



The role of moist regions in driving the cross equatorial atmospheric heat transport

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An analysis of cross equatorial atmospheric heat transport is presented using ECMWF and NCEP reanalysis data with a focus on seasonal and interannual timescales. We have identified the relevant contributions of moist and dry regions to cross equatorial heat transport based on a modal decomposition of the meridional wind profile (first baroclinic mode) and a relative humidity criterion.

Our study emphasises the role of the Indo-Pacific moist region as the major heat carrier throughout the year. The Somali jet makes an equal contribution in June - August. The partitioning of heat transport between moist and dry regions, as well as the Somali jet region was analysed as a function of El Nino variability in order to more fully understand the role of horizontal energy contrasts in terms of atmospheric heat transport. A simple relationship is suggested between the size of the moist regions and the intensity of the (zonally integrated) cross equatorial heat transport.