NHAZCA
NATURAL HAZARDS CONTROL AND ASSESSMENT

www.nhazca.com



We protect humans by monitoring the health of natural and built environments using cutting-edge technologies

NHAZCA

NATURAL HAZARDS CONTROL AND ASSESSMENT

COMPANY PROFILE · 2026

Geotechnical and structural monitoring, from satellite to site.

6 About us

10 Vision & Mission

12 From satellite to site: the measurement chain

14 International leader in geotechnical and structural monitoring

16 Technologies and services

24 PhotoMonitoring™ and SGAM

26 PhotoMonitoring™ applications

30 Our proprietary web-based platforms

32 Behind every service: our analysts' toolkit

34 NHAZCA for cultural heritage

Startup di
SAPIENZA
UNIVERSITÀ DI ROMA

A spin-off of Sapienza University of Rome since 2009: research that became a company, and a company that has stayed in the research.

36 NHAZCA for critical infrastructures

38 ESA IRIDE programme

40 The NHAZCA Group

42 Re-Monitor

44 IntelligEarth

46 Training, and our Technical-Scientific Committee

48 Credentials

50 Testimonials

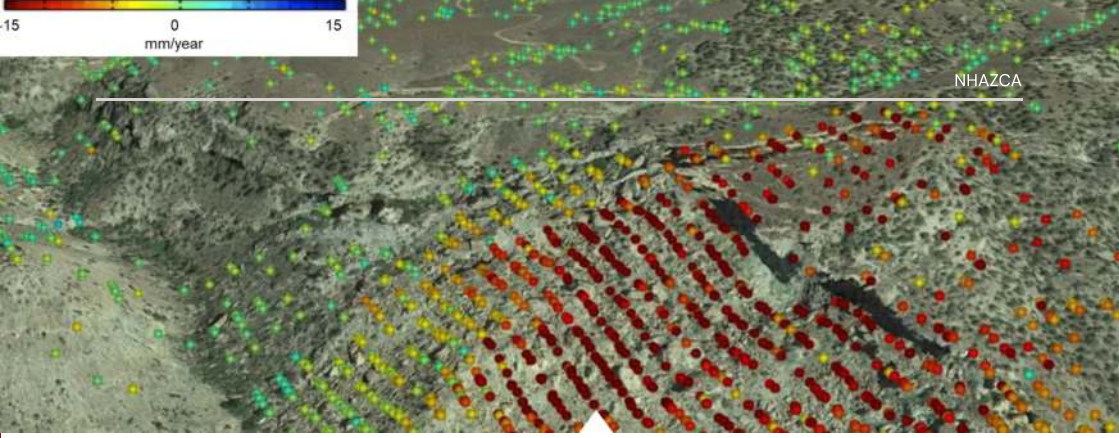
52 Key Clients and Key Partners

54 Contacts

Contents

About us

NHAZCA — Natural HAZards Control and Assessment — is a Sapienza University of Rome spin-off founded in 2009, listed in the Italian register of innovative SMEs, and an international leader in geohazard assessment and monitoring solutions for the management and control of natural and built environments.



NHAZCA is a fast-growing company whose growth rests on high-quality services, reliability and client satisfaction.

Innovation, scalability of services based on terrestrial, aerial and space assets, and a strong position at national and international level in the management and construction of structural and infrastructure assets are the key success factors of NHAZCA.

Our team members hold university degrees, with a strong engineering and geological background combined with solid expertise in Earth Observation and remote sensing technologies.

NHAZCA is supported by long-standing industrial and academic partnerships. The company operates in North and Latin America through Re-Monitor Inc., its United States company, and is part of a wider Group that includes the start-up IntelligEarth and the Consorzio Resilia with its Casentino Tech Hub.

When I'm asked to describe "What NHAZCA is", my first thoughts go to our history. A dream to transfer academic innovation to real market needs as a successful example of the so-called "Third Mission". NHAZCA has always been concerned with the safety of land, environment and infrastructure when few people were. NHAZCA has been the link between space technology for Earth Observation and Terrestrial solutions. NHAZCA is committed to deliver outstanding results even when not specifically requested by the client.

Today NHAZCA is an internationally recognised technological brand, with a strong geological background and consolidated links with the research community.

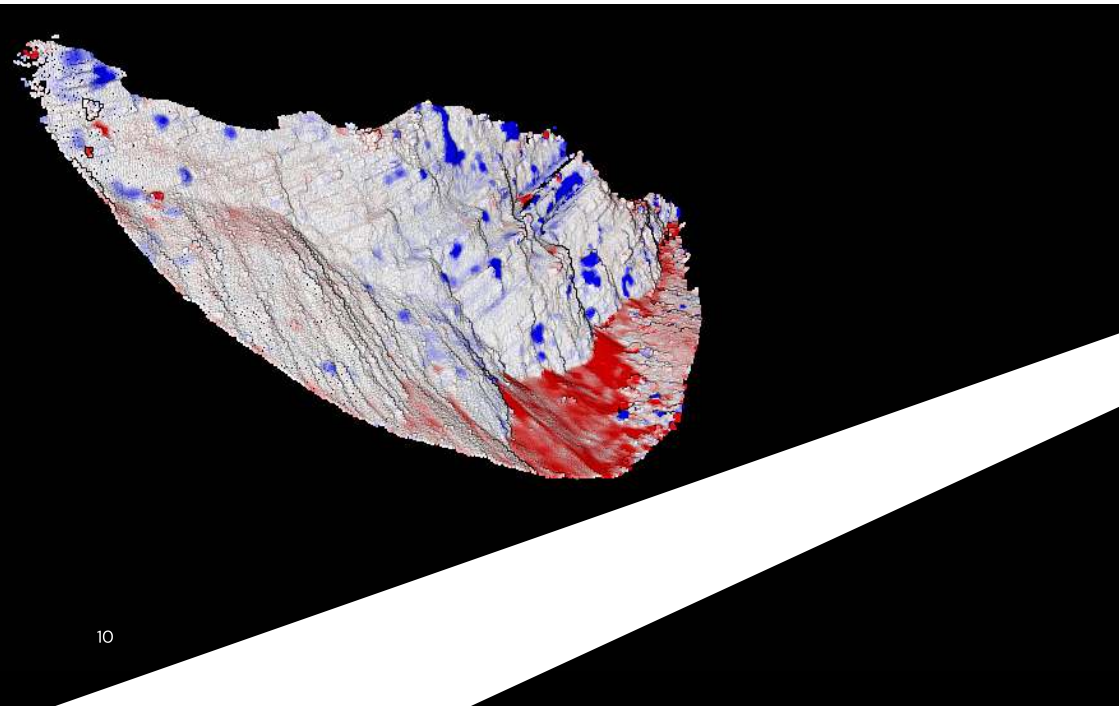
Based on an amazing mix of technical skills, know-how and scientific references, NHAZCA is constantly exploiting new technologies to make complex data understandable for everyone.

