SEDHYD 2019

Conferences on Sedimentation and Hydrologic Modeling

www.sedhyd.org

Improving Resiliency and Sustainability of Watershed Resources and Infrastructure

Peppermill Hotel
June 24 - 28, 2019
Reno, Nevada, USA

SEDHYD 2019: Final PROGRAM

SEDHYD 2019 CONFERENCES ON SEDIMENTATION AND HYDROLOGIC MODELING

BACKGROUND. SEDHYD is the successor to the Federal Interagency Conferences on Sedimentation and Hydrologic Modeling. The first Federal Interagency Sedimentation Conference (FISC) was held in 1947. Since then, the Advisory Committee on Water Information, Subcommittee on Sedimentation (SOS) held the conference in 1963, 1976, 1986, 1991, 1996, 2001, 2006, 2010, and 2015. The Subcommittee on Hydrology (SOH) held their first Federal Interagency Workshop, "Hydrologic Modeling Demands for the 90s" in Fort Collins, Colorado, in 1993. Subsequent to that workshop, the SOH decided to hold a broader series of conferences. Federal Interagency Hydrologic Modeling Conferences (FIHMC) were held in 1998, 2002, 2006, 2010, and 2015, and covered models addressing surface water quality and quantity issues. In 2015 the SOS and SOH adopted the SEDHYD name for the conference.

Co-Sponsored by ASCE EWRI (www.ewricongress.org)

These conferences were well-attended and together have produced about 2,400 technical papers. The combined conferences provide engineers and scientists the opportunity to learn and exchange information about the latest developments and research related to sedimentation and hydrologic modeling. As a continuation of these conferences, SEDHYD 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, hydrologic modeling, and the impact of sediment on the environment.

SEDHYD follows a mixed set of formats including formal technical presentations, poster sessions, field trips, Workshops, and computer model demonstrations. SEDHYD also hosts a student paper competition for cash prizes, as well as a Young Professionals' Networking Reception.

CONFERENCE SITE. The Peppermill Hotel and Resort, Reno, Nevada, USA is the site for SEDHYD 2019. 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 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.

ORGANIZING COMMITTEE FOR THE SEDHYD 2019 CONFERENCE

Conference Chair–	Jerry Webb, WEST Consultants
Technical Program Coordinator–	Chandra Pathak, USACE
6th FIHMC Conference Chair–	Jim Barton (USACE retired) and Jessica Driscoll (USGS/Young Professional)
11th FISC Conference Chair–	Tim Randle, USBR
11th FISC Technical Program Chair–	Eddy Langendoen (ARS) and Joel Sholtes (Mesa State U./Young Professional)
Operations Chair–	Jennifer Bountry, USBR
Proceedings Coordinator–	Robert Boyd and Peter Doran (BLM)
On-line Program Coordinator	Jerry Bernard (NRCS retired)
Poster/Demo Coordinator–	Eddie Bauer (USACE)
Registration–	Darren Nezamfar, USACE and Penni Baker (USACE)
Exhibits–	Molly Wood and Tim Straub (USGS)
Workshop Coordinator–	Jeff Bradley (WEST Consultants/ASCE) and Kevin Denn (USACE/Young Professional)
Computer-A/V Coordinator–	Jeff Harris, WEST Consultants
Field Trip Coordinator–	Steve Berris (USGS) and Jena Huntington (USGS/Young Professional)
Student Program–	Amanda Cox, Saint Louis Univ.
Young Professionals Coordinator	Caroline Ubing and Sara Horgen, USBR
Additional Committee Members	Don Frevert (USBR retired), Doug Glysson (USGS retired), Matt Romkens (ARS retired), Meg Jonas (USACE retired), Jo Johnson (NRCS), Victor Homm (NOAA), Jon Fripp (NRCS)

EXHIBITS. The Exhibit Hall contains about 15 booths and is open during conference hours on Monday through Wednesday. An Opening Reception is in the Exhibit Hall on Monday from 6pm to 7:30pm. All Tuesday and Wednesday coffee breaks, poster sessions, and receptions are in the Exhibit Hall to insure that participants have ample time to visit all the exhibits. A special Exhibitors' Reception is Tuesday evening following the Technical Sessions. Exhibits close around 3:30pm on Wednesday. Exhibit Hall hours are:

EXHIBIT HALL	OPENS	CLOSES
Monday, Opening Reception	**6pm**	**7:30pm**
Tuesday	**8:30am**	**7:45pm**
Exhibitors' Reception	**5:30pm**	**7pm**
Wednesday	**10am**	**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 currently enrolled in at least nine credit hours of college for either the Spring 2018 or Spring 2019 semesters, or recently graduated in Spring or Summer 2019 are eligible to participate in the competition. A special **student lunch session** is on Tuesday at noon (***SIERRA 1748)***, during which students will have a chance to network and learn about careers in and outside the Federal Government.

YOUNG PROFESSIONALS' NETWORKING RECEPTION. Tuesday 6:30-8:30 pm, ***EDGE CLUB ROOM***. 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.

TRANSPORTATION. The Peppermill Hotel is located at 2707 South Virginia St., Reno, NV 89502, and is 2.5 miles west of the Reno-Tahoe International Airport. 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 sedhyd.org.

REGISTRATION DESK HOURS	
Sunday, June 23	2pm–6pm
Monday, June 24	7am–6:30 pm
Tuesday, June 25	7am–5:30 pm
Wednesday, June 26	7am–5:30 pm
Thursday, June 27	7am–5:30 pm
Friday, June 28	7am–12pm

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

REGISTRATION TYPES	
Regular, before May 20	$475
Regular, after May 20	$550
Student	$250
Senior*	$250
Single Day	
Tuesday	$250
Wednesday	$240
Thursday	$270
Friday	$175
Exhibitor	$1,000
Student A/V (Comp.)	-

REGULAR REGISTRATION INCLUDES:
✓ Conference Proceedings (digital download)
✓ Opening Reception, Monday 5:30pm
✓ Exhibitors' Reception, Tuesday 5:30pm
✓ All Refreshment Breaks
✓ Demo/Poster Dinner, Thursday 4pm

EXTRAS	COST
Opening Reception (Monday)	$45
Exhibitors' Reception (Tuesday) Reception	$25
Model/Demo Dinner	$50
Student luncheon	No cost to students
Young Professional Event	No cost to YP

STUDENT REGISTRATION. Student registration fees include all full conference registration items and a student lunch.

CANCELLATIONS:

NO REFUNDS WILL BE GIVEN FOR CANCELLATION REQUESTS RECEIVED AFTER MAY 20, 2019.

PROCEEDINGS. Full access to the Conference program, abstracts, and papers is available during the conference through the SEDHYD.org website.

OPENING RECEPTION ***EXHIBIT HALL***
A get-acquainted reception is on Monday, June 24, from 6 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***
An Exhibitors' Reception is on Tuesday, June 25, from 5:30pm to 7pm in the ***Exhibit Hall*** after the close of Technical Sessions.

MODEL DEMONSTRATIONS, POSTER SESSION ***TUSCANY BALLROOM D***
A Model Demonstration and Poster Session is on Thursday, June 27, from 4–8pm.

DINNER ***TUSCANY BALLROOM E AND F***
A dinner is provided in conjunction with the Model Demonstrations and Poster Session, Thursday evening, serving from 6 to 7:30pm.

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

SPEAKERS' BREAKFASTS SCHEDULE		
Tuesday, June 25	8am–9am	***TUSCANY A***
Wednesday, June 26	7:15am–8:15am	***TUSCANY A***
Thursday, June 27	7:15am–8:15am	***TUSCANY A***
Friday, June 28	7:15am–8:15am	***TUSCANY A***

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 presentation files with the A/V assistants 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 ***Tuscany Suite 1 near Registration Desk***
Laptop computers will be available throughout each day in this room for speakers to preview presentations and make updates as needed.

FIELD TRIPS

All field trips meet in the Foyer of the Tuscany Conference Center 15 minutes prior to departure. Field trips may be cancelled due to poor weather conditions or not meeting minimum registration numbers, and attendees will be offered to attend another field trip or a refund. No refunds after May 20, 2019.

FIELD EXPLORATIONS—TECHNICAL TOURS (PDHs* OFFERED)	DATE/TIME	COST
Scientific Research and Operations at Lake Tahoe, California and Nevada	Mon., June 24, 8am—5pm	$104
Understanding Reservoir Sedimentation and Channel Dynamics to Inform Fish Passage at Marble Bluff Dam on Lower Truckee River, Nevada	Mon., June 24, 8am—5pm	$71
Snow Hydrology in the Central Sierra Nevada Range, California and Nevada	Fri., June 28, 1pm—5pm	$63

**Professional Development Hours (See inside back cover)*

Scientific Research and Operations at Lake Tahoe, California and Nevada. *Monday, 24 June 2019, 8am—5pm*

Learning Objectives: Learn about the latest scientific research conducted by the University of California Davis Tahoe Environmental Research Center. Learn about the famous clarity of Lake Tahoe and the annual State of the Lake Report, which is an annual summary of scientific research on a broad array of topics by multiple agencies to assess the lake's health. Learn about the regulation and operations of Lake Tahoe Dam from Federal Water Master to meet water rights demands. Water rights to Truckee River water from Lake Tahoe satisfy many downstream water demands, including municipal and industrial demands for the Cities of Reno and Sparks, agricultural demands, and wildlife/endangered species water demands. Learn about the state-of-the-art streamflow gaging station just downstream from Lake Tahoe Dam from the USGS. This gaging station accurately quantifies the flow and volume of water released from Lake Tahoe. Learn about two **USGS** research sites that serve to monitor the water quality of tributaries and to characterize fluxes of nutrients and other water-quality constituents near the Lake Tahoe shoreline.

Tentative Itinerary for full-day trip (8-hours)

- Depart Peppermill Hotel in Reno
- Stop at UC Davis Tahoe Environmental Research Center, Incline Village, NV. See interactive exhibits on Lake Tahoe's pristine water quality, ecology, and clarity. Hear how the science performed at the lake uses collected data to identify and evaluate processes that may influence water-quality changes and trends.
- Stop at the Incline and Third Creek water monitoring sites, Incline Village, NV. Hear presentations and see how the water-quality of Lake Tahoe inflows are sampled. See how the USGS collects and disseminates turbidity information on a near-real time basis. Hear how scientists are studying how fluxes of nutrients affect the growth of algae on the shore of Lake Tahoe.
- Stop at Lake Tahoe Dam and Truckee River gaging station just downstream of the dam. Hear how the waters of Lake Tahoe are regulated and released to the Truckee River to meet the demands of many downstream water users. Hear how water rights determine how much water can be delivered to the many users. Discussion on the role atmospheric rivers play in Sierra Nevada snow hydrology, water supply, and flood hazards. See the state-of-the art gaging station that accurately measures flow information at the most upstream site on the Truckee River.
- Return to Peppermill Hotel

Mode of Transport: Motor coach will transport attendees from the conference hotel to the field stops. Mild walking along paved and unpaved ground will be required.

Presenters: Scientists and resource managers from University of California Davis, U.S. District Court Federal Water Master, and U.S. Geological Survey will present the tour.

Field Trip Leader: To be determined.

Understanding Reservoir Sedimentation and Channel Dynamics to Inform Fish Passage at Marble Bluff Dam on Lower Truckee River, Nevada.
Monday, 24 June 2019, 8am—5pm

Chair: Jennifer Bountry, USBR

Learning Objectives: Learn about the Pyramid Lake Paiute Tribal connection with the Lower Truckee River and tribal perspective on future restoration and sustainable fisheries goals. Learn how the Lower Truckee River morphology has and continues to respond to a century of water withdrawal and fluctuating Pyramid Lake levels. Learn first-hand how fisheries expert and dam operators accomplish fish passage operations in the midst of reservoir sedimentation and downstream channel incision. Learn about past and proposed management actions to address sedimentation issues impacting fish passage and upstream land management. Learn about geomorphology, fisheries, and river modeling tools used to develop the conceptual model and proposed future monitoring.

Tentative Itinerary for full-day trip (8-hours)

- Depart Peppermill Hotel in Reno
- Stop at Pyramid Lake Paiute Museum in Nixon, NV. See historical photos and hear from a tribal member on river history and restoration vision.
- Stop at Marble Bluff Dam near Nixon, NV. Tour of facility, overview of operating system, and fish sampling and tagging process for native species the fish facility passes upstream including the endangered Cui-ui, threatened Lahontan Cutthroat Trout (LCT), and the Tahoe Sucker. Observe reservoir sedimentation issues and discuss how sediment deposition has affected facility operations and fish passage as a whole. Discuss management strategies and future operation plans.
- Lower Truckee River delta at Pyramid Lake, NV. Have lunch at fishway entrance and hear about history of the Pyramid Lake fluctuations, fish passage challenges, reintroduction of the Lahontan Cuthroat Trout, and importance of landscape to the tribe. After lunch walk over to river delta and explore the dynamics of how the Lower Truckee responds to fluctuating lake levels and effect on floodplain and terrace formation. Overlook stop at Numana Dam–the upstream extent of river incision response from lowering of Pyramid Lake.
- Return to Peppermill Hotel

Mode of Transport: Motor coach will transport attendees from the conference hotel to the field stops. Mild walking along paved and unpaved ground will be required.

Presenters: Scientists and river managers from Pyramid Lake Paiute Tribe, Bureau of Reclamation, and USFWS will present the tour.

Field Trip Leader: Jennifer Bountry, Professional Engineer, Bureau of Reclamation

Field Trip: Snow Hydrology in the Central Sierra Nevada Range, California and Nevada. *Friday, 28 June, 1pm—5pm*

Chair: Jeff Anderson

Learning Objectives: Learn about the University of California Berkeley research station near Donner Pass and its history of contributions towards the measurement of snow, spatial and temporal distributions of snowpack, and ground and surface water response to snow accumulation and ablation.

Learn about the Natural Resources Conservation Service (NRCS) mission to measure, evaluate, and disseminate snowpack conditions and how the NRCS uses that information to forecast water supplies.

Learn how the NRCS currently measures snow pack conditions and disseminates that information to the public on a near real-time basis.

