

# 12<sup>th</sup> Annual Forecast Informed Reservoir Operations Training & Workshop

Center for Western Weather and Water Extremes  
Scripps Institution of Oceanography, U.C. San Diego - La Jolla, CA  
Scripps Seaside Forum

## Workshop Objectives:

- **Discuss Transitioning FIRO from Pilot Projects to Operations**
- **Highlight the Importance of Partnerships**
- **Share New Directions in FIRO**

Tuesday, August 5 (Optional)	
9:00 – 11:00	<b>FIRO 101: Introduction to FIRO Concepts</b> <ul style="list-style-type: none"><li>• FIRO Program Overview, Joe Forbis, USACE, ERDC</li><li>• Science of Forecasting, Chad Hecht, CW3E</li><li>• Introduction to FIRO Partnerships, Lisa Haney, Orange County Water District</li></ul>
Tuesday, August 5 New Directions in FIRO; Transitioning from Pilot Projects to Operations	
12:30 – 1:00	<b>Check in and Light Lunch</b>
1:00 – 1:20	<b>Welcome and Opening Remarks</b> <ul style="list-style-type: none"><li>• Marty Ralph, Director, Center for Western Weather and Water Extremes and Chief Scientist, FIRO Phase III, the National Expansion Pathfinder</li><li>• Cary Talbot, National Lead, FIRO Program, USACE Engineer Research and Development Center</li></ul>
1:20 – 1:40	<b>Keynote Speaker:</b> Mr. Brian Kamisoto, Director of Regional Business, USACE, South Pacific Division
1:40 – 2:20	<b>FIRO Documentation</b> <i>Cary Talbot, USACE ERDC (Moderator)</i> <ul style="list-style-type: none"><li>• Sean Smith, USACE Headquarters</li><li>• Jay Jasperse, Sonoma Water, CW3E</li><li>• Marty Ralph, CW3E</li></ul>
2:20 – 2:40	<b>Break</b>
2:40 – 3:40	<b>FIRO National Screening Updates</b> <i>Rachel Weihs, CW3E (Moderator)</i> <ul style="list-style-type: none"><li>• Caitline Barber, Eastern Research Group</li><li>• Jay Cordeira, CW3E</li><li>• Mike Anderson, CA Department of Water Resources</li></ul>
3:40 – 4:10	<b>Using Forecasts in the Russian River Watershed</b> <i>Joe Forbis, USACE, ERDC (Moderator)</i>

	<ul style="list-style-type: none"> <li>• Sydney Hoehler, USACE San Francisco</li> <li>• Patrick Sing, USACE San Francisco</li> </ul>
4:10 – 4:30	<b>USBR Overview on FIRO Integration</b> <i>Joe Forbis, USACE, ERDC (Moderator)</i> <ul style="list-style-type: none"> <li>• Chris Frans, USBR</li> </ul>
4:30 – 4:55	<b>Lighting Talks &amp; Posters for USACE FIRO Projects</b>
4:55 – 5:00	<b>Wrap-Up</b>
5:00 – 8:00	<b>Water Affiliates Group (WAG) 5-Year Anniversary Reception and Posters</b>
<p style="text-align: center;">Wednesday, August 6</p> <p style="text-align: center;"><b>New Research Directions in FIRO to Support Operations</b></p>	
8:00 – 8:45	<b>Coffee, Conversation, and Continental Breakfast</b>
8:45 – 9:00	<b>Welcome:</b> Marty Ralph, CW3E
9:00 – 10:00	<b>Research Advancements and Partnerships that Support FIRO</b> <i>Matt Womble, Alabama Water Institute (Moderator)</i> <ul style="list-style-type: none"> <li>• Allison Allen, NOAA Office of Water Prediction (Virtual)</li> <li>• Brett Whittin, NOAA California Nevada River Forecast Center (Virtual)</li> <li>• Chad Cary, NOAA Office of Marine and Aviation Operations</li> <li>• David Novak, NOAA (Virtual)</li> </ul>
10:00 – 10:40	<b>Updates from FIRO Relevant Federal Agencies and Implications for FIRO</b> <ul style="list-style-type: none"> <li>• Sean Smith, USACE Headquarters</li> <li>• Chad Cary, NOAA</li> <li>• Matt Womble, Alabama Water Institute</li> <li>• Marty Ralph, CW3E</li> <li>• Cary Talbot, USACE ERDC</li> </ul>
10:40 – 11:00	<b>Break</b>
11:00 – 12:15	<b>Breakout Sessions - Part I</b> <p style="text-align: center;"><b>Topic 1: FIRO Intersection with Environmental Considerations</b>  <i>Jay Jasperse, Sonoma Water and CW3E (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Lisa Haney, Orange County Water District</li> <li>• Don Seymour, Sonoma County Water Agency</li> <li>• Greg Woodside, San Bernardino Valley Municipal Water Conservation District</li> </ul> <p style="text-align: center;"><b>Topic 2: Modeling FIRO Strategies within CWMS</b></p>

