

Joint Eighth Federal Interagency Sedimentation Conference and Third Federal Interagency Hydrologic Modeling Conference

April 2 – 6, 2006

Silver Legacy Hotel, Reno, Nevada



Theme: *Interdisciplinary Solutions for Watershed Sustainability*

**Sponsored by the Subcommittees on Hydrology
and Sedimentation
Advisory Committee on Water Information**

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BACKGROUND: The Federal Interagency Sedimentation Conferences (FISC) began in 1947, and the Federal Interagency Hydrologic modeling Conferences began in 1998. These highly successful conferences, which together have produced over 1800 papers, will be held jointly in April of 2006. The Joint Conference will provide Federal and non-Federal scientists and managers from various disciplines the opportunity to discuss recent accomplishments and progress in research and on technical developments in the physical, chemical, and biological aspects of sedimentation and the development and use of models addressing surface water quality and quantity issues. The Joint Conference will follow a mixed set of formats including formal presentations, poster sessions, mini-workshops, and model demonstrations.

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

Federal Interagency Sedimentation Conferences (FISC) were held in 1947, 1963, 1976, 1986, 1991, 1996, and 2001. As a continuation of these highly successful conferences, the 8th FISC will again provide an interdisciplinary mix of scientists and managers from government agencies, academia, and the business community to make professional presentations on recent accomplishments and progress in research and on technical developments related to sedimentation processes and the impact of sediment on the environment.

CONFERENCE SITE: The Conference will be held at the Silver Legacy Hotel and Casino in Reno, Nevada. Located in the foothills of the Sierra Nevada Mountains, Reno offers a beautiful backdrop, a rich history dating back to the silver mining days of the 1800's, numerous outdoor recreational opportunities including scenic Lake Tahoe and a number of great entertainment opportunities.

TOPICS: About 260 papers and 120 posters and demonstrations from the United States and several foreign countries, incorporating results of recent research and technology development and/or applications relating to surface water modeling have been accepted for presentation. Papers and posters will be given in the topics:

Dam rehabilitations and removal	Watershed modeling	Environmental river management
Sediment yield and prediction tools for natural resources planning	Establishing standards for the evaluation of hydrologic models	Hydroecological modeling
Reservoirs sedimentation --Sedimentation surveys --Reservoir sediment management	Model calibration, sensitivity, uncertainty, and/or error	Interagency cooperation in hydrologic modeling

	propagation	
Stream restoration --Design and implementation	Data sharing, information management, and/or automation	Sustaining and restoring river environments
Geomorphology --Fluvial, uplands, watershed	Global warming	Surface water - Ground water interaction models
Sediment and wildlife habitat	Using models in developing TMDLs	Water supply and resources in the West
Sediment surrogates	Flood hydrology	Hydroinformatics
Turbidity measurements and use	Climate change	Aquatic ecosystem modeling
Regulatory and voluntary sediment control program --Farm Bill conservation --Sediment TMDLs	Instrumentation to support sediment programs and hydrologic modeling in the 21st century	Modeling of major river systems
Sediment/carbon relationships	Monitoring and nonpoint source pollution	Modeling water quality transport processes
Development of sediment criteria and guidelines	New observations, data and monitoring programs for modeling	Roles of models in management and decision making
Sediment research	Identifying model parameters	Evolutionary computing

For a complete listing of the papers accepted for presentations see "Sessions and Speakers" section of this announcement.

OPENING SESSION: The Conference Chairs will make welcoming remarks and opening statements. A local welcoming speaker and two prominent keynote speakers will also address the group.

EXHIBITORS' RECEPTION and POSTER SESSION: A one hour reception will be held in the exhibit hall Monday after the technical sessions are over. Approximately 60 posters on sedimentation and hydrologic modeling will also be available during that time. The posters will be offered all day Monday for viewing, and the authors will be on hand during the evening reception for discussion. See list of posters and exhibitors in this announcement. Anyone interested in exhibiting at the conference should contact Mr. Joe Treadway, USGS Hydrologic Instrumentation Facility, Building 2101, Stennis Space Center, MS 39529 (phone 228-688-3573); FAX 228-688-1577; jbtread@usgs.gov for more information.

MODEL DEMONSTRATIONS/POSTER SESSION and DINNER: A 4.5-hour session for computer-model demonstrations and posters, including sedimentation and hydrologic modeling, will be offered Wednesday afternoon and evening. A light dinner will be provided during this time. See list of scheduled demonstrations and posters in this announcement.

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

SPONSORS

Subcommittees on Hydrology and Sedimentation of the Advisory Committee on Water Information.

SUBCOMMITTEES' ORGANIZATIONS

Association of State Floodplain Managers
Agricultural Research Service
American Forests
American Society of Civil Engineers

Defenders of Property Rights
Bureau of Land Management
Bureau of Reclamation
Colorado Water Resources Research Institute
Electric Power Research Institute
Federal Emergency Management Agency
Federal Highway Administration
Federal Energy Regulatory Commission
International Boundary and Water Commission
National Hydrologic Warning Council
National Park Service
National Science Foundation
National Weather Service
Natural Resources Conservation Service
Office of Surface Mining
Universities Council on Water Research
US Army Corps of Engineers
US Environmental Protection Agency
USDA Forest Service
US Geological Survey

ORGANIZING COMMITTEES

Joint Federal Interagency Conference

Doug Glysson, Joint Conference Chair; USGS, 412 National Center Reston, VA, 20192, 703-648-5019, gglysson@usgs.gov

Paula Makar, Operations Chair; USBR, P.O. Box 25007 M/C D-8540, Lakewood, CO 80225, 303-445-2555, pmakar@do.usbr.gov

Francisco Simoes, Proceedings Coordinator, USGS, Box 25046, MS 413, Lakewood, CO 80225, 303-236-4556, frsimoes@usgs.gov

Jeff Rieker; Registration Chair; USBR, P.O. Box 25007 M/C D-8510, Denver, CO 80225, 303/445-2484, jrieker@do.usbr.gov

Gary Barbato, Field Trip Coordinator, National Weather Service,

Tom Donaldson, Poster/Demonstration Coordinator, National Weather Service

Larry Schmidt, Local Contact, U.S. Forest Service (retired)

Joe Treadway, Exhibitor Coordinator, U.S. Geological Survey

Jayantha Obeysekera, Short Course Coordinator, South Florida Water Management District

Roland Viger, Computer/AV Equipment Coordinator, U.S. Geological Survey

Christi Young, Publicity Coordinator, U.S. Bureau of Reclamation

8th FISC

Jerry Bernard, Chair, NRCS, P.O. Box 2890, Washington, DC 20013, 202-720-5356, jerry.bernard@wdc.usda.gov

Jerry Webb, 8th FISC Technical Program Chair, US Army Corps of Engineers, 441 G Street NW, 3K22, Washington, DC 20314, 202-761-5543, Jerry.w.webb@hq02.usace.army.mil

Marie Garsjo, Audio/Visual Coordinator, Natural Resources Conservation Service

3rd FIHMC

Don Frevert, 3rd FIHMC Chair; USBR, P.O. Box 25007 M/C D-8510, Lakewood, CO 80225, 303-445-2473, dfrevert@do.usbr.gov

George Leavesley, 3rd FIHMC Technical Program Chair, USGS, Box 25046, MS 412, Lakewood, CO 80225, 303-236-5026, george@usgs.gov

Steve Markstrom, co-Technical Program Chair, U.S. Geological Survey
 Roland Viger, Audio/Visual Coordinator, U.S. Geological Survey

TRANSPORTATION. Reno – Tahoe International Airport is the main airport serving the Reno metropolitan area. It is located approximately 5 miles from the Silver Legacy. Transportation from the airport to the Silver Legacy is available through the hotel shuttle which runs every 30 minutes and boards immediately outside the baggage claim area or by taxicab.

REGISTRATION

Registration fee:	\$390	before March 1, 2006
	\$450	after March 1 and onsite

Includes:	<ul style="list-style-type: none"> • Conference Proceedings • Grand Opening Reception • Monday’s Reception • All refreshment Breaks • Demonstration Dinner
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Registration for single day attendance is also available. Single day attendance will include a copy of the conference proceedings and all functions accruing on that day. Please go online to <http://www.jfic.org> or use the **conference registration form** at the end of this announcement to register. Registration forms and payments sent by mail must be postmarked prior to March 1, 2006 in order to receive the discounted rate. Payment must be made at the time of registration, and all credit card payments will be charged at the time of registration. Spouse registration is \$40 and includes all of the above, with the exception of the proceedings.

The registration desk (located in the Platinum Room of the Silver Legacy’s Grande Exposition Hall Conference Center) will be open for on-site registration as follows:

Sunday	April 2	7:00 a.m.	To	6:00 p.m.
Monday	April 3	7:00 a.m.	to	5:30 p.m.
Tuesday	April 4	8:00 a.m.	to	5:30 p.m.
Wednesday	April 5	8:00 a.m.	to	5:30 p.m.
Thursday	April 6	8:00 a.m.	to	1:00 p.m.

STUDENT REGISTRATION

Full-time students may register for the conference at a special fee of \$150 before March 1, 2006, and \$180 after March 1 or onsite. These fees include all of the above full conference registration items. Student identification is required. A limited number of student registration fees will be waived for students interested in providing on-site audio-visual support. Interested students should contact Roland Viger at rviger@usgs.gov or 303-236-5030 prior to March 1, 2006.

CANCELLATIONS

Cancellation with full refund will be accepted if received in writing no later than March 1, 2006. A \$50 processing fee will be deducted from written cancellations received between

March 1 and March 24. NO REFUNDS WILL BE GIVEN FOR CANCELLATIONS RECEIVED AFTER MARCH 24, 2006.

HOTEL REGISTRATION

The Conference will be held at the Silver Legacy Hotel and Casino in Reno, Nevada. A block of rooms under the Group ID code “**JFIC**” has been reserved at a special room rate for the Conference. The special rate of \$55 plus a \$3 resort fee plus tax applies to a Single/Double room. For all other rooms and suites, please contact the hotel directly. A limited number of rooms have been reserved for the Friday (3/31) and Saturday (4/1) nights at the conference rate. Once these rooms have been taken, the regular hotel rate will be charged.

Rooms will be assigned on a first-come, first-served basis from the reserved block. Rooms not assigned from the block by **March 1, 2006** will be released, and reservations after that date will be handled on a space-available basis. To make your room reservations, call the hotel (1-800-687-8733) or register online at <http://www.silverlegacyreno.com/> and use JFIC as the group code. **Note: if you register online, your credit card will be automatically and immediately charged the first night rate as a deposit.** To avoid having your credit card charged for the room deposit, call the hotel directly at 1-800-687-8733. If you call in your reservation, your credit card will only be used to hold your room. You may cancel your reservation without penalty up to 24 hours prior to your scheduled arrival date. We advise you to make your reservation early, as we anticipate the conference will be well attended.

OPENING RECEPTION

A get-acquainted reception will be held on Sunday afternoon from 5:30 – 7:30 PM in the Silver Legacy’s Grande Exposition Hall. Come and visit with our exhibitors and meet old friends and make new ones while enjoying refreshments and hot and cold hors d’ oeuvres.

SPEAKERS’ BREAKFAST

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

SPEAKERS' VIEWING ROOM

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

PROCEEDINGS

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

FIELD TRIPS

All field trips will meet in the **Pre-Function Salon** of the Grande Exposition Hall. Note: field trips are subject to cancellation and refund in case of poor weather conditions or insufficient number of participants. A \$25 fee will be charged if you cancel out of a field trip after March 15, 2006.