Learn about the long history of snow measurement at Mount Rose, the location where Dr. James Edward Church measured and recorded snow and weather conditions since 1905. Dr. Church invented a sampling device, the Mount Rose snow sampler) that could penetrate deep ice and snow to measure snow depth and water content. These measurements continue to be used to help predict spring and summer runoff.

Tentative Itinerary for half-day trip (5-hours)

1. Depart Peppermill Hotel in Reno
2. Stop at Central Sierra Snow Lab near Donner Pass, CA
   a. See the snowpack research site where measurement instruments are tested, and snowpack parameters are measured for snow physics and hydrology studies.
3. Stop at Mount Rose snow measurement site, NV
   a. Tour the NRCS SNOTEL site to see how snow surveys are done. See the automated and manual snow measurement instruments.
   b. Discussion on the role atmospheric rivers play in Sierra Nevada snow hydrology, water supply, and flood hazards.
4. Return to Peppermill Hotel

Mode of Transport: Motor coach will transport attendees from the conference hotel to the field stops. Mild walking along paved and unpaved ground will be required. If winter 2018/19 is a record or near record snowfall year, snow may still be in the ground in late June. In that case, hiking boots or shoes will be more comfortable than street shoes.

Presenters: Scientists and resource managers from University of California Berkeley, Natural Resources Conservation Service, and U.S. Geological Survey will present the tour.

Field Trip Leader: Jeff Anderson is the Nevada Water Supply Specialist for the Natural Resources Conservation Service (NRCS) Snow Survey and Water Supply Forecasting Program. He spends winters measuring snow in the Lake Tahoe region and keeping the public informed about snowpack and water supply conditions for the Silver State. His summers are spent maintaining SNOTEL stations in the eastern Sierra and across Nevada.

WORKSHOPS

Note: Workshops 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, 2019.**

WORKSHOP TITLE	FEE	TIME	LOCATION
MONDAY, JUNE 24, 2019			
Reservoir Sedimentation and Sustainability Team Workshop	$40	8am–12pm	*TUSCANY 3*
Stage 0 Restoration: Planning, Design, Implementation, and Appraisal	$75	8am–5pm	*TUSCANY 4*
Sediment Data Collection and Records Computation Techniques	$40	8am–12pm	*TUSCANY 5*
Sediment Sourcing Workshop	$40	8am–12pm	*TUSCANY 6*
Application of Numerical Models to Simulate Hydrology, Reservoir Operations, River Hydraulics and Flood Impacts	$40	8am–12pm	*TUSCANY 11*
Part A--Introduction to Successful Sediment Transport Modeling	$40	8am–12pm	*TUSCANY 12*
Part B--Sediment Transport Modeling in 1D Using HEC-RAS	$40	1pm–5pm	*TUSCANY 12*
An Overview of Selected Sediment Surrogate Techniques	$40	1pm–5pm	*TUSCANY 5*
New Features of HEC-RAS 5.1	$40	1pm–5pm	*TUSCANY 6*
Use of Bulletin 17C for Flow Frequency Analysis	$40	1pm–5pm	*TUSCANY 11*
FRIDAY, JUNE 28, 2019			
Sediment Transport Modeling in Streams with SRH-2D	$40	1pm–5pm	*TUSCANY 12*

All Monday courses that start before noon have morning refreshment breaks. All Monday courses have afternoon refreshment breaks. The Friday course has an afternoon break only. No lunches are included.

Workshops: MONDAY, JUNE 24, 2019

National Reservoir Sedimentation and Sustainability Team Workshop
Monday, June 24, 9am—12pm ***TUSCANY 3***

Description: This workshop will be a working meeting of the National Reservoir Sedimentation and Sustainability Team. There will not be presentations, but team will discuss the roll out of the white paper and development of short course materials for future use.

Team: Subcommittee on Sedimentation, National Reservoir Sedimentation and Sustainability Team: **Tim Randle,** Workshop Chair

STAGE 0 RESTORATION: PLANNING, DESIGN, IMPLEMENTATION, AND APPRAISAL
Monday June 24, 8am—5pm. ***TUSCANY 4***

Description: Stage 0 has been recognized as an ecologically superior restoration goal for alluvial valleys with incised channels. This course will cover the most up-to-date theory and practice of Stage 0 restoration throughout the life cycle of a project, including the supporting science, planning where and under what conditions Stage 0 is a relevant goal that supports species recovery, methods of design and construction including examples ranging from nudging deposition processes to wholesale resetting of valleys. Examples will be from diverse ecoregions, will put Stage 0 in risk vs. performance context to established restoration practice, will address permitting concerns, and emerging post construction appraisal and monitoring methods. One method, resetting alluvial valleys to Stage 0 conditions, will be included as a class design exercise. However other less invasive methods for addressing incised channels will be presented.

Instructors: **Brian Cluer**, NOAA; **Colin Thorne**, Consultant; **Sue Niezgoda**, Gonzaga U.; **Paul Powers**, Consultant

SEDIMENT DATA COLLECTION AND RECORDS
Monday, June 24, 8am—12pm. ***TUSCANY 5***

Description: This training course is intended to provide an overview of the following topics:

- Basic fluvial-sediment concepts and physical properties of fluvial sediment
- Design and function of suspended-sediment and water-quality samplers
- Sampling techniques for suspended sediment
- Computation techniques and software for generating sediment load records

Instructors: **Gary Johnson**, USGS; **Greg Koltun**, USGS; **John R. Gray**, Principal, Gray Sedimentology, LLC

SEDIMENT SOURCING WORKSHOP
Monday, June 24, 8am—12pm. ***TUSCANY 6***

Description: Sediment, whether in suspension in the water column, or as deposition on a stream or lake bed, is one of the most common causes of loss of stream-biologic integrity. Sediment also reduces the capacity of our nation's water-supply reservoirs. An important strategy in managing sediment is to determine the dominant sources and transport pathways in any given watershed. This half-day workshop will outline approaches and methods for determining sediment sources by using a sediment budget framework. We will discuss how a sediment budget is accomplished by using available tools and resources, including recent advances in multi-temporal remote sensing (lidar, structure-from-motion (SfM)). In order to conduct a sediment budget study, the sources of sediment should be clearly defined. The sediment fingerprinting approach, which identifies specific sediment sources by establishing a minimal set of physical and (or) chemical properties that uniquely characterize each source in the watershed, will be highlighted, and the steps necessary to conduct a sediment fingerprinting study will be outlined. The workshop will also instruct and demonstrate the use of the USGS Sediment Source Assessment Tool (Sed_SAT). Sed_SAT is a program written in the statistical language R (R Core Team, 2016) and utilizes a Microsoft Access® interface that allows the user to step through all the necessary analytical steps to apportion sediment. Participants are encouraged to download the program at https://my.usgs.gov/bitbucket/projects/SED/repos/sed_sat/browse, and bring their laptops to the workshop.

**Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.*

Instructors: **Allen C. Gellis**, U.S. Geological Survey, MD-DE-DC WSC, Baltimore, MD; **Lillian Gorman Sanisaca**, U.S. Geological Survey, MD-DE-DC WSC, Baltimore, MD

APPLICATION OF NUMERICAL MODELS TO SIMULATE HYDROLOGY, RESERVOIR OPERATIONS, RIVER HYDRAULICS AND FLOOD IMPACTS
Monday, June 24, 8am—12pm. ***TUSCANY 11***
Presented by the National Reservoir Sedimentation Team, Subcommittee on Sedimentation.

Description: The Hydrologic Engineering Center's Real-Time Simulation (HEC-RTS) program package is a comprehensive data management as well as hydrologic and hydraulic modeling system for short-term water management decision support. Through HEC-DSS (Data Storage System), HEC-RTS facilitates the real-time use of observed and forecasted precipitation, observed flows and stages, and other meteorological and hydrologic data. HEC-RTS also facilitates the integration of HEC-HMS (Hydrologic Modeling System) for forecasting flows throughout a watershed, HEC-ResSim (Reservoir System Simulation) for simulating reservoir operations and release decisions, HEC-RAS (River Analysis System) for forecasting river stages and producing flood inundation maps, and HEC-FIA (Flood Impact Analysis) for estimating potential flood impacts on life safety and agricultural and urban infrastructure. This Workshop will provide an overview of HEC-RTS and its data and modeling components. The course will also include HEC-RTS live demonstrations of real-time data acquisition, the use of gridded precipitation preprocessor, flow forecasting, reservoir releases determination, and flood inundation map generation for decision support.

Instructors: **Fauwaz Hanbali**, Senior Hydraulic Engineer, US Army Corps of Engineers Hydrologic Engineering Center (HEC); **Matt McPherson**, Senior Hydraulic Engineer, US Army Corps of Engineers Hydrologic Engineering Center (HEC)

PART A--INTRODUCTION TO SUCCESSFUL SEDIMENT TRANSPORT MODELING
Monday, June 24, 8am—12pm. ***TUSCANY 12***

Description: This Workshop 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 appropriate sediment transport model and steps necessary 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 budgets, one-dimensional, and two-dimensional sediment transport models will be discussed. The importance of understanding model limitations will be emphasized as that is the key to properly designing and interpreting the analysis. This course is intended to be a pre-cursor to the course "Sediment Transport Modeling in 1D using HEC-RAS" and "Sediment Transport Modeling with SRH-2D".

Instructor: **Dr. Blair Greimann**, USBR

PART B--SEDIMENT TRANSPORT MODELING IN 1D USING HEC-RAS
Monday, June 24, 1pm—5pm. ***TUSCANY 12***

Description: This Workshop is a continuation of "Introduction to Successful Sediment Transport Modeling" course. This course will focus on the application of one-dimension sediment transport models. We will describe the data requirements and data collection activities necessary for the model. 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. Methods to address model uncertainty will be suggested. Participants will be guided through the development of an actual sediment transport simulation using HEC-RAS.

Instructor: **Stanford Gibson**, Hydrologic Engineering Center, US Army Corps of Engineers

AN OVERVIEW OF SELECTED SEDIMENT SURROGATE TECHNIQUES
Monday, June 24, 1pm—5pm. ***TUSCANY 5***

Description: This Workshop will cover highlights of selected sediment surrogate techniques being used or funded for evaluation by the Federal Interagency Sedimentation Project Technical Committee (FISP TC). FISP TC members will present the operational status, use cases, and procedural highlights of each technique. The Workshop agenda may change but is expected to include:

- Introduction (0.25 hour):
- Surrogates for suspended sediment (1.5 hours):
- Acoustic method using sidelooking and downlooking meters
- Point methods (turbidity and acoustic backscatter)
- Pressure difference
- Break (0.25 hour)
- Surrogates for bedload sediment (1.5 hours):
- Sediment-generated noise/hydrophones
- Impact plates
- Gravel tracers
- Open panel discussion on future research needs in sediment surrogates (0.5 hour)

Instructors: **Molly Wood**, USGS; **Tim Straub**, USGS; **Roger Kuhnle**, USDA ARS; **Rob Hilldale**, USBR; **James Selegean**, USACE

NEW FEATURES OF HEC-RAS 5.1
Monday, June 24, 1pm—5pm. ***TUSCANY 6***

Description: In this Workshop we will cover many of the new features that are being added to HEC-RAS 5.1. Students will learn about the new features being developed and how to use them to solve river hydraulics problems. Example applications of these new features will be shown. Some of the new features that will be discussed in the workshop are:

- Spatial precipitation
- Spatial Infiltration
- Wind Forces
- Pump stations inside 2D Flow Areas
- Bridge Hydraulics inside 2D Flow Areas
- Physically Based Dam and Levee Breaching
- 3D Visualization tool
- New Features within HEC-RAS Mapper

Instructors: **Gary W. Brunner**, P.E., D. WRE, Hydrologic Engineering Center, U.S. Army Corps of Engineers.; **Cameron T. Ackerman**, P.E., D. WRE, Hydrologic Engineering Center, U.S. Army Corps of Engineers.

USE OF BULLETIN 17C FOR FLOW FREQUENCY ANALYSIS
Monday, June 24, 1pm—5pm. ***TUSCANY 11***

Description: Flood-frequency analysis of peak streamflow records provides the essential statistical interpretation of hydrologic data for estimating flood risk and for floodplain mapping. This workshop provides an overview and refresher on flood-frequency analysis of peak streamflow data, as well as introducing methods adopted in the new federal guidelines, Bulletin 17C at https://doi.org/10.3133/tm4B5. These new methods include a generalized method-of-moments estimator, the Expected Moments Algorithm (EMA), for dealing with zeros, low outliers and historical data. It also employs a generalized version of the Grubbs-Beck test (MGB) for the identification of potentially influential low floods (PILFs). Participants will learn about methods implemented in Bulletin 17C, how to properly characterize flood peaks for inclusion in a Bulletin 17C analysis, and how to interpret Bulletin 17C flood frequency analyses. Software with actual examples from Bulletin 17C will be used.

Instructor: **Michael Bartles**, Hydraulic Engineer, Hydrologic Engineering Center, U.S. Army Corps of Engineers

WORKSHOP: FRIDAY, JUNE 28, 2019

SEDIMENT TRANSPORT MODELING IN STREAMS WITH SRH-2D
Friday, June 28, 1pm—5pm. ***TUSCANY 12***

Description: SRH-2D is a two-dimensional (2D) depth-integrated flow and sediment transport model developed at the Bureau of Reclamation. It has been used for a wide range of engineering projects over a decade. The key feature of SRH-2D is that robust and stable numerical schemes have been adopted so that reliable solutions may be obtained with only a few calibration parameters. SRH-2D model, along with the manual and selected publications, are free to download and the latest version will be distributed at the class. Highlights include: (a) a new Reclamation developed 2D mesh generator, SRH-Mesh; (b) new improvements and additions; (c) a case study used to teach various aspects of sediment modeling; and (d) hands-on learning of running SRH-2D. The outline of the topics covered in the class is as follows:

- SRH-Mesh Introduction
- SRH-Mesh Demonstration
- SRH-2D New Capabilities
- Description of a Sediment Case: Study questions; Domain setup and mesh development
- Hands-on Learning of Running SRH-2D: Parameter selection guideline; Calibration and sensitivity essentials; Modeling tips
- Results Interpretation

Attendees will learn the following: (1) A new and free 2D mesh generator SRH-Mesh; (2) How to approach sediment related study questions; (3) What key data are needed for sediment modeling; (4) Relative importance of input data; and (5) how to run SRH-2D for sediment modeling.

