

# Soil Erosion Research for the 21st Century

An International Symposium & Exhibition

**January 3-5, 2001**

**Ala Moana Hotel**

**Honolulu, Hawaii**



*The Society for engineering  
in agricultural, food, and  
biological systems*

2950 Niles Road  
St. Joseph, MI 49085-9659, USA

**Co-sponsors**

American Society of Agronomy (ASA) • Chinese Soil & Water Conservation Society (CSWCS) Taiwan • Council of Agriculture (COA) Taiwan • European Society of Soil Conservation • International Erosion Control Association (IECA) • International Union of Soil Sciences (IUSS) • Soil Science Society of America (SSSA) • Soil & Water Conservation Society (SWCS) • USDA-Agricultural Research Service (ARS) • USDA-Cooperative State Research, Education and Extension Service (CSREES) • USDA-Forest Service (FS) • USDA-Natural Resources Conservation Service (NRCS) • World Association of Soil and Water Conservation (WASWC)

# Soil Erosion Research Program at a Glance

## TUESDAY JANUARY 2

5:00 p.m.-8:00 p.m. Registration

## WEDNESDAY JANUARY 3

7:00 a.m.-8:00 a.m. REGISTRATION  
 OPENING PLENARY SESSION I  
 8:00 a.m.-8:10 a.m. WELCOME AND CHARGE  
 8:10 a.m.-8:20 a.m. LOCAL ARRANGEMENTS  
 8:20 a.m.-8:50 a.m. KEYNOTE  
 John E. Stout, USDA-Agricultural Research Service, Lubbock, TX  
*"Erosion by Wind: Processes, Modeling and Control"*

8:50 a.m.-9:20 a.m. KEYNOTE  
 Gerard Govers, Laboratory for Experimental Geomorphology, Catholic University of Leuven, Belgium  
*"Erosion by Water: Processes, Modeling and Control"*

9:20 am - 9:50 am KEYNOTE  
 Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI  
*"Quantification of Soil Erosion by Wind and Water"*

10:10 a.m.-12 Noon CONCURRENT TECHNICAL LECTURE SESSIONS  
 Session 2: Experimental Soil Erosion Process Research I  
 Session 3: Erosion Control Practices  
 Session 4: On-Site and Off-Site Impacts of Soil Erosion I  
 Session 5: Modeling Climatic, Hydrologic, and Soil Erosion Processes I  
 Session 6: Applications of Soil Erosion Models to Agricultural and Non-Agricultural Lands

12 Noon-1:00 p.m. LUNCH BREAK

1:00 p.m.-2:30 p.m. CONCURRENT TECHNICAL POSTER SESSIONS  
 Session 7: Experimental Soil Erosion Process Research Poster Session  
 Session 8: Erosion Control Practices Poster Session  
 Session 9: Measurement Techniques in Soil Erosion Research Poster Session  
 Session 10: Impacts of Erosion Research and Erosion Prediction, Regulation and Land-Use Planning

3:00 p.m.-4:30 p.m. CONCURRENT TECHNICAL POSTER SESSIONS  
 Session 11: Modeling Climatic, Hydrologic and Soil Erosion Processes Poster Session I  
 Session 12: Modeling Climatic, Hydrologic and Soil Erosion Processes Poster Session II  
 Session 13: Application of Soil Erosion Models Poster Session  
 Session 14: Soil Erosion Prediction, Environmental Regulation, and Land-Use Planning Poster Session

5:00 p.m.-6:30 p.m. RECEPTION

7:30 p.m.-9:00 p.m. INFORMAL RAP SESSION

## THURSDAY JANUARY 4

8:00 a.m.-9:30 am THREE CONCURRENT PANEL DISCUSSION SESSIONS  
 Panel #1 (Session 15): *"Erosion by Wind: Processes, Modeling and Control"*  
 Panel #2 (Session 16): *"Erosion by Water: Processes, Modeling and Control"*

9:40 a.m.-11:30 a.m.

Panel #3 (Session 17): *"Quantification of Soil Erosion by Wind and Water"*

CONCURRENT TECHNICAL LECTURE SESSIONS

Session 18: Experimental Soil Erosion Process Research II  
 Session 19: Wind Erosion Research  
 Session 20: Soil Erosion Prediction, Environmental Regulation, and Land-Use-Planning I  
 Session 21: Measurement Techniques in Soil Erosion Research  
 Session 22: Sediment Transport Modeling  
 FIELD TOUR OF THE ISLAND OF OAHU

11:45 a.m.-6:00 p.m.

## FRIDAY, JANUARY 5

8:00 a.m.-9:30 a.m. SMALL DISCUSSION GROUP MEETINGS  
 10:00 a.m.-12 Noon PANEL DISCUSSION GROUPS (Reconvene)

Panel #1 (Session 23): *"Erosion by Wind: Processes, Modeling and Control"*  
 Panel #2 (Session 24): *"Erosion by Water: Processes, Modeling and Control"*  
 Panel #3 (Session 25): *"Quantification of Soil Erosion by Wind and Water"*

12 Noon-1:50 p.m.

BANQUET LUNCHEON

1:50 p.m.-3:40 p.m.

CONCURRENT TECHNICAL LECTURE SESSIONS

Session 26: Experimental Soil Erosion Process Research III  
 Session 27: Modeling Climatic, Hydrologic, and Soil Erosion Processes II  
 Session 28: On-Site and Off-Site Impacts of Soil Erosion II  
 Session 29: Erosion Control Practices and Erosion Prediction  
 Session 30: Soil Erosion Prediction, Environmental Regulation, and Land-Use Planning II

4:00 p.m.-4:10 p.m.

CLOSING PLENARY SESSION 31

SUMMARY REPORT from "Erosion by Wind: Processes, Modeling and Control" Panel & Discussions

4:10 p.m.-4:20 p.m.

SUMMARY REPORT from "Erosion by Water: Processes, Modeling and Control" Panel & Discussions

4:20 p.m.-4:30 p.m.

SUMMARY REPORT from "Quantification of Soil Erosion by Wind and Water" Panel & Discussions

4:30 p.m.-4:55 p.m.

PRESENTATION OF SYMPOSIUM STATEMENT, DISCUSSION, ACTION

4:55 p.m.-5:05 p.m.

RESPONSE from "Erosion by Wind" Keynote Speaker John E. Stout, USDA-Agricultural Research Service, Lubbock, TX

5:05 p.m.-5:15 p.m.

RESPONSE from "Erosion by Water" Keynote Speaker Gerard Govers, Laboratory for Experimental Geomorphology, Catholic University of Leuven, Belgium

5:15 p.m.-5:25 p.m.

RESPONSE from "Quantification of Soil Erosion" Keynote Speaker Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

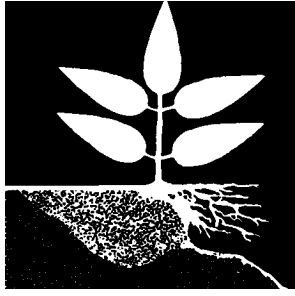
5:25 p.m.-5:30 p.m.

RECOGNITIONS AND CLOSING

## SATURDAY, JANUARY 6

5:30 a.m.-7:20 p.m.

OPTIONAL FIELD TOUR OF ISLAND OF HAWAII



# Soil Erosion Research for the 21st Century

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& Exhibition

## GENERAL INFORMATION

### REGISTRATION

All persons attending these conferences are required to pay a registration fee.

### BADGES

It is important that the official badge you received at registration be worn at all times. This practice is a courtesy to your fellow registrants. It also indicates that you have completed registration and may participate in the scheduled events.

### EVALUATION FORMS

Please turn in your conference evaluation form at the ASAE registration desk before you leave the conference or mail it to: ASAE Meetings Department, 2950 Niles Road, St. Joseph, Michigan 49085-9659 USA before **May 1, 2001**

### INFORMATION DESK

Please consult the staff at the ASAE registration desk if you have questions regarding the events of the meeting. Telephone calls and other messages will be posted in the registration area. Notices of special meetings or meeting time changes will also be posted there.

### SESSION PRESENTERS

Please meet in your respective meeting rooms 10 minutes prior to the start of your session. All speakers are required to register at the ASAE registration desk prior to their sessions.

### LOCATION

Ala Moana Hotel  
410 Atkinson Dr  
Honolulu, Hawaii 96814-4722  
Phone: 808-955-4811  
Fax: 808-944-6839

### TOURS

All tours depart from the Kona Tower Tour Lobby. A representative will be on hand to answer questions, check tickets and announce boarding.

## COMMITTEE MEETING

### “INTERNATIONAL COLLABORATION ON WIND EROSION”

sponsored by

The Global Change and Terrestrial Ecosystems,  
Soil Erosion Network (GCTE-SEN)

**WEDNESDAY JANUARY 3**

**7:30-9:00 p.m.**

**Plumeria Meeting Room**

This meeting is open to all interested in collaboration in wind erosion studies. We will discuss the issue of further model testing, establishing collaborative field studies, standards for equipment and data collected at field sites, and other issues.

