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**A Gill-Matsuno-type response explains the tropical
Atlantic-Indian monsoon teleconnection**

FRED KUCHARSKI

Earth System Physics Section, ICTP, Trieste, Italy

Abstract:

Recent studies using coupled atmosphere-ocean models have shown that the tropical Atlantic has a significant impact on the Indian monsoon. In this work, the physical mechanism responsible for such a teleconnection is investigated with idealized atmospheric general circulation model (AGCM) experiments in which a constant SST anomaly is prescribed and 'switched-on' in the tropical Atlantic region. A simple Gill-Matsuno-type quadrupole response is proposed to explain the influence of tropical Atlantic sea surface temperature anomalies on the Indian monsoon, with a likely enforcement due to interactions with the mean Walker circulation. The simplicity of this mechanism suggests reproducibility of this result with a broad range of AGCMs.