

Joint Federal Interagency Conference
10th FISC & 5th FIHMC www.sedhyd.org

*Sustainable Water Resources
in a Changing Environment*



Peppermill Hotel
April 19 - 23, 2015
Reno, Nevada, USA



SEDHYD 2015: PRELIMINARY PROGRAM

3RD JOINT FEDERAL INTERAGENCY CONFERENCE

(10TH FISC AND 5TH FIHMC)

BACKGROUND. The first Federal Interagency Sedimentation Conference (FISC) was held in 1947. Since then, they have been sponsored by the ACWI Subcommittee on Sedimentation (SOS) and held in 1963, 1976, 1986, 1991, 1996, 2001, 2006, and 2010. The Subcommittee on Hydrology (SOH) held their first Federal Interagency Workshop, "Hydrologic Modeling Demands for the 90s" in Fort Collins, Colorado, in 1993. That workshop was limited to Federal participants. Subsequent to that workshop, the SOH decided to hold a broader series of conferences and to open them to all interested parties. Federal Interagency Hydrologic Modeling Conferences were held in 1998, 2002, 2006, and 2010, and covered models addressing surface water quality and quantity issues.

These conferences have been well-attended, and together have produced over 2,100 technical papers. Combined, the Joint Conferences provide engineers and scientists the opportunity to discuss recent accomplishments in the physical, chemical, and biological aspects of sedimentation, and the development and use of hydrologic models addressing surface water quality and quantity issues. As a continuation of these conferences, SEDHYD again provides an interdisciplinary mix of scientists and managers from government agencies, academia, and the business community to present their recent accomplishments and progress in research and on technical developments related to sedimentation processes and the impact of sediment on the environment.

The Joint Conference follows a mixed set of formats including formal technical presentations, poster sessions, field trips, short courses, and model demonstrations. The Joint Conference is also hosting a **student** paper competition for cash prizes, as well as a Young Professionals' Networking Reception.

CONFERENCE SITE. The Joint Conference is being held at the Peppermill Hotel and Resort, Reno, Nevada, USA. Reno is situated in a high desert just east of the beautiful Sierra Nevada Mountains. It lies on the western edge of the Great Basin, at an elevation of about 4,400 feet (1,300 m) above sea level. The Reno downtown area (along with Sparks) occupies a valley informally known as Truckee Meadows. The area offers spectacular desert landscapes and ecosystems, as well as numerous indoor and outdoor recreational opportunities.

SPONSORS: The Federal Interagency Subcommittees on Hydrology (SOH) and Sedimentation (SOS), under the Advisory Committee on Water Information (ACWI).

ACWI SUBCOMMITTEE ORGANIZATIONS

American Forests, American Society of Civil Engineers (ASCE), Association of State Floodplain Managers, Bureau of Land Management (BLM), Bureau of Reclamation (USBR), Colorado Water Resources Research Institute (CWRRI), Defenders of Property Rights, U.S. Army Corps of Engineers (USACE), Electric Power Research Institute (EPRI), Federal Emergency Management Agency (FEMA), Federal Energy Regulatory Commission (FERC), Federal Highway Administration (FHWA), National Aeronautics and Space Administration (NASA), National Hydrologic Warning Council, National Park Service (NPS), National Science Foundation (NSF), NOAA-National Weather Service (NWS), Office of Surface Mining (OSM), U.S. Environmental Protection Agency (USEPA), U.S. Geological Survey (USGS), Universities Council on Water Research (UCOWR), USDA-Agricultural Research Service (ARS), USDA-Forest Service (FS), USDA-Natural Resources Conservation Service (NRCS).

ORGANIZING COMMITTEE FOR THE 3RD JOINT FEDERAL INTERAGENCY CONFERENCE

Joint Conference Chair– G. Douglas Glysson, USGS (ret.)
5th FIHMC Conference Chair– Jerry Webb, USACE
10th FISC Conference Chair– Tim Randle, USBR
Operations Chair– Paula Makar, USBR
5th FIHMC Technical Program Chair– Claudia Hoeft, NRCS
10th FISC Technical Program Chair– Marie Garsjo, NRCS (ret.)
Technical Program Coordinator– Jerry Bernard, NRCS (ret.)
Proceedings Coordinator– Mark Strudley, NOAA-NWS
Poster/Demo Coordinator– Jennifer Bountry, USBR
Registration– Darren Nezamfar, USACE
Exhibits– Mark Landers, USGS
Short Course Coordinator– Jeff Bradley, ASCE
Computer-A/V Coordinator– Jeff Harris, USACE (ret.)
Field Trip Coordinator– Victor Hom, NOAA-NWS
Student Program– Amanda Cox, Saint Louis Univ.
ACWI-SOS Chair– Amanda Cox, Saint Louis Univ.
ACWI-SOH Chair– Victor Hom, NOAA-NWS

EXHIBITS. The Exhibit Hall contains about 35 booths and is open during conference hours on Sunday through Tuesday. An Opening Reception is in the Exhibit Hall on Sunday from 5:30 to 7:30pm. All Monday and Tuesday coffee breaks, poster sessions, and receptions are held in the Exhibit Hall to insure that participants have ample time to visit all the exhibits. A special Exhibitors' Reception is Monday evening following the Technical Sessions. Exhibits close around 3:30pm on Tuesday. Exhibit Hall hours are:

EXHIBIT HALL	OPENS	CLOSES
Sunday, Opening Reception	5:30pm	7:30pm
Monday	8:30am	6:45pm
Exhibitors' Reception	5:15pm	6:45pm
Tuesday	10:00am	3:30pm

Note: All times are U.S. Pacific Time.

The Exhibit Hall is located in **TUSCANY BALLROOMS D-F**.

STUDENT COMPETITION. Cash awards will be presented to the best student technical papers. The first-place award is \$1,000; second-place, \$750; and third-place, \$500. Students enrolled in at least nine credit hours for either the Spring 2014, Fall 2014, or Spring 2015 semesters are eligible to participate in the competition. A special **student lunch session** is on Monday at noon (**CAPRI**), during which students will have a chance to learn about careers in and outside the Federal Government.

YOUNG PROFESSIONALS' NETWORKING RECEPTION. Monday 6:30-7:30 pm, **SIERRA 1748**. Students and young professionals (approximately under age 35 or new to the sedimentation or hydrology fields) are invited for food, drink, and to build new professional relationships. There will be some fun networking activities with prizes to help you meet your peers.

INFORMATION/MESSAGE CENTER. Messages for participants at the Conference will be posted on the message board in the registration area. Messages may be directed to the Peppermill Hotel operator at 775-826-2121.

TRANSPORTATION. The Reno-Tahoe International Airport is 2.5 miles west of the Peppermill Hotel. The Peppermill features an easy and convenient airport shuttle which departs from the valet area outside the Hotel Lobby every half-hour beginning at 4am. The last shuttle to the airport departs from the Peppermill at 11:30pm. In addition, the airport shuttle departs from the airport going to the Peppermill every half-hour beginning at 4:15am, and continues to 11:45pm. This shuttle picks up at the North exit of the Baggage Claim area.