Our motto is “Turning data into actionable information”.

Alessandro Brunetti
Managing Director

Vision

We protect humans by monitoring the health of natural and built environments using cutting-edge technologies.



Mission

Our mission is to empower clients with comprehensive solutions for analysing 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, optimise performance and minimise risks.



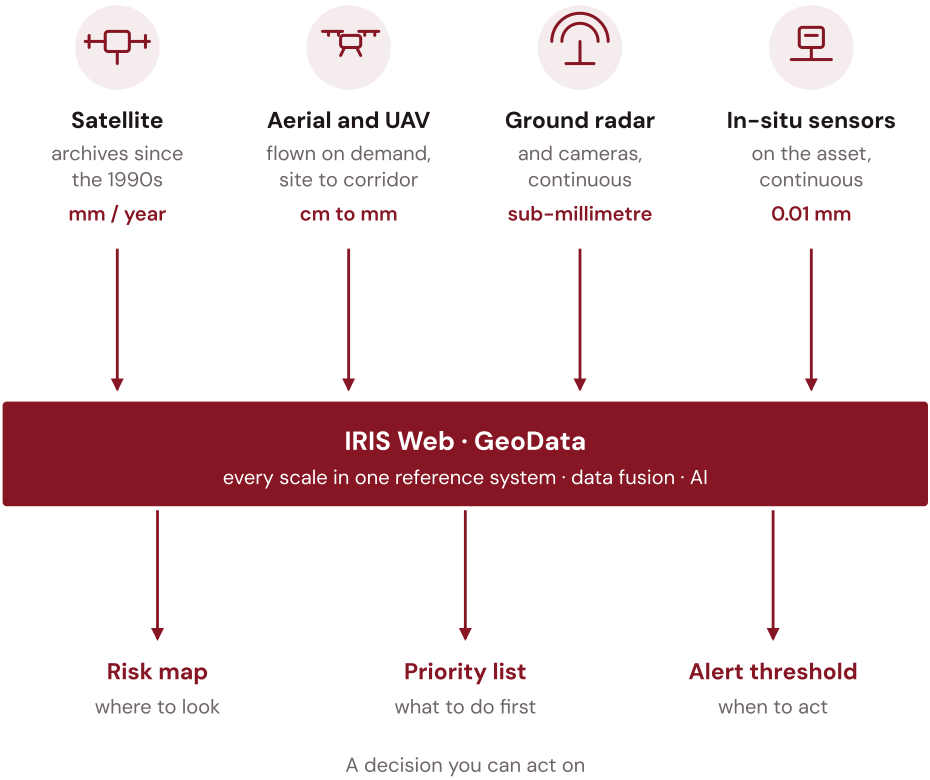
From satellite to site

The services provided by NHAZCA are a combination of research, high technology and maximum effectiveness in implementing solutions.

NHAZCA is a reliable partner, capable of identifying the best strategic and technological solutions in the field of risk analysis and monitoring. This is possible thanks to the company's know-how and the long experience gained in working on projects aimed at protecting land, infrastructure, cultural heritage and people.

NHAZCA offers specialised consultancy services aimed at assessing and mitigating geohazards, supporting land planning, enabling smart design & management of strategic assets, ensuring the safety of citizens and the collective architectural and cultural heritage.

These services are delivered through four scales of observation, from satellite archives to sensors on the asset.



Retrospective

Satellite archives reconstruct how an asset has behaved for the past twenty years, before any instrument is installed.

Wide area

One acquisition covers an entire network, so screening comes before instrumentation and money goes where it is needed.

Continuous

Where the risk is active, ground-based radar and sensors measure without interruption and raise the alarm on a threshold.

Reconciled

The platforms hold every scale in the same reference system, so a satellite trend and a sensor reading tell one story.

NHAZCA: international leader in geotechnical and structural monitoring

HIGH-LEVEL CONSULTANCY

on complex projects

FULL-RANGE REMOTE SENSING

satellite, aerial, UAV, ground-based radar and images in one offer, under one technical standard

1,100+ PEOPLE TRAINED

at the International Course on Geotechnical and Structural Monitoring, since 2014

CUSTOMER-CENTRIC APPROACH

our motto is “Turning data into actionable information”

INNOVATION-DRIVEN COMPANY

owner of proprietary technologies and trademarks: PhotoMonitoring™, SGAM, PRIMO™, IRIS, GeoData, TRIVIA, PS Toolbox

8 IN-HOUSE PLATFORMS

technical, business and management platforms, developed in house

470+
CLIENTS WORLDWIDE

across Europe, North and Latin America, Central Asia and Antarctica: public bodies, infrastructure operators, engineering firms and insurers

130+
PROJECTS

based on satellite data (optical, radar, multi-spectral)

35+
INTEGRATED TEAM

geologists, engineers, professionals, researchers and academics, employees and collaborators

100%
GRADUATES

with a strong engineering and geological background

STRONG ACADEMIC LINKS

constant investment in R&D projects with Sapienza University of Rome and international research networks

FIRST "FULLY REMOTE" COMPANY

unique cross-proposition based on the full range of remote sensing technologies. When needed, ground-based radar and cameras are installed on site and drones are flown; remotely integrated platforms keep interventions non-invasive.

Our services

Technologies

NHAZCA owns the technologies it measures with, and delivers them as services. Each service draws on the technologies the question needs — on their own, or combined in a multidisciplinary programme designed around the asset, its hazards and the decisions it must support. Each of the six services that follow is shown next to the technology that delivers it.



1 · PhotoMonitoring™ from fixed terrestrial cameras, drone (UAV), aerial and satellite platforms

A single change-detection methodology applied to optical imagery at every scale, from a UAV flight to a satellite archive. Permanent or periodic image acquisition from ground stations, processed in IRIS to produce displacement time series and change maps.

DELIVERS **Geotechnical Monitoring** · **PRIMO™**



2 · A-DInSAR satellite interferometry

Retrospective analysis of archives and continuous monitoring.

DELIVERS **Ground Motion Mapping**



3 · TInSAR terrestrial interferometry

Ground-based interferometry for slopes, dams and structures.

DELIVERS **Structural Health Monitoring** · **PRIMO™**



4 · SGAM – Smart Geotechnical Asset Management

Semi-automated decision support for asset management and predictive maintenance of highways, railways, bridges, viaducts, tunnels and embankments, with Artificial Intelligence for data fusion.

