

NADIR

A platform for natural disaster risk assessment

To support the mitigation and management of natural disasters using drone data and satellite imaging, the ITEA project NADIR (Natural Disaster Risk and Assessment Platform) will develop a platform for advanced risk assessment and critical information via unprecedented earth observation (EO) data collection and processing.

Addressing the challenge

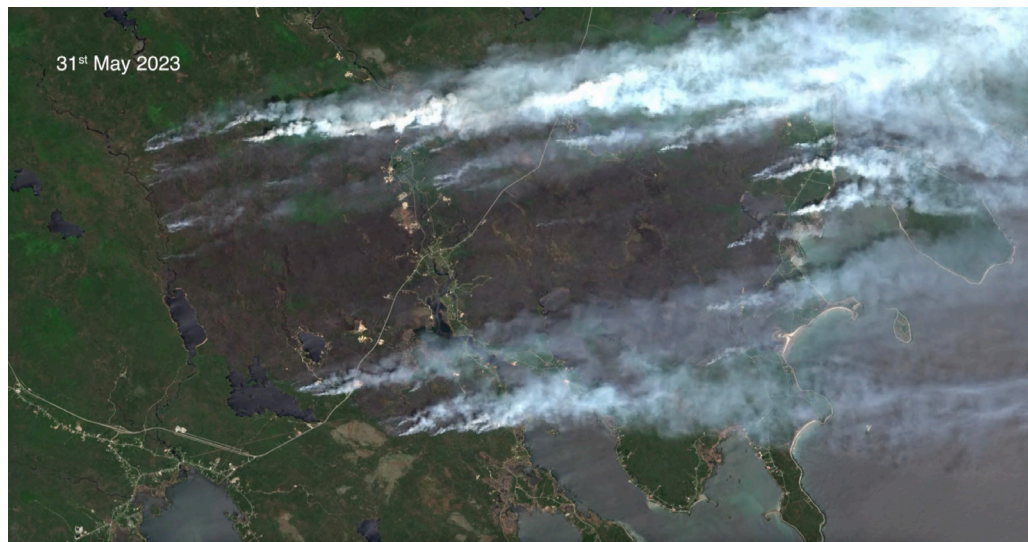
Between 1900 and 2020, 36,000 natural disasters resulted in over eight million deaths and billions of dollars in losses. Although emergency and civil protection authorities often utilise geographic information systems (GIS) to deal with disasters, these suffer from limitations such as inaccessible data, poor interoperability and a lack of analysis functions. In general, the market for natural disaster management services is highly fragmented, with no open ecosystem to easily create scalable, automated assessments, alerts or recommendations and support simulation and training.

Proposed solutions

With its Natural Disaster and Risk Assessment Platform, the project will respond to the need for an open, scalable and interoperable distributed ecosystem in which new value-added services and applications can be integrated. With an intelligent storage framework, high-performance discovery engine, visualisation platform, advanced quality query module and on-the-fly analytics, NADIR will use drone data and super-spectral, high-resolution satellite imagery to support the mitigation and assessment of forest fires, flooding, landslides and drought. By including data from the EarthDaily Constellation, a ten-satellite constellation that will image the earth's entire landmass every day, NADIR will undertake EO data collection on a scale never previously performed. The ultimate result will be a cost-effective scientific

geospatial data and analytics platform capable of storing, visualising, distributing and transforming unprecedented quantities of high-end EO data, which will be demonstrated in five pilots in Europe, North America and South Korea.

perspective, the consortium plans to capture a fraction of the markets for big data analytics and value-added EO data services for natural disasters – the latter projected to be worth USD 260M by 2027 at an annual growth rate of 5%. In the long run, the project also aims to democratise access to niche, high-quality ground software and to eliminate the entry barrier for EO companies by offering a better, more cost-effective service to customers. For example, NADIR's high-performance discovery engine will be able to discover, process and index at



^ Image taken over Nova Scotia, Canada, of the Barrington Lake Wildfires (taken by Sentinel-2)

