

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.

Anonymous Referee #1

Received and published: 2 January 2013

This is a well-written paper. It presents interesting results from both observational and modeling aspects. First, it shows the SSS proxy $d_{18}O_w$ in the Bay of Bengal follows the large millennial variability of $d_{18}O$ in Greenland and East Asia implying a coherent variability of Indian monsoon with North Atlantic events and east Asia monsoon. Second, it performed coupled and AGCM experiments show that the North Atlantic SST impacts the Indian Monsoon mainly through the tropical Atlantic SST, the subtropical jet and the wave guide to the Indian monsoon region. I think the paper should be published after some minor revisions.

P2674, ~L25: “In all cases, the SST...too small to explain the record”. How big the

C3020

$d_{18}O$ signal will be if it is caused purely by SST of, say, 3°C ? Please be quantitative. Also, in Fig.2, the SST does show two negative peaks, when do they occur? Do they correspond to H1 and YD? It will be good to show the SST reconstruction with time, too.

Also, for completeness, it will be good to describe briefly why an increased troposphere temperature gradient, or subtropic jet will enhance Indian monsoon.

Interactive comment on Clim. Past Discuss., 8, 6269, 2012.

C3021