Poster Session I
Monday, June 18, 6:00 - 8:00 PM

Lobby - National Center for Supercomputing Applications

Sessions:

Advancing the Prediction Skill and Efficiency of Flood Inundation Models

Coupled Atmosphere-Surface-Subsurface Models

General

High-Dimensional Computational Modeling of Rivers and Streams

Optimization and Uncertainty Analysis of Water Resources from a Systems Perspective

Advancing the Prediction Skill and Efficiency of Flood Inundation Models

1	Byunghyun	Kim		A fast numerical model for tsunami propagation and inundation
2	Shuangcai	Li	TITLE CORRECTION	A fast numerical model for tsunami propagation and inundation

High-Dimensional Computational Modeling of Rivers and Streams

3	SOM	DUTTA		Effects of Self-Stratification on Turbidity Currents: A Large Eddy Simulation approach
4	Roberto	Fernandez		Validation of a 2D depth-averaged rigid-lid model against velocity measurements for a high-amplitude meandering flume
5	Tatiana	Garcia		Three dimensional Lagrangial model for fate and transport of Silver and Bighead Carp eggs
6	Shadi	Aknooni		3D-Numerical Simulation of The Flow in Pool and Weir Fishways
7	Enrique	Vivoni	WITHDRAWN	Using High Performance Computing to Assess the Impact of Climate Change on the Hydrologic Respons

Coupled Atmosphere-Surface-Subsurface Models

8	Gautam	Bisht		Improving Surface and Subsurface Hydrologic Processes within the Community Land Surface Model (CLM): Coupling PFLOTRA
9	Steven	Carle		Linking Surface 3H to 3H-3He Groundwater Age by Gas-Liquid Phase Transport Modeling
10	Yanqing	Lian		Conduit Flow Modeling of Karst Systems in Guilin, China
11	Jens-Olaf	Delfs		AN INTER-COMPARISON OF TWO COUPLED HYDROGEOLOGICAL MODELS

General Session

12	Rachid	Ababou		Numerical Flow Experiments on Samples of Heterogeneous Unsaturated Porous Media:Upscaling of Permeability-Pressure Cu
13	Peter	Engesgaard		Full Tensor Representation of Anisotropy in Hydraulic Conductivity: Effects on simulating discharge of groundwater to lakes
14	Scott	Griebling		Adjoint Methodology to Simulate Stream Depletion due to Pumping in a Non-linear Coupled Groundwater and Surface Water
15	Gorti	Kasi Viswanadh		MORPHOMETRIC ANALYSIS AT MINIWATERSHED LEVEL USING GIS
16	Georgios	Kopsiaftis	WITHDRAWN	Region Growing Based Segmentation for the Estimation ofTransmissivity Zone Structure

17	Viviana	Morales	Numerical Modeling of Ogee Crest Spillway and Tainter Gate Structure of a Diversion Dam on Cañar River, Ecuador
18	Erica	Siirila	The effect of macro-kinetic solutes on human health risk with time-dependent exposure
19	Fred	Tracy	Effect of Woody Vegetation on Hydraulic Conductivity at Various Levee Systems Using Numerical Models
20	Dragan	Vidovic	Tabulation of saturation models
21	Jean-Régis	Angilella	The effect of mechanical dispersion on miscible density-driven instabilities in a Hele-Shaw cell with horizontal flow.
22	Francesco	Zovi	3-D versus 2-D modeling of natural aquifers: the experimental site of Settolo, Italy.
23	Arturo	Leon	Hydraulic Performance Graph-based model for unsteady flow simulations in topologically complex river networks

Optimization and Uncertainty Analysis of Water Resources from a Systems Perspective

24	Giovanna	Darvini	Evaluation of the dispersion processes in conditioned transmissivity field
25	Nathan	Gibson	Toward reduction of uncertainty in complex multi-reservoir river systems
26	Raul	Perulero Serrano	Delineation of hydrofacies in heterogeneous aquifers using the Truncated Plurigaussian method: a field case study in northern
27	John	Tauxe	Stochastic System-Level Modeling of a Hydropower System to Inform Operational Decision Making
28	Adriana	Piemonti	A SOCIOECONOMIC FRAMEWORK FOR INCORPORATING STAKEHOLDER PREFERENCES IN THE OPTIMIZATION OF DISTRIBUTED

Poster Session II
Tuesday, June 19, 6:00-8:00
Chancellor Ballroom, I-Hotel and Conference Center

Sessions:

Advances in Heterogeneous Computing for Water Resources

Advances in Nonlinear and Linear Solvers for Water Resources Applications

Applying High-Performance Computing for Scientific Discovery within Real-World Problems

