Tuesday – June 17, 2014)

*Chair: Avner Silber, Institute of Soil, Water and Environmental Sciences, Agricultural Research Organization, the Volcani Center, Bet Dagan, Israel*

(9) Desalinated water: a step toward improving water saving and yields

*Avner Silber*, Institute of Soil, Water and Environmental Sciences, Agricultural Research Organization, the Volcani Center, Bet Dagan, Israel; *Yair Israeli*, Northern R&D, Rosh Pina, Israel; and *Shmuel Assoulune*, Institute of Soil, Water and Environmental Sciences, Agricultural Research Organization, the Volcani Center, Bet Dagan, Israel.

(78) Chino II Desalter Concentrate Reduction Strategy Through Innovative Treatment Technology  
*Cindy Miller*, Western Municipal Water District and Chino Basin Desalter Authority, CA, USA.

(3) Electrical Conductivity Control for Salinity Reduction in Treated Industrial Wastewater  
*Madan Arora*, Parsons, Inc., Pasadena, CA; *James C. Young*, University of Arkansas, Fayetteville, AR, USA.

(4) Technology Developments in Forward Osmosis to Address Water Purification  
*John Webley*, Trevi Systems, Petaluma, CA, USA.

**2:25- 2:40      Discussion**

**2:40-2:55      Break**

#### **Room 4**

**2:55-4:55 Plants, Nutrition and Water quality (D) (Day 2 – Tuesday – June 17, 2014)**

*Chair: Steve R. Grattan*, Department of Land, Air and Water Resources, University of California, Davis, CA, USA.

(3.2) Plant Nutrition under Salt Stress

*Steve R. Grattan*, Department of Land, Air and Water Resources, University of California, Davis, CA, USA.

(117) Turfgrass Establishment from Polymer Coated Seed under Saline Irrigation

*M. Serena*, *B. Leinauer*, and *G. Alvarez*, New Mexico State University, Las Cruces, NM, USA.

(121) Differential Susceptibility of Strawberry to Salts

*Oleg Daugovish* and *Ben Faber*, University of California Cooperative Extension, Ventura County, CA, USA.

(21) Possibility of Using Sea Salts as nutrients in Hydroponic Systems

*Ahmed Al-Busaidi*, College of Agricultural & Marine Sciences, Sultan Qaboos University, Muscat, Oman, and *Satoshi Yamada*, Faculty of Agriculture, Tottori University, Japan.

(18) Growth, Yield and Fruit Quality of Cherry Tomato Irrigated with Saline Water at Different Developmental Stages

*Fei Peng*, *Cuihua Huang*, and *Xian Xue*, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences; *Quangang You*, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, and University of Chinese Academy of Sciences, Yuquanlu, Beijing; *Tao Wang* and *Jie Liao*, Key Laboratory of Desert and Desertification, Cold and Arid

Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences; Anna Tedeschi, CNR-ISAFOM-Institute of Agricultural and Forest Systems in the Mediterranean, National Research Council (CNR) of Italy, Naples, Italy.

(90) Effects of Silica Applications on Yield Response under Salinity for Spinach (*Spinacia Oleracea*) Adem GUNES, Erciyes University, Faculty of Agriculture, Department of Soil Science and Plant Nutrition, Kayseri, Turkey; *Metin Turan*, Yeditepe University, Faculty of Engineering and Architecture, Department of Genetics and Bioengineering, Kayisdagi, Istanbul, Turkey; M. Rustu Karaman, High Expert University, Ankara, Turkey; Fikrettin Sahin, Yeditepe University, Faculty of Engineering and Architecture, Department of Genetics and Bioengineering, Kayisdagi, Istanbul, Turkey; Medine Gulluce, Atatürk University Faculty of Agriculture, Department of Biology, Erzurum, Turkey; Ertan Yildirim, Atatürk University Faculty of Agriculture, Department of Horticulture, Erzurum, Turkey; Güleray Agar, Atatürk University Faculty of Agriculture, Department of Biology, Erzurum, Turkey; Sinem Tasci, Yeditepe University, Faculty of Engineering and Architecture, Department of Genetics and Bioengineering, Kayisdagi, Istanbul, Turkey; Hatice Ogut, Ahi Evran University, Kirsehir, Turkey.

