



Cellule d'intervention et d'expertise
Scientifique et Technique



French community united to bring geophysical information after a geological hazard, by analysis of satellite imagery. : the revival of « La Cellule d'Intervention Scientifique et Technique » (CIEST) ?

*Marcello de Michele⁽¹⁾, Catherine Proy⁽²⁾, Cecile Lasserre⁽³⁾, Raphael Grandin⁽⁴⁾,
Claire Tinel⁽²⁾, Daniel Raucoules⁽¹⁾, Michael Foumelis⁽¹⁾*

1) BRGM, French Geological Survey, Centre Scientifique et Technique, Orleans, France.

2) CNES, French Space Agency, Toulouse

3) CNRS, UCBL - Université Claude Bernard Lyon 1

4) IPGP, Laboratoire de Tectonique, Paris

-1.89 3740.46 -625 5





History : CIEST initiative : how did it work ?

-The International Space and Major Disasters Charter is an agreement between participating space agencies to provide information and data obtained from space to support humanitarian efforts in emergencies caused by major disasters.

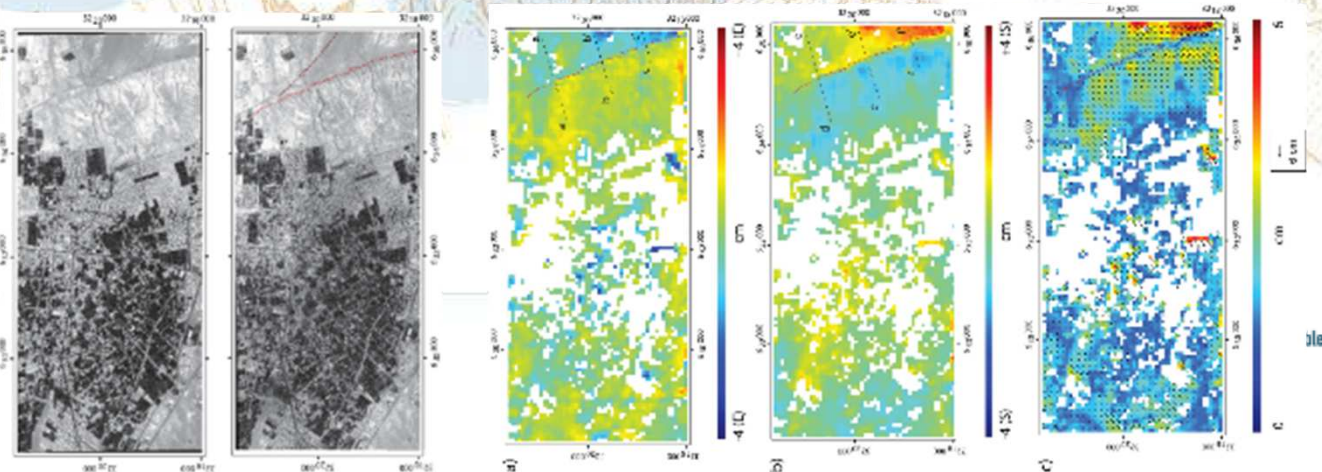
Since **November 2000**, the Charter has used space-based data to help manage the effects of sudden-onset natural disasters such as floods, hurricanes, tsunamis, earthquakes, landslides, wildfires, volcanic eruptions. The International Charter on Space and Major Disasters has 17 international member agencies.

-In France, the “Cellule d'Intervention Scientifique et Technique” (CIEST) used to be a formal agreement between six national research organizations (**BRGM, CEA, INSU, IGP, IRD, UCBL**), which aimed at extending the use of space imagery, and in particular the images acquired within the framework of the International Charter of Space and Major Disasters, for geophysical studies and the understanding of the geological hazard. The CIEST agreement came into life in **September 2005**, with an initial term **of three years**.

