

# **Joint Federal Interagency Conference on Sedimentation and Hydrologic Modeling (JFIC2010)**

**June 27 – July 1, 2010**

**Riviera Hotel, Las Vegas, Nevada**



**Theme: *Hydrology and Sedimentation for a Changing Future:  
Existing and Emerging Issues***

**Sponsored by the ACWI's Subcommittees on Hydrology and Sedimentation  
(Advisory Committee on Water Information)**

**[www.jfic.us](http://www.jfic.us)**

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# **Joint Federal Interagency Conference on Sedimentation and Hydrologic Modeling (JFIC2010: 9<sup>th</sup>FISC & 4<sup>th</sup>FIHMC)**

**June 27 – July 1, 2010**

**Riviera Hotel, Las Vegas, Nevada**

Theme: ***Hydrology and Sedimentation for a Changing Future:  
Existing and Emerging Issues***

**BACKGROUND:** The Federal Interagency Sedimentation Conferences (FISC) began in 1947, and the Federal Interagency Hydrologic Modeling Conferences (FIHMC) began in 1998. These highly successful conferences, which together have produced over 2100 technical papers, will be held again jointly in 2010. The Joint Conference will provide Federal and non-Federal scientists and managers from various disciplines the opportunity to discuss recent accomplishments and progress in research and on technical developments in the physical, chemical, and biological aspects of sedimentation and the development and use of models addressing surface water quality and quantity issues. The Joint Conference will follow a mixed set of formats including formal technical presentations, poster sessions, field trips, short courses, and model demonstrations. A separate student poster paper session and competition for cash prizes is also scheduled.

The Subcommittee on Hydrology (SOH) held the Federal Interagency Workshop on Hydrologic Modeling Demands for the 90's in Fort Collins, Colorado, in 1993. That highly successful workshop was limited to Federal participants. Subsequent to that workshop, the SOH decided to hold a broader series of conferences and to open it to all interested parties. Federal Interagency Hydrologic Modeling Conferences were held in 1998, 2002, and 2006, and covered models addressing surface water quality and quantity issues.

Federal Interagency Sedimentation Conferences (FISC) were held in 1947, 1963, 1976, 1986, 1991, 1996, 2001, and 2006. As a continuation of these highly successful conferences, the 9<sup>th</sup>FISC will again provide an interdisciplinary mix of scientists and managers from government agencies, academia, and the business community to make professional presentations on recent accomplishments and progress in research and on technical developments related to sedimentation processes and the impact of sediment on the environment.

This is the first announcement of the 2<sup>nd</sup>JFIC2010 Conference and technical agenda. Some changes may occur by the start of the Conference and will be reflected in the final on-site program.

**CONFERENCE SITE:** The Conference will be held at the Riviera Hotel in Las Vegas, Nevada, USA. The area offers spectacular desert landscapes and ecosystems, as well as numerous indoor and outdoor recreational opportunities.



**TOPICS:** About 264 technical papers, 70 posters, and 11 modeling demonstrations have been accepted for presentation. These are from the United States and several foreign countries and incorporate results of recent research and technology development, as well as applications relating to surface water modeling. Papers and posters will be given on the following topics:

- Adaptive Hydraulics Model (ADH)
- Climate Variability / Impact
- Conservation Effects Assessment Project (CEAP)
- Dam Breach Modeling
- Dam Removal
- Environmental River Management
- Flood Hydrology
- Fluvial Geomorphology
- GIS Technology in Water Resources
- Gully Erosion Assessment, Development, Processes, and Modeling
- Hydroecological Modeling
- Instrumentation Monitoring
- Management & Decision Making Models
- Modeling of Major River Systems
- Mt. St. Helens Sedimentation
- Reservoir Sedimentation
- Sand and Gravel Interactions
- Sediment Impact Assessment Model (SIAM)
- Sediment Measurement
- Sediment Surrogates
- Sediment Transport
- Soil Erosion Measurements and Research
- Stream Restoration
- Streambank Erosion
- Turbidity
- Watershed Planning
- Watershed Sediment Analysis

For a complete listing of the papers accepted for presentations see the “Technical Papers, Posters, and Model Demonstrations” section at the end of this announcement.

**OPENING SESSION:** The Conference Chairs will make welcoming remarks and opening statements. A local welcoming speaker and several prominent keynote speakers, including Matt Larson, Associate Director for Water (USGS) and alternate Chair of the Advisory Committee on Water Information, will also address the Conference.

**EXHIBITS:** Exhibitors are being solicited in the following areas: Surface water, sediment, and water-quality-data collection, recording, and analysis equipment and software; laboratory equipment; erosion-control products; computer hardware and software for collection, distribution, and/or analysis of hydrologic data; surveying equipment, both for land and underwater use; hydrologic, sedimentation, climate variability/change, and decision support systems modeling firms; and any other related equipment or services related to the theme of the Conference.

The Exhibit Hall will contain about 35 10x10-foot booths and will be open during conference hours on Sunday through Tuesday. A Grand Opening of the Exhibit Hall is planned for Sunday and will include a two-hour get acquainted reception in the Exhibit Hall from 5:30pm to 7:30pm. All Monday and Tuesday coffee breaks, poster sessions, and receptions will also be held in the Exhibit Hall to insure that participants have ample time to visit all the exhibits. A special Exhibitor's Reception and Student Poster Session is planned for Monday evening following the Technical Sessions. Exhibits will close around 3:30pm on Tuesday. The rental fee for each booth will be \$850 and will include one complimentary full conference registration. See the Exhibitor information on [www.jfic.us](http://www.jfic.us) or for additional information contact Mr. Joe Treadway, USGS Hydrologic Instrumentation Facility, Building 2101, Stennis Space Center, MS 39529; phone 228-688-3573; FAX 228-688-1577; [jbtread@usgs.gov](mailto:jbtread@usgs.gov).

### **STUDENT PROGRAM/POSTER PAPER COMPETITION**

Student posters on sedimentation and hydrologic modeling will also be displayed and presented during the Exhibitor's Reception on Monday evening. See the list of student posters later in this announcement. For abstracts that are accepted for either oral or poster presentation, students will be asked to submit a paper (maximum of 12 pages). The student authors will present their topics, and their posters and papers will be judged for cash prizes. Separate cash awards (>\$500) will be given to the best papers and best posters.

A special student lunch session on Monday will be provided where students will have a chance to learn about careers in the Federal Government.

The student registration fee for the conference is substantially reduced. Full-time students may register for the conference at a special fee of \$180 before May 31, 2010, and \$210 after May 31 or onsite. The conference registration fee will be waived for selected students who volunteer to operate computers and projectors (audio visual assistants). Any full time student that is interested in volunteering as an audio/visual assistant should contact Jeff Harris for details (530-756-1104, [David.J.Harris@usace.army.mil](mailto:David.J.Harris@usace.army.mil)). Limited funds are available to assist students with travel and hotel expenses on a case-by-case basis, depending on the expressed need. Preference will be given to students who are presenters and who volunteer to serve as audio visual assistants. For more information concerning student assistance and the procedure for applying for travel assistance, contact Dr. Richard H. Hawkins, University of Arizona (520-621-7273, [rhawkins@Ag.arizona.edu](mailto:rhawkins@Ag.arizona.edu)).

**MODEL DEMONSTRATIONS/POSTER SESSION AND DINNER:** A 4.5-hour session for computer-model demonstrations and posters, including sedimentation and hydrologic modeling, will be offered Wednesday afternoon and evening. A light dinner will be provided during this time. See the "Technical Papers, Posters, and Model Demonstrations" section of this announcement for a listing of the Model Demonstrations.

**WHO SHOULD ATTEND:** Federal, State, and local agency personnel, consultants, and researchers involved in the development and/or implementation of surface-water quantity and quality models, as well as individuals involved in decision making that depends on information developed by these hydrologic-based models should attend. Individuals from outside of the United States are encouraged to attend the conference.

**SPONSORS:** Subcommittees on Hydrology and Sedimentation under the Advisory Committee on Water Information.

### **ORGANIZATIONS**

American Forests	National Hydrologic Warning Council
American Society of Civil Engineers	National Park Service
Association of State Floodplain Managers	National Science Foundation
Bureau of Land Management	NOAA–National Weather Service
Bureau of Reclamation	Office of Surface Mining
Colorado Water Resources Research Institute	U.S. Environmental Protection Agency
Defenders of Property Rights	U.S. Geological Survey
DOD–U.S. Army Corps of Engineers	Universities Council on Water Research
Electric Power Research Institute	USDA–Agricultural Research Service
Federal Emergency Management Agency	USDA–Forest Service
Federal Energy Regulatory Commission	USDA–Natural Resources Conservation Service
Federal Highway Administration	
International Boundary and Water Commission	

### **ORGANIZING COMMITTEES**

#### **2<sup>nd</sup> Joint Federal Interagency Conference**

Doug Glysson, 2<sup>nd</sup> JFIC Chair; USGS, 412 National Center Reston, VA, 20192, 703-648-5019, [gglysson@usgs.gov](mailto:gglysson@usgs.gov)

Paula Makar, Operations Chair; Bureau of Reclamation, P.O. Box 25007 M/C D-8540, Lakewood, CO 80225, 303-445-2555, [pmakar@usbr.gov](mailto:pmakar@usbr.gov)

Francisco Simoes, Proceedings Coordinator, USGS, Box 25046, MS 413, Lakewood, CO 80225, 303-236-4556, [frsimoes@usgs.gov](mailto:frsimoes@usgs.gov)

Jeff Rieker, Registration Chair; Bureau of Reclamation, 775-884-8375, [jrieker@usbr.gov](mailto:jrieker@usbr.gov)

Tim Rowe, Field Trip Coordinator, U.S. Geological Survey

Tim Randle, Poster/Demonstration Coordinator, Bureau of Reclamation

Joe Treadway, Exhibitor Coordinator, USGS Hydrologic Instrumentation Facility, Building 2101, Stennis Space Center, MS 39529, 228-688-3573, [jbtread@usgs.gov](mailto:jbtread@usgs.gov)

Jayantha Obeysekera, Short Course Coordinator, South Florida Water Management District  
Cassie Klumpp, Spousal and Guest Program Coordinator, Bureau of Reclamation, 303-445-2554, [cklumpp@usbr.gov](mailto:cklumpp@usbr.gov)

Jeff Harris, Computer/AV Equipment Coordinator, U.S. Army Corps of Engineers, 530-756-1104, [David.J.Harris@usace.army.mil](mailto:David.J.Harris@usace.army.mil)

Richard H. Hawkins, Student Program, University of Arizona, 520-621-7273, [rhawkins@Ag.arizona.edu](mailto:rhawkins@Ag.arizona.edu)



### 9<sup>th</sup> Federal Interagency Sedimentation Conference (9<sup>th</sup> FISC)

Jerry Bernard, Chair, USDA-Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20250, 202-720-5356, [jerry.bernard@wdc.usda.gov](mailto:jerry.bernard@wdc.usda.gov)  
Jerry Webb, 9<sup>th</sup> FISC Technical Program Chair, U.S. Army Corps of Engineers, 441 G Street, NW, 3K22, Washington, DC 20314, 202-761-5543, [Jerry.w.webb@usace.army.mil](mailto:Jerry.w.webb@usace.army.mil)  
Marie Garsjo, Audio/Visual Coordinator, USDA-Natural Resources Conservation Service

### 4<sup>th</sup> Federal Interagency Hydrologic Modeling Conference (4<sup>th</sup> FIHMC)

Don Frevert, 4<sup>th</sup> FIHMC Chair; U.S. Bureau of Reclamation (retired), 2034 South Xenon Court, Lakewood, CO 80228, 303/989-4270 [dkfrevert@netzero.net](mailto:dkfrevert@netzero.net)  
Don Woodward, 4<sup>th</sup> FIHMC Technical Program Chair, USDA– Natural Resources Conservation Service (retired), 7718 Keyport Terrace, Derwood MD 20855, 301-977-6834, [dew7718@comcast.net](mailto:dew7718@comcast.net)  
Jeff Harris, Audio/Visual Coordinator, U.S. Army Corps of Engineers

**TRANSPORTATION.** Las Vegas McCarran International Airport (LAS) is the main airport serving the Las Vegas metropolitan area. It is located about 3.5 miles from the Riviera Hotel. Transportation from the airport to the Riviera is available through airport shuttles (\$6 to \$7 one-way fares) outside the baggage claim area, or by taxicab.

## REGISTRATION

#### Registration fee:

**\$425 before May 31, 2010**

**\$475 after May 31 and onsite**

#### Includes:

- Conference Proceedings
- Grand Opening Reception
- Monday's Reception
- All refreshment Breaks
- Demonstration Dinner

Registration for single day attendance is also available. Single day attendance will include a copy of the conference proceedings and all functions occurring on that day. Please go on-line to <http://www.jfic.us> or use the **Conference Registration Form** at the end of this announcement to register. Registration forms and payments sent by mail must be postmarked prior to May 31, 2010 in order to receive the discounted rate. Payment must be made at the time of registration, and all credit card payments will be charged at the time of registration. Spouse registration is \$80 before May 31, 2010 and \$110 after May 31, 2010, and includes all of the above, except for the proceedings. For additional spousal activities, please see the Guest Program below.

The registration desk is located next to the Business Center and adjacent to the Grande Ballroom in the Riviera Convention Center. On-site registration will be open as follows:

On-Site Registration Desk Open		
Sunday	June 27	7:00 a.m. to 6:00 p.m.
Monday	June 28	7:00 a.m. to 5:30 p.m.
Tuesday	June 29	8:00 a.m. to 5:30 p.m.
Wednesday	June 30	8:00 a.m. to 5:30 p.m.
Thursday	July 1	8:00 a.m. to 1:00 p.m.

**STUDENT REGISTRATION:** Full-time students may register for the conference at a special fee of \$180 before May 31, 2010, and \$210 after May 31 or onsite. These fees include all of the above full conference registration items. Student identification is required. A limited number of student registration fees will be waived for students interested in providing on-site audio-visual support. Interested students should contact Jeff Harris at [david.j.harris@usace.army.mil](mailto:david.j.harris@usace.army.mil) or 530-756-1104 prior to May 31, 2010.

**CANCELLATIONS:** Cancellation with full refund will be accepted if received in writing no later than May 31, 2010. A \$50 processing fee will be deducted from written cancellations received between June 1 and June 24. NO REFUNDS WILL BE GIVEN FOR CANCELLATIONS RECEIVED AFTER JUNE 24, 2010.

**HOTEL REGISTRATION:** The Conference will be held at the Riviera Hotel and Casino, Las Vegas, Nevada, USA. A block of rooms under the Group “Joint Federal Interagency Conference” has been reserved at a special room rate of \$79 + tax, single or double occupancy for the Conference. This rate is good for 3 days prior to and after the conference. For all other rooms and suites, please contact the hotel directly.

Rooms will be assigned on a first-come, first-served basis from the reserved block. Rooms not assigned from the block by **May 31, 2010**, will be released, and reservations after that date will be handled on a space-available basis. To make your room reservations, call the hotel (1-800-634-6753 or 702-734-5110 and state that you are attending the Joint Federal Interagency Conference), or register online at [www.jfic.us](http://www.jfic.us). Your credit card will only be used to hold your room. You may cancel your reservation without penalty up to 24 hours prior to your scheduled arrival date. We advise you to make your reservation early, as we anticipate the conference will be well attended.

**GUEST PROGRAM: Welcome room for guests of conference attendees**—The conference will provide a room for registered guests of conference attendees to gather and meet. This room will be open 9:00am to 5:00pm Monday through Wednesday, and 9:00am to noon on Thursday. Brochures from the Las Vegas Visitors Bureau and light refreshments are provided mid-morning and afternoon. The three planned tours (information below) will meet here.

**Madame Tussaud’s Wax Museum** (Monday morning)—Visitors are sent on a unique, historical journey of the realms of the powerful and famous. Guests can see, touch, and hug over 100 lifelike celebrities, sports figures and world icons, all masterfully recreated in wax. Join us during the conference for a special visit to Madame Tussaud’s in Las Vegas. Tickets are about \$18/person plus a transportation fee.

**Jubilee’s Backstage Tour** (Wednesday morning)—To gain true appreciation for “Jubilee!,” the backstage tour is a great tour. Hosted by one of the show’s charismatic cast members, a “Jubilee!” dancer takes guests on an in-depth look at costumes, props, headdresses and much more. Join us during the conference for a Backstage Tour of Jubilee, cost \$25/person plus transportation fee.

**Ice at the Riviera** (Monday evening)—It is Ice. It is air. It is everything unlike anything in between. Russia’s most disciplined and athletic performers converge on one frozen stage to



bring you an unprecedented epic production. Join us Monday night after the Exhibitor's Reception for a special show at the Riviera. A discounted rate is being negotiated with the Riviera hotel and will be announced later.

For more information on the spousal and guest program, contact Cassie Klumpp, [cklumpp@usbr.gov](mailto:cklumpp@usbr.gov) (303-445-2554).

**OPENING RECEPTION:** A get-acquainted reception will be held on Sunday afternoon from 5:30pm to 7:30pm in the Exhibit Hall (Grande Ballroom E-H). Come and visit our exhibitors, meet old friends, and make new ones while enjoying refreshments and hot and cold hors d'oeuvres.

**SPEAKERS' BREAKFAST:** A working breakfast will be served Monday through Thursday for each day's speakers. This will be a full breakfast. All speakers, session chairpersons, and audio/visual (A/V) assistants are requested to attend on the morning of the day of their presentation. Speakers and session chairpersons will be briefed on the day's activities. Speakers will coordinate their presentations with the session chairs and A/V assistants during and after this meeting.

**SPEAKERS' VIEWING ROOM:** A special room will be set up for speakers to view their computer presentations and for session chairpersons and A/V assistants to meet with speakers. Computers will be available throughout the day in this room for previewing.

**PROCEEDINGS:** A printed volume of the Conference papers' abstracts and a CD with the full papers will be provided to all registered attendees. At the conference, additional printed abstract volumes will be available for \$20 and the CD for \$25. To order by mail after the conference, make check or money order payable to the "Federal Interagency Sedimentation Conference," and send to G. Douglas Glysson, USGS Office of Water Quality, 412 National Center, Reston, VA, 20192-5603.

**FIELD TRIPS:** All field trips will meet in the Foyer of the Riviera Conference Center, opposite the JFIC registration desk. Note that field trips are subject to cancellation and refund in case of poor weather conditions or insufficient number of participants. A \$25 fee will be charged for participant cancellation after May 15, 2010.

### **Preconference Field Trip (Thursday, 6/24/10 to Sunday, 6/27/10).**

***The "Grand" Grand Canyon Tour***– Visit Hoover Dam, Grand Canyon National Park south rim, Little Colorado River, Glen Canyon Dam, and take a 16-mile float trip down the Colorado River from Glen Canyon Dam to Lees Ferry. Learn about Grand Canyon geology and river history and how dams have affected river sediment conditions in Grand Canyon and how dam operations have been used as part of an adaptive management program to improve environmental conditions. Field trip participants will stay the night in Williams, AZ; Cameron, AZ; and Kanab, UT, before arriving at the Riviera Hotel, Las Vegas, NV, on June 27<sup>th</sup>.

Agencies involved: Reclamation and the USGS Grand Canyon Monitoring and Research Center.

Cost: \$295, includes bus transportation, lunches, snacks, park entrance fees, and float trip (lodging, breakfasts, and dinners are not included). Registrants must make and pay for their own lodging reservations from a block of rooms in reserve until May 25, 2010, under the name of "Federal Conference Tour" (see below for contact information).