REGISTRATION. All authors planning to present papers, posters, or models must register for the Conference. The conference venue is the Peppermill Hotel, Reno, Nevada. Single day registration includes conference proceedings and all functions occurring on that day.

Payment must be made at the time of registration, and all credit card payments are charged at the time of registration. The registration desk is located in the Tuscany Conference Center.

On-line registration is available at: <http://www.cvent.com/d/0rgmqr>

REGISTRATION TYPES	
Regular	\$400
Student	\$170
Senior*	\$200
Spouse and Guest	\$ 80
Single Day	
Monday	\$290
Tuesday	\$265
Wednesday	\$320
Thursday	\$240
Exhibitor	\$800
Student A/V (Comp.)	-

*65 or older, working < 25% of the time.

REGULAR REGISTRATION INCLUDES:
✓ Conference Proceedings (digital download)
✓ Opening Reception, Sunday 5:30pm
✓ Exhibitors' Reception, Monday 5:15pm
✓ All refreshment Breaks
✓ Demo/Poster Dinner, Wednesday 6pm

EXTRAS	COST
Opening Reception (Sunday)	\$45
Exhibitors' Reception (Monday)	\$25
Model/Demo Dinner	\$50
Student luncheon	No cost to students

REGISTRATION DESK HOURS	
Sunday, April 19	7:00 am–6:00 pm
Monday, April 20	7:30 am–5:30 pm
Tuesday, April 21	8:00 am–5:00 pm
Wednesday, April 22	8:00 am–5:00 pm
Thursday, April 23	8:00 am–1:00 pm

STUDENT REGISTRATION. Student registration fees include all full conference registration items. Student identification is required.

SPOUSAL AND GUEST REGISTRATION. Spousal and guest registration includes all receptions, coffee breaks, and Wednesday's dinner. Directions and information on local attractions will be available at the registration area.

CANCELLATIONS:

NO REFUNDS WILL BE GIVEN FOR CANCELLATION REQUESTS RECEIVED AFTER APRIL 15, 2015.

PROCEEDINGS. A searchable, digital volume of Conference abstracts and full papers are available to all registered attendees. In addition, full access to the Conference program, abstracts, and papers is available during the conference through the SEDHYD.org website.

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

EXHIBITORS' RECEPTION *EXHIBIT HALL*

Monday, March 24, 5:15pm to 6:45pm. The reception is in the *Exhibit Hall* after the close of Technical Sessions.

MODEL DEMONSTRATIONS, POSTER SESSION *TUSCANY BALLROOM D AND F*

On Wednesday, from 4:30–9:00pm, a session for computer-model demonstrations and posters is offered, including sedimentation and hydrologic modeling.

DINNER *TUSCANY BALLROOM E*

A light dinner is provided in conjunction with the Model Demonstrations and Poster Session, Wednesday, serving from 6:00 to 7:30pm.

SPEAKERS' BREAKFASTS. A working breakfast is served Monday through Thursday for each day's speakers, presenters of posters/models, session chairs, and audio/visual (A/V) assistants:

SPEAKERS' BREAKFASTS SCHEDULE		
Monday, April 20	8:00 am–9:00 am	<i>CAPRI</i>
Tuesday, April 21	7:15 am–8:15 am	<i>CAPRI</i>
Wednesday, April 22	7:15 am–8:15 am	<i>CAPRI</i>
Thursday, April 23	7:15 am–8:15 am	<i>TUSCANY E-F</i>

This is a full complimentary breakfast. Please attend on the morning of your session to be briefed on the day's activities. Speakers will coordinate their computer files with the A/V assistants before and during this breakfast meeting. Speakers, poster presenters, and model demonstrators must attend this breakfast the day of their presentations to verify their arrangements with the session chairs and the A/V coordinator.

SPEAKERS' VIEWING ROOM *T 201*

The room is set up for speakers to view their computer presentations and for session chairs and A/V assistants to meet with speakers. Computers will be available throughout each day in this room for previewing presentations.

FIELD TRIPS

All field trips meet in the Foyer of the Tuscany Conference Center 15 minutes prior to departure. **Some field trips have been cancelled** due to insufficient numbers of registrants. Field trips also may be cancelled due to poor weather conditions. No refunds after March 15, 2015.

FIELD EXPLORATIONS—TECHNICAL TOURS (PDHS* OFFERED)	DATE/TIME	COST
Mt. Rose Snow Courses and Importance of Snow Hydrology to the Lake Tahoe Region.	Sun., April 19, 8am–noon	\$40
Truckee River Diversion to Virginia Lake, describing design elements of the Cochran Ditch, Virginia Lake, and other shared uses.	Mon., April 20 6pm–7pm	Complimentary
Truckee River Urban Hydrology, including the upstream and downstream areas of Truckee River	Tue., April 21, 6pm–8pm	Comp. (city bus fare not)

along the downtown Riverwalk area.

included)

*Professional Development Hours (See inside back cover)

Mt. Rose Snow Survey Courses and Importance of Snow Hydrology (PDH-4hrs). *Sunday, April 19, 8:00am—12:00pm, \$40.*

This technical tour highlights the past and present techniques used by the NRCS to collect snow data and produce water supply forecasts. Participants gain a deeper appreciation of snow hydrology and the importance of this resource to the Lake Tahoe region. The tour starts with a 30-minute drive up Mt. Rose to the highest year-round pass in the Sierra Nevada. At the pass, participants snowshoe 1/4 mile to the Mt. Rose SNOTEL weather station and learn about automated data collection. Next, participants can manually sample the snow using snow tubes. This technique is widely used today, and was first developed on Mt. Rose in the early 1900s. The tour concludes with a photo stop at a spectacular overlook of Lake Tahoe.

*Please note that the technical tour of the Mt. Rose is "weather permitting." If there are storm conditions and the road closes or is too dangerous, the trip will be cancelled and a full refund will be provided."

Technical Tour of Virginia Lake, Cochran Ditch, and Thermo-Energy Uses. *Monday, April 20, 6:00pm—7:00pm; No charge.*

Join us for a technical tour of Virginia Lake and the Cochran Ditch, and explore the various uses of this lake, including thermo-heating, cooling, and improving the ecology. Virginia Lake Park, built by the Civilian Conservation Corps (CCC) during the 1930s and currently managed by the City of Reno, is near Lakeside Drive and Brinkby Avenue, just a short walk west from the Peppermill Hotel. This lake, excavated in 1935 and opened in 1937, is 12 feet deep when full and inundates about 24.5 acres. Cochran Ditch provides the conduit for water to this lake. The ditch serves as a terminus for many storm drains in Reno and flows underneath the Reno Post Office parking lot. Details of its watershed drainageways and controls are explored.

