European Union

Copernicus Europe's eyes on Earth

EARSC European Association of Remote Sensing Companies

THE GREEN LAND

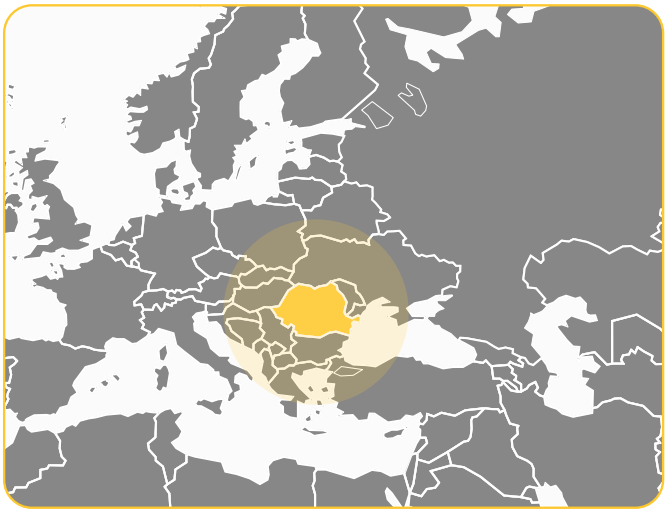
IIASA

esa

GROUND MOTION INTELLIGENCE IN ROMANIA

What it is about

Copernicus Sentinel data is being used to study the source of persistent landslides and monitor ground movements in Romania. This Eastern European country possesses dramatic landscapes which, in turn, can pose significant landslide risks to infrastructure and lives. Using Sentinel-1, Geo-Sentinel, a remote-sensing company, employed advanced radar technologies such as InSAR to monitor landslides. Geo-Sentinel's services allowed Geo Search, a geotechnical company, to understand problems regarding ground instability near mining sites. This study illustrates the utility of Sentinel data in detecting and analysing ground movement, and its potential impacts.



What we found

- Approximately 42% of Romania's terrain harbours landslide-triggering conditions.
- The service's high-precision deformation studies were vital to understand the nature of the hazard and support strategies to manage and protect the overlying infrastructures.
- Using satellite data, urban planners can make data-driven decisions about ideal locations for new infrastructure projects, taking into account natural hazard risks like landslides and subsidence. These benefits apply to all InSAR-based studies, bolstered by geodetic and geophysical expertise.

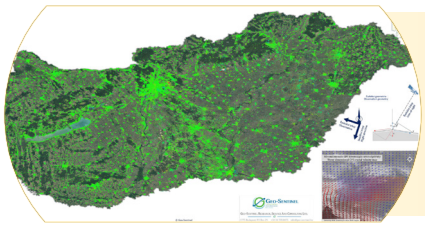
Funded by the EU and ESA

Layout by ESA EO Graphics Bureau

GROUND MOTION INTELLIGENCE IN ROMANIA

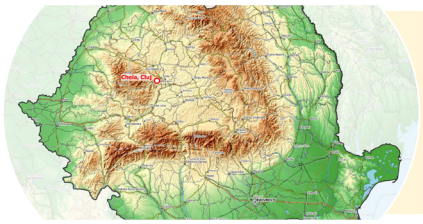
The Satellite Data

Copernicus Sentinel-1 provides free-of-charge frequent, all-weather, day-and-night C-band radar images over the entirety of Romania. It facilitates land and infrastructure monitoring, as well as disaster management.



The Service Provider

Geo-Sentinel is a Hungarian company that provides precise deformation monitoring services. They ensure comprehensive monitoring through the use of satellite-based Synthetic Aperture Radar interferometry (InSAR), and Global Navigation Satellite Systems (GNSS) measurements.



The Primary User

Geo Search is a Romanian company that specialises in geotechnical studies, usually complemented by technical support activities such as ground monitoring or consultancy.

Secondary Beneficiaries

In this case, a Romanian mining company got a better understanding of the ground movement's source, the most affected areas, and any potential further issues they could face.

End User Beneficiary

Citizens of areas affected by landslides benefit from landslide-risk mitigation. Moreover, the planning and resources needed to rebuild communities after a landslide can be distributed more efficiently.

About the project

Through a series of case studies, EARSC aims to gather quantitative evidence that the usage of Copernicus Sentinel data provides an effective and convenient support to various market applications. These studies are undertaken in the frame of the project "Showcasing the benefits brought by the usage of Sentinels data to society, Environment and economy: a bottom-up assessment based on traceable impacts along selected value chains", under an assignment from the European Space Agency (ESA) funded by the European Union as part of the Copernicus programme.

Download the full report from the project website

http://earsc.org/sebs