



ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA



The **ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA (INGV)** was established in 1999 by merging five Italian scientific institutions dealing with geophysics, volcanic, seismic and geochemistry research and monitoring.

Istituto Nazionale di Geofisica (ING) was founded in 1936 by Guglielmo Marconi; its mission was “promoting, executing and coordinating studies and research on geophysical phenomena and their applications”.

ING has been pursuing that aim both providing important contributions to basic geophysics and accomplishing duties to the society.

The other scientific institutions merged within INGV are:

Osservatorio Vesuviano

founded in 1841, the oldest volcanological observatory worldwide and one of the cradles of the modern volcanology,

Istituto Internazionale di Vulcanologia (Catania),

Istituto di Geochimica dei Fluidi (Palermo),

Istituto di ricerca sul Rischio Sismico (Milano), the last three established as part of the **Italian National Council of Research (CNR)** between the '60 and '70 years of the past century.

INGV is a government institution, under the supervision of the Ministry of University and Research, that, with more than 1000 people employed, is one of the most important scientific institution in Europe devoted to studies in geophysics as well as in seismic and volcanic hazards.

COS

CENTRO OSSERVAZIONI
SPAZIALI
DELLA TERRA

INGV recently established the **Earth Space Observation Center (COS)** with the aim of linking and planning the activities of the Institute in the fields of Space and Aerospace, as well as to encourage the participation of researchers in designing and implementing services and products for scientific research and applications for other institutions and the society. In this area, INGV plays a particularly suitable role for cooperation with industrial partners by providing a series of complementary activities.

Since the late 90s, INGV effectively contributes to the development of space technologies both in the **Earth Observation** sector (including all available space systems Optical, SAR etc.) and in the **Global Navigation Satellite Systems (GNSS)** sector allowing the INGV to play a role of excellence both for the study of satellite missions and for the development and supply of operational products for end-users.

Within **EO** sector, INGV competences deal with the acquisition, processing, analysis of satellite data (**SAR and Optical**) and their assimilation into geophysical models to support seismic, volcanic and environmental monitoring and surveillance services. INGV has also competence in acquiring airborne data including **UAVs** both for local monitoring purposes and to test new sensors which could be selected for future space missions. INGV ground based remote sensing systems can be used to calibrated and validate satellite products. The satellite data acquisition system, available to provide services in near real time,

is maintained and developed in relation to specific requests of Italian Civil Protection and other Operational Institutions and by means of scientific and technical activities within international initiatives and projects. INGV scientific expertise is also offered to support new space missions (SAR and Optics), as well as studies proposed by national and international Space Agencies, industries and other research bodies.

Within the **Space Weather** sector, an important activity is carried out within the international consortium **PECASUS** (www.pecasus.eu) of which INGV has been a founding partner since 2018. **PECASUS**, designated by the International Civil Aviation Organization (**ICAO**), is one of the centers of excellence in charge of providing the surveillance services of space weather conditions required by the stringent civil aviation certifications and represents a virtuous example of how the coordination of technological development activities can be transformed into operational procedures of interest for the space and aerospace "stakeholders".

INGV guarantees the supply of surveillance products round the clock, through the usability of processed data from its ionospheric and geomagnetic observatories, and by developing specific surveillance products as by recommendation of ICAO, with particular regard to **Galileo, navigation and HF communication**.



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space-related activities

cos.ingv.it