*Participants who enjoyed this tour should take the Truckee River walk tour on Tuesday to get a complete understanding of the Reno urban watershed.

Truckee River Urban Hydrology along the Downtown RiverWalk. *Tuesday, April 21, 6:00pm—8:00pm, no charge, except for bus fare.*

Put on your walking shoes (required), meet at the hotel lobby on Tuesday at 6pm, hop on the local bus to downtown, and join our tour guides on a technical urban hydrology tour of the Truckee River. Participants have the opportunity to inspect the various water control structures and explore how the river is transforming downtown Reno into a vibrant area with various river-related activities. The downtown Riverwalk District straddles the Truckee River between Arlington Avenue and Lake Street, starting with the northern end of the Riverwalk District along First Street, between Lake Street (east) and Arlington Street (west), overlooking the Truckee River and passing along some of Reno's historic buildings. The tour includes stops at Whitewater Park, where participants can examine the various hydraulic phenomena of water (jumps, sinks, swirls, etc.) and conclude at Wingfield Park, where surface water is available for diversion through the Cochran Ditch into Virginia Lake.

References/Websites:

- <http://truckeeriverinfo.org/projects>
- <http://www.tahoe fund.org/our-projects/conservation/upper-truckee-river-restoration/>
- Nevada Department of Conservation and Natural Resources (DCNR)
- Nevada Division of Water Resources (NDWR)
- USGS UAS Mission: <http://uas.usgs.gov/>
- NOAA NWS Reno : <http://www.wr.noaa.gov/rev/links.php>
- NOAA NWS Upper Air Program: <http://www.wr.noaa.gov/rev/tour/UA/baseline.php>
- FAA and Reno AP: <http://www.renoairport.com/reno-stead/faa-designated-uav-uas-test-site>
- UNR UAS <http://www.unr.edu/engineering/academics/degree-programs/uas/uas-minor>
- UNR Seismic Lab—<http://www.seismo.unr.edu/>

SHORT COURSES

Note: Short courses are subject to cancellation and refund if the number of registrants are not sufficient to cover costs of the class. Non-conference attendees can register but are given a lower priority than those who register for the full conference. No refunds will be given to participants who cancel after March 15, 2015.

SHORT COURSE TITLE	FEE	TIME	LOCATION
SUNDAY, APRIL 19, 2015			
Flow and Sediment Modeling with SRH-2D	\$55	9:00am–5:00pm	TUSCANY 3
RVR Meander Toolbox	\$68	8:30am–5:30pm	TUSCANY 4
Automated Geospatial Watershed Assessment (AGWA) Tool	\$55	8:30am–5:00pm	TUSCANY 5
Wkshop on Reservoir Sed. and Sustainability	\$55	9:00am–5:00pm	TUSCANY 6
Overview of Collection of Fluvial-Sed. Data	\$25	8:00pm–12:00pm	TUSCANY 12
Combined 1D and 2D HEC-RAS Modeling	\$25	1:00pm–5:00pm	TUSCANY 12
THURSDAY, APRIL 23, 2015			
WEPP Application	\$55	10:30am–5:30pm	TUSCANY 3
Basic Principles of Sed. Transport Modeling	\$25	1:00pm–5:00pm	TUSCANY 4
Sediment Monitoring: Acoustics	\$35	1:00pm–5:00pm	TUSCANY 5
Sediment and Stream Channel Design	\$35	1:00pm–5:00pm	TUSCANY 6
Validation and Application of FLOWSED and POWERSED	\$35	1:00pm–5:00pm	TUSCANY E

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

SHORT COURSES: SUNDAY, APRIL 19, 2015**Flow and Sediment Transport Modeling in Streams with SRH-2D (PDH-4hrs).** Sunday, April 19, 9:00am—5:00pm, \$55. TUSCANY 3

Instructors: Dr. Yong Lai, 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 Bureau of Reclamation. It has been widely used for engineering projects at Reclamation and by outside institutions. SRH-2D has a few salient features making it ideal for engineering applications. First, SRH-2D uses a flexible mesh that may contain arbitrarily shaped cells. The hybrid mesh achieves the best compromise between accuracy and computing efficiency, and it is relatively easy to generate with SMS software. Second, SRH-2D adopts very robust (stable) numerical schemes with a seamless wetting-drying algorithm. Reliable solutions may be obtained with few tuning parameters. Third, SRH-2D has been developed with the objective of ease-of-use. Users do not have to memorize many commands; they are guided by a preprocessor in a question-and-answer session. The preprocessor also provides guidelines on how to select input parameters. SRH-2D model, along with its manual and selected publications, are freely downloadable at the following Reclamation site: <http://www.usbr.gov/pmts/sediment>.

The course aims to train attendees to become "modelers" who will be knowledgeable about 2D modeling and may apply SRH-2D to their own projects. In the class, the theory of 2D modeling will be given, selected real-life project applications will be shown, and future developments will be presented. Students have the option to jump into the use of SRH-2D with instructor-provided sample cases. Students are expected to bring their own laptops for use. Topics covered are as follow:

Part 1: Flow Modeling with SRH-2D: An overview; Why and when there is a need for 2D modeling? Selected practical application examples; SRH-2D Model structure and modeling steps; An exercise to run SRH-2D

Part 2: Sediment Transport Modeling with SRH-2D: An overview; Sediment modeling approach; Selected practical application cases; An exercise to run SRH-2D

Part 3: What Is Coming?

RVR Meander—A Toolbox for Meandering River Planform Evaluation and Design (PDH-8hrs). Sunday, April 19, 8:30am—5:30 pm, \$68. TUSCANY 4

Instructors: Dr. Eddy Langendoen (USDA, Agricultural Research Service, National Sedimentation Laboratory, Oxford, MS) and Dr. Jorge Abad (Department of Civil and Environmental Engineering, University of Pittsburgh, Pittsburgh, PA)

Restoring the meandering planform or spatial variability of historically meandering streams that have been channelized or highly disturbed is one of the most difficult aspects of river restoration. River planform and cross-sectional geometry are the result of complex interactions between flow, boundary materials, and channel morphology. Hence, simple methods based on the reference-reach concept or hydraulic geometry relationships have often failed to produce long-term, stable meander reaches without additional bank protection. More sophisticated river meander models use empirical relations to calculate rate of channel migration, limiting their applicability as they do not explicitly account for the physical properties of the floodplain soils.

This workshop introduces the RVR Meander modeling toolbox, which combines a long-term two-dimensional river migration model with physically-based bank erosion algorithms. It is available as a stand-alone version or a plugin to ESRI's ArcMap. The workshop comprises both theoretical and practical modules to acquaint the students with the principles of meander migration and bank erosion,

provide the theoretical background of the RVR Meander model, and offer hands-on training on the use of RVR Meander. Hands-on training modules consist of evaluating existing meandering streams, designing reconstructed meandering streams, and will illustrate the selection and impact of design discharge and boundary material properties on long-term meander migration.

