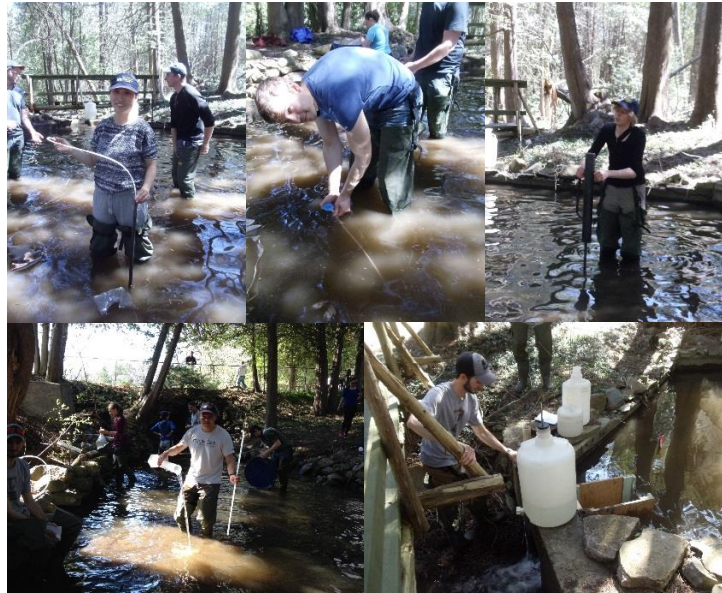


Spring School 2016: Hydrogeology Field course

From end of April (25.04) to middle of May (13.05), 9 RTG PhD-students went to the University of Waterloo, Canada for attending RTG Spring School 2016 “EARTH 671 Field Methods in Hydrogeology course”.

It was an international hydrogeology course. Students were from Germany, Italy, and Ontario and Ottawa of Canada. 9 RTG PhD-students were distributed to 9 different groups for cooperation and communications with students who had different background. The course included lectures and also sampling in the field.



Course objectives

This field course contained 6 parts: 1) slug tests and unsaturated zone; 2) aquifer test and vulnerability; 3) fractured rock and geophysics; 4) groundwater/ surface water interaction and stream gauging; 5) organic and inorganic sampling and 6) some hydrogeology models and data management tools. There were lectures on the basic knowledge and information before field work of each part and tutorials and assignments after field work. Through this course it aimed to get the following knowledge, skills and experiences:

- How to do slug test, logging monitoring well and piezometer installations. How to calculate hydraulic conductivity, construct water table map and steady state flownet, and establish stratigraphy;
- How to do pumping test and recovery test, calculate aquifer capacity and vulnerability;
- Investigate contaminated sites in fractured sedimentary rock and how to analyze GPR data;
- How to install mini-piezometer and seepage meter, calculate seepage flux, horizontal and vertical conductivity, and determine surface-water flow;
- How to do organic and inorganic sampling;
- Some information about HydroGeoSphere, Modflow and Waterloo Hydrogeologic.

Short summary

For the first week, Martin Ross gave lecture on hydrostratigraphy. Will D. Robertson, Brewster Conant and Bob Ingleton presented slug tests, transducers, multilevels, logging and coring. Emil O. Frind gave presentation on flownet. Tony Endres gave lecture on geophysics and led students to do field work on north campus. Edward Sudicky gave a brief introduction of HydroGeoSphere model. For the second week, students traveled to Guelph for lecture and field work on fractured rock on Monday. On Tuesday, David L. Rudolph gave introduction on

pumping test. Students did pumping test and recovery test under the supervision of Will D. Robertson. On Thursday, Carol J. Ptacek gave lecture on inorganic sampling. Wayne Hesch introduced Modflow model and WaterlooHydrogeologic software. On Friday, all of the students were divided into two big groups to do groundwater and surface water interaction field work in Lake Marie supervised by David Lee. For the last week, Emil O. Frind and Tony Endres gave tutorials on aquifer sustainability and geophysics on Monday. Students did inorganic sampling on Tuesday. The last three days were for assignments. Finally the assignments and final report were submitted until Friday.

Besides the field course some of RTG PhD-students went to Matrix Solutions to meet with Paul Martin to discuss hydrosystem modelling, and some students talked with their Canadian supervisor on the PhD research. This field course gave a few field methods on hydrogeology. Lectures on basic knowledge were presented and there were enough time for hands-on experiments. This course also enabled students to do team work with international students.