Geophysical Research Abstracts
Vol. 18, EGU2016-6843, 2016
EGU General Assembly 2016

Brachiopods recording environmental conditions and biomineralisation processes

Maggie Cusack (1), John M MacDonald (1), Susan C Fitzer (1), and Cedric M John (2)

(1) School of Geographical & Earth Sciences, University of Glasgow, Glasgow, United Kingdom (Maggie.Cusack@glasgow.ac.uk), (2) Department of Earth Science & Engineering, Imperial College, London, United Kingdom

For around 550 million years, organisms have been exerting biological control on biomineral formation, generating elegant functional biomineral structures from basic components such as calcium phosphate in the case of vertebrate skeletons; silica or calcium carbonate in invertebrate shells and corals. In the marine realm, environmental information on the world's oceans is entrapped within the composition of calcium carbonate biomineral structures such as the shells of molluscs or brachiopods. Here, conventional stable and clumped isotopes of calcium carbonate of brachiopod shells are explored in the context of biological control. The aim is to ensure the correct interpretation of environmental data and to consider the possibility of extracting information on the mechanisms of biomineralisation processes from the data stored in the fossil record.