The workshop materials, lectures, and RVR Meander model are provided on CD-ROM. Students should bring a laptop to participate in the hands-on training sessions. Some training sessions require ArcMap to be installed. Participants may need Administrator privileges to install RVR Meander on their laptops.

Overview and Application of the Automated Geospatial Watershed Assessment (AGWA) Tool (w/ArcGIS refresher) (PDH-7.5hrs).

Sunday April 19, 8:30 am—5:00pm, \$55.

TUSCANY 5

Instructors: Prof. Phil Guertin, Shea Burns (U. of Arizona), Dave Goodrich (USDA-ARS)

This one-day training course provides an ESRI ArcGIS refresher for those whose ArcGIS skills may be a bit rusty. After the refresher, the training continues with an introduction to the AGWA tool that parameterizes and runs two watershed runoff and erosion models: KINEROS2 and SWAT. Participants then work through guided tutorials demonstrating: 1) Basic data acquisition from internet sources needed by AGWA; and 2) A large watershed application using SWAT to identify a smaller area or watershed of concern for higher resolution analysis using KINEROS2. The AGWA tool is designed to investigate the hydrologic impacts of land-cover/land-use change including historical change, alternative futures, and pre- versus post-burn watershed assessments. It is an intuitive interface, requiring relatively little hydrologic expertise to identify areas that are more susceptible to land-use impacts and evaluate different management scenarios or alternative futures. AGWA and the SWAT and KINEROS2 models are in the public domain, available for download at no charge from: www.tucson.ars.ag.gov/aqwa. The website also contains documentation, presentations, related papers, and tutorials and associated data sets from prior training sessions to EPA, Department of Interior National BAER (Burn Area Emergency Response) teams, and several universities.

Prerequisites: Students attending this course should have some familiarity with ESRI ArcGIS.

A laptop computer is required for this course and must be provided by the students. Detailed instructions on downloading the software, tutorials, and related data are provided to registrants prior to the SEDHYD meeting. ESRI ArcGIS must be loaded on your laptops. If you do not currently have it, a free 60-day trial version of the software is available at: <http://www.esri.com/software/arcgis/arcgis-for-desktop/free-trial>

Minimum hardware and software requirements:

- Must run ArcGIS 10.x for Desktop (more detailed description of requirements at <http://resources.arcgis.com/en/help/system-requirements/10.2/index.html>)
- Windows XP or newer
- ArcGIS 10.x
- CPU speed: 2.2 GHz minimum
- Processor: Pentium 4 or newer, or the equivalent from AMD
- RAM: 2 GB minimum
- Video card: 64 MB RAM minimum
- Screen resolution: 1024x768 minimum

Workshop on Reservoir Sedimentation and Sustainability (PDH-7hrs).

Sunday, April 19, 9:00am—5:00pm, \$55.

TUSCANY 6

Presented by the National Reservoir Sedimentation Team, Subcommittee on Sedimentation.

Continued sedimentation threatens the project benefits of the Nation's reservoirs. Reservoir water storage will become more important over time with population increases, declining groundwater levels, and climate change. However, sustainable sediment management practices can greatly extend the lives of reservoirs. This short course provides participants with an understanding of reservoir sedimentation problems, monitoring programs, and potential management solutions, reductions in watershed sediment yield, reservoir sediment bypass, pass through, and flushing, and mechanical and hydraulic sediment removal. Key concepts regarding the economics of reservoir sediment management will also be discussed.

Overview of Collection of Fluvial-Sediment Data, USGS (PDH-4hrs).

Sunday, April 19, 8:00am—12:00pm, \$25.

TUSCANY 12

Instructors: John R. Gray, Gary Johnson, and Mark Landers, USGS

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 as well. 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 web-based technical resources are provided.

This short course is a synopsis of the full five-day course, "Sediment Data Collection Techniques," offered annually by the U.S. Geological Survey in Castle Rock and Vancouver, Washington (contact Gary P. Johnson at gjohnson@usgs.gov for more information on the full course offering).

Combined 1D and 2D Hydraulic Modeling with HEC-RAS (PDH-4hrs).

Sunday, April 19, 1:00pm—5:00 pm, \$25.

TUSCANY 12

Instructor: Gary W. Brunner, P.E., D.WRE—Hydrologic Engineering Center, USACE

This course is designed as an introduction to the new HEC-RAS 5.0 modeling capabilities. HEC has added the ability to perform two-dimensional (2D) hydrodynamic flow routing within the unsteady flow analysis portion of HEC-RAS. Users can now perform one-dimensional (1D) unsteady-flow modeling, two dimensional (2D) unsteady-flow modeling (Full Saint Venant equations or Diffusion Wave equations), as well as combined one-dimensional and two-dimensional (1D/2D) unsteady-flow routing.

This course provides an overview of the new HEC-RAS 2D modeling capabilities and our new results-mapping module (RAS-Mapper), which is built directly into HEC-RAS. Several real world example applications will be demonstrated to show the utility of the new 2D modeling features.

SHORT COURSES: THURSDAY, APRIL 23, 2015

Water Erosion Prediction Project (WEPP) Model Application Workshop (PDH-6.5hrs). Thursday, April 23, 10:30am-5:30 pm, \$55. **TUSCANY 3**

Instructors: Dr. Dennis Flanagan and Dr. Jim Frankenberger, USDA Agricultural Research Service, National Soil Erosion Research Lab, W. Lafayette, IN

This course is designed as an introduction to the Water Erosion Prediction Project (WEPP) model. WEPP is a process-based soil erosion prediction technology, developed by the USDA over the past 25 years. It simulates the physical processes affecting soil erosion by water, including infiltration, runoff, soil detachment by raindrops and flowing water, sediment transport, sediment deposition, soil tillage disturbance and consolidation, plant growth, and plant residue management and decomposition. The model is used both within and outside the U.S., especially by the USDA Forest Service and USDI Bureau of Land Management for determining the effects of human disturbances, as well as wildfire, on erosion potential and targeting of remediation efforts. Recently the USDA Natural Resources Conservation Service has begun a new project to implement WEPP within their agency using web-based interfaces and databases. All software and course materials will be provided to the attendees.

Course highlights: This course provides participants with information, software, and hands-on training with WEPP for application to croplands and forestlands. Model background, processes simulated, interfaces and databases available are discussed.

Attendees should bring their own laptop computer in order to install and run the WEPP software and learn how to apply the model to hillslopes and small watersheds. Additionally, a wireless network adaptor on the laptop is strongly recommended, as training with current WEPP internet-based interfaces is also conducted.

Basic Principles and Data Needs of Sediment Transport Modeling (PDH-4hrs). Thursday, April 23, 1:00pm—5:00pm, \$25.

