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Climate of the Past Discussions

Interactive comment on "South Atlantic island record reveals a South Atlantic response tothe 8.2 kyr event" *by* K. Ljung et al.

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Dear Authors:

It is my pleasure to notice such an exciting study for 8.2 ka cold event with foci in South Atlantic regions. The authors did a very careful reconstruction over a sensitive area in South Atlantic. Their results indicated an interesting case study from both data and modeling perspective. The following short comments are for two major points.

1) I agreed that a freshwater induced THC reduction could cause a sea surface temperature (SST) increase in South Atlantic. To related the seesaw effect with this SST warming in South Atlantic, readers may wonder how much cooling in North Atlantic SST was caused by such a strong freshwater discharge (0.75 Sv over 20 years).

2) It was also shown in Wang and Mysak (2005) that the sea ice-albedo feedback, similar to ice-albedo feedback, could further contribute to an additional cooling of SST in North Atlantic. Both the freshwater caused initial SST cooling and sea ice-albedo feedback induced additional cooling of the North Atlantic SST should be considered and illustrated to support an annual SST warming of 0.2 to 0.5 degree C in South Atlantic.

Since the sea ice-albedo feedback plays an important role in this bi-polar seesaw mechanism, I wish that authors could analysis the sea ice concentration in both North and South Atlantic regions in their model simulations.

Wang and Mysak (2005), Response of ocean, climate and terrestrial carbon cycle to Holocene freshwater discharge after 8 kyr BP, Geophys. Res. Lett., 32, L15705, doi:10.1029/2005GL023344.

Interactive comment on Clim. Past Discuss., 3, 729, 2007.