Sunday, April 2, 2006

**"Lower Truckee River Operations for Restoration: Reno to Pyramid Lake": 9 am – 4 pm
\$40 including lunch. Registration by March 15 required for lunch.**

Presented by U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, Nevada Department of Environmental Protection, Washoe County Department of Water Resources, The Nature Conservancy, and Chad Gourley, Geomorphologist.

This tour will concentrate on the physical changes made to the lower Truckee River during the last century, along with resulting erosion, flooding, and water quality/quantity impacts. Some of the methods which have been and will be put into place to mitigate these impacts will be covered. Truckee River operations for water supply, flood control, restoration of cottonwoods and the threatened Lahontan Cutthroat Trout and rare/endangered Cui-Ui in Pyramid Lake will be discussed. Planned stops include: 1) Truckee River at Vista, where the history of the Vista Reefs impacts and subsequent removal will be explained. 2) McCarran Ranch, where the river restoration project carried out by The Nature Conservancy will be covered. 3) Derby Dam, which has a major impact on Truckee River flows and the resulting health of both the river and of Pyramid Lake below this point. 4) Cottonwood restoration area near Wadsworth, where the U.S. Fish and Wildlife Service will discuss the Variable Instream Flow Strategy to manage flows for fish migration, cottonwood recruitment and water quality/quantity impacts. 5) Marble Bluff Dam and Fish Passage Facility, where the Bureau of Reclamation will discuss how the dam has stopped the Truckee's headcutting upstream, and the Fish and Wildlife Service will describe the fish passage facility. While en route, key facilities, structures, and diversions along the way will be pointed out and their role in river operations explained.

"Lake Tahoe and Upper Truckee River Region: River and Reservoir Operations, Tahoe City to Reno": 9 am – 4 pm \$40 including lunch. Registration by March 15 required for lunch.

Presented by U.S. Geological Survey, U.S. District Court Water Master's Office, Truckee Meadows Water Authority, and the U.S. Bureau of Reclamation

This tour will concentrate on the history of Lake Tahoe, the Truckee River and their complex operation for water supply, flood control, recreation, power generation, environmental concerns and the restoration of two endangered species of fish in Pyramid Lake. At Meeks Bay, glaciation which occurred in the Tahoe Region will be discussed. Stops will include Lake Tahoe Dam, the Truckee River gage below Lake Tahoe Dam, Meeks Bay, Donner Lake, Boca Dam, Stampede Dam, Gray Creek (viewpoint), and a tour of the Chalk Bluffs Water Treatment Plant in Reno. While en route, key facilities, structures, gages, and diversions along the way will be pointed out and their role in river operations explained.

"Restoring Ecological Integrity to the Carson River"; Carson River from Genoa to Dayton, NV Area: 10 am – 4 pm. \$40 including lunch. Registration by March 15 required for lunch. Presented by Dayton Valley Conservation District, Carson Valley Conservation District, Western Nevada Conservation and Development Office, Carson Water Subconservancy District and The Nature Conservancy:

Man-caused changes to the Carson River watershed since the 1850s due to agriculture and mining have caused major degradation to the river channel and watershed. The degraded state of the river exacerbated the damage caused by the major January 1997 flood, and considerable erosion and damage to the banks and riparian areas again occurred. As a result, landowners sought erosion protection, habitat improvement and geomorphic restoration under various federal relief and state conservation programs. In addition, several Federal, State and local agencies formed a partnership to address erosion and sedimentation problems. This field trip

will visit several sites on the Carson River from Genoa to Dayton, NV, where various restoration projects have been planned and implemented. The restoration projects, some ongoing since 1999, include geomorphic alterations to restore the function of the river and wetlands, as well as using combinations of vegetation and engineered structures and materials (bioengineering) to control erosion and sedimentation. These sites have served as classroom workshops and follow-up demonstration areas for various erosion control and habitat improvement treatments.

Lake Tahoe and Carson City Waterfall Burn Area: "Challenges of Limiting Sedimentation, Flooding and Debris Flows at Lake Tahoe and in the Carson City "Waterfall" Fire Burn Area Watershed" 10 am - 4 pm. \$40, including lunch. Registration by March 15 required for lunch. Presented by: U.S. Geological Survey, Natural Resources Conservation Service, U.S. Forest Service, Federal Highway Administration, Desert Research Institute and others.

Loss of Lake Tahoe water clarity continues to be a national issue. This field trip will highlight sedimentation programs, as well as sedimentation control and monitoring networks in place at Lake Tahoe. Those participating will also visit the 2004 Carson City Waterfall Fire burn area, where means of monitoring flows and of limiting sedimentation, flooding and debris flows will be discussed.

SHORT COURSES:

Note: Short courses are subject to cancellation and refund if the number of registrants are not sufficient to cover the class. Non-conference attendees can register but will have a lower priority than those who register for the full conference. A \$25 handling fee will be charged if a registration for a short course is cancelled after March 15, 2006.

Sunday, April 2, 2006

MIKE SHE/MIKE 11, 9:00 am to 4:00 pm, \$175

Instructor: E. Zia Hosseinipour, Principal Water Resources Engineer, DHI, Inc.

Complex riverine and wetland flow systems and the interactions between surface water, ground water and evapotranspiration processes require an integrated mathematical hydrologic and hydrodynamic modeling approach. This course will present an overview of the MIKE SHE modeling system (www.dhisoftware.com/mikeshe) developed by DHI. The software package comprising the hydrological model MIKE SHE and the river hydrodynamic model MIKE 11 enables a fully integrated, dynamic simulation of surface water and subsurface flow regimes. MIKE 11 includes a number of modules such as structure operations, sediment transport, and water quality in association with DHI's ECOLAB. The modeling system can be used to address a wide range of water management issues and, as a management tool, can be used to help in the restoration and preservation of wetlands and sensitive ecosystems. The modeling system is also frequently used to address and assess water demands and supply issues such as irrigation of agricultural crops and urban environments (lawns, golf courses, parks, etc. in water reuse to conserve freshwater sources for water supply). The modeling software is linked with GIS for database access, data management, post-processing and assimilation of the model results. The use of GIS also allows for advanced flood mapping to study flood patterns, flood duration and possible crop damage.

A CD of course materials will be provided for later use. A certificate of attendance will be issued to all attendees with an 8-hour PDH for registered professionals (PE, PG, PH) for their annual registration renewal requirements.

Hydrologic Modeling Using GIS and the Watershed Modeling System (WMS). 9:00 am to 4:00 pm, \$125

Instructors: E. James Nelson, Professor, Brigham Young University; Colby Manwaring, Vice President, EMS-I Inc.

The objective of this course is to present advanced tools for hydrologic model characterization and analysis. The course will cover the use of digital terrain data in watershed delineation and parameter extraction for hydrologic models. The creation and use of GIS data will also be presented as related to hydrologic modeling. The Watershed Modeling System (WMS) is a comprehensive hydrologic modeling software that will be used in the course to accomplish the objectives above. The software allows rapid and accurate analysis of digital terrain data, GIS data, and hydrologic modeling parameters. The software will be used to build hydrologic models for flow prediction, hydrograph prediction, and flood inundation mapping.

Course materials will be provided on CD to each participant.

Introduction to Integrated Surface/Subsurface Modeling with MODHMS. 9:00 am to 4:00 pm, \$75

Instructor: Sorab Panday, Senior Director, Research & Development, HydroGeoLogic Inc.

This course presents the theory and application of integrated surface and subsurface modeling using the MODHMS software. MODHMS is a physically-based, spatially-distributed simulator for multi-scale applications of surface and subsurface flow and transport based on the popular MODFLOW framework. The hydrologic cycle is treated in a holistic approach with 3-D representation of the saturated / unsaturated subsurface system, 2-D vertically integrated representation of surface runoff, 1-D representation of rivers, streams, pipes, or other hydraulic features, and a node-link representation of small-scale features interacting with each other and with precipitation and evapotranspiration in a fully-coupled manner. The various physical and numerical aspects of MODHMS will be presented and its use with the ViewHMS pre- and post-processing system will be demonstrated. Application examples will be presented to demonstrate conceptualization and parameterization of integrated models and the various simplifications that may be made to reduce numerical burden.

Stream Restoration Design, 8:00 am to 5:00 pm, \$75

Instructors: Jerry Bernard, National Geologist, USDA-NRCS Conservation Engineering Division; Jon Fripp, USDA-NRCS National Design; Kerry Robinson, USDA-NRCS East National Technology Support Center; and Dave Rosgen, WILDLAND HYDROLOGY

The USDA Natural Resources Conservation Service (NRCS) is currently developing a stream design guide which will be a companion to the 1998 interagency document, "Stream Corridor Restoration: Principles, Processes, and Practices". This comprehensive draft design guide, currently titled USDA-NRCS Stream Restoration Design Handbook, presents engineering assessment and design tools that are applicable to any stream restoration work, whether it primarily follows a natural stream restoration or is strictly a structural project. The basis for this short course will be this USDA-NRCS Stream Restoration Design Handbook, which is scheduled for release near the time of this work shop. Excerpts from this manual, which is currently in draft form, will be provided to the students. Although the importance of proper planning for stream restoration work will be stressed, the focus of this workshop will be on selected design tools and procedures from the draft USDA-NRCS Stream Restoration Design Handbook. Specific design tools and short example problems will be provided.

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

Hydraulic and Sediment Transport Modeling of Rivers and Watersheds with GSTAR.

9:00 am to 4:00 pm, \$90

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

The Bureau of Reclamation has developed several sediment transport tools for use in natural river systems. The course will give an introduction to three of these tools: SIAM, GSTAR-1D and GSTAR-W.

SIAM (Sediment Impact Analysis Methods) is a reach-based geomorphic sediment budgeting tool to link sediment sources, sinks, and transport to channel adjustment and basin yield. SIAM computes sediment yields and locates areas of potential instability, identifies causes of geomorphic change distributed throughout a network, and tests potential solution strategies within watersheds of all sizes.

GSTAR-1D (Generalized Sediment Transport for Alluvial Rivers – One Dimension) is a one-dimensional hydraulic and sediment transport model for use in natural rivers and manmade canals. It is a mobile boundary model with the ability to simulate steady or unsteady flows, internal boundary conditions, looped river networks, cohesive and non-cohesive sediment transport, and lateral inflows.

GSTAR-W (Generalized Sediment Transport for Alluvial Rivers and Watersheds) is an unsteady two-dimensional hydraulic, erosion and sediment transport model for watersheds with 1D or 2D channel networks or for river systems with floodplains.

The goal of this course will be to familiarize the student with each model so that they will be able to choose the correct model for their application and to understand each model's capabilities and limitations. Participants may want to bring their own notebook computers if they would like to have hands-on experience with the software during the short course.

Thursday, April 6, 2006

EXCEL-LEnT. 10:30 am to 5:00 pm, \$150.

