Annual Report* of IGCP Project No. 585

IGCP project short title: E-MARSHAL (Earth's Continental Margins: Assessing the Geohazard from Submarine Landslides)

Duration: 2010-2014

Project leader(s):
1. Name: Roger Urgeles
   Address: Institut de Ciències del Mar (CSIC), Passeig Marítim de la Barceloneta, 37-49, 08003 Barcelona, Spain
   Tel.: +34 93 2309500
   Fax: +34 93 2309555
   Email: urgeles@icm.csic.es

2. Name: David Mosher
   Address: Natural Resources Canada, Geological Survey of Canada – Atlantic, 1 Challenger Drive (P.O. Box 1006), Dartmouth, Nova Scotia B2Y 4A2, Canada
   Tel.: +1 (902) 426-3149
   Fax: +1 (902) 426-4104
   Email: dmosher@nrcan.gc.ca

3. Name: Jason Chaytor
   Address: U.S. Geological Survey, USGS Woods Hole Science Center, 384 Woods Hole Road, Woods Hole MA, USA
   Tel.: +1 508 457 2351
   Fax: +1 508 457 2310
   Email: jchaytor@usgs.gov

4. Name: Michael Strasser
   Address: Geological Institute, ETH Zurich, Sonneggstrasse 5, 8092 Zürich
   Tel.: +41 44 632 61 50
   Fax: +41 44 632 10 80
   Email: strasser@erdw.ethz.ch

Project Secretary:
Name: Maarten Vanneste
Address: International Centre for Geohazards - Norwegian Geotechnical Institute, Postboks 3930 Ullevål Stadion, 0806 Oslo, Norway
Tel.: +47 22 02 30 32
Fax: +47 472 70 861
Email: Maarten.Vanneste@ngi.no

Date of submission of report: 15/12/2012

Signature of project leader(s):
1. **Website address(es) related to the project**
   

2. **Summary of major past achievements of the project**
   
   - IODP proposal APL-738 NANTROSLIDE in the Nankai Trough funded and drilled within IODP Expedition 333.
   - Lobbying within IODP to achieve proper consideration of submarine landslides within the new science plan for the period 2013-2023 (see [http://www.iodp.org/Science-Plan-for-2013-2023/](http://www.iodp.org/Science-Plan-for-2013-2023/); Chapter 5 “Earth in Motion: Geohazards, fluid flow, and active experimentation”.
   - Setup of project web page.
   - Special sessions at AGU Fall Meeting 2010, General Assembly of the European Geosciences Union 2011, Japan Geoscience Union International Symposium 2011
   - Course in Bremen, Germany on “Mass wasting on continental margins: Comparing modern and ancient settings”.
   - Organized our most important periodic event the 5th International Symposium on Submarine Mass Movements and Their Consequences, Kyoto, Japan that gathered a total of 137 participants representing 13 countries.
   - Published a special issue of Marine Geophysical Research (vol. 32, issue 1-2) on “Seafloor Mapping for Geohazard Assessment” (Guest Editors F. Chiocci, A. Cattaneo and R. Urgeles).

3. **Achievements of the project this year only**

   3.1. **List of countries involved in the project (“countries active this year”)**
   

   3.2. **General scientific achievements and social benefits**
   
   During 2012 we have set up online the lecture notes from the ECORD summer school (see [http://www.igcp585.org/education](http://www.igcp585.org/education)).
   
   We have continued to enlarge the social base of the project. Current participation in IGCP-585 has almost multiplied by 4 since the project started, and the project has now 123 active participants of 29 different countries, spanning 4 continents.
   
   IGCP-585 fostered submarine landslide and scientific drilling research. In this regard, most notable is the drilling of Expedition 340 on “Lesser Antilles Volcanic Landslides”, where members of the IGCP585 community have been actively participating ([http://www.iodp.org/](http://www.iodp.org/)).
   
   Submission of the IODP pre-proposal 811-pre (The impact of recent warming and pore pressure rebound on slope instability)
   
   Submission of the IODP Ancillary Propject Letter 809-APL (A Holocene record of submarine landslides, seismic shaking, and climate change: Port Valdez, Alaska) for potential drilling in 2013
   
   Workshop on scientific drilling to assess geohazards from submarine landslides in the Ulleung Basin, East Sea with KIGAM and KORDI in South Korea to review the scientific issues regarding submarine landslides and to seek possible targets in the Ulleung Basin.