Instructors: **Yong Lai**, Technical Service Center, U.S. Bureau of Reclamation and **Victor Huang**, Technical Service Center, U.S. Bureau of Reclamation

TUESDAY–MORNING, JUNE 25, 2019

8am — **SPEAKERS' BREAKFAST, *TUSCANY A***

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

OPENING SESSION
9:30am-noon — TUESDAY — 6/25/19
TUSCANY BALL ROOM

Jerry W. Webb, P.E., D.WRE, WEST Consultants, SEDHYD 2019 Chair, West Virginia	***Call to order***
Chandra S. Pathak, PhD, PE, F.ASCE, Conference Technical Program Chair, US Army Corps of Engineers, Washington, DC	***SEDHYD Technical Program***
Amanda Cox, PhD, P.E., Student Paper Competition Chair, Saint Louis University, Saint Louis, MO	***SEDHYD Student Awards***
David Williams, PhD, P.E., P.H., D.WRE American Institute of Hydrology (AIH), Commerce City, CO	***AIH Awards***
George Annandale, PhD, P.E, Consultant, Littleton, CO	***Keynote Address***
Lauren Hay, PhD, Research Hydrologist, U.S. Geological Service, Denver, CO	***Keynote Address***
Kristina L. Swallow, P.E., Past President, ASCE	***Keynote Address***

NOON — **LUNCH ON YOUR OWN**
(You have 1½ hours before Technical Program)

NOON — **STUDENT LUNCHEON –*SIERRA 1748***

TUESDAY–AFTERNOON, JUNE 25, 2019

1:30pm TECHNICAL PROGRAM Begins

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

1:30pm	TUESDAY	6/25/19
1A	**FLOOD HYDROLOGY I**	**TUSCANY #7**
Chairs: Angela Duren, USACE; and Keil Neff, USBR		

1:30pm **Snowmelt Simulation Enhancements Within HEC-HMS.** Michael Bartles; William Scharffenberg; Michael Follum

1:50pm **Advances in Snowmelt Modeling in the Midwest, Red River of the North.** Ann Bantit; Emily Moe; Kevin Denn; Carrie Vuyovich

2:10pm **A Modified Temperature-Based Method to Spatially Simulate Frozen Ground Within Gssha and HEC-HMS**. Michael Follum; William Scharffenberg; Jeffrey Niemann

2:30pm **Flood-Inundation Mapping of Steep, Gravel Desert Stream in Death Valley National Park, California.** Christopher Morris; Toby Welborn

1:30pm	TUESDAY	6/25/19
1B	**WATERSHED MANAGEMENT I**	**TUSCANY #8**
Chairs: Diane Guthrie, USDA; and Claudia Hoeft, USDA		

1:30pm **Military Disturbance Tool in the Automated Geospatial Watershed Assessment (AGWA) Tool for Management of Military Lands.** Lainie Levick; Haiyan Wei; Shea Burns; Philip Guertin; David Goodrich.

1:50pm **Updating the Curve Number Method for Rainfall Runoff Estimation.** Richard H. Hawkins; Tim Ward; Donald E. Woodward

2:10pm **The Impact of Small Ponds on Streamflow Response and Sediment Yield: a Colorado Case Study.** D. Phillip Guertin; David Goodrich; I. Shea Burns; Lainie Levick ; Haiyan Wei; Jane Patel; Carl Unkrick.

2:30pm **The Evaluation of Stormwater Runoff to Recharge Groundwater for Use At Fort Irwin.** Ben Olimpio; David Goodrich; Stephen Kraemer; Lainie Levick; Phil Guertin

1:30pm	TUESDAY	6/25/19
1C	**SEDIMENT PROPERTIES**	**TUSCANY #9**
Chairs: Jerry Bernard, Retd NRCS; and Katherine Norton, USGS		

1:30pm **Assessing the Precision and Accuracy of Particle-Size Analysis With a Laboratory Laser-Diffraction Analyzer.** Katherine Norton.

1:50pm **Capturing Lead-Contaminated Sediment from a River Using a Side Channel Trap.** Joe Collum

2:10pm **Through Ice Bed Material Sampling to Determine Main Channel Bed Material Gradation on a Large Seasonably Turbid River.** Ryan Kilgren; Bill Fullerton; Renee Vandermause

2:30pm *vacant*

1:30pm	TUESDAY	6/25/19
1D	**PHYSICAL SEDIMENT LOAD MEASUREMENTS I**	**TUSCANY #10**
Chairs: Jonathan Laronne, BGU; and Kurt Spicer, USGS		

1:30pm **Analysis of Suspended Sediment Concentrations During Flash Flood Events on the Arroyo de Los Piños.** Jonathan Laronne; Kyle Stark; Daniel Cadol; David Varyu; Madeline Richards

1:50pm **Initial Bedload Flux Results from Flash Floods in the Arroyo de Los Piños, NM.** Daniel Cadol; Kyle Stark; Jonathan Laronne; Madeline Richards; David Varyu.

2:10pm **Application of Dimensionless Sediment Rating Curves to Predict Suspended-Sediment Concentrations, Bedload, and Annual Sediment Loads for Rivers in Minnesota.** Christopher Ellison; Joel Groten

2:30pm *vacant*

1:30pm	TUESDAY	6/25/19
1E	**HYDRAULIC AND SEDIMENT TRANSPORT MODELING I**	**TUSCANY #11**
Chairs: Yong Lai, USBR; and Stanford Gibson, USACE		

1:30pm **Automating the Classification of Hysteresis in Event Concentration-Discharge Relationships.** Scott Hamshaw; Doug Denu; Maike Holthuijzen; Safwan Wshah; Donna Rizzo.

1:50pm **A Particle Tracking Model for Predicting the Mass and Location of the Plumes and Depositional Areas of Oil-Particle-Aggregates (opas) in Rivers After an Oil Spill.** David Soong; Zhenduo Zhu; Faith Fitzpatrick; Marcdelo Garcia; Tatiana Garcia

2:10pm **Uncertainty in Sediment Transport Balance Estimates Using Sediment Load and River Transect Data.** Robert Mussetter

2:30pm **Using HEC-WAT and HEC-RAS-Sediment to the Evaluate the Effect of Hydrologic Uncertainty on Bed Evolution.** Stanford Gibson; William Lehman ; Michael Koohafkan

1:30pm	TUESDAY	6/25/19
1F	**RESERVOIR SEDIMENTATION AND SUSTAINABILITY I**	**TUSCANY #12**
Chairs: Gregory Morris, Consultant; and Jon Hendrickson, USACE		

1:30pm **Understanding the Environmental Parameters That Influence Reservoir Sedimentation.** Melissa Foster; Blair Greimann; Vincent Benoit

1:50pm **Factors Controlling Reservoir Sedimentation Rates in the Little Washita River Experimental Watershed, Oklahoma.** Daniel Moriasi; Jean Steiner; Sara Duke; Patrick Starks; Alan Verser

2:10pm **Effects of Bank Stabilization on Regional Sediment Management (RSM).** Aaron Williams; John Shelley

2:30pm **Surrogate Streamgage, Snowmelt, and Sedimentation Rates to Provide Design Parameters for a High Hazard Dam Rehabilitation Alternatives.** Nathaniel Todea

3pm	BREAK	EXHIBIT HALL

3:30pm	TUESDAY	6/25/19
2A	**FLOOD HYDROLOGY II**	**TUSCANY #7**
Chairs: Ann Banitt, USACE; and Chandra Pathak, USACE		

3:30pm **Flood Potential and Hazard in the Southern Rocky Mountains Region.** Steven Yochum; David Levinson

3:50pm **Pawnee Dam IDF Update and Stage-Frequency Curve Development Using RMC-RFA.** Josh Melliger**,** Jennifer Christensen

4:10pm **Using Multiple Methods to Estimate Frequency Hydrology for Shasta Dam.** Frank Dworak; Keil Neff; Amanda Stone

4:30pm **Improved Flow Frequency Techniques with Frequency-Based Storms and Bulletin 17C.** Katherine Werner

3:30pm	TUESDAY	6/25/19
2B	**WATERSHED MANAGEMENT II**	**TUSCANY #8**
Chairs: David Ramirez, USACE; and Joseph Lange, NRCS		

3:30pm **Leveraging Relationships and Agency Products: InFRM–Interagency Flood Risk Management.** Jerry Cotter

3:50pm **The InFRM Hydrology Assessments for Large River Basins in Texas.** Helena Mosser

4:10pm **Integrated Hydrologic Modeling of the Salinas River for Sustainable Water Management.** Joseph Hevesi; Wesley Henson; Scott Boyce

4:30pm **Sediment Production and Delivery from Unpaved Roads: a Little-Recognized But Significant Sediment Source.** Lee MacDonald; Gabriel Sosa-Pérez

3:30pm	TUESDAY	6/25/19
2C	**SEDIMENT YIELD AND FINGERPRINTING**	**TUSCANY #9**
Chairs: James Selegean, USACE; and Faith Fitzpatrick, USGS		

3:30pm **Instream Sources of Suspended Sediment and Phosphorus from an Agricultural Tributary to the Great Lakes.** Faith Fitzpatrick; James Blount; Leah Kammel; Sarah Francart; Allen Gellis; Barbara Eikenberry

3:50pm **Sediment Yield Estimates for 170,000+ NHDPlusv2 Catchments in the Ohio River Basin Using the NASA-NLDAS Runoff Dataset.** James Lewis; Ahmad Tavakoly; Travis Dahl

4:10pm **A Comparison of Five Different Methods for Validating Sediment Yield to Reservoirs in the Great Lakes.** James Selegean; Mark Baskaran; Carol Miller; a Kumar; Travis Dahl; John Barkach; Fatemeh Babakhani; Calvin Creech

4:30pm **Tracking Phosphorus and Sediment Sources and Transport from Fields and Channels in Great Lakes Restoration Initiative Priority Watersheds.** Tanja Williamson; Faith Fitzpatrick; Diana Karwan; Randall Kolka; Edward Dobrowolski; James Blount; Ethan Pawlowski

3:30pm TUESDAY 6/25/19

2D PHYSICAL SEDIMENT LOAD MEASUREMENTS II TUSCANY #10

Chairs: Molly Wood, USGS; and Keelan Jensen, WEST Consultants

3:30pm **Strategic Directions of the USGS Water Mission Area's Sediment Science Program.** Molly Wood; Tim Straub

3:50pm **FISP: What's New in Samplers and Measurement Technologies.** Tim Straub

4:10pm **Comparability of River Suspended-Sediment Sampling and Laboratory Analysis Methods.** Joel Groten; Gregory Johnson; Christopher Ellison

4:30pm **Investigation of Suspended-Sediment Concentration in the Mississippi River Using LISST and Remote Sensing Surrogate Methods.** Amanda Cox; Megan Martinez

3:30pm TUESDAY 6/25/19

2E HYDRAULIC AND SEDIMENT TRANSPORT MODELING II TUSCANY #11

Chairs: Jianchun Huang, USBR; and Baha Abulnaga Splitvane Engineers, Inc.

3:30pm **Rational Alternative to Linear Excess Shear Stress Formulation for Modeling Fluvial Erosion in Noncohesive Bank Materials Mobilized as Bedload.** David Waterman; Kory Konsoer; Marcelo Garcia

3:50pm **Modelling Dynamic Bank-Erosion Processes to Evaluate Impacts of Flow Regulation and to Develop Flow Metrics Based on Magnitude and Duration of Flows Above Erosion Thresholds.** Andrew Simon; Jennifer Hammond; Kimberly Artita

4:10pm **Modeling Bank Migration on the Missouri River With HEC-RAS: a Calibrated HEC-RAS/BSTEM Model.** Michael Koohafkan; Stanford Gibson; Daniel Pridal; Paul Boyd

4:30pm **Streambank Erosion Assessment in the Catalpa Creek in Mississippi.** John Ramirez-Avila; Tim Schauwecker; Joby Czarnecky; Sandra Ortega-Achury; Eddy Langendoen

3:30pm TUESDAY 6/25/19

2F RESERVOIR SEDIMENTATION AND SUSTAINABILITY II TUSCANY #12

Chairs: Timothy Randle, USBR; and Daniel Moriasi, USDA

3:30pm **Linkages Between Sedimentation Regimes and Erosion During Streambed Drawdowns in a Flood-Control Reservoir in the Oregon Cascades.** Mackenzie Keith; Laurel Stratton

3:50pm **Erodibility Characteristics of Cohesive Sediment Deposits in a Large Midwestern Reservoir and Implications for Management.** John Shelley; Robert Wells

4:10pm **Cherry Creek Pressure Flushing Analysis.** Kent Collins; Paul Boyd; John Shelley; Daniel Dombroski; Blair Greimann

4:30pm **Improving Sediment Management in the Cowlitz Falls Hydropower Facility.** Achilleas Tsakiris; Casey Kramer; Brad Hall; Jose Vasquez

5:15pm—6:45pm EXHIBITORS' RECEPTION EXHIBIT HALL

WEDNESDAY–MORNING, JUNE 26, 2019

7:15am SPEAKERS' BREAKFAST TUSCANY A

8:30am WEDNESDAY 6/26/19

3A FLOOD HYDROLOGY III TUSCANY #7

Chairs: Marcela Politano, Univ of Iowa; and Cameron Ackerman, USACE

8:30am **Application of a Markov Chain Monte Carlo Sampler to Infer Parameter Uncertainty Distributions Using HEC-HMS.** Angela Duren; Brian Skahill; William Scharffenberg

8:50am **Extreme Weather in Iowa and Midwest June 2018 – May 2019.** Antonio Arenas; Chad Drake; Daniel Gilles; Nathan Young; Iris Brenner

9:10am **Evaluation of Flood Mitigation Strategies in an Agricultural Watershed in Iowa Using Physically-Based Modeling.** Antonio Arenas; Marcela Politano; Maral Razmand; Larry Weber

