

SMART=EXPLORATION

new ways to explore the subsurface



Deliverable D34

Popular local news on project achievements

30 November 2020



Smart Exploration has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 775971

Public

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Deliverable D34 (D6.12), EAGE/Ludvika Kommun

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Table of Contents

DISCLAIMER.....	3
1. INTRODUCTION	4
2. CIVIL SOCIETY ENGAGEMENT ACTIVITIES AND TOWNHALL MEETINGS	4
3. PRESS RELEASES, NEWSPAPERS & ARTICLES	5
3.1. FLYER - NORDIC IRON ORE LUDVIKA MINE UAV TEST FLIGHTS	5
3.2. NEWSLETTER - ANNOSBLADET – NOVEMBER 2020	6
3.3. PRESS RELEASE – GREECE HTEM FLIGHTS BY SKYTEM, NOVEMBER 2020	7
3.4. NEWS ARTICLES - TORONTO TOUR ARTICLE ON “INTERNATIONAL MINING” - JANUARY 2020.....	9
3.5. NEWS ARTICLE ON MINEX EUROPE.....	10
3.6. FIRST BREAK ARTICLE - PROJECT RESULTS ARTICLE - DECEMBER 2020.....	11
CONCLUSIONS	12

DISCLAIMER

This document provides updates on the activities with respect to “Public dissemination and civil society engagement” of the Smart Exploration project.

Due to IPRs and confidentiality matters, certain parts of the document are not detailed. We have undertaken a series of measures to comply with the EU General Data Protection Regulation (GDPR) effective on May 25- 2018, however, please notify us immediately if you observe noncompliance with the GDPR and IPRs listed in the Consortium Agreement. The content of this document is also the sole responsibility of the Smart Exploration consortium and does not commit the European Commission nor reflects its views. The information contained herein is also subject to reviews and changes. Smart Exploration consortium as neither a whole nor the individual partners that implicitly or explicitly participated in the creation of this document holds any liability that might occur as a result of using its content.

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1. Introduction

Smart Exploration project aimed to have a strong engagement with the public, in particular with civil society at the project test sites: from the start of exploration until after mining activities. The project greatly benefited from having Ludvika Kommun (a municipality in Central Sweden) as a project partner leading this specific activity; and transferring their extensive knowledge and experience on civil society engagement. Additionally, SGU, LNEG and mining companies provided support to promote our exploration activities and help resolve issues related to land-use and social acceptance.

Given the various local geographic, historical, and cultural differences at six different test sites, the project team was aware of the importance to understand the local community's needs for social acceptance. We carefully considered the right engagement methods and tools for each planned field activity based on local profile and possibilities given the geographical restrictions. Active input from relevant local parties was the key element for successful civil society engagement throughout the project. Therefore, in preparation for civil society engagements, the consortium created a civil society engagement template. The intention of the template was to enable the Smart Exploration representatives to align the goals and expectations of a successful outcome of the civil society interaction at different sites in a timely manner. Based on the civil society engagement plan, several activities were scheduled considering the local needs and the impact level of the activity which determined the engagement tools to be used.

As part of civil society engagement, clear public messages to the public and town hall meetings were important tools due to its direct reach to the community. An extensive report ([D33](#)) for the period of 2018-2019 has captured these activities in Kosovo, Netherlands, Finland, Sweden, and Portugal. This D34 report specifically focuses on the period of June 2019 – November 2020.

2. Civil Society Engagement Activities and Townhall Meetings

In 2018-2019, during the field works, task partners together with our communication partner planned several interactions with local communities. In conjunction to field works, additional public engagement activities in Kosovo, Sweden and Greece were planned with local schools, local communities and local government. Kosovo and Greece were originally planned for March 2020 and Sweden in October 2020 in parallel to the field works with HTEM and UAV systems. Global Covid-19 pandemic made it impossible for us to organize public gatherings as they were planned due to public gathering restrictions. Instead, we focused on one-way communication to convey the message through news articles, press releases and social media.