Instructor: Darrell G. Fontane, Professor, Colorado State University

The EXCEL spreadsheet software is one of the most used software packages in water resources organizations. Yet most engineers and scientists use only a fraction of the spreadsheet's capabilities. This workshop is designed to teach you how to employ some of the features particularly useful in engineering and water resources analysis. The workshop will cover customized graphs, including dynamic and animated graphs, recording macros, using message and input boxes, custom user forms, and writing your own customized Visual Basic for Applications (VBA) macros and functions. Participants will be provided with examples of engineering spreadsheets for future reference and a set of the EXCEL-LEnT notes. This workshop is designed for average and above spreadsheet users. No previous programming experience with macros or Visual Basic for Applications is required. The workshop is hands-on, therefore **participants must have their own notebook computer with EXCEL (version '97 or later) installed.**

**Arc Hydro – Hydrologic Modeling with GIS. 10:30 am to 5:00 pm, \$75,
Instructor: Dean Djokic, Lead Developer, Arc Hydro, ESRI**

GIS as spatial data management and mapping technology provides strong foundation for support of hydrologic and hydraulic (H&H) analyses needed for floodplain mapping. This one-day workshop presents GIS technology and techniques that can be used for terrain analyses, hydrologic and hydraulic characteristics extraction, numerical model input and output, modeling process automation, and result mapping. HEC's GeoHMS and GeoRAS and USGS's StreamStats/NSS, each built upon foundation methodologies, data model, and toolset provided by Arc Hydro, form the modeling backbone for H&H analyses presented in this workshop. Besides GIS techniques, the workshop will present actual experiences in developing HMS, NSS, and RAS model inputs through use of GIS and in analyzing and mapping of model results. Utilization of GIS infrastructure for support of other H&H models will be discussed as well. Opportunities for GIS use in post-model analyses such as map production, flood damage estimation, and results dissemination will also be discussed.

**HEC-HMS and HEC-GeoHMS. 1:00 pm to 5:00 pm, \$50
Instructors: William A. Scharffenberg (HMS), Research Hydraulic Engineer, and James Doan (GeoHMS), U.S. Army Corps of Engineers Hydrologic Engineering Center, Davis**

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

**Accounting for Sediment Processes in Stream Analysis and Design. 10:30 am to 5:00 pm,
\$50**

Instructors: David S. Biedenbarn and Charles D. Little, Engineering Research Development Center, U.S. Army Corps of Engineers, Stanford A. Gibson, Hydrologic Engineering Center, U.S. Army Corps of Engineers, Chester C. Watson, Colorado State University, and Colin R. Thorne, University of Nottingham

A simple, rigid approach to addressing channel rehabilitation projects is not available. There are too many variables that must be addressed for a one-size-fits-all approach to channel modification activities. Because different river systems vary in geology, climate, ecology, hydrology, and hydraulics; methods utilized in one location may not be applicable to another location. A generalized systematic approach to addressing channel design has been developed to address the large variety of projects that may range from localized erosion problems that can be addressed using a simple reference reach methodology, to severe basin-wide problems that require a concentrated analysis and design effort. The objectives of this workshop are to introduce the methodology and procedures for accounting for sediment processes in the analysis and design of channel systems, with a particular emphasis on ensuring that sediment continuity be established on a regional basis. The utility of the newly developed Sediment Impact Assessment Model (SIAM) will also be demonstrated. The target audience for this workshop is personnel involved in channel restoration, sediment management, or any activities requiring the

modification to channel systems. The following topics will be covered: The Channel Design Process, Sediment-related issues in stream analysis and design, Baseline Geomorphic Assessments, Introduction to SIAM, SIAM Case Study, and SIAM Application Workshop

Overview on Collection of Fluvial-Sediment Data. 1:00 pm to 5:00 pm, \$75
Instructors: John R. Gray and G. Douglas Glysson, U.S. Geological Survey

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

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

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

Joint 8th FISC and 3rd FIHMC Planned Schedule at a glance

Sunday						
9:00 – 4:00	Field Trip: Lower Truckee River Operations for Restoration: Reno to Pyramid Lake			Field Trip: Lake Tahoe and Upper Truckee River Region: River and Reservoir Operations, Tahoe City to Reno		
10:00 -4:00	Filed Trip Restoring Ecological Integrity to the Carson River"; Carson River from Genoa to Dayton, NV Area			Field Trip: Lake Tahoe and Carson City Waterfall Burn Area:		
8:00 – 5:00	Short Course: Stream Restoration Design					
9:00 – 4:00	Short Course: Hydraulic and Sediment Transport Modeling of Rivers and Watersheds with GSTAR			Short Course: Hydrologic Modeling Using GIS and the Watershed Modeling System (WMS)		
9:00 – 4:00	Short Course: MIKE SHE/MIKE 11			Short Course: Introduction to Integrated Surface/Subsurface Modeling with MODHMS		
5:30 – 7:30	Opening Reception					
Monday						
8:30 - noon	Opening Session					
	8th FISC			3rd FIHMC		
1:30 – 3:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
3:30 – 5:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
5:30 – 6:30	Exhibitors' Reception and Poster session					
Tuesday						
	8th FISC			3rd FIHMC		
8:30 – 10:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
10:30 - noon	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
1:30 – 3:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
3:30 – 5:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
Wednesday						
	8th FISC			3rd FIHMC		
8:30 -10:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
10:30 -noon	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
1:30 – 3:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
4:30 – 9:00	Joint Conference Demo and Poster session			5:30 – 7:00	Demo and Poster Dinner	
Thursday						
	8th FISC			3rd FIHMC		
8:30 – 10:00	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
10:30 - noon	8 th FISC session	8 th FISC session	8 th FISC session	3 rd FIHMC session	3 rd FIHMC session	3 rd FIHMC session
10:30 – 5:00	Short Course: Accounting for Sediment Processes in Stream Analysis and Design			Short Course: EXCEL-LEnT		
10:30 – 5:00	Short Course: Arc Hydro – Hydrologic Modeling with GIS					
1:00 – 5:00	Short Course: Overview on Collection of Fluvial – Sediment Data			Short Course: HEC-HMS and HEC-GeoHMS		

Sessions, Titles, and Authors

(Note: Final program may change as papers may be added or dropped.)

8th FEDERAL INTERAGENCY SEDIMENTATION CONFERENCE

Oral Presentations:

Climate Change

Title	Authors	Agency
The Influence Of ENSO Phase On Geomorphically Effective Flows In Pacific Coastal Streams	E. D. Andrews and Ronald C. Antweiler	USGS
Effects Of Climate On Flow And Sediment Transport In The Upper Yuba River Basin, Northern Sierra Nevada	Lorraine E. Flint, Joel R. Guay, Alan L. Flint, and Jennifer A. Curtis	USGS

Dam Rehabilitation and Removal

Comparison Of Several Numerical Models Applied To Removal Of Savage Rapids Dam Near Grants Pass, Oregon	Jennifer Bountry, Yong Lai, Timothy Randall	USBR
Geomorphic Response Of Rivers To Dam Removal: New Insights From Flume Experiments And Field Studies	Gordon E. Grant, Gregory Stewart), Chris Bromley	USDA FS, OSU U of Nottingham
Numerical Study Of The Response Of A Reservoir Deposit To Sudden Dam Removal	Allesandro Cantelli, Miguel Wong, Gary Parker	U. of MN
Sediment Dynamics Post Dam Removal: State Of The Science And Practice	Laura Wildman, Cassie Klumpp, Blair Greimann	Amrivers
NRCS Watershed Rehabilitation In Oklahoma – A Geological Perspective	Glen B. Miller	NRCS

Farm Bill, Conservation

Assessing Effects Of Conservation At The Watershed Scale	Tom Drewes, Kelsi Bracmort, and Jerry Bernard	NRCS
Assessing The National Effects Of Conservation- For The First Time (CEAP)	Robert L. Kellogg	NRCS
Evaluation Of The Importance Of Channel Processes In CEAP-Watershed Suspended Sediment Yields	Andrew Simon	ARS
Determination Of Sediment Sources On The CEAP Benchmark Watersheds	Christopher Wilson and Roger Kuhnle	ARS

Geomorphology

Bed Forms In The Low Flow Conveyance Channel	Drew C. Baird	USBR
Geomorphic Response To A Dam Failure In The Dead River Watershed, Michigan: Integration Of Empirical And Analytical Techniques In A GIS Framework	Alex Brunton and W.F. Baird	USACE
The Path Of Gravel Movement In A Stream Channel	Kristin Bunte, John P. Potyondy, Steven R. Abt, Kurt W. Swingle	Colo. St. U.
An Illustration Of The Temporal Variations Of Scour And Fill Processes And Evaluation Of Predictive Scour Equations At Selected Bridge Sites In Alaska	J.S.Conaway,	USGS
Geomorphic Context For Historical Determination Of Sediment Sources, Transport, And Deposition In The Bad River Watershed, Bad River Reservation, Wisconsin	Fitzpatrick, Faith A.; Kirsten A. Cahow-Scholtes, Odanah, and Marie C. Peppler,	USGS ,Bad River Band of the Chippewa Tribe
An Urban Geomorphic Assessment Of The Berryessa Creek And Upper Penitencia Creek Watersheds In San Jose, Ca	Brett Jordan, W. K. Annable, C.C. Watson, D. Sen	Colo. St. U, Univ of Waterloo, Santa Clara Valley Water Dist.
Determining Past Channel Adjustment Rates For Geomorphic Assessment Studies By Integrating Two Sedimentation Rate Methods	Laura L. Keefer, Richard A. Cahill, Richard L. Allgire	Illinois State Water Survey, Illinois State Geological Survey
Effects Of Regularly Reversing Energy Gradients On Sediment Transport In A Tidal Marsh System	Kevin Knuuti	USACE

Channel Width and Flow Regime Changes Along the Middle Rio Grande, NM	Tamara Massong, Paul Tashjian, Paula Makar	USBR FWS
Location And Quantity Of Fine Sediments In River Channels	Robert T. Milhous	USGS
Morphologic Evolution In The USGS Surface Water Modeling Interface	Jonathan Nelson, Richard McDonald, and Paul Kinzel	USGS
Channel Migration Model For Meandering Rivers	Timothy J. Randle	USBR
Environmentally Sensitive Gravel Bar Scalping, Fluvial-Geomorphic Evaluation	Frank Reckendorf	Reckendorf & Associates
Streambank Stability Assessment In Grazed Riparian Areas	Mark S. Riedel, Kenneth N. Brooks and Elon S. Verry	USDA FS
Relationships Between Hydrology And Sedimentology For River Bench Formation In Southeast Australia	G. J. Vietz, M. J. Stewardson, I.D. Rutherford, and B. L. Finlayson	U of Melbourne AU
Computational Model For The Development Of Sediment Plugs In Alluvial Rivers	Craig B. Boroughs, Steven R. Abt, Drew Baird	BH&H, CSU, USBR

Gullies: Ephemeral and Edge of Field Gully Erosion

Field Study Of Ephemeral Gully Development	Robert R. Wells, Carlos V. Alonso, Seth Dabney, and F. Douglas Shields, Jr.	ARS
Study Of The Effects Of Lateral Seepage Forces On Tension-Crack Development, Bank-Failure Dimensions And Migration Of Edge Of Field Gullies	Andrew Simon and Robert R. Wells	ARS
Evaluation Of The Impact Of Ephemeral Gullies On Sediment Loading Within An Ohio Watershed Using AGNPS	Ronald L. Bingner, Fred Theurer, and Jim Stafford	USDA
Assessing Ephemeral Gully Erosion In The Cheney Lake Watershed Using GIS, REGEM and the ANNAGNPS Model	Lyle Frees1, Jeffery Neel, Kent McVay, and Daniel Devlin	NRCS, KS State University
REGEM: The Revised Ephemeral Gully Erosion Model	Lee Gordon, Sean Bennett, Fred Theurer, Ron Bingner, Carlos Alonso	U. of Buffalo
Termination Of Gully Processes, Southeastern Nigeria	Peter P. Hudec, Frank Simpson, Enuvie G. Akpokodje and Meshach O. Umeneke	Univ. of Windsor;Univ. Port Harcourt, Nigeria; Nnamdi Azikiwe Univ.
Gully Extension, Adhesion Flow And Erosion Rates During El Nino Southern Oscillation In Southern Brazil: Discovering And Measuring Underestimated Erosion Processes	Marcelo Accioly Teixeira de Oliveira	University Federal de Santa Catarina
Impact Of Pipe Flow On Ephemeral Gully Erosion	G. V. Wilson, R.J. Cullum, and M. J. M. Romkens,	ARS
Ephemeral Gully Erosion Process And Modeling On The Loess Plateau In China	Fen-li Zheng, Zhong-shan Jiang, and Min Wu	Chinese MoWR