Credits:
CHARTER, CNES (SPOT5)
Quickbird

e.g. Bam 2003

de Michele et al., 2008





Cellule d'intervention et d'Expertise Scientifique et Technique



Dedicated website: covered events



www.ciest.fr (2002-2010)

Site created by P. Briole (ENS)

18 events (2002-2010)
In response to CHARTER Activation (excluding L'Aquila)

Conceived as a platform
For exchange and storage
Of results.

Beyond the agreement,
up to 2010 :
BRGM and ENS mainly

-1.89 3740.46 -625 5

Home Admin CIEST History References Links Rechercher...

Nom d'utilisateur
Mot de passe
 Se souvenir de moi
Se connecter
Mot de passe oublié ?
Pas encore de compte ?

CIEST Cellule d'Intervention et d'Expertise Scientifique et Technique **cnès** CENTRE NATIONAL D'ÉTUDES SPATIALES

Accueil • Home

- Chile 2010
- Haiti 2010
- Padang 2009
- L'Aquila 2009
- Andravida 2008
- Sichuan 2008
- Chaiten 2008
- Tocopilla 2007
- Sumatra 2007
- Aysen 2007
- Kashmir 2005
- Ethiopia 2005-
- Banda Aceh 2004
- Al Hoceima 2004
- Bam 2003
- Boumerdes 2003
- Stromboli 2003
- Niyragongo 2002

Logos: CNRS INSU Institut national des sciences de l'Université, IRD Institut de recherche pour le développement, brgm Géosciences pour une Terre durable, CEI, IPGP Institut Français de Géochimie et de Géophysique

Photos: K. Lammall, C. Vigny, P. Briole - Web site maintenance P. Briole, briole@cnes.fr

Some of the results obtained by using SATELLITE IMAGERY (2002-2010)

Bam 2003:

Sarti et al., 2004 (ESA+IPGP/ENS+TELESPAZIO);
 Binet & Bollinger, 2005 (CEA) ;
 de Michele et al., 2008 (BRGM)

Ethiopia 2005:

Grandin et al., 2009 (IPGP+CEA)

Sumatra 2007

Vigny et al., 2007 AGU (ENS)

Sichuan/Wenchuan 2008

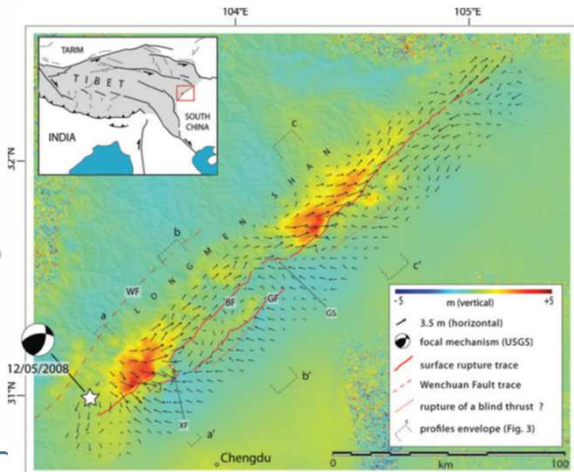
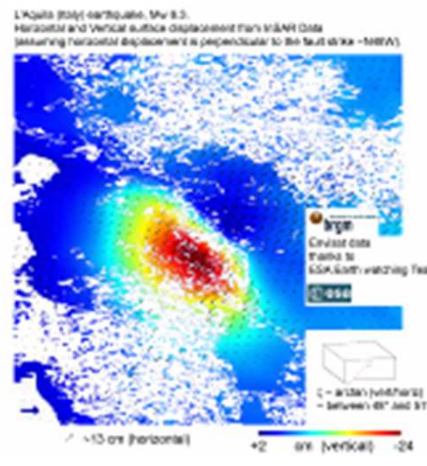
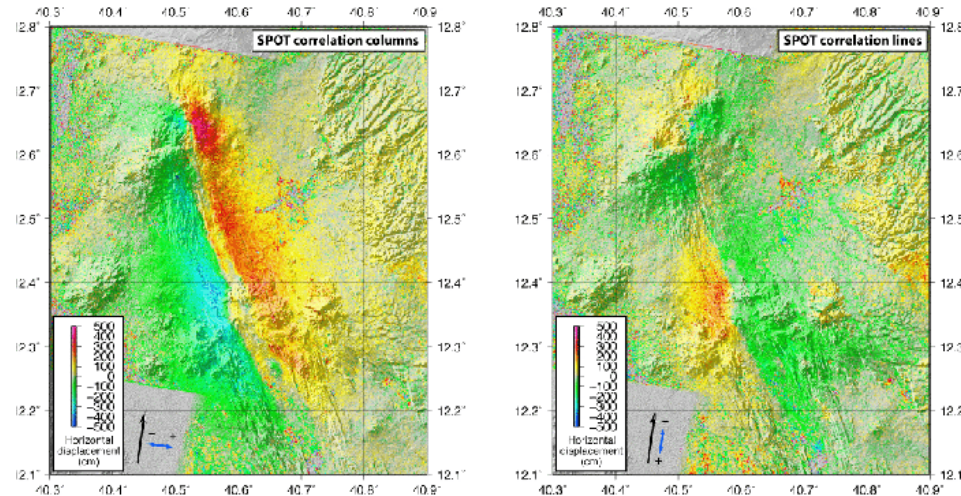
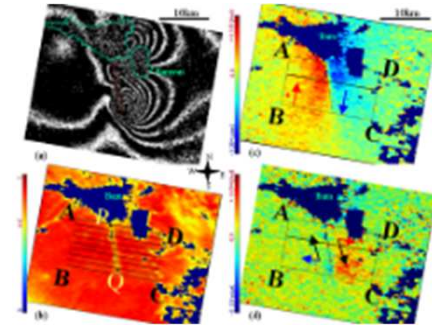
de Michele et al., 2009 (BRGM+ENS+IPGP+LGIT)
 Raucoules & de Michele (BRGM)
 de Michele et al., 2010 (BRGM+ENS)