**4:55-5:10 Discussion**

#### **Room 5**

**10:30-11:50 Planning and Managing Salinity in the Central San Joaquin Valley (Organized by Central Valley Salinity Coalition) (Day 2 – Tuesday – June 17, 2014)**

*Chair: Karl Longley, CSU Fresno and Central Valley Regional Water Quality Control Board, CA, USA.*

(12.1) Organizational and Regulatory Challenges in Planning and Managing Salinity in the Central Valley  
*Pamela C. Creedon and Jeanne Chilcott, Central Valley Regional Water Quality Control Board, CA, USA*

(12.2) Basin Wide Salinity Assessment in the Central Valley, Technical Challenges, Solutions and Results  
*Karl Longley, CSU Fresno and Central Valley Regional Water Quality Control Board, Richard Meyerhoff, CV-SALTS CDM Smith, Daniel Cozad, Central Valley Salinity Coalition, CA, USA.*

(12.3) Initial Conceptual Model of Water, Salt, and Nitrate Movement on a Large Scale for Groundwater and Surface Water in California's Central Valley: Technical Challenges, Solutions, Results  
*Vicki Kretsinger Grabert, Barbara Dalgish, and Dylan Boyle, Luhdorff & Scalmanini, Consulting Engineers; John Dickey, PlanTierra, LLC; Joel Herr, Systech Water Resources, Inc.; Tom Grovhoug, Karen Ashby, and Danielle Moss, Larry Walker and Associates*

(12.4) Two Prototype Area Analyses for Developing Salt and Nitrate Management Tools in California's Central Valley  
*Vicki Kretsinger Grabert, Barbara Dalgish, and Dylan Boyle, Luhdorff & Scalmanini, Consulting Engineers; John Dickey, PlanTierra, LLC; Joel Herr, Systech Water Resources, Inc.; Tom Grovhoug, Karen Ashby, and Danielle Moss, Larry Walker and Associates*

(12.5) Strategic Salt Accumulation Land and Transport Study (SSALTS)  
*Joseph P. LeClaire, Thomas F. Quasebarth, CDM Smith, Inc.; Roger L. Reynolds, Summers Engineering, Inc.; Richard D. Meyerhoff, and Donald J. Schroeder, CDM Smith, Inc.*

**11:50-12:05 Discussion**

## **Room 5**

### **2:55-4:35 Colorado River Basin Salinity Control Program (Organized by Colorado River Basin Salinity Coalition) (Day 2 – Tuesday – June 17, 2014)**

*Chair: C. Green Rossi, USDOJ Bureau of Land Management, Salt Lake City, Utah, USA.*

(125) The Colorado River Basin Salinity Control Program – the Greatest Water Quality Improvement Effort in the History of Man?

*Don A. Barnett* – Executive Director, Colorado River Basin Salinity Control Forum

(126) U.S. Bureau of Reclamation Salinity Control Program in the Colorado River  
*Kib Jacobson*, Colorado River Basin Salinity Control Program Manager, Bureau of Reclamation, US Department of the Interior

(127) Salinity Control Adoption Rates: Comparisons of Two Equal-Aged Units (Areas) in the Upper Colorado River Basin

*Travis A. James*, United States Department of Agriculture – Natural Resources Conservation Service, Salt Lake City, Utah, U.S.A.

(128) BLM & its Future: Quantifying Relative Contributions of Salt Mobilization and Transport as a function of State with Selected Rangeland Ecological Sites in CO, ID, NM, NV, and UT

*Cole Green Rossi*, USDOJ Bureau of Land Management

(129) U.S. Geological Survey science support to the Colorado River Basin Salinity Control Program – a review of selected science and tools for understanding salinity loading to the Colorado River

*Patrick M. Lambert*, Director, Utah Water Science Center, U.S. Geological Survey, U.S. Department of the Interior

**4:35-4:50 Discussion**

## **Lower Concourse**

### **5:10-6:00 Poster Session (DAY 2 – Tuesday – June 17, 2014)**

(22) Saline Treated Sludge for Better Plant Growth and Water Productivity

*Ahmed Al-Busaidi*, Department of Soils, Water and Agricultural Engineering, College of Agricultural & Marine Sciences, Sultan Qaboos University, Muscat, Oman.

(11) The Impact of Root Morphology Affecting the Salt Tolerance of Soil Grown Plants

*Uwe Schleiff*, Independent Expert for Irrigation & Salinity – Fertilizers & Crops – Soils & Environment Wolfenbuettel, Germany.



