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From surface to subsurface exploration

🌐 innolog.eitrawmateri-als.eu

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Main product:
INNOLOG

Aim:
To develop a new subsurface exploration tool based on hyperspectral technologies

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THE PROJECT

The idea
To transfer sensor technologies used in labs and surface exploration to subsurface exploration. We assembled many new components and optimised the performance of each of them to make the new tools work properly.

Inspiration
A specialist in subsurface exploration, I realised the great potential of emerging technologies, provided we could involve talented engineering researchers and experienced scientists and receive the support of an industrial partner.

Unique selling points
The solution increases efficiency by minimising sampling coring and other standard analyses, optimising diagnostic times and performance, and by reducing exploration-derived waste.

Societal impact
Metals, minerals and raw materials are essential to securing a transition to green energy technologies. Our solution will lead to an increase in resource efficiency and environmental impact. Another field of interest for the society is the use of these new tools to assess and minimise geo-hazards (instability and active faults that can cause earthquakes), as some of them are generated in the subsurface.

EIT Community support
Our Innovation Community and partner institutions have been incredibly supportive, especially by the end of the project, when designing the go-to-market strategy for our results.

THE NOMINEE

The beginning
As a PhD student in subsurface geology, I was not only very interested in this field, but also in the technologies that allow for its exploration. I was very keen to investigate how hyperspectral technologies used for rock and mineral characterisation could be used at borehole depths.

Partnerships & Teamwork
UPC built a hyperspectral borehole logging tool following requirements by CSIC and MAGNA (our mining industry partner). CNR did the same with the LIBS/Raman borehole logging tool. UPM developed specific machine learning interpretation software with the contribution of SGU specialists and using the SGU hyperspectral core scanning database. Test sites were implemented by CSIC and GeoZS. UPM, MAGNA, GeoZS and CSIC took care of field tests. UPM produced outreach and training videos.

Rewarding moments
Seeing the new tools we created in operation, in a real environment, was a truly rewarding moment.

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innolog
INNOVATIVE GEOPHYSICAL LOGGING TOOLS FOR MINERAL EXPLORATION