Projected results and impact

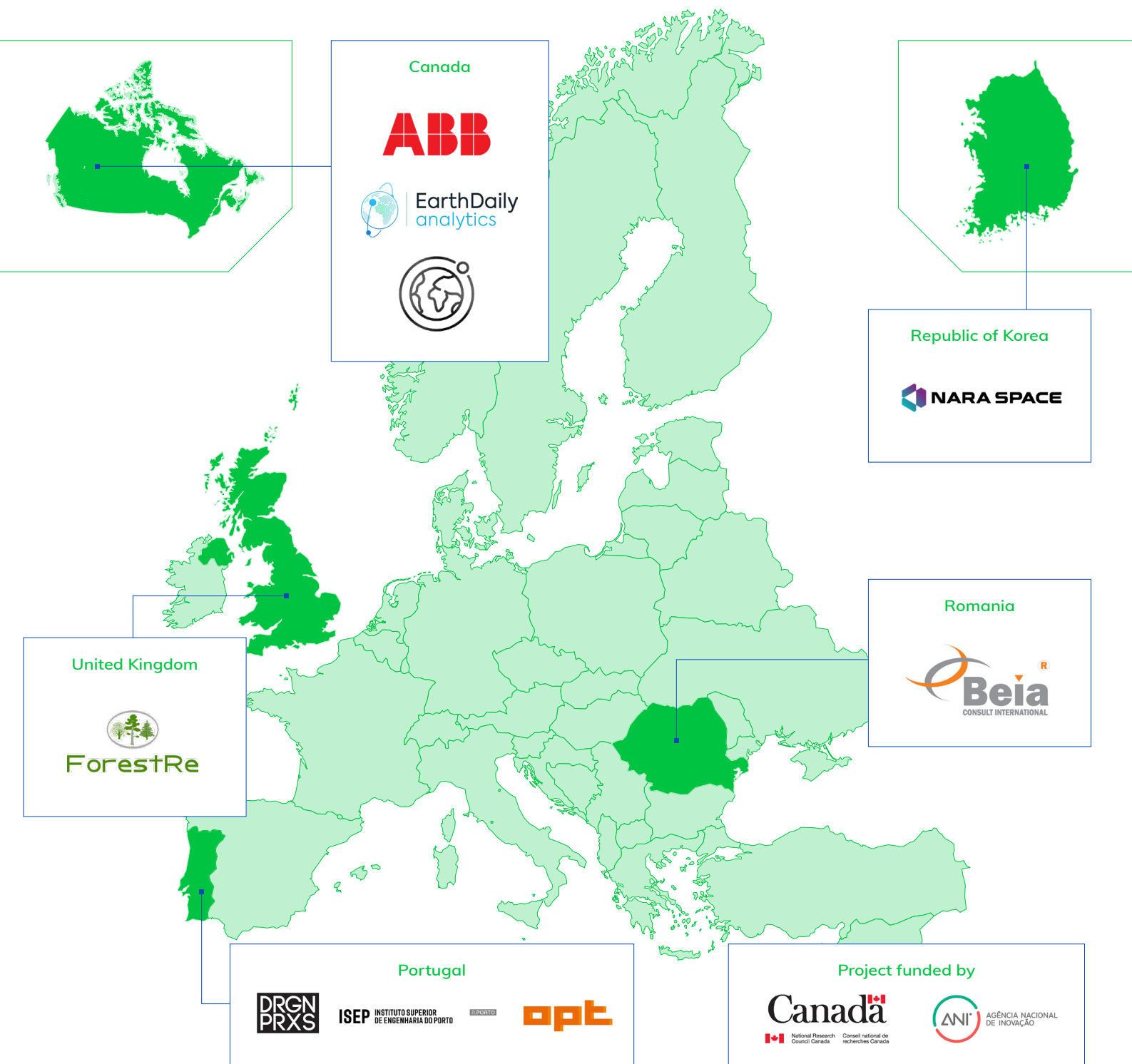
With NADIR, users will gain access to support for the monitoring, simulation, operational planning, prediction and (in some cases) prevention of the large-scale impact of natural disasters. By bringing together many satellites in a common high-quality processing and calibration engine, previously impossible multi-source EO-based applications will have room to evolve. From a business

least 100M square kilometres of new data every day, while its intelligent storage framework is expected to reduce storage costs by 80% compared to traditional cloud bucket storage. This mixture of quality and cost-effectiveness will make the platform a more attractive proposition than existing solutions, all with the goal of reducing damage and saving lives.

Project partners

NADIR

22014



Project start
April 2024

Project end
March 2028

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Project website
<https://itea4.org/project/nadir.html>



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