

# WaterSmart

## The expected results



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Outotec

ehp



**BOLIDEN**



Tekes

Green  
Mining

## Goals

- To improve awareness of actual quantities of water and water balances
- To give possibility to forecast water masses in future
- To promote the anticipation and management of the amounts of water
- To improve risk management



## **Preliminary results (WP1)**

### **Guidelines for better implementation of the best practices in mine water management - VTT**

- Importance of early planning and pro-active approach
- Attention to measuring and monitoring practices
- Modelling tools and system dynamics platforms to systematically integrate all water balance components (groundwater, surface water, infiltration, precipitation, mine water facilities and operations etc.) are presented
- Use of data-driven algorithms for continuous updating and calibrating model parameters
- Water management procedures in the different phases of the mine life cycle

A draft exists

## Expected Results (WP2)

### Data collection and monitoring - GTK

- Implementation of monitoring tools at critical points in the mine water streams and making these a part of the automatic control system
- Examine the required measurements and there quality



Picture EHP-Tekniikka Ltd

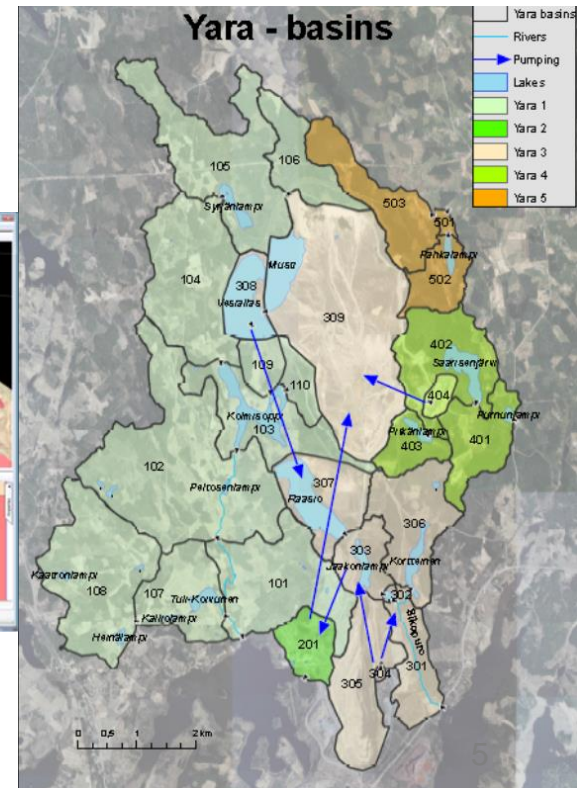
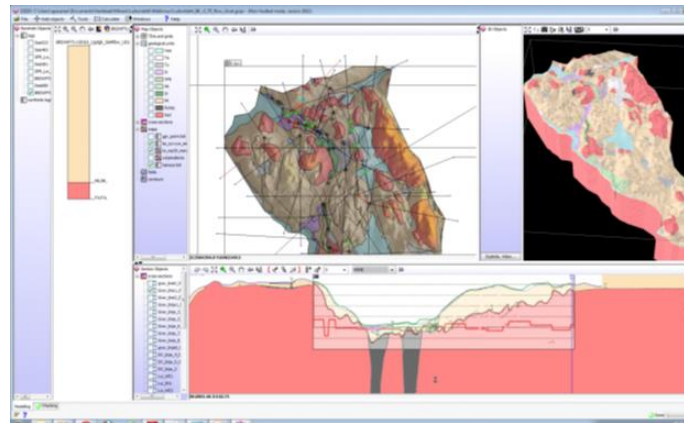
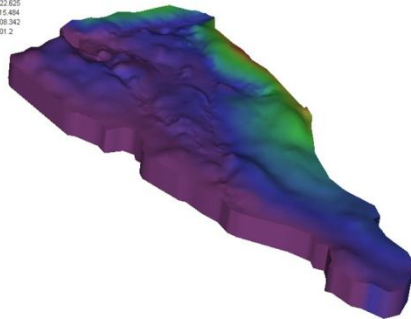
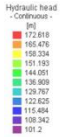


# Expected Results (WP3)

## Tools and development of water balance modeling - SYKE

- A comprehensive mine site-wide water balance model
  - WSFS, Hydrological Modeling and Forecasting System is developed for mining areas
  - Commercial Ground water models are applied and integrated

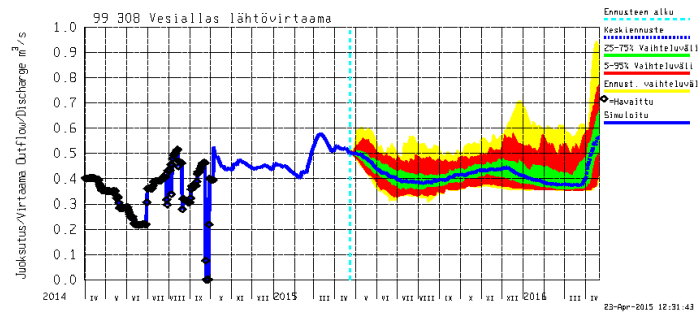
Hydraulic head  
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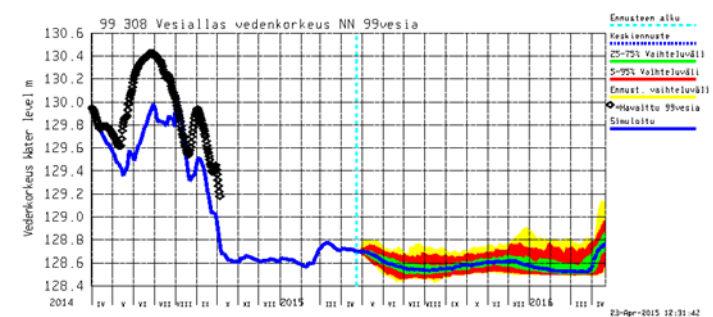
# Expected Results (WP4)

## Management and control of mine site waters - SYKE

- Integration of the hydro-meteorological forecasts, real-time monitoring data and models with a mine site specific process control solution
- The solution can also be utilized without the control solution to create scenarios that indicate the effect of the forecasted data on the water amount in the mine site.



Discharge forecast



Water level forecast