Reservoir Sedimentation

Regional Trends In Reservoir Sedimentation Rates Within The Lower Mississippi River Valley	Sean J. Bennett, Robert R. Wells, Daniel G. Wren, Carlos V. Alonso,	U. of Buffalo, ARS
Comparison Between Conceptual Model Of Reservoir Sedimentation And A 3D Numerical Model	Omid Reza Safiyary and Amin Chegenizadeh	U of Tehran
Chester Morse Lake Outlet Channel Alternatives Evaluation	Hans Hadley, Thomas R. Grindeland, and Dalong "Daniel" Huang	WEST Consultants
Sediment Chemistry In The Colorado River Delta, Lake Powell, Utah	Robert J. Hart	USGS
Effects Of Human Activity On Sediment Quality: A Comparison Of Trace Element Concentrations In Eight Small Reservoirs	Kyle Juracek	USGS
Acoustic Profiling Of Sediment Accumulation In Three Small Erosion Control Reservoirs In North Mississippi	Craig J. Hickey, Del Leary Daniel G. Wren, Robert R. Wells, Charles M. Cooper, and Carlos V. Alonso	U. of MS, ARS

Small Artificial Ponds In The United States: Impacts On Sedimentation And Carbon Budget	W. H. Renwick, R. O. Sleezer, R. W. Buddemeier, S. V. Smith	Miami U., OH
Sedimentation In Three Small Erosion Control Reservoirs In North Mississippi	Daniel G. Wren, Robert R. Wells, Charles M. Cooper, Del Leary and Craig J. Hickey	ARS, U. of MS
Reconstructing Reservoir Stratigraphy Using A Simple Numerical Model: Englebright Lake, Yuba River, Northern California	Scott A. Wright and Noah P. Snyder	USGS
Modeling Suspended Sediment And Water Temperature In Detroit Lake, Oregon	Annett B. Sullivan, Stewart A. Rounds, Mark A. Uhrich, and Heather M. Bragg	USGS

Sediment and Wildlife Habitat

Alteration Of Floodplain Morphology To Provide Nursery Habitat For The Rio Grande Silvery Minnow	Travis R. Bauer, T. M. Massong and M.D. Porter	USBR
Spatial Distribution Of Impacts To Channel Bed Mobility Due To Flow Regulation, Kootenai River, USA	Michael Burke, Klaus Jorde, John M. Buffington, , Jeffrey Braatne, Rohan Benjankar,	U of ID, USDA FS
The Effects Of Sediment Supply And Channel Conditions On Benthic Macroinvertebrate Assemblages In Gravel Bedded Streams In The Klamath Mountains, Northern California	Matthew R. Cover, Christine L. May, William E. Dietrich and Vincent H. Resh	UC Berkeley
Use Of Bar Morphology And Dynamics To Evaluate Hydrology, Sediment Supply And Channel Morphology 1937 And 2003 In The Middle Rio Grande, New Mexico	Michael D. Harvey and Stuart C. Dagmar K. Llewellyn,	Mussetter Eng., S.S. Papadopulos & Associates
Use Of Aerial Thermograph To Map Emergent Riverine Sandbars	Ashley K. Heckman, Paul J. Kinzel, and Jonathan M. Nelson	USGS
Modeling Of Special High-Flow Release Along Central Platte River	Mohammed A. Samad and Timothy J. Randle	USBR
The Implications Of Recent Floodplain Evolution On Wildlife Habitat Within The Middle Rio Grande, NM	Paul Tashjian, Tamara Massong, Paula Makar	FWS, USBR

Sediment Prediction Tools

Sediment Production From Forest Roads In The Upper Oak Creek Watershed Of The Oregon Coast Range	Joseph R. Amann	Consultant
The Performance Of Bed Load Transport Equations In Mountain Gravel-Bed Rivers: A Re-Analysis	Jeffrey J. Barry, John M. Buffington, John G. King, and Peter Goodwin	CH2M, U of Idaho USDA FS
Use Of Monitoring Data To Evaluate Cumulative Watershed Effects In A Mixed-Land Use Watershed In Northern Idaho	K. Ostrowski, J. Boll, E. S. Brooks, J. Newson	U. of ID
Method For Long-Term Annual Watershed Sediment Yield Predictions	Aaron Byrd and Fred Ogden	USACE
Erosion Control In Cotton Production Through The Use Of Ultra Narrow Row	R. F. Cullum, G. V. Wilson, J. R. Johnson, K. C. McGregor	ARS
Prediction Tools Of Sediment Yield At The Basin Scale. The Importance Of Scale, Sediment Sources And Connectivity.	Joris de Vente, Jean Poesen, Anton Van Rompaey, Gert Verstraeten	KUL, Belgium
Sediment Transport Computations In HEC-RAS	Stanford Gibson	USACE
Application Of GSTAR-1D Sediment Transport Model On The Rio Grande, NM – San Acacia Diversion Dam To Elephant Butte Reservoir	Christopher L. Holmquist-Johnson	USBR
Development And Application Of GSTAR-1D	Jianchun Huang, Blair P. Greimann, and Travis Bauer	USBR
Implementation Of The Sediment Impact Assessment Model (SIAM) In HEC-RAS	Stanford A. Gibson and Charles D. Little Jr.	USACE
Bureau Of Reclamation Automated Modified Einstein Procedure (BORAMEP) Program For Computing Total Sediment Load	David A. Raff and Chris Holmquist-Johnson	USBR
Sediment Movement Research In Shallow Overland Flow * A Progress Report	M. J. M. Romkens, S. N. Prasad, Madhusudana R. Suryadevera	ARS
A Sparrow Model Of Mean Sediment Flux For The Conterminous U.S.	Gregory E. Schwarz, Richard B. Alexander, Richard A. Smith, John R. Gray	USGS
Sediment Investigation And Stable Channel Design For The Lower Mud River	Martin J. Teal and Phillip A. Anderson	WEST Consultants

A New Method For Estimating Suspended Sediment Load And Its Application To The Regulated South Saskatchewan River	Robert E. Thomas and Stuart N. Lane,	U. of Leeds, UK, University of Durham
SIAM-UK Sediment Budgeting Program To Assess Interactions Between Flood Defense Infrastructure And Sediment Dynamics In A Fluvial System	Colin R. Thorne, Nick P. Wallerstein, Phillip J. Soar	University of Nottingham, UK
Hillside Erosion And Small Watershed Sediment Yield Following A Wildfire On The San Dimas Experimental Forest, Southern CA	Peter M. Wohlgenuth	USDA FS
Simulation Of Flood Flow And Sediment Transport On Alluvial Fans Of Coachella Valley, California	Andrey B. Shvidchenko, Brad R. Hall, L. Joseph Howard, Rene A. Vermeeren, and Cuong T. Ly	Northwest Hydraulic Consultants, USACE
Calibration Of The WATBAL Sediment And Water Yield Model Clearwater National Forest	Dick Jones and Rick Patten,	USDA FS
Dredged Material Management In A Watershed Context: Seeking Integrated Solutions	Craig Vogt, Barry Holiday, Elizabeth Kim and Molly Madden	EPA, USACE
Sediment Processes in the Upper Yuba River Watershed	Jennifer A. Curtis, Lorraine E. Flint, Charles N. Alpers and Scott A. Wright	USGS
Monitoring The Effects Of Sedimentation From Mount ST. Helens	Alan D. Donner, PE, Patrick S. O'Brien, PE, David S. Biedenbarn	USACE

Sediment Research

The Isokinetic Streamlined Suspended Sediment Profiling LISST-SI – Status And Field Results	Y. C. Agrawal and H. C. Pottsmith, Sequoia Scientific, Inc., 2700 Richards Blvd. Bellevue WA 98005	Sequoia Scientific
How Incipient Motion Determination Judgment Affects Different Parameters In Sediment Transport Investigation	Muhammad Ashiq, and John C	Kyoto U., University of Manitoba
FISP's Suite Of Federally Approved Suspended-Sediment / Water Quality Collapsible-Bag Samplers	Broderick Davis	USGS/FISP
Sediment Investigations In The Vicinity Of The Old River Control Complex	Tonja L Koob and Nina J. Reins	GAEA Consultants and Shaw Coastal
A Tidally- Averaged Sediment Transport Model Of The San Francisco Bay, California	Megan A. Lionberger, David H. Schoellhamer, Jon Leatherbarrow, and Kris May	USGS
Suspended Sediment Particle Size Distribution, Classes And Phosphorus Binding Characteristics: Implications For Availability, Transport And Transformation In Stream Ecosystems	Matthew A. Morrison and Joseph P. Schubauer-Berigan	EPA
Floods And Sediment Yields From Recent Wildfires In Arizona	D. G. Neary, G. J. Gottfried, P. F. Ffolliott	USDA FS
Estimation Of Sediment And Nutrient Loads Form Mixed Land Use Watersheds In The Upper Mississippi River Basin And The Role Of Wetlands In Reducing Them	J. P. Schubauer-Berigan, W. B. Richardson, P. Hughes, L. Bartsch, J. Cavanaugh, R. Kreilling, M. Morrison	EPA and others
Model For Bed Evolution With A Hydrograph	Miguel Wong and Gary Parker	U. of MN, U. of IL
Application Of GSTARS	Chih Ted Yang and Francisco J. M. Simoes	Colo. St. U. + USGS
A Comparison Of Two Field Investigations Into Acoustic Bed Velocity: General Responses And Instrument Frequency Effects	D. Gaeuman and C.D. Rennie	USGS

Sediment Surrogates

A New Methodology For Measuring Bed-Load Transport In Sand Bed Rivers	David D. Abraham and Roger Kuhnle	USACE, ARS
Passive Acoustic Monitoring Of Coarse Bedload Transport	Jonathan Barton and Rudy Slingerland	Pennsylvania State University
Sediment Tracking: A Complementary Method For Measurement Of Sediment Transport In Rivers	K. S. Black, S. Athey, P. Wilson	Partrac Ltd
Development Of An Acoustic System To Monitor Suspended Sediments In Fluvial Systems	Daniel E. Kleinert, Daniel Wren, Chris Smith, James Chambers	U. of Miss.