DELIVERS **Landslide Monitoring** (the SGAM assessment)

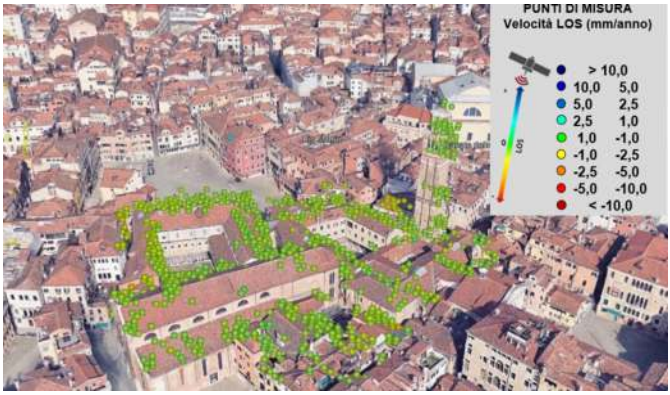


5 · Sensor data analysis on our proprietary platforms

In-situ instrumentation and remote sensors read into IRIS Web, GeoData and TRIVIA Web: the platforms hold every scale in the same reference system, so a satellite trend and a sensor reading tell one story.

DELIVERS **Structural Health Monitoring**

Ground Motion Mapping



DELIVERED WITH

A-DInSAR satellite interferometry — historical analysis of the archives and continuous monitoring

Ground Motion Mapping allows the identification, understanding, analysis and prediction of ground movements related to natural or anthropogenically induced geological phenomena.

Thanks to Ground Motion Mapping, it is possible to investigate the history of a geological phenomenon, understand its evolution over time and predict possible future changes.

This is fundamental to improve land planning and mitigate possible risks.

Several conventional and advanced technologies are used to perform the analysis, such as Satellite Interferometry, Terrestrial Interferometry and Terrestrial & Satellite PhotoMonitoring™.

Satellite interferometry reaches back to the 1990s, with a displacement velocity accuracy of ± 1 mm/year.

Delivery format: Shapefile, EPSG reference system defined with the client.

Landslide Monitoring



DELIVERED WITH

SGAM – Smart Geotechnical Asset Management — the assessment that combines A-DInSAR and PhotoMonitoring™

Landslide Monitoring is the continuous observation of a landslide and its parameters – displacement, deformation and slope condition – to keep the knowledge picture current, flag criticalities early and support risk management.

NHAZCA delivers it as an engineered service: satellite InSAR, camera-based PhotoMonitoring™ and ground data are integrated into one interpreted reading of the slope, read by geologists and engineers for operational decisions.

The SGAM assessment combines A-DInSAR and PhotoMonitoring™ for integrated, wide-area analysis, supporting the early identification of criticalities across slopes and infrastructure.

The outputs are displacement time series, deformation and change maps, historical analysis and interpretive reports: the continuous, interpreted data that the early warning procedures run by the responsible authorities depend on.

Geotechnical Monitoring



DELIVERED WITH

PhotoMonitoring™ — Rockfall Counter & Mapping

Geotechnical Monitoring follows the behaviour of the ground, of geotechnical works and of the structures interacting with them: system design, controlled acquisition, data validation and reporting in one accountable service.

The measurement mix follows the question: in-situ instrumentation – inclinometers, piezometers, extensometers, tiltmeters – for displacement at depth and pore water pressure; ground-based radar (TInSAR) for maps and time series from a fixed position; satellite InSAR for historical and portfolio-scale context.

PhotoMonitoring™ for rockfalls completes the picture on slopes and rocky cliffs prone to collapses: by periodically acquiring images from one or more observation points, rockfall events are detected, mapped and quantified, even minor ones, identifying the most susceptible areas.

The client receives validated time series and deformation maps, interpretive updates and an exception record.

Structural Health Monitoring



DELIVERED WITH

TInSAR terrestrial interferometry and sensor data analysis on our proprietary platforms

Structural Health Monitoring (SHM) consists in the assessment of the static and dynamic behaviour of infrastructures over time based on data-driven or model-driven approaches.

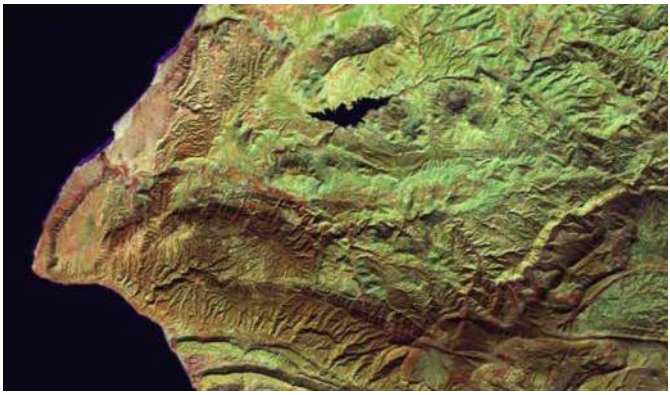
The purpose of SHM is to evaluate the safety, efficiency and durability of structures using advanced continuous monitoring technologies.

A number of methodologies can be applied in SHM based on the geotechnical and physical parameters to be monitored.

The value proposition of NHAZCA in SHM lies in the application of innovative technologies that allow the historical characterisation of large infrastructure networks, the rapid intervention in case of emergency and the periodic inspection based on quantitative data enabling a non-invasive intelligent asset management.

The key technologies used by NHAZCA for SHM are: terrestrial and satellite SAR interferometry, terrestrial RAR interferometry, PhotoMonitoring™, terrestrial laser scanning, sensors docked on UAV platforms, GNSS systems.

Scientific Consultancy



DELIVERED WITH

Our Technical-Scientific Committee — supervision of the projects and validation of the deliverables

NHAZCA provides high-level technical-scientific consultancy for geological, geomorphological and geotechnical analysis to support geological risk assessment.

Our services can be included in multidisciplinary projects aimed at land planning, landslide geological modelling, preliminary geohazard assessment for large infrastructure design (e.g. pipelines, transport corridors, reconstruction works after catastrophic events).

The service can potentially cover the entire project cycle, from design to construction and safety management during operations.

The Technical-Scientific Committee supervises the projects and validates the deliverables.

PRIMO™ – PRompt Intervention MOnitoring Protocol



DELIVERED WITH

All five technologies, mobilised within 48 hours

PRIMO™ (PRompt Intervention MOnitoring Protocol) is a registered trademark developed thanks to NHAZCA know-how for the deployment of emergency monitoring solutions in less than 48 hours.

PRIMO™ enables asset owners and emergency managers to obtain quantitative and detailed information on geohazards and processes that affect key assets (e.g. roads, tunnels, railways, dams) to support resilient infrastructure management.

PRIMO™ is complemented by a 24/7 monitoring system, connected to decision makers, alerting for any change in the overall situation and supporting intervention prioritisation.

Various remote sensing technologies can be used in an emergency situation, such as TInSAR based on radar imagery, PhotoMonitoring™ based on standard cameras, laser scanners, UAVs.

A registered protocol for emergency monitoring: the monitoring solution deployed within **48 hours**, a detailed report within **72 hours**, and a **24/7** system connected to whoever has to decide.