# Soil Erosion Research for the 21st Century

## TUESDAY, JANUARY 2

5:00 p.m.-8:00 p.m. **REGISTRATION**

## WEDNESDAY, JANUARY 3

7:00 a.m.-5:00 p.m. **REGISTRATION**

**OPENING PLENARY SESSION I** - Chairman, Dennis C. Flanagan

*Location: Hibiscus Ballroom I*

8:00 a.m.-8:10 a.m. **WELCOME AND CHARGE**

Dennis C. Flanagan, USDA-Agricultural Research Service, West Lafayette, IN

8:10 a.m.-8:20 a.m. **LOCAL ARRANGEMENTS**

Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

8:20 a.m.-8:50 a.m. **KEYNOTE**

John E. Stout, USDA-Agricultural Research Service, Lubbock, TX

*"Erosion by Wind: Processes, Modeling and Control"*

8:50 a.m.-9:20 a.m. **KEYNOTE**

Gerard Govers, Laboratory for Experimental Geomorphology, Catholic University of Leuven, Belgium

*"Erosion by Water: Processes, Modeling and Control"*

9:20 a.m.-9:50 a.m. **KEYNOTE**

Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

*"Quantification of Soil Erosion by Wind and Water"*

9:50 a.m.-10:10 a.m. **BREAK**

10:10 a.m.-12 Noon **CONCURRENT TECHNICAL LECTURE SESSIONS 2, 3, 4, 5, 6**

**SESSION 2: EXPERIMENTAL SOIL EROSION PROCESS RESEARCH - I**

*Co-Moderators: John E. Gilley, USDA-Agricultural Research Service, Lincoln, NE*

*Gete Zeleke, Amhara Regional Agricultural Research Institute, Baher Dar, Ethiopia*

*Location: Hibiscus Ballroom I*

10:10 a.m. **Introduction**

10:15 a.m. **Soil Erosion Processes: Laboratory Observations and Modeling**

Jean Y. Parlange, Cornell University, Ithaca, NY (*T.S. Steenhuis, A. Heilig, M.T. Walter, D. DeBruyn, C.A. Rose,*

*G.C. Sander, P. Hairsine, W.L. Hogarth*)

10:30 a.m. **Temporal Changes in Soil Erodibility**

Guy J. Levy, The Volcani Center, Bet Dagan, Israel (*I. Shainberg, J. Letey*)

10:45 a.m. **Soil Moisture Monitoring in the Black Vermillion Watershed and Its Impact on Erosion**

Philip Barnes, Kansas State University, Manhattan, KS (*G. Kluitenberg, J. Ham*)

11:00 a.m. **Infiltration Characteristics of Forest Road Filter Windrows**

Randy B. Foltz, USDA-Forest Service, Moscow, ID (*W.J. Elliot*)

11:15 a.m. **Manure Impacts on Interrill Erosion**

John E. Gilley, USDA-Agricultural Research Service, Lincoln, NE (*B. Eghball, J.M. Blumenthal, D.D. Baltensperger*)

11:30 a.m. **Effect of Slope Steepness on Soil Loss for Steep Slopes**

Chia-Chun Wu, National Pingtung University of Science & Technology, Pingtung, Taiwan (*A-B. Wang*)

11:45 a.m. **Soil Erosion and Conservation Research in Ethiopia**

Gete Zeleke, Amhara Regional Agricultural Research Institute, Baher Dar, Ethiopia

**SESSION 3: EROSION CONTROL PRACTICES**

*Moderator: William Hughey, USDA-Natural Resources Conservation Service, Washington, DC*

*Location: Hibiscus Ballroom II*

10:10 a.m. **Introduction**

10:15 a.m. **Effectiveness of Erosion Control Blankets on Reducing Shear Stress Acting on Soil Particles**

Anita M. Thompson, University of Minnesota, St. Paul, MN (*B.N. Wilson, H.V. Nguyen*)

10:30 a.m. **Reducing Water Runoff and Erosion from Frozen Agricultural Soils**

William F. Schillinger, Washington State University, Lind, WA

# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

- 10:45 a.m. **Factors Determining the Efficiency of a Sediment Retention Area**  
Jussi Baade, Friedrich-Schiller University, Germany
- 11:00 a.m. **The Sediment and Erosion Control Research and Education Facility at North Carolina State University**  
Richard A. McLaughlin, North Carolina State University, Raleigh, NC (*N. Rajbhandari, W.F. Hunt, D.E. Line, R.E. Sheffield, N.M. White*)
- 11:15 a.m. **Polymer Effect on Soil Erosion Reduction and Water Quality Improvement for Selected Tropical Soils**  
James Teo, University of Hawaii at Manoa, Honolulu, HI (*C. Ray, S.A. El-Swaify*)
- 11:30 a.m. **Engineering Design Aids for Sediment Control Practices**  
Billy J. Barfield, Oklahoma State University, Stillwater, OK (*E. Stevens, C.T. Haan, J.C. Hayes, K.F. Holbrook*)
- 11:45 a.m. **Rainfall Runoff Relations for Vegetation Barriers in the Sahel**  
Wim Spaan, Wageningen University, Wageningen, The Netherlands (*P. Helena*)

### SESSION 4: ON-SITE AND OFF-SITE IMPACTS OF SOIL EROSION - I

*Moderator: James L. Baker, Iowa State University, Ames, IA*

*Location: Ilima*

- 10:10 a.m. **Introduction**
- 10:15 a.m. **Using SWAT to Predict Erosion and Phosphorus Loads in the Rock River Basin, Wisconsin**  
Kevin J. Kirsch, Earth Tech Inc., Madison, WI (*A.M.E. Kirsch*)
- 10:30 a.m. **Spatial Variability of Soil Quality Indicators, a Consequence of Soil Erosion**  
J.R. Marques da Silva, University of Evora, Evora, Portugal (*J.M.C.N. Soares*)
- 10:45 a.m. **Designing Sedimentation Basins for Better Sediment Capture**  
Albert R. Jarrett, The Pennsylvania State University, University Park, PA
- 11:00 a.m. **Plant Tolerance to Sandblast Damage**  
Dean V. Armbrust, USDA-Agricultural Research Service, Manhattan, KS
- 11:15 a.m. **Tillage Effects on Soil Erosion, Nutrient, and Pesticide Transport**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*A.S. Zartl, J. Rosner*)
- 11:30 a.m. **Effect of Land Degradation on Tea Productivity in Sri Lanka**  
Aruliah Anandacoomaraswamy, Tea Research Institute of Sri Lanka, Talawakele, Sri Lanka (*S.A.B. Ekanayake, S. Anathacumaraswamy, A.H. Chishom, S. Jayasuriya*)
- 11:45 a.m. **Developing a Phosphorus Index Using WEPP**  
James L. Baker, Iowa State University, Ames, IA (*J.M. Laflen, A. Mallarino, B. Stewart*)

### SESSION 5: MODELING CLIMATIC, HYDROLOGIC, AND SOIL EROSION PROCESSES - I

*Moderator: Peter I.A. Kinnell, The Australian National University, Canberra, Australia*

*Location: Plumeria*

- 10:10 a.m. **Introduction**
- 10:15 a.m. **Natural Resource and Erosion Modeling Using a Modular Systems Approach**  
James C. Ascough II, USDA-Agricultural Research Service, Ft. Collins, CO (*D.C. Flanagan, G.H. Leavesley, L.R. Ahuja, O. David*)
- 10:30 a.m. **Modeling Gully Head-Cut Recession Processes in Loess Deposits**  
Andrew Collison, USDA-Agricultural Research Service, Oxford, MS (*A. Simon*)
- 10:45 a.m. **A Proposed Modification to the WEPP Erosion Process Model Concept**  
Chi-hua Huang, USDA-Agricultural Research Service, West Lafayette, IN (*F. Darboux, A.S. Zartl*)
- 11:00 a.m. **The Design Philosophy Behind RUSLE2: Evolution of an Empirical Model**  
Daniel C. Yoder, University of Tennessee, Knoxville, TN (*G.R. Foster, G.A. Weesies, T.J. Toy*)
- 11:15 a.m. **Runoff, the Universal Soil Loss Equation and Event Erosion**  
Peter I.A. Kinnell, The Australian National University, Canberra, Australia
- 11:30 a.m. **An Alternative Approach to Modeling Sediment Deposition and Related Sorting**  
Peter B. Hairsine, CSIRO Land and Water and the Cooperative Research Center for Catchment Hydrology, Canberra, Australia (*L. Beuselinck, G.C. Sander & G. Govers*)
- 11:45 a.m. **Evaluation and Enhancement of the CLIGEN Weather Generator**  
Dennis C. Flanagan, USDA-Agricultural Research Service, W. Lafayette, IN (*C.R. Meyer, B. Yu*)

