

## ***Interactive comment on “Extreme winter 2012 in the Adriatic: an example of climatic effect on the BiOS rhythm” by M. Gačić et al.***

**Anonymous Referee #1**

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Argo floats and altimetry data are used to investigate aspects of the circulation of the Adriatic and Ionian Seas. In particular, the consequences of the extremely strong winter in 2012, which caused the formation of very dense Adriatic waters, are discussed: in coincidence with the arrival of newly formed Adriatic dense waters the sea level lowered in the north-western flank inverting the surface pressure gradient. In the last months of the year 2012 the density gradient between the Adriatic flanks and centre vanished, which appeared together with a weakening of the anticyclonic circulation and then with a return cyclonic circulation.

The Authors, based on these evidences, suggest that a reversal of Ionian surface circulation originated from spreading of highly dense bottom waters, which in turn were formed under extreme winter conditions.

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The paper seems to me well written and organized. In this sense I do not see elements which should undergo major revisions.

The point I am more critical about is, indeed, more of "philosophical" or "epistemological" nature: shouldn't the evidence of the BiOS highly sensitivity to the climatic conditions (as the Authors express in the conclusions) lead to a reformulation of the paradigm according to which the oscillations are almost decadal? The data of the past are in my opinion not enough to support that statement and the present evidence supports, indeed, the possibility that these reversing paths of oscillations can involve substantially shorter time scales. I would also avoid to include in the discussion "provisions" based on results of climate model whose prediction skills, especially at regional level, are not firmly established.

I thus suggest that the paper be accepted for publication provided that these two points are addressed in the discussion.

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Interactive comment on Ocean Sci. Discuss., 11, 425, 2014.

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