L'Aquila 2009

Briole et al.,
 EMSC special page; (ENS+BRGM)

Haiti 2010

Contribution to « Supersites initiative »
 (CEA+BRGM+ENS)



CONTEXT after 2010



Cellule d'intervention et d'expertise
Scientifique et Technique



Pléiades1A and 1B launched in 2012

No more active CIEST agreement

**2012-2014 : Data available through CNES
in the frame of Pléiades application
development initiative (around 20 case
studies on GeoHAzards)**

**2015-2019 : No more national coordination
around remote sensing**

Proposal for Today : CIEST REVIVAL

- BRGM, CNES initiated a discussion
- IPGP established a list of **26 scientists from 14 French** laboratories which expressed interest and support to the initiative

Main principles:

- Activation following a charter **or not**
- Tasking of Stereo Pléiades for **DSM generation**
- Use of in-house or common tools (PEPS and GEP) for **Sentinel processing** in addition to Pléiades

Sharing of results for geophysical interpretation : **More than just image dissemination among research laboratories**

New Procedure to be started in 2020

- **Charter activation for Landslide, Earthquake ou Volcano eruption: **additional tasking****
 - Interaction with the community for area confirmation or modification
 - Need for archived data
 - Need for stereo tasking of Pléiades (same or after emergency acquisition fir the Charter)

- **Non Charter activation (**very new!**) :**
 - Decision process from a small steering scientific-comitte to be established
 - CNES Poc for Pléiades tasking
 - NON-emergency but Rapid tasking

- **Feedback (**required from CNES**):**
 - Generating and Sharing of results within the 'CIEST' COMMUNITY
 - Decision about public communication or not (on a dedicated Website, not only tweetter 😊)
 - Discussions about geophysical interpretations

First NEW Example of Pléiades data from Charter : Ubinas volcano (Peru) July 2019 eruption



SOME PERSPECTIVES

- To federate a French community (Form@Ter...) for 'rapid' scientific response to geo-hazardous events from space data. **Who is in ?**
- Links with CEOS Disasters Working Group and GNSL supersites?
- **Find a Name?** GREASE for GeoRisk Expertise and Assessment by Space