### SESSION 6: APPLICATIONS OF SOIL EROSION MODELS TO AGRICULTURAL AND NON-AGRICULTURAL LANDS

*Moderator: John M. Laflen, Purdue University, West Lafayette, IN*

*Location: Pakalana-Anthurium*

- 10:10 a.m. **Introduction**
- 10:15 a.m. **Delivering a Single Erosion Model to Diverse Users**  
James P. Lyon, University of Tennessee, Knoxville, TN (*J.B. Lown, D.C. Yoder*)

# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

- 10:30.a.m. **The WEPPModel for Runoff and Erosion Prediction Under Center Pivot Irrigation**  
Dennis C. Kincaid, USDA-Agricultural Research Service, Kimberly, ID (*G.A. Lehrsch*)
- 10:45.a.m. **Application of WEPPModel to Military Training Lands**  
Prasanta K. Kalita, University of Illinois, Urbana, IL (*L. Schieferek, S. Bhuyan, P. Woodford, P. Gipson*)
- 11:00.a.m. **Watershed Application of WEPPfor a Michigan Water Quality Problem**  
Roel C. Vining, USDA-Natural Resources Conservation Service, West Lafayette, IN (*D.C. Flanagan, J. Grigar*)
- 11:15.a.m. **Incorporation of the Water Erosion Prediction Project (WEPP) in the Modeling of Transport of Pathogenic Microorganisms from Non-point Sources of Pollution**  
Lilit L. Yeghiazarian, Cornell University, Ithica, NY (*C.D. Montemagno*)
- 11:30.a.m. **Comparison of Measured and WEPPPredicted Runoff and Soil Loss from Deep Loess Soils Watershed**  
Fessehaie Ghidey, University of Missouri, Columbia, MO (*E.E. Alberts, L.A. Kramer*)
- 11:45.a.m. **Application of WEPPto Construction Sites**  
John M. Laflen, Purdue University, West Lafayette, IN (*D.C. Flanagan, B.A. Engel*)

12 Noon-1:00 p.m. **LUNCH BREAK**

1:00 p.m.- 2:30 p.m. **CONCURRENT TECHNICAL POSTER SESSIONS 7, 8, 9, 10**

### **SESSION 7: EXPERIMENTAL SOIL EROSION PROCESS RESEARCH POSTER SESSION**

*Co-Moderators: Fen-li Zheng, Purdue University, West Lafayette, IN*

*Amanjot Singh, Technical University of Braunschweig, Braunschweig, Germany*

1:00 p.m. *Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – Hibiscus I*  
*Location: Poster Presentation – Garden Lanai*

*Poster #*

- # 1 **Deposition Processes in a Simulated Rill**  
Thomas A. Cochrane, Purdue University, Santa Cruz, Bolivia (*D.C. Flanagan*)
- # 2 **Contrasting Effects of Surface Roughness on Erosion and Runoff**  
Frederic Darboux, Purdue University, West Lafayette, IN (*C.Huang*)
- # 3 **The Hydraulic Behavior of Flexible Channel Lining Systems**  
Bahram Gharabaghi, University of Guelph, Guelph, Canada (*R.P. Rudra, W.T. Dickinson, H.R. Whiteley*)
- # 4 **Influence of Kinetic Energy on Infiltration and Erosion**  
Fessehaie Ghidey, University of Missouri, Columbia, MO (*A.L. Thompson, C. Gantzer, A.T. Hjelmfelt*)
- # 5 **Influence of the Soil Slope and Kinetic Energy of Simulated Precipitation in the Interrill Erosion Process**  
Fernando F. Pruski, Federal University of Vicosa, Brazil (*R.S.S. Amorim, D.D. Silva, A.T. Matos*)
- # 6 **Laboratory Simulation of Erosion From a Partially Frozen Soil**  
Brenton S. Sharratt, USDA-Agricultural Research Service, Morris, MN (*M.J. Lindstrom*)
- # 7 **Effects of Upslope Runoff and Sediment on Erosion Process at Downslope Area**  
Fen-li Zheng, Purdue University, West Lafayette, IN (*X. Gao*)
- # 8 **Impacts of Forest Fires on Water Erosion in a Mediterranean Environment**  
Jose L. Rubio, University of Valencia, Valencia, Spain
- # 9 **Effects of Rainfall Properties and Soil Types on Raindrop Splash Erosion**  
Xuetian Gao, Purdue University, West Lafayette, IN (*Z. Bao*)

### **SESSION 8: EROSION CONTROL PRACTICES POSTER SESSION**

*Co-Moderators: E. Eugene Alberts, USDA-Agricultural Research Service, Columbia, MO*

*Bishal K. Sitaula, Agricultural University of Norway, As, Norway*

1:00 p.m. *Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – Ilima*  
*Location: Poster Presentation – Garden Lanai*

*Poster #*

- # 1 **Sediment Deposition within a Watershed with Stiff-Stemmed Grass Hedges**  
E. Eugene Alberts, USDA-Agricultural Research Service, Columbia, MO (*L.A. Kramer, F. Ghidey*)
- # 2 **Evaluating Forest Road Management Practices for Reducing Sediment Production and Transport from Forested Watersheds**  
Timothy W. Appelboom, North Carolina State University, Raleigh, NC (*G.M. Chescheir, R.W. Skaggs, D.L. Hesterberg*)
- # 3 **PAM and Straw Residue Effects on Irrigation Furrow Erosion and Infiltration**  
Rick D. Lentz, USDA-Agricultural Research Service, Kimberly, ID (*D.L. Bjorneberg*)
- # 4 **Effects of PAM Application Method and Electrolyte Source on Runoff and Erosion**  
Joel R. Peterson, Purdue University, West Lafayette, IN (*D.C. Flanagan, J.K. Tishmack*)



# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

- # 5 **Conserving Topsoil in Southern Brazil with Polyacrylamide and Gypsum**  
Belle H. Wallace, Purdue University, West Lafayette, IN (*L.D. Norton, F. Eltz, J.M. Reichart*)
- # 6 **Evaluation of Different Soil Conservation Practices on a Tea Plantation in Taiwan**  
Li-Ling Lin, National Chung-Shing University, Taichung, Taiwan
- # 7 **Impact of Grass Species on Erosion Control from Forest Road Sideslopes**  
J. McFero Grace III, USDA-Forest Service, Raleigh, NC
- # 8 **Land Imprinting Specifications for Erosion Control**  
Robert M. Dixon, The Imprinting Foundation, Tucson, AZ (*A.B. Carr*)

### SESSION 9: MEASUREMENT TECHNIQUES IN SOIL EROSION RESEARCH POSTER SESSION

*Co-Moderators:* Larry A. Kramer, USDA-Agricultural Research Service, Council Bluffs, IA  
Qiangguo Cai, Institute of Geography, Beijing, China

1:00 p.m.

*Location:* Oral Presentation (Introduction and 2 minute description of poster by presenters) – *Plumeria*  
*Location:* Poster Presentation – *Garden Lanai*

*Poster #*

- # 1 **Application of Low Cost Strobe-Photography on Visualization of Droplet Impact**  
W.J. Chang, National Pingtung University of Science and Technology, Pingtung, Taiwan (*J.F. Hsieh*)
- # 2 **Approaches to Economic Analysis of Erosion and Soil Conservation: A Review**  
J. Calatrava-Leyva, Center for Agricultural Research and Development, Granada, Spain (*M.C. Gonzalez-Roa*)
- # 3 **A Laser Distance-Based Method for Measuring Standing Residue**  
Fred A. Fox, Jr., USDA-Agricultural Research Service, Manhattan, KS (*L.E. Wagner*)
- # 4 **Soil Surface Texture and Vegetative Cover as a Function of Aeolian Particulate Matter Generated in the Jornada Basin of New Mexico**  
Joseph P. Hupy, New Mexico State University, Las Cruces, NM
- # 5 **Seasonal Soil Loss from a Small HEL Watershed**  
Larry A. Kramer, USDA-Agricultural Research Service, Council Bluffs, IA
- # 6 **Cesium-137 - An Under-Used Tool for Estimating Soil Erosion Rates and Patterns**  
Jerry C. Ritchie, USDA-Agricultural Research Service, Beltsville, MD
- # 7 **Intensive Water Content and Discharge Measurements in a Hillslope Erosion Gully in China, Part I: System Setup and Performance**  
Erik van den Elsen, Alterra, Wageningen, The Netherlands (*B. Liu, J. Stolte, K. Trouwborst, W. Yonqiu, C.J. Ritsema*)
- # 8 **Quantification of Erosion by Wind and Water in Burkina Faso**  
Saskia M. Visser, Wageningen University, Wageningen, The Netherlands
- # 9 **Tracing Soil Erosion and Soil Aggregation with Rare Earth Oxides**  
John Zhang, Purdue University, West Lafayette, IN (*M.A. Nearing, L.D. Norton*)
- # 10 **A New Measuring Device for Field Erosion Plots**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*W. Sokol*)

### SESSION 10: IMPACTS OF EROSION RESEARCH AND EROSION PREDICTION, REGULATION AND LAND-USE PLANNING

*Co-Moderators:* Clint C. Truman, USDA-Agricultural Research Service, Tifton, GA  
Franco H. Obando, Universidad de Caldas, Manizales, Colombia

1:00 p.m.