9:30am **Hydrologic Hazard Curve Development for Final Design and Risk Assessment.** Keil Neff; Frank Dworak; Amanda Stone

8:30am WEDNESDAY 6/26/19

3B MANAGEMENT AND DECISION MAKING MODELS I TUSCANY #8

Chairs: Lea Adams, USACE; and Gary Brunner, USACE

8:30am **US Army Corps of Engineers' Corps Water Management System (CWMS) Team Forecasting Session: HEC Watershed System Decision Tools.** Chan Modini; Fauwaz Hanbali

8:50am **US Army Corps of Engineers' Corps Water Management System (CWMS) Overview Session: HEC Watershed System Decision Tools.** Chan Modini; Matthew McPherson

9:10am **CWMS National Implementation Plan.** Christopher Dunn; Cory Winders

9:30am **HEC-WAT: a Planning Tool for Watersheds.** Lea Adams, P.E.; Will Lehman

8:30am WEDNESDAY 6/26/19

3C FLUVIAL GEOMORPHOLOGY I TUSCANY #9

Chairs: J. Toby Minear, CU; and Melissa Foster, USBR

8:30am **Multi-Decadal Geomorphic Evolution in a Volcanically Disturbed River System—relative Significance of Vertical Versus Lateral Adjustments and Their Impacts on Sediment Delivery.** Jon Major; Shan Zheng; Adam Mosbrucker; Colin Thorne; Kurt Spicer; Tami Christianson

8:50am **An Assessment of a LiDAR-Based Approach for Estimating Regional Hydraulic Geometry Relationships for the Southern Driftless Area of the Midwest.** Christopher Haring

9:10am **Effects of Dikes Systems on Channel Morphology of the Lower Mississippi River.** Casey Mayne; David Biedenharn; David May; Kathleen Staebell

9:30am **Field-Scale Sediment Feed Flume: Upper Santa Ana River, California.** Scott Wright; Toby Minear

8:30am WEDNESDAY 6/26/19

3D PHYSICAL SEDIMENT LOAD MEASUREMENTS III TUSCANY #10

Chairs: Daniel Wren, ARS; and Jena Huntington, USGS

8:30am **Scooping-Induced Bias of Physical Bedload Measurements and a Recommended Solution for Pressure-Difference Bedload Samplers.** David Pizzi; Michael Pierce

8:50am **Facilities, Data, and Analytical Methods Used to Derive S- and Gravel-Trapping Efficiencies for Four Types of Pressure-Difference BEdload Samplers.** John Gray; Gregory Schwarz; Jonathan Czuba; Kyle Strom; Panayiotis Diplas

9:10am **Bedload Traps and Helley-Smith Samplers Collect Different Transport Rates and Particle Sizes of Gravel Bedload.** Kristin Bunte; Kurt Swingle; Robert Ettema; Steven Abt; Dan Cenderelli

9:30am **Mobile Bed Discharge Gaging.** Stephen Brown

8:30am WEDNESDAY 6/26/19

3E HYDRAULIC AND SEDIMENT TRANSPORT MODELING III TUSCANY #11

Chairs: Blair Greimann, USBR; and Scott Hamshaw, UVMU

8:30am **Development of a Fully Unsteady Flow Sediment Transport Model for the Mississippi River Below Tarbert Landing.** Travis Dahl; Stanford Gibson; Christopher Nygaard; Ronald Heath

8:50am **Sediment Routing Study and Impacts Analysis of USACE Management of the Missouri River, 1994-2014.** Robert Mussetter; Miles Yaw

9:10am **Kansas River 1-D HEC-RAS Sediment Transport Model.** Aaron Williams; John Shelley

9:30am **Middle Rio Grande and Tributaries Numerical Sediment Routing Study, Cochiti Dam to Elephant Butte Reservoir.** Miles Yaw; David Pizzi; Jonathan AuBuchon; Ryan Gronewold

8:30am WEDNESDAY 6/26/19

3F RESERVOIR SEDIMENTATION AND SUSTAINABILITY III TUSCANY #12

Chairs: Paul Boyd, USACE; and Machenzie Keith, USGS

8:30am **Projected Changes in Sedimentation At Seven USACE Reservoirs on the Southern Plains.** Ariane Pinson; Pierre Julien; Bryan Baker; Kathleen White

8:50am **National Drought Resilience Partnership Data Collection.** Bryan Baker; Ariane Pinson; Sean Kimbrel; Kate White; Amanda Waller Walsh; Paul Boyd

9:10am **Comparing Reservoir Sediment Yield, Depletion, and Sustainability Within the Missouri River Basin.** Daniel Pridal; Paul Boyd; Larry Morong

9:30am **Evaluating Post-Wildfire Impacts to Cochiti Lake Flood-Risk Management: Las Conchas Wildfire, New Mexico.** Marielys Ramos-Villanueva; Ian Floyd; Ronald Heath; Stephen Brown; Stephen Scissons

8:30am WEDNESDAY 6/26/19

3G — INTERNATIONAL OPPORTUNITIES - BRAZILFLOOD — TUSCANY #6

Chairs: Renato Amorim, DNIT; and Calvin Creech, USACE

8:30am **Combined Fluvial Geomorphology, Sediment Transport and Hydrodynamic Model of Navigation Improvement Designs on the Madeira River, Brazil.** Calvin Creech; Stanford Gibson; Ana Luisa N.A. Osorio; John Hazelton; Renato Souza Amorim; Timothy Lauth

8:50am **Navigation & Ecological Implications for Management of Large Wood on the Madeira "wood" River, Amazonas Basin, Brazil.** Zachary Corum; Renato Amorim ; Calvin Creech

9:10am **Development of a Navigation Channel Coincident Probability Method for Improving Navigation Reliability in a Reservoir Backwater Influenced River, Tocantins, Brazil.** William Veatch; Matthew Dircksen; Calvin Creech; Renato Amorim

9:30am **Development and Use of Hydraulic Modeling for a Navigation Project in a Reservoir Backwater Influenced River.** Matthew Dircksen; Calvin Creech; Renato Amorim; William Veatch; Ana Luisa N.A.O. Castañon

10am BREAK — EXHIBIT HALL

10:30am WEDNESDAY 6/26/19

4A — FORECASTING I — TUSCANY #7

Chairs: Cary Talbot, USACE; and Peter Robichaud, FS

10:30am **Development of a Multi-Agency, Short-Term, Operational Forecast Model for the Niagara River.** Tim Calappi; Katherine Labuhn; Drew Gronewold; Alison MacNeil

10:50am **Improving Seasonal Forecasting to Support Operational Decision-Making and Policy Within Bureau of Reclamation Service Areas.** Dagmar Llewellyn; Flavio Lehner; Andy Wood; Angus Goodbody; Florian Pappenberger

11:10am **Overcoming the Challenge of Initial Parameter Estimation for Event-Based Hydrological Models (HEC-HMS).** Luciana Cunha; David Curtis; Travis Stanford; Jerry Cotter

11:30am **Implementation of HEC-RTS for Rapid Flood Forecasting and Online Mapping.** Barnard Mondal; Rosa Smith; Martin Teal; Rand Allan; David Smith

10:30am WEDNESDAY 6/26/19

4B — MANAGEMENT AND DECISION MAKING MODELS II — TUSCANY #8

Chairs: Chris Dunn, USACE and Henry Hu, WEST Consultants

10:30am **River and Reservoir Operations Using RiverWare Within the Corps Water Management System (CWMS).** David Neumann; Edith Zagona; Jennifer Short; Marc Sidlow; Matt Wunsch; John Hunter

10:50am **The Arkansas River Basin RiverWare Model.** Todd Vandegrift; Shane Coors

11:10am **2-D HEC-RAS Modelling to Visualize Aquatic Fishery Habitat (rio Grande Silvery Minnow) With a Suitability Index; Potential for Habitat Restoration Adaptive Management and Monitoring.** Aubrey Harris; Eric Gonzales; Jennifer Bachus; Nathan Holste

11:30am **Aquifer Characteristics for Predicting Groundwater Table using van Deemter's Analysis.** Mathias Römkens

10:30am WEDNESDAY 6/26/19

4C — FLUVIAL GEOMORPHOLOGY II — TUSCANY #9

Chairs: Scott Wright, USGS; and Mark Hall, USDA

10:30am **Comparison of Gravel Transport Rates in Mountain Streams for Normal (q1.5) High-Flow Events.** Kristin Bunte; Kurt Swingle; Steven Abt; Dan Cenderelli; Robert Ettema

10:50am **Tracking the Riverbed's Response to Channel Mining on the Lower Missouri River.** Heather Shaughnessy; John Shelley

11:10am **Measuring Fluvial Sediment Transport With Tracer Stones.** D. Nathan Bradleyn

11:30am **Interpreting Flux-Based Sediment Budgets in a Habitat Context: Linking Precise Temporal-Resolution Measurements of Sediment Flux to Spatially Robust Characterization of Channel Change.** Christina Leonard; David Topping; Ronald Griffiths; John Schmidt

10:30am WEDNESDAY 6/26/19

4D — SEDIMENT SURROGATE MEASUREMENTS I — TUSCANY #10

Chairs: Robert Hilldale, USBR; and James Rigby, USDA

10:30am **Acoustic Sediment Surrogate Measurements for High Sediment Flux: Case Study At Koshibu Sediment Bypass Tunnel.** Takahiro Koshiba; Tetsuya Sumi

10:50am **LISST-ABS Testing and Time-Series Sediment Acoustics.** Tim Straub

11:10am **Monitoring the Transport of Sediment in an Ephemeral Stream.** David Varyu; Jonathan Laronne; Daniel Cadol; Robert Padilla; Tony Lampert; Kyle Stark; Stephen Scissons; Jonathan AuBuchon; Yaniv Munwes

11:30am *vacant*

10:30am WEDNESDAY 6/26/19

4E — HYDRAULIC AND SEDIMENT TRANSPORT MODELING IV — TUSCANY #11

Chairs: Robert Mussetter, Tetra Tech; and Chi Bui, USBR

10:30am **Dynamic Dam Breaches: Predicting Sediment Laden Dam Breach Flood Wave Propagation for Future Conditions Using FLO-2D.** Brent Travis; Michael Gerlach; Brian Wahlin

11:50am **Dam-Break Flows of Water-Granular Mixtures: a Numerical Study.** Nuttita Pophet; Altinakar Mustafa; Yavuz Ozeren

11:10am **Modeling Sediment Deposition Effects on Dam Breach Propagation: a HEC-RAS Investigation Using SIM-RAS Software.** Brent Travis; Gyan Basyal; Brian Wahlin

11:30am **Monitoring and Modeling a Reservoir Sediment Flush on a Sand-Bed River in Northern Nebraska.** Nathaniel Schaepe; Paul Boyd

10:30am WEDNESDAY 6/26/19

4F — RESERVOIR SEDIMENTATION AND SUSTAINABILITY IV — TUSCANY #12

Chairs: Jon Fripp, USDA; and Kent Collins, USBR

10:30am **Reservoir Sediment Management: Building a Legacy of Sustainable Water Storage Reservoirs.** Timothy Randle

11:50am **Optimizing Hydropower Facility Operations Via Acoustic Sediment Monitoring.** Achilleas Tsakiris; Andre Zimmermann; Dawson Meier; Anthony Reynolds

11:10am **Management of Global Reservoir Sedimentation: An Evaluation of RESCON 2 Beta.** Rollin Hotchkiss; Christopher Garcia

11:30am **It Can Be a Dirty Job - How the NRCS Deals With Sedimentation.** Jon Fripp; Karl Visser; Claudia Hoeft

10:30am WEDNESDAY 6/26/19

4G — INTERNATIONAL CAPACITY BUILDING IN WATER RESOURCES AND SEDIMENTATION - PANEL DISCUSSION — TUSCANY #6

Chairs: Calvin Creech, USACE; and Renato Amorim, DNIT

10:30am **Lower Mekong River Initiative and Technical Exchanges.** Paul Boyd

10:45am **Brazil Navigation and Integrated Water Resources Program.** Calvin Creech

11:00am **Perspectives on International Training from HEC.** Stanford Gibson

11:15am **International Practices and Standards in Data Collection, USGS.** Molly Wood

11:30am **Joint Research and Development Programs, ERDC**. Travis Dahl

11:45am **Perspectives from International Partner.** Brazilian Engineer, Renato Souza

NOON LUNCH ON YOUR OWN

WEDNESDAY–AFTERNOON, JUNE 26, 2019

1:30pm WEDNESDAY 6/26/19

5A — FORECASTING II — TUSCANY #7

Chairs: Luciana Cunha, WEST Consultants; and Brad Bird, USACE

1:30pm **Forecast-Informed Reservoir Operations: Lessons Learned from a Multi-Agency Joint Research and Operations Effort.** Cary Talbot; Marty Ralph; Jay Jasperse

1:50pm **Forecast-Informed Reservoir Operations Using Ensemble Streamflow Prediction for a Multi-Purpose Reservoir in the Russian River Watershed.** Chris Delaney; John Mendoza; Robert Hartman; Jay Jasperse; Ali Hamidi

2:10pm **Managing Uncertainty in Reservoir Operations Using Ensemble Inflow Forecasts.** Caleb Erkman; Shane Coors; Dave Wathen

2:30pm **Predicting Post-Fire Hillslope Erosion and Small Watershed Response With Online Interfaces Using WEPP Technology.** Peter Robichaud; Mariana Dobre; Roger Lew; William Elliot; Erin Brooks; Mary Ellen Miller; Dylan Quinn

1:30pm ***WEDNESDAY*** ***6/26/19***

5B MANAGEMENT AND DECISION MAKING MODELS III — TUSCANY #8

Chairs: Don Frevert, Retd USBR; and Chan Modini, USACE

1:30pm **The Upper Rio Grande Water Operations Model: One River, Two Countries, Three States, and 20 Years of Multi-Agency Collaboration.** Jesse Roach; Marc Sidlow; Carolyn Donnelly

1:50pm **Modeling the Truckee River Operating Agreement as a Basis for Stakeholder Negotiation.** Anthony Powell; Shane Coors