CO2 Sequestration

Computational Ecohydrology

Data-driven Approaches for Water Resources Forecasting and Knowledge Discovery

General

Linking Observation and Prediction: Frameworks for Data Assimilation, Uncertainty Analysis and Valuing Information

Mixing and Reactions across Scales in Porous Media

Modeling and Analytics for Hydrologic Impact Assessments due to Climate Change

Multiphase and Pore-Scale Modeling: Challenges and Perspectives

Subsurface Biogeochemistry and Reactive Transport Modeling

Advances in Heterogeneous Computing for Water Resources

1	André R.	Brodtkorb		Shallow Water Simulations on Graphics Processing Units

Applying High-Performance Computing for Scientific Discovery within Real-World Problems

2	Kumar	Mahinthakumar	**WITHDRAWN**	Comparison of parallel solvers for large-scale groundwater contaminant transport simulatio
3	Glenn	Hammond		PFLOTRAN: next-generation petascale subsurface reactive flow and transport code

Advances in Nonlinear and Linear Solvers for Water Resources Applications

4	Melkamu A	Ali		Determination of discharge storage relation using numerical models for homogeneous 2D vertical hillslope
5	Ivan	Marin		Simulating Groundwater Flow in Fractured Porous Media using the Analytic Element Method
6	Fred	Tracy		Performance of Parallel Linear Iterative Preconditioners and Solvers from a Finite Element Model of Woody Veget
7	Tullio	Tucciarelli		A novel procedure for the solution of the heterogeneous anisotropic transport problem. Part 2: the time-depende
NEW	Christophe	Le Potier		A non linear correction and maximum principle for diffusion operators discretized using hybrid schemes

CO2 Sequestration

8	Uditha	Bandara		Pore-scale investigation of unstable viscous and capillary fluid displacement using Smoothed Particle Hydrodynam
9	Mingjie	Chen		Three-Dimensional Gas Migration Model for theLeroy Natural Gas Storage Facility

10	Brent	Cody		Optimization of Geological Carbon Sequestration using Semi-Analytical Leakage Models linked to a Multi-objective
11	Souheil	Ezzedine		Simulation of Supercritical Carbon Dioxide Leakages in Fractured Porous Reservoir
12	Kayyum	Mansoor		Assessing Impact of CO2 Leakage in Groundwater Aquifers in the Presence of Data Uncertainties
13	YAGNADEE	ORUGANTI		Improvements in Simplified Modeling of CO2 Geologic Sequestration
14	Qing	Tao		Optimization of Geothermal Circulation Coupling Surface Dissolution CO2 Storage
15	Philip	Winterfeld		A Novel Fully Coupled Geomechanical Model for CO2 Sequestration in Fractured and Porous Brine Aquifers

Multiphase and Pore-Scale Modeling: Challenges and Perspectives

16	Florian	Doster		Rate-dependent equilibrium saturation distributions through hysteresis in two-phase flow in porous media
17	Johan Olav	Helland		Semi-Analytical Computation of Three-Phase Capillary Entry Pressures and Arc Menisci Configurations in 2D Rock
18	Matthias	Herz		Coupled flow and transport with additional electrostatic interaction
19	Abhishek	Singh		Simulating Air-Entrapment in Low Permeability Mudrocks using a Macroscopic Invasion Percolation Model
20	Rusen	Sinir		Computer Generated Particle Arrangement for Pore Scale Modeling
21	Mark	Porter		TAXILA LBM: A LATTICE-BOLTZMANN SIMULATOR FOR SINGLE- AND MULTI-PHASE FLOW IN COMPLEX POROUS M

Mixing and Reactions across Scales in Porous Media

22	Jane	Chui		Understanding the Evolution of Miscible Viscous Fingering Patterns
23	Leonardo	Donado		MULTICOMPONENT REACTIVE TRANSPORT MODELING IN A 1D COLUMN
24	Tamir	Kamai		Modeling Bacterial Transport with Horizontal Gene Transfer in Porous Media
25	Daniel	McInnis		Agent-Based Simulation of Reactive Solute Transport
26	Amir	Paster		Incomplete Mixing and reaction in heterogeneous porous media: A particle based numerical study
27	Clément	Varloteaux		Pore-scale determination of macroscopic coefficients for macroscale modeling of reactive transport flow in porou
28	Hongkyu	Yoon		Quantifying the impact of viscosity variations induced by a chemical reaction on mixing efficiency in porous media
29	Jiang	Jianguo		A Novel Transition Rate Transformation Method For Solute Transport

