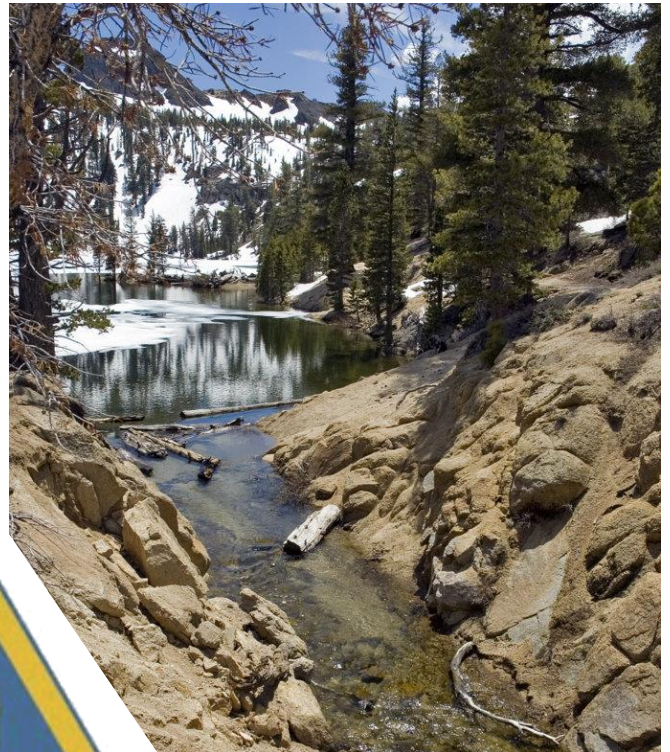


California Water and Environmental Modeling Forum

2015

ANNUAL MEETING PROGRAM

Charting the Future through Uncertain Pathways



SUMMARY OF SESSIONS

Monday, March 9

| Time | Session | Moderator | Room |
|---------------|--|------------------------------|----------------|
| 8:00 - 8:30 | Registration | | Sierra Hallway |
| 8:30 - 10:15 | 1. One-Water Hydrologic Model | Randy Hanson | Sierra 1 |
| | 2. Flood Modeling | Samson Haile-Selassie | Folsom/Natoma |
| 10:15 - 10:30 | Break | | |
| 10:30 - 12:15 | 3. CalSim and WRIMS Development | Travis Yonts | Sierra 1 |
| | 4. Sustainable Groundwater Management | Rich Juricich & Steffen Mehl | Folsom/Natoma |
| 12:15 - 12:45 | Lunch | | Restaurant |
| 12:45 – 2:00 | 5. Awards | Marianne Guerin | Sierra 1 |
| 2:00 - 3:15 | 6. Pop-up Talks | Stacy Tanaka & Nigel Quinn | Sierra 1 |
| 3:15 - 3:30 | Break | | |
| 3:30 - 5:15 | 7. 2014 DSM2 Development and Applications | Hari Rajbhandari | Sierra 1 |
| | 8. Sacramento and San Joaquin Basins Study – 2015 Update | Michael Tansey | Folsom/Natoma |
| 5:30 - 8:00 | 9. Business Meeting and Social | Benjamin Bray | Sudwerk |