*Location:* Oral Presentation (Introduction and 2 minute description of poster by presenters) – *Pakalana/Anthurium*  
*Location:* Poster Presentation – *Garden Lanai*

*Poster #*

- # 1 **Tillage Effects on Rainfall Partitioning, Sediment Yield, and Facilitated Agrichemical Transport Potential**  
Clint C. Truman, USDA-Agricultural Research Service, Tifton, GA (*J.N. Shaw, D.W. Reeves*)
- # 2 **Responses of Stream Habitat, Macroinvertebrate, and Fish to Watershed BMPs: Lessons from Wisconsin**  
Bonnie Goodweiler, Wisconsin Department of Natural Resources, Madison, WI (*L. Wang, J. Lyons, P. Kanehl, D. Marshall, M. Sorge*)
- # 3 **Soil Erodibility in Long Term Crop Systems: Preliminary Results Following Two Years of Monitoring**  
John D. Williams, USDA-Agricultural Research Service, Pendleton, OR (*C.L. Douglas Jr.*)
- # 4 **Management of Road Runoff: A Design Approach**  
Peter B. Hairsine, CSIRO Land and Water and the Cooperative Research Center for Catchment Hydrology, Canberra, Australia (*J.C. Croke*)
- # 5 **Mapping Debris Flow Hazard Zones at Mudan Reservoir Watershed in Taiwan**  
Sheng Liang, National Chung Hsing University, Taichung, Taiwan
- # 6 **Adoption of Conservation Production Systems within the North Central Region of the United States**  
Ted L. Napier, The Ohio State University, Columbus, OH
- # 7 **Web-Based GIS Application for Soil Erosion Prediction**  
Da Ouyang, Michigan State University, East Lansing, MI (*J. Bartholic*)

# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

- # 8 **Simplifying Design of Sediment Controls in Jefferson County, Kentucky**  
John C. Hayes, Clemson University, Clemson, SC (*A. Akridge, B.J. Barfield, K.F. Holbrook*)
- # 9 **Impacts of Climate Change on Erosivity in the United States: 2000-2050**  
Mark A. Nearing, USDA-Agricultural Research Service, West Lafayette, IN
- # 10 **Erosion and Soil Productivity Relationships for an Oxisol in the Eastern Plains of Colombia**  
Franco H. Obando, University of Caldas, Manizales, Colombia (*M.A. Stocking*)
- # 11 **Interrill Erodibility of Volcanic Ash Soils of the Colombian Coffee Zone**  
Franco H. Obando, University of Caldas, Manizales, Colombia (*E. Hincapie, H. Rivera*)
- # 12 **Erosion Vector Interface (EVI): A Computer Program for Georeferenced Application of Erosion Prediction Models (USLE and WEPP)**  
Gerd Sparovek, University of Sao Paulo, Piracicaba, Brazil (*S.B.L. Ranieri, Q. de Jong van Lier, D.C. Flanagan*)

2:30 p.m.-3:00 p.m. **BREAK**

3:00 p.m.-4:30 p.m. **CONCURRENT TECHNICAL POSTER SESSIONS 11, 12, 13, 14**  
**SESSION 11: MODELING CLIMATIC, HYDROLOGIC AND SOIL EROSION PROCESSES - POSTER SESSION - I**

*Co-Moderators: L. Mark Risse, University of Georgia, Athens, GA*  
*Andrey B. Achasov, Institute for Soil Science and Agrochemistry Research, Kharkiv, Ukraine*

3:00 p.m. *Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – Hibiscus I*  
*Location: Poster Presentation – Garden Lanai*

*Poster #*

- # 1 **Modeling the Impacts of Manure on Soil and Water Losses**  
L. Mark Risse, University of Georgia, Athens, GA (*J.E. Gilley*)
- # 2 **Climate Simulation to Understand Soil Erosion in North America During El Niño Years**  
Mario Tiscareno L., National Institute For Agricultural Research (INIFAP) Aguascalientes, Mexico (*A.D. Baez, R.C. Izaurralde, N.J. Rosenberg*)
- # 3 **Rainfall Erosivity for East and Central Poland**  
Kazimierz Banasik, Warsaw Agricultural University, Warsaw, Poland (*D. Gorski, J.K. Mitchell*)
- # 4 **Watershed-Scale Parameters in Soil Erosion**  
Marius M. Agua, Iowa State University, Ames, IA
- # 5 **Modification of Curve Number Adjustment Technique for Prediction of Runoff**  
Philip L. Barnes, Kansas State University, Manhattan, KS (*S.J. Bhuyan, J.K. Koelliker*)
- # 6 **Hydrologic and Sediment Transport Modeling of the Big Ditch Watershed in Illinois**  
Deva K. Borah, Illinois State Water Survey, Champaign, IL (*M. Bera, R. Xia*)
- # 7 **Using GIS and Hydrologic Modeling for Erosion Hazard Assessment in Lebanese Mountainous Areas**  
Faraj El-Awar, American University of Beirut, Beirut, Lebanon (*H.W. Hudeib, R.A. Zurayk*)
- # 8 **Runoff and Soil Erosion Modelling in a Small Sicilian Watershed**  
Francesca Somma, University of Catania, Catania, Italy (*F. Licciardello, N. Rizzo, S.M. Zimbone*)
- # 9 **Watershed Erosion and Sediment Load Estimation Tool**  
Henry B. Manguerra, Tetra Tech, Inc., Fairfax, VA (*J. Greenfield, M. Lahlou, L. Swift Jr.*)
- # 10 **Evaluation of Models to Predict the Deflation Threshold of a Wet Dune Sand**  
Wim M. Cornelis, Ghent University, Ghent, Belgium (*D. Gabriels, B. Detavernier*)
- # 11 **Inter-Regional Atmospheric Transport of Australian Dust**  
Hamish A. McGowan, Victoria University of Wellington, Wellington, New Zealand (*G.H. McTainsh, A.P. Sturman, P. Zawar-Resa*)

**SESSION 12: MODELING CLIMATIC, HYDROLOGIC AND SOIL EROSION PROCESSES - POSTER SESSION II**

*Co-Moderators: Aleksey Sidorchuk, Moscow State University, Moscow, Russia*  
*Roel C. Vining, USDA-Natural Resources Conservation Service, West Lafayette, IN*

3:00 p.m. *Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – Ilima*  
*Location: Poster Presentation – Garden Lanai*

*Poster #*

- # 1 **Modification of the WEPP Hillslope Model for Subsurface Drained Cropland**  
Larry C. Brown, The Ohio State University, Columbus, OH (*T. Oztekin*)
- # 2 **Analysis of Sources of Variability in Runoff Plots Studies Using A Numerical Model: A Case Study From a 40 Fallow Plots Experiment**  
Jose A. Gomez, Purdue University, West Lafayette, IN (*M.A. Nearing, E.E. Alberts*)



# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

- # 3 **Sediment Transport Analysis Using Finite Element Method with Bubble Element**  
Junichi Matsumoto, Chuo University, Tokyo, Japan (*M. Kawahara*)
- # 4 **Modeling Water Flow and Sediment Processes in a Small Gully System on the Loess Plateau of China**  
Jannes Stolte, Alterra, Wageningen, The Netherlands (*C.J. Ritsema, E. van den Elsen, B. Liu*)
- # 5 **Stochastic Model to Predict Water Erosion of Cohesive Soil**  
Aleksy Sidorchuk, Moscow State University, Moscow, Russia
- # 6 **PAU-REMO: A Two Dimensional Finite Element Runoff and Soil Erosion Model for Agricultural Lands**  
Amanjot Singh, Technical University of Braunschweig, Braunschweig, Germany (*A. Herrmann, M.P. Kaushal*)
- # 7 **Development of an Ephemeral Gully Erosion Model: The Role of Undercutting in Bank Failure of Small Channels**  
Lyndsay Street, Cranfield University, Silsoe, United Kingdom (*J.N. Quinton*)
- # 8 **Development of a Windows Based Interface for the European Soil Erosion Model**  
Lyndsay Street, Cranfield University, Silsoe, United Kingdom (*J. Quinton, M. Kotova*)
- # 9 **Soil Translocation Induced by Tillage Under Austrian Farming Conditions**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*B. Frauenfeld, G. Govers*)
- # 10 **Comparison of Soil Erosion Simulations Using WEPP and RUSLE with Field Measurements**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*A.S. Zartl*)
- # 11 **Calibration and Validation of GLEAMS for Predicting Non-Point Source Pollution from Agricultural Lands**  
Allah Bakhsh, Iowa State University, Ames, IA (*R.S. Kanwar*)

### SESSION 13: APPLICATION OF SOIL EROSION MODELS POSTER SESSION

Co-Moderators: *William J. Elliot, USDA-Forest Service, Moscow, ID*

*Gerd Sparovek, University of Sao Paulo, Piracicaba, Brazil*

Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – *Plumeria*

Location: Poster Presentation – *Garden Lanai*

3:00 p.m.