**Thursday, June 24, 2010, 2:00pm to 3:00pm:** The tour bus will depart directly from the Las Vegas McCarran (LAS) airport by 3:00pm for a tour of Hoover Dam (about a 40-mile drive). 6:00pm to 7:00pm: Dinner in Kingman, AZ (about a 70-mile drive from Hoover Dam) and then continue another 110 miles to Williams, AZ, for lodging:

- Fairfield by Marriott (928-635-9888), \$69 per room + tax, breakfast included, <http://www.marriott.com/hotels/travel/flgwl-fairfield-inn-williams-grand-canyon/>

**Friday, June 25, 2010.** From Williams, AZ, field trip participants will proceed by bus to Grand Canyon National Park (about a 60-mile drive). At the south rim of Grand Canyon, participants will learn about canyon geology and river history. The tour bus will then continue to Cameron, AZ (about a 60-mile drive) where participants will learn about the Little Colorado River geomorphology. Lodging will be in Cameron, AZ:

- Cameron Trading Post Lodge (1-800-338-7385), \$99 per room + tax, <http://www.camerontradingpost.com/lodge.html>

**Saturday, June 26, 2010.** From Cameron, AZ, field trip participants will proceed by bus to Page, AZ (about a 90-mile drive) for a tour of Glen Canyon Dam. From the base of the dam, field trip participants will board rafts for a 16-mile float trip down the Colorado River to Lees Ferry, AZ (There are no rapids on this float trip, and luggage will remain on the bus). While on the river, participants will learn about the Grand Canyon Monitoring and Research Center, Adaptive Management Program, and sediment related research. From Lees Ferry, participants will proceed by bus to Kanab, UT, for dinner and lodging (about a 120-mile drive from Lees Ferry, AZ):

- Holiday Inn Express (435- 644-3100), \$85 per room + tax, breakfast included, <http://www.ichotelsgroup.com/h/d/ex/1/en/hotel/knbut>

**Sunday, June 27, 2010.** Field trip participations will get to see eolian sedimentary structures near the east entrance of Zion National park and then continue by tour bus to Las Vegas (about a 200-mile drive from Kanab, UT) and end field trip by 2:00pm at the Riviera Hotel.

## **Additional Field Trips on Sunday, June 27, 2010:**

***Hoover Dam and new Hoover Dam Bypass Project Bridge*** – 10:00am to 4:00pm, \$60, Lunch provided. Visit Hoover Dam, the new visitor center and tour inside the dam. Also hear about and view construction of the new Hoover Dam Bypass Project bridge over the Colorado River below Hoover Dam. Agencies involved: USBR, FHWA, NPS, WAPA, Arizona DOT, Nevada DOT, and Central Federal Lands Highway Division (CFLHD). Websites of interest: <http://www.usbr.gov/lc/hooverdam/> and <http://www.hooverdambypass.org/>.



***Spring/Ecology Tour of Muddy River -Virgin River Valley areas*** – 9:30am to 3:30pm, \$60, Lunch provided. Tour Monitoring/restoration efforts within the regional White River Carbonate groundwater flow system terminal discharge area and Muddy River Springs Complex. Visit various springs (Warm, Pederson, Rogers , and Blue Point Springs for example), hear about current/historical flows, flow credits, fish studies and habitat restoration efforts, get close to Moapa Dace at Moapa Springs National Wildlife Refuge Visitor Center and Fish Viewing chamber and then Virgin/Muddy River real-time flow and sediment study and recent Virgin River floods, State of Nevada Lost City museum in Overton and possibly visit/take a short hike to the ghost town of St Thomas, an old abandoned town site, while Lake Mead is low. Coordinated by BLM, USBR, USFWS, USGS, State of Nevada, SNWA, The Nature Conservancy, Clark County, and Virgin Valley Water District. Websites of interest: <http://www.fws.gov/desertcomplex/moapavalley/>; [http://www.snwa.com/html/env\\_muddyrvr\\_research.html](http://www.snwa.com/html/env_muddyrvr_research.html); <http://waterdata.usgs.gov/nv/nwis/current/?type=flow>; <http://www.nature.org/wherewework/northamerica/states/nevada/preserves/art11308.html>; <http://www.ghosttowns.com/states/nv/st.thomas.html>



***Red Rock Canyon National Conservation Area*** – 9:00am to 3:00pm, \$60, Lunch provided. Experience cultural, geological, and biological resources, sandstone quarry, Willow Springs, Red Rock Scenic Road Loop, Red Rock Visitor Center, Spring Mountain Ranch State Park, Quickbird Study in Red Rock National Conservation Area near urban Las Vegas. Coordinated by BLM, USGS, Friends of Red Rock and Nevada State Parks. Websites of interest: [http://www.blm.gov/nv/st/en/fo/lvfo/blm\\_programs/blm\\_special\\_areas/red\\_rock\\_nca.html](http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/blm_special_areas/red_rock_nca.html); <http://www.redrock.org/>; <http://www.parks.nv.gov/smr.htm>



**SHORT COURSES.** Note: Short courses are subject to cancellation and refund if the number of registrants are not sufficient to cover the class. Non-conference attendees can register but will have a lower priority than those who register for the full conference. A \$25 handling fee will be charged if a registration for a short course is cancelled after May 15, 2010.

Short Course Title	Fee	Time	Day
Stream Restoration Design	\$ 100	8:00am-5:00pm	<b>Sunday,</b> June 27, 2010
SRH 2D	\$ 75	8:00am-5:00pm	
Fluvial-Sediment Data	\$ 45	1:00pm-5:00pm	
RiverWare	\$ 250	8:30am-5:00pm	
Curve Number Rainfall-Runoff	\$ 120	9:00am-4:00pm	
Sediment Transport Modeling	\$ 50	1:00pm-5:00pm	<b>Thursday,</b> July 1, 2010
Principles of Streambank Erosion	\$ 210	10:30am-5:00pm	
SEAWAT	\$ 200	10:30am-5:00pm	
HEC-HMS	\$ 100	1:00pm-5:00pm	
EXCEL-LEnT	\$ 210	10:30am-5:00pm	

All Sunday courses that start before noon will have morning breaks. All Sunday courses will have afternoon breaks. All Thursday courses will have afternoon breaks only. No lunches are included.

#### **Short Courses: Sunday, June 27, 2010**

##### ***Stream Restoration Design. Sunday, 8:00am to 5:00pm, \$100***

Instructors: Jon Fripp, USDA-NRCS National Design, Construction, and Soil Mechanics Center; Kerry Robinson, USDA-NRCS East National Technology Support Center; Jerry Bernard, National Geologist, USDA-NRCS Conservation Engineering Division; and Dave Rosgen, Wildland Hydrology ([wildlandhydrology.com](http://wildlandhydrology.com))

The USDA Natural Resources Conservation Service (NRCS) has recently released a stream design guide that is a companion to the 1998 interagency document, "Stream Corridor Restoration: Principles, Processes, and Practices". This comprehensive design guide, titled USDA-NRCS NEH-654 Stream Restoration Design Handbook, presents engineering assessment and design tools that are applicable to any stream restoration work, whether it primarily follows a natural stream restoration or is strictly a structural project. The basis for this short course will be this USDA-NRCS Stream Restoration Design Handbook, which was released in August of 2007. A copy of this handbook on CD will be provided to the students. Although the importance of proper planning for stream restoration work will be stressed, the focus of this workshop will be on selected design tools and procedures from the USDA-NRCS Stream Restoration Design Handbook. Specific design tools and short example problems will be provided.

The course will focus on the basics of design techniques which have been compiled from over 120 contributing authors and practitioners. The course is therefore of benefit to those who are or will become engaged in designing stream restorations.

##### ***SRH 2D (U.S. Bureau of Reclamation's two-dimensional hydraulic and sediment transport model-river hydraulics modeling). Sunday, 8:00am to 5:00pm, \$75***



Instructors: Yong Lai and Blair Greimann, U.S. Bureau of Reclamation

SRH-2D is a two-dimensional (2D) depth-averaged hydraulic and sediment transport model for river systems developed at the U.S. Bureau of Reclamation. It has been used both at Reclamation and many outside institutions, with great success. SRH-2D has a few boasting features. First, SRH-2D uses a flexible mesh that may contain arbitrarily shaped cells. In practice, the hybrid mesh of quadrilateral and triangular cells is recommended though purely quadrilateral or triangular elements may be used. A hybrid mesh achieves the best compromise between solution accuracy and computing demand. Second, SRH-2D adopts very robust and stable numerical schemes with seamless wetting-drying algorithm. Reliable solutions may be obtained with few tuning parameters; program “crash” rarely occurs.

SRH-2D is also developed with the objective that a 2D model does not have to be too complex to use. With SRH-2D, users do not have to memorize many commands; they are guided by a preprocessor. SRH-2D model, along with the manual and selected application cases, are freely downloadable at the following Bureau of Reclamation site:

<http://www.usbr.gov/pmts/sediment>.

The goal of this course is to train attendees to become “modelers” who are knowledgeable about 2D modeling and may apply SRH-2D to their own projects. In the class, the theory of 2D modeling will be given, range of problems that may be solved by SRH-2D are presented with real-life project examples, students will jump into the use of SRH-2D immediately with instructor provided sample cases. It is crucial for students to bring their own laptops to get hands-on experience. Students may also bring their own problems to the class. At the end of the class, it is expected that students can apply SRH-2D to their own projects and know the key steps and key parameters for a successful 2D analysis.

Students are expected to bring their own laptops for use during the workshop.

***RiverWare – an Overview for Managers. Sunday, 8:30am to 5pm, \$250,***

Instructor: Edith Zagana, CADSWES, University of Colorado.

RiverWare is a modeling tool used for forecasting and scheduling reservoir and hydropower operations, water rights and water accounting, evaluating alternative operating policies, and planning new projects. RiverWare is used extensively by major water management agencies, utilities, research institutes and consulting companies. This course presents a hands-on overview of RiverWare’s capabilities particularly designed for managers to assess the potential use of this tool in their organizations. Through demonstrations and exercises, the course will teach you how RiverWare works, how it can be integrated with other models, databases and analysis tools, and will show some example applications. The course will focus on: what is involved in building a model; how multi-objective policies are represented and solved using rulebased simulation; how water ownership is represented and tracked; prioritized water rights solution; flood control algorithms; groundwater-surface water modeling; how RiverWare can automatically communicate with data sources and other programs; output options; how to use multiple run management with stochastic inputs to generate probabilistic results; multi-objective optimization including hydropower scheduling, and special features for usability and runtime analysis. Examples of applications will illustrate these features.

Students are expected to bring their own laptops for use during the workshop.

***Curve Number Rainfall-Runoff: Professional Application. Sunday, 9:00am to 4:00pm, \$120***

Instructors: Richard H. Hawkins, University of Arizona; and Don Woodward, U.S. Department of Agriculture

This short will cover the following sections:

- Chronology, development, and methodology basics, original goals, limitations, watersheds and data. Also to be covered are Development assumptions and assertions, soils tie-ins, NEH4, Ia/S, CN aligner. Usage conventions.
- Reevaluation and reinterpretation (1½ hr), Background and handbook tables. Alternate expressions. Three modes of CN: Rainfall-runoff return period concepts; random component interpretations, process approximations. AMCs-ARCs and handbook CN tables. Sensitivity.
- Recent work (2 hr). Curve Numbers meet reality: How watersheds and Curve Numbers *really* act; Runoff behavior types; a second look at Ia/S; Hydrologic Soil Groups, CN application explosion, seasonal CNs. Universal runoff response types and CN forms; infiltration and losses. Local calibrations.
- CN method vis-a-vis general rainfall-runoff hydrology: Does "S" exist? Complacent/Violent thresholds, international applications.
- Summary analysis, questions, answers, discussions: Some do's and don'ts, FAQs: Professional use, perspectives and ponderings. Improvements, replacement? Class participation, critique, user anecdotes. Improvements, replacement? Research and development needs?

Participants will be provided with a course workbook (~100 pages), PowerPoint printouts and handouts. Some of the figures, tables, and handout sheets are shared with the "Report of the ASCE Task Committee on the State of the Practice in Curve Number Hydrology", by Hawkins, Ward, Woodward, and VanMullem, ca 1115pp. 2009. The report itself is not supplied as a part of the course. It may be obtained from ASCE for \$52.50 (members) or \$70.00 (non-members).

***Overview of Collection of Fluvial-Sediment Data. Sunday, 1:00pm to 5:00pm, \$45***

Instructors: John R. Gray, G. Douglas Glysson, and Gary Johnson, U.S. Geological Survey

This short course provides an overview of basic fluvial-sediment data-collection techniques with emphasis on fluvial-sediment concepts, sampler characteristics, and sampling techniques. Methods for collecting suspended-sediment data are emphasized, but overviews of bedload and bed-material data collection techniques are included. Basic requirements for collecting sufficient, useful sediment data, and considerations in data quality are also presented.

The course is geared for professionals and technicians who will be, or are planning on, collecting suspended-sediment data. U.S. Geological Survey Techniques of Water-Resources Investigations Book 3, C2, "Field Methods for Collection of Fluvial Sediment" and several dozen additional technical resources will be provided on a CD-ROM.



This short course is a synopsis of the full 5-day course, “Sediment Data Collection Techniques,” offered annually by the U.S. Geological Survey in Castle Rock and Vancouver, Washington, (contact J. R. Gray at [jrgray@usgs.gov](mailto:jrgray@usgs.gov) for more information on the full course offering).

### **Short Courses: Thursday, July 1, 2010**

#### ***Principles of Streambank Analysis and Stabilization. Thursday, 10:30am to 5:00 pm, \$210***

Instructor: Andrew Simon, USDA Agricultural Research Service, National Sedimentation Laboratory, Oxford, MS

This one-day lecture course is designed for professionals engaged in stream investigation, management, stabilization and restoration. The course is designed to clearly demonstrate the essential links between research, analysis, design, project implementation, and post-project evaluation. Lectures will introduce the fundamental concepts linking streambank processes and geomorphic adjustments in the fluvial system. Field methods to rapidly evaluate the relative stability of alluvial channels and to quantify force and resistance mechanisms that control streambank-erosion processes, failure mechanisms, and the importance of basal scour to sustained bank retreat will be described in detail. Hands-on modeling will provide students with the opportunity to investigate the factors which control bank stability, while also recognizing the significance of these factors when designing mitigation measures. All students will be provided with bank-stability modeling software (with sound effects) for future use, and a CD containing all lectures (in PowerPoint and PDF), and PDFs of relevant technical papers.

Course highlights include: Review of fundamental principles behind channel adjustment; Role of bank erosion in fluvial adjustment and sediment yields; Mechanics of streambank erosion; Field investigation methodologies; Bank-stability modeling; Application of the model for design, mitigation strategies, and sediment loadings; Guiding principles for bank stabilization.

Prerequisites: Students attending this course should have solid algebraic and analytical skills. Experience using Microsoft Excel or similar spreadsheet programs is highly recommended.

A laptop computer is also recommended for running bank-stability software provided during class.

#### ***Variable-Density Groundwater Flow and Solute Transport Modeling using SEAWAT, Thursday. 10:30am to 5:00 pm, \$200***

Instructor: Alyssa Dausman, U.S. Geological Survey

This workshop is an introduction to three-dimensional variable-density groundwater flow and solute transport using SEAWAT, a MODFLOW/MT3DMS-based program. SEAWAT has been applied to a wide variety of problems including saltwater intrusion, aquifer storage and recovery (ASR), deep-well injection, as well as inland brine transport. The newest version of SEAWAT (Version 4) can also be used to simulate simultaneous solute and heat transport including variations in viscosity from changes in temperature and/or solute. As part of this workshop, participants will develop an understanding of: (1) the fundamentals behind

SEAWAT, (2) the procedure for designing a SEAWAT model, and (3) the types of problems it can be used to solve.

Students will need to bring their own laptops for the workshop

**EXCEL-LEnT Training for Water Managers. Thursday, 10:30am to 5:00 pm, \$210**

Instructor: Darrell G. Fontane, Colorado State University.

This workshop is designed to teach participants how to use some of the features of EXCEL that are particularly relevant to engineering and water resources analysis. It will provide you with examples of engineering applications of EXCEL that demonstrate the features presented in the workshop. Participants will receive a CD containing all the files used at the workshop and accompanying computer-based video tutorials that cover the workshop topics. Participants can review these tutorials to help them remember the techniques presented. The workshop will be based on EXCEL 2007. Note however, that the topics presented in the workshop are applicable to previous versions of EXCEL.

Water managers often develop spreadsheets for their own use or to be shared with colleagues. Spreadsheets should be easy to use with required problem data input clearly identified and the output easy to understand. A variety of EXCEL's tools can be used to minimize errors and to minimize the effort required to provide required input or to perform analyses in the spreadsheet. This workshop will focus on the functionality EXCEL provides to meet these goals of Positive User Guidance, Clarity and Correctness.

EXCEL software provides many features that allow the user to develop input controls to make the spreadsheet easy to use and minimize errors. These features include a variety of buttons, list boxes, check boxes and spinner controls. These controls can be used in conjunction with table lookup functions, logical IF tests and conditional formatting to do many things. Further, EXCEL allows the user to record or develop custom macros in Visual Basic for Applications that greatly extend the problem solving power of EXCEL. With a surprisingly small number of Visual Basic for Applications (VBA) commands, users can create their own powerful custom macros and custom scientific or engineering functions.

Each student will need to bring a laptops **with EXCEL 2007 installed**

***Basic Principles and Data Needs of Sediment Transport Modeling. Thursday, 1:00pm to 5:00pm, \$50***

Instructors: Blair Greimann and Yong Lai, U.S. Bureau of Reclamation

This short course will introduce the basic principles of designing a successful sediment transport modeling analysis. Participants will be exposed to a wide range of applications of sediment transport modeling issues. The course will discuss the selection of the sediment transport model and steps in the selection process: identification of the question you want to answer, identification of the process you want to simulate, understanding the limitations of various model types, and then the review of current models. The abilities and limitations of various sediment transport model types, such as sediment budget, one-dimensional, and two-dimensional sediment transport models will be discussed. The course will describe the data requirements and data collection activities necessary for the model input. The focus will be on the collection of information relevant to the particular question you wish to address. Various

methods to calibrate model parameters using historical data will be given and, in the absence of historical data, selection of model parameters and sediment transport formulae will be discussed. Finally, if time allows, methods to address model uncertainty will be suggested.

Students may bring their own laptop computers for use during the workshop, but they are not absolutely necessary.

**HEC-HMS and HEC-GeoHMS. Thursday, 1:00pm to 5:00pm, \$100**

Instructors: Hydrologic Engineering Center Staff

The Corps of Engineers Hydrologic Engineering Center's HEC-HMS program and its GIS companion product HEC-GeoHMS are widely used within the engineering community. GeoHMS, an ArcView and ArcGIS extension, is used for pre-processing of an HMS dataset. It allows users to visualize spatial information, document watershed characteristics, perform spatial analysis, delineate basins and streams, and construct an HMS basin file. HMS simulates the precipitation-runoff processes of a dendritic watershed. It provides a wide variety of mathematical models for representing the mass and energy fluxes of the hydrologic cycle: precipitation, evapotranspiration, snowmelt, infiltration, surface runoff, baseflow, channel routing, reservoirs and diversions among others. These model choices include girded and area-averaged methods for event or continuous simulation. This short course will provide an overview and sample application of HMS and GeoHMS.

