

Ontario Research Fund “Sustainable Bedrock Water Supplies for Ontario Communities”
 Annual Progress Meeting: February 28, March 1 2013
 University of Guelph, OAC Centennial Arboretum Centre
 Presenters Please Allot 3-5 Minutes of your Timeslot for Questions

Day 1: Thursday February 28, 2013

8:30 – 8:40 Welcome and Opening Remarks

Session 1: Overburden Geology and Vadose Zone Hydrology Moderator: Emmanuelle Arnaud

8:40 – 9:05 Tony Endres, UW Overview of geophysical methods for quantifying vadose zone flow characteristics and spatial variability of recharge in glaciated landscapes

9:05 – 9:20 Alicia Benyon, UW Hydrogeophysical monitoring of the Quaternary outwash at the Arkell Research Station (ask Tony or Alicia to provide a title with more of a statement regarding findings or implications)

9:20 – 9:45 Jim Smith, MAC Vadose zone processes and characteristics facilitating recharge and contaminant transport affecting underlying bedrock aquifer vulnerability

9:45 – 10:10 Andrew Trapp, MAC Evaluate the hydrostratigraphy of the Guelph overburden (quaternary deposits) to identify and map higher priority vulnerable areas

10:10 – 10:35 **Break**

Session 2: Overburden Geology and Vadose Zone Hydrology (Continued) Moderator: Aaron Berg

10:35 – 11:00 John Lindsay, UG *Mapping depressions in the Paris Moraine*

11:00 – 11:25 Emmanuelle Arnaud, UG Quaternary geology of the Paris Moraine and its hydrogeologic function

11:25 – 11:40 Aaron Berg, UG Evaluation of surface hydrological budgets and recharge features using remote sensing: Progress and next steps

11:40 – 11:55 Gary Parkin, UG Precipitation and Soil Hydrology: Trends and Rate of Occurrence of Normal Years

11:55 – 12:15 **Discussion**

12:15 – 1:00 **Lunch** The Arboretum

Session 3: Groundwater Contamination Threats Moderator: Bahram Gharabaghi

1:00 – 1:25 Bahram Gharabaghi, UG Groundwater and surface water susceptibility to non-point source contaminants and mitigation strategies for improved water resource protection

1:25 – 1:40 Anna Best, UG Non-point source pollutants in Quaternary glacial deposits

1:40 – 2:00 Carlos Maldaner, UG Continued Investigations at a Fractured Rock Site Contaminated with Metolachlor and TCE

2:00 -2:25 Phil, OMAFRA *Water use and conservation initiatives in agriculture*

2:25 - 2:40 Amy Allen, UG Anthropogenic tracers to evaluate contamination threats to bedrock groundwater

2:40 – 3:00 **Discussion**

3:00 – 4:00 **Break** Poster session and breakout discussions *Need to clear room to allow for set up for Darcy Lecture*

4:00 - 5:00 Dave Rudolph

Darcy Lecture - Managing Groundwater Beneath the

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Agricultural Landscape

5:00 – 6:00	Cash Bar	The Arboretum (Poster Displays)
7:00 – 8:30	Group Dinner	For those interested, a group reservation will be made off-site. The cost of dinner will not be covered by the organizer.

Day 2: Friday March 1, 2013

<u>Session 4: Groundwater Contamination Threats (cont'd)</u>		Moderator: Sarah Dickson
8:30 – 8:50	Sarah Dickson, MAC	The relative effects of aperture field geometry, surface properties and the aperture to particle ratio on particle transport in single, saturated fractures
8:50 – 9:05	Sean Cianflone, MAC	Understanding the effects of fracture roughness on particle transport through two-dimensional simulations using particle tracking and the Navier-Stokes equation
9:05 – 9:20	Graham Seggewiss, MAC	The transport of bacteriophage in single, saturated dolomite fractures
9:20 – 9:40	<i>Monica Emelko, UW</i>	<i>Pathogen Transport in Natural and Engineered Systems</i>
9:40 – 10:00	Ed McBean, UG	Leakage Potential to Groundwater from Deteriorated Sewer Infrastructure
10:00 - 10:15	<u>Oana Goli</u> , UG	Application of the Waterloo Membrane Sampler for stable isotope analysis
10:15 – 10:30	Break	
<u>Session 5: Surface Water, Groundwater Interfaces</u>		Moderator: Andrea Bradford
10:30 – 10:45	Sarah Ash, UG	Innovative Stormwater Management Practices: Addressing Ecological Degradation in the Sheridan Creek Watershed
10:45 – 11:10	Andrea Bradford, UG	Managing Urban Impacts on Wetlands: Past failures, current initiatives and future directions
11:10 – 11:25	Emma Garden UG	Flow Dependencies of Benthic Macroinvertebrates
11:25 – 11:45	Colby Steelman, UG	Detection and Delineation of Shallow Fracture-Flow Systems within a Bedrock River Environment using Ground-Penetrating Radar and Electromagnetic Induction
11:45 – 12:10	<i>Ramesh Rudra, UG</i>	<i>Research on soil erosion and impacts to Ontario streams— (overview of insights from UoG research program)</i>
12:10 – 1:15	Lunch: The Arboretum	Scientific Advisory Committee Meeting (Committee & Principal Investigators only)
<u>Session 6: Bedrock Aquifer Characterization</u>		Moderator: Ramon Aravena
1:15 – 1:35	Ramon Aravena, UW	A geochemical characterization of groundwater in the Guelph aquifer system
1:35 – 1:50	Juliana Camillo, UW	Application of compound specific isotopes at a contaminated site in Guelph
1:50 – 2:05	Tom Coleman, UG	Application of fiber optic distributed temperature sensing for characterizing discrete fracture flow

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2:05 – 2:25	Jana Levison, UG	Simulating groundwater discharge to bedrock springs with climate change scenarios
2:25 – 2:40	Paul Trudell, UG	Hydraulic characteristics of the Guelph Formation using High Resolution Spatial and Temporal head measurements from FLUTe MLS network
2:40 – 3:05	John Cherry, UG	Hydraulic Testing in Bedrock Aquifers for T and S estimation using various methods (FLUTe T profiling, improved straddle packer testing and hydraulic response to Earth Tides and Seismic events)—state of the science.
3:05 – 3:30	Beth Parker, UG	BAFF: The G360 Bedrock Aquifer Field Facility for International Collaborative Research
3:30 – 4:00	Discussion	Evidence for rapid groundwater flow in the Silurian dolostone aquifer in the Guelph-Cambridge area

END OF MEETING

Abbreviations:

Guest speakers

UG	University of Guelph
UW	University of Waterloo
RMOW	Regional Municipality of Waterloo
MAC	McMaster University