



The CARBONATE project: Mid-latitude carbonate systems – complete sequences from cold-water coral carbonate mounds in the Northeast Atlantic

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Up to now the carbonate stored in carbonate mounds has not been considered in any global carbonate budget or linked to any global carbon budget involving greenhouse gases. A major challenge exists to quantify the amount and flux of carbon stored by these newly discovered areas of enhanced carbonate accumulation in intermediate water depth. Furthermore, investigations so far reveal that all mounds possess different growth histories depending on the environmental setting and the involved faunal associations. Unfortunately, existing cores only penetrated the upper few meters of the mounds thus limiting mound research to the very late stage of mound development. Access to the longer sequences preserved in giant carbonate mounds was overcome in May 2005 when the IODP Expedition 307 (Porcupine Mound Drilling) recovered complete sedimentary records from one 155 m high “Challenger Mound” in the Porcupine Seabight west off Ireland. Furthermore, EU-FP projects have revealed late stage history of giant mounds in different settings showing that different mounds respond in different ways to environmental forcing factors with no one mound being typical of all. CARBONATE will drill complete sequences through a number of mounds in differing environmental settings using the portable drill rig MeBo (University of Bremen). By understanding how biogeochemical processes control the development of these carbonate mounds and their response to climate change, we will make an im-

portant step in quantifying their role as mid-latitude carbonate sinks. In the end, a better understanding of the processes involved in mound formation and development may also result in new views on fossil analogues many of which are less accessible hydrocarbon reservoirs.