associated to many spectacular large-scale seabed structures along the NE Atlantic continental margin: (1) the numerous deep shelf reefs off Norway with the Sula Reef as a best example; (2) the giant mounds in carbonate Rockall Trough and Porcupine Seabight, and (3) the so-called Darwin Mounds on the Wyville-Thomson Ridge. The participation of deep-water corals is substantial in all three areas, however, mound formational processes are yet not understood. The lack of drilling. The habitat requirements for framework-producing aragonitic carbonate reefs such as Lophelia pertusa and Madrepora oculata are reasonably well known. The planula larva need a hard substrate for settlement and metamorphosis. Strong bottom currents prevent the deposition of fine-grained sediments and therefore Lophelia is preferentially found on various kinds of topographic highs such as submerged moraine ridges, clay ridges, submarine channels, spars, reefs and rocky islands. The strict ecological sense, the Lophelia ecosystems often form true coral reefs, which in turn, cloggs the dead coral skeletal debris. These disturbances do not occur in the form of tropical storms, hurricanes, nor at the sediment-water interface where dead coral skeletons are deposited. Another important process seems to be very common in deep-water coral reefs in the dysaerobic zone above the sediment-water interface where dead coral skeletons are deposited. These disturbances do not occur in the form of tropical storms, hurricanes, and the absence of net sedimentation since the last glacial. The presence of hardgrounds indicates that at least locally, the sedimentation on the mounds (and thus most likely also on the mound tops) is the product of global oceanic turn-overs, the potential of hardgrounds as a significant contributor to the carbonate mound provinces, which may also be the case in the Lophelia mound province. The potential of hardgrounds as a significant contributor to the carbonate mound provinces, which may also be the case in the Lophelia mound province.

Preliminary results of the many site preparation cruises up to 2000 summer are presented and discussed. The sedimentary infill is dominated by imported pelagic muds consisting of either calcareous plankton, or by suspended terrigenous muds and silt-grade deposits. Coral reefs locally dominate the interstitially produced reef debris. The reef growth is dominated by the internal production of carbonate by the corals on top of the mounds. The presence of hardgrounds indicates that at least locally, the sedimentation on the mounds (and thus most likely also on the mound tops) is the product of global oceanic turn-overs, the potential of hardgrounds as a significant contributor to the carbonate mound provinces, which may also be the case in the Lophelia mound province. The potential of hardgrounds as a significant contributor to the carbonate mound provinces, which may also be the case in the Lophelia mound province.

RCM6 Carbonate Mounds, Fluxes and Margin Architecture

Henk de Haas (haas@nioz.nl) & Henk de Stigter (stigter@nioz.nl) & Aad Vaars (vaars@nioz.nl) & Tjeerd van Weering (tjeerd.vanweering@nioz.nl)

Laboratoire des Sciences du Climat et de l’Environnement, UMR CNRS-CEA — Domaine du CNRS - Br 12, 91198 Gif-sur-Yvette Cedex, France

During cruises with R/V Polarstern in 1999 and 2000 cold, water carbonate mounds along the Porcupine and Rockall Bank margins where visited. These mounds are located on the SW and SE Rockall Trough continental margin between 500 and 1100 m water depth and are covered with sometimes extensive Lophelia pertusa and Madrepora oculata colonies and associated fauna. The mounds have diameters of about 2.5 km in the middle of the mounds and can be up to 300 m high. On the mounds and on the surrounding seabed box- and piston cores were taken and prepared for carbonate composition studies. The box- and piston cores show that carbonate debris is trapped in the mound tops of the mounds is built up of carbonate and sand and sill consisting of carbonate debris. The growth of the mounds results from the production of carbonate debris at the top of the mounds. Carbonate debris is trapped in the 3-dimensional structure of coral branches, thus forming a baffled structure. Furthermore, data from the northward-migrating shelf break are available. The main objective of this study is to investigate the relationship between bio- and lithostratigraphic changes in the study area and the carbonate mound development. The data from the northward-migrating shelf break are available. The main objective of this study is to investigate the relationship between bio- and lithostratigraphic changes in the study area and the carbonate mound development.

RCM6 : MIOam6 : F3

Mio-Pleistocene Marine Carbonate Mounds: The Porcupine Scientific Drilling Project

Jean-Pierre Henry (jean-pierre.henriot@rsm.fr), Ben De Mol (ben.de.mol@nioz.nl) & André Freiwald (andre.freiwald@geomar.de)

Laboratoire des Sciences du Climat et de l'Environnement, UMR CNRS-CEA — Domaine du CNRS - Br 12, 91198 Gif-sur-Yvette Cedex, France

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Jean-Pierre Henry (jean-pierre.henriot@rsm.fr) & Wolf-Christian Dullo (cdullo@geomar.de)

Laboratoire des Sciences du Climat et de l’Environnement, UMR CNRS-CEA — Domaine du CNRS - Br 12, 91198 Gif-sur-Yvette Cedex, France

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Resoluée 2D and 3D seismic recording of the SW Rockall Trough mounds showed that mounds occur in clusters, on the top of a relatively flat acoustic basement, with an unconformable cover of sediments of up to 0.5 sec TWTT thickness. The seismic data provide no evidence for a direct relationship with underlying fault structures, although there is an obvious NNE-SSW alignment of some of the structures. Downsource from the main cluster of mounds these trends spread out into the surrounding seafloor. The mounds have a diameter of about 2.5 km in the middle of the mounds and can be up to 300 m high. On the mounds and on the surrounding seabed box- and piston cores were taken and prepared for carbonate composition studies. The box- and piston cores show that carbonate debris is trapped in the mound tops of the mounds is built up of carbonate and sand and sill consisting of carbonate debris. The growth of the mounds results from the production of carbonate debris at the top of the mounds. Carbonate debris is trapped in the 3-dimensional structure of coral branches, thus forming a baffled structure. Furthermore, data from the northward-migrating shelf break are available. The main objective of this study is to investigate the relationship between bio- and lithostratigraphic changes in the study area and the carbonate mound development. The data from the northward-migrating shelf break are available. The main objective of this study is to investigate the relationship between bio- and lithostratigraphic changes in the study area and the carbonate mound development.

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