



A comparative study of the recent history of Thérèse and Challenger mound, two cold-water coral carbonate mounds in the Belgica Mound province, Porcupine Seabight, SW of Ireland.

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During the Geomound-cruise with the R/V Marion Dufresne in 2001 gravity cores were recovered on the top of Thérèse mound (MD01-2463G) and Challenger mound (MD01-2451G). Both mounds are built up by cold-water corals (*Lophelia pertusa* sp. and *Madrepora oculata* sp.). This was confirmed by the IODP drilling (expedition 307) where Challenger mound was drilled to its base and cold-water corals were observed over the entire length of the mound.

The gravity core (MD01-2463G), taken on top of Thérèse mound, was described and analyzed for its foraminiferal content and grain size. A combination of these data with the results from previous studies (P-wave velocity, gamma density, magnetic susceptibility, X-ray imagery, U/Th-dating of corals and foraminifera (Frank et al., 2005, Foubert et al., 2006)), made it possible to distinguish different units, enabling a reconstruction of the evolution of the top of Thérèse mound.

In a next step, the different zones in the core on top of Thérèse mound could be correlated with the sections identified in the gravity core recovered on top of Challenger mound (MD01-2451G) (Foubert et al., 2006). The mounds unveiled a comparable recent history, implying that their growth was controlled by the same parameters. Both cores revealed at least one discontinuity in the record, corresponding with a time hiatus of more than 200 ka. This discontinuity corresponds most likely to a change in hydrodynamic environment which prohibited further coral growth but erosional pro-

cesses cannot be ruled out. The hiatus is in both cases covered with a layer of fine laminated sediments and dropstones. The origin of this detritic material is still unclear and will be further investigated using the Nd isotopic signature of the sediment as a tracer.

References

Foubert, A., Van Rooij, D., Blamart, D. & Henriët, J.-P. (2006) X-ray imagery and physical core logging as a proxy of the content of sediment cores in cold-water coral mound provinces: a case study from Porcupine Seabight, SW of Ireland. *International Journal of Earth Sciences*. DOI: 10.1007/s00531-006-0087-5.

Frank N, Lutringer A, Paterne M, Blamart D, Henriët J-P, Van Rooij D, Van Weering TCE (2005) Deep-water corals of the northeastern Atlantic margin: carbonate mounds evolution, upper intermediate water ventilation during the Holocene. In: Freiwald A, Roberts JM (eds) *Cold-water coral and ecosystems*. Springer, Berlin Heidelberg New York, pp 113–133.