## Schedule at a Glance, Joint 9<sup>th</sup> FISC and 4<sup>th</sup> FIHMC, 2010

THURSDAY, 6/24/2010						
2:00pm @ LAS Airport	Pre-Conference Field Trip: The “Grand” Grand Canyon Tour, 6/24/2010 through 6/27/2010. Ends Sunday, 6/27/10 by 2:00pm.					
SUNDAY, 6/27/2010						
9:00am– 3:00pm	Field Trip: Red Rock National Conservation Area					
9:30am– 3:30pm	Field Trip: Spring/Ecology Tour of Muddy River/Virgin River Valley Areas					
10:00am– 4:00pm	Field Trip: Hoover Dam and New Hoover Dam Bypass Project Bridge					
8:00am– 5:00pm	Short Course: <i>Stream Restoration Design</i>					
8:00am– 5:00pm	Short Course: <i>SRH 2D (U.S. Bureau of Reclamation’s 2-dimensional hydraulic and sediment transport model-river hydraulics modeling)</i>					
8:30am– 5:00pm	Short Course: <i>RiverWare – an Overview for Managers</i>					
9:00am– 4:00pm	Short Course: <i>Curve Number Rainfall-Runoff: Professional Application</i>					
1:00pm– 5:00pm	Short Course: <i>Overview of Collection of Fluvial-Sediment Data</i>					
5:30pm– 7:30pm	Opening Reception					
MONDAY, 6/28/2010						
8:30am– 9:30am	Pre-conference refreshment break					
9:30am–12:00pm	Opening Session					
Concurrent Sessions	9 <sup>th</sup> FISC			4 <sup>th</sup> FIHMC		
	A	B	C	D	E	F
1:30pm– 3:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
3:30pm– 5:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
5:15pm– 6:45pm	Exhibitors’ Reception and Student Poster session/competition					
TUESDAY, 6/29/2010						
8:30am–10:00am	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
10:30am–12:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
1:30pm– 3:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
3:30pm– 5:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
WEDNESDAY, 6/30/2010						
8:30am–10:00am	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
10:30am–12:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
1:30pm– 3:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
4:30pm– 9:00pm	Joint Conference Models/Demos and Poster session					
5:30pm– 7:00pm	Models/Demos and Poster Dinner					
THURSDAY, 7/1/2010						
8:30am–10:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
10:30am–12:00pm	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	9 <sup>th</sup> FISC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session	4 <sup>th</sup> FIHMC session
10:30am– 5:00pm	Short Course: <i>Principles of Streambank Analysis and Stabilization</i>					
10:30am– 5:00pm	Short Course: <i>Variable-Density Groundwater Flow and Solute Transport Modeling using SEAWAT</i>					
10:30am– 5:00pm	Short Course: <i>EXCEL-LEnT Training for Water Managers</i>					
1:00pm– 5:00pm	Short Course: <i>Sediment Transport Modeling</i>					
1:00pm– 5:00pm	Short Course: <i>HEC-HMS and HEC-GeoHMS</i>					

## TECHNICAL PAPERS, POSTERS, AND MODEL DEMONSTRATIONS

Key to abbreviations: USDA, U.S. Dept. of Agriculture; USDA-FS, Forest Service; USDA-ARS, Agricultural Research Service; USDA-NRCS, Natural Resources Conservation Service; USDI, U.S. Dept. of the Interior (USBR, USGS, USFWS, NOAA); USBR, U.S. Bureau of Reclamation; USGS, U.S. Geological Survey; USFWS, U.S. Fish and Wildlife Service; NOAA, National Oceanic and Atmospheric Administration; USACE, U.S. Army Corps of Engineers; USACE-ERDC, Engineering Research and Development Center; NCAR, National Center for Atmospheric Research

TECHNICAL PAPERS (TO BE PRESENTED ORALLY)						
counter	Session #	Student	Session	Abstract Title	Authors	Agency
1.	1A		Gully Erosion 1 Gully Erosion Assessment	Assessment of Photogrammetric Measurements of Gullies with Contrasting Form and Size	Giménez, R. <sup>1</sup> ; Marzloff, I. <sup>2</sup> ; Campo, M.A. <sup>1</sup> ; Seeger, M. <sup>3</sup> ; Ries, J. B. <sup>4</sup> ; Casali, J. <sup>1</sup> ; and Álvarez-Mozos, J. <sup>1</sup> <sup>1</sup> Department of Projects and Rural Engineering, Public University of Navarre, Pamplona, Spain; <sup>2</sup> Department of Physical Geography, Johann Wolfgang Goethe University Frankfurt am Main, Germany; <sup>3</sup> Dept. of Land Degradation and Development, Wageningen University & Research Center, The Netherlands; <sup>4</sup> Department of Physical Geography, University of Trier, Germany	International Spain University
2.	1A		Gully Erosion 1 Gully Erosion Assessment	Prevention and Control of Gully Processes in Diverse Climatic Settings: Lessons for the Age of Global Climate Change	Frank Simpson, University of Windsor, Windsor, Ontario, Canada	International Canada University
3.	1A		Gully Erosion 1 Gully Erosion Assessment	Assessment of Hydrological Controls on Gully Formation and Upland Erosion Near Lake Tana, Northern Highlands of Ethiopia	Tigist Y. Tebebu <sup>1</sup> , Anteneh Z. Abiy <sup>1</sup> , Assafa Adzo <sup>1</sup> , Helen E. Dahlke <sup>2</sup> , Eric D. White <sup>2</sup> , Amy S. Collick <sup>1,3</sup> , Selemiyhun Kidnau <sup>4,5</sup> , Farzad Dadgari <sup>4</sup> and Tammo S. Steenhuis <sup>1,2</sup> <sup>1</sup> Cornell University at Bahir Dar, Ethiopia; <sup>2</sup> Cornell University, Ithaca, NY; <sup>3</sup> Bahir Dar University, Ethiopia; <sup>4</sup> SWISHA, Bahir Dar, Ethiopia; <sup>5</sup> ARARI, Bahir Dar, Ethiopia	University
4.	1A		Gully Erosion 1 Gully Erosion Assessment	Ephemeral Gully Erosion Impacts on Soil Quality as Indicated by Soil Physical Properties	Glenn V. Wilson and Robert R. Wells, USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
5.	1B		Sediment Transport 1	HEC-6T Modeling of the Atchafalaya, Louisiana River Basin	Tom Kirkeeng, USACE, Rock Island District, IL	USACE
6.	1B		Sediment Transport 1	Predictive Modeling of Flow, Sediment Transport and Morphologic Change in Grand Canyon Lateral Separation Zones	Brandy Logan <sup>1</sup> , Jonathan Nelson <sup>1</sup> , Richard McDonald <sup>1</sup> , Scott Wright <sup>2</sup> , and Kees Sloff <sup>3</sup> <sup>1</sup> USGS, National Research Program; <sup>2</sup> USGS, California Water Science Center; <sup>3</sup> Deltares and Delft University of Technology	USGS Delft Labs
7.	1B		Sediment Transport 1	Predicting the Long-Term Morphological Evolution of a Combined Riverine-Tidal Marshland System Following Levee Breaching	David E. Rupp <sup>1</sup> , Søren Tjerry <sup>2</sup> , Rohin Saleh <sup>3</sup> <sup>1</sup> DHI Water and Environment, Inc., Portland, OR; <sup>2</sup> DHI, Hørsholm, Denmark; <sup>3</sup> Alameda County Public Works Agency, Hayward, CA	DHI County
8.	1B		Sediment Transport 1	Building a Better Understanding of Sediment Issues Through the Application of a Long-Term Fluvial and Littoral Sediment Budget	Jim Selegean, Ph.D., P.E., P.H.; Rob Nairn, Ph.D., P.E.; Travis Dahl, P.E. and Calvin Creech, P.E., USACE	USACE

TECHNICAL PAPERS (TO BE PRESENTED ORALLY)						
counter	Session #	Student	Session	Abstract Title	Authors	Agency
9.	1C		Sediment Surrogates 1	A Field Study of Bed Shear Stress and Sediment Transport Using an Acoustic Doppler Velocimeter and an Acoustic Doppler Current Profiler on the Wabash River near Mount Carmel, Illinois	Kevin K. Johnson, USGS Water Science Center, Urbana, IL	USGS
10.	1C		Sediment Surrogates 1	Narrowband and Broadband Acoustic Surrogates of Fluvial Suspended Sediment	Mark N. Landers, USGS	USGS
11.	1C		Sediment Surrogates 1			
12.	1C		Sediment Surrogates 1	Sediment Transport on Cape Sable, Everglades National Park, Florida	Carrie Boudreau, Mark Zucker, Jeff Woods, Stephen Huddleston, and Shane Ploos; USGS, Ft. Lauderdale, FL	USGS
13.	1C		Sediment Surrogates 1	Evaluation of Hydroacoustics for Discriminating Silt-and-Clay from Suspended-Sand in Rivers	Scott A. Wright <sup>1</sup> and David J. Topping <sup>2</sup> <sup>1</sup> USGS, California Water Science Center, Sacramento, CA, 95189 <sup>2</sup> USGS, Grand Canyon Monitoring and Research Center, Flagstaff AZ	USGS
14.	1D		Stream Restoration 1	The Application and Validation of Dimensionless Sediment Rating Curves	Dave Rosgen, Wildland Hydrology, Fort Collins, CO	Consultant
15.	1D		Stream Restoration 1	The Application of the FLOWSED and POWERSED Models in River Stability, Bridge Design and River Restoration	Dave Rosgen and George Athanasakes; Wildland Hydrology and Stantec	Consultant
16.	1D		Stream Restoration 1	Riverine Backwater Restoration: Connectivity or Viability?	F. D. Shields, Jr., Scott S. Knight, Richard Lizotte, Jr., and Daniel G. Wren; USDA-ARS	USDA-ARS
17.	1D		Stream Restoration 1	Tools and Science Base for Evaluating Stream Engineering, Management, and Restoration Proposals	Brian Cluer, NOAA Fisheries, Santa Rosa, CA; Colin Thorne, Univ. of Nottingham, UK; Janine Castro, USFWS, Portland, OR; George Pess and Tim Beechie, NOAA Fisheries, Seattle, WA; Conor Shea, USFWS, Arcata CA; Peter Skidmore, Skidmore Restoration Consulting LLC, Bozeman, MT	NOAA
18.	1E		Climate Variability / Impact 1	Forecasts of Daily Potential Evapotranspiration at Weekly, Seasonal and Climatological Lead Times for the Central Valley of California	David Yates, NCAR, Boulder, CO; and Dr. Michael Tansey, USBR, Sacramento, CA	NCAR, USBR
19.	1E		Climate Variability / Impact 1	Variations in Precipitation and Water Yield for the Northwestern Great Plains and Adjacent Mountain and Plains Ecoregions	Dr. Andrew Simon and Lauren Klimets, USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
20.	1E		Climate Variability / Impact 1	Flood Frequency in a Changing Climate: Methods Review	Dr. David Raff, USBR, Technical Service Center, Denver, CO	USBR
21.	1E		Climate Variability / Impact 1	Climate Variability, Soil Conservation and Reservoir Sedimentation	Jurgen Garbrecht, USDA-ARS, El Reno, OK	USDA-ARS
22.	1F		GIS Technology in Water Resources 1	Interagency Hydrology and Hydraulics GIS Applications Workgroup	William Merkel, USDA-NRCS, Beltsville, MD	USDA-NRCS
23.	1F		GIS Technology in Water Resources 1	Geospatial Capabilities of HEC-RAS for Model Development and Mapping	Cameron Ackerman, Mark R. Jensen, and Gray Brunner, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
24.	1F		GIS Technology in Water Resources 1	ARCGIS Technique to Evaluate the SNOTEL Data Network	Ton Perkins, James Marron, Angus Goodbody, Jolyne Leas, and Daivid Garen, USDA-NRCS, Portland, OR	USDA-NRCS



TECHNICAL PAPERS (TO BE PRESENTED ORALLY)						
counter	Session #	Student	Session	Abstract Title	Authors	Agency
25.	1F		GIS Technology in Water Resources 1	GIS Technology in Water Availability Using ArcHydro Data Model	Ma. Angeles Suarez, E. Agulaar, J Velazquez, J. Riveria, C. Patino, C. Astidolo; Mexican Institute of Water Technology, Jiuteperc, Morelos, Mexico	TLALOC
26.	2A		Gully Erosion 2 Gully Erosion Development, Processes, and Impacts	Rill Development, Headcut Migration, and Sediment Efflux from an Evolving Experimental Landscape	Sean J. Bennett <sup>1</sup> , Lee M. Gordon <sup>1</sup> , and Robert R. Wells <sup>2</sup> <sup>1</sup> Department of Geography, University at Buffalo, Buffalo, NY; <sup>2</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS University
27.	2A		Gully Erosion 2 Gully Erosion Development, Processes, and Impacts	Pore-Water Effects on Soil Erodibility and its Implication in Ephemeral Gully Erosion Modeling	Sayjro K. Nouwakpo <sup>1</sup> and Chi-hua Huang <sup>2</sup> <sup>1</sup> Purdue University, West Lafayette, IN; <sup>2</sup> USDA-ARS National Soil Erosion Research Lab, West Lafayette, IN	USDA-ARS University
28.	2A		Gully Erosion 2 Gully Erosion Development, Processes, and Impacts	Subsurface Exit Gradients to a Drainage Ditch with Water Levels Lower than the Groundwater Table	M. J. M. Römkens, USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
29.	2A		Gully Erosion 2 Gully Erosion Development, Processes, and Impacts	Effect of Upstream Sediment Inflow on the Morphodynamics of Headcuts	Robert R. Wells <sup>1</sup> , Sean J. Bennett <sup>2</sup> , and Carlos V. Alonso <sup>3</sup> <sup>1</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> University at Buffalo, Buffalo, NY; <sup>3</sup> USDA-ARS (retired), Murray, UT	USDA-ARS University
30.	2B		Sediment Transport 2	Mapping Vulnerability to Upland Erosion in the Chesapeake Bay Watershed	Scott W. Ator, John W. Brakebill, and Gregory E. Schwarz, USGS, Baltimore, MD	USGS
31.	2B		Sediment Transport 2	Modeling Erosion under Future Climates with the WEPP Model	William J. Elliot, PE, PhD, Rocky Mountain Research Station, Moscow, ID; Mark Nearing, PhD, USDA-ARS Southwest Watershed Research Center, Tucson, AZ	USDA-FS USDA-ARS
32.	2B		Sediment Transport 2	Sediment Budget Development for the Great Lakes Region	Dr. Mark S. Riedel <sup>1</sup> , Travis A. Dahl <sup>2</sup> , Dr. James P. Selegean <sup>2</sup> <sup>1</sup> Baird, Madison, WI; <sup>2</sup> USACE Detroit District	Baird Consultatn USACE
33.	2B	Student	Sediment Transport 2	Regional Differences and Scale Dependency of Sediment Yield in Europe	M. Vanmaercke <sup>1</sup> , J. Poesen <sup>1</sup> , G. Verstraeten <sup>1</sup> , W. Maetens <sup>1</sup> , J. de Vente <sup>1,2</sup> <sup>1</sup> K.U.Leuven, Belgium; <sup>2</sup> Estación Experimental de Zonas Áridas, EEZA-CSIC, Desertification and Geoecology Department, Almeria, Spain	International PhD Student Belgium
34.	2C		Sediment Surrogates 2	Digital Imaging for Determining Suspended Sediment Concentration and Particle Size Distribution	Daniel J Gooding, USGS, Cascades Volcano Observatory, Vancouver, WA	USGS
35.	2C		Sediment Surrogates 2	Characterization of Fine Sediments in Bed Material of the San Joaquin River	Elaina R Holburn, M.S., P.E., USBR, Denver, CO; Blair Greimann, PhD, P.E., USBR, Denver, CO	USBR
36.	2C		Sediment Surrogates 2	Computing Time-Series Suspended-Sediment Concentrations and Loads from In-Stream Turbidity-Sensor and Streamflow Data	P. P. Rasmussen <sup>1</sup> , J. R. Gray <sup>2</sup> , A. C. Ziegler <sup>2</sup> , and G. Doug Glysson <sup>2</sup> <sup>1</sup> USGS, Lawrence, KS; <sup>2</sup> USGS, National Center, Reston, VA	USGS
37.	2C		Sediment Surrogates 2	High-Resolution Measurements of Suspended-Sediment Concentration and Grain Size in the Colorado River in Grand Canyon Using a Multi-Frequency Acoustic System	David J. Topping <sup>1</sup> , Scott A. Wright <sup>2</sup> , Ronald E. Griffiths <sup>1</sup> , Theodore S. Melis <sup>1</sup> , David M. Rubin <sup>3</sup> , and Thomas A. Sabol <sup>1</sup> <sup>1</sup> USGS, Flagstaff, AZ; <sup>2</sup> USGS, Sacramento, CA; <sup>3</sup> USGS, Santa Cruz, CA	USGS
38.	2D		Stream Restoration 2	Integration of 2D Numerical and Physical Modeling at the proposed Red Bluff Fish Screen and Pumping Plant	Kendra Russell, USBR	USBR

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counter	Session #	Student	Session	Abstract Title	Authors	Agency
39.	2D		Stream Restoration 2	Characterizing Stream and Reservoir Substrate for White Sturgeon Habitat	Gary Barton, Marshall Williams, Rhonda Weakland, and Ryan Fosness, USGS	USGS
40.	2D		Stream Restoration 2	Suspended-Sediment Concentration Regimes in Tennessee Biological Reference Streams	Timothy H. Diehl and William J. Wolfe, USGS	USGS
41.	2D		Stream Restoration 2	ELJ Performance in Washington State-Post Project Appraisal	W. Barry Southerland, Ph.D., USDA-NRCS, Portland, OR	USDA-NRCS
42.	2E		Climate Variability / Impact 2	Snowpack Trends in the Central Sierra Nevada Affecting Water Supply Forecasts in the East Slope Sierra Basins	Jolyne Lea, USDA-NRCS, Portland, OR	USDA-NRCS
43.	2E		Climate Variability / Impact 2	Comparisons of Historical Versus Synthetic Precipitation Inputs to Watershed Models and Their Effect on Pollutant Loads	William Merkel <sup>1</sup> , Daniel Moore <sup>2</sup> , Fred Theurer <sup>1</sup> , Quan Quan <sup>1</sup> , Helen Moody <sup>1</sup> , Ronald Binger <sup>3</sup> , James Bonta <sup>4</sup> , Dennis Flannagan <sup>5</sup> , Jurgen Garbrecht <sup>6</sup> <sup>1</sup> USDA-NRCS, Beltsville, MD; <sup>2</sup> USDA-NRCS, Portland, OR; <sup>3</sup> USDA-ARS, Oxford, MS; <sup>4</sup> USDA-ARS, Coshocton, OH; <sup>5</sup> USDA-ARS, West Lafayette, IN; <sup>6</sup> USDA-ARS, El Reno, OK	USDA
44.	2E		Climate Variability / Impact 2	Decimation of River Geometry Datasets with Integrity for Use in Surface-Water Models	Charles Berenbrock, USGS, National Center, Reston, VA	USGS
45.	2E		Climate Variability / Impact 2	Regional Collaboration on Climate Change in the Pacific Northwest	James Barton, USACE, Portland, OR	USACE
46.	2F		Hydroecological Modeling 1	An Analysis of Increasing Trends in Peak Streamflow and Their Impacts on Design	Meghan Walter, USDA-NRCS, Warwick, RI	USDA-NRCS
47.	2F		Hydroecological Modeling 1	A Structure to Support Hydrologic Modeling on a National Scale	Steven Markstrom and L. E. Hay, USGS, Lakewood, CO	USGS
48.	2F		Hydroecological Modeling 1	An Integrated Hydro-Biological Model for Simulating the Establishment of Fremont Cottonwood Seedlings	Dr. Michael Tansey <sup>1</sup> and Charles Young <sup>2</sup> <sup>1</sup> USBR, Sacramento, CA; <sup>2</sup> Stockholm Environmental Institute, Sweden	USBR
49.	2F		Hydroecological Modeling 1	Hydrologic Engineering Center's Collaborative Hydrologic Development Efforts	David Harris, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
50.	3A		Gully Erosion 3 Gully Erosion Modeling	Assessment of Gully Erosion Contributions within the ARS CEAP Goodwin Creek Experimental Watershed	Ronald L. Bingner, Robert R. Wells, and Roger Kuhnle; USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
51.	3A		Gully Erosion 3 Gully Erosion Modeling	Evaluation of CHILD Model for Simulating Gully Development with Field Data Set	Campo, M.A. <sup>1</sup> ; Flores-Cervantes, J.H. <sup>2</sup> ; Bras, R.L. <sup>3</sup> ; and Casali, J. <sup>1</sup> <sup>1</sup> Public University of Navarra, Pamplona, Spain; <sup>2</sup> Massachusetts Institute of Technology, Cambridge, Massachusetts; <sup>3</sup> University of California, Irvine, CA	University
52.	3A		Gully Erosion 3 Gully Erosion Modeling	Scaling a Representative Storm Sequence to Estimate Ephemeral Gully Erosion with RUSLE2	Seth M. Dabney <sup>1</sup> , Daniel C. Yoder <sup>2</sup> , Dalmo A. N. Vieira <sup>1</sup> , Ronald L. Bingner <sup>1</sup> , and Robert R. Wells <sup>1</sup> <sup>1</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> University of Tennessee, Knoxville, TN	USDA-ARS
53.	3A		Gully Erosion 3 Gully Erosion Modeling	Automated Mapping of the Potential for Ephemeral Gully Formation in Agricultural Watersheds	Chris Parker <sup>1</sup> , Ronald L. Bingner <sup>2</sup> , and Colin Thorne <sup>1</sup> <sup>1</sup> School of Geography, University of Nottingham, UK; <sup>2</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS	International UK-Univ USDA-ARS