3.3. **List of meetings with approximate attendance and number of countries**

   **General Assembly of the European Geosciences Union**, April 2012, Viena, Austria. Session NH3.9 "Submarine Landslides: Mechanisms, Processes and their Sedimentary Record" 17 abstracts from 11 different countries (China, Greece, Italy, Japan, Norway, Russia, Sweden, Switzerland, Taiwan, UK, USA); ~ 50 people attended the oral session. All abstracts are published online at the EGU website at: [http://meetingorganizer.copernicus.org/EGU2012/session/9264](http://meetingorganizer.copernicus.org/EGU2012/session/9264)

11th Int. and 2nd N. American Symp. on Landslides (ISL/NASL), June 2012, Banff AL, Canada. Session 2-2D on “Submarine and Coastal landslides”.

Seven papers were presented at the session, organized by project members Jacques Locat, Laval University, and David Mosher, Geological Survey of Canada. The session was attended by ~50 people from the 300 congress participants.

34th International Geological Congress, August 2012, Brisbane, Australia. Session on “Subaerial and submarine landslide hazards [IGCP585]”

41 abstracts from 20 different countries (Australia, Canada, China, France, Germany, Italy, Iran, Japan, Korea, Nepal, New Zealand, Norway, Philippines, Portugal, Sri Lanka, Switzerland, Taiwan, Uzbekistan, USA and Vietnam) More than 100 people attended the oral session over the two days with lively discussions in front of the posters.

3.4. Educational, training or capacity building activities

We organized (M. Strasser main organizer) the ECORD (European Consortium on Ocean Research Drilling) summer school on “Submarine Landslides, Earthquakes and Tsunamis”, at the MARUM - Center for Marine Environmental Sciences and the IODP Bremen Core Repository, University of Bremen, Germany. A total of 31 PhD students and young post-docs from several countries (Australia, Belgium, Canada, France, Germany, Ireland, Israel, Italy, Norway, Portugal, Spain, Switzerland, United Kingdom) attended the course. The two-week course combined lectures and interactive discussions with practical exercises.

Members of IGCP585 have also submitted an Initial Training Network (ITN) to the EC 7th Framework Programme. The ITN on “Submarine LANDslides and Their impact on European continental margins” (SLATE) will provide, if funded, training for 11 Pre-Doc and 12 Post-Doc students.

3.5. Participation of scientists from developing countries, and in particular young and women scientists

IGCP-585 involves researchers from 10 emerging and developing countries (2+ with respect to previous report): Brazil, China, Colombia, Costa Rica, Fiji, India, Indonesia, Pakistan, Turkey, Sri Lanka. Full list at http://www.igcp585.org/participants.

IGCP-585 involves 29 women scientists (5+ with respect to previous report), most of them young women scientists. They include Australia (1), Canada (1), Fiji (1), France (3), Germany (2), Greece (1), Indonesia (1), Ireland (1), Italy (5), Norway (2), Switzerland (3), Turkey (1), UK (4) and USA (2).

3.6. List of most important publications (including maps)

Publications that directly resulted from IGCP585 networking activities include:

- Our contribution to the 40th anniversary book of IGCP.
3.7. Activities involving other IGCP projects, UNESCO, IUGS or others

- With project IGCP-619 on “Contourites: processes & products” we have agreed on co-organizing a special session on contourites and slope failures at the planned initial meeting of project 619 in Ghent in 2014.
• INQUA project 1202 on “Rapid environmental changes and human impact on continental shelves” has a specific scientific theme on "Effects of geohazards and anthropogenic impacts". We have also agreed that events related to this theme would be jointly set up.

4. Activities planned

4.1. General goals

• IODP Drilling in the fjord Port Valdez during IODP Exp 341 (IODP Proposal 809-APL: A Holocene record of submarine landslides, seismic shaking, and climate change: Port Valdez, Alaska; after successful review the proposal was forwarded to R/V Joides Resolution Implementation Organization for potential scheduling in July 2013.

• Continue cooperation with deep subsurface sampling and monitoring programmes and promote submission of drilling and/or monitoring proposals.

• Improve the links between academia, stakeholders, policy makers and industry in order to create partnerships to address the topic of geohazards from submarine landslides.

