



**Project no.043386**

# **TRIGS**

## **TRIGGERING INSTABILITIES IN MATERIALS AND GEOSYSTEMS**

**Sixth Framework Programme (FP6) - STREP**

**New and Emerging Science and Technology (NEST)  
Pathfinder Initiative**

Deliverable n. 6.3      Final report on the impact of the research and training activities performed under the project.

Due date of deliverable: 31 December 2009

Actual submission date: 26 January 2010

Start date of project: 1 January 2007

Duration: 3 years

Organisation name of lead contractor for this deliverable: CNR  
Diffusion Level: PU

## Dissemination of knowledge

The internet site [www.haisentitoilterremoto.it](http://www.haisentitoilterremoto.it), made by INGV group, gave the opportunity to be in contact with people. In the site it is possible to compile a questionnaire about earthquake effects addressed to a single non-specialist person; reported effects are statistically analyzed to extrapolate Mercalli-Cancani-Sieberg and European Macroseismic Scale intensity referred to that observer. Maps of macroseismic intensity are displayed on-line in almost real time and are continuously updated. Collected data are analyzed with the aim of studying attenuation and amplification anomalies of the shaking. Through the site INGV collected over 130000 questionnaires and more than 8000 permanent subscribers. This voluntary collaboration brought the interest and awareness of citizen in earthquakes, stimulating the debate on some hot topic. Media interview and articles dealt in particular with: factors acting on amplification of earthquake effects, opportunity given to every person to contribute in a scientific research, connection between earthquakes occurring close in time but at long distance apart (as example Forlì 05 April 2009 and L'Aquila 06 April 2009).

## Tutorials

PhD Course, "Introduzione alle variabili aleatorie e ai sistemi complessi", Università Roma Tre (CNR).

Master Course on "Snow and Avalanches" at ETH Zurich, Switzerland (WSL/SLF).

Educational Courses (2-3) for avalanche professionals (per year), in total about 300 participants (WSL/SLF).

Phd seminar "Spatial and temporal statistics of seismicity", Statistics department, Università Roma Sapienza, December 2008 (INGV).

## Conferences, Workshops and Summer Schools organized

II Cell Model Systems Summer School, Roma-Tor Vergata (Italy), 7-12 June, 2009 (CNR).

Erice International School on Complexity, XI Course: Grains, friction and faults Erice (Italy), July 20th 25<sup>th</sup> (CNR).

XIV Convegno Nazionale di Fisica Statistica, Parma (IT), 24-26 June 2009 (CNR).

8th Euro Conference of Rock Physics & Geomechanics, 13th-18th September, 2009, Ascona, Switzerland (INGV).

New challenges in earthquake dynamics: Observing and modelling a multi-scale system. Obergurgl, Austria 18-23 October 2008. The aim of this conference is to discuss the recent advances in earthquake physics, in particular relating to earthquake interactions (observations, models). An emphasis will be given on the role of small scale processes and structures in controlling large scale earthquakes and regional seismicity. It will promote new, exploratory discussions on how to reconcile large scale regional models with small-scale controls on stress and seismicity (UJF)

'Frontiers of Seismology': a meeting for the UK seismological community in Edinburgh, Co-hosting, 2-3 April 2009, covering all aspects of Earthquake and Exploration Seismological Research (UEDIN).

'International Snow Science Workshop 2009' in Davos, 27 September – 2 October 2009. The aim was to gather scientists and practitioners in the field of snow safety under the motto of "A merging of theory with practice". 500+ participants from 24 countries attended the conference (WSL/SLF).

Symposium of Multiscale Materials Modeling 2008 in Tallahassee, Florida, Oct. 2008 (HUT).

## Press release

### - press

Press release Adn Kronos (2009-04-25), Terremoto, quasi 10mila risposte al questionario on-line. Dati utili per la prevenzione (INGV).

Press release ANSA (2009-04-06), L'INGV stila la 'Mappa delle percezioni' in tutta Italia (INGV).