(15) Evaluation of Surface Water Quality on Soil Leaching Fraction and Alfalfa Yield in the California San Joaquin Delta

*Michelle Leinfelder-Miles*, UC Cooperative Extension, San Joaquin County, Stockton, CA, USA.

(69) A National Perspective on the Salt Content of Soils of Different Topographic Settings in South Africa  
*J.P. Nell*, ARC-Institute for Soil, Climate and Water, and C.W. van Huyssteen, University of the Free State

(25) Soil Salinization and its Control in Shiyang River Watershed, Northwest China

*Xian Xue*, Tao Wang, Cuihua Huang, Jie Liao, Key Laboratory of Desert and Desertification, Chinese Academy of Sciences Cold and Arid Regions, Environmental and Engineering Research Institute, CAS, Lanzhou, China.

(92) Delineation of Site-specific Management Units in a Saline Farmland using 1 apparent electrical conductivity and bare-soil NDVI2

*Elia Scudiero*, USDA-ARS, United States Salinity Laboratory, Riverside, CA, USA; Pietro Teatini, Department of Civil, Environmental, and Architectural Engineering (ICEA), University of Padua, Padua, Italy; Dennis L. Corwin and Francesco Morari, Department of Agronomy, Food, Natural resources, Animals, and Environment (DAFNAE), University of Padua, Legnaro, Italy.

(53) Monitoring and Analysis on Changes of Saline-alkali Land in Shiyanghe River Basin in Northwestern China

Jie LIAO and *Xian XUE*, Cuihua HUANG, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, Gansu Province, China and Research Station for Combating Desertification in Minqin, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Wuwei, China; Tao WANG, Heqiang DU, and Sen LIAO, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, Gansu Province, China; Fei PENG, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, Gansu Province, China; Research Station for Combating Desertification in Minqin, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Wuwei, China.

(110) Evaluation of Alfalfa Genotypes (*Medicago sativa* L.) to Salinity Stress

*Mónica V. Cornacchione*, INTA- Estación Experimental Agropecuaria Santiago del Estero, Santiago, Argentina and Dept of Environmental Sciences, UC Riverside CA, USA; and Donald L. Suarez, ARS USDA Salinity Laboratory, Riverside CA, USA.

(85) Eastern Municipal Water District Salinity Management Program

*Khos Ghaderi*, Eastern Municipal Water District

## **DAY 3 – Wednesday – June 18, 2014**

- |                    |   |
|--------------------|---|
| <b>9:00-9:30</b>   | <b>Announcements regarding publication and future meeting<br/>Dr. Donald Suarez, Director, USDA-ARS Salinity Laboratory</b> |
| <b>9:30-10:30</b>  | <b>Plenary Session</b>  |
| <b>10:30-10:45</b> | <b>Break</b>  |
| <b>10:45-11:15</b> | <b>Plenary Session</b>  |
| <b>11:15-11:30</b> | <b>Discussion</b>   |
| <b>11:30-12:30</b> | <b>Lunch (provided on-site) and closing comments</b>  |
| <b>12:30-1:50</b>  | <b>Parallel Sessions</b>  |
| <b>1:50-2:05</b>   | <b>Discussion</b>   |
| <b>2:05-2:20</b>   | <b>Break</b>  |
| <b>2:20-3:20</b>   | <b>Parallel Sessions</b>  |
| <b>3:20-3:35</b>   | <b>Discussion</b>   |

**9:30-10:30 Plenary Session** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Sharon E. Benes, Department of Plant Science, California State University, Fresno, CA.*

(8.0) Treated Sewage Water Reuse and Disposal

*Manzoor Qadir, United Nations University – Institute for Water, Environment and Health (UNU-INWEH), Hamilton, Ontario, Canada.*

(5.0) Wildlife Impacts Related to Salinization: A Case Study Based on Evidence from Southern Australia

*Edward G. Barrett-Lennard, School of Plant Biology and Department of Agriculture and Food of WA, The University of Western Australia, Crawley, Western Australia, Australia; Hayley C. Norman, CSIRO Animal, Food and Health Sciences and Sustainable Agriculture Flagship and CRC Future Farm Industries, Wembley, Western Australia, Australia; and Warren King, Farm Systems, AgResearch Ruakura, New Zealand.*

**10:30-10:45 Break**

**10:45-11:15 Plenary Session (continued)**

(10.0) Conjunctive Use of Saline and Fresh Water: Panoche Water District, a Case Study

