ISOLDE - Isotope signature of calcareous organisms from lower and upper mound sediments

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Integrated Ocean Drilling Program (IODP) Expedition 307 was proposed to obtain evidence for understanding the origin and evolution of the deep-water carbonate mounds in Porcupine Seabight (Fig. 1). Deep-water coral mounds and reefs (Fig. 2) are high-resolution environmental recorders. Mound section lithology and bioclastic composition might record glacial–interglacial climate changes because cold-water corals are sensitive to conditions such as water temperature and current strength. Furthermore, beside foraminifers (Fig. 3) coral skeletons themselves can be used to reconstruct changes in deep-sea circulation and nutrient contents. Cold-water corals grow as enough to apply the same methods of the coral climatology using tropical–subtropical reef-forming corals. Analyses of stable isotopes and trace elements are expected to provide information of past ocean conditions such as temperature and nutrient availability.

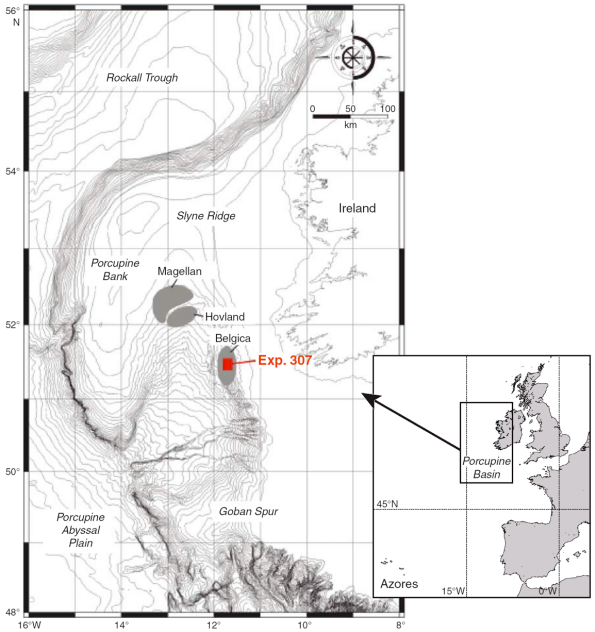

Figure 1. Location of Porcupine Seabight and Expedition 307 operations area (from Expedition Scientists, 2005).

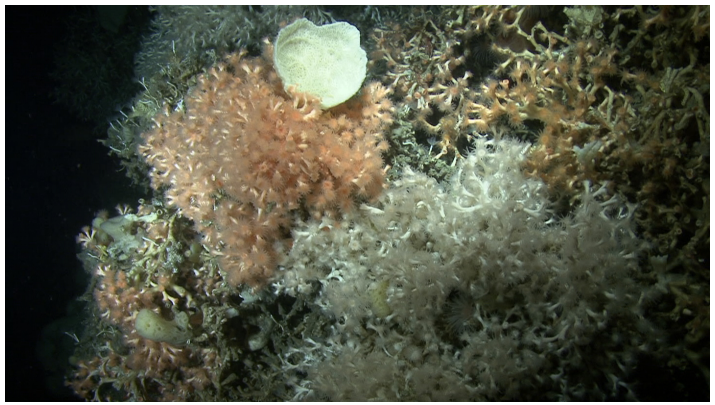

Figure 2. Cold-water coral *Lophelia*-reef, Lopphavet, off Norway (POS 391, Jago Dive 1102)

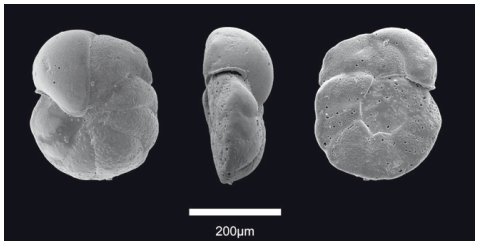

Figure 3. Benthic foraminifera Lobatula lobatula

Publications:
Raddatz, J., Rüggeberg, A., Margreth, S., Dullo, W-Chr. and IODP Expediton 307 Scientific Party (2011) Paleoenvironmental reconstruction of Challenger Mound initiation in the Porcupine Seabight, NE Atlantic, Marine Geology, 282, pp 79-90, DOI:10.1016/j.margeo.2010.10.019