Estimation Of Particle Sizes Of Natural Sands Suspended In Water Using Multi-Frequency Acoustic Backscatter	Christopher K. Smith, Daniel Wren, James P. Chambers	U. of Miss.
Synergistic Advantages Of Using Multiple Approaches To Measuring And Characterizing Columbia River Suspended Sediment	Tom Chisholm and David Jay	BPA
Continuous Measurement And Calculation Of Suspended Sediment Concentration Of The Paria River, Arizona, Using Two Water-Density Methods	Gregory G. Fisk and Jamie P. Macy	USGS
Comparing Results From The LISST 100 With Results Of The USGS Pipette Procedure For Suspended Sediment Particle Size Analysis In The Marina Sediment Lab, USGS, California Water Science Center	Lawrence A. Freeman	USGS
Digital Imaging Acquisition And Classification Of Suspended Sediment	Daniel J. Gooding	USGS
Calculation Of Suspended Sediment At Gaging Stations	Jason Kean and Dungan Smith	USGS
Cross-Sectional Progression Of Vertical Streamflow Velocity Distributions, Apparent Bedload Velocities, And Channel Geometry, Green River, Utah	Terry A. Kenney	USGS
Continuous In-Stream Monitoring To Estimate Water-Quality Characteristics And Sediment Sources In The Little Arkansas River, Kansas	Andrew C. Ziegler, Victoria G. Christensen, and Patrick P. Rasmussen	USGS
Real-Time Analysis Of Concentrated Fluvial Suspended Sediments	C. Konrad, C. Pottsmith, T. Melis, and D. Rubin	USGS
Prediction Of Grain Size Of Suspended Sand With Distance Above The Bed: State Of The Art And Implications For Acoustic Backscatter Concentration Calculations	Roger Kuhnle, Daniel Wren, Christopher Wilson, and Carlos Alonso	ARS
Measuring Suspended Sediment Concentrations In Idaho Streams, Using Acoustic Backscatter Technology	Jon Hortness	USGS

Stream Restoration

Restoration Of Lower Las Vegas Wash – Upper Diversion Weir	Gerry A. Hester, Syndi J. Dudley, Chris D. Bahner	WEST Consultants
Safety And Fish Passage For Low-Head Dams	Aaron W. Busing	USACE
Adaptive Management Case Studies For River Engineering And Restoration Projects On The Middle Rio Grande, New Mexico	Mark S. Nemeth and Kristi-Irene Smith	USBR
Rio Salad (Salt River) Habitat Restoration - Low Flow Channel Design	Dennis L. Richards and Glenn Mash burn,	WEST Consultants, USACE
A Natural Channel Design Method For Stream Restoration	David L. Rosen	Wildland Consultants
The Hydraulics Of Bend way Weirs	Thornton, D. C. Baird, , S. R. Bat, and R. S. Padilla	USBR, Colo. St.
Research, Coordination, And Open-Source Models To Improve Stream Restoration Practice	Peter R. Winlock and Gary Parker	John Hopkins U.
A Comparison Of Empirical And Analytical Approaches For Stream Channel Design	F. Douglas Shields and Ronald R. Copeland	ARS, MBH

Turbidity Measurements and Use

Turbidity Sensors Track Sediment Concentrations In Runoff From Agricultural Fields	S. M. Dabney, M. A. Locke, R. W. Steinriede	ARS
The Challenges Of Sampling Suspended Sediment In A Mobile Channel With Highly Dynamic Transport	Rand Eads	USDA FS
A New Sensor For Turbidity And Sediment Analyses In Natural Waters	Stuart Garner	Consultant
The Power Of Pooling Turbidity Data	Randy Klein	Natl Park Ser.
The Value Of Continuous Turbidity Monitoring In TMDL Programs	Teresa J. Rasmussen	USGS
The Use Of Turbidity Sensors In Monitoring Sediment Loads Following Wildfire	Sandra E. Ryan and Mark K. Dixon	USDA FS

Turbidity Measurements For Determination Of Sediment Source And Retention In River And Marsh Environments	A. P. Stubblefield, J. E. Reuter, E. W. Larsen, M. I. Escobar, and C. R. Goldman	Case Western U.
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Watershed Modeling

Predicting Watershed Impacts Of Forest Fuel Management With WEPP Technology	William J. Elliot	USDA FS
Development Of Upper Boundary Conditions For A Watershed Model In The Upper Yuba River Basin, Northern Sierra Nevada	Alan L. Flint and Lorraine E. Flint	USGS
A Geomorphic Evaluation, With Calibrated Hydraulic And Hydrologic Modeling Of The Hop Brook Watershed In Massachusetts	Thomas Grade	NRCS
Watershed Erosion And Sediment Transport Simulation With An Enhanced Distributed Model	Yong G. Lai, Ph.D.	USBR
ANNAGNPS: Accounting For Snowpack, Snowmelt, Freezing And Thawing Of Soil	Daniel S. Moore, Fred D. Theurer, Ronald L. Bingner	NRCS
Multiple Approaches To Assessing The Impact Of Dams On Sediment Delivery In The St. Joseph River Watershed, Michigan/Illinois	Rob Nairn, Alex Brunton, and Jim Selegean	Baird, Canada, USACE
Cumulative Watershed Effects Analysis With The Geospatial Interface For The Water Erosion Prediction Project (GEOWEPP)	Dr. Chris S. Renschler	Univ. of Buffalo
Wash Load And Bed Material Load Concepts In Regional Sediment Management	David S. Biedenbarn, Colin R. Thorne, Chester C. Watson	USACE-ERDC, U. Nottingham, UK; Colo. St Univ
Modeling Of Delta Incision And Re-Deposition	Blair Greimann, Victor Huang, Yong Lai	USBR
Rehabilitation Plan For Judy's Branch, Illinois	Chester C. Watson, David S. Biedenbarn, Moosub Eom	Colo. St Univ; USACE-ERDC; CDM

Miscellaneous

East Chicago Sediment Remediation Demonstration Project	David F. Bucaro	USACE
High-Resolution Monitoring Of Suspended-Sediment Concentration And Grain Size In The Colorado River In Grand Canyon Using Laser-Diffraction Instruments And A Three-Frequency Acoustic System	David J. Topping, Theodore S. Melis, Scott A. Wright, and David M. Rubin	USGS
Modeling Sediment Transport During Overbank Flow In The Rio Puerco, New Mexico	Eleanor Griffin, J. Dungan Smith, Jason Kean, Kirk Vincent	USGS
Identifying Suspended-Sediment Sources For The Potomac River, An Eastern Shore Tributary To The Chesapeake Bay	Allen C. Gellis and Jurate M. Landwehr	USGS
Analyzing Sediment Yields In The Context Of TMDL's	Mary Ann Madej, Randy Klein, and Vicki Ozaki	USGS, Redwood Park
Factors Controlling Statistical Variability Of $\delta^{15}N$, $\delta^{13}C$ And C / N Among Agricultural Forest Source-Soils Within The Upper Palouse Watershed, Northwestern Idaho	Dr. Thanos Papanicolaou	University of Iowa

Poster Presentations

Aggradational And Degradational Trends Of The Middle Rio Grande, NM	Robert Padilla and Christi Young	USBR
USGS East-Coast Sediment Analysis: Procedures, Database, And GIS Data	L. J. Poppe, , S. J. Williams, V. F. Paskevich and M. E. Hastings	USGS
Effects Of The 1997 Flood On The Klamath National Forest, Northern California: Lessons Learned & Implications To Future Forest Management	Juan de la Fuente, Don Elder, Alisha Miller	USDA FS
Landslide Sediment Production Rates In The Middle Fork And Upper Main Eel River Basins, Northern California	Juan de la Fuente, Alisha Miller, Don elder, Robert Faust, William Snavely	USDA FS
Sediment-Surrogate Technologies For Monitoring Fluvial-Sediment Fluxes	John R. Gray	USGS
Estimating Suspended-Sediment Loads Using Continuous Turbidity Data And The Graphical Constituent Loading Analysis System (GCLAS)	Mark A Uhrich and Heather M Bragg	USGS
Use Of An Acoustic Doppler Current Profiler To Estimate Suspended Sediment Discharge In The Tidal Hudson River, NY	Gary R. Wall, Elizabeth Nystrom, and Simon Litten	USGS, NY State DEC
Bankfull-Channel Geometry And Discharge Relations For Streams In The Northeastern United States	Gardner C. Bent	USGS
Sediment Transport Monitoring During A Controlled Flow Release In The Trinity River, California	Smokey Pittman and Graham Matthews	GMA Hydrology
Comparison Of SWAT and GSSHA For Assessment Of The Effect Of BMPS On Watershed Sediment Yield And Delivery	Theresa Possley, Alex Brunton, Rob Nairn, and Jim Selegean	Baird, Canada, USACE
SIAM, Rapid Assessment Of Dynamic Equilibrium In Stream Networks	David Mooney	USBR
Results Of A Two-Dimensional Hydrodynamic And Sediment-Transport Model Of The Construction And Operation Of The Olmsted Locks And Dam, Ohio River	Chad R. Wagner	USGS
Temporal And Spatial Variability In The Root-Reinforcement Of Streambanks: Accounting For Soil Type And Soil Moisture	Natasha Pollen and Andrew Simon	ARS
Numerical Simulation Of Channel Adjustment Of The Kalamazoo River Following The Removal Of Two Low-Head Dams Between Otsego And Plainwell, Michigan	Eddy J. Langendoen and Robert R. Wells	ARS
Numerical Study Of The Response Of A Reservoir Deposit To Sudden Dam Removal	Allesandro Cantelli, Miguel Wong, Gary Parker	U. of MN
Use of Wet Sieving to Improve Detection of Sediment-Associated Contaminants in Urban Runoff	Bill Selbig	USGS
Geomorphic Evaluation to Develop River Restoration Strategies on the Upper Quinault River in Washington State	Jennifer Bountry, Lucy Piety, Ed Lyon, Tim Randle, Tim Abbe, Galen Ward, Kevin Fetherston, Jose Carrasquerro, Chase Barton	USBR
Lower Clear Creek Floodplain Rehabilitation Project: Geomorphic Monitoring of Phase 3A	Smokey Pittman, Graham Matthews	GMA Hydrology
Comparison of Sediment-Transport and Bar-Response Results from the 1996 and 2004 Controlled Experiments on the Colorado River in Grand Canyon	David J. Topping, David M. Rubin, John C. Schmidt, Joseph E. Hazel, Theodore S. Melis, Scott A. Wright, Matt Kaplinski	USGS
Detailed Investigations of Near-Boundary Hydrodynamic and Sediment-Transport Processes in an Active Meander Bend	Andrew Simon, Robert Wells, Yafei Jia*, and Carlos Alonso	USDA-ARS & Univ of Mississippi,
Predictability of Bedload Rating and Flow Competence Curves: Exponents and Coefficient are Related to Basin Area and Bed Armoring	Kristin Bunte, Steven R. Abt, Kurt W. Swingle	Colo. St. U.

