

# Services Overview

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# Value proposition

## Technological solutions for security, resilience and sustainability of infrastructure and territory

Combining advanced research and technological development, NHAZCA creates state-of-the-art solutions that protect and monitor the environment and critical assets.



# About us



**NHAZCA (Natural HAZards Control and Assessment) is an international leader in the analysis and monitoring of natural hazards and large infrastructures for the management and mitigation of risks.**

We are passionate geologists, civil engineers, project managers, and technicians, offering a unique blend of expertise from both the private and academic sectors.

Since 2009, our ambition has been relentless: to transform geological and geotechnical data into action for the prevention and management of natural hazards, ensuring the sustainability of structures and infrastructures, with a single, globally applicable protocol.



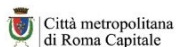
## **Our mission**

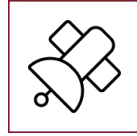
To empower clients with comprehensive solutions for analyzing and monitoring natural hazards and structural health. Through a combination of expertise, innovation, and dedication, we deliver consultancy services and technological tools that enhance safety, optimize performance and minimize risks.

## **Our vision**

To become the premier provider of efficient, reliable, innovative, high-quality products and services for the analysis & monitoring of natural hazards and structural health.

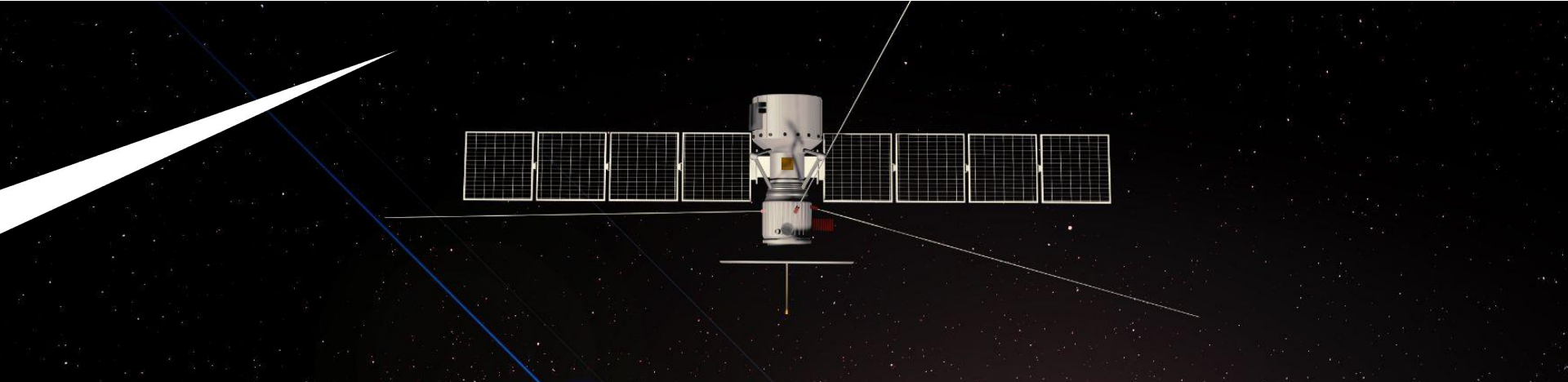
# Clients





# Technologies

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# → NHAZCA's InSAR Technology



**Synthetic Aperture Radar Interferometry (InSAR) is a valuable technique for estimating surface deformation processes using sensors installed on satellite (A-DInSAR) and ground (TInSAR) platforms.**

Remote sensing allows us to analyse even the smallest ground variations with extreme precision, both at large and detailed scales.

This innovative approach opens up new frontiers in the understanding of geological and natural phenomena, allowing large areas to be monitored in unprecedented detail.





## Our satellite tools

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NHAZCA uses a suite of satellite instruments to provide precise and detailed ground motion monitoring on a global scale. These instruments allow us to collect high-resolution data useful for surface deformation analysis and geologic hazard assessment.



## InSAR Visualization Tool

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The InSAR Visualization Tool is our web-based monitoring data distribution platform that allows you to explore interferometric products and analyze each measurement point by viewing displacement time series.

The platform supports a variety of monitoring data types acquired with different types of monitoring systems and offers the ability to manage complex projects, thanks in part to its customizable and user-friendly interface.



## PS ToolBox

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PS ToolBox is a GIS plugin designed and developed by NHAZCA for the post-processing of InSAR data.

The plugin includes a set of tools for spatialization, integration and interactive analysis of PSI data, such as:

- Interpolation
- KMZ export
- Filtering
- Interferometric sections
- Linear infrastructure – interference analysis
- Vector decomposition – from ascending and descending orbit datasets
- PS Time Series – enhanced visualization tool
- I Trend Change Detection – analysis of displacement time series.

An aerial photograph showing a coastal region. A large body of water is on the left, with a peninsula extending into it. The peninsula is covered with a network of roads and some buildings. The surrounding land is a mix of green vegetation and brownish terrain. A white diagonal line is drawn across the image, separating the aerial view from the text on the right.

## Our terrestrial tools

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In addition to satellite instruments, NHAZCA has terrestrial instruments that further extend monitoring and analysis capabilities. All of our technologies are useful for monitoring structures and infrastructure such as buildings, bridges, dams, and slopes, providing precise measurements of displacements and deformations with sub-millimeter accuracy.



## TRIVIA – Terrestrial Radar Interferometry Visualization and Analysis

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TRIVIA software is the result of more than 10 years of Terrestrial SAR interferometry experience gained from dozens of projects on landslides, dams, rock faces, bridges, buildings and more.

The software can perform advanced analysis of terrestrial SAR imagery by processing data from various radar manufacturers.

The software is designed to enhance TInSAR data even in complex monitoring scenarios.

## QUIB – Quick Installation Basement

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The QUIB is a modular and easily transportable platform, designed and manufactured by NHAZCA, which allows the installation of a monitoring platform with InSAR terrestrial support infrastructure in a very short time (about 2 hours).

The entire installed system has a maximum footprint of 280 x 60 cm and a height of about 2 m. The QUIB is also equipped with a height adjustment system, making it adaptable to any installation site and support surface. The system can also be fully enclosed with polycarbonate or wooden panels to ensure maximum protection of the instrumentation.



## RAPS – Remote Area Power Supply

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RAPS is a power supply system for the InSAR instrumentation, consisting of a modular stand-alone photovoltaic system, storage batteries that store the excess energy produced during sunlight hours to be available at different times of the day, and a backup electric generator (genset) so that the facility can always be powered, even in emergencies.

As a result, RAPS is able to generate electricity to power the TInSAR system, even in remote areas.





## Corner Reflector

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As part of its InSAR monitoring services, NHAZCA offers the supply and installation of newly developed artificial reflectors (corner reflectors).

Corner reflectors are passive targets designed to provide stable InSAR signal enhancement over time, allowing for highly accurate displacement measurements. They are metallic devices that require no power and/or maintenance once installed, and their characteristics (material, shape, and size) allow them to be deployed in strategic areas to provide accurate displacement time series. This capability is particularly valuable in improving the effectiveness of scattering, especially in areas characterized by the absence or scarcity of natural reflectors.



# Contacts

**Get in touch with us now and  
revolutionise the security of your  
area with high technology**

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