



This meeting is a forum for communications between the Consortium academic community and the corporate sponsor community, research collaborators and "friends" of the Consortium who provide additional insights and links to relevant research in other parts of the world. It also provides opportunity for graduate students to acquire presentation experience in front of an audience with diverse experience and interests.

NOTE: Wireless internet access will be available in Rozanski Hall. Please do not leave valuables in cars in the parking lot.

Presenters Please Allot 3-5 Minutes of your Time Slot for Questions

Day 1: Tuesday June 5th Presentations in 103 Rozanski Hall, UG

7:00 - 8:15 **BREAKFAST: Coffee, decaf, tea, juice, fruit, assorted pastries, yogurt, granola, etc.**

7:00 - 8:15 **Registration (Rozanski Hall Concourse)**

8:15 - 8:30 B. Parker (UG) Welcome to the University of Guelph and G360

Theme 1: High Resolution and Real-time Monitoring Part 1

Moderator: R. Devlin (KU)

8:30 - 8:40 Moderator Overview

8:40 - 9:00 R. Devlin (KU) Importance of In-Situ Direct Flux Measurements to Inform Contaminant Hydrogeology

9:00 - 9:15 J. Munn (UG) Measuring Changes in Groundwater Flow Under Different Hydraulic Conditions with A-DTS

9:15 - 9:35 M. Annable (UF) Florida Passive Flux Meter: Sediments, Granular Aquifers, Fractured Rock

9:35 - 9:55 C. Steelman (UG) Seasonal Temperature Profile Dynamics in Sealed Bedrock Boreholes

10:00 -10:20 BREAK: coffee, decaf, tea, apple and orange juice

Theme 1: High Resolution and Real-Time Monitoring Part 2

Moderator: J. Ham (CSU)

10:20 - 10:30 Moderator Overview

10:30 - 10:50 J. Ham (CSU) The Internet-of-Monitoring (IoM): How the Internet-of-Things could Revolutionize Groundwater and Vadose-Zone Research

10:50 - 11:05 J. Kennel (UG) Insights about Fractured Bedrock from Barometric, Earth Tide and Earthquake Responses

11:05 - 11:25 T. Sale (CSU) Status of Sensor Based IoT Groundwater Monitoring

11:25 - 11:45 Discussion

12:00 - 1:00 GROUP LUNCH

Theme 2: Upstream Oil & Gas: Water Quality and Methane

Moderator: J. Blotevogel (CSU)

1:00 - 1:10 Moderator Overview

1:10 - 1:25 T. Osorono (KU) High-Resolution Characterization of Aquifer Structure using Direct Groundwater Velocity Measurements

1:25 - 1:40 L. Halwa (UG) Alberta Field Research Station for CCS: Characterizing the Origin and Mobility of Methane in Petroliferous Sedimentary Rock

1:40 - 1:55 O. Forde (UBC) Hydrogeochemical Response to a Controlled Natural Gas Release in the Borden Aquifer, Ontario, Canada

1:55 - 2:10 M. McLaughlin (CSU) Toxicological and Chemical Assessment of Water Quality Downstream of NPDES Oil and Gas Produced Water Discharges

2:10 - 2:30 Discussion

2:30 - 2:50 BREAK: Coffee, decaf, tea, juice, cheese, dried fruit, crackers and baguette

Theme 3: Compound Specific Isotope Analysis and Environmental Chemistry

Moderator: D. Hunkeler (UNINE/CHYN)

2:50 - 3:00 Moderator Overview

3:00 - 3:20 D. Hunkeler (UNINE/CHYN) Advances in Chlorine Compound-Specific Isotope Analysis (CSIA) for Contaminated Site Characterization

3:20 - 3:35 D. Bouchard (Sanexen) Diagnostic Tools for Remediation Performance Assessment of Petroleum Hydrocarbon Contaminated Sites

3:35 - 3:50 P. Wanner (UG) Identification of Degradation Pathways of Chlorohydrocarbons in Saturated Low Permeability Sediments using Compound-Specific Isotope Analysis

3:50 - 4:05 P. Lojkasek Lima (USP) Detailed Characterization of a Contaminant Vertical Profile in a Weathered Crystalline Fractured Bedrock - Jurubatuba, São Paulo, Brazil

4:05 - 4:25 J. Longstaffe (UG) Improved Characterization of NAPLs using Non-Targeted NMR Spectroscopy as a Screening Tool

4:25 - 4:45 Discussion

4:45 - 4:55 Beth Parker Evening Summary and Closing Remarks

END OF DAY 1

5:00 - 6:00 - Cash Bar @ Science Complex Building, UoG

6:00 - 9:00 - Group Dinner @ Science Complex Building, UoG



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Day 2: Wednesday June 6th Presentations in 103 Rozanski Hall, UG

Consortium Business Meeting (By Invitation Only)

Room: Rozanski Hall Room 106

7:00 - 7:15 BREAKFAST for Business Meeting

7:15 - 10:00 Consortium Business Meeting

Day 2 Program Presentations Begin:

9:00 - 10:00 BREAKFAST: Coffee, decaf, tea, juice, pastries, smoothies, fruit

Theme 4: Managing Industrial Contaminant Plumes Affecting Water Supply Aquifers

Moderator: J. Meyer (UG)

10:00 - 10:10 Moderator Overview

10:10 - 10:30 J. Meyer (UG) Monitoring Well Design: Measurement Bias and Need for Improved Performance