Nevertheless, it is worth mentioning that project partner **Proxis**, based in Poland which holds exploration licenses in the Greenfields in Kosovo, had established contacts with the local authorities in Kosovo for the planned, yet cancelled, HTEM flights due to Covid-19. Several interactions and conversations took place and it has built the path for further interactions.

3. Press Releases, Newspapers & Articles

3.1. Flyer - Nordic Iron Ore Ludvika Mine UAV test flights

SGU, AMVKO and Uppsala University conducted validation tests for the new UAV system in the Ludvika Mine of Nordic Iron Ore (NIO). Nordic Iron Ore distributed flyers for the UAV test flights in the local community and organized open house in line with local safety guidelines, ensuring 2 meters distance and open space interactions only.



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Öppet hus för geofysiska mätningar

Under vecka 40 genomför företaget AMKVO AB och Sveriges Geologiska Undersökning (SGU) test av bland annat drönburen geofysisk mätutrustning i samarbete med Nordic Iron Ore och Uppsala Universitet. Samtliga är partners i EU-projektet Smart Exploration.
Vi välkomnar alla intresserade att titta på utrustningen och dricka en kopp kaffe.
Varmt välkomna!

Var: Blötbergets gamla sandmagasin
När: 1 oktober 2020 kl. 14:00 - 15:00

Kontakt: Emma Bäckström, geolog, Nordic Iron Ore AB

Mer information
Projektet fokuserar huvudsakligen på utveckling av kostnadseffektiva, miljövänliga verktyg och metoder för geofysisk prospektering i svårtillgängliga och djupliggande områden. Mer information om projektet finns på www.smartexploration.eu, YouTube och LinkedIn.

WWW.SMARTEXPLORATION.EU

 @SMARTEXPLORE  SMART EXPLORATION  SMART EXPLORATION HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 775971

3.2. Newsletter - Annonsbladet – November 2020

The free newspaper, Annonsbladet, circulates in the areas of Ludvika and Smedjebacken in Sweden. The newspaper is published and delivered to 20,000 households with a total population of 40,000. Annonsbladet published an [article](#) featuring the field works of UAV validation surveys in the Ludvika Mine site in collaboration with SGU, AMVKO, Nordic Iron Ore and Uppsala University.

20 NÄRMASDIG

ANNONSBLADET DALARNA VECKA 48 2020



Här har VB Elnät avvecklat skogen och börjat bygga en ny kraftledning.
FOTO: VB ENERGI

Kraftledning öppnar för gruvöppning

LUDVIKA ■ Nu är flytten av kraftledningen som krävs för att Nordic Iron Ore ska kunna öppna Blötbergsgruvan igång och i februari ska den nya ledningen vara på plats.

I januari beställde Nordic Iron Ore flytt och anpassning av 30 kilovoltsledning inför att bereda plats för kommande anläggningsarbeten vid det planerade industriområdet och möjliggöra anslutning för den planerade järnmalmgruvan i Blötberget, Ludvika kommun.

Anläggningarna dimensioneras för framtida anslutning om 20 megawatt.

”Vårt uppdrag går ut på att flytta vår luftledning i Skeppmora för att bereda plats för kommande anläggningsarbeten vid det planerade industriområdet i orten. Arbetet pågår för fullt och en ny ledningsgata är avvecklad. Vår entreprenör arbetar med att få alla förberedelser på plats inför byggnationen. Ledningen skall vara på plats i februari 2021” skriver VB Elnät i ett facebookinlägg.

BO JOFFER



Så här kan det kommande anriktningsverket att se ut som Nordic Iron Ore vill bygga i Skeppmora inför återstarten av järnmalmgruvan i Blötberget.
ELLIS KALLIK; NORDIC IRON ORE

Geofysiska undersökningar fortsätter

LUDVIKA ■ De geofysiska undersökningarna av Ludvikatraktens järnmalmfyndigheter fortsätter, meddelar gruvtören Nordic Iron Ore.

