

Interactive comment on “Tropical Extra-tropical thermocline water mass exchanges in the community climate model v.3 Part I: the Atlantic Ocean” by I. Wainer et al.

I. Wainer et al.

Received and published: 26 July 2006

[..] There are many papers out there on STCs and it is not clear to me what this one adds to our scientific understanding of STCs. It analyzes the Atlantic STCs and biases in CCSM3, but not to an extent that significantly exceeds the efforts done by Alexander et al. and Large and Danabasoglu in the recent J Clim special issue on CCSM3.

Large and Danabasoglu (2006) do not consider the Atlantic equatorial circulation specifically. The issue of where the EUC waters are coming from and how does this could affect variability is not part of their paper.

What Large and Danabasoglu (2006) discuss to great extent are the sea surface temperature (SST) and sea surface salinity (SSS) biases - their seasonal cycles and impact

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of the wind-driven circulation - and problems with the width, separation, and location of western boundary currents. They also show that the largest mean SST biases are along the eastern boundaries of subtropical gyres.

Their work is consistent with this paper in the fact that they show that the ocean biases they detect in both coupled and uncoupled solutions could indicate problems with the ocean model component. These are evident in the analyses of the positions of the western boundary currents, which are responsible for large, midlatitude, correlated SSS and SST errors

The extratropical pathways of the thermocline waters in the Atlantic Ocean (subject of this paper) are not discussed at all.

Also, in this OS manuscript, the results presented in the Alexander et al. are discussed in much more detail.

The Pedlosky or Lu and McCreary are referenced in a companion paper that deals with Pacific Ocean STC's specifically: *Solomon, A. and I. Wainer, 2006: Pacific tropical-extratropical thermocline water mass exchanges in the NCAR CCSM3. Ocean Modelling, in press.*

Interactive comment on Ocean Sci. Discuss., 3, 55, 2006.

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