TUSCANY 4

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

This short course introduces the basic principles of designing a successful sediment transport modeling analysis. Participants are exposed to a wide range of applications of sediment transport modeling issues. The course discusses 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 (1D), and two-dimensional (2D) sediment transport models, are discussed. The course describes the data requirements and data collection activities necessary for the model input. The focus is on the collection of information relevant to the particular question you wish to address. Various methods to calibrate model parameters using historical data are given and, in the absence of historical data, selection of model parameters and sediment transport formulae are discussed. Finally, if time allows, methods to address model uncertainty are suggested.

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

Best Practices for Continuous Suspended-sediment Monitoring Using Acoustic Surrogates (PDH-4hrs).

TUSCANY 5

Thursday, April 23, 1:00pm—5:00pm, \$35. Instructor: Mark Landers

Sediment in fluvial systems is highly relevant to topics in water quality, engineering, ecology, and agriculture. Acoustic surrogates are increasingly being used to estimate properties of suspended sediment in fluvial systems. However, measured acoustic backscatter requires detailed evaluation to correct for several instrument and environmental factors to isolate the surrogate-to-sediment relation. This workshop demonstrates and engages attendees in generalized methods and standard protocols that are being developed for determining acoustic attenuation, adjusted backscatter amplitude, and sediment-size effects, and for required metadata and documentation. The workshop also demonstrates how to calibrate corrected acoustic backscatter to measured suspended-sediment

concentrations. These methods are being developed as part of the multi-agency Sediment Acoustic Leadership Team. The workshop uses the provided Matlab-based software tools developed for this analysis. The target audience for this workshop is anyone interested in or potentially engaged in estimating continuous water-quality characteristics using indirect, surrogate metrics. In particular, anyone interested in using in-situ acoustics to estimate continuous suspended sediment concentration will benefit from the workshop. Students are encouraged to bring a laptop for use during the workshop.

Sediment Transport in Stream Channel Design (PDH-4hrs)

Thursday, April 23, 1:00pm—5:00pm, \$35. **TUSCANY 6**
 Instructor: Dr. Peter Wilcock, Department of Watershed Sciences, Utah State Univ.

It is time for stream channel design to move beyond a template approach to a method that explicitly uses water and sediment supply in a forward design process. This design process needs to incorporate uncertainty, support analysis of alternatives, and accommodate traditional empirical relations in an appropriate supporting role. This short course presents a design approach that begins with specification of desired channel dynamics and then uses estimates of water and sediment supply to explore design alternatives. The method builds on the classic definitions of threshold and alluvial channels. A threshold channel is one for which the bed material is immobile at a design discharge. An alluvial channel is one for which transport capacity is balanced against the rate and grain size of sediment supply.

A third type of channel is defined and combines the first two: over-capacity threshold, in which transport capacity exceeds supply but design flows do not exceed threshold limits for channel erosion. This type of channel is more common than is often realized, and is unintentionally designed in many cases. It offers both advantages and disadvantages that can only be weighed if the design objectives are specifically defined. Uncertainty in water and sediment supply is explicitly included in assessing channel performance. A risk framework is developed for threshold channels, and alluvial channels are evaluated in terms of the probability of undesirable aggradation or degradation. At small sediment supply rates, channel performance is relatively insensitive to uncertainty in sediment supply, and principles of flow competence may be used to design a threshold-like channel. At large sediment-supply rates, the potential for storing or evacuating channel-changing quantities of sediment is much larger. A computational tool is presented that assists in estimating the sensitivity of channel performance due to uncertainty in sediment supply. The tool includes river state diagrams useful for reconnaissance evaluation and channel stability diagrams useful at the planning stage.

The method presented includes a number of important components: (i) it is based on specified channel behavior, such that rates of water and sediment supply and their uncertainty can be directly incorporated into the design process, (ii) it accommodates traditional empirical observations of channel geometry in an appropriate supporting role, (iii) it uses a surface-based mixed-size sediment transport relation that accommodates transient conditions, and (iv) it identifies design channel geometry using the full range of water and sediment supply, rather than a single design discharge.

Reading materials are distributed to registrants in advance of the course. Spreadsheet models are made available and used in the short course. Students should bring their own laptops for use during the workshop.

Sediment Transport Modeling using FLOWSED and POWERSED for Stream Assessment and Design (PDH-4hrs).

Thursday, April 23 1:00pm—5:00pm, \$35 **TUSCANY D**
 Instructors: Dr. Dave Rosgen (Wildland Hydrology, Fort Collins, CO) and George Athanasakes (Stantec, Louisville, KY)

Streams must be able to transport the sediment supplied by their watershed without aggrading or degrading. As such, stream-restoration practitioners need tools to evaluate the efficacy of restoration designs to transport sediment, particularly in an effort to minimize risk and promote long-term dynamic stability. The FLOWSED and POWERSED models provide users with such tools whereby total annual sediment yield (FLOWSED) and aggradation or degradation potential (POWERSED) are predicted for sediment transport capacity. Within the workshop, model descriptions and requirements are presented, which include field-measured values of bedload and suspended sediment to generate sediment rating curves, dimensionless flow duration curves that can be normalized to the study site, cross-section data specific to the study reach, and longitudinal profile information. Where field-measured values of bedload and suspended sediment are not attainable, regional sediment curves can be developed to assist with this requirement.

FLOWSED and POWERSED are programmed in RIVERMorph which is used throughout the short course to demonstrate various applications of the models. Case studies are presented that assess the ability of FLOWSED and POWERSED to predict river stability for assessment purposes, to predict channel and culvert response for a particular bridge design, and to predict realistic sediment consequences of river restoration. This workshop also addresses the theoretical basis and validation of using a dimensionless bedload sediment rating curve derived from Pagosa Springs, Colorado, to derive a sediment rating curve in the FLOWSED model. Research from Brigham Young University and the University of New Hampshire found that the Pagosa formula is cast in a form similar to the Parker 1990 formula. Also, the Pagosa formula provided the most accurate prediction results in one study.

Students are expected to bring a laptop for use during the workshop. Training manuals will be provided.

MONDAY – MORNING, APRIL 20, 2015

8:00am **SPEAKERS' BREAKFAST, CAPRI**

8:30am **PRE-CONFERENCE BREAK, EXHIBIT HALL**

9:30am-noon **OPENING SESSION**
MONDAY **4/20/15**
TUSCANY BALL ROOM

- Doug Glysson**, USGS (retired), Chair, 3rd Joint Federal Interagency Conference **Call to order**
- Jerry W. Webb**, P.E., D.WRE., Federal Interagency Hydrologic Modeling Conference Chair, U.S. Army Corps of Engineers, Washington, DC **Thoughts on the 5th FIHMC**
- Tim Randle**, PhD, P.E., D.WRE., Federal Interagency Sedimentation Conference Chair, U.S. Bureau of Reclamation, Denver, CO **Thoughts on the 10th FISC**
- Dave Johnson**, Deputy General Manager over Engineering and Operations, Southern Nevada Water Authority, Las Vegas, NV **Keynote Address**
- Thomas Iseman**, Deputy Assistant Secretary for Water and Science, U.S. Department of the Interior, Washington, DC **Keynote Address**
- Gerald Galloway**, PhD, Glenn L. Martin Institute Professor of Engineering, University of Maryland **Keynote Address**

NOON **LUNCH ON YOUR OWN**

(YOU HAVE 1 ½ HOURS BEFORE TECHNICAL PROGRAM)

NOON **STUDENT LUNCHEON –CAPRI**

MONDAY – AFTERNOON, APRIL 20, 2015
1:30pm TECHNICAL PROGRAM Begins




See SEDHYD.org for current on-line Program and Proceedings

SEDHYD 2015 – SCHEDULE AT A GLANCE

3RD JOINT CONFERENCE ON SEDIMENTATION AND HYDROLOGIC MODELING, 2015*

*The following two historically recurring conferences are combined: the 10th Federal Interagency Sedimentation Conference and the 5th Federal Interagency Hydrologic Modeling Conference.

