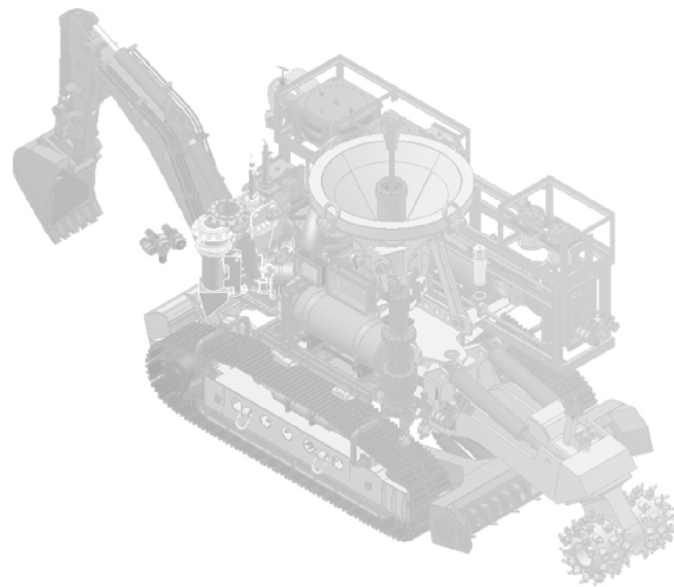


USE OF ROBOTICS AND AUTOMATION FOR MINERAL PROSPECTING AND EXTRACTION

Second Circular

30 January 2018, Bled, Slovenia



Scope and Objectives

The aim of this conference is to bring together experts in the field of robotics, minerals exploration and mining (including underwater mining) to discuss about latest advances in the field and rise synergies on innovation in mineral prospecting and extraction. Afternoon sessions will be dedicated to workshops, related to technology roadmapping and technology exploitation. Networking, experiences sharing and establishing new cooperation links is also within the scope of this 1-day event.

Target Groups

- experts (geology, mining, robotics, machinery)
- minerals industry
- mining and construction machinery manufacturers
- robotics developers and manufacturers
- policy and decision makers in the field of mineral prospecting and extraction

Date and Venue

The conference will be held on 30 January 2018 in [Hotel Kompas](#), Bled. [Bled town](#) is situated in an alpine landscape of the NW [Slovenia](#) and is a popular tourist destination. The town is 35 km from Ljubljana International Airport and 55 km from the capital city, Ljubljana.

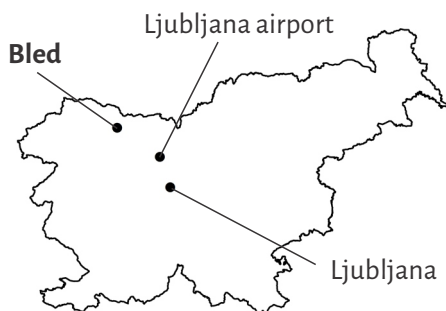


Photo: Hotel Kompas Bled



Photo: Tourism Bled

Organized by Geological Survey of Slovenia



Co-organizers [UNEXMIN](#) & [iVAMOS!](#) project partners

BMT Group Limited, United Kingdom



Damen Dredging Equipment BV, The Netherlands



Ecton Mine Educational Trust, United Kingdom



Empresa de Desenvolvimento Mineiro, S.A., Portugal



European Federation of Geologists, France



Federalni zavod za geologiju Bosne i Hercegovine,
Bosnia and Herzegovina



Fondacija/Zaklada za obnovu i razvoj regije Vareš,
Bosnia and Herzegovina



Fugro EMU Limited, United Kingdom



Geo-Montan Ltd, Hungary



Geoplano, SA, Portugal



Idrija Mercury Heritage Management Centre,
Slovenia



Instituto de Engenharia de Sistemas e
Computadores, Tecnologia e Ciência, Portugal



La Palma Research Centre for Future Studies, Spain



Marine Minerals Limited, United Kingdom



MINERALIA, Portugal



Montanuniversität Leoben, Austria



Resources Computing International Ltd (4dcoders),
United Kingdom



SANDVIK, Austria



Soil Machine Dynamics Limited, United Kingdom



Tampere University of Technology, Department of
Mechanical Engineering and
Industrial Systems, Finland



Trelleborg Ede B.V., The Netherlands



Universidad Politécnica de Madrid,
Centre for Automation and Robotics, Spain



University of Miskolc, Hungary



Zentrum für Telematik e.V., Germany



Real-Time Mining Project



Registration

Please register via email ([manja.zebre\[at\]geo-zs.si](mailto:manja.zebre[at]geo-zs.si)) by **8 January 2018**.

Required registration data:

- Name and surname,
- Institution,
- Title of the presentation and authors (optional),
- Up to 600-word (one page) abstract with one image (optional),
- Attendance to networking dinner,
- Possible special dietary requirements,
- Attendance to pre-conference field trip to Idrija.

