

***Interactive comment on “Glacial fluctuations of the Indian monsoon and their relationship with North Atlantic abrupt climate change: new data and climate experiments” by C. Marzin et al.***

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I have a comment on the paper regarding the tropical Atlantic teleconnection to the Indian Monsoon that was highlighted in this paper. Overall I like this paper very much. The works by Kucharski et al. 2008, 2009 and Losada et al. 2010 suggest that the equatorial and south equatorial Atlantic warming influences the Indian monsoon through equatorial Kelvin's wave propagation and modification of the Walker circulation. In particular the Gill-type response to the east of the heating induces an upper-level cyclonic flow and low-level anticyclonic flow that induces low level divergence and reduced rainfall in the Indian region via Ekman pumping. Indeed the upper-level height

C3033

and wind responses to the tropical Atlantic part of the Atlantic forcing resemble that shown in the Kucharski et al. 2009 paper, and in this paper it is also shown that the (south) equatorial warming alone is able to force a dynamically induced atmospheric cooling in the South Asian region.

I wonder if the role of the north tropical and south tropical parts could be further disentangled? This could be important as this could be really a completely new mechanism for the paleo teleconnection.

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