	<p><i>Joe Forbis, USACE ERDC (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Matt Fleming, USACE HEC</li> <li>• Evan Heisman, USACE HEC</li> </ul> <p><b>Topic 3: Quantitative Measurements of the Benefits for Existing Projects</b>  <i>Tom Corringham, CW3E (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Denali Pinto, CW3E</li> </ul>
12:15 – 1:45	<b>Lunch - Provided</b>
1:45 – 2:00	<b>Keynote Speaker:</b> David Palumbo, Deputy Commissioner, Bureau of Reclamation
2:00 – 2:45	<p><b>Water Agency Partners and USACE Districts: Lessons Learned Panel Discussion</b></p> <ul style="list-style-type: none"> <li>• Lisa Haney, Orange County Water District</li> <li>• Don Seymour, Sonoma Water</li> <li>• John James, Yuba Water Agency</li> <li>• Greg Woodside, San Bernadino Valley Water Conservation District</li> <li>• Stuart Vaughan, Tacoma Water</li> <li>• Jon Sweeten, USACE Los Angeles District</li> <li>• Nick Malasavage, USACE San Francisco District</li> <li>• Jon Moen, USACE Sacramento District</li> <li>• Kyle Comanor, USACE Seattle District</li> </ul>
2:45 – 4:00	<p><b>Breakout Sessions - Part II</b></p> <p><b>Topic 1: Advances in Machine Learning in Weather and Streamflow Forecasts</b>  <i>Luca Delle Monache, CW3E (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Ming Pan, CW3E</li> <li>• Agniv Sengupta, CW3E</li> </ul> <p><b>Topic 2: Utilizing Synthetic Forecasts in FIRO</b>  <i>Mike Warner, USACE (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Zach Brodeur, Cornell University</li> <li>• Kyla Semmendinger-Raney, CW3E</li> <li>• Evan Heisman, USACE HEC</li> </ul> <p><b>Topic 3: Snow Science and Seasonal Streamflow Forecasts</b>  <i>Rob Hartman, CW3E (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Wyatt Reis, USACE ERDC</li> <li>• Kara DiFrancesco, USBR</li> <li>• Abdul Moiz, CW3E</li> </ul>
4:00 – 4:15	<b>Break</b>
4:15 – 5:00	<p><b>FIRO-MAR Updates</b>  <i>Cale Nasca, CA Department of Water Resources (Moderator)</i></p> <ul style="list-style-type: none"> <li>• Will Logan, USACE, &amp; Daniel Siegel, The Earth Genome</li> </ul>

	<ul style="list-style-type: none"> <li>David Arrate &amp; Wyatt Arnold, Department of Water Resources</li> </ul>
5:00 – 5:10	<b>Wrap-Up</b>
Thursday, August 7 <b>FIRO Next</b>	
8:30 – 9:00	<b>Coffee, Conversation, and Continental Breakfast</b>
9:00 – 9:05	<b>Welcome and Keynote Speaker Introduction:</b> Marty Ralph, CW3E
9:05 – 9:20	<b>Keynote Speaker:</b> Karla Nemeth, Director, California Department of Water Resources
9:20 – 9:40	<b>FIRO for Multi-Reservoir Networks</b> <ul style="list-style-type: none"> <li>Jon Herman, UC Davis</li> </ul>
9:40 – 10:00	<b>Beyond FIRO: Raising Manage Water Capability</b> <ul style="list-style-type: none"> <li>Mike Anderson, CA Department of Water Resources</li> </ul>
10:00 – 10:20	<b>Break</b>
10:20 – 11:45	<b>Key Take-Aways from Breakout Sessions</b> <i>Julie Kalansky, CW3E (Moderator)</i>
11:45 – 12:00	<b>Closing Comments and Adjourn</b> <ul style="list-style-type: none"> <li>Marty Ralph, CW3E</li> <li>Cary Talbot, USACE ERDC</li> </ul>