



OWP IS AT AGU23

2023 FALL MEETING
Wide. Open. Science.

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JOIN US**
December 11-15

TOWN HALLS

December 12, 2023
6:30–7:30 pm PST

NOAA's National Water Center:
Programmatic Updates and Opportunities
for Collaboration

Trey Flowers

<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/185185>

December 13, 2023
6:30–7:30 pm PST

Improving Deliver of Water Prediction
Resources in the Coastal Zone using a
Science to Service Approach

Brenna Sweetman

<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/191680>

Website: <https://water.noaa.gov>

Email: nws.nwc@noaa.gov

Locations: Tuscaloosa, AL - Silver Spring, MD - Chanhassen, MN





AGU23 Presentation Schedule

DECEMBER 11

IN11A-01 Modernizing Hydrologic Data Dissemination for the NOAA Office of Water Prediction: From Interoperable APIs to Decision Support Tools

Sudhir Shrestha • 8:30–8:45 am PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1280665>

DECEMBER 13

H31V Next Generation Water Resources Modeling: Collaborative Development at the Intersection of Domain, Computer, Data, and Decision Sciences I Poster

Trey Flowers • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/185183>

H31V-1791 Exploring Hydrothermal Impacts of Heterogeneous Model Configuration in the Next Generation Water Resources Modeling Framework

Ahmad Jan • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1288995>

H31V-1792 Communicating and Processing Data on Grids in the New Next Generation Water Resources Modeling Framework Paradigm

Shenting Cui • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1289456>

H31V-1793 Development of an Open-Source Automatic Calibration Tool for the Next Generation Water Resources Modeling Framework

Xia Feng • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1290379>

H31V-1796 Expanding the NextGen Framework to Multilayer Computation

Donald Johnson • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1356180>

H31V-1801 Developing a River Basin Repository for the Next Generation Water Resources Modeling Framework

Scott Peckham • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1438932>

H31V-1789 Comparing the Next Generation Water Resources Modeling Framework Across Different Compute Environments Using the Distributed Model on Demand Platform

Robert Bartel • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1389342>

H31W Next Generation Water Resources Modeling: Collaborative Development at the Intersection of Domain, Computer, Data, and Decision Sciences II Poster

Trey Flowers • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/205701>

H31W-1802 Tidal Evaluation of the Alaska Coastal Circulation Models Developed for the Next Generation Water Resources Modeling Framework (NextGen)

Hassan Mashriqui • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1315277>

DECEMBER 12

H21N-1540 Weaving Legacy Hydraulic Data into Current Flood Inundation Mapping Workflows

Jim Coll • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1416941>

H31W-1803 Automated Testing of Formulations in the Next Generation Water Resources Modeling Framework: How GitHub Actions and Workflows Aid Model and Module Development in a Larger Software Framework Environment

Jessica Garrett • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1316848>

H31W-1805 Using the NextGen Modeling Framework to drive Noah-OWP-Modular on a Grid

Grey Rogers Evenson • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1338481>

H31W-1806 LGARTO: Layered Green and Ampt Infiltration with Redistribution, with Talbot-Ogden Groundwater Bi-Directional Coupling

Peter La Follette • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1351809>

H31W-1813 Open Source Tools for Configuring the Next Generation Water Resources Modeling Framework

Austin Raney • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1446390>

H31W-1814 Developing BMI Compatibility with Coastal Hydraulic Models for the NextGen Water Resources Modeling Framework

Jason Ducker • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1312829>

H31W-1815 D-Flow FM Model Development for Expansion of Total Water Level Predictions to the Great Lakes, Lake Champlain, and Alaska Using the Next Generation Water Resources Modeling Framework (NextGen)

Henok Kefelegn • 8:30 am–12:50 pm PST • Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1336128>

H33C Next Generation Water Resources Modeling: Collaborative Development at the Intersection of Domain, Computer, Data, and Decision Sciences III Oral

Trey Flowers • 2:10–3:40 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/205683>

H33C-02 An Update on NOAA's National Water Model: Advancing Operational Hydrology Through Continental Scale Modeling

Brian Cosgrove • 2:20–2:30 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1281134>

H33C-03 Advancing Visualization-Based Methods for the Evaluation of Large Scale Operational Hydrologic Forecasts Following Significant Flood Events

Katie van Werkhoven • 2:30–2:40 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1378762>

IN21A-07 GVAL A Python Package for Model Agnostic Geospatial Evaluations Using Open-Source Cloud-Native Technologies

Gregory Petrochenkov • 9:30–9:40 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1354009>

H33C-06 Enabling Heterogeneously Discretized Multi-Model Simulations within the Next Generation Water Resources Modeling Framework

Nels Frazier • 3:00–3:10 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1318056>

H33C-07 Current State of the NOAA NextGen Enterprise Hydrofabric System

Mike Johnson • 3:10–3:20 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1416837>

H34F-04 Harnessing the Cloud for Operational Flood Prediction: Developing the Office of Water Prediction's Flood Inundation Mapping Capabilities

Ryan Spies • 4:45–5:00 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1362319>

TH35I Improving Deliver of Water Prediction Resources in the Coastal Zone Using a Science to Service Approach

Brenna Sweetman • 6:30–7:30 pm PST • Town Hall
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/191680>

H34D Next Generation Water Resources Modeling: Collaborative Development at the Intersection of Domain, Computer, Data, and Decision Sciences IV Oral

Trey Flowers • 6:00–7:30 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Session/205692>

H34D-01 Conceptual, Physical, and Machine Learning Modules - Updates on NextGen Formulations

