



## **Calcification by marine organisms (CalMarO)**

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CalMarO aims at the comprehensive training of twelve young researchers in the field of calcification by marine organisms based on a main Network of thirteen research institutions. CalMarO's research program investigates calcification processes, their sensitivities to changes in environmental conditions and their role in ocean functioning.

Calcification is a fundamental physiological process of marine organisms that is largely determined by the characteristics of seawater. Despite the widespread occurrence of biocalcification across multiple taxonomic groups, its importance for the physiological and ecological fitness of calcifying organisms, its crucial role in structuring marine habitats, and its contribution to biogeochemical cycling, the basic mechanisms of calcification and processes involving biogenic carbonates are poorly understood. Our ability to determine sensitivities to environmental change critically depends on our understanding of the underlying mechanisms of biocalcification. Calcifying marine organisms differ in their adaptability to variations in environmental conditions, in particular temperature and seawater pH. If global CO<sub>2</sub> emissions continue to rise at current trends seawater pH may decrease to levels that are probably lower than have been experienced for tens of millions of years and, critically, at a rate of change 100 times greater than at any time over this period, with dramatic effects on productivity and marine ecosystems. CalMarO comprises investigation of calcification processes and the sensitivities to changes in environmental conditions at all scales ranging from cellular, organism, population to ecosystem, and regional to global levels. Covering this important topic in a training Network will offer young researchers an integrated perspective on an emerging problem and position their own work within the framework of a concerted effort to better understand the risks and consequences associated

with ocean change.