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The isotopic aspects of the calcification of the reef builder gastropod Dendropoma petreaum – can vermetids serve as paleoceanographic proxy?

G. Sisma-Ventura and A. Shemesh

Weizmann Institute, Environmental Sciences, Rehovot, Israel (Aldo.Shemesh@weizmann.ac.il)

The vermetid reef builder Dendropoma petraeum – a sessile irregular-coiled gastropods that develop dense aggregations on the abrasion platform edges and grow at Mean Sea Level, can serve as an archive of environmental conditions such as sea surface temperature and salinity provided that it deposits the calcitic skeleton in isotopic equilibrium. The large distribution of vermetid reefs in subtropical waters and across the Mediterranean allows their use as paleo-markers in areas that are void of corals for paleo-climate reconstruction. We studied the isotopic composition of vermetids retrieved from the coast of the Levantine Basin of the Mediterranean Sea. The 18O of the calcitic shell of living vermetids indicate that skeletal deposition occurs under isotopic equilibrium and faithfully record the temperature and surface water 18O during spring and summer. High-resolution 18O and 13C records obtained from several cores were used to reconstruct variations in the Levantine basin sea surface temperature, hydrology and productivity during the past 500 years. The correlation with global climatic events will be discussed.