The Federal Interagency Sedimentation Project Initial Test of the LISST-SL	Broderick Davis	WES/FISP
Influences of Off-Highway Vehicles on Fluvial Sediment Regimes	Mark S. Riedel	USDA FS
Radionuclide and Rare Earth Element Tracers of Erosional Processes on the Plot Scale	A. P. Stubblefield, C. Fondran, M. E. Ketterer, G. Matisoff, P. J. Whiting	Case Western U
Investigating the Channel Design Theories and Equations	Muhammad Ashiq (Ph.D.) Takashi Hosoda	Kyoto U. Japan
A Multidimensional Marker-In-Cell Hydraulic And Sediment Transport Model For Braided River Flow	Robert E. Thomas	Univ. of Leeds
A Model of Streambank Stability Incorporating Hydraulic Erosion and the Effects of Riparian Vegetation	Andrew Simon and Natasha Pollen	ARS
Integrated River Morphology and Vegetation Modeling of the Sacramento river	Blair Greimann, Jennifer Bountry, Yong Lai, David Mooney, and Timothy Randle	USBR
Modeling of Delta Incision and Re-Deposition	Blair Greimann, Victor Huang, Yong Lai	USBR
Sediment Transport Processes in a Recirculating Eddy Bar in Grand Canyon During the November 2004 High-Flow Release from Glen Canyon Dam	Scott Wright, Jeffrey Gartner, Mark Schmeekle, David Topping, Theodore Melis	USGS
Monitoring Coarse Sediment Particle Displacement Using a Radio Frequency Identification System	Mary Nichols	ARS
Identification of Sediment Sources in a Semiarid Watershed using Multiple Diagnostic Properties	F. E. Rhoton, W. E. Emmerich, D. C. Goodrich, S. N. Miller, and D. S. McChesney	ARS
Determining Relative Contributions of Eroded Landscape Sediment and Bank Sediment to the Suspended Load of Goodwin Creek Using Radionuclides	Christopher Wilson and Roger Kuhnle, USDA-ARS	ARS
Monitoring Bed Forms and Bed Form Movement with High Resolution Multi-Beam Bathymetric Surveys	Kevin Knuuti	USACE
Spatial Patterns of Soil Erosion and Deposition in Two Small, Semi-arid Watersheds	M. A. Nearing, Akitsu Kimotol, Mary H. Nichols, Jerry C. Ritchie	ARS
The USDA's Conservation Effects Assessment Project (CEAP)	Roberta Parry	USEPA USDA
USDA-NRCS Stream Restoration Design Handbook	Kerry M. Robinson, Jon Fripp, and Jerry Bernard	NRCS
Sediment Control Demonstration Project	Jack Alderson	NRCS
Channel Width and Flow Regime Changes along the Middle Rio Grande, NM	Paula Makar, Tamara Massong, Travis Bauer, Paul Tashjian, K. Jan Oliver	USBR
Geomorphic Change and Controlling Variables in an Ephemeral Alluvial Channel	M. H. Nichols, M. Nearing and B. Yuill	ARS
Sediment Investigations on Alluvial Fans using FLO-2D	Joe Gasperi and John McClung	NRCS
Reconnaissance Technique for Reservoir Surveys	Ron Ferrari and Kent Collins	USBR
Monitoring Coarse Sediment Particle Displacement Using A radio Frequency Identification system	M. H. Nichols	ARS
Areal Distribution and Concentrations of Contaminants of Concern in Surficial Streambed and Lakebed Sediments, St. Clair River and Lake St. Clair Tributaries	Cynthia Rachol	USGS
Validation and Application of the Flow-Sed and Power-Sed Suspended and Bedload Transport Models	David L. Rosgen	Consultant
Evaluation of Techniques to Estimate Suspended-Sediment Concentrations in the Kansas River	Casey J. Lee, Patrick P. Rasmussen and Andrew C. Ziegler	USGS
Rosewood Creek Restoration Project	Rick Susfalk	Desert Research Institute

U. S. Geological Survey Pilot Study Results for Particle Size Distribution Analyses of Quality Assurance Samples	Natalie Latysh	USGS
The Use of Turbidity as a Predictor of Light Attenuation and the Impact of Total Suspended Solids on Water Clarity at Shallow Water Monitoring Locations Throughout the Chesapeake and Maryland Coastal Bays, 2002	Julie M. Baldizar and Nancy B. Rybicki	USGS
A Five-Year Record Of Sedimentation In The Los Alamos Reservoir, New Mexico, Following The Cerro Grande Fire	Alexis Lavine, Gregory A. Kuyumjian, Steven L. Reneau, Danny Katzman	Los Alamos Lab and US Forest Service
Turbidity Threshold Sampling: Instrumentation and Methods	Rand Eads and Jack Lewis,	USDA-FS
Status and Trends of Soil Erosion on Agricultural Lands	Carla A. Kertis, Thomas A. Iivari	USDA-NRCS
Geomorphic Reference Site (GFS)	W. Barry Southerland	USDA-NRCS

3rd FEDERAL INTERAGENCY HYDROLOGIC MODELING CONFERENCE

Oral Presentations:

Parameter Estimation, Calibration, and Sensitivity Analysis

Abstract Title	Authors	Agency
A Multiple-Objective, Step-Wise, Automated Calibration Procedure Applied To Twenty Mountainous Watersheds In The Western United States	Lauren E. Hay, George H. Leavesley, Martyn P. Clark, Steve L. Markstrom, Roland J. Viger, and Makiko Umemoto	USGS
Combined Estimation of Hydrogeologic Conceptual Model, Parameter, and Scenario Uncertainty	Philip D. Meyer, Ming Ye, Shlomo P. Neuman, Mark L. Rockhold, Kirk J. Cantrell, and Thomas J. Nicholson	PNNL
Uncertainty Analysis and Hydrologic and Hydraulic Model Linkage in the Watershed Modeling System	Jim Nelson and Christopher M. Smemoe	Brigham Young U.
Model Abstraction in Hydrologic Modeling	Yakov Pachepsky, Andrey K. Guber, Martinus Th. van Genuchten, Thomas J. Nicholson, Ralph E. Cady, Jirka Šimunek, Timothy J. Gish, Diederik Jacques, Craig S. T. Daughtry	USDA
Evaluation Of Ensemble Water-Supply Forecasts Using Multiple Parameter Sets For The Upper Klamath Basin, Oregon And California	John C. Risley and Lauren E. Hay	USGS
Use of Regularization as a Method for Watershed Model Calibration	Brian E. Skahill and John Doherty	USACE
Calculating MODFLOW Analytical Sensitivities Using ADIFOR for Effective and Efficient Estimation of Uncertainties and Use Aquifer sensitivities for Optimal Operation	Amir Gamliel, and Maged Hussein	USACE
Modeling Uncertainty and Code Verification: Quantifying the Accuracy of Modeling Codes	Maged Hussein	USACE
Sensitivity analysis of a sediment yield model in the southern Appalachians	Andrew Jenks, Paul V. Bolstad, Mark S. Riedel	U. of MN
Gridded Parameter Estimation Using SSURGO Data for Distributed Hydrologic Modeling	Ziya Zhang, Victor Koren, Seann Reed, Michael Smith, and Fekadu Moreda	NWS
Calibration of Hydrologic Empirical Methods for Estimating the Flood Peak in the Uromia Lake watershed in Iran	Ali Akbar Jamali, Seyed Ali Ayyoubzadeh, and Mohammad Mahdavi	Islamic Azad U.
Automated Geospatial Watershed Assessment Tool (AGWA): Uncertainty Analysis of Common Input Data	L. Levick, D. P. Guertin, D. J. Semmens, and D.C. Goodrich	USDA

Floods

Paleofloods and Flood Frequency in the Arkansas River Basin near Pueblo, Colorado	John F. England, Jr., Jeanne E. Klawon, Travis R. Bauer, and Ralph E. Klinger	USBR
Hydrologic Modeling Applications in National Flood Insurance Program Map Modernization	Zhida Song-James	Michael Baker Jr. Inc.
An Evaluation of the Variability of Flood Frequency Estimates Generated From a Rainfall-Runoff Model	Wilbert O. Thomas, Jr.	Michael Baker, Jr.
Advanced hydrologic prediction for event- and long-term continuous operation	Baxter E. Vieux and Jean E. Vieux	
Dam Failure Analysis using HEC-RAS and HEC-GeoRAS	Cameron T. Ackerman and Gary W. Brunner	USACE
Regional Flood Frequency Analysis Accounting for Sporadic Thunderstorms in North Central Oregon	Henry H. Hu, Todd H. Bennett, Wilbert O. Thomas, Jr., and Joseph Weber	WEST Consultants, Inc.
Real-Time Flood Inundation Mapping In North Carolina	Jerad D. Bales and Chad Wagner	USGS

Development and Use of USACE-SWD Flood Control and Hydropower Algorithms in RiverWare	John Daylor, Jerry Cotter, and Edie Zagona,	USACE
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Inter-agency Collaboration

Partnering with Federal and Non-Federal Agencies for Hydrologic Engineering Model Development	Darryl W. Davis	USACE
USACE-HEC Hydrologic Modeling of the Tigris and Euphrates in support of USAID Reconstruction Program in Iraq	Fauwaz U. Hanbali, Darryl W. Davis, and Matthew M. McPherson	USACE
Forecast-coordinated operations for the Yuba-Feather River reservoir system: Interagency cooperation	Rob Hartman, David Ford, Art Hinojosa, Tom Johnson, Stu Townsley	NWS
Cooperation Of Federal, County And City Governments In Enhancing National Weather Service Flood Forecasts And Warnings For Lee Creek, Ar, Below Lee Creek Reservoir	J. Schmidt	NWS

Model Use in Decision Management

Watershed Conservation Management Planning Using AGNPS	Ronald L. Bingner and Fred Theurer	USDA
Corps Water Management System Decision Support Modeling and Integration	William J. Charley and Thomas A. Evans	USACE
Three-Dimensional Seepage Analysis through Fordyce Dam	Samuel S. Lee and Sorab Panday	FERC
A Modeling Tool for Evaluating Reservoir Operations in the Muskingum Basin	Stuart Stein, Brett Martin, Stephen Stout, and Sean Smith	GKY & Assoc., Inc.
Managing TVA's Hydropower System Using RiverWare	Suzanne H. Biddle and Tim Magee	TVA
Meeting the Needs of Colorado River Stakeholders: A New Policy Evaluation Tool in RiverWare & an Analysis of Conjunctive Reservoir Operation as a Response to Shortage	Carly Jerla and Terry Fulp	USBR
Stakeholder participation in Target Flow Modeling on the Middle Rio Grande	Marc Sidlow, Mike Roark, April Sanders, and Edie Zagona	USACE
Innovations in Water Supply Modeling for the Lower Colorado River Authority in Texas	Brad Vickers, Kris Martinez, Nadira Kabir, Richard E. Brown, and Ron Anderson	Wave Engineering

Modeling Systems

Corps of Engineers Utilization and Management of Hydrologic Models	James D. Barton and Robert A. Bank	USACE
Hydrologic Modeling System (HEC-HMS): New Features for Urban Hydrology	Matthew J. Fleming and William A. Scharffenberg	USACE
Integrating Hydrologic Models And Spatial Data In A Distributed Internet Application	Averill Cate, Jr., David C. Goodrich, and D. Phillip Guertin	U. of AZ
An Object Oriented Generic Programming Framework for Distributed Hydrologic Modeling	Zhengtao Cui, Fekadu Moreda, Victor Koren, and Michael Smith	NWS
The Object Modeling System (OMS)	Olaf David	USDA
NRCS Geo-Hydro – Hydrologic Model GIS Interface	William Merkel and Su Liu	NRCS
Unifying Hydroinformatic Technologies for the US Army Corps of Engineers	Robert M. Wallace, David R. Richards, and Steven L. Ashby	USACE
Software Integration for Watershed Studies Hydrologic Engineering Center's Watershed Analysis Tool (HEC-WAT)	Christopher N. Dunn, Gary W. Brunner, and Jeff Harris	USACE

Observation and Instrumentation

Using Radar to Measure Real-time Streamflow	John Fulton and Joe Ostrowski	USGS
Remote Sensing for AnnAGNPS	James Coss and Kevin Czajkowski	U. of Toledo
Evaluation of an Experimental Bathymetric and Terrestrial LiDAR for Surveying Braided River Channels	Paul J. Kinzel, C. Wayne Wright, and Jonathan M. Nelson	USGS
The Hydros and SMOS Satellites: Global soil moisture mapping	Thomas J. Jackson and Dara Entekhabi	USDA

Water Quality Modeling

Hydrodynamic and Water Quality Model of the Everglades WCA-1	Alonso G. Griborio, Ehab A. Meselhe, and Shankar Gautam	U. of Louisiana
Water Quality in HEC-RAS	Mark R. Jensen	USACE
Development Of A Distributed Watershed Water Quality Model	Billy E. Johnson and Terry K. Gerald	USACE
Use of Ground-Water Models To Improve Understanding of Agricultural Chemical Transport and Fate	Leon Kauffman	USGS
Rainfall-Runoff Modeling to Compare Hydrological Processes Governing Solute Transport in Five Different Agricultural Watersheds	J. I. Linard, D. M. Wolock, R. M. T. Webb, and M. E. Wiczorek	USGS
Atrazine and Carbofuran Transport from the Root Zone of a Loamy Sand Ultisol	C.C. Truman, J.C. Ascough II, D. D. Bosch, and R. A. Leonard	USDA-ARS
Integrated Modeling of Watershed and Stream Water Quality	Dalmo A. Vieira and Mustafa S. Altinakar	U. of Mississippi
The Use of Geographic Information System Tools to Identify Potential Hydrologic Pathways for Agricultural Chemicals	M. E. Wiczorek and D. M. Wolock	USGS
Wastewater Treatment Strip Analysis Via USDA/NRCS & ARS Computer Models	Geoffrey A. Cerrelli	USDA-NRCS
Development of a TMDL Implementation Plan Using AnnAGNPS: A Case Study	Y. Yuan, R. L. Bingner, F. D. Theurer, and J. Boydston	USDA-ARS
A Model of Monitoring Network Design Based on a National SPARROW Model	Gregory E. Schwarz, Richard B. Alexander, and Richard A. Smith	USGS
A Flexible and Easy-to-Use Contaminant Fate/Transport Model for Streams	Scott Fant and Mark Dortch	USACE