*Sharon E. Benes, Department of Plant Science, California State University, Fresno, CA, USA; and Stephen R. Grattan, Department of Land, Air and Water Resources, University of California, Davis, USA.*

**11:15-11:30 Discussion**

**Parallel Sessions**

**Room 1**

**12:30-1:50 Plants and Salinity-Physiology (B)** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Genhua Niu, Texas A&M AgriLife Research and Extension at El Paso, TX*

(41) Plant Growth and Physiological Responses of Corn as a Function of N Management under Saline Conditions

*Claudivan F. Lacerda, Department of Agricultural Engineering/Universidade Federal do Ceará and INCTSal/CNPq, Campus do Pici, Fortaleza, Ceará, Brazil; Jorge F. S. Ferreira, Xuan Liu, and Donald L. Suarez, USDA-ARS Salinity Laboratory, Riverside, CA, USA.*

(28) Arbuscular Mycorrhizal Fungi Improve Salt Tolerance of Plants by Altering Physiological and Biochemical Responses and Ultra-structural Aberrations under Salinity Stress

*Heikam Evelin, Rupam Kapoor and Bhoopander Giri, Department of Botany, Swami Shradhdhanand College, University of Delhi, India.*

(26) Growth and Physiological Responses of Selected Ornamental Plants

*Genhua Niu and Youping Sun, Texas A&M AgriLife Research and Extension at El Paso, TX; and Christina Perez, RISE program, El Paso Community College, El Paso, TX.*

(46) Assessing Salinity Relation in Soil and in Tomato Plants and Cotton Plants Using Reflectance Spectroscopy

*Naftali Goldshleger*, SERS Ministry of Agriculture, and A. Chudnovsky, Tel Aviv University, Department of Geography, Israel.

**1:50-2:05 Discussion**

**2:05-2:20 Break**

### **Room 1**

**2:20-3:20 Plants and Salinity-Nutrition (B)** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Jan Hopmans, Department of Land, Air, and Water Resources, University of California Davis, Davis, CA, USA.*

(77) Root Water Uptake under Water and Salinity Stresses

*Ahmad B. Moradi*, H. Bauser, T. Kamai, Department of Land, Air, and Water Resources, University of California Davis, Davis, CA, USA; A. Ngo, R. Walker, Neutron Imaging Group, UC Davis McClellan Nuclear Research Center, McClellan, CA, USA; J. W. Hopmans, Department of Land, Air, and Water Resources, University of California Davis, Davis, CA, USA.

(29) Impact of Saline Water Irrigation on Yield, Growth Indicators and Ion Composition of Melon (*Cucumis melo cv Huanghemi*) in Northwest China.

*Anna TEDESCHI*, CNR-ISAFOM Institute for Agricultural and Forestry Systems in the Mediterranean, National Research Council (CNR) of Italy, Naples-Italy; Cui Hua HUANG, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, P.R. China; Li ZONG, Research & Development Center for Eco-material and Eco-chemistry, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou, P.R. China; Maria Grazia VOLPE, CNR-ISA, Institute of Food Sciences, National Research Council (CNR) of Italy, Avellino-Italy; Xian XUE, and Tao WANG, Key Laboratory of Desert and Desertification, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, P.R. China.

(104) Sodium Management in Pistachio

*Jessie Godfrey*, Louise Ferguson, Steve Grattan, and Maciej Zwieniecki, Department of Plant Sciences, University of California, Davis, USA.

**3:20-3:35 Discussion**

### **Room2**

**12:30-1:30 Economics and Management (C)** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Iddo Kan, The Hebrew University of Jerusalem, Rehovot, Israel.*

(1.3) Economic Tools for Efficient Use of Saline Water Resources in Arid Regions: The Blending Dilemma  
*Iddo Kan*, The Hebrew University of Jerusalem, Rehovot, Israel; and Mickey Rapaport-Rom, University of Haifa, Israel.

(100) Adoption of Technologies and Management Practices by California Avocado Growers in Response to Water Scarcity and Quality Problems

*Julie Escalera, Ariel Dinar, and David Crowley* Water Science and Policy Center, Department of Environmental Sciences, University of California, Riverside, USA.

(82) Salinity Control using Carbon Mitigation Investment: Some Recent Approaches

*Richard Harper* and Stan Sochacki, Murdoch University, Murdoch, WA, Australia; and Keith Smettem, University of Western Australia, Nedlands, WA, Australia.