2:10pm **Trinity River Basin Dam Safety Analysis With HEC-WAT.** Lea Adams, P.E.; Will Lehman

2:30pm **Use of Boosted Regression Trees to Quantify Cumulative Instream Flow Resulting from Curtailment of Irrigation in the Sprague River Basin, Oregon, USA.** Tamara Wood

1:30pm WEDNESDAY 6/26/19

5C FLUVIAL GEOMORPHOLOGY III — TUSCANY #9

Chairs: Jon Major, USGS; and Amanda Cox, SLU

1:30pm **Potential for the SWOT Mission and Large Field Datasets to Advance Fluvial Geomorphology and Applied Hydraulics: Exploring New Use Cases.** Justin Toby Minear; Tamlin M. Pavelsky; Michael Durand

1:50pm **Interpreting Topographic Change on the Lower American River in California.** Matthew Weber; Chris Bowles; Chris Hammersmark; Tom Gohring; Dan Tibbitts

2:10pm **Experimental Investigation of Channel Curvature and Sediment Supply Controls on the Morphology and Surface Grain Sorting of Meandering Gravel-Bed Rivers.** Ryan Brown; Peter Nelson

2:30pm **River Channel Modification and Evolution Alters Hydraulic Connectivity in the Atchafalaya River Basin and Impacts Vulnerability to Sea-Level Rise.** Daniel Kroes; Charles Demas; Yvonne Allen; Steven Roberts

1:30pm WEDNESDAY 6/26/19

5D SEDIMENT SURROGATE MEASUREMENTS II — TUSCANY #10

Chairs: Roger Kuhnle, USDA; and Daniel Cadol, NMTU

1:30pm **Measured Bedload (ISSDOTV2) and Modeled Bedload (ADH) Comparison on the Mississippi River.** Keaton Jones; David Abraham; Tate McAlpin

1:50pm **Development of a Simple Spreadsheet Approach for ADCP Data Post Processing, Visualization, and Analytics.** Bradley Palmer; Kevin Landwehr; Nicole Manasco

2:10pm **Acoustically Derived Sediment Fluxes: an Acoustic-Index to Channel-Average Concentration Approach.** Dan Haught; Jeremy Venditti

2:30pm **Sound Localization for Sediment-Generated Noise (SGN) Measurement.** James Rigby; Daniel Wren; Praveen Panickar

1:30pm WEDNESDAY 6/26/19

5E HYDRAULIC AND SEDIMENT TRANSPORT MODELING V — TUSCANY #11

Chairs: Travis Dahl, USACE; and Ronald Heath, USACE

1:30pm **Modeling Mississippi River Dredging Strategies After the Lock Closure At Upper St. Anthony Falls.** Alex Nelson

1:50pm **Sedimentation Analysis and Dredging Optimization of Mayo Lake Hydropower Intake Channel.** Dragi Stefanovic

2:10pm **2-D Modeling of Sediment Transport in Arkansas River At W.D. Mayo Lock and Dam.** Andrey Shvidchenko; Brad Hall

2:30pm **Use of a Gridded Runoff Routing Flow Model to Estimate Sedimentation and Dredging Burdens.** Elissa Yeates; Ahmad Tavakoly; Gregory Dreaper; Shahab Afshari; Kenneth Mitchell

1:30pm WEDNESDAY 6/26/19

5F RESERVOIR SEDIMENTATION AND SUSTAINABILITY V — TUSCANY #12

Chairs: Daniel Pridal, USACE; and Bryan Baker, USACE

1:30pm **Balanced Sediment Throughput Reservoir Dredging.** Douglas Raitt

1:50pm **Lahar Flood Risk Management for Mud Mountain Dam on the White River Below Mt. Rainier, Washington State.** Karl Eriksen; Brendan Comport; Zachary Corum; Kenneth Brettmann

2:10pm **Offsetting Patillas Reservoir Storage Decline By Conjunctive Use of a Coastal Aquifer, Salinas, Puerto Rico.** Gregory Morris

2:30pm *vacant*

1:30pm WEDNESDAY 6/26/19

5G PROFESSIONAL DEVELOPMENT AND ENGINEERING ETHICS: ADVANCING YOUR CAREER THROUGH BOARD CERTIFICATION — TUSCANY #6

Chairs: AIH, AAWRE, EWRI

3pm BREAK EXHIBIT HALL

3:30pm WEDNESDAY 6/26/19

6A NON-STATIONARY CLIMATE VARIABILITY — TUSCANY #7

Chairs: William Veatch, USACE; and Frank Dworak, USBR

3:30pm **Pecos River–New Mexico Basin Study–Development of Future Hydrology Storylines.** Lucas Barrett; Dagmar Llewellyn

3:50pm **Extremes of Opportunity? A Generalized Approach to Identify Intersections Between Changing Hydrology and Water Management.** Erin Towler; Dagmar Llewellyn; Lucas Barrett; Maryam Pournasiri Poshtiri ; Rick Young

4:10pm **Water Supply Viability of Lake Tahoe Under Modified Climate Conditions.** Michael Coleman; Shane Coors; Greg Pohll; Seshadri Rajagopal; Justin Huntington

4:30pm **Impact of Within Storm Intensities Trends on Huff Curves.** Leili Gordji; James V. Bonta; Mustafa S. Altinakar

3:30pm WEDNESDAY 6/26/19

6B EXTREME FLOODS AND DROUGHTS I — TUSCANY #8

Chairs: Brian Skahill, USACE; and David Curtis, WEST Consultants

3:30pm **Flood Inundation Mapping Cadre Process and Procedures Used By the USACE's Modeling, Mapping, and Consequence Production Center (MMC).** Wesley Crosby

3:50pm **Strategies for Improving Accuracy and Efficiency in Emergency Flood Inundation Modeling.** Stephanie Bell

4:10pm **Hurricane Florence Shows Us a Need for a New Classification System to Categorize Flooding and Damages.** Frank Reckendorf

4:30pm **Determining Extreme Flows Using Entropy Theory.** Aaron Byrd; Drew Loney; Joseph Gutenson; Edward Race

3:30pm WEDNESDAY 6/26/19

6C FLUVIAL GEOMORPHOLOGY IV — TUSCANY #9

Chairs: Kristin Bunte, CSU; and Heather Shaughnessy, USACE

3:30pm **The Mississippi River Geomorphology & Potamology Program: Improving Understanding of Rivers By Combining Data Collection, Modeling, and Geomorphic Analysis.** Ty Wamsley; David Biedenharn; Jack Killgore; Travis Dahl; James Lewis

3:50pm **Hickman Hardpoint Potamology Study Mississippi River Rm 921.** Roger Gaines; David Biedenharn; Heidi Wadman; Jesse Mcninch; Jarrell Smith; Anthony Priestas

4:10pm **Geomorphic Trends of the Mississippi River Revealed By Specific Gage Records and Channel Geometry Changes.** David Biedenharn; Travis Dahl; Charles Little

4:30pm **Lake Providence to Old River Geomorphology Assessment.** Waleska Echevarria-Doyle; David Biedenharn; Charlie Little Jr.

3:30pm WEDNESDAY 6/26/19

6D SEDIMENT SURROGATE MEASUREMENTS III — TUSCANY #10

Chairs: Joseph Bell, USGS; and Paul Boyd, USACE

3:30pm **Using Hydrologic Indices to Continuously Estimate Sediment and Mercury Concentrations.** Alexandra Etheridge

3:50pm **Automated High-Resolution Static Imaging Analysis of Low-Mass Suspended Sand.** Daniel Gooding; Katherine Norton

4:10pm **Recent Acoustic Bedload Monitoring Field Experiments Using Hydrophones.** Mathieu Marineau; Scott Wright; David Gaeuman; Chris Curran; David Varyu; Kyle Stark; Daniel Cadol; Jason Siemion

4:30pm **Measuring Suspended Sediment in Sand-Bedded Rivers Using Multiple-Frequency, Down-Looking Acoustic Doppler Current Profilers.** Molly Wood; Ricardo Szupiany; Justin Boldt; Tim Straub

PROGRAM AT A GLANCE: SEDHYD 2019

MONDAY, 6/24/2019		MONDAY, 6/24/2019		MONDAY, 6/26/2519
8am–5pm	**Field Trip:** Scientific Research and Operations at Lake Tahoe, California and Nevada	8am–12pm	**Workshop:** Sediment Data Collection and Records, Computation Techniques(**Tuscany 5**)	
8am–5pm	**Field Trip:** Understanding Reservoir Sedimentation and Channel Dynamics to Inform Fish Passage at Marble Bluff Dam on Lower Truckee River, Nevada	8am–12pm	**Workshop:** Sediment Sourcing Workshop (**Tuscany 6)**	
8am–12pm	**Workshop:** Reservoir Sedimentation and Sustainability Team Workshop (**Tuscany 3**)	1pm–5pm	**Workshop:** an Overview of Selected Sediment Surrogate Techniques (**Tuscany 5**)	
8am–5pm	**Workshop:** Stage 0 Restoration: Planning, Design, Implementation, and Appraisal (**Tuscany 4**)	1pm–5pm	**Workshop:** New Features of HEC-RAS 5.1 (**Tuscany 6**)	
8am–12pm	**Workshop:** Application of Numerical Models to Simulate Hydrology, Reservoir Operations, River Hydraulics and Flood Impacts **(Tuscany 11)**	1pm–5pm	**Workshop:** Part B--Sediment Transport Modeling in 1D Using HEC-RAS (**Tuscany 12**)	
8am–12pm	**Workshop:** Part A--Introduction to Successful Sediment Transport Modeling (**Tuscany 12**)	1pm–5pm	**Workshop:** Use of Bulletin 17C for Flow Frequency Analysis (**Tuscany 11**)	
6pm–7:30pm	**OPENING RECEPTION (EXHIBIT HALL)**			

TUESDAY, 6/25/2019		See SEDHYD.org for on-line technical program.						TUESDAY, 6/25/2016
8am–9am	**Speakers' Breakfast (TUSCANY A)**							
8:30am–9:30am	**Pre-conference refreshment break**							
9:30am–12pm	**OPENING SESSION (TUSCANY BALLROOM)**							
12pm–1:30pm	**Student Luncheon (SIERRA 1748)**							
Concurrent Sessions		**A (TUSCANY 7)**	**B (TUSCANY 8)**	**C (TUSCANY 9)**	**D (TUSCANY 10)**	**E (TUSCANY 11)**	**F (TUSCANY 12)**	**G (TUSCANY 6)**
1:30pm–3pm	1	**Flood Hydrology I**	**Watershed Management I**	**Sediment Properties**	**Physical Sediment Load Measurements I**	**Hydraulic and Sediment Transport Modeling I**	**Reservoir Sedimentation and Sustainability I**	
3:30pm–5pm	2	**Flood Hydrology II**	**Watershed Management II**	**Sediment Yield and Fingerprinting**	**Physical Sediment Load Measurements II**	**Hydraulic and Sediment Transport Modeling II**	**Reservoir Sedimentation and Sustainability II**	
5:30pm–7pm		**EXHIBITORS' RECEPTION**	6:30pm–8:30pm **YOUNG PROFESSIONALS RECEPTION (EDGE CLUB ROOM)**					

WEDNESDAY, 6/26/2019		See SEDHYD.org for on-line technical program.						WEDNESDAY, 6/26/2019
7:15am–8:15am	**Speakers' Breakfast (TUSCANY A)**							
8:30am–10am	3	**Flood Hydrology III**	**Management and Decision Making Models I**	**Fluvial Geomorphology I**	**Physical Sediment Load Measurements III**	**Hydraulic and Sediment Transport Modeling III**	**Reservoir Sedimentation and Sustainability III**	**International Opportunities—Brazil Flood**
10:30am–12pm	4	**Forecasting I**	**Management and Decision Making Models II**	**Fluvial Geomorphology II**	**Sediment Surrogate Measurements I**	**Hydraulic and Sediment Transport Modeling IV**	**Reservoir Sedimentation and Sustainability IV**	**International Capacity Building in Waters Resources and Sedimentation—Panel Discussion**

1:30pm–3pm	5	**Forecasting II**	**Management and Decision Making Models III**	**Fluvial Geomorphology III**	**Sediment Surrogate Measurements II**	**Hydraulic and Sediment Transport Modeling V**	**Reservoir Sedimentation and Sustainability V**	**Professional Development and Engineering Ethics—Advancing Your Career Through Board Certification**
3:30pm–5pm	6	**Nonstationary Climate Variability**	**Extreme Floods and Droughts I**	**Fluvial Geomorphology IV**	**Sediment Surrogate Measurements III**	**Hydraulic and Sediment Transport Modeling VI**	**Stream Restoration I**	**Professional Development and Engineering Ethics—The Importance of Maintaining High Ethical Standards, 1st Session**
7pm–8:30pm								**Professional Development and Engineering Ethics—The Importance of Maintaining High Ethical Standards, 2nd Session**

THURSDAY, 6/27/2019		See SEDHYD.org for on-line technical program.					THURSDAY, 6/27/2019
7:15am–8:15am	**Speakers' Breakfast (TUSCANY A)**						
8:30am–10am	7	**Climate Variability and Sediment**	**Extreme Floods and Droughts II**	**Fluvial Geomorphology V**	**Sediment Surrogate Measurements IV**	**Hydraulic and Sediment Transport Modeling VII**	**Stream Restoration II**
10:30am–12pm	8	**Hydroecological Modeling I**	**Post Fire Analyses and Restoration**	**Fluvial Geomorphology VI**	**Sediment Surrogate Measurements V**	**Hydraulic and Sediment Transport Modeling VIII**	**Stream Restoration III**
1:30pm–3pm	9	**Hydroecological Modeling II**	**Earthen Embankment Erosion Prediction**	**Fluvial Geomorphology VII**	**Infrastructure in the Stream Environment I**	**Hydraulic and Sediment Transport Modeling IX**	**Stream Restoration IV**
4pm–8pm	**MODELS/DEMOS AND POSTER SESSION**						
6pm–7:30pm	**DINNER SERVED WITH MODELS/DEMOS AND POSTERS**						

FRIDAY, 6/28/2019		See SEDHYD.org for on-line technical program.					FRIDAY, 6/28/2019
7:15am–8:15am	**Speakers' Breakfast (Tuscany A)**						
8:30am–10pm	10	**Hydroecological Modeling III**	**Water Quality**	**Regional Sediment Management I**	**Infrastructure in the Stream Environment II**	**Hydraulic and Sediment Transport Modeling X**	**Stream Restoration V**
10:30am–12pm	11	**Modeling of Major River Systems**	**Remote Sensing and Monitoring**	**Regional Sediment Management II**	**Infrastructure in the Stream Environment III**	**Hydraulic and Sediment Transport Modeling XI**	**Dam Removal or Rehabilitation**
1pm–5pm	**Field Trip:** Snow Hydrology in the Central Sierra Nevada Range, California and Nevada						
1pm–5pm	**Workshop:** Sediment Transport Modeling in Streams with SRH-2D (**Tuscany 12**)						

3:30pm WEDNESDAY 6/26/19

6E HYDRAULIC AND SEDIMENT TRANSPORT MODELING VI TUSCANY #11

Chairs: John Shelley, USACE; and Dragi Stefanovic, HDR Inc.