SUNDAY, 4/19/2015		SUNDAY, 4/19/2015				SUNDAY, 4/19/2015	
9:00am– 5:00pm Short Course: <i>Flow and Sediment Modeling with SRH-2D</i>		(Tuscany 3)					
8:30am– 5:30pm Short Course: <i>RVR Meander Toolbox</i>		(Tuscany 4)				8:00am–12:00pm Field Trip: <i>Mt. Rose Snow Survey Courses and Importance of Snow Hydrology</i>	
8:30am– 5:00pm Short Course: <i>Overview and Application of the AGWA Tool</i>		(Tuscany 5)					
9:00am– 5:00pm Short Course: <i>Workshop on Reservoir Sedimentation and Sustainability</i>		(Tuscany 6)					
8:00am– 12:00pm Short Course: <i>Overview of Collection of Fluvial Sediment Data</i>		(Tuscany 12)					
1:00pm– 5:00pm Short Course: <i>HEC-RAS 1D and 2D</i>		(Tuscany 12)					
5:30pm– 7:30pm OPENING RECEPTION (EXHIBIT HALL)							
MONDAY, 4/20/2015		MONDAY, 4/20/2015				MONDAY, 4/20/2016	
8:00am – 9:00am		Speakers' Breakfast (Capri)					
8:30am – 9:30am		Pre-conference refreshment break					
9:30am–12:00pm		OPENING SESSION (TUSCANY BALLROOM)					
12:00pm– 1:30pm		Student Luncheon (Capri)					
Concurrent Sessions		A (TUSCANY #7)	B (TUSCANY #8)	C (TUSCANY #9)	D (TUSCANY #10)	E (TUSCANY #11)	F (TUSCANY #12)
1:30pm– 3:00pm	1	Sediment Yield and Transp. Modeling 1	Gully Erosion	Remote Sensing	Stream Restoration 1	Climate Change, Variability, and Impact 1	Flood Hydrology 1
3:30pm– 5:00pm	2	Sediment Yield and Transp. Modeling 2	Surrogates of Sediment, Optical	Physical Measurement and Modeling 1	Stream Restoration 2	Climate Change, Variability, and Impact 2	Flood Hydrology 2
5:15pm– 6:45pm		EXHIBITORS' RECEPTION	6:30pm–7:30pm	YOUNG PROFESSIONALS RECEPTION (Sierra 1748)	6:00pm–7:00pm	Field Trip: <i>Virginia Lake, Cochran Ditch, and Thermo-Energy Uses</i>	
TUESDAY, 4/21/2015		TUESDAY, 4/21/2015				TUESDAY, 4/21/2015	
7:15am–8:15am		Speakers' Breakfast (Capri)					
8:30am–10:00am	3	Sediment Yield and Transp. Modeling 3	Surrogates of Bedload 1	Physical Measurement and Modeling 2	Stream Restoration 3	Restoring and Sustaining River Environments 1	Flood Hydrology 3
10:30am–12:00pm	4	Sediment Yield and Transp. Modeling 4	Surrogates of Bedload 2	Physical Measurement and Modeling 3	Stream Restoration 4	Restoring and Sustaining River Environments 2	Hydroecological Modeling 1

1:30pm – 3:00pm	5	Sediment Yield and Transp. Modeling 5	Surrogates of Sediment, Acoustics 1	Physical Measurement and Modeling 4	Fluvial Geomorphology 1	Post-Fire Analyses and Restoration 1	Hydroecological Modeling 2
3:30pm – 5:00pm	6	Sediment Yield and Transp. Modeling 6	Surrogates of Sediment, Acoustics 2	Physical Measurement and Modeling 5	Fluvial Geomorphology 2	Post-Fire Analyses and Restoration 2	Hydroecological Modeling 3
6:00pm – 8:00pm		Field Trip: <i>Truckee River Urban Hydrology</i>					
WEDNESDAY, 4/22/2015		WEDNESDAY, 4/22/2015				WEDNESDAY, 4/22/2015	
7:15am–8:15am		Speakers' Breakfast (Capri)					
8:30am–10:00am	7	Sediment Yield and Transp. Modeling 7	Surrogates of Sediment	Reservoir Sedimentation and Sustainability 1	Fluvial Geomorphology 3	Post-Fire Analyses and Restoration 3	Sediment Impacts on Wildlife and Habitat
10:30am–12:00pm	8	Sediment Yield and Transp. Modeling 8		Reservoir Sedimentation and Sustainability 2	Fluvial Geomorphology 4	Modeling of Major River Systems 1	Management and Decision-Making Models 1
1:30pm – 3:00pm	9	Sediment Yield and Transp. Modeling 9	Dam Removal/ Rehabilitation 1	Reservoir Sedimentation and Sustainability 3	Fluvial Geomorphology 5	Modeling of Major River Systems 2	Management and Decision-Making Models 2
4:30pm – 9:00pm	JOINT CONFERENCE MODELS/DEMOS AND POSTER SESSION						
6:00pm – 7:30pm	DINNER SERVED WITH MODELS/DEMOS AND POSTERS						
THURSDAY, 4/23/2015		THURSDAY, 4/23/2015				THURSDAY, 4/23/2015	
7:15am–8:15am		Speakers' Breakfast (Tuscany A)					
8:30am–10:00pm	10	Sediment Transport and Fingerprinting	Dam Removal/ Rehabilitation 2	Reservoir Sed. and Sustainability 4	Regional Watershed Mgt. 1	GIS and Water Resources Mgt.	Management and Decision-Making Models 3
10:30am–12:00pm	11	Earth Embankment Erosion Prediction			Regional Watershed Mgt. 2		Management and Decision-Making Models 4
10:30am – 5:30pm	Short Course: <i>WEPP Model Application Workshop</i> (Tuscany 3)						
1:00pm – 5:00pm	Short Course: <i>Basic Principles and Data Needs of Sed. Transp. Modeling</i> (Tuscany 4)						
1:00pm – 5:00pm	Short Course: <i>Sediment Monitoring: Acoustics</i> (Tuscany 5)						
1:00pm – 5:00pm	Short Course: <i>Sediment Transport in Stream Channel Design</i> (Tuscany 6)						
1:00pm – 5:00pm	Short Course: <i>Use of FLOWSED and POWERSED for Stream Design</i> (Tuscany D)						