Rachel McDaniel • 6:00–6:10 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1316627>

H34D-06 Inland Routing Model Development for Compatibility with the Next Generation Water Resources Modeling Framework and Basic Model Interface Operability

Sean Horvath • 6:50–7:00 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1404795>

H34D-07 Assessing the Performance of Coastal Models when Hindcasting Compound Flooding in Coastal and Lake Environments Under the Next Generation Water Resources Modeling Framework (NextGen)

Julio Zyserman • 7:00–7:10 pm PST • Oral
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1313415>

JANUARY 24, 2024

H13 Online Poster Session for Hydrology XIII

Chris Tubbs • 8:00–9:30 am PST • Online Poster
<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1279979>



AGU23 Presentation Schedule

OWP Student Collaboration



DECEMBER 11

AI/ML Paleo Reconstructions of Adige River Basin (Italy) Modeled Streamflow

Madi Blake • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Analysis of Holocene Flood Variability in the Clinch River, Tennessee

Mary Eminue • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Linkages Between Changing Weather and Land Management on Runoff and Pollution Transport in River Basins

Umanda Abeyasinghe • 2:10–6:30 pm PST • Moscone Center South, Poster Hall A-C

DECEMBER 13

The Crucial Role of Flood Inundation Mapping (FIM) in the July 2023 Montpelier, VT Flood Damage Assessment

Evan Belkin • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Development of an Ensemble Hydrologic Data Assimilation within NextGen Framework

Ehsan Foroumandi • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Baseflow prediction in ungauged basins using Bayesian multi-modeling to combine conceptual hydrological and deep learning models

Parnian Ghaneei • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Improving the Fidelity and Performance of NOAA Flood Inundation Mapping Framework Using a Machine Learning-Based Surrogate Model

Berina Kilcarslan • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

A multisatellite approach to monitor river ice in northeastern US to support streamflow forecast for reservoir management

Berina Kilcarslan • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Analysis of Stage Flow Predictions by the NOAA National Water Model and Synthetic Rating Curves

Victor Obi • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Estimation of Channel Shape for the CONUS Using Regression and Machine Learning Approaches

Riley McDermott • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Data Assimilation in the Nextgen Framework for Improved Streamflow Predictions

Sujana Timilsina • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

DECEMBER 12

Improving Coastal Water Level Estimation through Assimilation of Satellite Observations in Storm Surge Models: A Case Study of Hurricane Arthur

Soelem Aafnan Bhuiyan • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Representing soil physical processes in Conceptual Framework Equivalent (CFE) through the implementation of Ordinary Differential Equation (ODE)

Soelem Aafnan Bhuiyan • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Enhancing the Conceptual Functional Equivalent (CFE) rainfall-runoff model via a differentiable modeling approach

Ryoko Araki • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

dpLGAR: a differentiable parameter learning implementation of the Layered Green and Ampt with redistribution (LGAR) model

Tadd Bindas • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Harnessing Hysteresis: Pre-Emptive Velocity Spikes In Surface Velocimetry Data Predict Incoming Flood Waves

Jeil Oh • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Quantifying the Sources of Uncertainty in HAND-based Flood Inundation Mapping Predictions

Meraj Sohrabi • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Estimating Global Water Scarcity: A holistic approach

Fitsume Teshome Wolkeba • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Session H34C-04 Expanding Differentiable Muskingum-Cunge River Routing: Moving From The Catchment-Scale To Continental Scale
Tadd Bindas • 4:30–4:40pm PST • 3020-West (Level 3, West Moscone Center)

Session H33C-08 Value of Hydrofabric Artifact Static Parameters for Deep Learning Next Generation Water Model (NextGen) Development
Jeremy Rapp • 3:20–3:30 pm PST • 3012-West (Level 3, West, Moscone Center)

Session H31DD-05 Enhancing Collaborative Ensemble Flood Inundation Mapping With Standardized Data Sharing and Model Metadata
Karina Larco • 8:42–8:45am PST • lightning Theatre II, Hall D - South (Exhibition Level, South, Moscone Center)

A Probabilistic-Machine Learning Approach for Compound Flooding Hazard Assessment

Meraj Sohrabi • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Using Artificial Neural Networks (ANN) to Determine Freshwater Mussel Density Influence on Bedload Sediment Transport

Taylor Tatum • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

Continental-scale controls on patterns of baseflow signatures

Anne Holt • 2:10 pm–6:30 pm PST • Moscone Center South, Poster Hall A-C

DECEMBER 14

Assessing Socioeconomic Impacts of Compound Flooding for U.S. Coastal Communities

Javed Ali • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Improved Streamflow Forecasting by Deep Learning LSTM and Attention to Physical Rules

Ehsan Foroumandi • 8:30 am–12:50 pm PST • Moscone Center South, Poster Hall A-C

Session H42D-05 Analysis of Multi-year Hydrological Drought Characteristics in the United States

Savalan Naser Neisary • 10:20–11:50am PST • Moscone Center, 3016 - West

Flood Modeling Across Mountainous and Coastal Watersheds: Coupling Data-Driven and Catchment Physical Attributes

Elnaz Heidari • 2:10–6:30 pm PST • Moscone Center South, Poster Hall A-C

Evaluation of Gridded Precipitation Data in Water Availability Modeling in CONUS

Fitsume Teshome Wolkeba • 2:10–6:30 pm PST • Moscone Center South, Poster Hall A-C

DECEMBER 15

When good signatures go bad: unintended failures of applying hydrologic signatures in large-sample studies

Ryoko Araki • 2:10–6:30 pm PST • Moscone Center South, Poster Hall A-C

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