3:30pm **Isleta Island Removal Project: Interpretation of Four Years of Post-Construction Monitoring Observations Compared to Design-Phase 2D Hydraulic and Sediment Transport Model Results and Lessons Learned.** Walt Kuhn; Jessica Tracy, Cody Walker

3:50pm **Blue River Fish Barrier: 2-D Numerical Hydraulics and Sediment Transport Modeling.** Caroline Ubing; Michael Sixta

4:10pm **Hydraulic Assessment of Notched River Training Structures Near Island 63 on the Lower Mississippi River.** Edmund Howe; Roger Gaines

4:30pm **Physical Changes to Fish Habitat Resulting from River Training Structure Construction.** Edward Brauer

3:30pm WEDNESDAY 6/26/19

6F STREAM RESTORATION I TUSCANY #12

Chairs: Doug Shields, CBEC Eco Engineering; and Meg Jonas, Retd USACE

3:30pm **The Stream Evolution Triangle: Integrating Geology, Hydrology, and Biology.** Janine Castro; Colin Thorne

3:50pm **Partnering With Nature's River Restorers for Sustainable River Management.** Colin Thorne; Janine Castro; Matthew Johnson

4:10pm **Evaluating and Developing Multi-Purpose Riverine Projects: an Example from the Middle Rio Grande.** Jonathan AuBuchon; Robert Padilla

4:30pm **Geomorphic Response to Gravel Injection, Channel Restoration and Peak Flows in Clear Creek, CA.** Aaron (Smokey) Pittman

3:30pm WEDNESDAY 6/26/19

6G PROFESSIONAL DEVELOPMENT AND ENGINEERING ETHICS: THE IMPORTANCE OF MAINTAINING HIGH ETHICAL STANDARDS, FIRST SESSION TUSCANY #6

Chairs: Jim Barton, Retd USACE

6:30–8pm **PROFESSIONAL DEVELOPMENT AND ENGINEERING ETHICS: THE IMPORTANCE OF MAINTAINING HIGH ETHICAL STANDARDS, SECOND SESSION TUSCANY #6**

THURSDAY–MORNING, JUNE 27, 2019

7:15am SPEAKERS' BREAKFAST, TUSCANY A

8:30am THURSDAY 6/27/19

7A CLIMATE VARIABILITY AND SEDIMENT TUSCANY #7

Chairs: Matt Romkens, Retd ARS; and Andrew Simon, Cardo Inc.

8:30am **Development of the White Mountain Moraine System in New Hampshire and Its Proposed Extension Into Vermont, USA.** John Moore; David Johnson

8:50am **Changes in Hydrology and Suspended-Sediment Transport in the Mississippi River Basin Over the Past Century.** Andrew Simon; Kimberly Artita; Stephen Darby; Julian Leyland; Gail Simon

9:10am **Area of Prairie (Pimple) Mounds in Central Arkansas and Implications for Irrigated Agriculture.** Christopher (Chris) King; Richard Vaught

9:30am **Reservoir Sedimentation: Impacts on Water Management and Sustainability.** David Wegner

8:30am THURSDAY 6/27/19

7B EXTREME FLOODS AND DROUGHTS II TUSCANY #8

Chairs: Drew Loney, USACE; and Frank Engel, USGS

8:30am **Risk Informed Inundation Mapping.** David Curtis

8:50am **Hydrologic Risk Analyses for Willamette River Basin Dams.** Chris Bahner; Angela Duren

9:10am **A Spatial Analysis of Extreme Precipitation in the Columbia River Basin.** Brian Skahill; Angela Duren; Luciana Cunha; Chris Bahner

9:30am **Effectively Utilizing Stochastic Hydrologic Loadings for Risk Analysis and Risk-Based Design.** Amanda Stone; Walter Heyder; Jonathan East; Keil Neff; Frank Dworak; Joseph Wright; Subhrendu Gangopadhyay

8:30am THURSDAY 6/27/19

7C FLUVIAL GEOMORPHOLOGY V TUSCANY #9

Chairs: David Williams, DTW; and Gregg Hudson, NRCS

8:30am **Fluvial Geomorphology in an Arid Environment: a Case Study.** David Williams

8:50am **Deriving Fluvial Geomorphic Metrics from Lidar Terrains.** Michael Dougherty; Christopher Haring; Charles Theiling

9:10am **The Geography of Fluvial Geomorphic Hazards in River Corridors.** Joel Sholtes; Michael Blazewicz; Katie Jagt

9:30am **The Role of Dynamic Ice-Breakup on Bank Erosion and Lateral Migration of the Middle Susitna River, Alaska.** Renee Vandermause; Mike Harvey

8:30am THURSDAY 6/27/19

7D SEDIMENT SURROGATE MEASUREMENTS IV TUSCANY #10

Chairs: Tim Straub, USGS; and Mathieu Marineau, USGS

8:30am **Patterns in Gravel Bedload Transport from Impact Plates in a Laboratory Flume.** Daniel Wren; Roger Kuhnle; Robert Hildale

8:50am **Bedload Sampling to Support Surrogate Technology (impact Plate) Calibration Following Elwha River Dam Removal, Olympic Peninsula, WA.** Aaron (Smokey) Pittman; Robert Hilldale

9:10am **Final Calibration of the Elwha Impact Plate System.** Robert Hilldale; Wayne Carpenter; Smokey Pittman

9:30am **Calibration of the Swiss Plate Geophone System At the Albula Field Site With Direct Bedload Samples and Comparison With Controlled Flume Experiments.** Tobias Nicollier; Dieter Rickenmann; Arnd Hartlieb

8:30am THURSDAY 6/27/19

7E HYDRAULIC AND SEDIMENT TRANSPORT MODELING VII TUSCANY #11

Chairs: Nate Bradley, USBR; and Drew Loney, USACE

8:30am **Predicted Sediment Transport for Operations At Nolichucky Dam.** Martin Teal; Filippo Bressan; Curtis Jawdy

8:50am **Numerical 1D Sediment Modeling of the Lower 1,000 Miles of the Mississippi River to Improve Dredging Efficiency.** Justin Giles; James Lewis; Ron Copeland

9:10am **Determination of Sediment Transport Pathways from Placement Sites Within Pool 11 of the Upper Mississippi River System.** Lucie Sawyer; Tahirih Lackey; Anton Stork

9:30am **Projecting Floodplain Depositional Patterns Using Long-Term 1D Sediment Modeling Results and Short-Term 2D Hydraulic Model Output.** John Shelley; Michael Koohafkan

8:30am THURSDAY 6/27/19

7F STREAM RESTORATION II TUSCANY #12

Chairs: Janine Castro, FWS; and Amena Henville, USACE

8:30am **Effects of Increasing Gravel Supplies, Transport, and Storage on Channel Morphology and Habitat Diversity in a Reach of the Trinity River, California.** David Gaeuman; Aaron Martin; Nicholas Som

8:50am **Application and Case Study of Sediment Augmentation on the Clackamas River, Oregon.** Geoff Hales; Mindi Curran

9:10am **Assessment of Stream Health in the Catalpa Creek, Mississippi.** John Ramirez-Avila; Brad Richardson; Sandra Ortega Achury; James Martin

9:30am *vacant*

10am BREAK TUSCANY BALLROOM

10:30am THURSDAY 6/27/19

8A HYDROECOLOGICAL MODELING I TUSCANY #7

Chairs: Jim Barton, Retd USACE; and Michael Follum, USACE

10:30am **Evaluating Riparian Vegetation Roughness Computations in the One-Dimensional HEC-RAS–RVSM Model.** Zhonglong Zhang

10:50am **Development of a Physically-Based Distributed Watershed Scale Model.** Yong Lai

11:10am **A Method for Partitioning Total Leaf Area Index Into Overstory and Understory Strata for Distributed Hydrologic Modeling Based on Forest Inventory, Remote Sensing, and Biophysical Data.** Sara Goeking

11:30am *vacant*

10:30am THURSDAY 6/27/19

8B — **POST FIRE ANALYSES AND RESTORATION** — **TUSCANY #8**

Chairs: Nathaniel Todea, USBR; and Robert Mason, USGS

10:30am **Assessing the Hydrological and Erosional Effects of Wildland Fire.** D. Phillip Guertin ; David Goodrich; I. Shea Burns; Gabriel Sidman; B. Scott Sheppard ; Jane Patel; Thomas Clifford; Carl Unkrich

10:50am **Debris Basin Performance During Postfire Debris Flow.** Daniel Little; Julia Grim; Greg Norris

11:10am **Post-Wildfire Geomorphic Stream Response Since 1996 in Twelve New Mexican Watersheds.** Aljaz Praznik; Kyle Shour

11:30am **Scaling Post-Fire Effects from Hillslopes to Watersheds: Processes, Problems, and Implications.** Lee MacDonald; Dan Brogan; Peter Nelson; Joe Wagenbrenner; Stephanie Kampf

10:30am — **THURSDAY** — **6/27/19**

8C — **FLUVIAL GEOMORPHOLOGY VI** — **TUSCANY #9**

Chairs: Taylor Rowley, USGS; and Gregg Hudson, NRCS

10:30am **Role of Physical Processes and Fish Passage in Reservoir Operations At Marble Bluff Dam, Truckee River, Nevada.** Jennifer Bountry; Nate Bradley; Jeanne Godaire

10:50am **Can Wood Placement in Degraded Channel Networks Result in Large Scale Water Retention?** Tim Abbe; Susan Dickerson-Lange; Pete Cruickshank; Michael Hrachovec; John Soden; Mike Kaputa; Leif Embertson

11:10am **Aquatic, Riparian, and Avian Habitat Improvement Within Escondida Burn Area.** Chi Bui

11:30am *vacant*

10:30am — **THURSDAY** — **6/27/19**

8D — **SEDIMENT SURROGATE MEASUREMENTS V** — **TUSCANY #10**

Chairs: David Varyu, USBR; and Alexandra Etheridge, USGS

10:30am **Interactions Among Gravel and Sand Fractions During Transport as Measured By Impact Plates and Sedflux Monitor in a Laboratory Channel.** Roger Kuhnle; Daniel Wren; Robert Hilldale

10:50am **The "Revolutionary" Potential of Passive Bedload Monitoring for River Science and Management.** Peter Downs; Philip Soar

11:10am **Initial Calibration of Acoustic Pipe Microphone Sensors to Monitor Bedload During Flash Floods in the Arroyo de Los Piños, NM.** Kyle Stark; Daniel Cadol; Jonathan Laronne; David Varyu; Eran Halfi; Madeline Richards

11:30am **Hydroacoustic Monitoring of Bedload Transport in the Trinity River, California, USA.** Wesley Smith

10:30am — **THURSDAY** — **6/27/19**

8E — **HYDRAULIC AND SEDIMENT TRANSPORT MODELING VIII** — **TUSCANY #11**

Chairs: Eddy Langendoen, USDA; and Aaron Williams, USACE

10:30am **Development of "Debris Library" and 1D HEC-RAS and 2D Adaptive Hydraulics Linkage-Architecture for non-Newtonian Sediment Flows.** Ian Floyd; Stanford Givson; Ronald Heath; Marielys Ramos-Villanueva; Nawa Pradhan

10:50am **Linking GSSHA to SEDLIB Improvements to In-Stream Sediment Modeling.** Gary Brown; Nawa Pradhan; Charles Downer; Joseph Gutenson

11:10am **Two-Dimensional Subgrid Sediment Transport Modeling With HEC-RAS.** Alejandro Sanchez; Stanford Gibson

11:30am **HEC-RAS 2D and SRH-2D: a Comparison Using an Equivalent Computational Mesh Developed for Analysis of the SR 107 Bridge.** Keelan Jensen; Julie Heilman; Henry Hu

10:30am — **THURSDAY** — **6/27/19**

8F — **STREAM RESTORATION III** — **TUSCANY #12**

Chairs: Colin Thorne, Nottingham; and Patrick O'Brien, USACE

10:30am **Large Wood Helicopter Loading Project - Restoring Spring-Run Chinook Salmon in Northern California.** David (DJ) Bandrowski; Josh Smith; Aaron Martin; Eric Wiseman

10:50am **Floodplain Reconnection on Butano Creek - Design, Implementation and Results from the First Few Seasons.** Ben Taber; Christopher Hammersmark; Jarrad Fisher

11:10am **Applied Science and Design Strategies in Cranberry Bog and Wetland Restoration.** Martin Melchior; Nick Nelson; Glorianna Davenport; Evan Shulman; Alex Hackman

11:30am **Increasing Freedom Space and Sustainability on the Rio Grande Through Channel Realignment.** Nathan Holste; Aubrey Harris; Brian Hobbs

NOON — **LUNCH ON YOUR OWN**

THURSDAY–AFTERNOON, JUNE 27, 2019

1:30pm — **THURSDAY** — **6/27/19**

9A — **HYDROECOLOGICAL MODELING II** — **TUSCANY #7**

Chairs: Michael Scurlock, River Rest.; and Zhonglong Zhang, USACE

1:30pm **Application Program Interfaces (APIS) for Modularized and Flexible Engineering Software Deployment.** Drew Loney; Kimberly Pevey; Kevin Winters; Scott Christensen