Poster #

- # 1 **The Modular Soil Erosion System (MOSES)**  
Charles R. Meyer, USDA-Agricultural Research Service, West Lafayette, IN (*L.E. Wagner, D.C. Yoder, D.C. Flanagan*)
- # 2 **Demonstration of the RUSLE2 Model**  
Daniel C. Yoder, University of Tennessee, Knoxville, TN (*G.R. Foster, J.B. Lown*)
- # 3 **Simulating Small Watersheds with Water Erosion Prediction Project Technology**  
Dennis C. Flanagan, USDA-Agricultural Research Service, West Lafayette, IN (*J.R. Frankenberger, C.S. Renschler, J.M. Laflen, B.A. Engel*)
- # 4 **Demonstration of the WEPS 1.0 Wind Erosion Model**  
Larry E. Wagner, USDA-Agricultural Research Service, Manhattan, KS (*J. Tatarko*)
- # 5 **WEPS 1.0 - What it is and What it isn't**  
Larry E. Wagner, USDA-Agricultural Research Service, Manhattan, KS (*J. Tatarko*)
- # 6 **WEPS and WEPP Science Commonality Project**  
Larry E. Wagner, USDA-Agricultural Research Service, Manhattan, KS (*F.A. Fox, D.C. Flanagan, L. Deer-Ascough*)
- # 7 **Common Plant Growth Model for WEPP and WEPS**  
Amare Retta, Kansas State University, Manhattan, KS (*L.A. Deer-Ascough, L.W. Wagner, D.C. Flanagan, D.V. Armbrust*)
- # 8 **Application of Erosion Prediction Models by a User Agency on Private Lands in the United States**  
Glenn A. Weesies, USDA-Natural Resources Conservation Service, West Lafayette, IN (*G.L. Tibke, D.L. Schertz*)
- # 9 **Comparing RUSLE to WEPP Cropland and Rangeland Formats**  
William J. Elliot, USDA-Forest Service, Moscow, ID
- # 10 **Enhancements to the CLIGEN Weather Generator for Mountainous or Custom Applications**  
William J. Elliot, USDA-Forest Service, Moscow, ID (*D.L. Scheele, D.E. Hall*)
- # 11 **A Simulation Study of Non-Point Pollution on an Upland Agricultural Watershed Using AGNPS-GRASS**  
Sanghyun Kim, Pusan National University, Pusan, South Korea
- # 12 **Performance of <sup>137</sup>Cs Fallout Redistribution Analysis, USLE and WEPPs Erosion Prediction Technology in a Complex Landscape Watershed Under Sugarcane Cultivation**  
Gerd Sparovek, University of Sao Paulo, Piracicaba, Brazil (*O.O.S. Bacchi, S.B.L. Ranieri, D.C. Flanagan*)

# Soil Erosion Research for the 21st Century

## WEDNESDAY, JANUARY 3

### SESSION 14: SOIL EROSION PREDICTION, ENVIRONMENTAL REGULATION, AND LAND-USE PLANNING POSTER SESSION

Co-Moderators: *M. Reza Savabi, USDA-Agricultural Research Service, Miami, FL*  
*Joseph P. Hupy, New Mexico State University, Las Cruces, NM*

Location: Oral Presentation (Introduction and 2 minute description of poster by presenters) – *Pakalana/Anthurium*

Location: Poster Presentation – *Garden Lanai*

3:00 p.m.

Poster #

- # 1 **GIS Application to Estimate the Wind Erosion Risk in the Federal State of Brandenburg**  
Roger Funk, ZALF Muencheberg, Muencheberg, Germany (*D. Deumlich, J. Steidl*)
- # 2 **Wind Eroded Versus Deposited Mineral Dust: A Mass Budget for a Sahelian Village Land Unit in Niger**  
Jean L. Rajot, IRD-LISA, Creteil, France (*C. Valentin*)
- # 3 **Turbidity Based on Sediment Characteristics for Southeastern U.S. Soils**  
John C. Hayes, Clemson University, Clemson, SC (*E.E. Godbold, B.J. Barfield*)
- # 4 **Rill Slope: A Pedotransfer Function for Soil Erodibility for Semiarid Rangeland Watersheds**  
Howard E. Canfield, USDA-Natural Resources Conservation Service, St. Michaels, AZ
- # 5 **Development of Soil Erosion Index Model in Taiwan Watershed**  
Su-Chin Chen, National Chung-Hsing University, Taichung, Taiwan
- # 6 **An Automated Delineation of Slope Length for Watershed Upland Erosion and Sediment Yield Estimation**  
Chao-Yuan Lin, National Chung-Hsing University, Taichung, Taiwan (*W.T. Lin*)
- # 7 **Appropriate Land Use Planning for Slope Land in Taiwan**  
Kwong F.A. Lo, Chinese Culture University, Taipei (*C.C. Huang*)
- # 8 **An Interdisciplinary Approach for Soil and Water Conservation Planning to Improve the Sustainability of Land Use on the Loess Plateau in China**  
Coen J. Ritsema, Alterra, Wageningen, The Netherlands (*K.O. Trouwborst, V. Jetten, S. Ledin, L. Rui, L. Baoyuan, F. Boije*)
- # 9 **Everglades Agro-Hydrology Computer Model - Interaction of Surface and Subsurface Water Flow**  
M. Reza Savabi, USDA-Agricultural Research Service, Miami, FL (*D. Shinde, D. Bosche, F. Davis*)
- # 10 **Soil Erosion in Himalayan Watershed: A Modelling Based System Analysis of Soil and Forest Degradation**  
Bishal K. Sitaula, Agricultural University of Norway, As, Norway (*P.L. Sankhayan, B.R. Singh, O. Hofstad, N.R. Gurung*)
- # 11 **Storm Soil Erosion Model in a Small Watershed in Loess Plateau, North China**  
Qiangguo Cai, Institute of Geography, Chinese Academy of Science, Beijing, China

5:00 p.m.-6:30 p.m.

### RECEPTION

Location: *Hibiscus Ballroom II*

7:30 p.m.-9:00 p.m.

### INFORMAL RAPSESSION

Discussion Leader - John M. Lafflen, Purdue University, West Lafayette, IN

Location: *Ilima*

## THURSDAY, JANUARY 4

8:00 a.m.-9:30 a.m.

### THREE CONCURRENT PANEL DISCUSSION SESSIONS

#### PANEL #1 (SESSION 15):

#### EROSION BY WIND: PROCESSES, MODELING AND CONTROL

Chair/Moderator - John Leys, Centre for Natural Resources, Gunnedah, Australia

Location: *Ilima*

#### PANEL #2 (SESSION 16):

#### EROSION BY WATER: PROCESSES, MODELING AND CONTROL

Chair/Moderator - John Boardman, University of Oxford, Oxford, United Kingdom

Location: *Hibiscus Ballroom II*

#### PANEL #3 (SESSION 17):

#### QUANTIFICATION OF SOIL EROSION BY WIND AND WATER

Chair/Moderator - Chia-Chun Joseph Wu, National Pingtung University of Science & Technology, Pingtung, Taiwan

Location: *Hibiscus Ballroom I*

9:30 a.m.-9:40 a.m.

