



Cold Fronts in RegCM/HadGEM simulations over South America

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Cold front is one of the most important systems that contribute for precipitation over South America. The representation of this system in climate models is important for a better representation of the precipitation. The Regional Climate Model RegCM is widely used for climate studies in South America, being important to understand how this model represents the cold fronts.

A climatology (from 1979-2004) of the number of cold fronts in each season for RegCM4 simulations over South America CORDEX domain nested in HadGEM2-ES. The simulated climatology was compared with ERA-Interim reanalysis cold fronts climatology over the South America and adjacent South Atlantic Ocean.

The cold fronts tracking for the model and the reanalysis were performed using an objective methodology based on decrease of air temperature in 925hPa, shift of meridional wind in 925hPa from northern to southern quadrant and increased in sea level pressure.

The main differences were observed on summer and winter. On summer the model overestimate the number of cold fronts over southeastern South America and adjacent Atlantic Ocean; and underestimate it over central-south Argentina and Atlantic Ocean. On winter, the signs were opposite of that summer. On autumn and spring the differences were smaller and occurs mainly over all South Atlantic and north Argentina.