Press article Corriere della Sera (2009-04-06), Hai sentito il terremoto? Sito scientifico calcola le mappe della scossa percepita (INGV).

Press article Corriere della Sera (2009-02-02), Sta nascendo una comunita' di cittadini pronti a fornire informazioni in caso di scosse per aiutare i sismologi. [http://www.corriere.it/scienze\\_e\\_tecnologie/09\\_febbraio\\_02/osservatori\\_terremoti\\_foresta\\_martin\\_791aa8c0-f146-11dd-b48f-00144f02aabc.shtml](http://www.corriere.it/scienze_e_tecnologie/09_febbraio_02/osservatori_terremoti_foresta_martin_791aa8c0-f146-11dd-b48f-00144f02aabc.shtml) (INGV).

On-line press article GEO Media (2009-04-24), Mappe collaborative degli effetti del terremoto da INGV, <http://www.rivistageomedia.it/it/ambiente-e-territorio/1285-mappe-collaborative-degli-effetti-del-terremoto-da-ingv.html> (INGV).

On-line press article Unione Giornalisti Italiani Scientifici (2008-12-20), [www.haisentitoilterremoto.it](http://www.haisentitoilterremoto.it) - a disposizione dei cittadini per le loro segnalazioni, <http://www.ugis.it/a180109-terremoto2.html> (INGV).

### - radio

Interview with Valerio De Rubeis (INGV) on Radio 1 (2010-01-26), Subject: web site [www.haisentitoilterremoto.it](http://www.haisentitoilterremoto.it). [http://www.radio.rai.it/grr/view.cfm?Q\\_PROG\\_ID=421&Tematica=17&V\\_IDNOTIZIA=57028#](http://www.radio.rai.it/grr/view.cfm?Q_PROG_ID=421&Tematica=17&V_IDNOTIZIA=57028#)

Interview with Valerio De Rubeis (INGV) on Radio 3 Scienza (2009-01-29), Subject: sito web [www.haisentitoilterremoto.it](http://www.haisentitoilterremoto.it). [podcasthall.forumcommunity.net/?t=34284455](http://podcasthall.forumcommunity.net/?t=34284455)

Interview with Valerio De Rubeis (INGV) on Radio 3 Scienza (2008-12-23), Subject: Parma earthquake 23 december 2008.

### - TV

Interview with Patrizia Tosi (INGV) on Sky TG24 (2010-01-15), Subject: Haiti earthquake.

Interview with Patrizia Tosi (INGV) on Rai3 (2009-04), Subject: L'Aquila earthquake.

Interview with Valerio De Rubeis (INGV) on Sky TG24 (2009-04), Subject: L'Aquila earthquake.

## Training, researcher exchange, thesis, other dissemination action

Exchange: Claudio Manzato (Zapperi group): 2 months in Helsinki in 2009 (HUT).

Training: PhD student Torbjorn Ersfjors Bjork, Physics of Geological Processes (PGP), University of Oslo, for micro analytical facilities field emission SEM (INGV).

Thesis: Moretti S., degree, Radon exhalation rate of geological materials and its relation to temperature and deformation degree, University "Roma Tre" (Rome, Italy). Tutor: P. Tuccimei, S. Vinciguerra. (INGV).

Thesis: Heap M., PhD, CREEP: time-dependent brittle deformation in the laboratory, University College London, Supervisors: Meredith P.G., Baud P., Vinciguerra S. (INGV).

Thesis: Trippetta F., PhD, Physical properties of seismogenic Triassic Evaporites in the northern Appennines (Central Italy), Università di Perugia, Supervisors: Collettini C., Vinciguerra S. (INGV).

Other activities: Ian Main was a member of the International Presidential commission on Earthquake forecasting for civil protection, set up in the aftermath of the L'Aquila, Abruzzo earthquake in 2009. Interim recommendations were presented to the Italian civil protection organisation and to the press direct, including a press conference in L'Aquila itself. A key issue was the possible enhancement of seismic hazard due to triggering effects during a local swarm that preceded this event (UEDIN).