Nu har AMVKO och Sveriges Geologiska Undersökning genomfört test av geofysisk mätutrustning i samarbete med Nordic Iron Ore och

Uppsala Universitet. Nordic Iron Ore har målsättningen att återuppta järnmalmproduktion i Blötberget och Håksberg samt utveckla det mellanliggande Väsmånället, tillsammans benämnt ”Ludvika Gruvor”.

Bolaget har alla tillstånd för det inledande projektet i Blötberget och säger sig

kunna producera järnmalm med mycket hög kvalitet. Förnyad prospektering kring Blötberget har indikerat fyndigheter som sträcker sig minst 1000 meter ned.

Under vecka 40 har två elektromagnetiska mätsystem testats. Vid mätningen skickas växelström i olika frekvenser genom marken. Beroende på berggrun-

dens sammansättning blir det variationer i det elektromagnetiska fältet som genereras. Det elektromagnetiska fältet avläses sedan från markmottagare och drönare. Resultaten kan användas för att ge en bild av malmkroppars utsträckning.

BO JOFFER

3.3. Press Release – Greece HTEM flights by SkyTEM, November 2020

In November 2020, The SkyTEM had conducted one final HTEM validation survey in Greece in the mine sites of Hellas Gold which was the last field activity of Smart Exploration Project. The project has released a [press release](#) to inform the public for this activity.

PRESS RELEASE
NOVEMBER 2020

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Helicopter Mineral Reserves Exploration Survey in Fisoka area

It is with great honor and responsibility to introduce the **EU funded upcoming mineral exploration survey** that is about to take place in the Municipality of Aristotle within the month of November. Known for the quality of its mineral wealth, the area of NE Halkidiki offers a unique opportunity of additional mineral reserves discovery, which could lead to a possible extension of sustainable mine life in your region. Our research project is all about contributing to the exploration work of several mine sites in an environmentally-friendly and non-invasive manner, as the surveys we carry out are conducted without the involvement of drilling.

The **Smart Exploration Project** was launched in December 2017 with the aim of developing environmentally friendly, cost effective, state-of-the-art solutions for mineral exploration in the European Union (EU). The project is **funded by the EU's Horizon 2020** Funding Programme with a budget of just over € 5.2 million under grant agreement No. 775.971. More information about the project can be found on www.smartexploration.eu , [YouTube channel](#) and [LinkedIn](#).

In total, 27 partners over 9 EU countries from the Academia, SMEs and the mining industry came together to develop five innovative technologies and six software to support the EU's mandate for the critical raw materials. **4 organizations from Greece** have contributed to the achievement of ambitious goals of this project: the National Technical University of Athens, Delphi – Distomon S.A., Seismotech Geophysical Solutions LLC and **Hellas Gold (which operates at the Aristotle Municipality)**.

One of the new technologies developed by the project is an **Helicopter-based, deep penetrating TEM system by SkyTEM Surveys**, a company located in Denmark. This system is used for various purposes from mineral exploration to hydrogeological conditions and provides valuable information about the deposits underground. As part of the Smart Exploration project, **SkyTEM will perform a helicopter-based geophysical survey in Fisoka, over the current mining area.**

The survey will be conducted **between 14-30 November**, with field operations taking place east of Neochori. The helicopter will fly along the lines shown on the map below. The helicopter will carry a geophysical array in a towing system beneath the helicopter, which will fly at a speed between 60 and 80 kph along those lines. The geophysical array will be approximately 30 to 40 m above the ground, while the helicopter itself will be at roughly 80 m above the ground. The helicopter will fly in a North-to-South flight trajectory for approximately 2.5 hours on each flight with a line spacing of 200 meters. **No flights are to be conducted over residential areas**, while the **necessary permits have been obtained** from the competent authorities. On the bottom of this letter, you will find the precise trajectory of the helicopter on the map.