PhotoMonitoring™

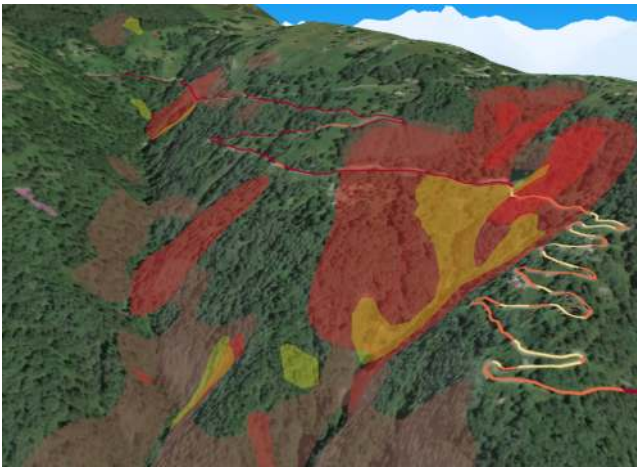


PhotoMonitoring™ is a cutting-edge product, designed and developed by NHAZCA, that leverages the vast availability of images globally to gather information on changes or displacements of the ground and structures. Thanks to sophisticated image processing algorithms, it is possible to accurately identify and quantify changes in the image plane. Based on this remote sensing methodology, NHAZCA has created four product lines that offer several advantages over traditional monitoring techniques.

User-friendliness, versatility, and reliability of results constitute the added value of these products.
In fact, PhotoMonitoring™ does not require the installation of targets or objects in the study area and provides change maps of visible portions. Users can adjust the image acquisition frequency according to weather conditions. With a fixed observation point, the system eliminates the uncertainty of repositioning the instrument for subsequent acquisitions and can be configured for full remote management, ensuring efficiency and accuracy. Operators remain outside the target area: it is a 100% Risk Free Monitoring technology, able to operate even in hazardous environments.

Displacement accuracy sub-pixel

SGAM – Smart Geotechnical Asset Management



SGAM output on a demonstration dataset: landslide susceptibility zoning (red to yellow, decreasing hazard) with A-DInSAR displacement rates along the road, from red (fastest) through orange and yellow to green (stable).

SGAM (Smart Geotechnical Asset Management) is a service developed by NHAZCA that focuses on the risks affecting structures and infrastructures, analysing their interaction with the local geological and environmental context enabling predictive maintenance of assets.

Through a process of smart automatic classification, the service assesses the direct or potential future impact of geohazards such as landslides, floods, sinkholes, etc.

The service helps decision makers and asset managers to define and prioritise maintenance activities based on asset vulnerability and loss scenarios (risk-based management). This is achieved by integrating a large amount of historical and newly acquired data through a data fusion approach that combines information from space industry, global and regional geodatabases, data collected from field surveys or ground-based structural health monitoring systems, and geotechnical/geomorphological monitoring systems.

Rockfall Counter & Mapping



PhotoMonitoring™ for rockfalls is an innovative and unique product for monitoring slopes and rocky cliffs prone to collapses.

By periodically acquiring images from one or more observation points, users can detect, map, and quantify rockfall events, even minor ones, identifying the most susceptible areas.

PhotoMonitoring™ enhances the understanding of rockfall dynamics, providing valuable data for implementing risk mitigation strategies. This advanced system delivers detailed maps of the distribution and frequency of rockfall phenomena, offering essential support for the development of preventive and risk management measures.

The adoption of these measures significantly contributes to increasing the safety of areas prone to rockfalls, protecting infrastructure and human lives.

Tunnel Convergence Monitoring



PhotoMonitoring™ for tunnels is an innovative solution for geotechnical monitoring of existing or under construction tunnels subject to convergence phenomena. Monitoring tunnel convergence is essential for the construction, management and maintenance of these particular infrastructures.

By periodically collecting images from one or more observation points, it is possible to measure the displacements of the tunnel lining over time. This can be done using either a temporal approach, creating time series of displacements for each visible point, or a spatial approach, generating comprehensive displacement maps to reconstruct the overall deformation field.

PhotoMonitoring™ is an automatic, versatile, and non-invasive system that surpasses the limitations of traditional topographical approaches. With fully remote management, it allows for monitoring risk situations, ensuring safety during construction work, and early detection of potential structural issues, enabling timely interventions.

Landslide Rapid Mapping

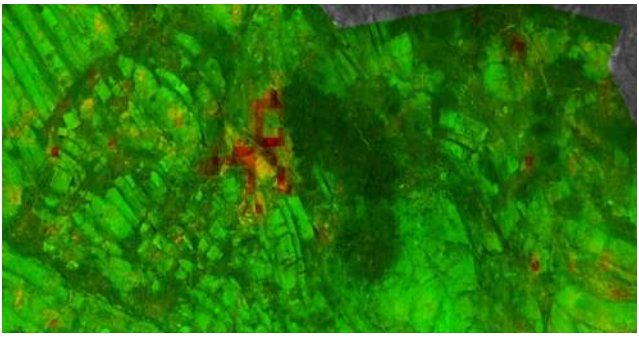


PhotoMonitoring™ for landslides is a unique and innovative product for monitoring the stability of slopes or escarpments subject to landslide events. By acquiring images from one or more observation points, it is possible to monitor ground movements and map changes over time.

PhotoMonitoring™ proves to be an effective system for monitoring landslides, both slow and fast-moving, allowing for the rapid identification and delineation of unstable areas and estimating displacement rates during critical events. Thanks to high-resolution images captured on high-susceptibility or high-risk slopes, continuous and non-invasive monitoring of landslide phenomena is possible.

This product is suitable for both long-term and short-term monitoring, providing valuable information for safety and emergency management.

Satellite and Aerial Change Detection



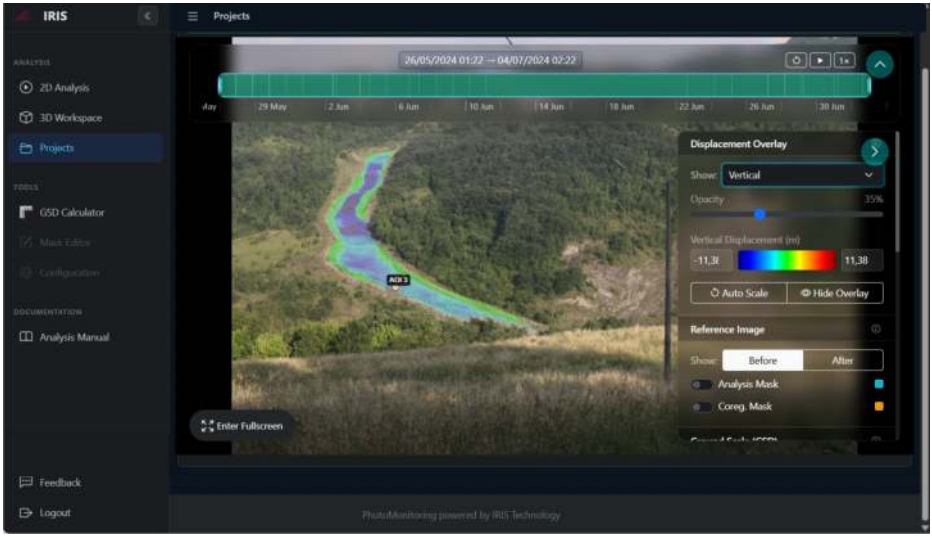
Drone survey of a rock slope — change map between two flights: green where the surface is unchanged, red where material has detached. NHAZCA imagery and processing.

