

Interactive comment on “Temperate carbonate cycling and water mass properties from intertidal to bathyal depths (Azores, N-Atlantic)” by M. Wisshak et al.

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General: The authors present a very comprehensive data set from the Azores relate carefully measured rates of carbonate production and bio-erosion to relevant physical and chemical parameters of the ambient ocean waters. The study takes on added significance for two reasons: (1) Our knowledge of the cool-water carbonate factory described here lags that of its tropical counterpart in most aspects. On the other hand, cool-water carbonates are widespread in the ocean than previously assumed. (2) This work forms the keystone of a latitudinal transect of the North Atlantic. The set-up of the experiments described here closely matches that of an earlier study by Wisshak et

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al. 2005 at the Atlantic/Baltic boundary and by Hoskin et al. 1986 off Little Bahama Bank in the tropics. In terms of latitude, the Azores represent the intermediate location between the tropical and subpolar extremes.

Specific comments: a) The oceanographic location of the Azores is described as "...between the subtropical and the subpolar gyre". This is not wrong but somewhat awkward. The subarctic gyre of the Atlantic is not well developed because of the disturbances caused by Greenland and Iceland. The subtropical gyre, on the other hand, is particularly strong. The Azores are bathed in Gulf-Stream water as the authors note. I would say that the Azores lie in the northeastern segment of the subtropical gyre. b) Carbonate accretion rates peak at 60 m water depth, whereas maxima of the tropical factory seem to lie at 0-20 m. I encourage the authors to comment on this difference. Could it be that shallow production is actually higher but is moved downslope by wave action (the "hydrodynamic force" of the authors)? Or is the tropical profile too much biased by colonial corals? Or...

Technical comments: These are minor comments that would normally be inserted as balloons in a pdf text. — I would use "up-facing" and "down-facing" platforms instead of upward-facing... — p.3307/11. Reference to Schlager 2005 should read "2003" unless reference is made to Schlager 2005 in Concepts of Sedimentology & Paleontology, v. 8. —p.3310/15. Replace "reach" by "interval". —p.3320/23 "in good agreement with previous..." —p.3311/4. "...somewhat exaggerated..."

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