### BREAK

# Soil Erosion Research for the 21st Century

## THURSDAY, JANUARY 4

9:40 a.m.-11:30 a.m. **CONCURRENT TECHNICAL LECTURE SESSIONS 18, 19, 20, 21, 22**

### **SESSION 18: EXPERIMENTAL SOIL EROSION PROCESS RESEARCH - II**

*Moderator: Andreas Klik, University of Agricultural Sciences, Vienna, Austria*

*Location: Hibiscus Ballroom I*

- 9:40 a.m. **Introduction**
- 9:45 a.m. **The Role of Pore-Water Pressures and Upward-Directed Seepage Forces in the Erosion of Cohesive Streambeds**  
Andrew Simon, USDA-Agricultural Research Service, Oxford, MS (*A.J.C. Collison*)
- 10:00 a.m. **Effects of Freeze/Thaw Conditions on Soil Strength**  
Joan Q. Wu, Washington State University, Pullman, WA (*M.K. Place, D.K. McCool, C.O. Cuhaciyian*)
- 10:15 a.m. **Predicting the Effect of Slope Gradient on Soil Erosion Rates for Steep Landscapes**  
Gary J. Sheridan, Department of Natural Resources and Environment, Victoria, Australia (*H.B. So*)
- 10:30 a.m. **Dynamics of Pollutant Delivery into Surface Tile Inlets**  
J.F. Moncrief, University of Minnesota, St. Paul, MN (*D. Ginting, A.H. Ranaivoson, S.C. Gupta*)
- 10:45 a.m. **Effects of Overwinter Processes on Stability of Dry Soil Aggregates**  
John Tatarko, USDA-Agricultural Research Service, Manhattan, KS (*L.E. Wagner, C.A. Boyce*)
- 11:00 a.m. **Rainfall and Surface Roughness Effects on Soil Loss and Surface Runoff**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*W. Jester, G. Hauer, B. Hebel, C.C. Truman*)
- 11:15 a.m. **Field Investigations of Rainfall Impact on Soil Erosion and Soil Surface Roughness**  
Andreas Klik, University of Agricultural Sciences, Vienna, Austria (*G. Hauer, W. Jester, C.C. Truman*)

### **SESSION 19: WIND EROSION RESEARCH**

*Moderator: Ted M. Zobeck, USDA-Agricultural Research Service, Lubbock, TX*

*Location: Hibiscus Ballroom II*

- 9:40 a.m. **Introduction**
- 9:45 a.m. **Validation of the Revised Wind Erosion Equation (RWEQ) for Single Events and Discrete Periods**  
Ted M. Zobeck, USDA-Agricultural Research Service, Lubbock, TX (*S. Van Pelt, J.E. Stout, T.W. Popham*)
- 10:00 a.m. **Dust Trends in the Southern High Plains**  
John E. Stout, USDA-Agricultural Research Service, Lubbock, TX.
- 10:15 a.m. **Validation of the Wind Erosion Prediction System (WEPS) Erosion Submodel on Small Cropland Fields**  
Lawrence J. Hagen, USDA-Agricultural Research Service, Manhattan, KS
- 10:30 a.m. **Test Results of TEAM (Texas Tech Erosion Analysis Model)**  
James M. Gregory, Texas Tech University, Lubbock, TX (*M.M. Darwish*)
- 10:45 a.m. **Reconstructing the Recent Wind Erosion History of a Field in East Anglia, UK**  
Adrian Chappell, University of Salford, Manchester, United Kingdom (*A.D. Thomas*)
- 11:00 a.m. **Processes of Nebkha Dune Formation and Wind-Blown Nutrient Deposition in the Molopo Basin, Southern Africa**  
Andrew D. Thomas, University of Salford, Greater Manchester, United Kingdom (*A.J. Dougill*)
- 11:15 a.m. **On-Farm Evaluation of Field-Scale Soil Losses by Wind Erosion Under Traditional Management in the Sahel**  
Charles L. Bielders, Universite Catholique de Louvain, Louvain-la-Neuve, Belgium (*A. Vrieling, J-L. Rajot, E.L. Skidmore*)

### **SESSION 20: SOIL EROSION PREDICTION, ENVIRONMENTAL REGULATION, AND LAND-USE PLANNING - I**

*Moderator: Manuel R. Reyes, North Carolina A&T State University, Greensboro, NC*

*Location: Ilima*

- 9:40 a.m. **Introduction**
- 9:45 a.m. **How will Future Climate Change and Land-Use Change Affect Rates of Erosion on Agricultural Land?**  
John Boardman, University of Oxford, Oxford, United Kingdom (*D.T. Favis-Mortlock*)
- 10:00 a.m. **Integration of Soil Erosion Modeling and Participatory Soil Conservation Planning**  
Kim O. Trouwborst, Alterra, Wageningen, The Netherlands (*C.J. Ritsema, M.H. Fagerstrom*)
- 10:15 a.m. **Challenges and Approaches for WEPP/Interrill Erodibility Measurements in the Ukraine**  
S. Yu Bulygin, Institute for Soil Science and Agrochemistry Research, Kharkov, Ukraine
- 10:30 a.m. **Data Accuracy Issues in Spatially Distributed Soil Erosion Modeling: What Does Decision Making Gain?**  
Chris Renschler, Purdue University, West Lafayette, IN (*D.C. Flanagan, B.A. Engel*)
- 10:45 a.m. **Comparing GLEAMS Nitrogen Predictions with Results from a Long Term Tillage Study at NCA&T State University**  
Manuel R. Reyes, North Carolina A&T State University, Greensboro, NC (*C.W. Raczkowski, G.A. Gayle, G.B. Reddy*)

# Soil Erosion Research for the 21st Century

## THURSDAY, JANUARY 4

- 11:00 a.m. **The Influence of Implement Type and Tillage Depth on Residue Burial**  
Randy L. Raper, USDA-Agricultural Research Service, Auburn, AL
- 11:15 a.m. **Surface-Cover Subfactor for Gravel-Rich Surfaces**  
Chia-Chun Wu, National Pingtung University of Science & Technology, Pingtung, Taiwan
- SESSION 21: MEASUREMENT TECHNIQUES IN SOIL EROSION RESEARCH**  
*Moderator: Michael C. Hirschi, University of Illinois, Urbana, IL*  
*Location: Plumeria*
- 9:40 a.m. Introduction
- 9:45 a.m. **Using Acoustic Emission Testing to Monitor Kinetic Energy of Raindrop and Rainsplash Erosion.**  
Hasan Guzel, Harvard University, Cambridge, MA (*A.P. Barros*)
- 10:00 a.m. **Settling Velocity of Soil Aggregates, Aggregate Stability, and Interrill Erodibility of Ten Clay Soils**  
Jose M. Reichart, Fedear University of Santa Maria, Santa Maria, Brazil (*L.D. Norton, N. Favaretto*)
- 10:15 a.m. **A Dielectric Method of Sediment Concentration Measurement in Runoff Waters**  
Gordon C. Starr, USDA-Agricultural Research Service, Tucson, AZ (*J.R. Simanton, B. Lowery, M.S. Moran*)
- 10:30 a.m. **Measurement and Stabilization of Streambank Erosion in North Carolina**  
Greg D. Jennings, North Carolina State University, Raleigh, NC (*W.A. Harman*)
- 10:45 a.m. **Trap Efficiency of Silt Fences Used in Hillslope Erosion Studies**  
Peter R. Robichaud, USDA-Forest Service, Moscow, ID (*D.K. McCool, C.D. Pannkuk, R.E. Brown, P.W. Mutch*)
- 11:00 a.m. **Techniques for Simultaneous Quantification of Wind and Water Erosion in Semi-Arid Zones**  
Saskia M. Visser, Wageningen University, Wageningen, The Netherlands (*G. Sterk*)
- 11:15 a.m. **Research Method Effects on Measured Erosion Rates**  
Michael C. Hirschi, University of Illinois, Urbana, IL (*P.K. Kalita, J.K. Mitchell, Y. Zhao*)
- SESSION 22: SEDIMENT TRANSPORT MODELING**  
*Co-Moderators: Sam S.Y. Wang, University of Mississippi, Oxford, MS*  
*C. Ted Yang, USDI-Bureau of Reclamation, Denver, CO*  
*Location: Pakalana-Anthurium*
- 9:40 a.m. Introduction
- 9:45 a.m. **The Current Development and Future Needs in Modeling Stream Sedimentation - The NCCHE Perspective**  
Sam S.Y. Wang, University of Mississippi, Oxford, MS
- 10:00 a.m. **Local Scouring At Bridge Abutments Located Near the Junction Regions of Compound Channels**  
Ron D. Townsend, University of Ottawa, Ottawa, Canada (*S. Kouchakzadeh*)
- 10:15 a.m. **Sediment Transport Modeling for Stream Channel Scour Below a Dam**  
Howard H. Chang, San Diego State University, San Diego, CA
- 10:30 a.m. **Flood Flow and Morphology of the Lower Mekong River in Vietnam**  
Tawatchai Tingsanchali, Asian Institute of Technology, Pathumthani, Thailand (*D.C. San*)
- 10:45 a.m. **Use of GIS and Regional Relationships to Determine Subbasin Sediment Yields for Input to a Sediment Transport Model**  
David T. Williams, WEST Consultants, Inc., San Diego, CA (*M.J. Teal, J.B. Bradley*)
- 11:00 a.m. **A Unified Approach for Erosion and Sediment Transport Studies**  
C. Ted Yang, USDI-Bureau of Reclamation, Denver, CO
- 11:15 a.m. **There is Not Always Surface Runoff and Sediment Transport**  
J. Kent Mitchell, University of Illinois, Urbana, IL (*K. Banasik, M.C. Hirschi, R.A.C. Cook, P. Kalita*)
- 11:45 a.m. - 6:00 p.m. **FIELD TECHNICAL TOUR OF THE ISLAND OF OAHU**  
Tour Leader, Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