ORGANIZATIONAL MEMBERS

California Department of Water Resources

California State Water Resources Control Board

Contra Costa Water District

East Bay Municipal Utility District

ICF International

Metropolitan Water District of Southern California

U.S. Bureau of Reclamation

Tuesday, March 10

| Time | Session | Moderator | Room |
|---------------|--|------------------------------------|----------------|
| 7:30 - 8:00 | Registration | | Sierra Hallway |
| 8:00 - 9:45 | 10. CalLite | Ali Abrishamchi | Sierra 1 |
| | 11. A Simulation Tool for the Bay-Delta Water Quality Control Plan | Eleanor Bartolomeo | Folsom/Natoma |
| 9:45 - 10:00 | Break | | Sierra 2 |
| 10:00 - 11:45 | 12. Integrated Water Resources Models | Ali Taghavi | Sierra 1 |
| | 13. Historical Delta Modeling Project | Steve Andrews | Folsom/Natoma |
| 11:45 - 12:15 | Lunch | | Restaurant |
| 12:15 - 1:00 | 14. Keynote Speaker – John Doherty | Marianne Guerin | Sierra 1 |
| 1:00 – 2:45 | 15. Selected PEST Applications in California | Tariq Kadir & Jonathan Traum | Sierra 1 |
| | 16. Kaleidoscope of Modeling from Shasta, the Sacramento River, and the Delta | Jamie Anderson | Folsom/Natoma |
| 2:45 – 3:00 | Break | | |
| 3:00 - 4:45 | 17. A Deluge of Drought Modeling | Tara Smith & Josué Medellín-Azuara | Sierra 1 |
| | 18. Marriage of Data and Water Quality Model Output Visualization for Stakeholder Involvement and Real-time Decision Support | Nigel Quinn | Folsom/Natoma |
| 4:45 - 6:45 | 19. Poster Session and Social* | Stacy Tanaka | Sierra 2 |
| 6:45 - 8:30 | 20. Informal Social at Q'bole | | Q'bole |

*Posters will be set up by 9:00 and available for viewing all day. Presenters will be available from 4:45 to 6:45 pm.

Wednesday, March 11

| Time | Session | Moderator | Room |
|---------------|--|-----------------------|----------------|
| 7:30 - 8:00 | Registration | | Sierra Hallway |
| 8:00 - 9:45 | 21. California Water Rights Analyses and Modeling | Rich Satkowski | Sierra 1 |
| | PEST 1. Model Calibration and Uncertainty Analysis: Concepts and Basic Theory | John Doherty | Folsom/Natoma |
| 9:45 - 10:00 | Break | | |
| 10:00 - 11:45 | 22. Modeling an Unstructured Environment: Recent Developments and Applications of Multi-Dimensional Bay-Delta Models | Kijin Nam | Sierra 1 |
| | PEST 2. Some Implementation Challenges | John Doherty | Folsom/Natoma |
| 11:45 - 1:15 | Lunch at area restaurants | | |
| 11:45 - 1:15 | 23. Career Development Panel | Eleanor Bartolomeo | Sierra 1 |
| 1:15 - 3:00 | 24. California Water Plan Update 2013: Key Contents | Abdul Khan | Sierra 1 |
| | PEST 3. Examples in California | John Doherty | Folsom/Natoma |
| 3:00 - 3:15 | Break | | |
| 3:15 - 5:00 | 25. Meet the Students and More | Josué Medellín-Azuara | Sierra 1 |
| | PEST 4. Opportunities for New Improved Model-based Decision Support | John Doherty | Folsom/Natoma |

AGENDA

Monday, March 9

8:00 – 8:30 a.m. – Registration in Sierra Hallway

Refreshments sponsored by LimnoTech.

8:30 – 10:15 a.m.

Session 1. One-Water Hydrologic Model

Moderator: Randy Hanson (USGS)

Location: Sierra 1

Analysis of Pajaro Valley Water Supply and Demand using MF-OWHM – Randy Hanson (USGS)

Simulation of Agricultural and Hydrologic Processes in the Modesto Region, California, using OWHM – Steve Phillips (USGS)

Evaluating Potential Seepage Projects along the San Joaquin River Using Multiple Scale Groundwater Models – Brian Heywood (CDM Smith)

Conjunctive Use of Water in the Central Valley as Simulated using the Central Valley Hydrologic Model – Claudia Faunt (USGS)

Session 2. Flood Modeling

Moderator: Samson Haile-Selassie (DWR)

Location: Folsom/Natoma

Flood System Optimization for the Central Valley – Jay Lund (UC Davis)

Effect of Hydrology Change on Computed Design Water Surface Elevations – Mike Archer (MBK Engineers)

Sutter Bypass Two-Dimensional Hydraulic Model Development and Application – Kyle Winslow (CH2M Hill)

Developing a 2D HEC-RAS Model of the Lower Sacramento River – William Fleenor (UC Davis)

Yolo Bypass Floodplain Analyses: Multi-Objective Modeling – Jeremy Thomas (CH2M Hill) and Mark Tompkins (NewFields)

10:30 a.m. – 12:15 p.m.