Registration is free-of-charge. Individual invitations letters can be prepared if needed.

Call for Papers

An open access scientific journal [Geologija](#) (indexed in Scopus, Directory of Open Access Journal, GeoRef, Chemical Abstracts, and others) invites all participants to submit manuscripts after the conference. All papers must be prepared according to journal instructions for authors and will undergo peer-review process. Publishing in this journal is free of charge.

Contact Information

Local organisers:

Gorazd Žibret (general info), [gorazd.zibret\[at\]geo-zs.si](mailto:gorazd.zibret[at]geo-zs.si)

Manja Žebre (registration), [manja.zebre\[at\]geo-zs.si](mailto:manja.zebre[at]geo-zs.si)

UNEXMIN project coordinator:

Norbert Zajzon, [nzajzon\[at\]uni-miskolc.hu](mailto:nzajzon[at]uni-miskolc.hu)

iVAMOS! project coordinator and technical management:

Jenny Rainbird, [jenny.rainbird\[at\]bmtglobal.com](mailto:jenny.rainbird[at]bmtglobal.com)

Stef Kapusniak, [stef.kapusniak\[at\]smd.co.uk](mailto:stef.kapusniak[at]smd.co.uk)



Accommodation

Accommodation is to be directly booked individually. [Hotel Kompas](#), the conference venue, offers a discount price (single € 75, double € 88) for conference participants. **To get a discount price, please fill-in the reservation form at the end of this document not later than 30 November 2017 and send it directly to the hotel staff.** Free booking cancellation is possible up to 2 days prior to arrival.

If Hotel Kompas is not your preferred choice, feel free to choose your accommodation in plenty of other hotels or apartments, since everything is within walking distance from the conference venue.

Travel Information

Travelling by plane:

[Ljubljana "Jože Pučnik" Airport](#) is the nearest airport, having regular flights from major European airports (London, Frankfurt, Paris, Zürich, Vienna, Brussels etc.), as with some other non-EU airports (Istanbul, Moscow). [Venice International Airport](#) has good connections with the South-East Asia and the United states. [Venice-Treviso](#) generally hosts low-budget flights.

Airport Transfer:

There are a couple of ways of transportation from the Ljubljana Airport to Bled: [bus](#) (via Kranj), [ZUP shuttle](#) (recommended, booking is required), [Markun shuttle](#) (booking is required), [taxi](#) or [rent-a-car](#). You can also hire airport transfer when you book your accommodation. You can use the [GoOpti shuttle transfer](#) (booking is required) from other nearby airports, especially from Venice and Venice-Treviso Airports.

Travelling by train:

You can book your tickets from [Deutsche Bahn](#) web page to Bled-Jezero train station (less frequent, but closer), or Lesce-Bled station (approx. 1.5 km away; do not forget to inform us to arrange pick-up for you in the case you arrive to this station).

Miscellaneous Information

Slovenia is a member of EU, and is a member of the Schengen area. Currency is euro (€). Electricity is 220 V. Tap water is drinkable.

Extend your stay in Slovenia

Slovenia offers a wide variety of natural and cultural amenities. Slovenia is a small country, situated between the Alps, Mediterranean Sea, Karst and Pannonian Basin, where everything is at hand. In an hour and a half, you can pay a visit to every part of Slovenia from the capital Ljubljana, situated in the heart of Slovenia.

Bled and Ljubljana are connected with regular [bus lines](#) (more or less every hour). The [train connections](#) are less frequent. More information on the transport connections between Bled and other larger towns of Slovenia can be found [here](#).

More tourist information about Slovenia is available at the [official web page](#).

Important Dates

Accommodation booking deadline at a discounted price 30 November 2017

Registration deadline 8 January 2018

Final conference program 23 January 2018

Field trip to Idrija 29 January 2018

Conference 30 January 2018

Agenda at a Glance

Monday, 29 Jan	Field trip to UNESCO heritage site Hg mine in Idrija (invited by Idrija Mercury Heritage Management Centre)	
Tuesday, 30 Jan	Morning	Plenary sessions Parallel sessions (15' presentations with Q&A sessions)
	Afternoon	Parallel workshops: <ul style="list-style-type: none"> • Exploitation workshop • Research roadmapping workshop
	Evening	Networking dinner (invited by Geological Survey of Slovenia)
Wednesday, 31 Jan	UNEXMIN project meeting closed for public iVAMOS! project meeting closed for public	
Thursday, 1 Feb	UNEXMIN project meeting closed for public	

Field trip to UNESCO heritage site Hg mine in Idrija

The field trip to the Idrija Mercury Mine will consist of two tours. We will visit the oldest part of the mine, a 500-year-old [Anthony's Main Road](#), together with all the most important attractions in the underground world of the mercury mine (e.g. underground

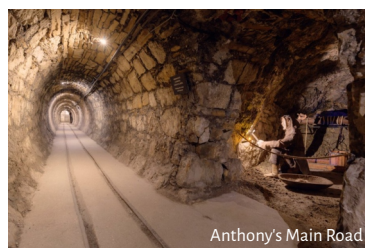


Photo: CUDHg Idrija

Chapel of the Holy Trinity, Attems' Shaft). After lunch the tour to [Hg Smelting Plant](#) will follow, with a presentation of the history of smelting in Idrija and the exceptional significance of mercury, which marked the development of Idrija and contributed to the flourishing of human civilisation throughout the world.