10:30 - 10:45 C. Skinner (UG) High-Resolution Hydrogeological Characterization to Evaluate Municipal Supply Well Vulnerability in a Fractured Dolostone Aquifer

10:45 - 11:00 S. Jacobson (UG) Contaminant Mass Flux Measurement in a Karstic Water Supply Aquifer in Central Florida, USA

11:00 - 11:15 J. Olesiuk (UG) Assessment of TCE Source Zone and Plume Evolution in a Fractured Dolostone Aquifer Due to Natural Attenuation Processes

11:15 - 11:30 B. Ndirangu (UG) Evaluating Pump & Treat Performance for Upgradient NAPL Source Zone Mass Removal in a Fractured Rock Aquifer

11:30 - 12:00 Discussion

12:00 - 1:00 GROUP LUNCH

Theme 5: Data Analysis and Modeling

Moderator: J. Cherry (UG)

1:00 - 1:10 Moderator Overview

1:10 - 1:30 F. Manna (UG) Quantification of Groundwater Recharge to Inform Solvent Plume Modeling in Sandstone

1:30 - 1:50 E. Frind (UW) Delineation of Well Capture Zones under Uncertainty: Focus on Fractured Systems

1:50 - 2:10 P. Martin (MS) Ins and Outs of Particle Tracking

2:10 - 2:30 F. Day-Lewis (USGS) Geoelectrical Assessment of Parameters Controlling Back Diffusion: Experimental Results, Mechanistic Modeling, and Data Analysis Procedures

2:30 - 3:00 Discussion

3:00 - 3:20 BREAK: Coffee, tea, juice, crudite platter, gourmet cookies

Theme 6: Evolving from Site Restoration to Long Term Management: A Conversation

3:20 - 3:40 B. Parker (UG) Advancing Groundwater Restoration within The University Consortium: Linking Quantitative to Qualitative

3:40 - 4:10 D. Lambert and A. Rabideau (UB) Re-evaluating the State of Groundwater Restoration using Oral History

4:10 - 4:40 Discussion

4:40 - 4:50 Beth Parker Evening Summary and Closing Remarks

END OF DAY 2

5:00 - 6:00 - Cocktail Reception @ Science Complex Building, UoG; Theme 6 Discussion continues with Open Mic Format

6:00 - 9:00 - Group Dinner @ Science Complex Building, UoG



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Day 3: Thursday, June 7th Presentations in 103 Rozanski Hall, UG

7:00 - 8:00 **BREAKFAST: Coffee, decaf, tea, juice, fruit, cereal w/milk, yogurt, granola, etc.**

Theme 7: Enhanced Remediation

Moderator:	S. Mahendra (UCLA)	
8:00 - 8:10	Moderator Overview	
8:10 - 8:30	S. Mahendra (UCLA)	Biodegradation-Sorption Treatment Trains for 1,4-Dioxane and Chlorinated Solvent Mixtures
8:30 - 8:50	E. Pensini (UG)	Reactive Polymer Gels for the In-Situ Treatment and Immobilization of Cr(VI)
8:50 - 9:10	J. Blotevogel (CSU)	Recent Advances in Bioelectrochemical Treatment of Persistent Contaminants
9:10 - 9:25	M. Ben-Israel (UG)	Characterization of Processes at Work in Phytoremediation of Toluene in Shallow Bedrock using Hybrid Poplars
9:25 - 9:40	Discussion	

Theme 8: Coring and Sampling Methods

Moderator:	R. Johnson (OHSU)	
9:40 - 9:50	Moderator Overview	
9:50 - 10:10	R. Johnson (OHSU)	Predicting In-Situ Reduction Rates using Cryogenically-Collected Core Samples
10:10 - 10:25	M. Olson (Trihydro/CSU)	Cryogenic Core Collection: Remediation Performance Assessment Following Soil Mixing with ZVI and Bentonite
10:25 - 10:40	S. Chapman (UG)	Evaluation of Overburden Coring Methods to Assess Measurement Effects and Biases: Insights from Three Sites with Contrasting Conditions
10:40 - 10:55	Discussion	

10:55 - 11:10 **BREAK: coffee, decaf, tea, apple and orange juice**

Theme 9: Sediments

Moderator:	Andrew Binns (UG)	
11:10 - 11:20	Moderator Overview	
11:20 - 11:40	A. Binns (UG)	Sediment Transport and Morphological Adjustments in Rivers: Implications for Contaminant Redistribution
11:40 - 11:55	L. Tochko (CSU)	An Updated Site Conceptual Model for Oleophilic Bio-Barriers
11:55 - 12:10	O. Bojan (CSU)	Petroleomics - Modern Analytical Tools for Hydrocarbon Analysis
12:10 - 12:25	Discussion	
12:25 - 12:35	Beth Parker	Announcements, Closing Remarks and Thank You

LUNCH: Boxed Lunches To Go

END OF MEETING

Abbreviations

CSU	Colorado State University
KU	University of Kansas
MS	Matrix Solutions
OHSU	Oregon Health & Science University
UB	University at Buffalo The State University of New York
UBC	University of British Columbia
UCLA	University of California Los Angeles
UF	University of Florida
UG	University of Guelph
UNINE/CHYN	The Centre for Hydrogeology and Geothermics of University of Neuchâtel
USGS	United States Geological Survey
USP	University of São Paulo
UW	University of Waterloo