Session 3. CalSim and WRIMS Development

Moderator: Travis Yonts (Reclamation)

Location: Sierra 1

Modeling to Support CVP Cost Allocation: Flow Tracking and Multiple Regulatory Environments –
Nancy Parker (Reclamation)

The New California Groundwater Sustainability Legislation from a CalSim Perspective – David
O'Connor (Reclamation)

CalSim 3.0 and the San Joaquin River: Where is the Model Now? – Travis Yonts (Reclamation)

WRIMS 2 GUI/IDE Development – Hao Xie (DWR)

Session 4. Sustainable Groundwater Management

Moderators: Rich Juricich (DWR) and Steffen Mehl (Chico State University)

Location: Folsom/Natoma

The State's Role in Implementing the Sustainable Groundwater Management Act – Rich Juricich (DWR)
and Erik Ekdahl (SWRCB)

Methods and Examples of Sustainability Analysis – Randy Hanson (USGS)

Using Groundwater Models for Successful Groundwater Sustainability Planning – Thomas Harter (UC
Davis)

Habitat Considerations in Sustainable Groundwater Management – Daniel Wendell (The Nature
Conservancy)

12:15 – 12:45 p.m.

Lunch

Pick up a box lunch (if you registered by Feb 28) and then join us for the CWEMF Awards Ceremony in
Sierra 1.

Lunch sponsored by cbec eco-engineering and CWEMF.

12:45 – 2:00 p.m.

Session 5. CWEMF Awards Ceremony

Moderator: Marianne Guerin (CWEMF/RMA)

Location: Sierra 1

Presentation of the Hugo B. Fischer, Career Achievement, and Distinguished Life Membership awards.

2:00 – 3:15 p.m.

Session 6. Pop-up Talks

Moderators: Stacy Tanaka (Watercourse Engineering) and Nigel Quinn (Berkeley National Laboratory/Reclamation)

Location: Sierra 1

Five-minute overviews summarizing modeling work using a maximum of five PowerPoint slides per speaker.

3:30 – 5:15 p.m.

Session 7. 2014 DSM2 Development and Applications

Moderator: Hari Rajbhandari (DWR)

Location: Sierra 1

Modifying Delta Channel Depletions to Improve DSM2 EC Modeling – Lan Liang (DWR)

Water Cost of Compliance: A Robust Decision Tool for Drought Alternatives – Eli Ateljevich (DWR)

Thousands of Releases: Characterizing Lagrangian Transport and Comparing to Eulerian Metrics – Deanna Sereno (CCWD)

DSM2 Particle Tracking Model Development and Collaboration – Xiaochun Wang (DWR)

3:30 – 5:15 p.m.

Session 8. Sacramento and San Joaquin Basins Study – 2015 Update

Moderator: Michael Tansey (Reclamation)

Location: Folsom/Natoma

Overview of the Sacramento and San Joaquin Basins Study – Michael Tansey (Reclamation)

Updates to Climate Change Scenarios and Impacts on Central Valley Water Supplies – Tapash Das (CH2M Hill)

Assessing the Impacts of Socioeconomic-Climate Scenarios on Central Valley System Risk and Reliability – Brian Van Lienden (CH2M Hill)

Development and Evaluation of Adaptation Actions to Address Central Valley Water Management Risks – Armin Munévar (CH2M Hill)

Next Steps in the Sacramento-San Joaquin Basins Study – Arlan Nickel (Reclamation)

5:30 – 8:00 p.m.