River Basin Management

CALSIM Applications in the Klamath River Basin	Nancy Parker	USBR
Water Level Fluctuations vs. Dam Operations in the Illinois River	Renjie Xia and Marvin R. Martens	USACE
Reservoir Operations Modeling with HEC-ResSim	Joan D. Klipsch and Thomas A. Evans	USACE
Multi-Dimensional Streamflow Simulations In The Colorado River, Moab Valley, Grand County, Utah	Terry A. Kenney	USGS

Modeling the Ohio River: Not Just for Floods Anymore	Deborah H. Lee, Stanley M. Wisbith, and Henry C. Jackson	USACE
Multidimensional Modeling Of The Lower Mississippi River	Ehab A. Meselhe, Emad Habib, Alonso G. Griborio, Shankar Gautam, John A. McCorquodale, and Ioannis Y. Georgiou	U. of Louisiana
Lake Michigan Diversion Accounting Modeling	Tzuoh-Ying Su	USACE
Analysis of altered hydrologic regime in the Clinton River watershed	Bruce Halverson, Rob Nairn, Alex Brunton, and Jim Selegean	W.F. Baird and Assoc. Ltd.

River Environment and Aquatic Ecosystems

Modeling stream channel adjustment to woody riparian vegetation	Sean J. Bennett, Weiming Wu, and Carlos V. Alonso	U. at Buffalo
Two-Dimensional Modeling to Evaluate Shallow Water Habitat Creation on the Main Stem of the Missouri River in Nebraska	Paul Boyd	USACE
A Twenty-Year History of Environmental Modeling in Chesapeake Bay	Carl F. Cerco	USACE
Hydroecological modeling of the Lower Missouri River	Harold E. Johnson III, Robert B. Jacobson, and Aaron J. Delonay	USGS
Hydrologic Modeling of the Illinois River Basin in Support of Ecosystem Restoration	H. Vernon Knapp, Misganaw Demissie, Jaswinder Singh, and Yanqing Lian	Illinois State Water Survey
A Comprehensive Stream-Riparian Corridor Model to Study the Impact of Riparian Buffers on Channel and Edge-of-Field Processes	Eddy J. Langendoen, R. Richard Lowrance, Natasha Pollen, and Randall G. Williams	USDA-ARS
Modeling hydraulic and sediment transport processes in white sturgeon spawning habitat on the Kootenai River	Richard McDonald, Gary Barton, Jonathan Nelson, and Vaughn Paragamian	USGS
Modeling Links Between Hydrologic Time Series And The Riverine Ecosystems	Robert T Milhous	USGS
Creation of Shallow Water Habitat for Missouri River Recovery	Daniel Pridal	USACE
Development and Use of New Routines for CE-QUAL-W2 to Blend Water from Reservoirs with Multiple Outlets to Meet Downstream Temperature Targets	Stewart A. Rounds and Annett B. Sullivan	USGS
Interdisciplinary modeling for aquatic ecosystems curriculum development workshop	Laurel Saito and Heather Segale	U. of NV Reno
SPARROW Models of Fish Population Metrics	Richard A. Smith, Richard B. Alexander, Gregory E. Schwarz, Daren M. Carlisle, and Michael R. Meador	USGS
The Riparian Habitat Establishment Model (RHEM)	Michael Tansey	USBR
Modeling Dissolved Oxygen Dynamics In Upper Klamath Lake, Oregon	Tamara M. Wood and Ralph T. Cheng	USGS
Analysis of Aquatic Habitat Suitability using a Depth-Averaged 2-D Model	Weiming Wu, Zhiguo He and Sam S. Y. Wang	U. of Mississippi
Altered Dynamics of Kootenai River White Sturgeon Habitat: Historic and Recent Data, and Hydraulic-Sediment-Transport Modeling	Gary Barton, Richard McDonald, Charles Berenbrock, Jonathon Nelson, Sue Ireland, and Vaughn Paragamian	USGS

Modeling South Florida

Sheet Flow Simulation in Everglades National Park	Raymond W. Schaffranek	USGS
South Florida Regional Simulation Model Implementation: Project Management Aspects	Ken Tarboton, Rich Sands, Pattie Fulton, Lehar Brion, Jorge Rivera, Rick Miessau and Steve Traver	SFWMD

Management Simulation Engine: A Flexible, Hierarchical Control Architecture of the Regional Simulation Model	Joseph Park, Randy VanZee, and Jayantha Obeysekera	SFWMD
Mse Network: An Integrated Database & Stream Flow Network Representation In An Integrated Hydrological Model	Joseph Park, Michelle Irizarry, Randy VanZee, and Jayantha Obeysekera	SFWMD
Transparent Data Access and Filtering in an Integrated Hydrological Model	Randy VanZee, Joseph Park, and Jayantha Obeysekera	SFWMD
Integration of Control Processors in an Integrated Hydrological Model	Jayantha Obeysekera, Joseph Park, and Randy VanZee	SFWMD
Integrated Hydrological Modeling for Water Management in Southwest Florida	E. Zia Hosseinipour	DHI Water and Environment
Challenges and Approaches in the Development of A Regional-Scale, First-Principle, and Physics-Based Watershed Model for South Florida Water Management and Ecosystem Restoration	H.-P. Cheng, C. M. Hansen, C. A. Talbot, J.-R. Cheng, D. C. McVan, C. H. Tate, E. V. Edris, H.-C. Lin, M. A. Granat, and D. R. Richards	USACE

Surface-water/Ground-water Modeling

Surface Water / Groundwater Interaction Improvements to GSSHA	Aaron Byrd and Greg Eggers	USACE
Spatial and temporal variability in streambed fluxes during surface water exchanges with ground water in an agricultural watershed, Leary Weber Ditch, IN	Hedeff I. Essaid, John T. Wilson, and Nancy T. Baker	USGS
Application of Integrated Surface and Ground Water Modeling in Regional Water Management of a Coastal Watershed	Ke Feng and Ananta Nath	SFWMD
Introduction to the Integrated Hydrologic Model	Jeffrey Geurink, Ron Basso, Patrick Tara, Mark Ross, and Ken Trout	Tampa Bay Water
GSFLOW—A basin-scale model for coupled simulation of ground-water and surface-water flow—Part A Concepts for surface-water flow	S. L. Markstrom, R. S. Regan, R. G. Niswonger, and D. E. Prudic	USGS
GSFLOW—A basin-scale model for coupled simulation of ground-water and surface-water flow—Part B Concepts for ground-water flow	R. G. Niswonger, D. E. Prudic, S. L. Markstrom, and R. S. Regan	USGS
Fully-Integrated, Surface/Subsurface Numerical Model for Small and Large Scale Analysis of Hydrologic and Water Quality Processes	G. B. Matanga, K. E. Nelson, E. Sudicky, R. Therrien, S. Panday, R. McLaren, L. Gessford, and D. DeMarco	USBR
Simulating Flow and Contaminant Transport in Integrated Surface-subsurface Flow Systems: Model Applications at Multiple Catchment Scales	E. A. Sudicky, J.P. Jones, J.-M. Lemieux, Y.-J. Park, D. Colautti and R. G. McLaren	U. of Waterloo
The USACE Toolbox of Models for Multi-dimensional Surface Water-Groundwater Interaction Studies	Cary Talbot	USACE
An Integrated Three-Dimensional Surface Water and Groundwater Model to Simulate Hydrodynamics and Thermal, Salinity, and Sediment Transport	Gour-Tsyh (George) Yeh, Hua Shan, and Gordon Hu	U. of Central Florida
Estimating rates of exchange across the sediment/water interface in the Merced River, CA using temperature modeling and direct measurement	Celia Zamora	USGS
A regional analytic element groundwater flow model	Dave Dahlstrom and Vern Rash	WHPA, Inc

Watershed and River System Modeling Program

Upper Rio Grande Water Operation Model (URGWOM)	Nabil Shafike and April Sanders	New Mexico Interstate Stream Comm.
Water Accounting Using The Upper Rio Grande Water Operations (Urgwom) Accounting Module And The Hydrologic Database (Hdb)	Mark Bogner, Neil Wilson, Carol Marra, and Garret Ross	U. of Colorado

Advanced Decision Support Modeling With URGWOM and the ET Toolbox	Steven Bowser	USBR
Truckee Basin RiverWare Accounting Model	Jeff Boyer	
Truckee-Carson Basin RiverWare Operations Model	Shane Coors	USBR
Overview of the Watershed and River Systems Management Program	Donald Frevert and Harry Lins	USBR
Hydrologic Database(HDB): Developments and Use	Andrew Gilmore	USBR
Hydrologic Forecasting in the Truckee-Carson RiverWare System	Mike Mann	USBR
The Modular Modeling System (MMS): A Toolbox for Water- and Environmental-Resources Management	Steve Markstrom, George Leavesley, and Roland Viger	USGS
Simulating Runoff For Various Climate Regimes, Yakima River, Washington--Watershed And River Systems Management Program	Mark Mastin and Warren Sharp	USGS
Decision Support for Water Quality Releases on the Truckee River	Jeffrey D. Rieker	USBR
Recent Developments in RiverWare for WaRSMP Applications	Edie Zagona	U. of Colorado

Water Supply and Availability

Climate Signals for enhanced Snowmelt Forecasting in Western U.S. Regions	Levi Brekke, Jon Medina, David Raff, and Shaleen Jain	USBR
National Implementation of and Enhancements to the StreamStats Web Application	Kernell Ries	USGS
North Atlantic Oscillation Influences on Climate Variability in the Southern Appalachians	Mark S. Riedel	USDA FS
An Interagency Climate Change Work Team's Plan for Assessing Risks of Climate Change on Management of California's Water Resources	Jamie Anderson, Levi Brekke, and Francis Chung	CA Dept. of Water Resources

Watershed Modeling

Modeling for Combined Sewer Storage Reservoirs and Tunnels in Chicago Metropolitan Area	David Kiel	USACE
New Modeling Capabilities in HEC-HMS Applied to the Mill Creek Watershed	Matthew Fleming	USACE
WATERSHED ENVIRONMENTAL HYDROLOGY (WEHY) MODEL	M. L. Kavvas, Z. Q. Chen, C. Dogrul, J. Y. Yoon, N. Ohara1, L. Liang, M. L. Anderson	U. of CA Davis
An integrated modeling approach to understand the hydrological process dynamics of the Gera catchment in Germany	Peter Krause, Douglas P. Boyle, Steven L. Markstrom, and Wolfgang-Albert Flügel	Friedrich Schiller U., Germany
AnnAGNPS: Accounting For Snowpack, Snowmelt, Freezing And Thawing Of Soil	Daniel S. Moore, Fred D. Theurer, and Ronald L. Bingner	USDA-NRCS
AMC and NRCS rainfall-runoff models	Colin A. Niehus	USDA-NRCS
Water Operations Model Development to Simulate Surface-Ground-Water and Riparian Evapotranspiration Interactions	D. Michael Roark and Nabil Shafike	USGS
Watershed Modeling of Mustang Creek, California, Using the Soil and Water Assessment Tool (SWAT)	Dina Saleh	USGS
Towards an automated tool for channel-network characterization, modeling, and vulnerability assessment	D. J. Semmens, S. N. Miller, and D.C. Goodrich	EPA
Development, Calibration, And Implementation Of A Distributed Hydrologic Model For Use In Real-Time River Forecasting	Michael J. Shultz	NWS

