

## **Smart Exploration solutions for deep-targeting mineral deposits**

The mineral exploration industry is greatly challenged these days to find fresh raw materials critical to our economic growth, for green technologies and also for daily usage. While the global exploration expenditure has increased, discovering the so-called tier-1 deposits has been somewhat unsuccessful in the past 10 years and particularly in Europe. In the short-term, it is convenient for mining companies to explore in brownfield areas and near mines to make use of existing infrastructures and to avoid new environmental footprints but the search domain is deep (+800 m) and complex. This is particularly significant in the European Union (EU) and in regions with thick cover, requiring new and much more sensitive exploration technologies for direct deposit targeting and geological characterization. With five new prototypes and a number of improved 3D modeling and imaging algorithms, Smart Exploration, a EU-funded research-innovation action project, is currently tackling some of these mineral exploration challenges. In this presentation, the prototypes will be introduced covering a range of geophysical systems; imaging algorithms will be presented coupled with real cases from the six exploration sites available to the project. Some of these solutions have multiple applications and can be also tailored for near-surface and engineering applications.