Session 9. Business Meeting and Social

Moderator: Benjamin Bray (CWEMF/EBMUD)

Location: Sudwerk Brewhouse Grille

We will ask the members to vote on the CWEMF Strategic Plan. The Strategic Plan is at the end of this program.

Social sponsored by ICF International, MBK Engineers, Resource Management Associates, and MWH.

Tuesday, March 10

7:30 – 8:00 a.m. – Registration in Sierra Hallway

Refreshments sponsored by MWH.

8:00 – 9:45 a.m.

Session 10. CalLite

Moderator: Ali Abrishamchi (DWR)

Location: Sierra 1

CalLite 3.00 Updates – Raymond Hoang (DWR)

Drought Impact Analysis on Storage, Salinity, and Flow Using Position Analysis – Ali Abrishamchi (DWR)

Decision Scaling with CalLite to Identify Climate Change Vulnerabilities to the State Water Project – Andrew Schwarz (DWR)

Interfacing CalLite with DHI's Integrated Modeling Platform – Steve Blake (DHI US Water Resources)

Session 11. A Simulation Tool for the Bay-Delta Water Quality Control Plan

Moderator: Eleanor Bartolomeo (SWRCB)

Location: Folsom/Natoma

The Bay-Delta Water Quality Control Plan: What is it, and How are we Modeling it? – Eleanor Bartolomeo (SWRCB)

SacWAM – The Best of Both Worlds – Charles Young (SEI)

SacWAM – A Climate Driven Model of Sacramento Valley Rim Watersheds with Layered Infrastructure and Operations – Charles Young (SEI)

SacWAM – Valley Floor Hydrology and a Nested Daily FAO 56 Crop Water Demand Model in a Monthly Simulation Model – Andy Draper (MWH)

SacWAM – Managing Water for Fish, Farms, Floods, and Faucets – Brian Joyce (SEI)

10:00 – 11:45 a.m.

Session 12. Integrated Water Resources Models

Moderator: Ali Taghavi (RMC)

Location: Sierra 1

Status Update on IWFM Activities – Emin Can Dogrul (DWR)

Assessment of Surface Water – Groundwater Interactions in the Central Valley – Mesut Cayar (RMC)

Simulation of Groundwater and Surface Water Resources in the Santa Rosa Plain Watershed using GSFLOW – Linda Woolfenden (USGS)

Coping with the Hydrologic Complexity of Surface-Groundwater Interaction – Hubert Morel-Seytoux (Hydroprose)

Session 13. Historical Delta Modeling Project

Moderator: Steve Andrews (RMA)

Location: Folsom/Natoma

Unimpaired Flows vs. Natural Flows to the Sacramento-San Joaquin Delta: What's the Difference? – Tariq Kadir (DWR)

Historical Delta Elevation Model – Logic and Methods – Andy Bell (UC Davis)

3D Modeling Comparison of Salinity in the Historical and Contemporary Delta – Steve Andrews (RMA)

Ecological Implications of Modeled Hydrodynamic Changes in the Sacramento-San Joaquin Delta since 1800 AD – Sam Safran (SFEI)

11:45 a.m. – 12:15 p.m.

Lunch

Pick up a box lunch (if you registered by Feb 28) and then join us for the keynote speech by John Doherty in Sierra 1.

Lunch sponsored by HDR and Larry Walker Associates.

12:15 – 1:00 p.m.

Session 14. Keynote Speaker

Moderator: Marianne Guerin (CWEMF/RMA)

Location: Sierra 1

John Doherty (Watermark Numerical Computing)

Speaker's Presentation: [Using Environmental Models to Make Decisions](#)  7.7 MB

1:00 – 2:45 p.m.


Session 15. Selected PEST Applications in California

Moderators: Tariq Kadir (DWR) and Jonathan Traum (USGS)

Location: Sierra 1

[Calibrating the Soquel-Aptos PRMS Model to Streamflow Data Using PEST](#) – Cameron Tana  2.6 MB
(Hydrometrics, Inc.)