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counter	Session #	Student	Session	Abstract Title	Authors	Agency
54.	3B		Sediment Transport 2	An Investigation of the Controls Over the Bed Armoring Process	Lu Tan and Joanna C. Curran, The University of Virginia, Charlottesville, VA	University
55.	3B		Sediment Transport 2	Gila River Sediment Program – Bed Material Analysis	Stephanie Gerlach, PE and George Sabol, PhD, PE; Stantec	Consultant
56.	3B		Sediment Transport 2	Topographic Evolution of Sand Bars: Flume Experiments and Computational Modeling	Paul J. Kinzel, USGS, Golden, CO	USGS
57.	3B		Sediment Transport 2	A Simple Sediment Routing Technique for Supply Limited Conditions	Scott A. Wright, David J. Topping, David M. Rubin, Theodore S. Melis; USGS	USGS
58.	3C		Sediment Surrogates 3	Progress in Use of Surrogate Technologies for Continuous Suspended-Sediment Monitoring in Rivers	John R. Gray, USGS, National Center, Reston, VA; Jeffrey W. Gartner, USGS, Tucson, AZ	USGS
59.	3C		Sediment Surrogates 3	Nondestructive Sediment Bulk Density Measurements from X-Radiography	Gregory Norwood, USACE-ERDC, Vicksburg, MS	USACE
60.	3C		Sediment Surrogates 3	New Technology for in-situ Grain-Size Analysis from Digital Images of Sediment, and Resulting Insights Regarding Sediment Transport	David M. Rubin <sup>1</sup> , Hank Chezar <sup>1</sup> , Daniel Buscombe <sup>1</sup> , Jonathan A. Warrick <sup>1</sup> , Patrick L. Barnard <sup>1</sup> , Jessica R. Lacy <sup>1</sup> , Gerald Hatcher <sup>1</sup> , Rob Wyland <sup>1</sup> , Curt D. Storlazzi <sup>1</sup> , Christopher H. Conaway <sup>1</sup> , David J. Topping <sup>2</sup> , Theodore S. Melis <sup>2</sup> , and Paul E. Grams <sup>2</sup> <sup>1</sup> USGS, Santa Cruz, CA; <sup>2</sup> USGS, Flagstaff, AZ	USGS
61.	3C		Sediment Surrogates 3	Evaluation of Sediment Surrogates in Rivers Draining to Lower Granite Reservoir, ID	Molly S. Wood, P.E., USGS, Boise, ID	USGS
62.	3D		Stream Restoration 3	River Engineering: A Comprehensive Systems Approach	Meg Jonas <sup>1</sup> and John Remus <sup>2</sup> ; <sup>1</sup> USACE-ERDC, Vicksburg, MS; <sup>2</sup> USACE Omaha District	USACE
63.	3D		Stream Restoration 3	Sediment Transport in Stream Restoration: Rolling the Dice	Peter R. Wilcock, National Center for Earth-surface Dynamics Dept. of Geography & Environmental Engineering, Johns Hopkins University, Baltimore, MD	University
64.	3D		Stream Restoration 3	150 Years of Sediment Manipulation on the Trinity River, CA	Andreas Krause, USBR, Weaverville, CA; Dave Gaeuman, USBR, Denver, CO; Peter Wilcock, Johns Hopkins University, Baltimore, MD	USBR, University
65.	3D		Stream Restoration 3	Innovative Urban Stream Restoration and Flood Protection with Principles of Natural Channel Design and Fluvial Geomorphology	David Bidelsbach PE, Stantec, Livermore, CO	Consultant
66.	3E		Environmental River Management 1	State Updating of Distributed Hydrologic Models via Variational Data Assimilation for Real-Time Analysis and Prediction of Streamflow	Dong-jun Seo <sup>1,2</sup> , Haksu Lee <sup>1,2</sup> , Paul McKee <sup>3</sup> , and Rober Corby <sup>3</sup> <sup>1</sup> NOAA, NWS, Silver Spring, MD; <sup>2</sup> University Corp for Atmos Res, Boulder CO; <sup>3</sup> NOAA, NWS, Fort Worth, TX	NOAA, University
67.	3E		Environmental River Management 1	The International River Interface Cooperative: Public Domain Software for River Modeling	Jon Nelson <sup>1</sup> , Y. Shimizu <sup>2</sup> , and R.R. McDonald <sup>1</sup> <sup>1</sup> USGS, Golden, CO; <sup>2</sup> University of Hokkaido, Sapporo, JA	USGS University
68.	3E		Environmental River Management 1	Coupling a 2-D Mobile-Bed Model with Deterministic Models of Bank-Stability and Toe-Erosion	Yong Lai <sup>1</sup> , Robert Thomas <sup>2</sup> , Andrew Simon <sup>3</sup> , Blair Greimann <sup>1</sup> <sup>1</sup> USBR, Technical Service Center, Denver, CO; <sup>2</sup> University of Mississippi, University, MS; <sup>3</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS	USBR University USDA-ARS

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counter	Session #	Student	Session	Abstract Title	Authors	Agency
69.	3E		Environmental River Managment 1	Depth and Velocity in Kootenai River White Sturgeon Spawning Habit Where Streamflow Ranges from Backwater to Free Flowing, 2006-09	Gary Barton <sup>1</sup> , Rich McDonald <sup>2</sup> , Jon Nelson <sup>2</sup> , Ryan Fosness <sup>3</sup> , Marshall Williams <sup>1</sup> , Sue Ireland <sup>4</sup> , and Gregory Hoffman <sup>5</sup> <sup>1</sup> USGS, Tacoma, WA; <sup>2</sup> USGS, Golden, CO; <sup>2</sup> USGS, Cook, WA; <sup>3</sup> USGS, Rapid City, SD; <sup>4</sup> Kootenai Tribe, Bonner's Ferry, ID; <sup>5</sup> USACE, Libby, MT	USGS
70.	3F		Hydroecological Modeling 2	Overview of Modeling Mapping & Consequences Capabilities and Processes Track: Hydraulic Modeling	Russ Wyckoff and David Harris, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
71.	3F		Hydroecological Modeling 2	Instrumenting Wildlife Water Developments to Measure Precipitation and Estimate Runoff in Remote Catchments	Nicholas Grant <sup>1</sup> , Laurel Saitop <sup>1</sup> , Mark Weltz <sup>2</sup> , and Mark Walker <sup>1</sup> <sup>1</sup> University of NV, Reno, NV; <sup>2</sup> USDA-ARS, Tucson, AZ	UNV
72.	3F		Hydroecological Modeling 2	Drop 2 Reservoir Unsteady Flow Model	Douglas Blatchford, USBR, Boulder City, NV	USBR
73.	3F		Hydroecological Modeling 2	A One-Dimensional Model of Chemical Bioaccumulation in Aquatic Ecosystems	Dr. Weiming Wu, Podjanee Inthasaro, and Sam Wang, National Center for Hydroscience and Engineering, University of MS, University, MS	Olemiss
74.	4A		Conservation Effects Assessment Project (CEAP)	Cheney Lake CEAP Project Validation/Calibration: Sediment	Ronald L. Bingner <sup>1</sup> , Fred D. Theurer <sup>2</sup> , Lyle D. Frees <sup>3</sup> , and Lisa French <sup>4</sup> <sup>1</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> USDA-NRCS, Washington, DC; <sup>3</sup> USDA-NRCS, Salina, KS; <sup>4</sup> Project Coordinator, Cheney Lake Watershed Inc., KS	USDA-NRCS Watershed
75.	4A		Conservation Effects Assessment Project (CEAP)	Cheney Lake CEAP Project Validation/Calibration: Nutrients	Lyle D. Frees <sup>1</sup> , Fred D. Theurer <sup>2</sup> , Ronald L. Bingner <sup>3</sup> , and Lisa French <sup>4</sup> <sup>1</sup> USDA-NRCS, Salina, KS; <sup>2</sup> USDA-NRCS, Washington, DC; <sup>3</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>4</sup> Project Coordinator, Cheney Lake Watershed Inc., KS	USDA-NRCS
76.	4A		Conservation Effects Assessment Project (CEAP)	Cheney Lake CEAP Project: Conservation Practice Effects Assessment	Lisa French <sup>1</sup> , Lyle D. Frees <sup>2</sup> , Fred D. Theurer <sup>3</sup> , and Ronald L. Bingner <sup>4</sup> <sup>1</sup> Project Coordinator, Cheney Lake Watershed Inc., KS; <sup>2</sup> USDA-NRCS, Salina, KS; <sup>3</sup> USDA-NRCS, Washington, DC; <sup>4</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-NRCS
77.	4A		Conservation Effects Assessment Project (CEAP)	Cheney Lake CEAP Project Validation/Calibration: Streamflow	Fred D. Theurer <sup>1</sup> , Ronald L. Bingner <sup>2</sup> , Lyle D. Frees <sup>3</sup> , and Lisa French <sup>4</sup> <sup>1</sup> USDA-NRCS, Washington, DC; <sup>2</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>3</sup> USDA-NRCS, Salina, KS; <sup>4</sup> Project Coordinator, Cheney Lake Watershed Inc., KS	USDA-NRCS
78.	4B		Sediment Transport 4	Bankfull Mobile Particle Size and its Prediction from a Shields-Type Approach	Kristin Bunte <sup>1</sup> , Steven Abt <sup>1</sup> , Kurt Swingle <sup>2</sup> , John Potyondy <sup>3</sup> <sup>1</sup> Colorado St. Univ., Fort Collins, CO; <sup>2</sup> Boulder, CO; <sup>3</sup> USDA-FS Stream Systems Technology Center, Fort Collins, CO	University
79.	4B		Sediment Transport 4	A Renovation of the Einstein Sediment Function	Andrew Kadib, USACE (ret.), Arcadia, CA	University
80.	4B		Sediment Transport 4	An Evaluation of the Variability of Trinity River Sediment Concentration into Galveston Bay during Flood Discharge	Michael T. Lee, USGS Texas Water Science Center, Conroe, TX	USGS

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81.	4B		Sediment Transport 4	Sediment Transport Mechanics in Shallow Flow During the Saltation Phase.	Suryadevara Madhsudana <sup>1</sup> , S. N. Prasad <sup>1</sup> , and M. J. M. Römkens <sup>2</sup> <sup>1</sup> University of Mississippi, University, MS; <sup>2</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
82.	4C		Sediment Surrogates 4	Erroneous Total Suspended Sediment Concentrations Due to Flocculent Substrate and Minimal Discharge	Michael Byrne, USGS, Orlando, FL	USGS
83.	4C		Sediment Surrogates 4	Tracing Sediment Movement on a Semi-Arid Watershed Using Rare Earth Elements	Viktor Polyakov and Mark Nearing, USDA-ARS, Tucson, AZ	USDA-ARS
84.	4C		Sediment Surrogates 4	Comparison of SSC measurements with acoustic and optical backscatter data: West Bay Sediment Diversion, Mississippi River	David Perkey, Thad Pratt, and Naveen Ganesh; USACE-ERDC, Vicksburg, MS	USACE
85.	4C		Sediment Surrogates 4	Assessing Sediment Movement by CFD Particle Tracking	Jose (Pepe) Vasquez, PhD, Northwest Hydraulic Consultants (NHC), North Vancouver, BC, Canada	Consultant
86.	4D		Stream Restoration 4	Island Construction – Rebuilding Natural Levees to Restore Connectivity in the Northern Reaches of the Upper Mississippi River	Jon S. Hendrickson, P.E., USACE, St. Paul District, St. Paul, MN	USACE
87.	4D		Stream Restoration 4	Sediment Transport Modeling and Monitoring of Dam Removal and Stream Restoration Projects in Illinois	Timothy D. Straub, USGS	USGS
88.	4D		Stream Restoration 4	Sediment Characteristics and Transport within the Kootenai River White Sturgeon Critical Habitat near Bonners Ferry, Idaho	Fosness, Ryan and Williams, Marshall; USGS, Boise, ID	USGS
89.	4D		Stream Restoration 4	Evaluation of Shallow Water Habitat Construction Methods on the Missouri River	Daniel Pridal, USACE, Omaha NE	USACE
90.	4E		Environmental River Managment 1	Using Hydrodynamic Models to Compare White Sturgeon Spawning Habitat in the Lower, Middle, and Upper Columbia Basin	Gary Barton <sup>1</sup> , James Hatten <sup>2</sup> , Micheal Parsley <sup>2</sup> , Ryan Fosness <sup>3</sup> , Thomas Batt <sup>2</sup> <sup>1</sup> USGS, Moscow, ID; <sup>2</sup> USGS, Cook, WA; <sup>3</sup> USGS, Rapid City, SD	USGS
91.	4E		Environmental River Managment 1	Preliminary Study of the Effect of the Long Lake Valley Project Operation on the Transport of Larval Suckers in Upper Klamath Lake, Oregon	Tamara Wood, USGS, Portland, OR	USGS
92.	4E		Environmental River Managment 1	Applying TOPMODEL in a Small South Carolina Coastal Plain Watershed to Estimate Hydrologic Characteristics for Use in Assessing Mercury Fluxes	Toby Feaster, Clemson University, SC	University
93.	4E		Environmental River Managment 1	Identification of Relict Floodplain Areas Along the Upper Columbia River	Mark Velleux, James Wands, Tarun Singh, and Paul Paquin; HydroQual, Inc., Mahwah, NJ	Consultant
94.	4F		Management & Decision Making Models 1	Representing Policy for Operations in the Upper Rio Grande Water Operations Model	Craig Boroughs <sup>1</sup> , Marc Sidlow <sup>2</sup> , and Steven Bowser <sup>3</sup> <sup>1</sup> BH&H, Dillon, CO; <sup>2</sup> USACE Hydrologic Engineering Center (HEC), Davis, CA; <sup>3</sup> USBR, Albuquerque, NM	H & H Co



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95.	4F		Management & Decision Making Models 1	TR-60 Design Storm Criteria for High Hazard Dams	Claudia Hoeft and Mark Locke, USDA-NRCS, Washington, DC	USDA-NRCS
96.	4F		Management & Decision Making Models 1	A Simulation Approach for Risk Management in Annual Water Allocations for the Central Valley Project, California	Brian Joyce <sup>1</sup> and Dr. Michael Tansey <sup>2</sup> <sup>1</sup> Stockholm Environmental Institute, Sweden; <sup>2</sup> USBR, Sacramento, CA	SEI Sweden, USBR
97.	4F		Management & Decision Making Models 1	Hydrologic Modeling System (HEC-HMS): Physically-Based Simulation Components	Dr. William Scharffenberg, Paul Ely, Dr. Steve Daly, Matthew Fleming, Dr. Jay Pak, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
98.	5A		Soil Erosion 1 Laboratory and Field Erodibility Measurement Methods / Instruments	Comparison and Experiences with Field Instruments to Obtain Critical Shear Stress and Erodibility of Cohesive Deposits	Andrew Simon <sup>1</sup> , Robert Thomas <sup>2</sup> and Lauren Klimetz <sup>2</sup> <sup>1</sup> Dr. Andrew Simon, USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> University of Mississippi, Oxford, MS.	USDA-ARS University
99.	5A		Soil Erosion 1 Laboratory and Field Erodibility Measurement Methods / Instruments	The Pocket Erodrometer	Jean-Louis Briaud <sup>1</sup> and Michelle Bernhardt <sup>2</sup> <sup>1</sup> Professor and Holder of the Buchanan Chair, Zachry Dpt. of civil Engineering, Texas A&M University, College Station, TX; <sup>2</sup> Master Student and Research Assistant, Zachry Dept. of Civil Engineering, Texas A&M University, College Station, TX	University
100.	5A		Soil Erosion 1 Laboratory and Field Erodibility Measurement Methods / Instruments	On the in situ Determination of Soil Erodibility: From the 20 <sup>th</sup> to the 21 <sup>st</sup> Century	Dr. Kevin Black, Partrac Ltd., Glasgow, UK	Consultant
101.	5A		Soil Erosion 1 Laboratory and Field Erodibility Measurement Methods / Instruments	Erodibility of Sediment at Bridge Foundations in Georgia	P. Hobson <sup>1</sup> , R. Navarro <sup>2</sup> , and T. W. Sturm <sup>3</sup> <sup>1</sup> Geosyntec, Portland, OR; <sup>2</sup> J.B. Trimble & Assoc., Atlanta, GA; <sup>3</sup> Georgia Tech, Atlanta, GA	University
102.	5B		Sediment Transport 5	Effects of sand addition on turbulent flow interaction with an immobile gravel bed	Wren, D. G., Langendoen, E. J., and Kuhnle, R. A.; USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
103.	5B		Sediment Transport 5	Coupling Watershed Sediment Yield Model with Stream Sediment Transport Model: An Example of Middle Rio Grande	Li Chen, Ph.D.; and Dong Chen, Desert Research Institute, Las Vegas, NV	DRI
104.	5B		Sediment Transport 5	Historic and Modern Sediment Yield from a Forested Watershed and its Impact on Navigation	Calvin T. Creech, Jim Selegue, and Travis A. Dahl; USACE, Detroit District	USACE
105.	5B		Sediment Transport 5	Characterization of sediment transport from urban, urbanizing, and rural areas of Johnson County, Kansas, 2006-08	Casey J. Lee, Pat P. Rasmussen and Andrew C. Ziegler; USGS, Lawrence, KS	USGS
106.	5C		Watershed Sediment Analysis	Developing a Sediment Budget of the Cowlitz System	David Biedenharn <sup>1</sup> , Paul Scalfani <sup>2</sup> , Matt Fraver <sup>2</sup> , Michelle Martin <sup>3</sup> , and Chester Watson <sup>4</sup> <sup>1</sup> Biedenharn Group, LLC, Vicksburg MS; <sup>2</sup> USACE, Portland OR; <sup>3</sup> Anderson Consulting Engineers, Inc, Fort Collins, CO; <sup>4</sup> Biedenharn Group, LLC, Fort Collins, CO	USACE



