HydroGeoSphere Workshop in Waterloo, Canada, October 2012

Our group of 13 PhD students and researchers attended a workshop on coupled hydrogeological modelling using HydroGeoSphere during the first week of October. The HydroGeoSphere training took place at the University of Waterloo, Canada and was performed by Ed Sudicky, Rob McLaren, Young-Jin Park and Hyoun Tae Hwang.

The goals of the workshop were:
- To get familiar with the numerical hydrogeological model HydroGeoSphere, a three-dimensional numerical model describing fully-integrated subsurface and surface flow and solute transport. HydroGeoSphere is an essential tool for our research group, and will be used to improve our understanding of hydrosystems, including the spatial and temporal variation of water quality and quantity.
- To support interactions between personnel from all participating universities and to share ideas and future strategies.
- To provide an opportunity for the PhD students to meet their Canadian supervisors, which was used to discuss their progresses to date as well as planned research activities, particularly related to prospective research stays in Canada. This direct contact is expected to improve the research work of the PhD students considerably.

Description of the itinerary:
The journey to Toronto, Canada started on Saturday, September 29th. As Toronto is certainly a very beautiful place in the world, our group seized the opportunity to visit the city on Sunday and was mesmerized by hundreds of sky scrapers in the heart of the city, museums like the Royal Ontario Museum, numerous parks and cultural diversities. On Sunday evening we headed towards Waterloo, located about 100 km westwards from Toronto.

The four-day workshop at the University of Waterloo started early in the morning on October 1st. Ed Sudicky, one of the main developers of HydroGeoSphere gave detailed information on conceptualization, attributes, operation and input options during the entire week. He also introduced the theory of flow and governing equations, flow coupling and boundary conditions. Rob McLaren, also one of the main developers of HydroGeoSphere, actively interacted with the participants and helped us to simulate some scenarios using the software. Furthermore, an introduction was given on the use of Tecplot for visualization of the results. One session involved the parallel version of HydroGeoSphere; including a demonstration of the necessary setup.

On Friday, the PhD students presented the status of their PhD projects, followed by discussions about future plans and strategies. Additional meetings between the PhD students and their individual advisors also were conducted.

Whereas most participants returned back to Germany after the workshop, three PhD students departed to Quebec City, famous for its architecture and distinct European feel. Here, the objective was to meet with René Therrien from the Université Laval. Due to René's expertise in reactive transport modeling, the students were particularly interested on possibilities of integrating reactive transport model and microbial enhanced biodegradation into HydroGeoSphere. During the following days they had the opportunity to work under the guidance of René and to meet several researchers to discuss possibilities of collaboration in the future.

All in all, the workshop was a success and lot of ideas were exchanged between Tübingen/Hohenheim and Canada. We acquired a better knowledge of HydroGeoSphere - its special features, capabilities as well as its limitations. This will help us to develop our own hydrosystem models. Furthermore, after the meeting with our Canadian supervisors we now have better visions on our future work.