[Using PEST to Calibrate the G Model and Inverting it to Estimate Net Delta Outflow](#) – Nicky Sandhu  0.7 MB
(DWR)

[Using Pareto Optimization to Determine Model Predictive Uncertainty of Groundwater and Surface Water Interactions for the San Joaquin River](#) – Jonathan Traum (USGS)  1.5 MB

[Comparing Cloud Computing Resources for Model Calibration with PEST](#) – Charlie Brush (DWR) 2.3 MB

Session 16. Kaleidoscope of Modeling from Shasta, the Sacramento River, and the Delta

Moderator: Jamie Anderson (DWR)

Location: Folsom/Natoma

Development of a Mercury Model for the Delta and Yolo Bypass – Carol DiGiorgio (DWR)

CE-QUAL-W2 Modeling of Head-of-Reservoir Conditions at Shasta Reservoir, California – Katherine Clancey (UN Reno)

Modeling Reservoir Operations to Address Extreme Climate Impacts on the Downstream Fishery at Shasta Lake – Laurel Saito (UN Reno)

Three-Dimensional Numerical Modeling of Periodicity and Spatial Variability in Secondary Circulation in the Tidal Sacramento River – Aaron Bever (Delta Modeling Associates)

3:00 – 4:45 p.m.

Session 17. A Deluge of Drought Modeling

Moderators: Tara Smith (DWR) and Josué Medellín-Azuara (UC Davis)

Location: Sierra 1

Economic Analysis of the 2014 California Drought on Agriculture. Post-Assessment and Prospects for 2015 – Josué Medellín-Azuara (UC Davis)

Hydrology Forecasting using SWAT Hydrologic Models for the 2014 California Drought – Guobiao Huang (DWR)

Delta Coordinated Operations Model – Tracy Pettit (DWR)

2014 Drought Forecast Modeling in 1-, 2-, and 3-D – John DeGeorge (RMA)

Session 18. Marriage of Data and Water Quality Model Output Visualization for Stakeholder Involvement and Real-time Decision Support

Moderator: Nigel Quinn (Berkeley National Laboratory/Reclamation)

Location: Folsom/Natoma

Advanced Real-time Decision Support and Visualization – Jesper Kjelds (DHI)

Integration of Real-time Data Management Systems and Runoff Models in Reservoir Operations – Timothy Lee (Kisters International Inc.)

Silver Creek Watershed – Dynamic Stream Temperature Modeling and Visualization – Stephen Blake (DHI)

Real-time Decision Support and Visualization for Salinity Management in the San Joaquin River – WARMF Online – Nigel Quinn (Berkeley National Laboratory/Reclamation), Amye Osti and Nathan Hemenway (34 North, Inc.)

4:45 – 6:45 p.m.

Session 19. Poster Session and Social

Moderator: Stacy Tanaka (Watercourse Engineering)

Location: Sierra 2

Poster session sponsored by Watercourse Engineering.

Social sponsored by CH2M Hill, RMC Water and Environment, and Tetra Tech.

Poster Session Titles

Impact of Aquifer Desaturation on River Seepage – Hubert Morel-Seytoux (Hydroprose)

Quasi-decadal Oscillation in the CMIP5 and CMIP3 Climate Model Simulations: California Case – Jay Wang (DWR)

Modeling the Establishment of Riparian Habitat Vegetation with Applications to Populus Fremonti on the Sacramento River, California – Michael Tansey (Reclamation)

Five Years of Change: The Hidden Story of the Sacramento River at Georgiana Slough – Shawn Mayr (DWR)

Color Your Delta – Shawn Mayr (DWR)

Using Measured Bottom X2 to Estimate Effective Delta Outflow and Electrical Conductivity during Water Year 2014 – Anne Huber (ICF)

Mapping Decadal Change of Rice Field Extent and Phenology in the Sacramento Valley using Landsat Imagery – Liheng Zhong (DWR)