The geophysical system works like a 3D-scanner of the ground. The electromagnetic field transmitted by the geophysical system does not pose any risk to local communities, environment or animals. The impact of this system is less than a typical electric train.

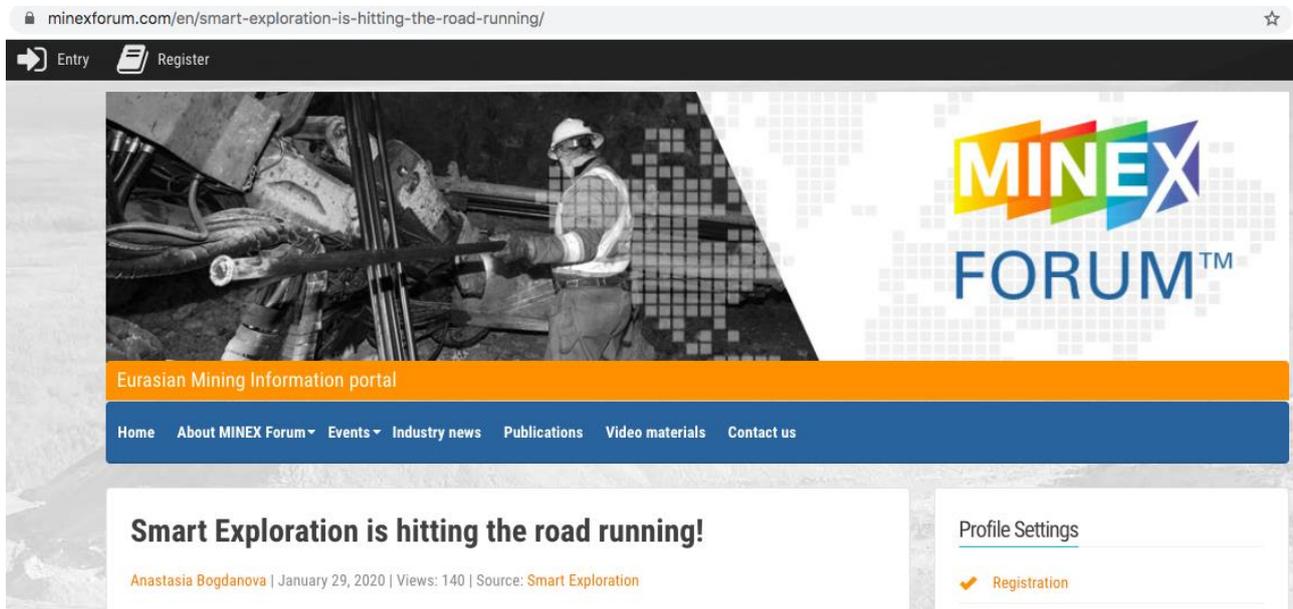
3.4. News Articles - Toronto Tour Article on “International Mining” - January 2020

International Mining (IM) is a globally-distributed industry monthly magazine. IM's LinkedIn page describes it as “IM editors report first-hand about the successes, challenges and opportunities encountered by our world's most technologically significant operations. IM brings these experiences home, from all facets of the globe. It is truly written for miners, by miners.” In January 2020, the IM has featured Smart Exploration’s Canada Tour describing the new technologies in a [special article](#).

The screenshot shows the International Mining website. At the top left is the IM logo with the text "INTERNATIONAL MINING". To the right is a banner with the headline "Getting the ore from the crusher." and a "Discover more" button. Below this is a navigation menu with links: "The Electric Mine 2021", "IPCC 2021 conference", "DOWNLOAD IM", "Get IM Free", "IM Event papers", "Videos", and "2020". A search bar with social media icons (Twitter, LinkedIn) is on the left. On the right is an advertisement for "ABB Ability™ Safety Plus for hoists" with a "FIND OUT MORE" button. The main article is titled "Smart Exploration team ready to show off their work to Toronto crowd" and is posted by Daniel Gleeson on 31st January 2020. The article image shows a blue banner with "SMARTEXPLORATION" and "TU Delft" logos, and a white off-road vehicle in the background.