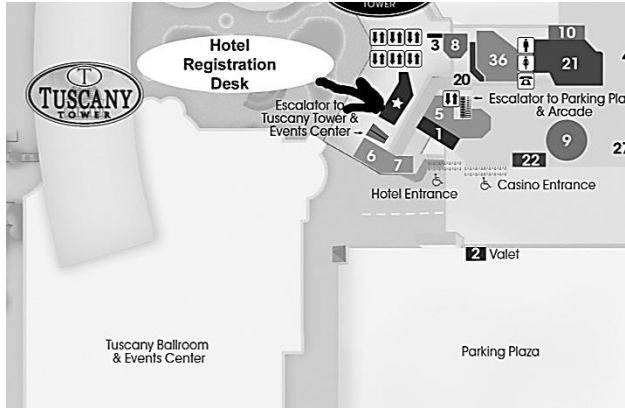
See SEDHYD.org for on-line technical program.

POSTER PRESENTATIONS
Wednesday, 4:30 to 9:00pm **Tuscany Ballroom D-F**

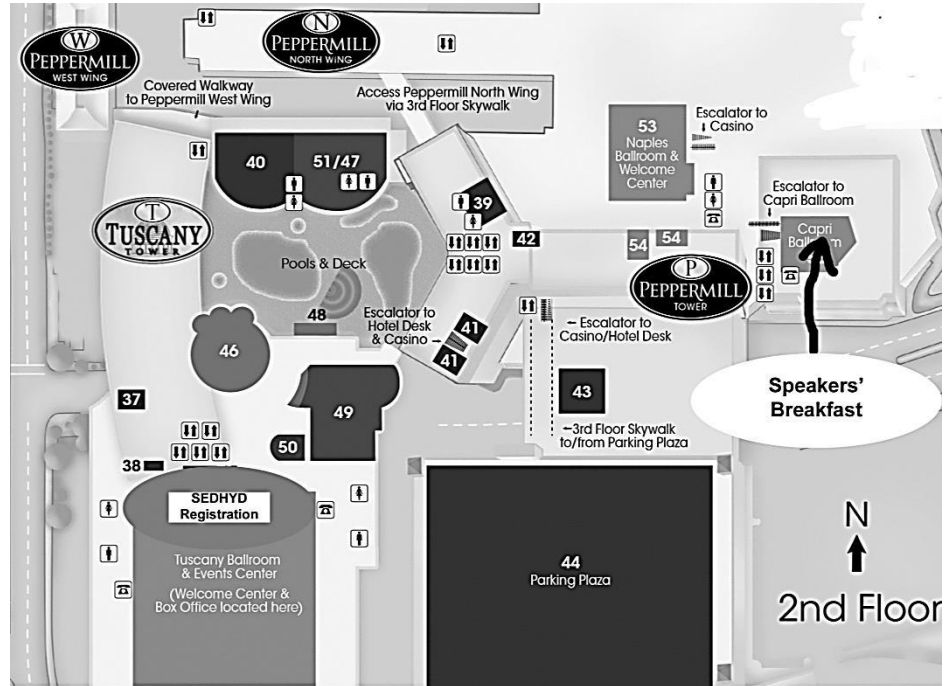
Title	Author(s)
2011 Morganza Control Structure Tail Bay Scour Development and Sediment Distribution	Tzenge-huey Shih, USACE
An Approximation of the Sediment Budget for the Tombigbee River and the Mobile River Basins	John Ramirez-Avila, Mississippi State University
Analyzing Streambank Erosion Using LIDAR	Gary Trent Snellings, NRCS
Assessment of Fire Impacts on Hydrology and Erosion Using Field Experiments and the Rangeland Hydrology and Erosion Model	C. Jason Williams, USDA-ARS
Computation of Continuous Suspended-Sediment Concentration Records related to a Short-Term Drawdown of Fall Creek Lake, Upper Willamette Basin, Oregon	Heather Bragg, USGS; Liam Schenk, USGS
Continuous Loosening and Transport of Sediment Depositions	Yannick Ratke, Cologny University of Applied Science
Continuous Turbidity Monitoring as a Tool for Evaluating Suspended Sediment Loading in the Middle Truskee River and Tributaries, Placer and Nevada Counties, California	Brian Hastings, Balance Hydrologics, Inc.
Creation and Maintenance of Dynamic Channels: Lessons Learned from the Large-Scale Restoration of a Regulated River	Susannah Erwin, USGS
Effects of Bedload Sampler Netting Properties on Hydraulic and Sampling Efficiency	Kristin Bunte, Colorado State University
Estimating Sediment Yield on Disturbed Rangeland Using the Rangeland Hydrology and Erosion Model (RHEM)	Osama Al-Hamdan, USDA-ARS
Evaluation of Surrogate Technology to Determine the Sediment Transport in the Raulerson Brothers Canal, Everglades National Park, Florida	Carrie Boudreau, USGS
The Influence of Sampling Technique on Bedload Prediction	Darren Hinton, Northwest Hydraulic Consultants
Measures of Sediment in Minnesota	Greg Johnson, Minnesota Pollution Control Agency
New Insights into the Effectiveness of a Lower Mississippi River Sediment Diversion Using a Decade of Field Observations and Morphological Modeling	Brendan Yuill, The Water Institute of the Gulf
Online Modeling Tools Assist in Evaluating Postfire Flooding	Pete Robichaud, USDA Forest Service
POTAMOD – Mobile-Bed Sediment-Transport Modeling Application for Use with SIAM and HEC-RAS	Amanda Cox, Saint Louis University
Quantifying and Modeling Sediment Loads from Streambank Erosion along the Headwaters of Town Creek in Mississippi	John Ramirez-Avila, Mississippi State University; Eddy Langendoen, USDA-ARS
Real-Time Forecasting Using HEC-HMS and MetVue	Myles McManus, USACE
Sediment Chemistry Results from Sediment Cores Collected from the Escalante and San Juan River Deltas in Lake Powell, UT, in 2010-2011	Nancy Hornewer, USGS; Robert Hart, USGS
Sediment Characteristics and Sediment Transport Modeling for the Saginaw River Navigation Channel	Carol J. Miller, Wayne State University
Sediment Fingerprinting to Delineate Sources of Sediment in an Urban Sub-Watershed Within the Chesapeake Bay Watershed	Anna Baker, USGS
Sediment and Nutrient Trapping on the Morganza Spillway During the 2011 Mississippi River Flood	Daniel E. Kroes, USGS
Sediment Transport on Cape Sable, Everglades National Park, Florida	Carrie Boudreau, USGS
Simulating Salinity Concentration at the Colorado River Basin Scale	James Prairie, Bureau of Reclamation
State of the Practice of Sediment Management in Reservoirs: Minimizing Siltation and Removing Deposits	Katie M. Healy, Saint Louis University
Surrogate Analysis and Index Development (SAID) and Real-Time Dissemination	Timothy Straub, USGS
Using Acoustic Surrogates to Monitor Discharge, Sediment and Nutrient Supply to Texas Bays and Estuaries	Michael Lee, USGS
Utilizing GIS to Identify Sediment Fluctuations in Nambe Falls Reservoir, NM	Joel Murray, Bureau of Reclamation
Web-based Rangeland Hydrology and Erosion Model	Mariano Hernandez, University of Arizona / USDA-ARS