• Promote publication of literature on this submarine geohazard that contributes to societally relevant problems.

• Make our website grow with additional educational material.

• Continue to enlarge the social base of IGCP585, particularly involving participants from developing countries.

• Support participants from developing and under-represented countries to attend IGCP585 activities.

4.2. Tentative list of specific meetings and field trips (please list the participating countries)

• In 2013 we will hold the 6th edition of the International Symposium on Submarine Mass Movements and Their Consequences, our main biannual event that will be held this year in Kiel, Germany from September 23 to 25. Our main efforts will be put in organizing this event, which will also involve production of the 5th edition of our “Submarine Mass Movements and Their Consequences” book.

• As part of the 6th International Symposium on Submarine Mass Movements and Their Consequences we will also be organizing two field trips, one pre-meeting and the other post-meeting:
  1. Pre-field excursion to the coastal geology and ancient fishery towns of the province of Schleswig-Holstein (Friedrichstadt, Tönning, Westerhever, Roter Haubarg)
  2. Post-field excursion to outcrops of fossil landslides in the Austrian Alps.

• For 2013 we also plan organizing a special session on "Seafloor Expression of Tectonic and Geomorphic Processes" (GM) at the EGU General Assembly, to be held in April in Vienna, Austria.

• Additionally, we aim at representation within submarine-landslides related sessions during the fall meeting of the American Geophysical Union (AGU) in Dec 2013 in San Francisco.

• A submarine landslides session is also planned by active IGCP 585 members from Japan at the Japan Geological Union Annual Meeting in May, in Chiba, Japan

5. Project funding requested

We would like to support participation at EGU with 4 grants. In particular, we would like to set up a grant of 1000 US$ to promote participation from researchers in developing countries* and 3 grants of 500 US$ (mostly for students). In addition, for the 6th Symposium in Kiel (see above), we would like to support 5 graduate students (3500 US$) and 2 participants from developing countries (3000 US$). We also request 1000 US$ for maintaining the website and the Secretariat in Oslo. So, for 2013, we are requesting a total of 10.000 US$.

6. Request for extension, on-extended-term-status, or intention to propose successor project

No plans yet, but formal discussion proposed for the Kiel conference.

7. Financial statement ($ USD only)
For 2012, IGCP-585 has received a total of 7500 US$. The funds received have been used to support students* to participate in the following activities:

3 grants x 650 US$ = 1950 US$ to attend the Session on “Subaerial and submarine landslide hazards [IGCP585]” at the 34th International Geological Congress in Brisbane, Australia.

3 grants x 650 US$ = 1950 US$ to attend the Session NH3.9 “Submarine Landslides: Mechanisms, Processes and their Sedimentary Record” at the 2012 General Assembly of the European Geoscience Union, in Vienna, Austria. In this case all three grants went to young women scientists.

3 contributions x 750 US$ + 1 contribution x 600 US$ = 2850 US$ to subsidize travel of invited lecturers to the summer school. The ultimate beneficiaries of these funds were actually the participating students. Thanks to University of Bremen and IGCP585 support students obtained a reduced course fee 100€. Additionally, ECORD established a significant number of grants that allowed travelling several students.

750 US$ have been devoted to Secretariat expenses (website maintenance, project administration, etc.)

*We are fully sensitive to the issue raised in the recent correspondence with UNESCO with regard to the fact that most of the grant request in IGCP585 activities derive from the "developed" nations. We believe the reason for this situation, which was also an element in the precursor project IGCP511, is that offshore investigation requires access to large infrastructure such as research vessels and geophysical equipment, and many developing nations do not possess the technology to perform such research. To ameliorate this situation, we are working on additional measures to promote participation and/or dissemination of results of IGCP585 to developing nations and emerging countries. Besides setting up greater specific grants targeting developing nations, we plan to make our proceedings freely available through the internet to universities in developing countries. In short, we will start negotiating the contract for the 5th edition of the Submarine Mass Movements and Their Consequences book and we are aiming to add a clause to address this point. We also will consider grant requests from participants in developing nations to attend IGCP585 activities without the need to deliver a scientific presentation in order to enable communication with IGCP585 community members and potentially foster scientific relationship.

8. **Attach any information you may consider relevant**

N/A