Short Course #1

Modeling Hydrodynamics and Water Quality of Pit Lakes
A Hands-on Introduction to the Open Source Software PITLAKQ

Modelling pit lakes is a complex task. The open source software PITLAKQ (http://www.pitlakq.com/) allows one to model hydrodynamic processes in pit lakes including temperature stratification. Furthermore, transport of constituents and a variety of chemical and biological reactions can be modelled. PITLAKQ is based combining the abilities of:

- CE-QUAL-W2 (http://www.cee.pdx.edu/w2/), and
- PHREEQC (http://wwwbrr.cr.usgs.gov/projects/GWC_coupled),

It provides new features such as distributed groundwater exchange, treatment of the lake water with chemicals, and accounting for the impact of bank erosion on lake water quality.

This 2-day workshop introduces PITLAKQ with a hands-on tutorial of setting up and running models. It covers:

- Setting up and running a hydrodynamic model
- Interpreting and presenting hydrodynamic results
- Setting up and running a water quality model
- Interpreting and presenting water quality results
- Varying the water quality processes

PITLAKQ solves complex problems and offers more than can be covered in two days. The presenter will be glad to answer questions that go beyond the content described above. Each participant will receive a comprehensive course handout and the PITLAKQ software.

Participants should have modeling experience with CE-QUAL-W2, PHREEQC or comparable models. They also need to have basic knowledge of important pit lake processes. After the course, participants will be able to set up and run models with PITLAKQ.

Instructor

Dr. Mike Müller is the author of PITLAKQ and has used this software to model a variety of pit lakes. He is CEO of hydrocomputing (http://www.hydrocomputing.com/) and has many years of modeling experience with a variety of hydrological and water quality models.

Anything Required of Participants

Participants should bring their own laptop computer with a Windows operating system. PITLAKQ also runs on Linux, but the setup is currently more complicated. You will receive a copy of the modeling software at the beginning of the workshop.

CEUs

1.3 Continuing Education Units (CEUs) will be offered for this course.