## FRIDAY, JANUARY 5

- 7:00 a.m.-4:00 p.m. **REGISTRATION**
- 8:00 a.m.- 9:30 a.m. **Small Discussion Group Meetings**  
*Location: Hibiscus Ballroom I, Hibiscus Ballroom II, Ilima*
- 9:30 a.m.-10:00 a.m. **Break**

# Soil Erosion Research for the 21st Century

## FRIDAY, JANUARY 5

10:00 a.m.-12 Noon **Panel Discussion Groups (Reconvene)**

**PANEL #1 (SESSION 23):**

**EROSION BY WIND: PROCESSES, MODELING AND CONTROL**

*Chair/Moderator - John Leys, Centre for Natural Resources, Gunnedah, Australia*

*Location: Ilima*

**PANEL #2 (SESSION 24):**

**EROSION BY WATER: PROCESSES, MODELING AND CONTROL**

*Chair/Moderator - John Boardman, University of Oxford, Oxford, United Kingdom*

*Location: Hibiscus Ballroom II*

**PANEL #3 (SESSION 25):**

**QUANTIFICATION OF SOIL EROSION BY WIND AND WATER**

*Chair/Moderator - Chia-Chun Joseph Wu, National Pingtung University of Science & Technology, Pingtung, Taiwan*

*Location: Hibiscus Ballroom I*

12 Noon-1:50 p.m.

**Banquet Luncheon**

*Luncheon Speaker: Carl I. Evensen, University of Hawaii*

*"Hawaiian Watershed Management"*

*Mr. Evensen is an Extension Specialist in Environmental Quality and Natural Resource Management at the University of Hawaii. He will speak about Hawaiian Watershed Management and incorporate some interesting facts about Hawaiian culture and history in his presentation.*

*Location: Ginger Terrace*

1:50 p.m.-3:40 p.m.

**CONCURRENT TECHNICAL LECTURE SESSIONS 26, 27, 28, 29, 30**

**SESSION 26: EXPERIMENTAL SOIL EROSION PROCESS RESEARCH - III**

*Moderator: Matt J.M. Romkens, USDA-Agricultural Research Service, Oxford, MS*

*Location: Hibiscus Ballroom II*

1:50 p.m.

Introduction

1:55 p.m.

**Discussion of a Lab Methodology to Investigate Erosion Processes on Small Areas**

*Andreas Klik, University of Agricultural Sciences, Vienna, Austria (A.S. Zartl)*

2:10 p.m.

**Analyzing Rainfall Intensity Effects on Interrill Splash and Wash Processes**

*Yongshan Wan, South Florida Water Management District, West Palm Beach, FL (S.A. El-Swaify)*

2:25 p.m.

**Cyclic and Non-Cyclic Patterns of Bed Roughness in Eroding Rills**

*Katharina Helming, Center for Agricultural Landscape and Land Use Research, Muencheberg, Germany (M.J.M. Romkens, S.N. Prasad)*

2:40 p.m.

**Determining Erodibility Parameters for a Palouse Silt Loam Using Runoff Plot Data**

*Erin S. Brooks, University of Idaho, Moscow, ID (D.K. McCool, J. Boll)*

2:55 p.m.

**Soil Erosion Effects as Indicators of Desertification Processes in the Northern Negev Desert**

*Thomas Akuja, Ben Gurion University of the Negev, Mizpe, Israel (Y. Avni, E. Zaady, Y. Guterman)*

3:10 p.m.

**Erosion Studies from Experimental Watersheds Impacted by Livestock Grazing**

*John A. Daniel, USDA-Agricultural Research Service, El Reno, OK*

3:25 p.m.

**"Adhesion Flow" and Regressive Gully-Head Expansion in Southern Brazil: Field Experiment Results**

*Marcelo A. Teixeira de Oliveira, Universidade Federal de Santa Catarina, Brazil*

**SESSION 27: MODELING CLIMATIC, HYDROLOGIC, AND SOIL EROSION PROCESSES II**

*Moderator: Ramesh P. Rudra, University of Guelph, Guelph, Canada*

*Location: Ilima*

1:50 p.m.

Introduction

1:55 p.m.

**A New Conceptual Framework for Understanding and Predicting Erosion by Water from Hillslopes and Catchments**

*John Wainwright, King's College London, London, United Kingdom (A.J. Parsons, D.M. Powell, R. Brazier)*

2:10 p.m.

**An Energy Budget Approach to Simulate Snow Melt and Soil Frost Depth**

*Chun-hsu Lin, Washington State University, Pullman, WA (D.K. McCool, D.C. Flanagan, B.S. Sharratt)*

2:25 p.m.

**An Empirical Model of Hydraulic Roughness for Overland Flow**

*Carlos J. Lopez-Sabater, University of Arizona, Tucson, AZ (K.G. Renard, V.L. Lopes)*



# Soil Erosion Research for the 21st Century

## FRIDAY, JANUARY 5

- 2:40 p.m. **Topographic Factors for RUSLE in the Continuous-Simulation, Watershed Model for Predicting Agricultural, Non-Point Source Pollutants (AnnAGNPS)**  
Fred D. Theurer, USDA-Natural Resources Conservation Service, Gaithersburg, MD (*R.L. Bingner*)
- 2:55 p.m. **Erosion Processes Modelling Using Microwave Remote Sensing at a Catchment Scale**  
Peter J. van Oevelen, Wageningen University, Wageningen, The Netherlands (*G. Sterk*)
- 3:10 p.m. **Simulation of Tillage and Other Management Operations in WEPS**  
Larry E. Wagner, USDA-Agricultural Research Service, Manhattan, KS (*F.A. Fox*)
- 3:25 p.m. **Lessons Learned from the Use of Erosion and Non-Point Source Pollution Models**  
Ramesh P. Rudra, University of Guelph, Guelph, Canada (*W.T. Dickinson, H.R. Whitely*)

### SESSION 28: ON-SITE AND OFF-SITE IMPACTS OF SOIL EROSION - II

*Moderator: Larry C. Brown, The Ohio State University, Columbus, OH*

*Location: Plumeria*

- 1:50 p.m. Introduction
- 1:55 p.m. **Testing and Development of a Simple Field-Based Erosion Hazard Assessment Scheme**  
Gary Sheridan, Department of Natural Resources and Environment, Victoria, Australia (*P. Lane, S. Murphy*)
- 2:10 p.m. **Modeling and Evaluation of Alternative Agricultural Management Practices in Sand Creek Watershed**  
Brent J. Dalzell, University of Minnesota, St. Paul, MN (*D.J. Mulla, P.H. Gowda*)
- 2:25 p.m. **Linking the Field to the River: Runoff and Sediment Delivery in a North Carolina Coastal Plain Drainage Basin**  
Michael C. Slattery, Texas Christian University, Ft. Worth, TX (*P.A. Gares, J.D. Phillips*)
- 2:40 p.m. **Solving the Off-Site Impacts of Soil Erosion by an Integrated Environmental Watershed Management?**  
Gert Verstraeten, Laboratory for Experimental Geomorphology, K.U. Leuven, Belgium (*A. Van Rompaey, J. Poesen, G. Govers*)
- 2:55 p.m. **How Near-Surface Moisture Gradients Affect Phosphorous and Nitrate Losses**  
Fen-li Zheng, Purdue University, West Lafayette, IN (*C. Huang, L.D. Norton*)
- 3:10 p.m. **Applying ANSWERS2000 to Simulate BMP Effects on Sediment and Runoff for Two Watersheds in the Three Gorges Area, Southern China**  
Zhiming Niu, Beijing Forestry University, Beijing, China (*G. Sun, S.G. McNulty, M. Xie, and W. Byne*)
- 3:25 p.m. **Evaluation and Testing of the Hydrology Components of WEPPHillslope and WEPP-WTM Models for Subsurface Drained Cropland**  
Larry C. Brown, The Ohio State University, Columbus, OH (*T. Oztekin, N.R. Fausey*)