The same PhotoMonitoring™ methodology applied to satellite, aerial and drone imagery: multitemporal optical, thermal and near-infrared scenes are co-registered and compared in IRIS to detect and quantify changes over wide areas, from glaciers and snow cover to coastlines, quarries and construction sites. Retrospective analysis of image archives reconstructs the history of a site, while scheduled acquisitions track its evolution.

Our proprietary web-based platforms

NHAZCA develops its own software and delivers it through the browser. Clients and partners work on IRIS Web and GeoData straight from the browser, on the same standard NHAZCA applies internally. Developing solutions in-house is what keeps every service on one technical standard.

The platforms are the result of seventeen years of research in image processing and SAR interferometry, and they are where measurement becomes decision support: maps, time series and classifications that an asset manager can read and act upon.



IRIS Web

The web version of IRIS, NHAZCA's software for monitoring ground changes and displacements. It supports the PhotoMonitoring™ technique with digital image correlation and change detection on terrestrial, aerial and satellite imagery (optical, thermal, near-infrared, radar), with sub-pixel accuracy.

BEHIND EVERY SERVICE: OUR ANALYSTS' TOOLKIT

PS Toolbox

PS Toolbox is the set of GIS tools NHAZCA developed in-house to interpret and post-process A-DInSAR data. Built by the same analysts who use it every day, it turns persistent-scatterer velocities into accurate maps and interpretations of the detected deformation processes, evaluating the health status of structures and infrastructures, the associated risks and the maintenance requirements.

TRIVIA Web

TRIVIA Web is the web platform NHAZCA developed to analyse terrestrial radar interferometry data. The result of years of in-house research in SAR interferometry, it processes terrestrial SAR images from multiple radar manufacturers in real time, with automatic analysis, an early-warning module and advanced manual analysis.



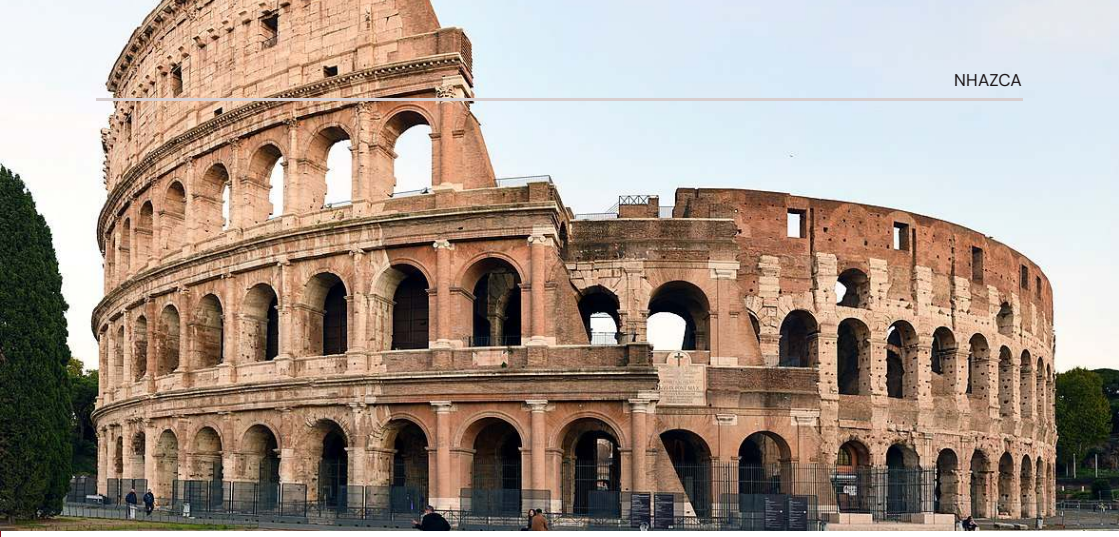
GeoData

The GIS interface of SGAM: A-DInSAR velocity points, landslide susceptibility zoning, hazard layers and 3D views of the terrain in a single web map, with a reliability rating for every result. Results from PS Toolbox and TRIVIA Web can be viewed together in GeoData.

NHAZCA for cultural heritage

NHAZCA helps protect Italy's priceless cultural heritage. The Colosseum in Rome, the Leaning Tower of Pisa, the Venice bell towers and some of the monuments characterising the historical centre of Florence are among the UNESCO sites covered by NHAZCA's most significant projects.

Multiple technologies have been applied, and new multidisciplinary methodological approaches based on data fusion and redundancy have been proposed and tested ad hoc, to support the authorities in the assessment of the "state of health" of heritage assets and in their protection from natural hazards, based on preventive and predictive maintenance.



More projects at www.nhazca.com/en/case-studies/

FROM MONUMENTS TO LANDSCAPES

Within the ESA IRIDE programme NHAZCA is responsible for the Cultural Heritage Areas Monitoring service, extending the same approach from single monuments to the historic landscapes around them: satellite interferometry over entire heritage areas, updated quarterly, to detect ground motion before it reaches the built fabric.

IRIDE programme: funding acknowledgement and disclaimer in the IRIDE section, from page 38.

NHAZCA for critical infrastructures

Infrastructure is the backbone that ensures the safe and efficient functioning of any modern society. Its maintenance, safety and resilience are fundamental to protecting our community.

NHAZCA has always been committed to significant projects for the control and monitoring of strategic infrastructures. Applying advanced and innovative remote sensing techniques, NHAZCA has supported the design, implementation and safety management during the construction of major works. NHAZCA's involvement has been crucial for the completion of road sections, risk mitigation during the excavation of tunnels and the construction of viaducts, and the monitoring of highways prone to landslides.

To support infrastructure managers, NHAZCA has applied a wide range of technologies and innovative methodological approaches based on data fusion. These tools have been employed to evaluate mitigation and prevention interventions, ensure safety during construction works, and carry out preventive and predictive maintenance activities, enhancing the durability and reliability of strategic infrastructures over time.

THE ASSETS WE MONITOR

Bridges and viaducts
Decks, piers, abutments and the slopes that carry them.

