EMS Annual Meeting Abstracts
Vol. 13, EMS2016-190, 2016
16th EMS / 11th ECAC

The north-south precipitation dipole over southeastern South America and the SACZ predictability

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South America is affected by intraseasonal variability in both tropical and extratropical regions. The MJO has a direct influence on tropical regions and indirectly affects the southeastern South America through PSA-type wavetrains. It is well known that the South Atlantic Convergence Zone (SACZ) occurs in the subseasonal time scale and is affected by intraseasonal variability in the austral spring and summer seasons. Precipitation variability in the SACZ displays a north-south dipole pattern, which is simulated by global and regional models. However the models do not present a good performance in predicting seasonal precipitation anomalies in the SACZ region. This is a transition region, receiving influences from the north and from the south, and these regions provide the humidity to the SACZ development. The extreme droughts in southeastern Brazil in 2014 and 2015 had influences of convection in the Indonesia-Western Pacific, which triggered wavetrains in both hemispheres that induced subsidence over the region. Although the models have difficulties in reproducing the MJO signal, they can represent some of the observed atmospheric characteristics associated with the precipitation anomalies over South America. In this study the precipitation predictability in the SACZ region is analyzed based on a precipitation index at subseasonal time scale. The model results are obtained from CPTEC/INPE AGCM, ETA/INPE regional model and models from the S2S project. It is shown that the models are able to detect the precipitation dipole in southeastern South America at intraseasonal time scale. The behavior of the models in simulating the observed atmospheric large scale and regional features associated with the dipole are discussed. As the models performance are better in the southern center region of this dipole than in the north (SACZ variability), the use of an index of the southern center is suggested to predict the SACZ anomalies.