

## ***Interactive comment on “Modelling Seasonal Circulation and Thermohaline Structure of the Caspian Sea” by M. Gunduz E. Özsoy***

**Anonymous Referee #1**

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### General Comments

This is a detailed analysis of a simulation of the Caspian Sea using the HYCOM ocean model with climatological atmospheric forcing. There are two generic limitations of such a simulation, a) how well does the model capture the features of the actual Sea and b) how strong is the inter-annual variability that is being ignored. The extent to which the model captures actual features is covered in the paper, and appears to be high. Inter-annual variability will have to wait for a follow up simulation with inter-annual winds (and inter-annual river flow if available). Overall, this is a valuable addition to our knowledge of the Caspian Sea.

### Specific Comments

C88

HYCOM can include isopycnal layers, but here it is configured as a sigma-z system with 14 sigma levels above 50 m and 16 fixed depth z-levels below 50 m. This should be made clearer in the text.

A discussion of the mixed layer is the only missing piece of this comprehensive paper.

Why was 0-30m, 30-150m, and 150-300m chosen as vertical averaging intervals for most of the figures, and also why 0-10m, 50-100m, and 200-1000m was chosen for figure 12?

### Technical Corrections

model day should be ordinal day (in the year). Rather than, or in addition to, ordinal day I suggest providing the actual date, which will be more familiar to most readers.

The sentence on page 274 lines 11-14 is not well constructed English.

Figure 7, are these 0-30m currents? Say what they are in the figure caption.

Figure 10, should be labeled potential density in sigma-theta(?) units.

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Interactive comment on Ocean Sci. Discuss., 11, 259, 2014.

C89