3.5. News Article on Minex Europe

MINEX Forum is an information exchange platform dedicated to promoting Mining Technological Innovation, Regulation and Investment opportunities across Eurasian continent. The platform is also a media partner to the PDAC and has international reach. In January 2020, an [article](#) reporting on the Canada Tour had been published.



The screenshot shows the MINEX Forum website interface. At the top, there is a navigation bar with links for Home, About MINEX Forum, Events, Industry news, Publications, Video materials, and Contact us. The main content area features a large banner image of a worker in a hard hat and safety vest operating machinery in a mining environment. To the right of the banner is the MINEX FORUM logo. Below the banner, the article title "Smart Exploration is hitting the road running!" is displayed, along with the author "Anastasia Bogdanova" and the date "January 29, 2020". A "Profile Settings" button is visible in the top right corner.



Select Language Powered by [Google Translate](#)

Smart Exploration is hitting the road running!

Smart Exploration Solutions are presented during Canadian Exploitation Tour on 27 February – 4 March 2020

Smart Exploration is now ready to introduce its prototypes and softwares into the market. In February-March 2020, the project representatives will be on a Canadian Tour presenting results and innovative solutions to potential stakeholders and end-users.

Smart Exploration Project is an ambitious project with state-of-the-art solutions funded under the EU's Horizon2020 funding scheme. The project develops cost-effective, environmentally-friendly tools and methods for geophysical exploration in highly challenging brownfield and greenfield areas to address ever-increasing community and environmental issues, as well as reduce the return time on investments.

Since the inception of the project, the 27 partners comprising the project consortium have worked together to meet the challenging task of developing solutions for deep mineral exploration. The solutions have been tested and validated under diverse mining conditions (surface, underground, open pit, brownfield, greenfield). Even though these solutions are **unint** developed for mineral exploration purposes, they have cross- and multidisciplinary applications and can be used by

3.6. First Break Article - Project Results Article - December 2020

First Break is a monthly magazine of EAGE reaching more than 25.000 contacts worldwide. A [summary article](#) at the end of the project with achieved results has been featured as the official finishing article.

SPECIAL TOPIC: DELIVERING FOR THE ENERGY CHALLENGE: TODAY AND TOMORROW fb

Smart Exploration inspires innovative geophysical solutions for mineral exploration in Europe

Alireza Malehmir¹, Per Gisselø², Valentina Socco³, João Carvalho⁴, Paul Marsden⁵, Asli Onar Verboon⁶, and Marcin Loska⁷ present five prototypes and six methodological solutions addressing increasing demand for high-resolution subsurface imaging and modelling algorithms in the mineral exploration industry.

Introduction

The mineral exploration industry is, for good reasons, traditionally a slow adopter of new technologies in contrast to the oil and gas sectors, where nearly all up-to-date technologies are immediately tested and employed. The mineral exploration industry is more conservative and this has resulted in a decline of exploration rates given the challenge of exploration being at depth and in more geologically complex areas. While this decline could also be attributed to less social acceptance and a consequent severe drop in exploration expenditures, technical challenges were also considerable. Geophysical methods are the most indirect and effective way of exploring at depth especially where the overburden is thick or in glaciated areas where geochemical footprint is very complicated. Nonetheless, they are not used as extensively as in the oil and gas sector and are still being overlooked or when used sometimes with hesitations. Geophysicists themselves often fail in communicating their results to geologists who are usually the decision makers. While good progress is being made, this is only limited to a few countries such as Canada and Australia,

where geophysical exploration is well recognized alongside other methods and exploration teams usually have a strong geophysical background and are prepared to think outside the box and try new ways.

