

# **River Corridor and Watershed Hydrobiogeochemistry Activities at AGU 2018 Fall Meeting**

## **Workshop: (chaired by Tim Scheibe, Nancy Hess and Chris Henry)**

- **Title: Modeling Microbial Dynamic and Processes from Cells to Ecosystems (WS30)**
- **Date and Time:** Sunday, 9 December 2018: 8:00 – 16:00
- **Location:** Grand Hyatt, Room: Declaration AB

## **WHONDRS Exhibit Booth #616:**

**Monday December 10:** 6:00 P.M.–8:00 P.M (Exhibits open and icebreaker)  
**Tuesday December 11 –Thursday December 13:** 9:30 A.M.–5:00 P.M.  
**Friday December 14:** 9:30 A.M.–1:30 P.M.

## **WHONDRS Town Hall: (chaired by James Stegen)**

- **Title:** WHONDRS: A Community Resource for Studying Dynamic River Corridors
- **Date and Time:** Thursday, 13 December 2018: 12:30 - 13:30
- **Location:** Marriott Marquis, Room: Archives

## **WHONDRS Social Mixer:**

**Thursday, December 13 - 5:30-7:30pm (EST) - Fado Irish Pub, 808 7th St.  
NW (0.2 mi from Convention Center); website:**  
<https://fadoirishpub.com/washington/>

## Oral Presentations:

### Tuesday

**11:05-11:20 (151A) Jason Hou** - Hydromorphic Classification of the Hanford Reach through Integration of Field Observations and Hydrodynamic Models

### Wednesday

**9:00-9:15 (146B) Xuehang Song** - Dynamic River Stage Variations Lead to Multimodal Residence Time Distributions of Hydrologic Exchange Flows

**14:10-14:25 (146B) Emily Graham** - Riparian Carbon Inputs and Sediment Metabolomes, but not Metagenomes or Metaproteomes, Correspond to Enhanced Water-Soluble C Oxidation and Bound C Protection in the Hyporheic Zone

**14:25-14:40 (146B) Vanessa Garayburu-Caruso** - Integrated Understanding of Organic Carbon Concentration, Chemistry, and Thermodynamics on Hyporheic Metabolism

**17:15-17:30 (150A) Jianqiu Zheng** - Aqueous Phase Explicit Multi-Component Modeling to Better Account for Biochemical Feedbacks on Soil Organic Matter Decomposition

### Thursday

**9:00-9:15 (150A) James Stegen** Merging Ecological Theory with Organic Geochemistry and Environmental Metabolomics

### Friday

**8:45-9:00 (150A) Hyun-Seob Song** - Modeling Microbial Regulation and Metabolic Networks for Predictive Biogeochemical Process Simulation

**13:40-13:55 (150A) Tim Scheibe** - Merging Process Understanding with Numerical Models across Scales to Predict River Corridor and Watershed Function

**17:00-17:15 (154AB) Huiying Ren** - Machine Learning Application on Closing Data Gaps in Groundwater Measurements

## Poster Presentations: (All in Poster Hall A-C)

### Monday

**8:00-12:20 (H11H) *Tim Johnson*** - Multiscale investigation of dynamic stage-driven groundwater/river water interaction using surface-based and underwater 4D Electrical Resistivity Tomography

**8:00-12:20 (H11H) *Tim Scheibe*** - Data-Model Integration for Improved Prediction of River Corridor and Watershed Function

**8:00-12:20 (H11H) *Yue Zhu*** - Joint Hydrogeophysical Inversion: Application to Dynamic Mass Flux Monitoring at the Groundwater/Surface Water Interface

### Tuesday

**8:00-12:20 (H21J) *Guzel Tartakovsky*** - Physics Informed Deep Neural Networks for learning parameters with non-Gaussian non-stationary statistics

**8:00-12:20 (H21M) *Jesus Gomez-Velez*** - Continental Scale Variations of Flow-Frequency Duration Curves and Hydraulic Geometry

**13:40-18:00 (H23H) *Kewei Chen*** - Using Ensemble Data Assimilation to Estimate Long-term Hydrologic Exchange Fluxes under Highly Dynamic Condition