COMPUTER DEMONSTRATIONS / MODELS
Wednesday, 4:30pm—9:00pm **Tuscany Ball Room D-F**

Title	Author(s)
Demonstration of the Capabilities of the KINEROS2 – AGWA 3.0 Suite of Modeling Tools	I. Shea Burns, U. of AZ; Carl Unkrich, USDA-ARS
Demonstration of the Water Erosion Prediction Project (WEPP) Internet Interfaces and Web Services	Jim Frankenberger, USDA-ARS-NSL
Hydrologic Modeling System (HEC-HMS) Model Demonstration	William Scharffenberg, USACE
Modeling of a Non-Physical Fish Barrier, Demonstration	Marcela Politano, IHR—Hydroscience & Engineering, The University of Iowa
River Analysis System (HEC-RAS) Model Demonstration	Gary W. Brunner, USACE
RiverWare Demonstration	David Neumann, Center for Advanced Decision Support for Water and Environmental Systems
RVR Meander – A Toolbox for River Meander Planform Design and Evaluation	Eddy Langendoen, USDA-ARS-NSL
Win TR-20 Computer Modeling Demonstration	William Merkel, NRCS
WinDAM B & C Earthen Embankment Overtopping and Internal Erosion Analysis Software Computer Demonstration	Karl Visser, NRCS
2D Hydrologic Modeling using the Gridded Surface Subsurface Hydrologic Analysis (GSSHA) model and the Watershed Modeling System (WMS)	Christopher M. Smemoe, Aquaveo LLC



1ST FLOOR

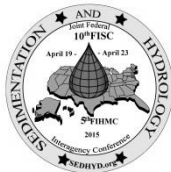


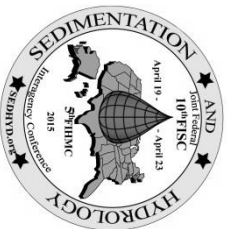
PROFESSIONAL DEVELOPMENT HOURS FORM, SEDHYD 2015

Licensed professional engineers and geologists attending conferences, such as **SEDHYD 2015**, are eligible to earn continuing education credit, in the form of professional development hours. A professional development hour (PDH) is defined as one contact hour of presentation or study, and is a recognized unit of record for non-credit professional development programs.

Use this form to track which activities you completed. Check off each session you attended and calculate the totals.

Sunday April 19		ACTIVITY	PDHs
<input type="checkbox"/>	8am-12pm	Field Trip: Mt. Rose Snow Survey Course and Hydrologic Significance	4
<input type="checkbox"/>	9am-5pm	Short Course: Flow and Sediment Modeling with SRH-2D	7
<input type="checkbox"/>	8:30am-5:30pm	Short Course: RVRMeander Toolbox for River Planform Design	8
<input type="checkbox"/>	8:30am-5pm	Short Course: Automated Geospatial Watershed Assessment (AGWA) Tool	7.5
<input type="checkbox"/>	9am-5pm	Short Course: Workshop on Reservoir Sedimentation and Sustainability	7
<input type="checkbox"/>	8am-12pm	Short Course: Overview of Collection of Fluvial-Sediment Data	4
<input type="checkbox"/>	1pm-5pm	Short Course: 1D and 2D Hydraulic Modeling with HEC-RAS	4
TOTAL for SESSIONS ATTENDED Sunday, April 19 (8 max.):			
Monday, April 20		ACTIVITY	PDHs
<input type="checkbox"/>	9:30am-12pm	Opening Session	2.5
<input type="checkbox"/>	1:30 pm-3pm	Concurrent Technical Session 1	1.5
<input type="checkbox"/>	1:30 pm-3pm	Concurrent Technical Session 2	1.5
<input type="checkbox"/>	6pm-7pm	Field Trip: Truckee River Diversion to Virginia Lake	1
TOTAL for SESSIONS ATTENDED Sunday, April 20 (6 max.):			
Tuesday, April 21		ACTIVITY	PDHs
<input type="checkbox"/>	8:30am-10am	Concurrent Technical Session 3	1.5
<input type="checkbox"/>	10:30 pm-12pm	Concurrent Technical Session 4	1.5
<input type="checkbox"/>	1:30 pm-3pm	Concurrent Technical Session 5	1.5
<input type="checkbox"/>	3:30 pm-5pm	Concurrent Technical Session 6	1.5
<input type="checkbox"/>	6pm-8pm	Field Trip: Truckee River Urban Hydrology and Downtown Riverwalk District	2
TOTAL for SESSIONS ATTENDED Tuesday, April 21(8 max.):			
Wednesday, April 22		ACTIVITY	PDHs
<input type="checkbox"/>	8:30am-10am	Concurrent Technical Session 7	1.5
<input type="checkbox"/>	10:30 pm-12pm	Concurrent Technical Session 8	1.5
<input type="checkbox"/>	1:30 pm-3pm	Concurrent Technical Session 9	1.5
<input type="checkbox"/>	4:30 pm-9pm	Model Demos and Poster Session	1.5
TOTAL for SESSIONS ATTENDED Wednesday, April 22 (6 max.):			
Thursday, April 23		ACTIVITY	PDHs
<input type="checkbox"/>	8:30am-10am	Concurrent Technical Session 10	1.5
<input type="checkbox"/>	10:30 pm-12pm	Concurrent Technical Session 11	1.5
<input type="checkbox"/>	10:30am-5:30pm	Short Course: Water Erosion Prediction Project (WEPP) Application	6.5
<input type="checkbox"/>	1pm-5pm	Short Course: Basic Principles and Data Needs of Sediment Transport Modeling	4
<input type="checkbox"/>	1pm-5pm	Short Course: Sediment Transport in Stream Channel Design	4
<input type="checkbox"/>	1pm-5pm	Short Course: Sediment Monitoring: Acoustics	4
<input type="checkbox"/>	1pm-5pm	Short Course: Application of FLOWSED and POWERSED for Stream Assessment and Design	4
TOTAL for SESSIONS ATTENDED Thursday, April 23 (8 max.):			
CONFERENCE TOTAL (36 max.):			





TUSCANY BALLROOM/EVENTS CENTER

