Geosci. Model Dev. Discuss., 5, C1182–C1183, 2013
www.geosci-model-dev-discuss.net/5/C1182/2013/


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 #1**

Received and published: 10 January 2013

*Results: l.21 p.3919: why do you think the excessive vertical heat transport is inherited from the driving ERA interim analysis at the boundaries? The Caspian Sea shouldn't be influenced by the boundary conditions, or?*

*In the current version of the coupled model setup, the size of the domain of the atmospheric model component is not enough to produce large-scale systems inside the RCM domain and those features are inherited from the driving dataset (in this case ERA-Interim). Indeed, ERA-Interim has a significant warm bias in the northeastern portion of our domain (over land, not over the Sea), and this warm bias is transmitted*

*to the regional model via the boundaries. During the winter, this region is characterized by very cold, stable conditions near the surface. We have found that the planetary boundary layer (PBL) scheme is not able to reproduce well these very stable conditions, which results in too much mixing in the lower PBL and thus warmer temperatures.*

In that case I wouldn't say the model inherits something from the boundaries, I'd rather say some features of the circulation cannot be properly reproduced because of a too small domain.

Regarding the incomplete figures: I now can see all frames in each figure, possibly there was a problem with my pdf file.

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