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107.	5C		Watershed Sediment Analysis	Alternative Inventory and Analysis For Sediment Mitigation	Peter Dickerson, PE; Jeremy Britton, PhD, PE, et.al.	USACE
108.	5C		Watershed Sediment Analysis	USACE Long-term Study of Sediment Erosion and Transport from Mt. St. Helens Debris Avalanche	Jeremy Britton, PhD, PE; Peter Dickerson, PE; Matt Fraver, EIT; Lindsey Gay; and Paul Sciafani, PE; USACE	USACE
109.	5C		Watershed Sediment Analysis	Seasonal and Decadal-Scale Channel Evolution on the Dammed Elwha River, Washington	Amy E. Draut <sup>1</sup> , Joshua B. Logan <sup>1</sup> , Mark C. Mastin <sup>2</sup> , and Randall E. McCoy <sup>3</sup> <sup>1</sup> USGS, Santa Cruz, CA; <sup>2</sup> USGS, Tacoma, WA; <sup>3</sup> Lower Elwha Klallam Tribe, Port Angeles, WA	USGS
110.	5D		Stream Restoration 5	Morphologic Response of Sandbars on the Colorado River in Grand Canyon to the March 2008 High Flow Experiment and Subsequent Dam Operations	Paul E. Grams <sup>1</sup> , Joseph E. Hazel <sup>2</sup> , John C. Schmidt <sup>3</sup> , and Matt Kaplinski <sup>2</sup> <sup>1</sup> USGS; <sup>2</sup> N. Arizona Univ.; <sup>3</sup> Utah St. Univ.	USGS University
111.	5D		Stream Restoration 5	Evaluating Anthropogenic Impacts on Salmonid Habitat with a Two-Dimensional Hydraulic Model, Middle Fork John Day River, Oregon	Elaina R Holburn and Ralph Klinger, USBR	USBR
112.	5D		Stream Restoration 5	Utilizing Geomorphic Information as a Guide for Rehabilitating Salmonid Habitat along the Middle Fork John Day River, Oregon	Ralph E. Klinger, Elaina R. Holburn, and Toni E. Turner, USBR	USBR
113.	5D		Stream Restoration 5	River Restoration on the Entiat River	Mike Sixta, USBR, Denver, CO	USBR
114.	5E		Flood Hydrology 2	Modeling the Impact of Microtopography on the Rainfall-Runoff Process	Dr. Li Chen <sup>1</sup> , Long Xiang <sup>2</sup> , and Zhongbo Yu <sup>3</sup> <sup>1</sup> Desert Research Institute, Las Vegas, NV; <sup>2</sup> Hohai University, Nanjing, China; <sup>3</sup> University of NV, Reno, NV	University
115.	5E		Flood Hydrology 2	Vflo™ Hydrological Model Application for Flood Analysis of the Future Midwest Landscape Study	Yongping Yuan and M.A. Jackson, USEPA, Washington, DC	USEPA
116.	5E		Flood Hydrology 2	Characterization of Stream Resistance in Forested, High-gradient Streams	Steven Yochum, USDA-NRCS, Boulder CO	USDA-NRCS
117.	5E		Flood Hydrology 2	Development of a Three-Dimensional Circulation and Transport Model for Evaluating Flooding in Devils Lake, Northeastern North Dakota	Rochelle Nustad, Jerad D.Bales, and Tamara M. Wood, USGS, Raleigh, NC	USGS
118.	5F		Management & Decision Making Models 2	Management of Conjunctive Use of Surface-Water and Ground-Water During Droughts	Sanaz Dashti, Mahab Ghodss Consulting Engineering Company, Tehran, Iran	Consultant
119.	5F		Management & Decision Making Models 2	Incorporating Ensemble Streamflow Predictions in Reservoir Operation Simulations	Joan Klipsch <sup>1</sup> , Olaf David <sup>2</sup> , George Leavesley <sup>2</sup> , Tim Green <sup>3</sup> , Daniel Moore <sup>4</sup> , Sven Kralisch <sup>5</sup> , and Lajpat Ahuja <sup>3</sup> <sup>1</sup> USACE Hydrologic Engineering Center (HEC), Davis, CA; <sup>2</sup> Colorado State University, Fort Collins, CO; <sup>3</sup> USDA-ARS, Fort Collins, CO; <sup>4</sup> USDA-NRCS, Portland, OR; <sup>5</sup> Friedrich-Schiller University, Jena, Germany	USACE
120.	5F		Management & Decision Making Models 2	Estimating Loss of Life from Dam Failure with HEC-FIA	Jason Needham, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE

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121.	5F		Management & Decision Making Models 2	Development and Evaluation of a Component-Based Watershed Model Using the Object Modeling System	Dr. James Ascough II <sup>1</sup> , David Olaf <sup>2</sup> , George Leavesley <sup>2</sup> , Peter Krause <sup>3</sup> , Tim Green <sup>4</sup> , Daniel Moore <sup>5</sup> , Sven Kralisch <sup>3</sup> , and Lajpat Ahuja <sup>1</sup> <sup>1</sup> USDA-ARS, Fort Collins, CO; <sup>2</sup> Colorado State University, Fort Collins, CO; <sup>3</sup> Friedrich-Schiller University, Jena, Germany; <sup>4</sup> USDA-ARS, Fort Collins, CO; <sup>5</sup> USDA-NRCS, Portland, OR	USDA
122.	6A		Soil Erosion 2 Use of Submerged Jet for Field and Laboratory Erodibility Measurement	Evaluation of the Accuracy and Precision of the Multiangle Submerged Jet Test Device	C. Johnson and T. Wynn; Graduate Assistant and Assistant Professor, Virginia Tech, Blacksburg, VA	University
123.	6A		Soil Erosion 2 Use of Submerged Jet for Field and Laboratory Erodibility Measurement	Repeatability in Determining Erodibility Coefficients for Cohesive Soils using a Submerged Circular Turbulent Impinging Jet	K. A. Mazurek and R. Sharma; University of Saskatchewan, Saskatoon, Saskatchewan, Canada	International Canada University
124.	6A		Soil Erosion 2 Use of Submerged Jet for Field and Laboratory Erodibility Measurements	Comparison of Submerged Jet Testing to Field Erosion Rates in Clay and Sand Channels, Texas	Peter M. Allen <sup>1</sup> , Stephanie Capello <sup>2</sup> , and Dave Coffman <sup>1</sup> <sup>1</sup> Baylor University, Waco, TX; <sup>2</sup> Freese & Nichols, Inc., Fort Worth, TX	University
125.	6A		Soil Erosion 2 Use of Submerged Jet for Field and Laboratory Erodibility Measurement	Soil Erodibility Evaluation Under Different Management Practices	Robert R. Wells <sup>1</sup> , Ronald L. Bingner <sup>1</sup> , Glenn V. Wilson <sup>1</sup> , and Gregory J. Hanson <sup>2</sup> <sup>1</sup> USDA-ARS National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> USDA-ARS, Stillwater, OK	University
126.	6B		Sediment Transport 6	Fingerprinting Sediment Sources in the Mill Stream Branch Watershed, Queen Anne's County, Maryland, 2009-2010	William S. Banks and Allen C. Gellis; USGS Water Science Center, Baltimore, MD	USGS
127.	6B		Sediment Transport 6	Sediment Budget for Source Analysis: Le Sueur Watershed, MN	Patrick Belmont, National Center for Earth-surface Dynamics (NCED), University of Minnesota, St. Anthony Falls Laboratory; Enrica Viparelli, NCED, University of Illinois, Urbana, IL; Peter R. Wilcock, NCED, Johns Hopkins University, Baltimore, MD	University
128.	6B		Sediment Transport 6	Issues in Development of a 1000-Mile-Long Numerical Sedimentation Model of the Mississippi River	Ronald R. Copeland <sup>1</sup> , Basil K. Arthur <sup>1</sup> , Roger A. Gaines <sup>2</sup> , Leslie Lombard <sup>3</sup> , Dennis L. Stephens <sup>4</sup> , Clarence E. Thomas <sup>5</sup> <sup>1</sup> USACE Vicksburg District; <sup>2</sup> USACE Memphis District; <sup>3</sup> USACE New Orleans District; <sup>4</sup> USACE St. Louis District; <sup>5</sup> USACE Mississippi Valley Division	USACE
129.	6B		Sediment Transport 6	Sediment Transport Model in the San Joaquin River from Friant Dam to Mendota Dam, California	Jianchun Huang and Blair P. Greimann; USBR, Technical Service Center, Denver, CO	USBR
130.	6C		Mt. St. Helens Sedimentation	Multi-Dimensional Modeling of the Cowlitz-Columbia Confluence	Dan Gessler, PhD, PE <sup>1</sup> ; David Biedenbarn, PhD, PE <sup>2</sup> ; Chester Watson, PhD, PE <sup>3</sup> ; Chris Nygaard, PE <sup>4</sup> ; Mitch Peters, PE <sup>5</sup> <sup>1</sup> Mussetter Engineering, Inc. Fort Collins, CO; <sup>2</sup> Biedenbarn Group, LLC, Vicksburg, MS; <sup>3</sup> Biedenbarn Group, LLC, Fort Collins, CO; <sup>4</sup> USACE, Portland, OR; <sup>5</sup> Simons & Associates, Inc., Fort Collins, CO	USACE, Consultant

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131.	6C		Mt. St. Helens Sedimentation	Two Dimensional Modeling of the Upper North Fork Sediment Plain	Dan Gessler, PhD, PE; Mitch Peters, PE; Pete Dickerson, PE; Michelle Martin, PE, USACE	USACE
132.	6C		Mt. St. Helens Sedimentation	Mobile Bed Modeling of the Cowlitz River using HEC-RAS: Assessing Flooding Risk and Impact Due to System Sediment	Stanford Gibson, PE <sup>1</sup> , Chris Nygaard, PE <sup>2</sup> , and Matt Fraver, EIT <sup>2</sup> <sup>1</sup> USACE Hydrologic Engineering Center (HEC), Davis, CA; <sup>2</sup> USACE, Portland, OR;	USACE
133.	6C		Mt. St. Helens Sedimentation	Using SIAM for an Initial System Analysis of the Cowlitz System	Michelle Martin <sup>1</sup> , PE; Peter Dickerson <sup>1</sup> , PE; David Biedenharn <sup>2</sup> , PhD, PE; Chester Watson <sup>3</sup> , PhD, PE <sup>1</sup> USACE; <sup>2</sup> Biedenharn Group, LLC, Vicksburg, MS; <sup>3</sup> Beidenharn Group, LLC, Fort Collins, CO	USACE
134.	6D		Stream Restoration 6	Impacts of Sediments in Hawaiian Stream Ecosystems—Applying the Research to Regulatory Programs	Alexandre Remnek <sup>1</sup> , Bruce Cleland <sup>2</sup> , Renee Kinchla <sup>3</sup> , Linda Koch <sup>1</sup> , David Penn <sup>1</sup> <sup>1</sup> State of HI Dept. of Health, <sup>2</sup> Tetra Tech, <sup>3</sup> Research Corporation of the Univ. of HI	DOH
135.	6D		Stream Restoration 6	Floodplain Sediment Trapping, Hydraulic Connectivity, and Vegetation Along Restored Reaches of the Kissimmee River, Florida	Edward R. Schenk and Cliff R. Hupp, USGS	USGS
136.	6D		Stream Restoration 6	Suspended-Sediment and Bedload Monitoring of the Kissimmee River Restoration, July 2007 through September 2008	Gellis, A.C. <sup>1</sup> , Pearman, J.L. <sup>1</sup> , Valdes, J.J. <sup>2</sup> , and Habermahl, P.J. <sup>1</sup> <sup>1</sup> U.S. Geological Survey; <sup>2</sup> S. FL Water Mgt. District	USGS
137.	6D		Stream Restoration 6	Sedimentation and Cross Sectional Variability in Restored and Unrestored Portions of the Lower Kissimmee River, Florida	Joann Mossa, Ursula Garfield and Jim Rasmussen, Dept. of Geography Univ. of FL	University
138.	6E		Flood Hydrology 3	A Flood Warning System for City of Findlay, Ohio	Matt Whitehead, USGS, Columbus OH	USGS
139.	6E		Flood Hydrology 3	Paleoflood Hydrology and Flood Hydrology	Daniel R. Levish, USBR, Technical Service Center, Denver, CO	USBR
140.	6E		Flood Hydrology 3	Scale-related Geomorphic Transformation of Rainfall Intensity that Influence the Shape of Flood Hydrographs from Burned Watersheds	John A. Moody, USGS, Boulder, CO	USGS
141.	6E		Flood Hydrology 3	Estimating Flood Discharges for Ungaged Basins Beyond Standard Use of USGS Regional Regression Equations	Dr. Henry Hu and Raymond Walton, West Consultants, Bellevue, WA	Consultant
142.	6F		Management & Decision Making Models 3	A Modeling Framework for Improved Agricultural Water-Supply Forecasting	George Leavesley <sup>1</sup> , Olaf David <sup>1</sup> , David Garen <sup>2</sup> , Jolyne Lea <sup>2</sup> , Tom Perkins <sup>2</sup> , and Michael Strobel <sup>2</sup> <sup>1</sup> Colorado State University, Fort Collins, CO; <sup>2</sup> USDA-NRCS, Portland, OR	USGS
143.	6F		Management & Decision Making Models 3	Real-Time Flash Flood Forecasting Using Weather Radar and a Distributed Rainfall-Runoff Model	Carl Unkrich <sup>1</sup> , Michael Schaffer <sup>2</sup> , Chad Kahler <sup>3</sup> , David Goodrich <sup>1</sup> , Peter Troch <sup>4</sup> , Hoshin Gupta <sup>4</sup> , Thorsten Wagener <sup>5</sup> , and Soni Yatheendradas <sup>6</sup> <sup>1</sup> USDA-ARS, Tucson, AZ; <sup>2</sup> NOAA, NY; <sup>3</sup> NOAA, Tucson, AZ; <sup>4</sup> University of AZ, Tucson, AZ; <sup>5</sup> Penn State University, State College, PA; <sup>6</sup> New Mexico Tech, Socorro, NM	USDA
144.	6F		Management & Decision Making Models 3	Automated Geospatial Watershed Assessment Tool for Rangelands	D. Phillip Guertin <sup>1</sup> , Ginger Paige <sup>2</sup> , David Goodrich <sup>3</sup> , Mark Nearing <sup>3</sup> , Scott Miller <sup>2</sup> , Phillip Heilman <sup>3</sup> , Jeffry Stone <sup>3</sup> , Shea Burns <sup>3</sup> , and George Ruyle <sup>1</sup> <sup>1</sup> University of AZ, Tucson, AZ; <sup>2</sup> University of WY, Lander, WY; <sup>3</sup> USDA-ARS, Tucson, AZ	U of AZ

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145.	6F		Management & Decision Making Models 3	The KINEROS - AGWA Suite of Modeling Tools	Dave Goodrich, Carl Unkrich Roger Smith, David Woolhiser, USDA-ARS, Tucson, AZ, et al.	USDA-ARS et al.
146.	7A		Soil Erosion 3 Erodibility Measurement of Earthen Embankments	Coherence of Erodibility at Different Scales	Greg Hanson, Sherry Hunt, Ron Tejral; USDA-ARS, Stillwater, OK	USDA-ARS
147.	7A		Soil Erosion 3 Erodibility Measurement of Earthen Embankments	Relating HET and JET test results to Internal Erosion Field Tests.	Tony L. Wahl, USBR	USBR
148.	7A		Soil Erosion 3 Erodibility Measurement of Earthen Embankments	A 1-D Numerical Model of Non-cohesive Dam/Levee Breach Processes	Weiming Wu and Sam S.Y. Wang, National Center for Computational Hydroscience and Engineering, The University of Mississippi, University, MS	University
149.	7A		Soil Erosion 3 Erodibility Measurement of Earthen Embankments	Multi-Scale Calibration of KINEROS-DWEPP, a Combined Physically-Based Hydrologic Model and Process-Based Soil Erosion Model	Ian Shea Burns, USDA-ARS SWRC	USDA-ARS
150.	7B		Sediment Measurement	Measuring Bedload Transport on the Missouri River using Time Sequenced Bathymetric Data	David Abraham, USACE-ERDC, Vicksburg, MS; and Kenneth Stark, USACE, Kansas City District	USACE
151.	7B		Sediment Measurement	Summer, Sediment Flux Processes Measured in 1-m <sup>2</sup> Bounded Plots on a Burned Hillslope	John A. Moody, USGS, Boulder, CO	USGS
152.	7B		Sediment Measurement	Adjustments Between Historical flow and Sediments in a River Basin Using Genetics Algorithms	Preciado, J. M. <sup>1</sup> , Arganis, J. M. L. <sup>2,3</sup> , Ocón G.A. <sup>1</sup> <sup>1</sup> Instituto Mexicano de Tecnología del Agua, Jiutepec, Mor., <sup>2</sup> Instituto de Ingeniería, Universidad Nacional Autónoma de México, <sup>3</sup> PUMAGUA, Universidad Nacional Autónoma de México	International University
153.	7B		Sediment Measurement	Different Characteristics of Suspended Sediment Transport in Dry and Wet Years	Renjie Xia, Ph.D., P.E., USACE, Rock Island, IL	USACE
154.	7C		Reservoir Sedimentation 1	RESSED – An Online Interactive Reservoir Sedimentation Survey Database for the United States	J. R. Gray <sup>1</sup> , J. M. Bernard <sup>2</sup> , D. W. Stewart <sup>1</sup> , G. E. Schwarz <sup>3</sup> , and K. T. Ray <sup>4</sup> <sup>1</sup> USGS, National Center, Reston, VA; <sup>2</sup> USDA-NRCS, Washington, DC; <sup>3</sup> USGS, Baltimore, MD; <sup>4</sup> USGS, Bay St. Louis, MS	USGS NRCS
155.	7C		Reservoir Sedimentation 1	Methods, Bathymetry, and Sediment-Storage Capacity Change in a System of Reservoirs on the Lower Susquehanna River and Bathymetry of Three State Park Lakes, 2007-2009	Michael Langland, Pennsylvania Science Center, New Cumberland, PA	USGS
156.	7C		Reservoir Sedimentation 1	Calculating Sediment Accumulation Rates for Texas Reservoirs	Jason Kemp and Jordan Furnans, Ph.D., P.E.; Texas Water Development Board, Austin, TX	Water Board
157.	7C		Reservoir Sedimentation 1	USACE Reservoir Sedimentation: Data, Assessment, and Guidance	C. Fred Pinkard, Jr. P.E.; Meg M. Jonas, P.E.; and John I. Remus, P.E.; USACE-ERDC, Vicksburg, MS	USACE
158.	7D		Watershed Planning 1	Information Cascades in Engineering Decision Making Processes	Mark S. Nemeth, Supervisory Civil Engineer, Albuquerque, NM	USBR
159.	7D		Watershed Planning 1	Stage Trends on the Middle Mississippi River	David Biedenbarn <sup>1</sup> and Chester Watson <sup>2</sup> <sup>1</sup> Biedenbarn Group, LLC, Vicksburg, MS; <sup>2</sup> Biedenbarn Group, LLC, Fort Collins, CO	Consultant