The Distributed Hydrologic Model Intercomparison Project: Results from Phase 1 and a Science Plan for Phase 2	Michael Smith, Victor Koren, Seann Reed, Ziya Zhang, Fekadu Moreda, And Zhengtao Cui.	NWS
The Water, Energy, and Biogeochemical Model (WEBMOD): A TOPMODEL application developed within the Modular Modeling System	R. M. T. Webb, D. M. Wolock, J. I. Linard, and M. E. Wieczorek	USGS
Fixed and mixed-effects models for multi-watershed experiments	Jack Lewis	USDA FS
KINEROS2 ~V New Features and Capabilities	David C. Goodrich, Roger E. Smith, Carl L. Unkrich, David A. Woolhiser	USDA-ARS
Comprehensive Watershed Assessment in an Urbanizing Area—A Study Design	David L. Rus	USGS
GSSHA Watershed Modeling for the Eau Galle River Basin, WI	Ann. M. Banitt	USACE

Posters

Cross-Validation Errors As A Tool For Model Evaluation	Randal T. Wortman	USACE
Improvements to Integrated Hydrologic Modeling in the Tampa Bay, Florida Region: Hydrologic Similarity and Calibration Metrics	Jeffrey Geurink, Ron Basso, Patrick Tara, Mark Ross, and Ken Trout	Tampa Bay Water
Calibrating Regional Models In South Florida	David Welter, David Dahlstrom, Vic Kelson, Wasantha Lal	SFWMD
Parallelization of the Shuffle Complex Evolution Algorithm	Makiko Umemoto, George H. Leavesley, Lauren E. Hay, Steve L. Markstrom	USGS
Watershed Model Analysis for Alternative Futures Planning in Kitsap County, WA	Brian E. Skahill and Paul Nelson	USACE
The Land Atmosphere Water Simulator (LAWS)	Michael Tansey	USBR
Improving US Bureau of Reclamation Water Supply, Demand Monitoring and Forecasting Using NASA Earth Science Data	Justin Huntington, Douglas P. Boyle, David Toll, and Kristi Arsenault	DRI
Integration of RiverWare into the Corps Water Management System	Thomas Evans, William Oakley, Jerry Cotter, and Edie Zagona	USACE
HEC-DSS Vue - HEC Data Storage System Visual Utility Engine	William J. Charley	USACE
Generic Model Data Format	Aaron Byrd, Rob Wallace, Cary Butler, Norm Jones, and Russell Jones	USACE
An Operational Forecast Office Perspective of the National Weather Service Hydrologic Distributed Modeling System (HDMS)	Diane Cooper, M. Pierce, and J. Schmidt	NWS
Rapid Response Monitoring Techniques For Small Catchments	P. R. Robichaud and R. E. Brown	USDA FS
Modeling Brackish Aquifer Storage Recovery with the WASH123D Numerical Model	H.-P. Cheng, S. M. England, G. T. Stevens, E. V. Edris, and C. J. Brown	USACE
Development Of A Distributed Source Contaminant Transport Model	Billy E. Johnson and Zhonglong Zhang	USACE
Statistical extrapolation of recharge rates and solute fluxes within five agricultural watersheds	R. M. T. Webb, Tom Nolan, Randy Bayless, Jack Barbash, and Rick Healy	USGS
Water quality modeling of the Chester River basin	Sung-Chan Kim and Carl F. Cerco	USACE
A Regional Protocol for Evaluating the Effectiveness of Forestry	Pamela J Edwards	USDA FS
Managing the Lake Ontario-St. Lawrence River System for Environmental Benefits	Deborah H. Lee and Paul Yu	USACE

Modeling the California Environmental Water Account with CALSIM	Nancy Parker	USBR
Optimizing the Carson River to Minimize Water Quantity and Quality Impacts on the Truckee River	Seshadri Rajagopal and Douglas P. Boyle	Desert Research Institute
Challenges on Development of RESSIM Model for Columbia River System	Arun Mylvahanan and George Chan Modini	USACE
Automated Procedures for Computing Whole-Stream Metabolism	Jerad Bales and Mark Nardi	USGS
The Trinity River Restoration Program	Andreas Krause	USBR
Two-Dimensional Hydrologic Modeling to Evaluate Aquatic Habitat Conditions	Pamela J Edwards	USDA FS
Modeling the Biscayne Bay Coastal Wetlands (BBCW) Watershed System with WASH123D-A First-Principle, Physics-Based Numerical Model	H.-P. Cheng, S. M. England, G. T. Stevens, E. V. Edris, and C. J. Brown	USACE
An Integrated Surface Subsurface Model in Western Orange and Seminole Counties, Florida	Sorab Panday and Brian Mc Gurk	
Use of a stream-aquifer model to develop methods to estimate transit losses for reusable return flows in Monument and Fountain Creeks, El Paso and Pueblo Counties, Colorado	Gerhard Kuhn	USGS
Development of an integrated physical and engineering hydrologic model of the Rio Grande	Douglas P. Boyle, Ramon Naranjo, Steven L. Markstrom, and George Leavesley	Desert Research Inst.
Short-term real time forecast model in the upper Colorado River tributary basins	Shane Coors	USBR
Hydroclimatology of the Upper Klamath River Basin	Gregory J. McCabe and Lauren E. Hay	USGS
WaterWatch: A Map-Based World Wide Web Interface to U.S. Geological Survey Streamflow Information	Xiaodong Jian, David Wolock, and Harry Lins	USGS
GSSHA applications to Water Resource Problems in Utah and Arizona	Aaron Byrd, James Nelson, and Mario Avalos	USACE
Adaptive watershed modeling tools to support ecosystem management	George Leavesley, Jim Chew, Roland Viger, Christine Turner, Richard Zirbes, and Zack Bowen	USGS
Design Rainfall Distributions Based on NOAA 14 Volumes 1 and 2 Data	William Merkel, Helen Fox Moody, and Quan D. Quan	USDA-NRCS
Camp Pendleton Watershed Modeling—Developing a Working Tool	Martin J. Teal and David S. Smith	WEST Consultants, Inc.
Automated Geospatial Watershed Assessment (AGWA): A GIS-based Hydrologic Modeling Tool for Watershed Management and Landscape Assessment	D.C. Goodrich, W. G. Kepner, D. J. Semmens, S. N. Miller, P. Guertin, I. S. Burns, A. Cate, M. Hernandez, L. Levick, and S. Scott	USDA-ARS
Wildfire-flood hazard mitigation: Methods for identifying areas of flood risk on the basis of information from Thunder Butte tributary near West Creek, Colorado, July 27, 2003	R.D. Jarrett and J.C. Ferris	USGS

Demonstrations

Automated Geospatial Watershed Assessment Tool (AGWA): Uncertainty Analysis of Common Input Data	L. Levick, D. P. Guertin, D. J. Semmens, and D.C. Goodrich	USDA
CASC2D Watershed Model Developments and Applications: Extreme Floods and Watershed Chemical Fate and Transport Modeling	John F. England, Jr., Jeanne E. Klawon, Travis R. Bauer, and Ralph E. Klinger	USBR
Demonstration of RiverWare(TM)	Edie Zagona, Tim Magee and Steve Setzer	U. of Colorado
A Flexible and Easy-to-Use Contaminant Fate/Transport Model for Streams	Scott Fant and Mark Dortch	USACE
Challenges on Development of RESSIM Model for Columbia River System	Arun Mylvahanan and George Chan Modini	USACE
Short-term real time forecast model in the upper Colorado River tributary basins	Shane Coors	USBR
NRCS Geo-Hydro - GIS Interface Computer Demonstration	William Merkel and Su Liu	USDA-NRCS
Automated Geospatial Watershed Assessment (AGWA): A GIS-based Hydrologic Modeling Tool for Watershed Management and Landscape Assessment	D.C. Goodrich, W. G. Kepner, D. J. Semmens, S. N. Miller, P. Guertin, I. S. Burns, A. Cate, M. Hernandez, L. Levick, and S. Scott	USDA-ARS
KINEROS2 ~V New Features and Capabilities	David C. Goodrich, Roger E. Smith, Carl L. Unkrich, David A. Woolhiser	USDA-ARS
GSFLOW—A basin-scale model for coupled simulation of ground-water and surface-water flow	S. L. Markstrom, R. S. Regan, R. G. Niswonger, and D. E. Prudic	USGS
The Modular Modeling System (MMS): A Toolbox for Water- and Environmental-Resources Management	Steve Markstrom, George Leavesley, and Roland Viger	USGS
Adaptive watershed modeling tools to support ecosystem management	George Leavesley, Jim Chew, Roland Viger, Christine Turner, Richard Zirbes, and Zack Bowen	USGS
Soil Moisture Routing And Contaminant Fate Model For GeoRAMS	Zhonglong Zhang and Billy E. Johnson	USACE

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	Spouse Registration	\$40	\$40		
	Daily registration Monday	\$220	\$220		
	Daily registration Tuesday	\$200	\$200		
	Daily registration Wednesday	\$230	\$230		
	Daily registration Thursday	\$190	\$190		
	Extra Opening Reception	\$30	\$30		
	Extra Monday Reception	\$20	\$20		
	Extra Wednesday Dinner	\$25	\$25		
Street Address: _____ City: _____ State: _____ Zip: _____ Country: _____	Extra Proceedings (abstracts only)	\$20	\$20		
	Extra CD-ROM	\$25	\$25		
	Field Trips				
	Lower Truckee River operations for restoration: Reno to Pyramid Lake	\$40	\$40		
	Lake Tahoe and upper Truckee river region: river and reservoir operations, Tahoe City to Reno	\$40	\$40		
Phone: (____) _____ Fax: _____ EMAIL: _____	"Restoring ecological integrity to the Carson River: from Genoa to Dayton, NV area	\$40	\$40		
	Lake Tahoe and Carson City waterfall burn area	\$40	\$40		
	SHORT COURSES				
Spouse Name: _____ (<i>IF ATTENDING CONFERENCE</i>)	MIKE SHE/MIKE 11	\$175	\$175		
	Steam Restoration Design	\$75	\$75		
	Hydrologic Modeling Using GIS and the Watershed Modeling System (WMS).	\$125	\$125		
	Hydraulic and Sediment Transport Modeling of Rivers and Watersheds with GSTAR	\$80	\$80		
Credit Card ** #: _____	Intro to Integrated Surface/Subsurface Modeling with MODHMS	\$75	\$75		
	Excel-LEnT	\$150	\$150		
Type _____ Exp. Date _____	HEC-HMS and HEC-GeoHMS	\$50	\$50		
	Overview on Collection of Fluvial-Sediment Data	\$75	\$75		
	Arc Hydro – Hydrologic Modeling with GIS	\$75	\$75		
Signature _____	Accounting for Sediment Processes in Stream Analysis and Design.	\$50	\$50		
	Total Amount Enclosed (check*, money order*, or credit card**)				

* CHECKS AND MONEY ORDERS MUST BE MADE PAYABLE TO: “**Federal Interagency Hydraulic Conference**”

** Credit cards will be charged at time of registration