For those arriving with morning flights on 29 January from BRU, FRA, STN, PRG, VIE, WAW or ZRH, a pick up will be organised at LJU airport at 11:30 a.m.

Confirmed presentations

UNEXMIN project: an underwater explorer for flooded mines

Luís Lopes, *La Palma Research Centre for Future Studies, Spain*

iVAMOS! Project

Jenny Rainbird, *BMT Group, United Kingdom*

Advances in subsea mining

Stef Kapusniak, *Soil Machine Dynamics Limited, United Kingdom*

Robotics in Slovenia

Marko Munih, *University of Ljubljana, Faculty of Electrical Engineering, Slovenia*

Use of Neural Network for geological data interpretation and data mining

Gorazd Žibret, *Geological Survey of Slovenia, Slovenia*

Future mining: scenarios and roadmaps (an international review)

Marco Konrat Martins, *La Palma Research Centre for Future Studies, Spain*

Real-time 3D mine model updates in the iVAMOS! project

Bleier Michael and Nuechter Andreas, *Zentrum für Telematik e.V., Germany*

Underwater sensors for UNEXMIN to obtain geological and geophysical Information

Norbert Zajzon, *University of Miskolc, Hungary*

iVAMOS! test mission in Lee Moor

Stef Kapusniak and Paul Arthur, *Soil Machine Dynamics Limited, United Kingdom*

Real Time Mining—Progress Towards Continuous Decision Making in Mining

Mike Buxton et al., *Delft University of Technology, Faculty of Civil Engineering and Geosciences, Netherlands*



Photo: DAMEN

Exploitation Workshop

led by Geological Survey of Slovenia and BTM Group

Ensuring that the technology developed within research is exploited to its full potential is a very important part of almost every H2020 project. It assures that taxpayer's money is properly spent and that EU citizens benefit from funding international R&I projects, like UNEXMIN, iVAMOS! and RTM, whether providing new jobs for EU citizens, providing high-quality scientific knowledge in the form of publications, enabling EU companies to be world leaders by owning technological patents and contributing to better legislation.

The workshop will be based around a hypothetical project that has a potentially very useful and highly marketable new technology, which has been developed by a consortium, consisted of large industrial partners, SMEs, public research institutes and universities. In this hypothetical scenario a lot of useful knowledge and know-how has been generated, which can be used by many partners individually. However, the technology as a whole still needs some investment in order to reach the target market, where great success is expected. We will use a carousel to discuss and propose exploitation strategies for this scenario.

The results of this workshop will be beneficial for both, iVAMOS! and UNEXMIN projects.

Research roadmapping workshop

led by La Palma Research Centre for Future Studies

The research roadmapping workshop aims to develop a strategic research agenda for both UNEXMIN and iVAMOS! projects. The roadmap exercise will assess future challenges for research and technology development against the backdrop of alternative futures by exploring different raw materials scenarios. Experts are invited to actively engage in the discussions, supporting the evaluation of technical, policy, environmental and economic aspects of the emerging technologies. The results will serve as basis for developing a technology roadmap for each project.



RESERVATION FORM

GEOLOGICAL SURVEY OF SLOVENIA

Use of robotics and automation for mineral prospecting and extraction

Joint conference of UNEXMIN & VAMOS! projects

Hotel KOMPAS, Bled, Slovenia

Last name:	Arrival date: Departure date:
Name:	
Address:	
City:	
Country:	
E-mail:	
Phone:	

Room rate per day:

<input type="checkbox"/> 75 EUR Single room	Supplement: 1.27 EUR tourist tax per person per night
<input type="checkbox"/> 88 EUR Double room – 2 persons (queen bed)	1 EUR registration fee per person per stay
<input type="checkbox"/> 88 EUR Twin room – 2 persons (2x single beds)	

☐ Transfer *Airport – Hotel Kompas* (Optional, 48 EUR for max 2 pax, 70 EUR for max 8 pax)

Credit card type: (AMEX, VISA, EC/MC, Diners):

Holder name:	Expiry date:
Number:	CVV:

Please return completed form until November 30th 2017 via below fax or e-mail address.

HOTEL KOMPAS

Reservations

Tel: +386 4 6205 118

Fax: +386 4 5782 499

e-mail: reservations@kompas-lovec.com

www.kompas-lovec.eu

Included:

- Bed & Breakfast
- Free Wi-Fi
- Use of fitness
- Wellness amenities (except sauna)
- VAT