

COCARDE-ERN @ EGU General Assembly 2012

Purpose of visit

The aim of my visit at the EGU General Assembly 2012 (Vienna, Austria; 23.-25.04.2012) was to present the COCARDE network with poster presentation in the session CL5.11 “EuroFORUM 2012: Major achievements and perspectives in scientific ocean and continental drilling”. The abstract and the poster presentation “COCARDE: new views on old mounds – an international network of carbonate mound research” are presented below.

Description of the work carried out during the visit

It was important to present the poster personally to be available for questions, to meet and discuss with colleagues working on ocean or continental drilling cores, and to get new insights in available technologies in near future. Furthermore, copies of the COCARDE brochure were made available to the scientific community at the ECORD-IODP-ICDP booth and the Deep Sea Frontier Initiative (DS3F) booth and during the poster presentation.

Description of the main results obtained

The session EuroFORM 2012 had 12 oral and 24 poster presentations. The first part of the session presented results from recent drilling campaigns like IODP Exp. 313 on the New Jersey Shelf, IODP NanTroSEIZE Exp. 319 off Japan, or ICDP Dead Sea Deep Drilling Project. The second part focussed on upcoming or proposed scientific drilling initiatives. E.g.:

- The Bighorn Basin Coring Project in the US focused on high-resolution continental records of the Paleocene-Eocene Thermal Maximum. Drilled cores indicate a weathered zone of up to top 25 m influencing geochemical signals within the cores.
- Future scientific drilling in the Arctic moves to new strategies using existing drilling vessels like the Stena Drill Max ICE also available for science, or the new MeBo (Meeresboden Bohrergerät) possible to collect cores of up to 200 m (today: 70 m).
- The Baltic Sea IODP project will focus on the paleo-environmental evolution of the Baltic Sea basin through the last glacial cycle. This expedition is scheduled for 2013.
- IODP 790 Pre-Proposal highlights the possibility to reconstruct the Neogene (Miocene) monsoon and oceanic currents variability at the Maldives. There also occur drowned, 220 m deep carbonate mound-shaped features next to drowned atolls.
- A move towards a distributed infrastructure for research drilling in Europe has been initiated by different groups (IODP, ECORD, BGS, MARUM, ICDP) to develop an integrated approach to technology development and usage for both ocean and continental scientific drilling.

Future collaborations

During the poster session a colleague from University of Erlangen showed interest to the upcoming COCARDE workshop and field seminar at Nördlingen, Germany. He mentioned some similar spring mounds related to impact structures from the Ordovician in Sweden on which he is working. Possibly a future workshop or scientific exchange will be initiated to compare these features with the Ries mounds and to exchange knowledge on these type of build-ups.

Furthermore, Scientific Earth Drilling Information System (SEDIS: <http://sedis.iodp.org>) is a platform to store, save and make scientific data available for the scientific community, which could be of interest for COCARDE. This platform integrates drilling data from ocean (DSDP, ODP, IODP) and in near future also from continental (ICDP) campaigns. A link to this site will be available on the COCARDE homepage (www.cocarde.eu).

Publication resulting from the grant

Rüggeberg, A., Foubert, A., Vertino, A., Van Rooij, D., Spezzaferri, S., Henriot, J.-P., Dullo, W.-C., and COCARDE Science Community et al. (2012) COCARDE: new view on old mounds – an international network of carbonate mound research. *Geophysical Research Abstracts* Vol. 14, EGU2012-12550.

Abstract:

Carbonate mounds are important contributors of life in different settings, from warm-water to cold-water environments, and throughout geological history. Research on modern cold-water coral carbonate mounds over the last decades made a major contribution to our overall understanding of these particular sedimentary systems. By looking to the modern carbonate mound community with cold-water corals as main framework builders, some fundamental questions could be addressed, until now not yet explored in fossil mound settings.

The international network COCARDE (<http://www.cocarde.eu>) is a platform for exploring new insights in carbonate mound research of recent and ancient mound systems. The aim of the COCARDE network is to bring together scientific communities, studying Recent carbonate mounds in mid-slope environments in the present ocean and investigating fossil mounds spanning the whole Phanerozoic time, respectively.

Scientific challenges in modern and ancient carbonate mound research got well defined during the ESF Magellan Workshop COCARDE in Fribourg, Switzerland (21.–24.01.2009). The Special Volume Cold-water Carbonate Reservoir systems in Deep Environments – COCARDE (Marine Geology, Vol. 282) was the major outcome of this meeting and highlights the diversity of Recent carbonate mound studies.