**1:30-1:45 Discussion**

**1:45-2:00 Break**

### **Room 2**

**2:20-3:20 Ecology** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Tibor Toth, , Institute of Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research of the Hungarian Academy of Sciences (MTA ATK TAKI), Budapest, Hungary.*

(5.1) Basin Ecology under Salinity Conditions: Consequences of Changing Hydrology in Salt-Affected Landscapes

*Tibor Tóth*, Institute of Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research of the Hungarian Academy of Sciences (MTA ATK TAKI), Budapest, Hungary.

(47) Long Term Salinity Trends in the Ebro River, Spain

*M. A. Lorenzo-González, D. Isidoro, D. Quílez*, Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), Unidad de Suelos y Riegos (Unidad Asociada EEAD-CSIC), Zaragoza, Spain.

(43) River Recovery from Salinisation – Denmark River, Australia

*John Ruprecht*, Murdoch University and Department of Agriculture and Food, Western Australia; Tim Sparks, Department of Water, Western Australia; and Richard Harper, Murdoch University, Australia.

**3:20-3:35 Discussion**

### **Room 3**

**12:30-1:30 Field Scale Measurements** (DAY 3 – Wednesday – June 18, 2014)

*Chair: Girisha Ganjegunte, Agrilife Research Center, University of Texas, El Paso, TX, USA.*

(6.3) Evaluating Soil Salinity Distribution in Irrigated Turf using Electro-magnetic Induction

*Girisha Ganjegunte, Bernhard Leinauer, and John Clark*, Agrilife Research Center, University of Texas, El Paso, TX, USA.

(112) Comparisons of Electrical Resistance Tomography with Field Soil Cores during Saline Leaching

*Patrick E. Taber Jr.* and Donald L. Suarez, USDA ARS Salinity Laboratory, Riverside, CA, USA.

(103) A Pulse Excitation Technique for Accurate Measurements of Soil Electrical Conductivity

*Paolo Castiglione* and Gaylon S. Campbell, Decagon Devices Inc., Pullman, WA, USA.

**1:30-1:45 Discussion**

**1:45-2:00 Break**

### **Room 3**

**2:20-3:20 Plants and Salinity-Water Quality (C) (DAY 3 – Wednesday – June 18, 2014)**

*Chair: Todd Skaggs, U.S. Salinity Laboratory, USDA-ARS, Riverside, CA, USA.*

(56) Global Sensitivity Analysis for UNSATCHEM Simulations of Crop Production with Degraded Waters  
*Todd H. Skaggs, Donald L. Suarez, and Dennis L. Corwin, U.S. Salinity Laboratory, USDA-ARS, Riverside, CA, USA.*

(40) Water Flow and Solute Transport in the Soil-Plant-Atmosphere Continuum: Upscaling from Rhizosphere to Root Zone

Natalie Schröder, Forschungszentrum Jülich GmbH, Agrosphere Institute (IBG-3), Germany and Earth and Life Institute/Environmental Sciences, Université Catholique de Louvain, Belgium;

Jan Vanderborght, Forschungszentrum Jülich GmbH, Agrosphere Institute (IBG-3), Germany;

Mathieu Javaux, Forschungszentrum Jülich GmbH, Agrosphere Institute (IBG-3), Germany and Earth and Life Institute/Environmental Sciences, Université Catholique de Louvain, Belgium;

Shimon Rachmilevitch and *Naftali Lazarovitch*, Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Israel.

(33) Large-Scale Utilization of Saline Groundwater for Irrigation of Pistachios Interplanted with Cotton  
*Blake Sanden, UCCE Kern County; Louise Ferguson, UCCE Pomology Kearney Ag. Center; Craig Kallsen, UCCE Kern County; Brian Marsh, UCCE Kern County; Bob Hutmacher, UCCE/AES, Shafter Research & Extension Center, USA.*

**3:20-3:35 Discussion**

### **Room 4**

**12:30-1:50 Basin Level-Impacts and Management (C) (DAY 3 – Wednesday – June 18, 2014)**

*Chair: Daniel Isidoro, Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), Unidad de Suelos y Riegos (Unidad Asociada EEAD-CSIC), Zaragoza, Spain.*

(44) Salt Balances in a Pre- and Post-modernized Irrigation District

M. Jiménez-Aguirre, *D. Isidoro*, R. Barros and R. Aragónés, Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), Unidad de Suelos y Riegos (Unidad Asociada EEAD-CSIC), Zaragoza, Spain.