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160.	7D		Watershed Planning 1	A Sedimentation Analysis on Small Watershed Dams in Mississippi Using GIS: A GIS Approach to Analyzing Watersheds and Calculating Sediment Volume	Snellings, Gary (Trent)., USDA-NRCS, Jackson, MS	USDA-NRCS
161.	7D		Watershed Planning 1	Channel Evolution in Urban Watersheds: A Conceptual Model	Meg Jonas, USACE-ERDC, Vicksburg, MS	USACE
162.	7E		Flood Hydrology 1	USDA-ARS/NRCS WinDAM Earthen Embankment Overtopping & Auxiliary Spillway Erosion Prediction	Karl Visser <sup>1</sup> , Greg Hanson <sup>2</sup> , Darell Temple <sup>2</sup> , Tony Funderburk <sup>1</sup> , Helen Moody <sup>3</sup> , Mitch Nielsen <sup>4</sup> <sup>1</sup> USDA-NRCS, NDCSMC, Fort Worth, TX; <sup>2</sup> USDA-ARS, Stillwater, OK; <sup>3</sup> USDA-NRCS, Beltsville, MD; <sup>4</sup> Kansas State University	USDA-NRCS
163.	7E		Flood Hydrology 1	Magnitude and Frequency of Floods in Rural Basins of South Carolina, North Carolina, and Georgia: A Multi-State Approach	Toby Feaster, Clemson University, SC	USGS
164.	7E		Flood Hydrology 1	Hydrodynamic Modeling of Extreme Floods and Flood Mitigation Measures: Devils Lake, North Dakota	Dr. Jerad Bales <sup>1</sup> , Rochell Nustad <sup>2</sup> , and Tamara Wood <sup>3</sup> <sup>1</sup> USGS, Raleigh, NC; <sup>2</sup> USGS, Grand Forks, ND; <sup>3</sup> USGS, Portland, OR	USGS
165.	7E		Flood Hydrology 1	NOAA's Community Hydrologic Prediction System	John Roe, Christine Dietz, Pedro Restrepo, John Halquist, Robert Harman, Robert Horwood, Billy Olsen, Harold Opitz, Robert Shedd, Edwin Welles; NOAA, Washington DC	NOAA
166.	7F		Management & Decision Making Models 4	HEC-RTS (Real-Time Simulation) Version 2 for Real Time Flood Forecasting and Water Control	William Charley, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
167.	7F		Management & Decision Making Models 4	U.S. Army Corps of Engineers Water Management for Environmental Sustainability	James Barton, USACE, Portland, OR	USACE
168.	7F		Management & Decision Making Models 4	Probable Maximum Flood Determination for the Snake River Basin	Gregg Teasdale, USACE, Walla Walla, WA	USACE
169.	7F		Management & Decision Making Models 4	Hydrologic/Hydraulic Modeling of Westminster Watershed Orange County, California	Dr. James Chieh <sup>1</sup> , Jay Pak <sup>2</sup> , and Rene Vermeeren <sup>2</sup> <sup>1</sup> USACE, Los Angeles, CA; <sup>2</sup> USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
170.	8A		Dam Breach Modeling	Dam Breach Modeling#1: An overview of analysis methods	Tony L. Wahl, USBR	USBR
171.	8A		Dam Breach Modeling	Dam Breach Modeling#2: Use of Breach Process Models to Estimate HEC-RAS Dam Breach Parameters	D. Michael Gee, Ph.D., PE, USACE-ERDC, Vicksburg, MS	USACE
172.	8A		Dam Breach Modeling	Dam Breach Modeling#3: In-Depth overview of erosion processes modeled within NWS-Breach and SIMBA/WinDAM	Ron Tejral and Greg Hanson, USDA-ARS, Stillwater, OK	USDA-ARS
173.	8A		Dam Breach Modeling	Dam Breach Modeling#4: WinDAM Earthen Embankment Overtopping & Auxiliary Spillway Erosion Prediction	Karl Visser <sup>1</sup> , Greg Hanson <sup>2</sup> , Darrell Temple <sup>2</sup> , Mitch Nielsen <sup>3</sup> , KSU; Tony Funderburk <sup>1</sup> , Helen Moody <sup>4</sup> <sup>1</sup> USDA-NRCS, NDCSMC, Fort Worth, TX; <sup>2</sup> USDA-ARS, Stillwater, OK; <sup>3</sup> Kansas State University; <sup>4</sup> USDA-NRCS, Beltsville, MD	USDA
174.	8B		Turbidity	Correlating Streamflow, Turbidity, and Suspended-Sediment Concentration in Minnesota's Wild Rice River	Christopher A. Ellison, Richard L. Kiesling, and James D. Fallon; USGS, Mounds View, MN	USGS



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175.	8B		Turbidity	Turbidity as a Surrogate for the Estimation of Suspended-Sediment Concentrations in Mississippi Streams	Michael S. Runner P.E., USGS, Jackson, MS	USGS
176.	8B		Turbidity	Analyzing turbidity, suspended-sediment concentration, and particle-size distribution resulting from a debris flow: Mount Jefferson, Oregon	Mark Uhrich, USGS, Portland, OR	USGS
177.	8B		Turbidity	Why are continuous in-stream turbidity data needed to characterize sediment transport and sources? An example the Little Arkansas River, south-central Kansas	Andrew C. Ziegler and Patrick P. Rasmussen; USGS, Lawrence, KS	USGS
178.	8C		Reservoir Sedimentation 2	Howard Hanson Dam Sediment Management Project	Karl Eriksen and Kent Easthouse, USACE, Seattle, WA	USACE
179.	8C		Reservoir Sedimentation 2	Influence of Stilling Basin Geometry on Flow Pattern and Sediment Transport at Flood Mitigation Dams	Sameh A. Kantoush and Tetsuya Sumi; Water Resources Research Center, Disaster Prevention Research Institute, Kyoto University, Japan	International University
180.	8C	Student	Reservoir Sedimentation 2	Simulation of Xiaolangdi Reservoir Sedimentation and Flushing Processes	Jungkyu Ahn., Ph.D. student; and Chih Ted Yang, Borland Professor of Water Resources and Director of Hydrosience and Training Center; Colorado State University, Fort Collins, CO	University
181.	8C		Reservoir Sedimentation 2	Sediment Accumulation and Sediment Loading for the Reservoir System on the Lower Snake River	Gregg N. Teasdale, PE, PhD, USACE, Walla Walla District	USACE
182.	8D		Watershed Planning 2	Ecological Effectiveness of Erosion-Prevention and Sediment-Control Measures at Highway Construction Sites—Conceptual and Methodological Issues and Preliminary Results from Middle Tennessee	William J. Wolfe, Timothy H. Diehl, Shannon, D. Williams, and Melissa A. Smith, USGS	USGS
183.	8D		Watershed Planning 2	Floodplain Geomorphic Processes and Environmental Impacts of Human Alteration Along Coastal Plain Rivers	Cliff R. Hupp, Edward R. Schenk, Aaron R. Pierce, and Gregory B. Noe, USGS	USGS
184.	8D		Watershed Planning 2	Improvement of the HSPF Sediment Transport Algorithms for a SERDP Ft. Benning Application	Earl Hayter, USACE-ERDC, Vicksburg, MS	USACE
185.	8D		Watershed Planning 2	A Watershed Modeling Framework for Military Installations: Assessment of the Hydrologic and Sediment Impacts of Military Management Alternatives	Anthony S. Donigian Jr. <sup>1</sup> , John C. Imhoff <sup>1</sup> , Anurag Mishra <sup>1</sup> , Patrick N. Deliman <sup>2</sup> , and Eileen C. Regan <sup>1</sup> <sup>1</sup> AQUA TERRA Consultants; <sup>2</sup> USACE-ERDC, Vicksburg, MS	Consultant
186.	8E		Flood Hydrology 4	Utilizing a Two-Dimensional Hydraulic Model for Making Peak Discharge Estimates of Prehistorical Paleofloods on the South Fork of the Boise River, South-Central Idaho	Ralph Klinger and Travis Bauer; USBR, Technical Service Center, Denver, CO	USBR
187.	8E		Flood Hydrology 4	Pre- and Post-Construction Conceptual Model Development for Large Power Plant Construction Projects	Joseph Giacint and Mark McBrideo, Nuclear Regulatory Commission, Washington, DC	NRC
188.	8E		Flood Hydrology 4	Simulating a Century of Hydrographs--Mark Twain Reservoir	Ann Banitt, USACE, St. Paul, MN	USACE



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189.	8E		Flood Hydrology 4	Method to Construct Zones of Interest Below Dams to Make Rapid Assessment of Detailed Breach Analysis Needs for the 5-Year NID Cycle	Terry Costner, USDA-NRCS, TX	USDA-NRCS
190.	8F		Management & Decision Making Models 5	Toward Improved Calibration of Hydrologic Models: A Multi-Behavior, Multi-Objective Modeling Approach of Snow-Dominated Mountainous Watersheds	Cornelia Barth <sup>1</sup> , Douglas Boyle <sup>1</sup> , and Luis Bastidas <sup>2</sup> <sup>1</sup> Desert Research Institute, Las Vegas, NV; <sup>2</sup> Utah State University, Logan, UT	DRI, USU
191.	8F		Management & Decision Making Models 5	Challenges in Water Resources Forecasting at the National Weather Service	Pedro Restrepo, NOAA, NWS, Washington, DC	NOAA
192.	8F		Management & Decision Making Models 5	Hydrologic Ensemble Prediction for Risk-Based Water Resources Management and Hazard Mitigation	Dong-jun Seo <sup>1,2</sup> , Julie Demargne <sup>1</sup> , Limin Wu <sup>1</sup> , Yuquiong Liu <sup>1</sup> , James D. Brown <sup>1</sup> , Satish Regopnda <sup>1</sup> , Haksu Lee <sup>1,2</sup> <sup>1</sup> NOAA, NWS, Silver Spring, MD; <sup>2</sup> University Corp for Atmos Res, Boulder CO;	NOAA, NWS
193.	8F		Management & Decision Making Models 5	USACE Dam Breach Inundation Map Standard	Jason Sheeley, USACE, Kansas City, MO	USACE
194.	9A		Sand and Gravel Interactions	The Infiltration of and Influence of Sand Pulses Introduced into Mobile Gravel Substrates	Stanford Gibson, David Abraham, and Ronald Heath; Hydrologic Engineering Center, Davis, CA	University
195.	9A		Sand and Gravel Interactions	Morphology and dynamics of a gravel-sand transition	J.G. Venditti <sup>1</sup> , N. Domarad <sup>1</sup> , R.P. Humphries <sup>1</sup> , M.A. Allison <sup>2</sup> , J.A. Nittouer <sup>2</sup> , M. Church <sup>3</sup> . <sup>1</sup> Simon Fraser University, Burnaby, BC, Canada; <sup>2</sup> University of Texas, Austin, Texas; <sup>3</sup> University of British Columbia, Vancouver, BC, Canada	University
196.	9A		Sand and Gravel Interactions	Numerical Modeling of Bed Mixing and Transport Following after Dam Removal	Blair Greimann <sup>1</sup> and Edmund Andrews <sup>2</sup> <sup>1</sup> USBR, Denver, CO; <sup>2</sup> USGS, Boulder, CO	USGS
197.	9A		Sand and Gravel Interactions	An experimental study of sand transport over an immobile gravel substrate	Kuhnle, R. A., Langendoen, E. J., Wren, D. G.; USDA-ARS National Sedimentation Laboratory, Oxford, MS	USDA-ARS
198.	9B		Dam Removal 1	Scour Analysis Upstream of the San Acacia Diversion Dam on the Rio Grande River	Yong G. Lai <sup>1</sup> , and Jonathan S. Aubuchon <sup>2</sup> <sup>1</sup> USBR, Denver, CO; <sup>2</sup> USBR, Albuquerque, NM	USBR
199.	9B		Dam Removal 1	Sediment Management Strategies Associated with Dam Removal in the State of Washington	Christopher S. Magirl <sup>1</sup> , Patrick J. Connolly <sup>2</sup> , Bengt Coffin <sup>3</sup> , Jeffrey J. Duda <sup>4</sup> , Christopher A. Curran <sup>1</sup> , and Amy E. Draut <sup>5</sup> <sup>1</sup> USGS, Tacoma, WA; <sup>2</sup> USGS, Cook, WA; <sup>3</sup> USDA-FS, Trout Lake, WA; <sup>4</sup> USGS, Seattle, WA; <sup>5</sup> USGS, Santa Cruz, CA	USGS
200.	9B		Dam Removal 1	Short-Term Sediment Erosion, Transport, and Deposition on the Sandy River, Oregon, Following Removal of Marmot Dam	Jon J. Major <sup>1</sup> , Jim E. O'Connor <sup>2</sup> , Kurt R. Spicer <sup>1</sup> , J. Rose Wallick <sup>2</sup> , Mackenzie Keith <sup>2</sup> , Heather M. Bragg <sup>2</sup> , Abigail Rhode <sup>3</sup> <sup>1</sup> USGS, Cascades Volcano Observatory, Vancouver, WA; <sup>2</sup> USGS, Portland, OR; <sup>3</sup> Herrera Environmental Consultants, Portland, OR	USGS Consultant
201.	9B		Dam Removal 1	Developing Guidelines for Assessing Sediment-Related Effects of Dam Removal	Tim J. Randle, M.S., P.E., D.WRE. Blair Greimann and Jennifer Bountry; USBR Technical Service Center, Denver, CO	USBR

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202.	9C		Reservoir Sedimentation 3	Hydrology, Soil Erosion and Sediment Transport Modeling of the Weeks Bay Watershed Using Lumped and Gridded Models Importance of Reservoir Sediment Studies	Jairo N. Diaz-Ramirez <sup>1</sup> , Mike Fullum <sup>2</sup> , Billy E. Johnson <sup>2</sup> , Vladimir Alarcon <sup>3</sup> , and William H. McAnally <sup>1</sup> <sup>1</sup> Mississippi State University, University, MS; <sup>2</sup> USACE-ERDC, Vicksburg, MS; <sup>3</sup> Geosystems Research Institute	Miss. St. Univ. USACE
203.	9C		Reservoir Sedimentation 3	Sediment Transport Modeling with GSTARS-HTC as part of the Lewis and Clark Lake Sediment Management Study	Paul M. Boyd <sup>1</sup> , Ph.D., P.E.; Chih Ted Yang <sup>2</sup> , Ph.D., P.E.; Jungkyu Ahn <sup>2</sup> ; John W. Garrison <sup>1</sup> ; Daniel B. Pridal <sup>1</sup> P.E.; John I. Remus <sup>1</sup> , P.E.; and Megan A. Lien <sup>1</sup> <sup>1</sup> USACE Omaha District; <sup>2</sup> Colorado State University, Fort Collins, CO	USACE University
204.	9C		Reservoir Sedimentation 3	Assessment of the Hydrologic Modeling System (HEC-HMS) using Reservoir Sediment Routing for the Upper North Bosque River Watershed in Central Texas	Jay Pak, Ph.D, P.E.; Matt Fleming; William Scharffenberg, Ph.D; and Stanford Gibson; USACE, Institute For Water Resources, Hydrologic Engineering Center, Davis, CA	USACE
205.	9C		Reservoir Sedimentation 3	Forecasting Potential Impacts of Development and Climate Variability on Sedimentation of a Hydropower Reservoir	Dr. Mark S. Riedel, Amanda G. Stone, Dr. Qimiao Lu; Baird, Madison, WI	Consultant
206.	9D		Fluvial Geomorphology / Watershed Mgmt	Channel Geomorphic Responses to Disturbances Assessed Using Stream-Gage Information	Kyle E. Juracek and Mark W. Bowen; USGS, Lawrence, KS	USGS
207.	9D		Fluvial Geomorphology / Watershed Mgmt	Upland Drainage Response to no-tillage winter wheat production	John D. Williams, David S. Robertson, Stewart B. Wuest, USDA-ARS, Pendleton OR	USDA-ARS
208.	9D		Fluvial Geomorphology / Watershed Mgmt	The Effectiveness of Aerial Hydromulch as a Post-fire Erosion Control Treatment in Southern California	Peter M. Wohlgemuth and Jan L. Beyers USDA-FS, Riverside, CA; Peter R. Robichaud, USDA-FS, Moscow, ID	USDA-FS
209.	9D		Fluvial Geomorphology / Watershed Mgmt	Computational Modeling of Bedform Evolution in Rivers with Implications for Predictions of Flood Stage and Bed Evolution	Nelson, J. M.; Shimizu, Y.; Giri, S.; and McDonald, R. R.; USGS	USGS
210.	9E		Flood Hydrology 5	HEC Statistical Software Package	David Harris, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
211.	9E		Flood Hydrology 5	Dam Rehabilitation in Arizona: Florence Flood Retarding Structure (FRS) Rehabilitation Project and the Benefits of Conducting a Site-Specific Probable Maximum Precipitation Study	Mike Luecker, USDA-NRCS, Phoenix, AZ	USDA-ARS
212.	9E		Flood Hydrology 5	Recent Developments in Flood Frequency Analysis Including Plans to Update Bulletin 17B	Will Thomas <sup>1</sup> , John England <sup>2</sup> , Tim Cohn <sup>3</sup> , and Nancy Steinberger <sup>4</sup> <sup>1</sup> Michael Baker, Jr., Inc. Alexandria, VA; <sup>2</sup> USBR, Technical Service Center, Denver, CO; <sup>3</sup> USGS, Reston, VA; <sup>4</sup> FEMA, Denver, CO	Baker Corp
213.	9E		Flood Hydrology 5	Use of Hydrologic Models to Supplement a Flow Monitoring Network	Paul Pickett, WA Department of Energy, Olympia, WA	ECY WA DOE
214.	9F		Management & Decision Making Models 6	Risky Business Tails of Normal Curves and Possible Parallels Between Hydrologic Risks and Financial Risks	Kevin Griebenow, Federal Energy Regulatory Commission, Washington, DC	FERC
215.	9F		Management & Decision Making Models 6	Extreme Storm Event Assessments for Nuclear Facilities and Dam Safety	Thomas Nicholson, USDA-NRC, Washington, DC	NRC

