Ocean Sci. Discuss., 11, C127–C128, 2014
www.ocean-sci-discuss.net/11/C127/2014/

Ocean Science
Discussions
Open Access

Interactive comment on "The Mediterranean is getting saltier" *by* M. Borghini et al.

M. Gacic

mgacic@ogs.trieste.it

Received and published: 25 March 2014

The paper presents an extremely interesting considerations and evidences on the long-term salinity increase in the WMDW. The authors show that the long-term salinity increase is only half of that predicted from the evaporation increase. It is not clear whether in the trend calculations the entire series has been considered including the last portion since 2005, when strong increase took place. In addition, I would like to draw authors' attention to the paper by Gacic et al., 2013: Salinity in the Sicily Channel corroborates the role of the Adriatic–Ionian Bimodal Oscillating System (BiOS) in shaping the decadal variability of the Mediterranean overturning circulation, published in the same special issue (K. Schroeder was one of the co-authors) which offers alternative explanations of the sudden salinity increase after 2005 (WMT). We sustained and showed in that paper that the WMed bottom salinities are related to the advection of highly salty Levantine Intermediate Water (LIW). The WMT was preceded by

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

the high LIW salinity event documented from the Sicily Channel data, and the total phase-lag between the salinity increase in the Levantine basin and the WMT occurrence coincides rather well with the travel time of the signal between the Levantine and the Gulf of Lyon as estimated by Roether (2012, personal communication). In Gacic et al. (2013) we also showed that salinity increase of the WMed deep water are cyclical and can be explained in terms of the Bimodal Oscillating System (BiOS), i.e. in terms of the circulation inversions in the Ionian Sea which generate LIW salinity variations and subsequently WMed dense water salt content changes. Obviously, to these variations long-term trend is superimposed.

Interactive comment on Ocean Sci. Discuss., 11, 735, 2014.