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Geoscientific Model Development Discussions

Interactive comment on "Modeling the Caspian Sea and its catchment area using a coupled regional atmosphere-ocean model (RegCM-ROMS): model design and preliminary results" *by* U. U. Turuncoglu et al.

Anonymous Referee #2

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by Turuncoglu et al.,

General comments: This paper proposes the development and the first evaluation of a regional climate model over the Caspian Sea. As explain in the introduction, the coupled model would be useful tool to simulate the local climate and also the strong variations of sea level over the past decades. Those having a strong impact on the local activities on its coastline.

The Caspian sea is a close sea and its fluctuations are very link with its water budget

especially with the river runoff. It would have been more convincing to have a river model in the coupled model. In the discussion, the authors mention that it will be coupled with BATS in the futur. Thus, it would have been interesting to see what is the runoff over each cathtment bassin and how is compared with observations. Regarding the BATS model, I think (but you can confirm it to me) it do not have a river routine transport but put directly the runoff at each grid cell at the appropriate river mouth. Concidering that the Volga is the longest river in Europe, this approximation could induce strong biais in the annual cycle.

You performed simulation using the ERA Interim as boundary conditions. Why did you not performed the simulatin over the all period: 1979-2010? and reduce your study to 1999-2008?

Specific comment: Introduction: "the CSL has fluctuated dramatically.... increasing again by about two meters in the late 1970s and early 1980s". If you start your simulation in 1979, you could see if you can reproduce those fluctuations and use then as a benchmark to validate your model.

Model description: You describe the different convection schemes available in your model. Did you try to test them to correct your biais in Qs and cloud cover? It would be very interesting for the reduction of the biais as the strongest biais is in your heat budget

Section 3: prescribed SST: which data set did you used?

Section 3.2.: The global river discharge data: Are they covering the all period of the simulation?

Section 3.4.2.: Fig. 11: Why such a difference with the observations? The model recives river discharge from observations so the difference in SSS should not be so different?

Section 3.4.4.: The trend in the CSL is for me a model drift? are you sure that your

model is equilibrium? It would be nice to see figure of the T3D and S3D over the spinup and simulation period.

Fig. 13: You can also use HOAPS for the validation. It has a higher resolution than OAFLUX.

Interactive comment on Geosci. Model Dev. Discuss., 5, 3907, 2012.