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216.	9F		Management & Decision Making Models 6	Results of Phase 2 of the Distributed Model Intercomparison Project (DMIP 2)	Mike Smith, Victor Koren Ziya Zhang Zengtao Cui Naoke izukamand Brain Cosgrove	NOAA
217.	9F		Management & Decision Making Models 6	Incorporating Groundwater Flow into the WEPP model	Wm Elliot <sup>1</sup> , Erin Brooks <sup>2</sup> , Tim Link <sup>2</sup> , and Sue Miller <sup>1</sup> <sup>1</sup> USFS Moscow ID; <sup>2</sup> University of Idaho, Moscow, ID	USDA-FS, UI
218.	10A		Instrumentation Monitoring	An Automated and 'Universal' Method for Measuring Mean Grain Size from a Digital Image of Sediment	Daniel Buscombe, David M. Rubin, and Jonathan A. Warrick; USGS, Santa Cruz, CA	USGS
219.	10A		Instrumentation Monitoring	Mechanics of Bedload Rating Curve Shifts and Bedload Hysteresis in the Trinity River, California	David Gaeuman, USBR, Trinity River Restoration Program, Weaverville, CA	USBR
220.	10A		Instrumentation Monitoring	Video Measurements of Flocculated Sediment in Freshwater Environments	Andrew J. Manning, HR Wallingford Ltd., Wallingford, UK; David H. Schoellhamer, USGS, Sacramento, CA	International Consultant USGS
221.	10A		Instrumentation Monitoring	A Versatile Suite of Laboratory-Nonspecific Software for Processing Sediment Grain-Size Data	Poppe, L. J., USGS, Woods Hole, MA; Eliason, A.H., Eliason Data Services, Mashpee, MA; and McMullen, K.Y., USGS, Woods Hole, MA	USGS
222.	10B		Dam Removal 2	Assessing Post-Dam Removal Sediment Dynamics Using the CONCEPTS Computer Model	Eddy J. Langendoen, USDA-ARS, National Sedimentation Laboratory, Oxford, MS	USDA-ARS
223.	10B	Student	Dam Removal 2	Predicting Sediment Routing on Sandy River, Oregon Following Removal of the Marmot Dam	Charles J. P. Podolak, Peter R. Wilcock, National Center for Earth-surface Dynamics, Johns Hopkins University, Baltimore, MD	University
224.	10B		Dam Removal 2	A Broad Level Classification System for Dam Removals	Laura Wildman, P.E. <sup>1</sup> , and James MacBroom, P.E. <sup>2</sup> <sup>1</sup> Princeton Hydro, LLC, Glastonbury, CT; <sup>2</sup> Milone & MacBroom, Inc., Cheshire, CT	Consultant
225.	10B		Dam Removal 2	Boardman River Existing-Conditions SIAM Model for Dam Removal Study	Amanda G. Stone <sup>1</sup> , Dr. James P. Selegean <sup>2</sup> , Travis A. Dahl <sup>1</sup> , Dr. Mark S. Riedel <sup>1</sup> <sup>1</sup> Baird, Madison, WI; <sup>2</sup> USACE, Detroit, MI	Consultant
226.	10C		Streambank Erosion 1	Evaluation of Bank Stabilization Structures in the Delta Headwaters Project (DHP) in Mississippi	David Biedenharn <sup>1</sup> , Charles Little <sup>2</sup> , Kendall Smith <sup>2</sup> , and Chester Watson <sup>3</sup> <sup>1</sup> Biedenharn Group, LLC, Vicksburg MS <sup>2</sup> USACE-ERDC, Vicksburg, MS <sup>3</sup> Biedenharn Group, LLC, Fort Collins, CO	Consultant USACE
227.	10C		Streambank Erosion 1	Field Application of the Reactive Stream Stabilization Structure (RS2)	Kenneth Carlson <sup>1</sup> , David Biedenharn <sup>2</sup> , Kendall Smith <sup>3</sup> , David Derrick <sup>4</sup> and Chester Watson <sup>5</sup> <sup>1</sup> Colorado State University, Fort Collins, CO; <sup>2</sup> Biedenharn Group, LLC, Vicksburg, MS; <sup>3</sup> USACE, Vicksburg District, Vicksburg, MS; <sup>4</sup> USACE-ERDC, Vicksburg, MS; <sup>5</sup> Biedenharn Group, LLC, Fort Collins, CO	Consultant USACE University
228.	10C		Streambank Erosion 1	Estimation of Streambank Lateral Migration and Erosion Hazard Boundaries	Bruce Phillips, Pacific Advanced Civil Engineering, Inc. (PACE), Fountain Valley, CA	Consultant
229.	10C		Streambank Erosion 1	Iterative Bank-Stability and Toe-Erosion Modeling for Predicting Streambank Loading Rates and Potential Load Reductions	Andrew Simon <sup>1</sup> , Natasha Bankhead <sup>1</sup> and Robert Thomas <sup>2</sup> <sup>1</sup> USDA-ARS, National Sedimentation Laboratory, Oxford, MS; <sup>2</sup> Department of Civil Engineering, University of Mississippi, University, MS	USDA University
230.	10D		Streambank Erosion 2	Erosion and Sediment Loads from Two Hawaiian Watersheds	Gordon Tribble and Jonathan Stock, USGS, HI	USGS

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231.	10D		Streambank erosion 2	Assessment and Estimation of Streambank Erosion Rates in the Southeastern Plain Ecoregion of Mississippi	J.J. Ramírez-Avila, W.H. McAnally, E.J. Langendoen, J.L. Martin, S.L. Ortega-Achury, J.N. Díaz-Ramírez, Mississippi State University, Starkville, MS.	University, ARS, and others
232.	10D		Streambank Erosion 2	Streambank Erosion Causes, and Large Woody Debris (LWD) Solutions for Streambank Erosion and Sedimentation	Frank F. Reckendorf, Reckendorf and Associates, Salem, OR; and Adjunct Associate Professor of Geology, Portland St. Univ., Portland, OR	Consultant
233.	10D		Streambank Erosion 2	Progression of Stream Bank Erosion During a Large Flood, Rio Puerco Arroyo, New Mexico	Eleanor R. Griffin, J. Dungan Smith, Jonathan M. Friedman, and Kirk R. Vincent, USGS	USGS
234.	10E		Flood Hydrology 6	Empirical Determination of Runoff Curve Number for a Small Agricultural Watershed in Poland	Kazimierz Banasik <sup>1</sup> and Don Woodward <sup>2</sup> , <sup>1</sup> Warsaw Agricultural University, Warsaw, Poland; <sup>2</sup> USDA-NRCS (retired), Washington, DC	SGGW, USDA-NRCS
235.	10E		Flood Hydrology 6	Automatic Watershed Delineation/Curve Number Tool	Colin Niehus, USDA-NRCS, Huron, SD	USDA-NRCS
236.	10E		Flood Hydrology 6	Continuing Evolution of the Curve Number Method for Rainfall-Runoff Modeling	Richard H. Hawkins <sup>1</sup> , Don Woodward <sup>2</sup> , Joe Van Mullem <sup>3</sup> , and T. J. Ward <sup>4</sup> <sup>1</sup> University of Arizona; <sup>2</sup> USDA-NRCS (retired), Washington, DC; <sup>3</sup> USDA-NRCS (retired), Bozeman, MT; <sup>4</sup> Manhattan College, Riverdale, NY	U of AZ
237.	10E		Flood Hydrology 6	Determining Urban Curve Numbers for San Antonio	Troy Dorman <sup>1</sup> and Donald Woodward <sup>2</sup> <sup>1</sup> Pape-Dawson Engineers, San Antonio, TX; <sup>2</sup> USDA-NRCS (retired), Washington, DC	USDA-NRCS
238.	10F		Modeling of Major River Systems 1	Water Accounting and Allocation in RiverWare	Dr. Edith Zagana <sup>1</sup> , Ed Kandel <sup>2</sup> , and Steven Bowser <sup>3</sup> <sup>1</sup> University of CO, Boulder, CO; <sup>2</sup> USBR, Albuquerque, NM; <sup>3</sup> USBR, Technical Service Center, Denver, CO	University
239.	10F		Modeling of Major River Systems 1	Scheduling TVA's Reservoirs with RiverWare	Tim Magee <sup>1</sup> , Susan Jacks <sup>2</sup> , and Dr. Edith Zagana <sup>1</sup> <sup>1</sup> University of CO, Boulder, CO; <sup>2</sup> Tennessee Valley Authority, Knoxville, TN	University, TVA
240.	10F		Modeling of Major River Systems 1	RiverWare's Integrated Modeling and Analysis Tools for Long-Term Planning Under Uncertainty	Dr. Edith Zagana <sup>1</sup> , Kenneth Nowak <sup>1</sup> , Rajagoplan Bailaji <sup>1</sup> , Carly Jeria <sup>2</sup> , and James Prairie <sup>2</sup> <sup>1</sup> University of CO, Boulder, CO; <sup>2</sup> USBR, Boulder, CO	University, USBR
241.	10F		Modeling of Major River Systems 1	Multi-Objective Modeling in RiverWare for USACE-SWD	Allen Avance <sup>1</sup> , John Daylor <sup>2</sup> , Jerry Cotter <sup>1</sup> , David Neumann <sup>3</sup> , and Dr. Edith Zagana <sup>3</sup> <sup>1</sup> USACE, Fort Worth, TX; <sup>2</sup> USACE, Tulsa District; <sup>3</sup> University of CO, Boulder, CO;	University, USACE
242.	11A		Adaptive Hydraulics Model (ADH)	Sediment Transport Modeling of a Missouri River Bend with ADH	Aaron W. Buesing, USACE, St. Paul, MN	USACE
243.	11A		Adaptive Hydraulics Model (ADH)	Sedimentation Analysis of Upper Mississippi River at Lock and Dam 22 using 2D Numerical Model ADH	Thomas Gambucci, P.E., D.WRE., USACE, Rock Island District, IL	USACE
244.	11A		Adaptive Hydraulics Model (ADH)	Design for Fish Passage on the Yellowstone River at Intake Dam Using Numerical and Physical Modeling	Daniel Pridal, Chris Svendsen, Curtis Millerl; USACE, Omaha NE	USACE
245.	11A		Adaptive Hydraulics Model (ADH)	Development of the River Analysis Tool (RAT): Comparison of Predicted Bed Changes to Adaptive Hydraulics Model (ADH) Results	Jeremy A. Sharp <sup>1</sup> , E.I.; and Charles D. Little, Jr., P.E.; USACE-ERDC, Vicksburg, MS	USACE

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246.	11B		Fluvial Geo-morphology 2	Analyzing Shoaling Reduction Techniques on the Atchafalaya River at Morgan City, LA	S. Keith Martin, USACE	USACE
247.	11B		Fluvial Geo-morphology 2	Mississippi River Geomorphology & West Bay Diversion	Charles D. Little, Jr., P.E.; USACE-ERDC, Vicksburg, MS 39180	USACE
248.	11B		Fluvial Geo-morphology 2	1-Dimensional Modeling of Sedimentation Impacts of the Mississippi River at the West Bay Diversion	C. Fred Pinkard, Jr. P.E.; and Ronald E. Heath, P.E.; USACE-ERDC, Vicksburg, MS	USACE
249.	11B		Fluvial Geo-morphology 2	Flow Resistance In Open Channels With Fixed and Movable Bed	Francisco J.M. Simões, USGS, Golden, CO	USGS
250.	11C		Sediment Impact Assessment Model (SIAM)	SIAM Application in the Kankakee River Basin, Indiana and Illinois	Meg Jonas and Charles Little, USACE-ERDC, Vicksburg, MS	USACE
251.	11C		Sediment Impact Assessment Model (SIAM)	Sediment Impact Analysis Methods (SIAM): Overview of Model Capabilities, Applications, and Limitations.	Meg Jonas and Charles Little, USACE-ERDC, Vicksburg, MS	USACE
252.	11C		Sediment Impact Assessment Model (SIAM)	Analysis of Three Delta Headwaters Project (DHP) Streams Using the Sediment Impact Analysis Method (SIAM) Model	Michelle Martin <sup>1</sup> , David Biedenharn <sup>2</sup> , Charles Little <sup>3</sup> , Kendall Smith <sup>4</sup> , and Chester Watson <sup>5</sup> <sup>1</sup> Anderson Consulting Engineers, Inc, Fort Collins, CO; <sup>2</sup> Biedenharn Group, LLC, Vicksburg, MS; <sup>3</sup> USACE, Vicksburg District, Vicksburg, MS; <sup>4</sup> USACE-ERDC, Vicksburg, MS; <sup>5</sup> Biedenharn Group, LLC, Fort Collins, CO	Consultant
253.	11C		Sediment Impact Assessment Model (SIAM)	Development of a Watershed Plan for the Sabougla Creek Watershed	Kendall Smith <sup>1</sup> , David Biedenharn <sup>2</sup> , Charles Little <sup>3</sup> , Blake Mendrop <sup>4</sup> , John Smith <sup>1</sup> , and Chester Watson <sup>5</sup> <sup>1</sup> USACE, Vicksburg District, Vicksburg, MS; <sup>2</sup> Biedenharn Group, LLC, Vicksburg, MS; <sup>3</sup> USACE-ERDC, Vicksburg, MS; <sup>4</sup> PE, Ridgeland, MS; <sup>5</sup> Biedenharn Group, LLC, Fort Collins, CO	USACE, Consultant
254.	11D		Fluvial Geo-morphology 1	Planform Evolution Model for the Middle Rio Grande, NM	Tamara Massong <sup>1</sup> , Paula Makar <sup>2</sup> and Travis Bauer <sup>2</sup> <sup>1</sup> USACE, Albuquerque NM; <sup>2</sup> USBR, Denver, CO	USACE USBR
255.	11D		Fluvial Geo-morphology 1	Adjustment Functions to Convert Transport Rates between Bedload Traps and a Helley-Smith Sampler in Coarse Gravel-Bed Streams	Kristin Bunte <sup>1</sup> , Steven Abt <sup>1</sup> , Kurt Swingle <sup>2</sup> , John Potyondy <sup>3</sup> <sup>1</sup> Colorado St. Univ., Fort Collins, CO; <sup>2</sup> Boulder, CO; <sup>3</sup> USDA-FS Stream Systems Technology Center, Fort Collins, CO	University
256.	11D		Fluvial Geo-morphology 1	Origin, Evolution, and Hydraulic Connectivity of Different Types of Side Channels along the Middle Methow River, Central Washington	Jennifer A. Bountry, Lucille A. Piety, and Ralph E. Klinger, USBR, Denver, CO	USBR
257.	11D		Fluvial Geo-morphology 1	Bedload Movement in Mountain Channels: Insights Gained from the Use of Portable Bedload Traps	John Potyondy, Kristin Bunte, Steven Abt, Kurt Swingle; Engineering Research Center, Colorado State University, Fort Collins, CO	University
258.	11E		Flood Hydrology 7	Recent Enhancements to the StreamStats Web Application of the U.S. Geological Survey	Kernell G. Ries, USGS, Baltimore, MD	USGS
259.	11E		Flood Hydrology 7	Estimating Salinity Intrusion Effects Due to Climate Change on the South Carolina Coast	Paul Conrads <sup>1</sup> , Edwin Roehl <sup>2</sup> , Daniel Tufford <sup>3</sup> , Greg Carbone <sup>3</sup> , and Kirtstin Dow <sup>3</sup> <sup>1</sup> USGS, Columbia, SC; <sup>2</sup> Aqua Terra Consultants, Dacatur, GA; <sup>3</sup> University of South Carolina, Columbia, SC	USGS, Consultant, University
260.	11E		Flood Hydrology 7	Hydraulic Modeling Study of the Purgatoire River and Trinidad Dam	Cassie Klumpp, USBR Technical Service Center, Denver, CO	USBR

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261.	11E		Flood Hydrology 7	Controlled Reservoir Releases to Minimize Salinity Intrusion in the Lower Savannah River Estuary	Paul Conrads <sup>1</sup> and James Greenfield <sup>2</sup> <sup>1</sup> USGS, Columbia, SC; <sup>2</sup> USEPA, Atlanta, GA	USGS, USEPA
262.	11F		Modeling of Major River Systems 2	The Feasibility and Desirability of Stormwater Retention On Site	Eric Strecker and Aaron Poresku, Geosyntec	Geosyntec
263.	11F		Modeling of Major River Systems 2	Truckee River High-Precision Operations Model Description and Applications	Shane Coors, USBR, Carson City, NV	USBR
264.	11F		Modeling of Major River Systems 2	Using RES-SIM for Columbia River Treaty Flood Control	Peter Brooks, USACE, Portland, OR	USACE
265.	11F		Modeling of Major River Systems 2	Toward Modeling of River-Estuary-Ocean Interactions to Enhance Operational River Forecasting in the NOAA National Weather Service	Hassan Mashriqui, NOAA, NWS, Washington, DC	NOAA



DEMONSTRATIONS/MODELS				
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M-1.	Model/Demo	Demonstrating the Capabilities of the KINEROS - AGWA Suite of Modeling Tools: Operational Flash Flood Forecasting and Assessing the Impacts of Management on Nitrate and Pesticide Runoff from an Agricultural Watershed	Carl Unkrich <sup>1</sup> , David Goodrich <sup>1</sup> , Roger Smith <sup>2</sup> , David Woodhiser <sup>2</sup> , Phil Guertin <sup>3</sup> , et al. <sup>1</sup> USDA-ARS, Tucson, AZ; <sup>2</sup> USDA-ARS (Retired), Fort Collins, CO; <sup>3</sup> University of Arizona, Tucson, AZ	USDA-ARS
M-2.	Model/Demo	Demonstration of RiverWare	Dr. Edith Zagana and Davis Neumann, University of Colorado Center for Advanced Decision Support For Water and Environment Systems, Boulder, CO	U of CO
M-3.	Model/Demo	Development and Evaluation of a Component-Based Watershed Model Using the Object Modeling System	Dr. James Ascough II <sup>1</sup> , David Olaf <sup>2</sup> , George Leavesley <sup>2</sup> , Peter Krause <sup>3</sup> , Tim Green <sup>4</sup> , Daniel Moore <sup>5</sup> , Sven Kralisch <sup>3</sup> , and Lajpat Ahuja <sup>4</sup> <sup>1</sup> USDA-ARS, Denver, CO; <sup>2</sup> Colorado University, Boulder, CO; <sup>3</sup> Friedrich-Schiller University, Jena, Germany; <sup>4</sup> ARS, Fort Collins, CO; <sup>5</sup> USDA-NRCS, Portland, OR	USDA-ARS, USDA-NRCS
M-4.	Model/Demo	Hydrologic Modeling System (HEC-HMS): Physically-Based Simulation Components	Dr. William Scharffenberg, Paul Ely, Dr. Steve Daly, Matthew Fleming, and Dr. Jay Pak, USACE Hydrologic Engineering Center (HEC), Davis, CA	USACE
M-5.	Model/Demo	Lake Tahoe Pollutant Load Reduction Model (PLRM)	Brent Wolfe <sup>1</sup> and Mark Leisenring <sup>2</sup> <sup>1</sup> NW Hydraulic Consultants, South Tahoe, CA; <sup>2</sup> GeoSyntec Consultants	Consultant
M-6.	Model/Demo	Method to Construct Zones of Interest Below Dams to Make Rapid Assessment of Detailed Breach Analysis Needs for the 5-Year NID Cycle	Terry Costner, USDA-NRCS, Temple, TX	USDA-NRCS
M-7.	Model/Demo	NRCS WinTR-20 and GEO-HYDRO - Computer Demonstration	William Merkel and Quan D. Quan, USDA-NRCS Beltsville, MD	USDA-NRCS
M-8.	Model/Demo	The Lower Colorado River Authority's Daily River Operations Modeling Project	John Carron <sup>1</sup> and David Walker <sup>2</sup> <sup>1</sup> AMEC Earth and Environmental, Boulder, CO; <sup>2</sup> Lower Co River Authority, Austin, TX	Consultant, Local
M-9.	Model/Demo	The Object Modeling System (OMS): A Collaborative Approach to Component-Based Community Models and Tools	David Olaf <sup>1,2</sup> , Laj Ahuja <sup>2</sup> , George Leavesley <sup>1</sup> , Frank Geter <sup>3</sup> , Ken Rojas <sup>3</sup> , and Jack Carlson <sup>3</sup> <sup>1</sup> CSU, Fort Collins, CO; <sup>2</sup> USDA-ARS, Fort Collins, CO; <sup>3</sup> USDA-NRCS, Fort Collins, CO	USDA-ARS
M-10.	Model/Demo	USDA-ARS/NRCS WinDAM Earthen Embankment Overtopping & Auxiliary Spillway Erosion Prediction	Karl Visser, USDA-NRCS, Fort Worth, TX	USDA-NRCS
M-11.	Model/Demo	Watershed Management and GIS: The Automated Geospatial Watershed Assessment Tool (AGWA) 2.0	Shea Burns, USDA-ARS, Tucson, AZ	USDA-ARS