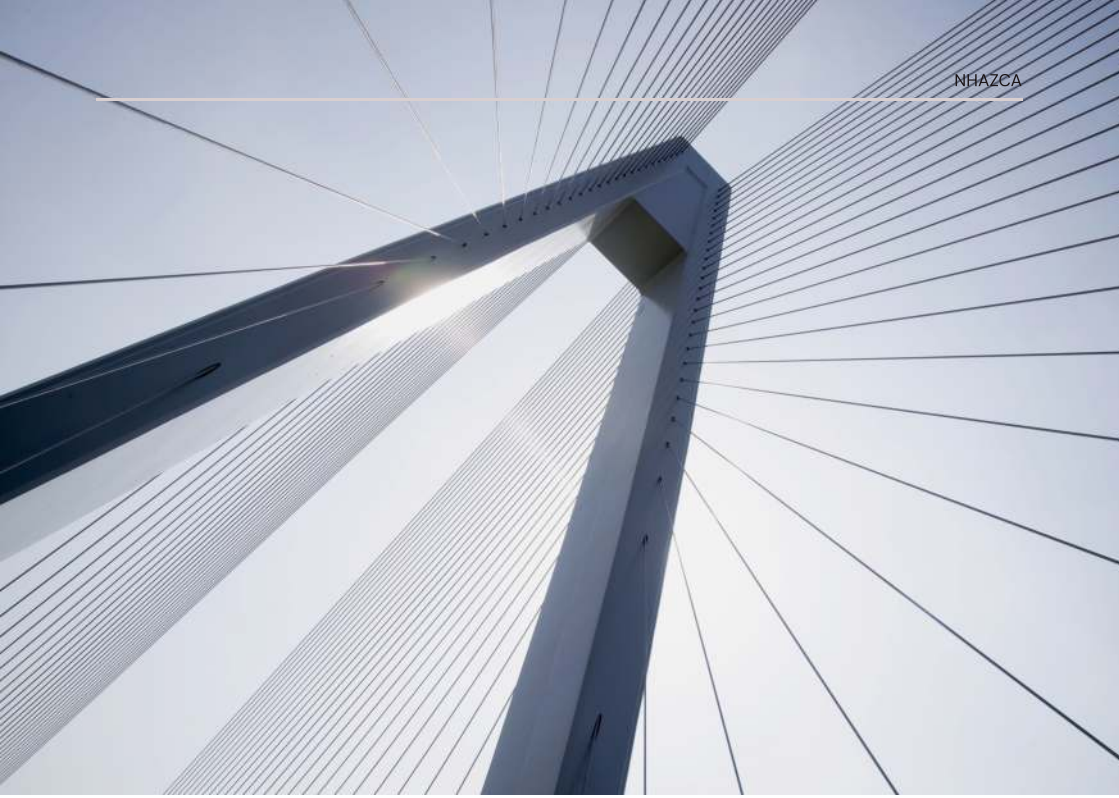
Tunnels and excavations
Convergence during construction and over the life of the work.

Highways and railways
Entire corridors screened from orbit, then instrumented where it matters.

Dams and reservoirs
Dam body, abutments and the valley sides above the water.

Embankments and cuttings
Earthworks whose slow movement can accelerate suddenly.

Ports and industrial sites
Quays, yards and the reclaimed ground beneath them.



TWO ESA PROJECTS

ISABHEL

An ESA project, ongoing. Bridges in Turin are the pilot site: satellite SAR, PhotoMonitoring™ and in-situ sensors are transmitted over 5G and read into a finite element model that acts as a digital twin of the structure.

SGAM ESA ARTES

An ESA project run by NHAZCA as prime contractor, concluded with its Final Review on 28 November 2024.

More projects at www.nhazca.com/en/case-studies/

EUROPEAN SPACE AGENCY · PNRR

A national capability for ground motion, built by a consortium — and validated by us.

NHAZCA in the ESA IRIDE programme

IRIDE is Italy's Earth observation programme and one of the largest in Europe: six satellite constellations in low Earth orbit, radar and optical, together with the ground segment and a portfolio of services for public administration. Funded by Italy's Recovery and Resilience Plan and the National Complementary Plan, it is implemented by the European Space Agency with the Italian Space Agency. The constellation entered its operational phase in July 2026 and deployment continues.



From a spin-off of Sapienza University of Rome to a leading player in the IRIDE service segment for land control and emergency management: NHAZCA is part of the winning team of the IRIDE System Development programme, in the Ground Motion Service consortium.

NHAZCA is responsible for two service value chains — **Cultural Heritage Areas Monitoring** and **Volcanic Areas Monitoring** — processing Sentinel-1, COSMO-SkyMed and SAOCOM data with advanced differential interferometry (A-DInSAR), and is **task leader of the validation** of the products generated by the whole consortium.

Seventeen years of industrial research in safeguarding land, infrastructures and cultural heritage are being delivered as a national capability for communities and public administrations.

Funded by the European Union
NextGenerationEU

Italiadomani
PIANO NAZIONALE DI RIPRESA E RESILIENZA

esa
EUROPEAN SPACE AGENCY

Programme of the European Union – NextGenerationEU, carried out under an ESA Contract for the purposes of EO PNRR IRIDE PROGRAMME. Funded by the Presidency of the Council of Ministers pursuant to Article 1, paragraph 254, of Law 160/2019. Funded by the Presidency of the Council of Ministers from the Complementary Fund.

Views expressed herein can in no way be taken to reflect the official opinion the European Union/European Commission/ESA/Presidency of Council of Ministers of the Italian Republic. Views and opinion expressed are those of the author(s) only and the European Union/European Commission/ESA/Presidency of Council of Ministers of the Italian Republic cannot be held responsible for any use which may be made of the information contained therein.

The NHAZCA Group

One technological platform, four complementary entities: an Italian centre of competence, a United States operating arm, an innovative start-up dedicated to participatory monitoring, and a consortium with a territorial hub where training and research take place.

SHARED TECHNOLOGY

PhotoMonitoring™, SGAM, IRIS, GeoData, TRIVIA, PS Toolbox and satellite interferometry are developed once and deployed in every market the Group serves.

LOCAL DELIVERY

Contracting, compliance and project management are handled by the entity closest to the client.

ACADEMIC ROOTS

Continuous exchange with Sapienza University of Rome and international research networks keeps the Group at the frontier of monitoring science.

GROUP PLATFORM

ROME, ITALY

NHAZCA S.r.l.

Spin-off of Sapienza University of Rome and the centre of competence of the group: consultancy, monitoring services, proprietary software and R&D for natural and built environments.

USA

Re-Monitor Inc.

The US company of the Group, bringing NHAZCA technologies and methodologies to North American infrastructure owners through locally contracted services.



ROME, ITALY

IntelligEarth S.r.l.