Moreover, in Europe investments in research and development on both basic and applied mineral exploration sciences are sporadic. Despite the industry's high standards and rigorous environmental regulations, social acceptance is still a big issue and the main hurdle of mineral exploration solutions to the market. At best, you can only rely on a few major European mining companies to test and apply your new solutions. We compared the situation in Europe with the rest of the globe on three main topics of mineral exploration, geophysics and innovation. To have a better picture of the current situation, we also took the coronavirus pandemic into account. We used Google Trends to check for the popularity of these topics during the period January-May 2020 (Figure 1). Not surprisingly, the coronavirus was the most popular searched item globally. As for the mineral exploration, Canada and Australia stuck out, while even in northern Europe, where there are more positive

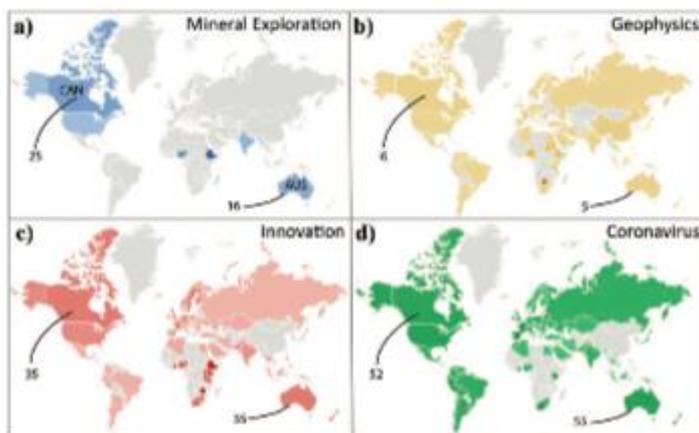


Figure 1 Google Trends search during January-May 2020 on keywords such as (a) Mineral exploration, (b) Geophysics, (c) Innovation and (d) Coronavirus. It is striking that mineral exploration was not looked upon in Europe during this period. Geophysics and innovation were looked at but probably not for mineral exploration purposes, rather for other fields of application. Australia and Canada, with favourable mineral and mining jurisdictions, stand out even during the coronavirus situation that has overwhelmed the whole world. Marked numbers represent the search popularity relative to the highest point for the keywords. Uncoloured regions had no sufficient amount of data.

¹ Uppsala University, Sweden | ² SkyTEM Surveys ApS, Denmark | ³ Politecnico di Torino, Italy
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CONCLUSIONS

Smart Exploration project gave great importance to the role that Civil Society Engagement and Public Outreach plays in the mineral exploration sector. At the early stages of the project, our partners carefully designed a systematic approach towards stakeholder engagement. Team leaders from Work Package 6 together with relevant partners drafted a template for civil society engagement and press releases to be used by all project partners. With this approach, the project aimed to analyze carefully the opportunities of public outreach for each activity by addressing the differences of local communities where the project is active. Furthermore, the team identified relevant stakeholders and created a matrix in order to have an appropriate approach in terms of language, tools and level of technical details. In particular; social media campaigns, flyers in neighborhoods, press releases, townhall meetings and school visits were selected as key tools to reach public audiences.

In the course of the last 36 months, Smart Exploration project effectively used social media campaigns, press releases and engagement sessions which helped to create a favorable image among the relevant stakeholders and local communities at the project test sites. Using appropriate tools and right and authentic messages in a simple language helped improved social acceptance forh mineral exploration in our field activities in particular. Being able to demonstrate the new technologies that are being developed within the project, share tangible results via (social) media channels, engaging with local communities through townhall meetings and/or onsite conversations, and enabling young generations to experience field activities were the key success indicators. As reported in these deliverable and previous ones, the project managed to attract the attention and interest of local authorities at different countries, national/local media, high schools and inhabitants in the project test sites. Even though Covid-19 pandemic affected the final year's engagement plans, it would not be wrong to state that the project has influenced the mindsets of project partners on civil society engagement and provided academics and professionals with tools to practice the examples from the project.

Charlotte Olsson and Asli Onar-Verboon
November 30, 2020