POSTERS			
	Poster Abstract Title	Authors	Agency
P-1.	A New Sampler for Sampling Bedload in Mountain Streams	Kristin Bunte, Steven Abt, Kurt Swingle, John Potyondy, Engineering Research Center, Colorado State University, Fort Collins, CO	CSU
P-2.	A Sediment Budget of the Town Creek Watershed, MS.	J. Ramírez-Avila, W.H. McAnally, S.L. Ortega-Achury, Jeremy Sharp, Mississippi State University, Starkville, MS	MS State Univ
P-3.	Accoustic Measurement of Fines	James P. Chambers, Ph.D., National Center for Physical Acoustics University of Mississippi, University, MS	Univ. of MS
P-4.	Acoustic Sediment (ACOU-SED) Surrogates in Illinois Streams	Timothy D. Straub <sup>1</sup> , Jon E. Hortness <sup>2</sup> , and James J. Duncker <sup>3</sup> <sup>1</sup> USGS, St. Louis, MO; <sup>2</sup> USGS, Boise, ID; <sup>3</sup> USGS, Urbana, IL	USGS
P-5.	Agricultural Soil Erosion Rates for the Liganore Creek Watershed in the Piedmont Physiographic Province of Maryland	John W. Clune and Allen C. Gellis, USGS, Maryland-Delaware-DC Water Science Center, Baltimore, MD	USGS
P-6.	Case Study: Evaluation of channel forming discharge in t River with calibrated sediment transport functions	Mitch Price, P.E., River Design Group, Inc., South Whitefish, MT	Consultant
P-7.	Channel Change and Bed-Material Transport in the Lower Chetco River, Oregon	Jim E. O'Connor, J. Rose Wallick, Scott W. Anderson, and Charles Cannon; USGS, Portland OR	USGS
P-8.	Channel Changes and Maintenance on the San Acacia Reach of the Middle Rio Grande	Drew Baird or Robert Padilla, USBR, Denver, CO	USBR
P-9.	Comparison of HET and JET	Tony L. Wahl, USBR	USBR
P-10.	Comprehensive Sedimentation Analysis of the Sacramento River and Tributaries for Flood Management, Erosion Mitigation, and Habitat Enhancement Design	Brad Hall, M.S., P.E. <sup>1</sup> ; Andrey Shvidchenko, Ph.D. <sup>1</sup> ; Ron Copeland <sup>2</sup> , Ph.D., P.E.; and Lea Adams <sup>3</sup> , M.S., P.E. <sup>1</sup> Northwest Hydraulic Consultants, West Sacramento, CA; <sup>2</sup> Mobile Boundary Hydraulics, Clinton, MS; <sup>3</sup> USACE, Sacramento, CA	Consultant
P-11.	Conducting Simple Sediment Surveys Using Modern GPS, Sonar, and GIS Technology	Mark E. Hall and Jimmy R. Bramblett, USDA-NRCS, Athens, GA	USDA-NRCS
P-12.	Demonstrating the Capabilities of the KINEROS--AGWA Suite of Modeling Tools: Operational Flash Flood Forecasting and Assessing the Impacts of Management on Nitrate and Pesticide Runoff from an Agricultural Watershed	Carl Unkrich, USDA-ARS, Tucson, AZ	USDA-ARS
P-13.	Developing a Research Site for Suspended-Sediment Surrogates in the Piedmont Physiographic Province of the Southeastern United States	Mark N. Landers, USGS	USGS
P-14.	Development of a Flood Analysis Model for the Delaware River	Daniel Goode, Edward Koerkle, Joan Klipsch, and Amy Shallcross, USGS, State College, PA	USGS
P-15.	Effect of Well Cleaning and Pumping on Groundwater Supply and Quality of a Tsunami-Affected Coastal Aquifer in Sri Lanka	Dr. Meththika Vithanage <sup>1</sup> , K. G. Villholth <sup>2</sup> , K. Mahatantilla <sup>2</sup> , P. Engegaard <sup>1</sup> , and K. H. Jensen <sup>1</sup> <sup>1</sup> University of Copenhagen, Denmark; <sup>2</sup> Water Management Institute, Sri Lanka	International
P-16.	Effectiveness of Post-Fire Channel Treatments in Reducing Runoff and Sediment Transport	Joseph W. Wagenbrenner <sup>1</sup> , Peter R. Robichaud <sup>1</sup> , and Scott W. Woods <sup>2</sup> <sup>1</sup> USDA -FS, Rocky Mountain Research Station, Moscow, ID; <sup>2</sup> University of Montana, Missoula, MT	USDA-FS Univ. on MT
P-17.	Estimating Monthly Water Withdrawals, Return Flow and Consumptive Use	Kimberly Shaffer, USGS, Columbus, OH	USGS
P-18.	Evaluating KINEROS2 simulated sediment yields using multiple particle size distributions	D. Goodrich, T. Keefer, E. Canfield, R. Smith, M. Nichols, USDA-ARS, Tucson, AZ	USDA-ARS
P-19.	Examination of Curve Numbers from a Small Piedmont Catchment Under 33 Years of No-Till Crop Management	Dinku Endale, Harry Schomberg, Dwight Fisher, and Michael Jenkins, USDA-ARS, Watkinsville GA	USDA-ARS
P-20.	Expedient Cofferdam Technology for Repair of Gated Dams/Levees	J. E. Fowler, J. A. Padula, D. T. Resio, D. L. Ward, D. D. Abraham, S. J. Boc; USACE-ERDC, Vicksburg, Mississippi	USACE

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P-21.	Extreme precipitation in a Changing Climate for New York and New England.	William Merkel <sup>1</sup> , Quan D Quan <sup>1</sup> , Art DeGaetano <sup>2</sup> , and Dan Zarrow <sup>2</sup> <sup>1</sup> USDA-NRCS, Beltsville, MD; <sup>2</sup> NOAA, Ithaca, NY	USDA-NRCS, NOAA
P-22.	Field Adjustments of Bed Form Phase Diagrams	Drew C. Baird PhD., P.E., USBR Technical Service Center, Denver, CO	USBR
P-23.	Field Evaluation of Sediment-Concentration Errors Arising from Non-Isokinetic Intake Efficiency in Depth-Integrating Suspended-Sediment Samplers	Thomas A.Sabol, David J. Topping, and Ronald E.Griffiths, USGS, Flagstaff, AZ	USGS
P-24.	Fluvial Geomorphology of the Entiat River, WA and Implications for Stream Restoration	Jeanne E. Godaire, Kendra L. Russell, and Jennifer A. Bountry, USBR, Technical Service Center, Denver, CO	USBR
P-25.	Accounting for Legacy Sediment in Great Lakes Stream Restoration Approaches	Dr. Faith A. Fitzpatrick <sup>1</sup> , Michael J. Mlynarek <sup>2</sup> , Dr. James P Selegean <sup>3</sup> , and Marie C. Peppler <sup>1</sup> <sup>1</sup> USGS Wisconsin Water Science Center, Middleton, WI; <sup>2</sup> U.S. Fish & Wildlife Service, Whittlesey Creek National Wildlife Refuge, Ashland, WI; <sup>3</sup> USACE, Detroit District;	USGS USF&W USACE
P-26.	Grain-Size Evolution in Suspended Sediment and Deposits from the 2004 and 2008 High-Flow Experiments in the Colorado River Through Grand Canyon, Arizona	Amy E. Draut <sup>1</sup> , David J. Topping <sup>2</sup> , David M. Rubin <sup>1</sup> , John C. Schmidt <sup>3</sup> , Scott A. Wright <sup>4</sup> <sup>1</sup> USGS, Santa Cruz, CA; <sup>2</sup> USGS, Flagstaff, AZ; <sup>3</sup> Dept. of Watershed Sciences, Utah State University, Logan, UT; <sup>4</sup> USGS, Sacramento, CA	USGS
P-27.	Impact of Flow-Duration Curve Temporal Resolution on Sediment Load Estimates	Li Chen, Rina Schumer, Anna Knust, and William Forsee, Desert Research Institute, Las Vegas, NV	DRI
P-28.	Importance of Groundwater Conservation and Alternative Measures to Sustain Agricultural Production in the Mississippi Delta Region of Eastern Arkansas	Chris King, USDA-NRCS, Little Rock, AR	USDA-NRCS
P-29.	Innovative Streambank Protection Methods: Improved Guidance for Stone Toe and Bendway Weirs	Meg Jonas, USACE-ERDC, Vicksburg, MS	USACE
P-30.	KINEROS-OPUS--Spatially Based Watershed Hydrologic and Biogeochemical Modeling	Jamie Massart, ARS, Tucson, AZ	
P-31.	Loads of Suspended Sediment and Selected Trace Elements in the Clark Fork Basin, Montana, Before and After the Removal of Milltown Dam	Steven K. Sando and John H. Lambing; USGS, Helena, MT	USGS
P-32.	Long-Term Sediment Transport Trends in Illinois Watersheds	Laura L. Keefer, Misganaw Demissie, Rich Allgire, and David Crowder, Center for Watershed Science, Illinois State Water Survey, Champaign, IL	University of Illinois
P-33.	Measurements of Suspended Sediment and Flow Distribution with Implications for Habitat Restoration in the Skagit River Delta, Washington	Christopher A. Curran, Eric E. Grossman, Mark C. Mastin, and Raegan Huffman, USGS	USGS
P-34.	Multi-Scale Hydrometeorological Modeling, Land Data Assimilation and Parameter Estimation with the Land Information System	Christia Peter-Lidard <sup>1</sup> , Sujay Kumar <sup>1</sup> , Joseph Santanello Jr <sup>1</sup> , Rolf Reichle <sup>1</sup> , John Eylander <sup>2</sup> , and Michale Elk <sup>3</sup> <sup>1</sup> NASA Goddard Space Flight Center, MD; <sup>2</sup> USAF Offut, Omaha, NE; <sup>3</sup> NOAA Environmental Modeling Center, MD	NASA, USAF, NOAA
P-35.	New Nonpumping, Unattended Sampler Has Been Developed, Tested, and Is Ready for Suspended-Sediment Sample Collection	Patrick P. Rasmussen, Casey J. Lee, Broderick E. Davis, and Wayne O'Neal, USACE	USGS Consultant
P-36.	One-Dimensional Sediment Modeling of the Middle Rio Grande From Cochiti Dam to Elephant Butte Reservoir	David Varyu, USBR Technical Service Center, Denver, CO	USBR
P-37.	Overland Transport of Manure-Borne Pathogen and Indicator Organisms: Modeling and Uncertainty Assessment with the KINEROS-STWIR Model	Dr. Yakov Pachepsky <sup>1</sup> , A. K. Guber <sup>1</sup> , D. R. Shelton <sup>2</sup> , and D. C. Unkrich <sup>2</sup> <sup>1</sup> USDA-ARS Beltsville MD; <sup>2</sup> USDA-ARS Tucson AZ	USDA-ARS
P-38.	Parallelization Techniques in Sediment Transport Modeling	Phu V. Luong, Keith Martin, and Phu V. Luong, PhD; USACE-ERDC	USACE
P-39.	Processing Information from Data Recorders and Websites in Spreadsheets	Darrell Fontane <sup>1</sup> and John Mckenzie <sup>2</sup> <sup>1</sup> CSU, Boulder, CO; <sup>2</sup> Ditch & Res Co Alliance	CSU, Local

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P-40.	Relations Between Turbidity and Suspended-Sediment Data, Multi-Frequency Sideways-Looking Acoustic-Doppler Data, and LISST Data in the Colorado River in Grand Canyon	Nicholas Voichick and David J. Topping; USGS, Flagstaff, AZ	USGS
P-41.	River2D-Morphology: A Two-Dimensional Finite Element River Morphology and Gravel Transport Model.	Stephen Kwan <sup>1</sup> , Jose A. Vasquez <sup>2</sup> , and Robert G. Millar <sup>1</sup> <sup>1</sup> University of British Columbia, Vancouver, BC, Canada; <sup>2</sup> Northwest Hydraulic Consultants, North Vancouver, British Columbia	Univ of BC
P-42.	Safety, Monetary, and Environmental Comparison of Footbridges and Cableway Installations for Peak-Flow Monitoring of Sediment and Discharge in the Ouachita Mountains, Arkansas	Daniel A. Marion <sup>1</sup> and Jaysson E. Funkhouser <sup>2</sup> <sup>1</sup> USDA Forest Service, Hot Springs, AR; <sup>2</sup> USGS, Little Rock, AR	USDA-FS
P-43.	Sediment Load Variability and Sediment Sources for Forest Headwater Streams in the Southern Sierra Nevada, California	Carolyn Hunsaker <sup>1</sup> , Jason Adair <sup>1</sup> , and Kurt Weidich <sup>2</sup> <sup>1</sup> USDA -FS, Fresno, CA; <sup>2</sup> California State University, Chico, CA	USDA-FS
P-44.	The use of the Multi-Dimensional Surface-Water Modeling System (MD_SWMS) in Calculating Discharge and Sediment Transport in Remote Ephemeral Streams.	Griffiths, Ronald E. <sup>1</sup> , Richard R. McDonald <sup>2</sup> , David J. Topping <sup>1</sup> , and Thomas A. Sabol <sup>1</sup> <sup>1</sup> USGS, Flagstaff, AZ; <sup>2</sup> USGS, Golden, CO	USGS
P-45.	Sedimentation Analysis--Suncook River in Epsom, NH	Robert H. Flynn, P.E., USGS, Pembroke, NH	USGS
P-46.	Simulation of Regional-Scale Groundwater/Surface-Water Interaction in the Upper Klamath Basin of Oregon and California	Marshall Gannett <sup>1</sup> and Brian Wagner <sup>2</sup> <sup>1</sup> USGS, Portland, OR; <sup>2</sup> USGS, Menlo Park, CA	USGS
P-47.	The Use of a Coupled Groundwater Simulation and Optimization Model to Guide Groundwater Management in the Upper Klamath Basin, Oregon and California	Brian Wagner <sup>1</sup> and Marshall Gannett <sup>2</sup> <sup>1</sup> USGS, Menlo Park, CA; <sup>2</sup> USGS, Portland, OR	USGS
P-48.	Using Remotely Sensed Data to Force and Constrain a Hydrologic Model in Remote Regions	Mike Follum and Brian Skahill, USACE, Vicksburg, MS	USACE
P-49.	Variations in Annual Turbidity/ Suspended-Sediment Concentration Regression Models to Calculate a Suspended-Sediment Load Record, North Santiam River, Oregon, 2003-2008	Heather Bragg, USGS, Portland, Oregon	USGS
P-50.	Water Purification Process at Children Anti-tuberculosis Sanatorium in Aral Sea Area: Nukus Town, Republic of Karakalpakstan, Uzbekistan	Dilmurod Gaybullaev and Vladimir Krepl, Czech University of Life Sciences, Prague, Czechoslovakia	Czech University

STUDENT POSTERS			
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SP-1.	A Combination Method Coupling SEBAL and GG Models for Extending Remotely Sensed Evapotranspiration to Days Without Images at Watershed Scales	Di Long and Vijay P. Singh, Texas A&M University	TX A&M
SP-2.	A Parsimonious Dynamic Flow Model for Hydrological Applications	April Warnock, University of Michigan	U. of MI
SP-3.	A Simple Close Range Photogrammetry Technique to Assess Soil Erosion in the Field	Sayjro Kossi Nouwakpo, Chi-hua Huang, Jim Frankenberger, and James Bethel, Purdue University - Soil Erosion Laboratory, West Lafayette, IN	Student Purdue University
SP-4.	Application of Digital Oblique Photogrammetry for Monitoring Erosion and Sedimentation at Mount St. Helens, Washington, USA	Adam Mosbrucker, USGS, Cascades Volcano Observatory, Vancouver, WA	Student Portland State University
SP-5.	Applying the University of Washington's Distributed Hydrology Soil Vegetation Model (DHSVM) on Forested Basins in Northern California	Brian Huggett, Humboldt State University, Arcata, CA	Student Humboldt
SP-6.	Continuous Suspended Sediment Concentration Monitoring Using a Permittivity Sensor	Barbra C. Utley, Tess M. Wynn, and Naiqian Zhang, Virginia Polytechnical University, Blacksburg, VA	Student VA Tech
SP-7.	Coupling Surface Flow Phenomena with Dynamics in the Unsaturated and Saturated Zones	Jongho Kim, April Waarnock, Valeriy Ivanov, and Nikolaos Katopodes, University of Michigan	U. of MI
SP-8.	Evaluation of an in-situ Measurement Technique for Streambank Critical Shear Stress and Soil Erodibility	Cami Charonko and Tess Wynn, Virginia Polytechnical University, Blacksburg, VA	Student VA Tech
SP-9.	Evaluation of Sediment Loading Predictions with the Distributed Hydrology Soil Vegetation Model (SHSVM) in a Small, Timber-Harvested Watershed in Northern California	Brian Huggett, Humboldt State University, Arcata, CA	Humboldt St. U.
SP-10.	Formation and Evolution of Concentrated Flow-Induced Erosion of Rangeland Hillslopes	Katie Costigan <sup>1</sup> , Mark Weltz <sup>2</sup> and Jeffrey Stone <sup>3</sup> <sup>1</sup> University of Nevada, Reno, NV; <sup>2</sup> USDA-ARS, Reno, NV; <sup>3</sup> USDA-ARS, Tucson, AZ	University Student?
SP-11.	Groundwater-Surface Water Interactions in the Truckee River, Reno NV	Wes Henson and Harmony Ann Farnsworth, University of Nevada, Reno, NV	UNV
SP-12.	Hydrometeorological Analysis of Flooding Events in San Antonio, TX	Singiaiah Chintalapudi, University of Texas at San Antonio, TX	U of TX
SP-13.	Hydrometeorological Analysis of the 2002 Guadalupe River Flood, TX	Almoutaz El Hassan, University of Texas at San Antonio, TX	U. of TX
SP-14.	Identifying Sub-Basins Most Vulnerable to ENSO and PDO within the Rio Grande Basin	Chundun Prakash Khedun <sup>1</sup> , Vijay P. Singh <sup>1</sup> , John R. Giardino <sup>1</sup> , and John D. Bolten <sup>2</sup> <sup>1</sup> Texas A&M; <sup>2</sup> NASA, Greenbelt, MD	TX A&M, NASA
SP-15.	Lessons learned from the deployment of a laser transmissometer in a shallow Piedmont river	Andrea Althoff, USGS Student Hydrologist and UGA Graduate Student	Student, UGA
SP-16.	River Response to Dam Removal: Case Study from the Souhegan River and the Merrimack Village Dam, Merrimack, New Hampshire	Adam J. Pearson, Noah P. Snyder, Mathias J. Collins, Boston College, Chestnut Hill, MA	Student, NOAA
SP-17.	Sediment transport and channel form in a reconfigured gravel bed channel	Susannah O. Erwin <sup>1</sup> , John C. Schmidt <sup>1</sup> , Peter R. Wilcock <sup>2</sup> <sup>1</sup> Intermountain Center for River Rehabilitation and Restoration, Utah State University, Logan UT <sup>2</sup> Department of Geography and Environmental Engineering, The Johns Hopkins University, Baltimore MD	Utah State Student
SP-18.	Spatial Distribution of Fire Effects in Forests Using GIS Tools	Mariana Dobre, Washington State University, Pullman, WA	Student Washington State Univ.
SP-19.	Surface Water Flow Modeling of Kalamazoo River Basin	Rabi Gyawali, Michigan Technological University	MI Tech. U.
SP-20.	Temporal Variation in Riverine Nutrient Concentrations and the Impact of Short Term Storm Events on Nutrient Loading in Hood Canal	Nick Ward, University of Washington School of Oceanography	U. of WA

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	SRH 2D	75			
	Overview of Collection of Fluvial-Sediment Data	45			
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	Curve Number Rainfall-Runoff: Professional Application	120			
<b>SHORT COURSES (THURSDAY, JULY 1, 2010)</b>					
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	Principles of Streambank Analysis and Stabilization	210			
	Variable-Density Groundwater Flow and Solute Transport Modeling using SEAWAT	200			
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