XVII INQUA Congress, Cairns, July 28th – August 3rd, 2007

INQUA TERPRO – Commission on Terrestrial Processes, Deposits, and History

Subcommission on Paleoseismicity: Methods, Criteria and Dating

MINUTES OF THE 5th BUSINESS MEETING

Cairns, 29th July 2007

Room , 18:00 PM

Agenda:

1) REPORT ON THE INQUA CONGRESS SESSION 60 + 60A SPONSORED BY THE SUBCOMMISSION
1) REPORT ON 2003-2007 ACTIVITIES OF THE SUBCOMMISSION
2) 2007-2011 ACTIVITIES: FUTURE DEVELOPMENTS

List of Participants:

RIVKA AMIT, GLENDA M. BESANA, JOHN CLAGUE, DAN CLARKE, VALERIO COMERCI, ELIANA ESPOSITO, MARC L. GOEDHART, LUCA GUERRIERI, REGINALD L. HERMANNS, SHIGEO HIGUCHI, ZENOBIA JACOBS, ÁRPÁD MAGYARI, ALESSANDRO M. MICHETTI, NIKLAS MÖRNER, YUNONG NINA LIN, KOJI OKUMURA, YOKO OTA, SABINA PORFIDO, AMY PRENDERGAST, PABLO SILVA BARROSO, ROY B. VAN ARSDALE, EUTIZIO VITTORI, RUSS VAN DISSEN.

1. REPORT ON 2003-2007 ACTIVITIES OF THE SUBCOMMISSION

GUERRIERI summarizes the activities of the Subcommission in the 2003-2007 intercongress period. The Subcommission has supported the participation of young scientists from developing countries to six meetings held during the following conferences: 1) 32nd International Geological Congress, Florence, August 2004; 2) International Symposium on Active Faulting, Hokudan, January 2005; 3) Dark Nature - Rapid natural Change and Human Responses, Como, September 2005; 4) European Geosciences Union General Assembly 2006, Vienna, April 2006; 5) IAEA ICTP Workshop on the Conduct of Seismic Hazard Analyses for Critical Facilities, Trieste, May 2006; 6) International Workshop on "*Blind dip-slip faulting and strain partitioning in an active orogen: The Mérida Andes case, Venezuela*", Santo Domingo, Estado Mérida, Venezuela, March 05-07, 2007.
At least 13 publications (published or in press) and 40 scientific contributes (oral presentations + posters) have been focused on the INQUA Scale project.
The final result of the intercongress activities is the new version of the INQUA EEE scale, re-named Environmental Seismic Intensity scale (ESI 2007), published as a volume of the Italian Geological Survey journal. This new version has been thought to take into account the input from the applications of the former scale (Michetti et al., 2004) to a number of contemporary and hstorical earthquakes worldwide.
Another result is the EEE database (http://www.apat.gov.it/INQUA/), which is an inventory of coseismic effects produced on natural environment and corresponding ESI intensity assessments. Currently, information on ground effects from 51

earthquakes from nine countries are included in the database. This activity is only at a preliminary step and needs to be further developed in the next intercongress period.
GUERRIERI also outlines the essential contribution from members of the Subcommission which could not participate to the INQUA Congress. In particular he mentions the strong activity of Regional Working Groups from Colombia (C. Lalinde Pulido, Luis Enrique Franco), Russia (R. Tatevossian, E. Rogozhin) and Venezuela (F. Audemard and colleagues).

2) 2007-2011 ACTIVITIES: FUTURE DEVELOPMENTS

- New Structure and New Scientific Secretary: The Subcommission confirms MICHETTI as President; SILVA BARROSO, AZUMA and AUDEMARD have been proposed as Vice Presidents. The Scientific Secretary will be operated by GUERRIERI and COMERCI. The list of members is open and therefore who wishes to collaborate in the activities of the Subcommission is always welcome; preliminary contacts have been taken, for instance, with scientists working in Mexico (Francisco J. Nuñez; John Jairo Sanchez) and India (A.K. Singhvi).

- Dissemination of the ESI 2007 scale: MICHETTI highlights the importance of the promotion among the scientific community, with particular regard to the geological surveys and seismological institutes. This dissemination may be conducted under the INQUA umbrella, since the INQUA Exective Committee is keen to support this activity. To this end, it is important that all members of the Subcommission will contribute in preparing a list of contacts.