Start-up affiliated with Sapienza University of Rome, with NHAZCA as its corporate partner, making cultural and environmental monitoring accessible through AI-based image processing.

POPPI, CASENTINO · TUSCANY

Consorzio Stabile Resilia & Casentino Tech Hub

A stable consortium of four companies — S2R, NHAZCA, IntelligEarth and GeoAsset — and a physical hub in the heart of the Casentino valley: venue of the 11th ICGSM, home of the projects VALUESAFE and ISABHEL, and of a coworking space open to the local community.

UNITED STATES

Re-Monitor: NHAZCA technology for North America and Latin America

Re-Monitor Inc. is the United States company of the NHAZCA Group. It serves North and Latin American asset owners directly as a locally contracted counterparty, while drawing on the full technological and scientific capability built in Rome.

Through Re-Monitor, transportation agencies, infrastructure operators, engineering firms, construction, mining and energy companies gain access to the same remote sensing methodologies, proprietary software and specialist expertise that NHAZCA applies to critical assets across Europe.

WHO RE-MONITOR SERVES

ENGINEERING FIRMS

Consultants who need a measurement their own client will accept.

CONSTRUCTION, MINING AND ENERGY

Operators whose ground moves while the work continues.

GOVERNMENT AGENCIES

Transportation departments deciding which asset comes first.

A single technical standard, delivered through a US entity.

WHAT RE-MONITOR DELIVERS

Change detection for geohazard monitoring

Systematic comparison of imagery over time to detect and quantify movement affecting slopes, walls and embankments.

UAV and terrestrial PhotoMonitoring™

Drone and ground-based image campaigns processed with IRIS to produce displacement time series and change maps.

Satellite InSAR services

Wide-area ground motion measurement for network-scale screening and prioritisation, with retrospective analysis of archives dating back to the 1990s.

Consultancy and interpretation

Geological and geotechnical reading of monitoring results, so agencies receive decision support.

WHAT AN OPERATOR GETS

Risk mitigation. Movement identified while it is still millimetres.

Solutions tailored to the asset. The method is chosen to fit the question.

Proven expertise. Methodologies developed and validated on European infrastructure over seventeen years.

Ongoing support. Interpretation of every delivery, for as long as the asset is monitored.

We RE-invent. RE-shape. RE-volutionise remote monitoring. — re-monitor.com

THE START-UP OF THE GROUP

IntelligEarth

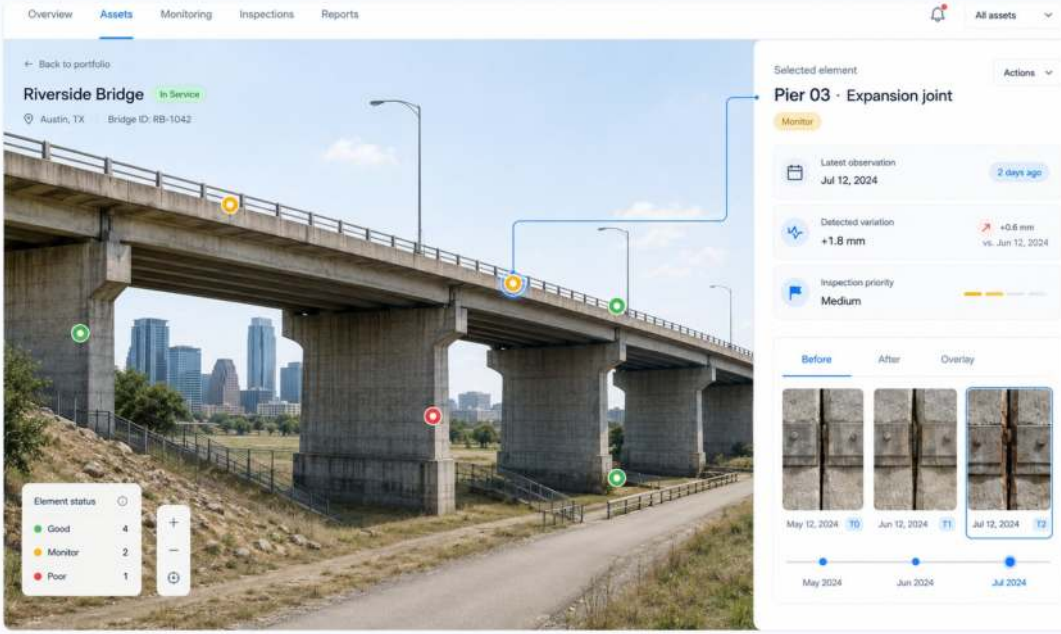
NHAZCA is a corporate partner of IntelligEarth S.r.l., a start-up founded in 2023 and affiliated with Sapienza University of Rome. IntelligEarth redefines the conservation of cultural and environmental heritage by making monitoring accessible, systematic, cost-effective and socially engaging.

Participatory monitoring. IntelligEarth transforms smartphones into powerful monitoring tools. Through its platform **proteGO**, based on AI-driven image processing, users worldwide can actively contribute to the safeguarding of cultural and natural assets simply by taking photographs.

In January 2026 IntelligEarth presented proteGO at **CES in Las Vegas**, with NHAZCA as its industrial partner. What distinguishes the start-up is the integration of academic, scientific and business expertise, turning visionary ideas into practical monitoring solutions.

Monitoring that scales with people, not only with instruments.

A start-up is where a research idea can be tested at low cost and in safety. Keeping one inside the Group is how NHAZCA proves an approach before it reaches a client project.



ROLE IN THE GROUP

Extends NHAZCA know-how into accessible, AI-enabled citizen and stakeholder monitoring for cultural and environmental assets — the historic towns and landscapes that people can cover.

The International Course on Geotechnical and Structural Monitoring (ICGSM)

NHAZCA, in collaboration with professional bodies and associations in Italy and abroad, promotes highly professionalised training courses focused on geotechnical and structural monitoring, remote sensing applications and support for land planning and design.

Since 2014 the **International Course on Geotechnical and Structural Monitoring (ICGSM)** has been recognised as a must-attend event, providing a unique networking and discussion opportunity for the professional, academic and industrial world, with master classes by international experts, a large expo area and field demonstrations. The 11th edition was held in 2025 at the Casentino Tech Hub in Poppi; the **12th edition** took place on 8–11 June 2026 at the **Colorado School of Mines, Golden, Colorado**, organised by NHAZCA with IntelligEarth and Re-Monitor.

1,100+
PARTICIPANTS

70+
COUNTRIES

90+
SPEAKERS

100+
SPONSORS

The Casentino Tech Hub in Poppi gives this work a home: 20 coworking stations, a meeting room and a 100-seat event hall open to professionals, companies, public administrations and non-profit organisations — a deliberate choice to bring training and research into an inland area of Tuscany.



