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Influences of teleconnection patterns on South America in subseasonal to seasonal models hindcasts

Southeast and Southern regions of South America (SA) are affected by teleconnection patterns as Pacific South America (PSA) and Southern Annular Mode (SAM). PSA shows a wavetrain pattern from tropical to extratropical atmosphere over South Pacific Ocean triggered by convection in the tropical Indian, Maritime Continent and tropical Pacific. The SAM has opposite atmospheric anomalies between high and middle latitudes and it is linked with the polar vortex intensity and jet streams. Global models are able to represent the main teleconnections that affect SA and the precipitation variability in some periods. Although models reproduce the precipitation dipole between Southeast and South Brazil in the summer season related to the South Atlantic Convergence Zone (SACZ) variability, Southeast Brazil is a region where the models have low predictability in the seasonal time scale, as it is a transition region between the Northeast, which has high predictability and the South, which has medium predictability. Predictions in the subseasonal time scale of summer are very important for several sectors of Southeastern and Southern regions, as these are very populated regions of SA and have agriculture and the largest hydropower that are very much affected by precipitation extremes, both excess and lack of rain. The aim of this study is to investigate the ability of two models of the S2S project (ECMWF and NCEP) to detect the Southern Hemisphere teleconnections in model hindcasts. The period of analyses is 1999 to 2011 for the summer season. The centers of action and patterns of the teleconnections are investigated to establish tools that can be used to improve the subseasonal predictions of precipitation, useful in agriculture and hydroelectricity power sectors.

Primary authors: Dr CAVALCANTI, Iracema (National Institute for Space Research); Dr BARRETO, Naurinete (National Institute for Space Research)

Presenter: Dr CAVALCANTI, Iracema (National Institute for Space Research)

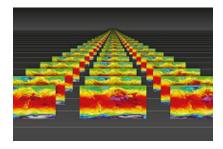**Track Classification:**   Workshop on Predictability, dynamics and applications research using the TIGGE and S2S ensembles