



The teleconnection of the Tropical Atlantic to the Tropical Indian Ocean: The ocean response

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In recent studies we have shown that the tropical Atlantic exerts a considerable influence to both the Indian Ocean basin, modulating also the Indian summer monsoon.

A warm (cold) tropical Atlantic Ocean forces a Gill-Matsuno-type quadrupole response with a low-level anticyclone (cyclone) located over India that weakens (strengthens) the Indian monsoon circulation.

The tropical Atlantic Ocean can also induce a change in the Indian Ocean basin, especially along the coast of Africa and in the western side of the

Indian basin. With a regional ocean model (ROMS) configured in the Indian Ocean we investigate the implication of such atmospheric teleconnection on the ocean dynamics. We find that cold anomalies in the South Tropical Atlantic (STA) region enhance the upwelling along the east-African coast, in the Somali jet region and also in the Red Sea, from June to August, while warming is recorded in April and September, and viceversa for warm anomalies in STA. SSTs changes reach 0.3-0.4 C and the cooling/warming signals extend to the subsurface. Implications for predictability studies are discussed.