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Title: The Influence of Indian Ocean warming and soil moisture change on Asian summer Monsoon

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Abstract:

An Atmospheric General Circulation Model (AGCM) is used to examine the influence of Indian Ocean warming and soil moisture change on the Asian summer monsoon. Three numerical experiments have been done for this purpose. The first one is related to the positive Sea Surface Temperature (SST) anomaly related to global warming and its effect on the Asian summer monsoon. The last two are related to the change of soil moisture and its impact on Asian summer monsoon. It has been shown that the Asian summer monsoon is weakening for the positive SST anomalies of the Indian Ocean but a significant increase of precipitation in South Asia, Bay of Bengal and Arabian Sea. There is a positive and negative anomaly precipitation dipole in the meridional direction that is nearly equal in magnitude which is also created in the East Asian region. On the other hand it has been shown that changing the soil moisture has direct impact on precipitation and monsoon circulation and a relatively high impact on the dry or semiarid area on the Indian subcontinent.

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