Geophysical Research Abstracts, Vol. 7, 04156, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04156

Tropical SST-NAO teleconnections in idealised AGCM aquaplanet experiments

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A series of idealised aquaplanet atmospheric general circulation model simulations are performed in order to investigate teleconnections between the tropical sea surface temperature (SST) anomalies and the North Atlantic Oscillation (NAO). Motivated by observational evidence and modelling results we focuss on particular structures and positions of the SST anomalies with respect the region of the maximum precipitation. A zonal-wave-number 1 perturbation around the equator can be generated by a suitable dipole SST anomaly (e.g. -1K anomaly in a northern box and +1K in a southern box). This zonal wave is a consequence of the response to the particular diabatic heating in the equatorial regions. Then, a poleward great-circle propagation is produced. We found that therefore a dipole heating in the Western Equatorial Pacific has direct connection with the NAO. This provides a mechanism (although it may not be the only one) for the Western-Pacific-NAO teleconnection discovered in previous modelling and observational studies. Other possible mechanisms of 'locking' the NAO in one zonal position are discussed.