**13:40-18:00 (H23H) *Pin Shuai*** - Hydrogeomorphic Controls on Hydrologic Exchange Flows Dynamics within a Large Regulated River Corridor

**13:40-18:00 (H23H) *Matt Kaufman*** - The Dynamic Hyporheic Microbiome: A Flume Investigation into Hyporheic Microbial Community Response to Surface Channel Flow Perturbations

**13:40-18:00 (H23K) *Jesus Gomez-Velez*** - Transient recharge as a driver of water table and baseflow dynamics: Reconciling the Hubbert-Toth conceptual models

### Thursday

**13:40-18:00 (H43D) *Xingyuan Chen*** - Using Sensitivity Analysis and Data Assimilation to Improve Process Understanding of Hydrologic Exchange Flows in Dynamic River Corridors from km- to Reach Scales

### Friday

**8:00-12:20 (B51L) *Jie Bao*** - Three-Dimensional OpenFOAM-PFLOTRAN Coupled Model for Mechanistic Simulation of Hydrologic Exchange Flows in Varied Hydromorphic Settings

**8:00-12:20 (B51L) *Chris Strickland*** - Analysis of Spatial and Temporal Variability in River Stage and Area of Inundation Associated with Hydropeaking

## Oral Sessions Chaired:

### *Jesus Gomez Velez*

- **Session Number:** H31D
- **Session ID and Title:** [Groundwater–Surface Water Interactions: Identifying and Integrating Physical, Biological, and Chemical Patterns and Processes Across Systems and Scales I](#)
- **Date and Time:** Wednesday, 12 December 2018; 08:00 - 10:00; 10:20 - 12:20
- **Location:** Convention Ctr; 146B

### *Emily Graham*

- **Session Number:** B51A
- **Session ID and Title:** [#59755, From -omics to the Earth System: Bridging Scales to Improve our Understanding of Earth System Function and Response I](#)
- **Date and Time:** Friday, 14 December 2018; 08:00 - 10:00
- **Location:** Convention Ctr; 149AB

### *James Stegen, Emily Graham, Vanessa Garayburu-Caruso and Xingyuan Chen*

- **Session Number:** B53B
- **Session ID and Title:** [#59868, River Corridor Biogeochemical and Hydrologic Dynamics Across Scales I](#)
- **Session Type:** Oral
- **Date and Time:** Friday, 14 December 2018; 13:40 - 15:40
- **Location:** Convention Ctr; 150A

### *Xingyuan Chen*

- **Session Number:** H54A
- **Session ID and Title:** [#61964, Computational Methods and Tools for Model–Data Integration I](#)
- **Date and Time:** Friday, 14 December 2018; 16:00 - 18:00
- **Location:** Convention Ctr; 154AB

## Poster Sessions Chaired:

### *Jesus Gomez-Velez*

- **Session Number:** H23K
- **Session ID and Title:** [Groundwater–Surface Water Interactions: Identifying and Integrating Physical, Biological, and Chemical Patterns and Processes Across Systems and Scales V](#)
- **Date and Time:** Tuesday, 11 December 2018; 13:40 – 18:00
- **Location:** Hall A-C (Poster Hall)

### *James Stegen, Emily Graham, Vanessa Garayburu-Caruso and Xingyuan Chen*

- **Session Number:** B51L
- **Session ID and Title:** [#52641, River Corridor Biogeochemical and Hydrologic Dynamics Across Scales Posters](#)
- **Date and Time:** Friday, 14 December 2018; 08:00-12:20
- **Location:** Hall A-C (Poster Hall)

### *Emily Graham*

- **Session Number:** B53H
- **Session ID and Title:** [#56819, From -omics to the Earth System: Bridging Scales to Improve Our Understanding of Earth System Function and Response II Posters](#)
- **Date and Time:** Friday, 14 December 2018; 13:40 - 18:00
- **Location:** Hall A-C (Poster Hall)

### *Xingyuan Chen*

- **Session Number:** H51O
- **Session ID and Title:** [#49001, Computational Methods and Tools for Model–Data Integration Posters](#)
- **Date and Time:** Friday, 14 December 2018; 08:00 - 12:20
- **Location:** Hall A-C (Poster Hall)