Cold-water Carbonates at high palaeolatitudes from the Palaeozoic to the Recent
Combining outcrops studies with core studies and geophysical imaging

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Conveners: Bodil Wesenberg Lauridsen¹,² & Morten Bjerager²

¹Department of Geosciences and Natural Resource Management, University of Copenhagen, Denmark
²Geological Survey of Denmark and Greenland, GEUS

Programme and abstract book
Piddington Mound: preliminary results from reef-scale geological habitat mapping

A. Lim¹, A. Wheeler¹, A. Arnaubec², B. Dorschel³, A. Vertino⁴, and S. Spezzaferri⁵

¹School of Biological, Earth and Environmental Sciences, University College Cork, Ireland
²IFREMER, Zone Portuaire de Brégasillon, France
³Bathymetry, Alfred Wegener Institute, Bremerhaven, Germany Department of Geosciences,
⁴Department of Earth and Environmental Sciences, University Milano-Bicocca, Milan, Italy
⁵University of Fribourg, Fribourg, Switzerland

E-mail: alim2389@gmail.com

My PhD research focus on spatio-temporal patterns and controls on Cold-Water Coral reef development. Spatially, I am interested in variation and processes on both the individual reef-scale as well as the reef chain-scale. Temporally, my research examines reef sedimentology and development. The western, lesser-studied, chain of Moira-type mounds in the Belgica Mound Province display a gradation in mound size, stage of growth and general ‘vitality’. Thus, these mounds have been specifically chosen as the subject of this research to help further constrain the environmental parameters which give rise to these variations. A reef-scale, groundtruthed, video mosaic with microbathymetry is used to classify a series of sedimentological facies and attributes over a single reef (Piddington Mound). As this part of the project progresses toward the first reef-scale habitat zonation model, we begin to build up a unique and accurate view of individual reef-functioning. In light of observed reef-scale heterogeneity, the project is simultaneously examining reef chain-scale variation. This presentation highlights work completed to date on reef-scale habitat mapping.

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Redefinition of the Lebanese Cretaceous Formation “Falaise de Blanche” via a micropalaeontological-taxonomic study

S. Maksoud¹, B. Granier², D. Azar³

¹Université de Bretagne Occidentale (UBO), UMR 6538 Domaine Océanique, Brest, 29238 Brest Cedex 3, France
²Univ. of Kansas, Dept. of Ecology and Evolutionary Biology, Lawrence, 66045, USA
³Lebanese Univ., Faculty of Science II, Natural Sciences Dept., Fanar-El-Matt, Lebanon

E-mail: cybellemaksoud@gmail.com

Our research is dealing with the micropalaeontological dating and the paleoenvironment reconstruction of a Cretaceous stratigraphical unit in Lebanon: Falaise de Blanche. It is a carbonate cliff that runs throughout the mountains chains of Mount-Lebanon and Anti-Lebanon. It has a notable exposure up to 70 m in Jezzine (South of Lebanon). This unit required a full, modern, holostratigraphic re-evaluation and was lacking a type-locality and clear definitions for its lower and upper boundaries. Thus, the Jezzinean Regional Stage bounded by unconformities was defined on the base of base of litho- and bio-stratigraphic distinctiveness.
Besides that, the fundamental work concerns the taxonomy approach of some microfossils (benthic foraminifer and calcareous green algae) quite common in the shallow-water carbonate facies and that can eventually be used as biostratigraphic keys. The micropaleontological association has been correlated with that of the Persian Gulf, on the opposite side of the Arabian plate, still in Southern Tethys, and indirectly with those of the Northern Tethys (SE France and W Switzerland). Other carbonate environments will be interesting to discover in order to be compared with those of the Middle East. Finally, Participating in this workshop will help in sharing and exchanging personal experiences with students and experts from other countries.

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The Quaternary Stratigraphy of contrasting shallow shelf sand dominated seabed; North West Irish Sea and offshore South East Ireland

M. McGrath¹, A. Wheeler¹, B. Dorschel¹, ³ and A. Ruffell²
¹Geology, School of Biological, Earth and Environmental Sciences, University College Cork.
²School of Geography, Archaeology and Palaeoecology, Queen's University Belfast.
³Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany.
E-mail: mariannmcgrath09@gmail.com

The North West Irish Sea and offshore South East Ireland have a diverse stratigraphy that can provide information on the depositional history of marine sedimentation, marine transgressive sequences and glacial processes. Seismic profiles, core logging, micro palaeontology and geotechnical data provide the necessary information needed to interpret this depositional history. My project looks at discrete study areas in the NW Irish Sea off Dundrum Bay and in the Celtic Sea off Dungarvan and Saltee Islands. These areas have varying sea floor topography and diverse stratigraphy. Both are sand dominated systems with palaeo-valleys. Contrasting depositional histories provides an understanding of late Glacial to present marine environmental change affecting both the northern and southern (North East Celtic Sea) limits of the Irish Sea.

Seismic lines from both areas have been processed and interpreted. Different sediment units and bedrock have been identified. Core logs have been compared and correlated to produce a facies map across the areas. Particle Size Analysis (PSA) and Cone Penetration Tests (CPT) data were compared to see the percentages of grain sizes and the strength of the sediment present. The seismic lines show how many sediment units are present and the thickness of these units and the depth to bedrock. Core correlation shows the various facies present in an area along with where the facies appear and disappear. The PSA and CPT data show environmental changes as there is a change in