



LUT  
Lappeenranta  
University of Technology

iMineWa

Tekes



Workshop on Mine Water Management and Remediation  
April 24th to 27th 2018

# From Ground Water to Mine Water

## Programme

### April 24

Introduction  
Historical Background  
Mining Methods  
Technical Aspects

### April 26

Mine Water Geochemistry  
Flooding Prediction  
Mine Water Treatment

### April 25

Water in Mines  
Mine Dewatering  
Mine Flooding

### April 27

Practical Applications

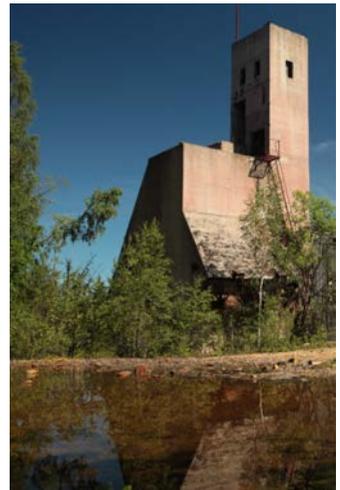
## Costs

<b>Regular</b>	850 €	IMWA/FBW members 650 €
<b>Students</b>	300 €	IMWA/FBW members 250 €
<b>iMineWa members</b>		one free participation per partner

## Theme

In the last decades, worldwide efforts have been conducted to understand acid mine drainage and its abatement. Yet, passive and active treatment methods as well as enhanced natural attenuation are still not fully understood and need further investigations. This workshop will introduce mine water issues in general and treatment methods for contaminated mine water and waste management within the EU legislative framework.

During the introduction, the participant will learn basic geochemical mechanisms that can be observed in mines and result in ground or surface water contamination. Simple case studies shall exemplify which environmental impacts are caused by mining and how the hydrogeological and ecological surroundings might be altered and can be limited. Usually, hydrogeologists and non-mining engineers are not familiar with the mining terms. This is also true for the situation underground, especially if it comes to historic mining and to acid mine drainage. Therefore, the first part of the workshop aims to provide a general understanding of the terms and conditions in a mining environment.



To work a mine on a medium or long term basis, the mine workings have to be kept dry. The most important mine pump types will be described and which drainage technologies might be necessary.

After mining ceases, the mine workings are usually flooded. To predict or calculate mine flooding, it is necessary to understand the hydrogeological situation on-site. Several theoretical methods and case studies will be described and discussed along with proper sampling technic.

To develop the most advantageous treatment strategy, the temporal and spatial development of mine flooding have to be understood. Similarly, it is necessary to understand the chemical development of mine flooding. Based on that data, a conceptual model and a treatment option can be planned. The last part of the workshop will give an introduction to mine water treatment.

Part of the workshop will focus on the waste characterization within the EU legislative framework.



## About the lecturer

Prof. Dr. habil. **Christian Wolkersdorfer** has 27 years of professional experience. He is a mining and geothermal hydrogeologist specialized on mine water tracer tests, mine water geochemistry and remediation. Christian Wolkersdorfer currently holds two research chairs in South Africa and Finland: South African Research Chair for Acid Mine Drainage Treatment at Tshwane University of Technology in Pretoria and Finnish Distinguished Professor for Mine Water Management at Lappeenranta University of Technology in Mikkeli.

A world leader in mine water remediation and management projects, Dr. Wolkersdorfer has conducted and initiated several projects related to mine water and hydrogeology in various countries. Dr. Wolkersdorfer is also the Technical Editor for the Journal "Mine Water and the Environment" as well as the President of the International Mine Water Association (IMWA), the Industry-Academia coordinator for the Mine Water Division of WISA (Water Institute of Southern Africa) and he is a member of the Global Alliance.

## Recommended Literature

- *Brown, M., Barley, B. & Wood, H. (2002):* Minewater Treatment Technology, Application and Policy. 500 p., London (IWA Publishing).
- *Geller, W., Schultze, M., Kleinmann, R. & Wolkersdorfer, C. (2013):* Acidic Pit Lakes – The Legacy of Coal and Metal Surface Mines. 525 p., Heidelberg (Springer).
- *Jambor, J. L., Blowes, D. W. & Ritchie, A. I. M. (2003):* Environmental Aspects of Mine Wastes. In: Raeside, R.: Short Course Series Volume 31. 430 p., Waterloo, Ontario (Mineralogical Association of Canada).
- *Wolkersdorfer, Ch. (2008):* Water Management at Abandoned Flooded Underground Mines – Fundamentals, Tracer Tests, Modelling, Water Treatment. 466 p., Heidelberg (Springer).
- *Younger, P. L., Banwart, S. A. & Hedin, R. S. (2002):* Mine Water Hydrology, Pollution, Remediation. 464 p., Dordrecht (Kluwer).

## Registration

Registration is requested by e-mail until April 1st 2018. With the confirmation of your registration you will receive an invoice and further information.

## Participant Cancellation

In the case of participant cancellation, full refund will be provided with written notification prior to April 1st 2018. Cancellation before April 15th will result in a 50% handling charge. There will be no refund after April 15th, 2018.

## Venue

The workshop will take place at the Laboratory of Green Chemistry on the Mikkeli/Finland Campus of Lappeenranta University of Technology. Details will be provided after registration.



## Accommodation

Accommodation and meals are not provided in this workshop. Both are the responsibility of the participant. We ask the participants to organise their own accommodation reservations.

### Course organizer recommends three hotels in Mikkeli for your accommodation:

#### **Sokos Hotel Vaakuna Mikkeli**, at city center:

Address: Porrassalmenkatu 9, 50100 Mikkeli  
E-mail: [reception.vaakuna.mikkeli@sokoshotels.fi](mailto:reception.vaakuna.mikkeli@sokoshotels.fi)  
Phone: +358 15 202 01  
Website: <http://www.sokoshotels.fi/en/>

#### **Cumulus Hotel Mikkeli**, at city center:

Address: Mikonkatu 9, 50100 Mikkeli  
E-mail: [Sähköposti:mikkeli.cumulus@restel.fi](mailto:Sähköposti:mikkeli.cumulus@restel.fi)  
[mikkeli.cumulus@restel.fi](mailto:mikkeli.cumulus@restel.fi)  
Phone: +358 15 20 511  
Website (in Finnish): [http://www.cumulus.fi/hotellit/mikkeli/fi\\_FI/mikkeli/](http://www.cumulus.fi/hotellit/mikkeli/fi_FI/mikkeli/)  
Website: [http://www.cumulus.fi/cumulus!/en\\_GB/](http://www.cumulus.fi/cumulus!/en_GB/)

#### **Hotel Uusikuu**, about 1,5 km from city center:

Address: Raviradantie 13, 50100 Mikkeli  
E-mail: [hotelliuusikuu@esedu.fi](mailto:hotelliuusikuu@esedu.fi)  
Phone: +358 15 221 5420  
Website: <http://www.uusikuu.fi/?q=en>





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