Our Technical-Scientific Committee

Alongside the R&D unit, a committee of academics and senior practitioners gives NHAZCA its technical and scientific direction — and, crucially, **validates the deliverables**: it supervises projects, defines the guidelines that keep them aligned with scientific objectives, and verifies that results are scientifically sound before they reach a client.

Prof. Paolo Mazzanti

Professor of Remote Sensing, Sapienza University of Rome; author of more than 150 scientific papers. Co-founder.

Prof. Francesca Bozzano

Full Professor of Engineering Geology, Sapienza University of Rome; slope instability, urban geology and remote monitoring. Co-founder and President.

Prof. Gabriele Scarascia Mugnozza

Full Professor of Applied Geology and Director of the CERI Research Centre, Sapienza University of Rome; landslides and earthquakes.

Ing. Giorgio Pezzetti

Over forty years in geotechnical and structural monitoring; independent consultant.

Ing. Paolo Clemente

Senior structural engineer; former Research Director at ENEA; experimental vibration analysis and bridge assessment.

Geol. Stefano Cardellini

Geologist since 1987; designer of early-warning systems for landslide monitoring.

Ing. Michele Ortolani

Professor of Physics, Sapienza University of Rome; spectroscopy and hyperspectral imaging satellites.

Credentials

A certified management system, registered trademarks and deposited software: the paperwork a public tender asks for, and the reason our methods carry our name.

ISO 9001:2015

Quality management system, first certified in 2019.
Certificate IT340425

ISO 14001:2015

Environmental management system.
Certificate 023L-NHA-E

UNI EN ISO 45001:2023

Occupational health and safety management system.
Certificate 023L-NHA-H

Innovative SME

Registered in the Italian register of innovative small and medium enterprises since 2024.

Company

NHAZCA S.r.l., incorporated in 2009, operating since 2010. A spin-off of Sapienza University of Rome.

REGISTERED TRADEMARKS AND SOFTWARE

NHAZCA

Registered in Italy, internationally through WIPO, and in the United States.

PhotoMonitoring™

Registered in Italy and, since 2026, as an international registration through WIPO.

PRIMO™

Registered in Italy since 2011 and renewed: the emergency monitoring protocol is a registered trademark.

SGAM

Smart Geotechnical Asset Management, developed under an ESA Demonstration Project.

IRIS · TRIVIA · PS Toolbox

Three proprietary software packages, each deposited with the Italian public software register in 2024.

What this means for a client

The methods, the software and the emergency protocol are ours. We own every link in the chain, and we keep it available.

Testimonials

MARCO RETTIGHIERI
Board of Directors Chairman, Webuild

"NHAZCA employs a multidisciplinary approach supporting both geotechnical and engineering aspects in each project. The team was able to adapt to complex challenges, suggesting valuable and innovative solutions where technologies and conventional approaches were not applicable".

FRANCESCA SPATARO
ROSE-L Program Director, Thales Alenia Space

"NHAZCA supported Thales Alenia Space Italia in the assessment of the ROSE-L* Mission Requirements, from the point of view of expert users of Earth Observation products, providing valuable insights and suitable information, demonstrating an outstanding capability in the understanding of our needs."

*Programme of the European Union Copernicus co-funded with ESA

CHRISTIAN KANU
Chief Executive Officer, Generali Global Corporate & Commercial.

"Risk Engineering & Loss Prevention, together with Underwriting and Claims, have always been about expert data management and our industry is now on the verge of becoming even more science based. Thanks to the collaboration with NHAZCA, GC&C strengthens its ability to meet the most sophisticated clients' insurance needs, by further preventing and mitigating their risk exposures and enhancing cost-effectiveness in the insurance coverage".

PROF. ANNA DE FALCO
Associate Professor PhD, Department of Civil and Industrial Engineering (DICI) Structural Div., University of Pisa.

"NHAZCA has been synonymous with technology excellence with its ability of combining different methodologies according to the needs of cultural heritage managers. NHAZCA team distinguishes itself for its great support and openness in explaining in detail the obtained results".

HERVÉ JOURQUIN
Branch & Deputy Project Manager, BESIX

"NHAZCA provided us with actionable information based on ad-hoc innovative solutions and tailored services, allowing us effective decision-making in the management of our working sites, even in complex situations".

Key Clients



A selection of the public bodies, infrastructure operators, engineering firms and insurers NHAZCA has worked with. Marks are the property of their respective owners.

Key Partners

Generali

Since 2021 Generali's Corporate division has had a business partnership with NHAZCA. The partnership supports comprehensive geohazard assessments for engineering infrastructure, combining innovative monitoring techniques, Artificial Intelligence algorithms and specialist expertise.

Academic partnership

Sapienza University of Rome remains the scientific home of the group, through the CERI Research Centre and a continuous exchange of people, methods and research projects.

Industrial network

Partnerships with space, engineering and instrumentation players keep the technology and the service in step with the market.

Founders

"NHAZCA has been built on the key values of innovation and excellence promoting the relevance of monitoring for sustainable constructions and for guaranteeing our safety and the safety of our planet. Today, after 15 years of hard work with an incredible team, this is the core value of the company. NHAZCA is a recognised and benchmark entity at national and international level for the application of innovative monitoring technologies and I'm so proud to see today its positive impact in the society."
Prof. Paolo Mazzanti — NHAZCA Co-Founder

"NHAZCA: a successful example of academic entrepreneurship! NHAZCA was born in 2009 as spin-off company of
Sapienza University of Rome achieving a virtuous technological transfer representing an important part of University 'Third Mission'. The R&D dedicated to geotechnical and structural monitoring represents an undeniable competitive advantage for the company, that is still strongly supported by its connections with the academic world."
Prof. Francesca Bozzano — NHAZCA Co-Founder and President

Let’s look at one of your assets

Start with a retrospective analysis

Send us one asset and its location. Using satellite archives alone — from orbit, on data we already have — we can reconstruct how it has moved over the past years, where suitable archive coverage exists, and tell you whether it warrants a monitoring system at all.

Write to info@nhazca.com with the subject “Retrospective analysis”.

Contacts

NHAZCA S.r.l.
Via Vittorio Bachelet, 12
00185 Rome, Italy
+39 06 95 065 820
info@nhazca.com · sales@nhazca.com
www.nhazca.com
www.geotechnicalmonitoring.com

Re-Monitor Inc.
USA
www.re-monitor.com

www.nhazca.com

LinkedIn · NHAZCA S.r.l.


NHAZCA
NATURAL HAZARDS CONTROL AND ASSESSMENT

www.nhazca.com

BEFORE YOU FILE THIS AWAY

Send us one asset and its location. We will reconstruct how it has moved, from satellite archives alone.

info@nhazca.com · subject “Retrospective analysis”

NHAZCA S.r.l.
Via Vittorio Bachelet, 12
00185 Rome, Italy
info@nhazca.com