The following first joint Workshop and Field Seminar held in Oviedo, Spain (16.–20.09.2009) highlighted ongoing research from both Recent and fossil academic groups integrating the message from the industry. The field seminar focused on mounds from the Carboniferous platform of Asturias and Cantabria, already intensively visited by industrial and academic researchers. However, by comparing ancient, mixed carbonate-siliciclastic mound systems of Cantabria with the Recent ones in the Porcupine Seabight, striking similarities in their genesis and processes in mound development asked for

an integrated drilling campaign to understand better the 3D internal mound build-up. The Oviedo Workshop and Field Seminar led to the submission of a White Paper on Carbonate Mound Drilling and the initiation of the ESF European Research Network Programme Cold-Water Carbonate Mounds in Shallow and Deep Time – The European Research Network (COCARDE-ERN) launched in June 2011.

The second COCARDE Workshop and Field Seminar was held in Rabat, Morocco (24.–30.10.2011) and thematically focussed on carbonate mounds of(f) Morocco. The compact workshop invited students from Moroccan Universities to experience ongoing carbonate mound research in Recent and Ancient environments of Morocco. Two Round Tables discussed innovative approaches in carbonate mound research in Morocco (Recent vs. Ancient - offshore vs. onshore) and reviewed together with oil industry opportunities of international collaboration. The outcome of this workshop will lead into joint research projects, drilling campaigns on- and offshore, and expansion of COCARDE onto the African continent.

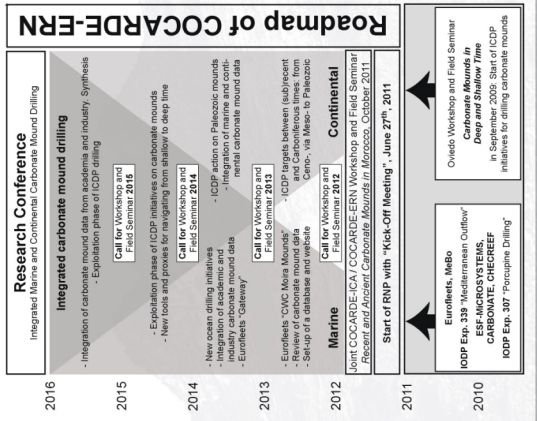


COCARDE: NEW VIEW ON OLD MOUNDS – AN INTERNATIONAL NETWORK OF CARBONATE MOUND RESEARCH

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“New views on old mounds” is the principle scientific objective of the European Research Network COCARDE-ERN. Throughout Phanerozoic times, mounds have represented a current strategy of life and an exemplary mode of geosphere-biosphere coupling. The integration of recent and fossil mound research will allow to identify the full spectrum of biosphere and geosphere actors, their processes and products in carbonate mound formation and its transformation to a geological body.



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The key activity of COCARDE-ERN is a scheme of yearly open calls for organizing **integrated workshops and field seminars**. The dedicated workshops (two days) and field seminars (three days) are designed to bring the **marine and continental carbonate mound research groups** together to plan and discuss common actions:

- to review existing carbonate mound data and set up an integrated data base
- to identify ICDP targets to explore Cenozoic, Mesozoic and Paleozoic mound provinces and to support their exploitation phase
- to actively support the preparation and exploitation phases of campaigns to core and drill marine mound systems
- to foster new ocean drilling initiatives and support their exploitation, where relevant
- to foster long-term, sustainable support for students and young researchers through training through research

Meetings should normally take place in countries that financially support the RNP. Exceptional cases must be justified and approved by ESF. Contributing member organizations of COCARDE-ERN are Belgium, Denmark, Germany, Italy, The Netherlands and Switzerland.

Open Calls:

A permanent call for Short Visits (up to 2 weeks) and Exchange Grants (up to 3 months) is open with preference given to junior researchers at a graduate or postdoctoral level.

The next deadline of the call for Science Meetings is **1st July 2012** and refers to any workshops, summer schools, conferences to take place by December 2013.

More details: <http://www.esf.org/cocarde>

Upcoming COCARDE Workshop and Field Seminar:

Fluid flow-related carbonate build-ups: from lacustrine to (early) marine environments

– The Ries Impact Crater as a Natural Laboratory –
Nördlingen, October 15-19, Germany

Conveners: Annelien Foubert¹, Gernot Arp², Bruce W. Fouke³
¹Leuven University, GEOMAR Kiel, ²Göttingen University, ³University of Illinois Urbana-Champaign

The COCARDE Workshop 2012, in Nördlingen, Germany, will evaluate well-preserved spring and seepage associated mounds in the Ries impact crater. Results from the 2011 Einsberg Mound drilling will be compared and contrasted with other research efforts on fluid flow-related carbonate build-ups in preparation of drilling seepage associated mounds in Morocco. The field seminar to the Miocene carbonates and Franciscan Jurassic reef systems outstandingly serves capacity building in academia and industry.

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