

## Reports of ECORD Summer Schools 2012

### ECORD Summer School in Canada: Impacts of Cryosphere Dynamics from Land to Ocean July 5-21, 2012, Montréal, Canada

The joint ECORD/ICDP/IODP Canada Summer School on cryosphere dynamics took place from July 5 to 21 in Montréal, Québec, Canada. Nineteen participants gathered from universities in Canada, Sweden, Denmark, the Netherlands, the UK, Greece and Belgium, attending classes and workshops presented by invited lecturers at GEOTOP, University of Québec in Montréal (UQAM).

The first week consisted of lectures on a broad range of topics providing an excellent synthesis of current cryosphere research. The talks focused on reconstructing the cryosphere and climate change in the Cenozoic, from a number of different perspectives and timescales, using modelling, geomorphology, palaeomagnetism, and terrestrial and marine core records. Following the lectures, workshops were conducted in three groups, each of which selected a crucial question that had not yet been critically addressed. This question was then discussed throughout the session and presented to the class on the last day of the school.

During the second week, the summer school travelled to the north shore of the St. Lawrence River to take part in a 5-day field excursion. On the first stop at Baie-Comeau, the class toured a coring site in an ombrotrophic peat bog and visited a beach cross section of Holocene deposits (*right*). The group then moved to cabins located on the shore of Lac Walker, an ancient fjord now the deepest known lake in Québec. During the next few days, the participants surveyed the lake using CTD profiles, took underwater gravity cores and explored the nearshore surface sediments of the lake with a remotely operated submarine. The fieldwork also included a survey of the Sept-Îles area where students conducted sub-bottom acoustic profiling using a chirp echo-sounder, and high-resolution multibeam bathymetry, in order to characterise a submarine glacial moraine associated with the Baie-Trinité Moraine complex. On the last day of fieldwork, students were guided through outcrops of Quaternary sediments revealing the postglacial evolution of the cryosphere around the Sept-Îles area.

Upon returning from the field, students participated in a series of interactive exercises at GEOTOP, which introduced a number of proxies, geochemical and statistical methods used in palaeoclimatic research. The class became acquainted with microfossil analysis in cold-water environments (foraminifera, dinoflagellates and pollen)



through lectures and microscopy practicals. The classes continued with sedimentary analyses, seismic interpretation, time-series analysis, radiogenic isotopes and stable-isotope methods, followed by a tour of the GEOTOP isotope laboratories.

The summer school concluded with a day of presentations on the workshop questions researched by each of the three groups during the course. Finally, a summary of the fieldwork was provided by the University of Québec students.

The Montréal Summer School offered an excellent opportunity to learn about the current understanding of cryosphere dynamics and methods used to reconstruct past climatic change, and to critically assess the challenges and new developments in paleoclimatology and their impact on climate predictions. It enabled students of diverse nationalities and academic backgrounds to collaborate in a friendly, scientific setting in the field, the classroom and the laboratory. We would like to give a big thank you to all those who made the summer school a success!

*Rachel North, Earth and Ocean Sciences, Cardiff University, UK, Catherine Robin, Geodetic Survey Division, Natural Resources Canada and Phoebe Chan, Department of Earth Sciences, University of Toronto, Canada - <http://www.iodpcanada.ca/news/report-on-the-2012-ecord-summer-school-in-canada>*

### 9<sup>th</sup> Urbino Summer School in Paleoclimatology July 11-31, 2012, Urbino, Italy

Starting with the conclusions, the 9<sup>th</sup> Urbino Summer School in Paleoclimatology (USSP) was enriching in all senses. I had the opportunity to attend this course carried out in Italy thanks to an ECORD scholarship. I went as a first year PhD student of the "Grupo de Geociencias Oceánicas" of the University of Salamanca (Spain). Our group mainly focuses their efforts on the study of climate change by analysing ocean cores and sections,

using micropaleontological and biogeochemical techniques. Nevertheless, I attended the course with the aim of expanding my understanding of how the climate operates and behaves. Undoubtedly, the course covered my expectations.

A group of leading researchers gave lectures on a wide range of topics all related to paleoclimate. From the basics to the specific,

ranging from oceanic to continental proxies, they dealt with climate modeling and cyclostratigraphy and they introduced us to future research in paleoclimatology, sharing the latest outcomes of their breakthroughs. In my case, some of the lectures turned out to be crucial in gaining a broad understanding of how the system operates, and how multidisciplinary our field of study can be.

The scientists were always willing to share their experience with the students such that young researchers like me had the opportunity to receive advice about our PhD projects, and to discuss different points of view and get new opinions on our work.

But personally, the USSP was, above all, an advisable social experience. Beyond substantially increasing my network of contacts, which is always useful for a PhD student, I had the opportunity to meet excellent people from a human point of view with whom I share more than a scientific vocation. New friends that I hope to see again at future meetings or congresses.

*Blanca Ausín González (University of Salamanca, Spain)*  
<http://www.urbinosp.it/>



*Field excursion to the K-Pg boundary exposed in the Bottaccione Valley near Gubbio.*

## ECORD Bremen Summer School on Submarine Landslides, Earthquakes and Tsunamis September 3-14, 2012, Bremen, Germany

From September 3 to 14, 2012, the ECORD Summer School was hosted by the MARUM-Center for Marine Environmental Sciences of the University of Bremen. Thirty-one PhD students and young PostDocs from all inhabited continents attended the course to broaden their horizons on the subject in the title of the summer school.

During the two weeks we received an update on the latest on-going research within the umbrella-topic of "Submarine Landslides, Earthquakes and Tsunamis" by the invited expert lecturers during the morning sessions. Through student presentations after lunch we also shared our own projects, and the discussions during valuable tea and cookie breaks also solved many questions and found plenty of new interesting objectives to be addressed in our on-going research. Later in the afternoons we joined the "Virtual Ship" session in which we simulated shipboard work in the outstanding lab facilities of MARUM and the IODP Bremen Core Repository. This allowed us to see some of the most interesting core samples within the field of marine geology and work with the latest datasets. We also learned about ECORD and IODP structures as well as how to write a drilling proposal. A field trip to the Ems-river barrier and the Dangast Wadden Sea tidal flat, with unusually beautiful weather, provided a refreshing break from the lecture room.

The ECORD Summer School gave us a detailed insight into the on-going research within the topic of "Submarine Landslides, Earthquakes and Tsunamis" and presented a platform for every participant to meet fellow scientists from different research areas. Great organisation and instruction, open discussions with the



lecturers, the practical "Virtual Ship" sessions and the general curiosity of both students and lecturers made this course the successful, positive experience that it was for us. With regard to the combination of networking and scientific education, the ECORD Summer School in Bremen 2012 was very fruitful for us, both from a professional and social point of view, and we would strongly recommend participating in future ECORD Summer Schools.

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[http://www.marum.de/en/ECORD\\_Summer\\_School\\_2012.html](http://www.marum.de/en/ECORD_Summer_School_2012.html)