- Catalogue of Earthquake Environmental Effects: this could be one of the objectives of the 2007-2011 intercongress period, in agreement to input from previous Subcommission meetings. Similarly to traditional seismic catalogues, which basically record intensity assessments based on damages to buildings, this catalogue is focused on the collection of all available information of coseismic environmental effects supporting the evaluation of ESI epicentral and local intensities. This catalogue should be developed starting from the EEE database. SILVA BARROSO illustrates an example of environmental effects catalogue triggered by historical and recent earthquakes in Spain, that could be used for the development of the catalogue structure. MORNER remarks the importance of differentiating three main sections regarding 1) recent earthquakes; 2) historical earthquakes; 3) paleo-earthquakes. Furthermore, BESANA and LIN outline the importance of developing a better user-friendly web interface for data input and offer their support to the Scientific Secretary in this task.

- Next meetings: OKUMURA promotes a meeting to be held during the upcoming conference of the Quaternary Association of Japan in Tokjo in November 2007.
MÖRNER introduces the paleoseismological sessions, field trips and short course organized with the support of the Subcommission in the frame of the 33th IGC events in Oslo, August 2008. Three symposia on deducing nature, magnitude, and recurrence histories of paleoearthquake, and general applications of paleoseismological analyses, have been accepted by the organizing committee, and will be chaired by JOHN ADAMS, MARYAM KHODAYAR, HILMAR BUNGUM, KLAUS REICHERTER, ALESSANDRO M. MICHETTI, and NILS-AXEL MÖRNER. Two field trips leaded by NILS-AXEL

MÖRNER (*Paleoseismicity and Uplift of Sweden*) and MARYAM KHODAYAR (*Paleoseismicity and neotectonic in Iceland*) have been proposed before and after the Congress. A short course in Paleoseismology will be also realized by JIM MCCALPIN, FRANCK AUDEMARD, SUE DAWSON and NIKLAS MORNER.
SILVA BARROSO proposes a Subcommission meeting during the archaeoseismological conference that will be held in Baelo Claudia (Bolonia, South West Spain), scheduled in 2009.
AMIT promotes a meeting in the frame of a geological field trip along the Dead Sea fault (end of 2008 - beginning of 2009).
Finally, MICHETTI reports that AUDEMARD, who unfortunately could not participate in Cairns, informed about the 2nd International Tsunami Field Symposium, Puglia and Ionian Islands 2008, *Quaternary Land-Ocean Interactions: Driving Mechanisms and Coastal Responses*, to be held on September 23-27, 2008, in Ostuni, Italy, with the sponsorships of the INQUA Subcommission on Neotectonics; the main leader is GIUSEPPE MASTRONUZZI of the University of Bari.

Session 60

"Palaeo-seismology: linking Quaternary, historical and instrumental evidence of earthquake effects, and the INQUA Scale"

Conveners: A.M. Michetti, D. Clark, Y. Ota, J. Clague

Co-Sponsorship: INQUA, Subcommission on Paleoseismicity

Oral Presentations

- DAN J. CLARK: The paleoseismology of stable continental regions: a view from down under
- ALESSANDRO M. MICHETTI The INQUA scale project: results and future directions
- ROY B. VAN ARSDALE Quaternary deformation in the central Mississippi River Valley.
- KOJI OKUMURA. Quaternary geology of earthquakes: the New Horizons.
- MICHAEL K. GAGAN: Coral chemo-geodesy: long-term perspectives for improved prediction of great submarine earthquakes.
- GLENDA M. BESANA-OSTMAN: Searching for Old Tsunamis and earthquiakes in Panda Aceh and the Application of the INQUA intensity scale.
- SABINA PORFIDO: Intensity assessment from environmental effects of historical earthquakes in Southern Italy.
- PABLO G. SILVA BARROSO: Geological effects of historical and recent seismic events in Spain and its relationships with Intensity scales.
- YOKO OTA: INQUA scale for the recent two earthquakes in Japan and Taiwan.
- VALERIO COMERCI: Intensity and coseismic surface rupture parameters.
- MARC L. GOEDHART: Seismicity along the souther Cape Fold Belt, South Africa, association with geological structures and early-holocene reactivation of the Kango fault.
- REGINALD L. HERMANNS: Paleoseismologic investigations at El Alto on the Altipiano near La Paz, Bolivia
- YU-NUNG NINA LIN: Structural analysis based on fluvial terrace chronology in Miaoli, northwestern Taiwan.
- YOKO OTA: Timing of activities on the Tokkamachi fault, central Japan
- SHIGEO HIGUCHI: Background of Shinkansen train derailment caused by the 2004 Niigata/ken Chuetsu earthquake, central Japan. Relationships between natural and artificial conditions.