(12) Modeled Sources and Trends in Concentrations of Dissolved-Solids in Streams of the Conterminous United States

*David Anning and Marilyn Flynn, U.S. Geological Survey, Arizona Water Science Center, Flagstaff AZ, USA.*

(52) Appropriate Methods for Monitoring Salt Accumulation and Water Logging on South African Irrigation Schemes

*J.P. Nell*, ARC-Institute for Soil, Climate and Water, and *A. van Niekerk*, Stellenbosch University, RSA.

(59) Simulating the Reactive Fate and Transport of Salinity in a Regional Irrigated Agricultural Groundwater System

*Ryan T. Bailey*, Timothy K. Gates, Saman Tavakoli, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, CO, USA.

**1:50-2:05 Discussion**

**2:05-2:20 Break**

#### **Room 4**

**2:20-3:20 Soil Salinity-Modeling (DAY 3 – Wednesday – June 18, 2014)**

*Chair: Iael Rajj*, French Associates Institute for Agriculture and Biotechnology of Drylands, Ben-Gurion University of the Negev

(23) In-situ Drainage Lysimeters for Field Crops Irrigated with Brackish Water

*Iael Rajj*, French Associates Institute for Agriculture and Biotechnology of Drylands, Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boker; Alon Ben Gal, Environmental Physics and Irrigation, Agricultural Research Organization, Gilat Center, Israel; Naftali Lazarovitch, French Associates Institute for Agriculture and Biotechnology of Drylands, Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boker.

(62) Estimation of Fluid Travel Times to Ditch Drains from a Variably Poned Field

*Gautam Barua*, Indian Institute of Technology Guwahati, Guwahat, Assam, India; Ratan Sarmah, Indian Institute of Technology Guwahati, Guwahat, Assam, India.

(39) Modeling Soil Sodicity Problems under Dryland and Irrigated Conditions: Case Studies in Argentina, Colombia and Venezuela

*Ildefonso Pla Sentís*, Universitat de Lleida, Lleida, Spain.

**3:20-3:35 Discussion**

#### **Room 5**

**12:30- 1:50 Soil Salinity-Processes (DAY 3 – Wednesday – June 18, 2014)**

*Chair: Sabine Goldberg*, USDA-ARS, U.S. Salinity Laboratory, Riverside, CA, USA.

(109) A New Soil Test for Measurement of Plant Available and Adsorbed Boron

*Sabine Goldberg*; and Donald L. Suarez, USDA-ARS, U.S. Salinity Laboratory, Riverside, CA, USA.

(81) Subsurface Salinization in Desiccation Cracks

*S. Baram*, Department of Environmental Hydrology & Microbiology, Zuckerberg Institute for Water Research, Albert Katz International School for Desert Studies, Blaustein Institutes for Desert Research,

Ben-Gurion University of the Negev, Sede Boqer Campus, Israel and Department of Land, Air and Water Resources, University of California Davis, USA; Z. Ronen, Department of Environmental Hydrology & Microbiology, Zuckerberg Institute for Water Research, Albert Katz International School for Desert Studies, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boqer Campus, Israel; D. Kurtzman, Institute of Soil, Water and Environmental Sciences, Agricultural Research Organization, The Volcani Center, Bet Dagan, Israel; C. Kull, Institute for Hydrology, Albert-Ludwigs-University Freiburg, Fahrenbergplatz, Freiburg, Germany and O. Dahan; Department of Environmental Hydrology & Microbiology, Zuckerberg Institute for Water Research, Albert Katz International School for Desert Studies, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boqer Campus, Israel.

(60) Alkalinity of Virgin and Anthropogenically Transformed Solonetz Soils of Northern Kalmykia  
A.V. Klimanov, and L.A. Vorobjeva, Lomonosov, Moscow State University, Russia.

(124) Instantaneous Effect of Deionized Water and Water Composition on the Hydraulic Properties of Intact Soils Irrigated for One Year with Solutions of Varying pH, EC and SAR  
Hui Wang, College of Engineering, Hunan Agricultural University, Changsha, Hunan, China; USDA-ARS, U.S. Salinity Laboratory, Riverside, CA, USA, and Department of Environmental Sciences, UC Riverside, CA., USA; Donald L. Suarez, USDA-ARS, U.S. Salinity Laboratory, Riverside, CA., USA; Alberto Gonzalez-Rubio, . Department of Environmental Sciences, UC Riverside, CA. USA.

**1:50-2:05      Discussion**