1:50pm **The KINEROS2-AGWA Suite of Modeling Tools.** David Goodrich; D. Phil Guertin; I. Shea Burns; Carl Unkrich; Lainie Levick; Yoganand Korgaonkar; Philip Heilman; Mariano Hernandez; Ben Olimpio; Haiyan Wei; Jane Patel; Mark Kautz

2:10pm **Pond Inundation and Timing Model (POND-IT) for Management of Habitat for Hydroperiod-Dependent Species.** Kealie Pretzlav; Zan Rubin; Eric Donaldson; Barry Hecht

2:30pm *vacant*

1:30pm — **THURSDAY** — **6/27/19**

9B — **EARTHEN EMBANKMENT EROSION PREDICTION** — **TUSCANY #8**

Chairs: Aimee Rohner, USDA; and Lee MacDonald, CSU

1:30pm **Toutle River debris flows initiated by Pacific Northwest atmospheric rivers: November 2006.** Adam Mosbrucker; Kurt Spicer; Jon Major

1:50am **Erosion Assessment of Sacramento and American River Levees.** Todd Rivas; Shyamal Chowdhury; Jonathan Aubuchon

2:10pm **Multi-Pronged Evaluation of Spillway Erosion At Pipestem Dam.** Roger Kay

2:30pm **Soil Characteristics of Selected Earthen Dams in the State of Mississippi.** Yavuz Ozeren; Mustafa Altinakar; Dusty Myers; Daniel Wren

1:30pm — **THURSDAY** — **6/27/19**

9C — **FLUVIAL GEOMORPHOLOGY VII** — **TUSCANY #9**

Chairs: Mike Sixta, USBR; and Julia Grim, NRCS

1:30pm **The Role of Topographic Variability on River-Floodplain Connectivity Across Several Floodplains.** John Schubert; Jonathan Czuba

1:50pm **Post-Dredge Monitoring of Channel Adjustment in a Gravel-Bedded River.** Peter Brooks; Kevin Geoghegan; Joe Farah

2:10pm **The Sedimentological Imbalance of a São Francisco River Longitudinal Segment, Brazil.** Geraldo Wilson Junior; Fernando Roversi; Mario Souza e Silva

2:30pm **The Relationship of Point-Bar Architecture to Channel Planform on a Reach of the Wabash River Near Grayville, Illinois.** Taylor Rowley; Kory Konsoer; Mick Ursic; Eddy Langendoen

1:30pm — **THURSDAY** — **6/27/19**

9D — **INFRASTRUCTURE IN THE STREAM ENVIRONMENT I** — **TUSCANY #10**

Chairs: Joel Sholtes, Colorado Mesa Univ.; and Leif Embertson, Natural Systems Design

1:30pm **Managing Infrastructure in the Stream Environment.** Joel Sholtes; Caroline Ubing; Timothy Randle; Jon Fripp; Daniel Cenderelli; Drew Baird

1:50pm **Design and Analysis of Ecosystem Features in Urban Flood Control Channels.** Nathan Holste; Jennifer Bountry

2:10pm **The Sacramento River Levee Setback: Floodplain Rehabilitation Design to Enhance Ecologic Function With Consideration of Geomorphic Processes.** John Stofleth; Sam Diaz; F. Douglas Shields; Chris Bowles; Kenric Jameson

2:30pm **Effects of the Elwha River Dam Removals on the US 101 Bridge.** Casey Kramer; Jennifer Bountry; Timothy Randle

1:30pm — **THURSDAY** — **6/27/19**

9E — **HYDRAULIC AND SEDIMENT TRANSPORT MODELING IX** — **TUSCANY #11**

Chairs: Marty Teal, WEST Consultants; and Daniel Dombroski, USBR

1:30pm **Hydrodynamic Modelling of Extreme Flood Levels in an Estuary Due to Climate Change.** Jeanine Vonkeman; Ousmane Sawadogo; Eddie Bosman; Gerrit Basson

1:50pm **Sediment Transport Analysis of Missouri River for Red River Valley Water Supply Project McLean County, North Dakota.** Chris Bahner

2:10pm **Sediment Transport in the Intake Area of the Cardinal Plant. Part I: Field Study and Physical Model.** Troy Lyons; Marcela Politano; Nathan Young

2:30pm **Sediment Transport in the Intake Area of the Cardinal Plant. Part Ii: CFD Model.** Marcela Politano; Ezequiel Martin; Troy Lyons

1:30pm THURSDAY 6/27/19

9F STREAM RESTORATION IV TUSCANY #12

Chairs: David Gaueman, Yurok Tribe; and Brian Cluer, NOAA

1:30pm **How can we make meadow restoration work for California's mountain frogs?** Karen Pope; Sarah Yarnell; Jonah Piovia-Scott

1:50am **Stage 0 Restoration Projects in Oregon, USA.** Paul Powers; Johan Hogervorst; Cari Press; Paul Burns; James Pettett; Kate Meyer; Nick Grant; Matt Helstab; Lisa Kurian; Brian Cluer

2:10pm **McKee Abstract 2019 Stage 0 Stream Restoration in California.** Jared McKee; Damion Ciotti

2:30pm **Stage Zero Restoration of Whychus Creek, Oregon: Monitoring Results and Lessons Learned.** Matthias Perle; Lauren Mork; Colin Thorne

4:30pm–9pm COMPUTER DEMOS, POSTERS TUSCANY BALLROOM C-D

6pm–7:30pm DINNER TUSCANY BALLROOM F

FRIDAY–MORNING, JUNE 28, 2019

7:15am SPEAKERS' BREAKFAST, TUSCANY A

8:30am FRIDAY 6/28/19

10A HYDROECOLOGICAL MODELING III TUSCANY #7

Chairs: Jeff Harris, WEST Consultants; and Michael Founds, cbec eco engineering

8:30am **Vegetation Modeling of the Trinity River Between Lewiston Dam and the North Fork Trinity River.** Jianchun Huang; Blair Greimann

8:50am **Two-Dimensional Hydraulic, Vegetation, and Sediment Modeling in Support of River Restoration Projects.** Daniel Dombroski; Blair Greimann

9:10am **Predicting Micro-Catchment Ponded Infiltration Dynamics.** Michael Founds; Kenneth McGwire; Mark Weltz; Sayjro Nouwakpo; Paul Verburg

9:30am **Representation of Large Wood Structures Using a Numerical Two-Dimensional Model.** Mike Sixta; Caroline Ubing

8:30am FRIDAY 6/28/19

10B WATER QUALITY TUSCANY #8

Chair: Todd Steissberg, USACE; and Kossi Nouwakpo, UN-Reno

8:30am **Updated CE-QUAL-W2 Model for Predicting Total Dissolved Gas in the Columbia River System Operations.** Zhonglong Zhang

8:50am **A 2D Depth-Averaged Water Quality Model: Coupling of SRH-2DE and NSMI.** Yong Lai; Joel Sholtes; Zhonglong Zhang

9:10am **Runoff Water Quality from Rainfall Simulation on Different Salinity Alkalinity Levels Rangeland Plots.** Awadis Arslan; Sayjro Nouwakpo; Mark Weltz; Kenneth McGwire

9:30am **Process-Based Modeling of Upland Erosion and Salt Load in the Upper Colorado River Basin.** Kossi Nouwakpo; Mark Weltz; Awadis Arslan; Ken McGwire

8:30am FRIDAY 6/28/19

10C REGIONAL SEDIMENT MANAGEMENT I TUSCANY #9

Chairs: David Perkey, USACE

8:30am **Erosion and Sedimentation Issues in the Central and Southern Florida (C&SF) Water Management System.** Seyed Hajimirzaie; Matahel Ansar; Jie Zeng

8:50am **Early Results: Salt Marsh Response to Changing Sediment Supply Conditions, Humboldt Bay, CA.** Jennifer Curtis; Chase Freeman; Karen Thorne

9:10am **Hydrological Modelling of Large Catchment Sediment Yield in Ethiopia.** Kuria Kiringu; Gerrit Basson

9:30am **Impact of Muddy Bed Aggregates on Sediment Transport Studies: James River Estuary, VA.** David Perkey; Jarrell Smith; Kelsey Fall

8:30am FRIDAY 6/28/19

10D INFRASTRUCTURE IN THE STREAM ENVIRONMENT II TUSCANY #10

Chairs: Jonathan AuBuchon, USACE; and Drew Baird, USBR

8:30am **Advancements in Bridge Scour Evaluation With Two-Dimensional Hydraulic Modeling Using SRH-2D / SMS.** Scott Hogan

8:50am **CFD Analysis of Local Scour At Bridge Piers.** Brian Fox; Robert Feurich

9:10am **Revising the Basis of Sediment Management in Rivers: Incorporating Real-Time Sonar, Hydroacoustic and Hydrodynamic Field Data.** Andre Zimmermann; Jose Vasquez; Dan Haught; Achilleas Tsakiris; Ashley Dudill

9:30am *vacant*

8:30am FRIDAY 6/28/19

10E HYDRAULIC AND SEDIMENT TRANSPORT MODELING X TUSCANY #11

Chairs: Troy Lyons, Univ of Iowa; and Richie McComas, USACE

8:30am **Simulations of Gully Erosion Using a Physically Based Numerical Model.** Yafei Jia; Robert Wells; Henrique Momm; Sean Bennett

8:50am **Evaluating Uncertainty of Roughness Parameters in 1D steady HEC-RAS modeling.** Nam Jeong Choi; Frank L. Engel; J. Ryan Banta

9:10am **Assessing the Applicability of the Wilcock 2-Fraction Bedload Transport Model With New Estimates of Bedload Yields At the Caspar Creek Experimental Watersheds, CA.** Paul Richardson; Joseph Wagenbrenner

9:30am **The Movements of Bed and Suspended Sediments and Pollutants By the Stochastic Process Theory.** Geraldo Wilson Junior; Cid Monteiro

8:30am FRIDAY 6/28/19

10F STREAM RESTORATION V TUSCANY #12

Chairs: David (DJ) Bandrowski, Yurok Tribe; and Joel Sholtes, Colo Mesa Univ

8:30am **Ecohydraulic Design of Salmonid Habitat Enhancement Projects in the Central Valley, California.** Christopher Hammersmark; Ben Taber; John Hannon; Lilly Allen

8:50am **Summary of Current Rio Grande Silvery Minnow Habitat Restoration Design and Application.** Robert Padilla; Ari Posner; Drew Baird

9:10am **The Potential for River Restoration to Restore Thermal Refugia for Cold-Water Fishes.** Joel Sholtes; Caroline Ubing; Michael Knutson; Ian Wilson; Justin Nielsen

9:30am *vacant*

10am BREAK TUSCANY F

10:30am FRIDAY 6/28/19

11A MODELING OF MAJOR RIVER SYSTEMS TUSCANY #7

Chairs: Jim Barton, Retd USACE; and Karen Hoffman, NRCS

10:30am **What's New in HEC-RAS 5.1?** Gary Brunner

10:50am **HEC-RAS Model Development in Ras Mapper.** Cameron Ackerman; Alex Kennedy; Mark Jensen; Gary Brunner

11:10am **Ice Jam, Two-Dimensional, and Levee Breach Modeling At Miles City, Montana.** Curtis Miller

11:30am **Forecast-Informed Reservoir Operations: Developing Best Practices for Enhancing Use of Existing Water Management Infrastructure.** F. Martin Ralph; Jay Jasperse; Cary Talbot; Anna Wilson

10:30am FRIDAY 6/28/19

11B REMOTE SENSING AND MONITORING TUSCANY #8

Chairs: Roger Kay, USACE; and Peter Brooks, Retd USACE

10:30am **Operationalizing Unmanned Aerial Systems for Rapid Flood Inundation Modeling and Event Response.** Frank Engel; Rogelio Hernandez

10:50am **Comparison of Reservoir Evaporation Rates from the Collison Floating Evaporation Pan to Atmospheric Evaporation Models.** Jake Collison; Mark Stone; Dagmar Llewellyn; Kenneth Richard

11:10am **Near-Field Remote Sensing of Alaskan Rivers.** Paul Kinzel; Carl Legleiter; Jeff Conaway; Adam LeWinter; Peter Gadomski; Dominic Filiano

11:30am *vacant*

10:30am FRIDAY 6/28/19

11C REGIONAL SEDIMENT MANAGEMENT II TUSCANY #9

Chairs: Jennifer Curtis, USGS; and Seyed Hajimirzaie, SFWMD

10:30am **Hydroacoustic Flow Monitoring of Offshore Dredge Material Near South Padre Island, Texas.** Douglas Schnnoebelen; Frank Engel; Charles Hartman; Brian Petri; Patrick Bryan; Michael Lee; Dwight Sparks

10:50am **Regional Sediment Management Informed By Geochemical Fingerprinting: Calcasieu Ship Channel, USA.** Brandon Boyd; David Perkey; Jeff Corbino

11:10am **Post-Wildfire Watershed Modeling Using the Distributed Cn Method.** Joseph Lange

11:30am *vacant*

10:30am FRIDAY 6/28/19

11D INFRASTRUCTURE IN THE STREAM ENVIRONMENT III TUSCANY #10

Chairs: Casey Kramer, Northwest Hydraulic Consultants; and Caroline Ubing, USBR

10:30am **Pipeline Ephemeral Channel Crossing Fluvial Hazard Analysis.** Drew Baird; Michael Sixta; Joel Sholtes; Melissa Foster; Caroline Ubing

10:50am **Hydraulic Design of Sustainable River Abstraction Works on Alluvial Rivers With Sediment Management Features for Potable Water Supply.** Gerrit Basson; Claudia McLeod

11:10am **Effects of Dike Fields on Channel Characteristics of the Lower Mississippi River.** Andrew Simon; Kimberly Artita; Jennifer Hammond; David Biedenharn; Charles Little, Jr.