Trailing Non-Aqueous Phase Liquids (NAPL) in the Groundwater: Modeling and Application – Pavithra Prakash (Indian Institute of Technology)

Predicting Effect of Reservoir Expansion with Three-Dimensional Modeling: Case Study of Los Vaqueros Reservoir – Gang Zhao (Flow Science)

Cloud Cover Variability and its Relation to Springtime Snowmelt and Runoff – Edwin Sumargo (UC San Diego)

Planning for Sustainable Management of Groundwater Resources – Ahmad Abrishamchi (Sharif University)

Real-time Forecasting of Salt Assimilative Capacity in the San Joaquin River – Reginald Dones (Reclamation)

2D Modeling of the Salinas River to Facilitate Consensus Based Flood Protection and Conservation –
Paul Frank (Newfields)

Climates Change. That’s What They Do – Om Prakash (WEST Consultants)

Flood Warning with HEC-RTS (Real Time Simulation) – Kayson Shurtz (WEST Consultants)

Linking Operations, Watershed, and Water Quality Models to Support Third-Party Nutrient TMDL Review and Revision for the Truckee River, Nevada – John Wolfe (LimnoTech)

Coarse Resolution Planning Tools for Prioritizing Central Valley Improvement Act Fisheries Activities –
Rodney Wittler (Reclamation)

Use of UAVs in the Design, Construction Observation, and Post-Project Monitoring of Rehabilitation Projects – Jesse Barker (cbec eco-engineering)

6:45 – 8:30 p.m.

Session 20. Informal Social at Q’bole

Join friends and colleagues for a no-host social at Q’bole. This will be a great opportunity to end a busy day relaxing and catching up with other Annual Meeting attendees.

Wednesday, March 11

7:30 – 8:00 a.m. – Registration in Sierra Hallway

8:00 – 9:45 a.m.

Session 21. California Water Rights Analyses and Modeling

Moderator: Rich Satkowski (SWRCB)

Location: Sierra 1

2014 Water Right Curtailment Analyses in the Sacramento-San Joaquin, Russian River, and Eel River Watersheds – Brian Coats (SWRCB)

Drought Water Rights Allocation Tool (DWRAT) - Ben Lord (UC Davis)

WRIMS-based Sacramento Valley Water Right Model – Liheng Zhong and Richard Chen (DWR)

PEST 1. Model Calibration and Uncertainty Analysis: Concepts and Basic Theory

Moderator: John Doherty (Watermark Numerical Computing)

Location: Folsom/Natoma

This session will cover where modelling fits into the decision making process and how PEST can support this. Basic inversion theory will be discussed (not too technical). The discussion will also address issues such as how expert knowledge is necessarily stochastic, how measurements of system state can reduce parameter and predictive uncertainty, what is the best way to achieve this using present technology, and where PEST fits into all of this.

- PEST: model independent inversion, a short history
- How is expert knowledge necessarily stochastic?
- How can measurements of the system state reduce parameter and predictive uncertainty?
- Bayes equation: Why calibrate? Why not just implement Bayes equation?
- Traditional parameter estimation and highly parameterized inversion
- Why is there so much non-uniqueness?
- Regularisation, and why it is needed
- Post-calibration uncertainty analysis
- Parameter contributions to predictive uncertainty
- Worth of different types of data in reducing uncertainty
- Ramifications of uncertainty for decision-making

10:00 – 11:45 a.m.

Session 22. Modeling an Unstructured Environment: Recent Developments and Applications of Multi-Dimensional Bay-Delta Models

Moderator: Kijin Nam (DWR)

Location: Sierra 1

Open Software, Open Source, Open Data, and Open Models: San Francisco Community Model Initiative – Edwin Elias (Deltares USA Inc.)

