



Seismic waves and acoustic waves: from earthquake to music

Giuliana D'Addezio, Antonella Marsili, Ingrid Hunstad, Pierfrancesco Burrato, Paolo Casale, Massimiliano Vallocchia, Umberto Fracassi, and Guido Ventura

Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy

INGV is currently the largest European scientific institution dealing with Earth Sciences research and real-time surveillance, early warning, and forecast activities in geophysics and volcanology. The Laboratorio Didattica e Divulgazione Scientifica of INGV organizes every year rich educational and outreach activities with schools of different levels and with general public to convey scientific knowledge and to promote research on science and nature, focusing on volcanic and seismic hazard. The activities encompass a wide variety of formats, such as the opening of our labs to schools for guided visits, contributing to national (e.g., the Italian "Week of the Scientific Culture", launched by the Ministry of Education and Research) and international (e.g., the European "Night of the Researchers") events, editing educational videos, creating multimedia tools also available on the Web. Moreover, we contribute to expositions and science festivals organizing exhibitions with experiments, models, and exhibits designed to teaching and learning geophysics. Finally, we offer guided visits to the control rooms run by our Institute, which ensures the round-the-clock volcanic and seismic surveillance of the whole Italian territory.

During the Week of the Scientific Culture and the Night of the Researchers we opened our Institute to the general public, in order to show our laboratories, to talk about new researches on Earth Sciences and to explain the volcanic and seismic risk and the related surveillance activities. These initiatives are widely appreciated by the community and we organized special events with the aim to inspire curiosity toward scientific research, and to facilitate the approach of the general public to science and nature. The special event of the 2010 programmes was a scientific-musical format: Seismic waves and acoustic waves, from earthquake to music. The aim of this project was to involve the public in scientific events offering happening where the scientific language is mediate through the language of the music. In this way, scientific phenomenon are brought in using emotion, making easier the understanding of the scientific themes. The format started with short lectures on earthquake and seismic wave propagation to move on the comparison between the seismic waves and the acoustic waves. We used seismograms, acoustic instruments, the voice, and the Earth sounds to explain the relation between earthquake waves and music. The scientific talks were organized to create a trail that, through emotion and curiosity, guides the public to the discovery and comprehension of the scientific phenomenon. The final part of the event was devoted to classical/jazz/blues live concerts performed by groups and ensembles, some of them arranged by INGV researchers. As a general result, thanks to this project we joined science and community, merging the INGV mission with the public expectation. This scientific-musical format represented an experimental outreach project, new, stimulating, and appreciated by the audience that can be used as good practice of scientific divulgation.