11:30am **Techniques for Fish-Passage Evaluation At Instream Structures.** Michael Scurlock; Marty Holtgren

10:30am FRIDAY 6/28/19

11E HYDRAULIC AND SEDIMENT TRANSPORT MODELING XI TUSCANY #11

Chairs: Nathan Holste, USBR; and Aaron Williams, USACE

10:30am **Lower Mississippi River Response to Pulsed Sediment Diversions.** Ronald Heath; Marielys Ramos-Villanueva; Ian Floyd

10:50am **Newtonian and non-Newtonian Sediment Fluid Flow in 2D Hydrodynamic Runoff Model.** Nawa Raj Pradhan; Charles Downer; Ian Floyd; Stanford Gibson; Ronald Heath

11:10am **Development of SRH-Coast: a General Wave-Flow Model for Coastal Environment.** Han Sang Kim; Yong Lai

11:30am **Rainfall-Runoff Relationships Complementing Previous Sediment Transport Studies at the Arroyo de los Piños, New Mexico.** Madeline Richards; Dan Cadol; Jonathan Laronne; Dave Varyu; Jonathan Aubuchon; Stephen Brown

10:30am FRIDAY 6/28/19

11F DAM REMOVAL OR REHABILITATION TUSCANY #12

Chairs: Jennifer Bountry, USBR; and Mathias J. Collins, NOAA

10:30am **Geomorphic Response to Dam Removals on the Lower Penobscot River, Maine, USA.** Mathias J. Collins; Alice R. Kelley; Pamela J. Lombard; Sean M.C. Smith

10:50am **Sediment monitoring during Elwha River dam removals: Lessons learned during the Nation's largest dam removal project.** Christopher Curran; Christopher Magirl; Robert Hilldale

11:10am **Tools for Evaluating Sediment Impacts from Dam Removal–Qualitative Guidance.** Tahirih Lackey; Bailey Susan; Kyle McKay; Waleska Echevarria-Doyle; Earl Hayter

11:30am **Sediment Transport Simulation of Klamath Dam Removals.** Blair Greimann

1:00pm WORKSHOP (see listing)

1:00pm Field Trip (see listing)

5:00PM SEDHYD CONFERENCE ACTIVITIES END

POSTER PRESENTATIONS
Thursday, 4:30 to 8pm Tuscany Ballroom D

POSTER SESSION (WITH DINNER BREAK)

A Tool for Beaver Dam Analogue Design. Doug Shields; Michael Pollock; Rocco Fiori

Automated Geospatial Watershed Assessment (AGWA) and Facilitator Decision Support System to Aid in Sustaining the Military Mission and Training. Lainie Levick; David Goodrich; Shea Burns; Haiyan Wei; Phil Guertin; Phil Heilman; Gerardo Armendariz

Bloomsbury Dam Removal: Simulating Flood Risk Downstream of Passive Sediment Releases with a One-Dimensional Sediment Transport Model. Jacob Helminiak; Stanford Gibson

Changes in the Columbia River Gorge: The Eagle Creek Fire. Jarod Norton

Characterization of hydrology and sediment following drought and wildfire in Cache Creek, California. Michelle Stern; Alan Flint; Lorraine Flint

Continuous River Bed Monitoring at Hydroelectric Intakes Using Dual-Axis Sonar Scanners. Dan Haught; Andre Zimmermann

Design, Calibration and Deployment of a Hydrophone Based Bed Load Monitoring Surrogate. Bradley Goodwiller; Daniel Wren; Rob Hilldale

Development of an operational plan to meet water level rates of change objectives downstream of a control structure. Tim Calappi; Katherine Labuhn; Charles Sidick; James Selegean

Effects of rain-on-snow events on suspended-sediment loading in the Truckee River Basin, California: Implications for aquatic habitat and water resource management under climate change scenarios. Brian Hastings; David Shaw

Exceedence Flows for Sediment Yield Determination: Michigan Harbors. John Barkach; Carol Miller; James Selegean; Emily Bradley

Fire-Potential Modeling and its Application in New Mexico. Emma Kelly; Steve Bassett

Fires and Floods: A Case Study of the Relative Magnitude and Persistence of Geomorphic Effects at the Watershed Scale. Dan Brogan; Lee MacDonald; Peter Nelson; Stephanie Kampf

Five Years of Sedimentation Behind Two, In-Series "Run-of-River" Dams in the Brazilian Amazon. Trey Crouch; David Kaplan; Edgardo Latrubesse; Landerlei Santos

Flows for Fish: Analyzing Restoration Flow releases in the San Joaquin River, CA for salmonid habitat. Emily Thomas; Regina Story

Data Mining for Geospatial Patterns in Nonstationarity. Bryan Baker; Aaron Sant-Miller; Kate White

Large Bed Elements Rule Everything around Me: Hydraulic and Geomorphic Patterns in a Mountain River. Jason Wiener; Gregory Pasternack

Optimized Reservoir Refill. Tom Chisholm

P-6 Sampler Comparison. Kurt Spicer

Monitoring the Effect of Deep Drawdowns of a Flood Control Reservoir on Sediment Transport and Dissolved Oxygen, Fall Creek Lake, Oregon. Liam Schenk; Heather Bragg

Paleoflood Hydrology of the Deadwood River, Idaho. Jeanne Godaire; Caroline Ubing; Amanda Stone; Jennifer Bountry

Refining the Baseline Sediment Budget for the Klamath River, California. Chauncey Anderson; Scott Wright; Liam Schenk; Katherine Skalak; Jennifer Curtis; Amy East; Adam Benthem

Suspended-sediment discharge in the Rhône River during a 10-year flood. Dramais Guillaume; Topping David J.; Peteuil Christophe; Pierrefeu Gilles; Le Coz Jérôme; Camenen Benoît

Testing hydraulic efficiency of three pressure-difference samplers while varying flows and bag properties (mesh size, weave density, fill level). Kristin Bunte; Taylor Hogan; Matthew Klema; Christopher Thornton

The National Hydrography Dataset (NHD) and National Hydrography Dataset Plus High Resolution (NHDPlus HR). Susan Buto; Alan Rea

The seismic view on debris laden ephemeral flows – robust inversion of ground motion data for fluid and bedload dynamics in the Arroyo de los Piños. Michael Dietze; Florent Gimbert; Jens Turowski; Kyle Stark; Daniel Cadol; Jonathan Laronne

Turbidity probe testing comparison. Teri Snazelle

Uncertainty and Parameter Sensitivity of Physically Distributed Sediment and Runoff KINEROS2 Model. Menberu Meles; Dave Goodrich; Carl Unkrich; Shea Burns; Hoshin Gupta; Saman Razavi; Philip Guertin

USGS Sediment Data-Collection Techniques: Selected Data Results, 2008-2016. Heather Bragg

Using Hydroacoustics to Estimate Suspended-Sediment and Total Metal Concentrations on the San Juan River near Bluff, Utah. Chris Wilkowske; Cory Angeroth

Using oblique imagery to measure hypsometric changes in sandbar volume following controlled floods in the Grand Canyon. Ryan Lima; Temuulen Sankey; Daniel Buscombe; Paul Grams; Erich Mueller

Water Quality History Derived From Diatom Communities in a Water Treatment Sediment-Settling Reservoir, Aztec, NM. Jeb Brown

Wildfire in the West: Assessing the Detectability of a Post-fire Signal at the Watershed Scale. Aaron Heldmyer; Ben Livneh

Wildfires in the West: Characterizing Drivers of Post-Disturbance Hydrologic and Sediment Response through Laboratory Analysis. Carli Brucker; Aaron Heldmyer; Ben Livneh; Fernando Rosario-Ortiz; Toby Minear

COMPUTER DEMONSTRATIONS / MODELS
Thursday, 4pm—8pm Tuscany Ball Room C-D

COMPUTER MODELING SESSION (WITH DINNER BREAK)

Demonstration of the Automated Geospatial Watershed Assessment (AGWA) Tool. Shea Burns; David C. Goodrich; D. Phillip Guertin

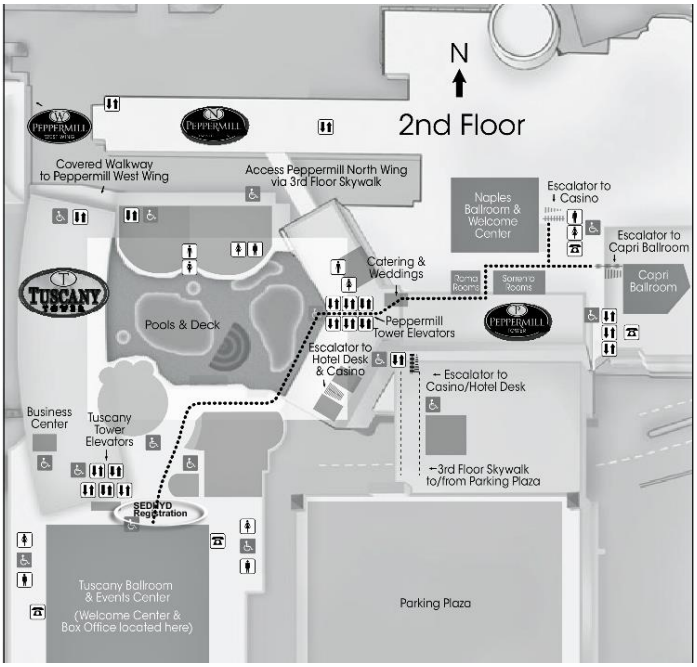
Exploring Surface Processes Using the Community Surface Dynamics Modeling System Modeling Tools. Irina Overeem; Jordan Adams; Mariela Perignon; Greg Tucker; Albert Kettner; Eric Hutton

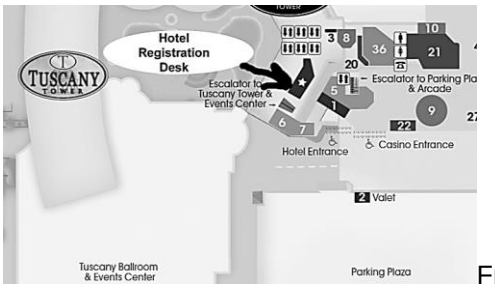
Physically-Based Hydrologic Modeling of Clear Creek Watershed. Marcela Politano; Antonio Arenas Amado; Maral Razmand; Yong Lai; Larry Weber

Riverware Interactive Scenario Explorer (riverwise) Demonstration. David Neumann; Edith Zagona

Watershed-Scale Water Quality Modeling in HEC-WAT With CE-QUAL-W2 and HEC-RAS. Todd Steissberg; Julia Slaughter; Leila Ostadrahimi; Billy Johnson; Zhonglong Zhang

WEPPCloud Beyond the Horizon. Peter Robichaud; Roger Lew; Mariana Dobre; William Elliot; Erin Brooks





FIRST FLOOD

PROFESSIONAL DEVELOPMENT HOURS FORM, SEDHYD 2019

Licensed professional engineers and geologists attending conferences, such as **SEDHYD 2019,** 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.

Monday, June 24		ACTIVITY	PDHs
☐	8am–5pm	**Field Trip:** Scientific Research and Operations at Lake Tahoe, California and Nevada	4
☐	8am–5pm	**Field Trip:** Understanding Reservoir Sedimentation and Channel Dynamics to Inform Fish Passage at Marble Bluff Dam on Lower Truckee River, Nevada	4
☐	8am–12pm	**Workshop:** Reservoir Sedimentation and Sustainability	4
☐	8am–5pm	**Workshop:** Stage 0 Restoration: Planning, Design, Implementation, and Appraisal	8
☐	8am–12pm	**Workshop:** Application of Numerical Models to Simulate Hydrology, Reservoir Operations, River Hydraulics and Flood Impacts	4
☐	8am–12pm	**Workshop:** Part A--Introduction to Successful Sediment Transport Modeling	4
☐	8am–12pm	**Workshop:** Sediment Data Collection and Records, Computation Techniques	4
☐	8am–12pm	**Workshop:** Sediment Sourcing Workshop	4
☐	1pm–5pm	**Workshop:** An Overview of Selected Sediment Surrogate Techniques	4
☐	1pm–5pm	**Workshop:** New Features of HEC-RAS 5.1	4
☐	1pm–5pm	**Workshop:** Part B--Sediment Transport Modeling in 1D Using HEC-RAS	4
☐	1pm–5pm	**Workshop:** Use of Bulletin 17C for Flow Frequency Analysis	4
TOTAL for SESSIONS ATTENDED Monday, June 24 (8 max.)**:**			

Tuesday, June 25		ACTIVITY	PDHs
☐	9:30am–12pm	**Opening Session**	2.5
☐	1:30pm–3pm	**Concurrent Technical Session 1**	1.5
☐	1:30pm–3pm	**Concurrent Technical Session 2**	1.5
TOTAL for SESSIONS ATTENDED Monday, June 25 (6 max.)**:**			

Wednesday, June 26		ACTIVITY	PDHs
☐	8:30am–10am	**Concurrent Technical Session 3**	1.5
☐	10:30pm–12pm	**Concurrent Technical Session 4**	1.5
☐	1:30pm–3pm	**Concurrent Technical Session 5**	1.5
☐	3:30pm–5pm	**Concurrent Technical Session 6**	1.5
TOTAL for SESSIONS ATTENDED Wednesday, June 26(8 max.)**:**			

Thursday, June 27		ACTIVITY	PDHs
☐	8:30am–10am	**Concurrent Technical Session 7**	1.5
☐	10:30pm–12pm	**Concurrent Technical Session 8**	1.5
☐	1:30pm–3pm	**Concurrent Technical Session 9**	1.5
☐	4:30pm–9pm	**Model Demos and Poster Session**	1.5
TOTAL for SESSIONS ATTENDED Thursday, June 27 (6 max.)**:**			

Friday, June 28		ACTIVITY	PDHs
☐	8:30am–10am	**Concurrent Technical Session 10**	1.5
☐	10:30pm–12pm	**Concurrent Technical Session 11**	1.5
☐	1pm–5pm	**Field Trip:** Snow Hydrology in the Central Sierra Nevada Range, California and Nevada	2
☐	1pm–5pm	**Workshop:** Sediment Transport Modeling in Streams with SRH-2D	4
TOTAL for SESSIONS ATTENDED Friday, June 28 (8 max.)**:**			
CONFERENCE TOTAL (36 max.)**:**			

TUSCANY BALLROOM/EVENTS CENTER