Sediment Transport Modeling in a San Francisco Bay Salt Marsh – Yun Zhang (Stanford University)

SCHISM Salinity Modeling 2013-2014 and Recent Developments – Eli Ateljevich (DWR)

Salinity, Waves, Sediment, and X2: Recent Applications Using the UnTRIM Bay-Delta Model – Michael MacWilliams (Delta Modeling Associates)

PEST 2. Some Implementation Challenges

Moderator: John Doherty (Watermark Numerical Computing)

Location: Folsom/Natoma

This session will look at some of the problems in implementing concepts covered in Session 1, ways to overcome some of these, and problems that still remain.

- Spatial parameterization
- Pilot points in groundwater model calibration
- Models as defective simulators of real-world behavior. Can their misbehavior be “calibrated out”?
- Formulation of an appropriate objective function
- The matter of observation weights
- Models behaving badly and what to do about it
- Surrogate models and proxy models
- Model-based hypothesis-testing
- Global optimizers

11:45 a.m. – 1:15 p.m.

Lunch at area restaurants

11:45 a.m. – 1:15 p.m.

Session 23. Career Development Panel

Moderator: Eleanor Bartolomeo

Location: Sierra 1

The Career Development Panel is designed for students and young professionals. A panel of successful modelers will talk about their careers and what skills they consider important in the workplace. Participants will be asked to prepare a brief bio summarizing their interests and career goals and will have an opportunity to discuss those goals with the panelists.

1:15 – 3:00 p.m.

Session 24. California Water Plan Update 2013: Key Contents

Moderator: Abdul Khan (DWR)

Location: Sierra 1

California Water Plan Update 2013: Investing in Innovation and Infrastructure – Paul Massera (DWR)

California Water Plan Update 2013 Water Portfolios, WYs 2001-2010 – Jennifer Kofoid (DWR)

California Water Plan Update 2013 Future Scenarios: Results and Analysis – Mohammad Rayej (DWR)

Enhanced Groundwater Contents for California Water Plan Update 2013 – Abdul Khan and Mark Nordberg (DWR)

PEST 3. Examples in California

Moderator: John Doherty (Watermark Numerical Computing)

Location: Folsom/Natoma

This session will look at three PEST applications in California.

Natural Recharge Estimation and Uncertainty Analysis of Antelope Valley Groundwater Basin – Tracy Nishikawa, Adam Siade, and Peter Martin (USGS)

Using PEST's GENLINPRED Utility for Uncertainty Analysis of Groundwater and Surface Water Interaction for the San Joaquin River – Jonathan Traum (USGS)

Using PEST to Calibrate the G-model and Inverting it to Estimate Net Delta Outflow – Nicky Sandhu (DWR)

Discussion

3:15 – 5:00 p.m.

Session 25. Meet the Students and More

Moderator: Josué Medellín-Azuara (UC Davis)

Location: Sierra 1

The HOBBS Project Update – Josué Medellín-Azuara (UC Davis)

California Water Management with Upgraded Hydropower and Reservoir Operations Representation with CALVIN – Mustafa Dogan (UC Davis)

Optimal Conjunctive Use of Surface Water and Groundwater Resources: A Tale of Two Cities in the Delta – Robert Gailey (UC Davis)

Optimal Flood Hedging Pre-releases for a Single Reservoir – Rui Hui (UC Davis)

Impact of Climate Change on Ecosystem Management in the Central Valley of California – Karandev Singh (UC Davis)

PEST 4. Opportunities for New Improved Model-based Decision Support

Moderator: John Doherty (Watermark Numerical Computing)

Location: Folsom/Natoma

Bringing it all together:

- Some opportunities for “PEST-type” approaches in CA, difficulties that may be encountered, and research/development opportunities arising from these difficulties
- Changing the culture; embracing uncertainty as an essential ingredient of the decision-making process
- Role of uncertainty analysis in resolving conflict
- How should model results be presented?
- How complex should models be? When to choose complexity and when to choose simplicity.
- When complexity can do more harm than good
- Should the same model be asked to answer all questions, or should models be issue-specific?

ANNUAL MEETING PARTICIPANTS

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