### SESSION 29: EROSION CONTROL PRACTICES AND EROSION PREDICTION

*Moderator: Jussi Baade, Friedrich-Schiller University, Jena, Germany*

*Location: Pakalana-Anthurium*

- 1:50 p.m. Introduction
- 1:55 p.m. **Field Fabricated Plastic Liners for Erosion and Seepage Control**  
Gerald L. Westesen, Montana State University, Bozeman, MT (*L. Payne*)
- 2:10 p.m. **Crop Response, Soil Loss and Runoff Results from a Long Term Tillage Study at NCA&T State University**  
Charles W. Raczkowski, North Carolina A&T State University, Greensboro, NC (*G.A. Gayle, M.R. Reyes, G.B. Reddy*)
- 2:25 p.m. **Surface Losses of N, and Herbicides from a Long-Term Tillage Study at N.C. A & T State University**  
Gudigopuram B. Reddy, North Carolina A&T State University, Greensboro, NC (*C.W. Raczkowski, M.R. Reyes, G.A. Gayle*)
- 2:40 p.m. **Evaluating WEPP-Predicted Furrow Irrigation Erosion**  
David L. Bjorneberg, USDA-Agricultural Research Service, Kimberly, ID
- 2:55 p.m. **Possibility of Using Remotely Sensed Data to Determine Soil Erosion Stability**  
Andrey B. Achasov, Institute for Soil Science and Agrochemistry Research, Kharkiv, Ukraine
- 3:10 p.m. **Predicting Erosion Along the Thunder Bay River Using Various Monitoring Techniques**  
Andrew R. Blystra, Thunder Bay Power Company, Holland, MI
- 3:25 p.m. **Validation of the Wind Erosion Equation (WEQ) for Discrete Periods and of the Wind Erosion Stochastic Simulator (WESS) for Single Events**  
R. Scott Van Pelt, USDA-Agricultural Research Service, Big Spring, TX (*T.M. Zobeck, K.N. Potter*)

# Soil Erosion Research for the 21st Century

## FRIDAY, JANUARY 5

### SESSION 30: SOIL EROSION PREDICTION, ENVIRONMENTAL REGULATION, AND LAND-USE PLANNING II

*Moderator: Seth M. Dabney, USDA-Agricultural Research Service, Oxford, MS*

*Location: Hibiscus Ballroom I*

1:50 p.m.

#### **Introduction**

1:55 p.m.

#### **C-Factor Development for Sugarcane in Hawaii**

Carl I. Evensen, University of Hawaii at Manoa, Honolulu, HI (*S.A. El-Swaify, C.W. Smith*)

2:10 p.m.

#### **Erosion and Deposition History Derived by Depth-Stratigraphy of <sup>137</sup>Cs and Soil Organic Carbon**

Bert J. VandenBygaart, University of Guelph, Guelph, Canada (*R. Protz, V. Witt*)

2:25 p.m.

#### **Caltrans Erosion Control Pilot Study**

Michael V. Harding, CPESC, San Diego, CA (*C.L. Forrest, H.H. Chang*)

2:40 p.m.

#### **Modeling Road Sediment Transport with KINEROS2**

Alan D. Ziegler, University of Hawaii, Honolulu, HI (*T.W. Giambelluca, R.A. Sutherland*)

2:55 p.m.

#### **Estimating the Risk of Soil Erosion in a Semiarid Watershed of Central Mexico Using a Geographical Information System**

Eusebio Ventura, Jr., University of Queretaro, Queretaro, Mexico (*M.A. Dominguez-Cortazar*)

3:10 p.m.

#### **A Comprehensive Soil and Water Environmental Technology Center at North Carolina State University**

Richard A. McLaughlin, North Carolina State University, Raleigh, NC (*W.F. Hunt, G.D. Jennings, R.E. Sheffield*)

3:25 p.m.

#### **Modeling Temporal Changes in Erosion Rates Due to Benching Between Vegetative Barriers**

Seth M. Dabney, USDA-Agricultural Research Service, Oxford, MS (*D.C. Flanagan, D.C. Yoder, J. Zhu, and J. Douglas*)

3:40 p.m.-4:00 p.m.

#### **BREAK**

### **CLOSING PLENARY SESSION 31 - Chairman, Dennis C. Flanagan**

*Location: Hibiscus Ballroom I*

4:00 p.m.-4:10 p.m.

#### **SUMMARY REPORT**

**Erosion by Wind: Processes, Modeling and Control** - Panel & Discussions

4:10 p.m.-4:20 p.m.

#### **SUMMARY REPORT**

**Erosion by Water: Processes, Modeling and Control** - Panel & Discussions

4:20 p.m.-4:30 p.m.

#### **SUMMARY REPORT**

**Quantification of Soil Erosion by Wind and Water** - Panel & Discussions

4:30 p.m.-4:55 p.m.

#### **PRESENTATION OF SYMPOSIUM STATEMENT, DISCUSSION, ACTION**

Discussion Leader, Daniel C. Yoder, University of Tennessee, Knoxville, TN

4:55 p.m.-5:05 p.m.

#### **RESPONSE from "Erosion by Wind" Keynote Speaker**

John E. Stout, USDA-Agricultural Research Service, Lubbock, TX

5:05 p.m.-5:15 p.m.

#### **RESPONSE from "Erosion by Water" Keynote Speaker**

Gerard Govers, Laboratory for Experimental Geomorphology, Catholic University of Leuven, Belgium

5:15 p.m.-5:25 p.m.

#### **RESPONSE from "Quantification of Soil Erosion" Keynote Speaker**

Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

5:25 p.m.-5:30 p.m.

#### **RECOGNITIONS AND CLOSING**

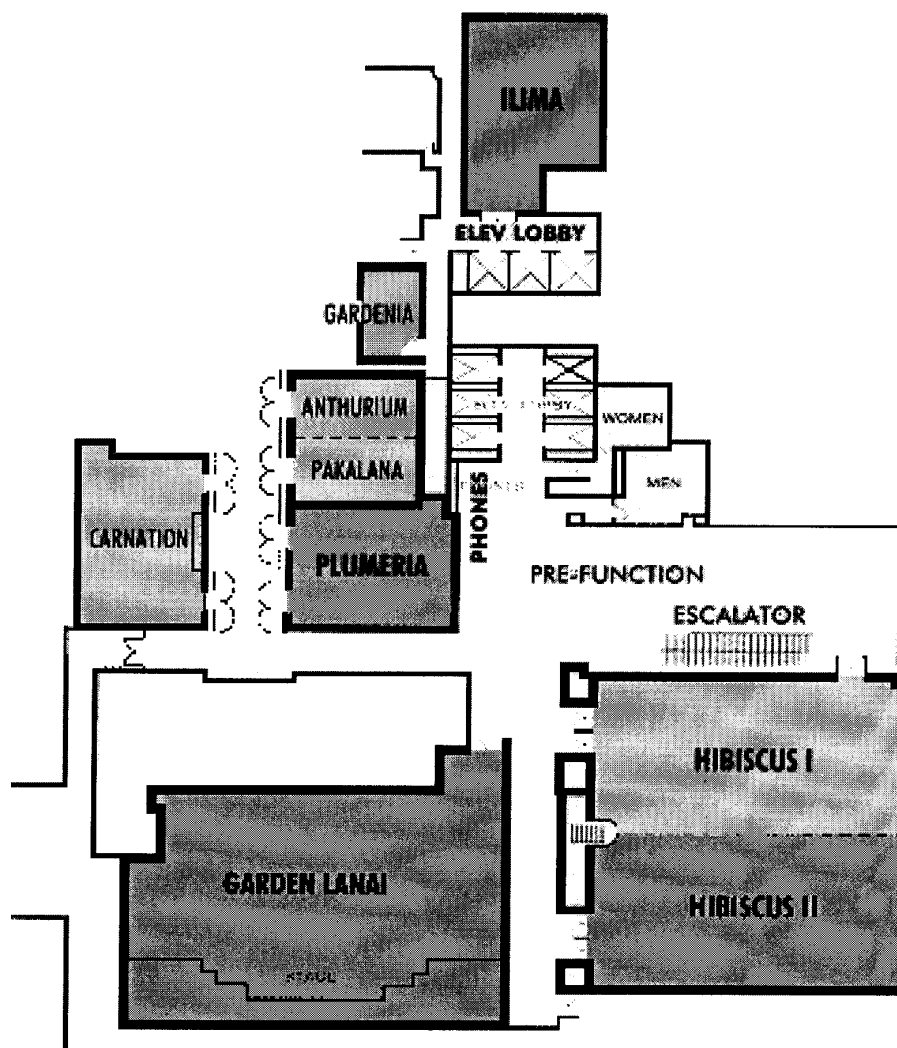
## SATURDAY, JANUARY 6

5:30 a.m.-7:20 p.m.

#### **OPTIONAL FIELD TOUR OF ISLAND OF HAWAII**

Leader: Samir A. El-Swaify, University of Hawaii at Manoa, Honolulu, HI

# Ala Moana Hotel



## SOIL EROSION RESEARCH FOR THE 21ST CENTURY

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