Subsurface Biogeochemistry and Reactive Transport Modeling

30	Sina	Arjmand		Coupled Flow and Contaminant Transport Models for Toxic Elements Associated with the Marcellus Shale Flowba
31	Oscar	Garcia-Cabrejo		Application of flux corrected transport for multicomponent reactive transport modeling
32	Amalia	Kokkinaki		The effect of soil heterogeneity on dissolution and microbial kinetics during enhanced bioremediation of DNAPL s
33	Chuan	Lu		A Massively Parallel Fully-Coupled Fully-Implicit Solution To Reactive Transport in Porous Media Using Preconditio
34	Reza	Zolfaghari		Multi-component Reactive Transport Modeling of PCE Degradation at the Pilot Scale Constructed Wetland Bitterfel
35	Ming	Ye		Uncertainty qualification of biogeochemical models for ethanol-stimulated uranium (VI) reduction in subsurface s
36	Jarbas	Miranda		SIMULATING NITRATE AND POTASSIUM ION TRANSPORT FOLLOWING THE APPLICATION OF VINASSE TO LABORATO
37	Yuanyuan	Liu		Transport of Cryptosporidium parvum Oocysts in a Silicon Micromodel
38	Matthew Farthing			A Generic Reaction-Based BioGeoChemical Simulator

General

39	Stacy Howington		A Multi-dimensional Particle Tracking Computer Program for Environmental Research and Study

Linking Observation and Prediction: Frameworks for Data Assimilation, Uncertainty Analysis and Valuing Information

40	Ryan	Bailey	Estimating Hydraulic Conductivity Geostatistical Parameters using An Iterative Ensemble Smoother Scheme
41	David	Bailly (Rachid Ababou presents)	Statistical reconstruction of subsurface hydro-meteorological and crack aperture time series based on residual aut
42	Xiao	Chen	Hybrid Uncertainty Quantification Techniques for Reactive Transport Applications
43	Evan	Coopersmith	Machine Learning Algorithms of Soil Drying
44	Daniel	Erdal	Model calibration with external error models
45	Dylan	Harp	Model analysis and decision support (MADS) for complex physics models
46	Graciela de	Herrera	SENSITIVITY ANALYSIS OF PARAMETER AND STATE ESTIMATION OF GROUNDWATER FLOW AND TRANSPORT MOD
47	Sanjeev	Jha (Barbara Minsker presents)	A geostatistical approach to estimating river bathymetry in near real-time.
48	John	Van Esch	Modeling Groundwater Flow though Dikes for Real Time Stability Assessment
49	Mohamad	El Gharamti	A Dual Strategy for Ensemble Kalman Data Assimilation with a Coupled Subsurface Contaminant Transport Model

Data-driven Approaches for Water Resources Forecasting and Knowledge Discovery

50	Firas	Saleh (Nicolas Flipo presents)	In-river Rating Curves Interpolation for a Better Assessment of Stream-Aquifer Exchanges in a Regional Distributed
51	Tianfang	Xu	Improving Groundwater Flow Model Prediction Using Complementary Data-Driven Models
52	Ci	Yang	Modeling Stream Flow Extremes under Non-Time-Stationary Conditions

Modeling and Analytics for Hydrologic Impact Assessments due to Climate Change

53	Etienne	Bresciani	Theoretical analysis of topographical, geological and climatic controls on the groundwater system
54	Devashish	Kumar	Evaluating and comparing current and next generation climate model-simulated precipitation mean states and ext
55	John	Van Esch	Finite Element Method for Single-phase and Multi-phase Partly Saturated Subsurface Flow
56	Jorge	Vélez (Olga Ocampo presents)	Hydrologic Impact Assessment due to Climate Change at Chinchina River Basin, Colombia

Computational Ecohydrology

57	Natalie	Ceperley	Use of a Distributed Sensor Network to Parameterize a Model of Flows between the Soil, Vegetation, and Atmosp
58	Chris	Frans (by Erkan Istanbulluoglu)	Deciphering the role of climate and land use on regional hydrologic trends: A modeling study of the upper Mississi
59	James	Gentile	Hydrological Aspects of an Agent-Based Model for Malaria Transmission
60	Luis	Mendez-Barroso (by Tiantian Xia	Emergence of Landscape Ecohydrological Patterns from Merging Remotely-Sensed Vegetation Dynamics and a Par
61	Joerg	Rings (by Jasper Vrugt)	Optimization of hydrological parameters of conifer trees in the Southern Sierra Nevada
62	Thomas	Volo	Modeling Soil Moisture and Plant Stress under Irrigated Conditions in Semiarid Urban Areas