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Title: 7-year Eta model seasonal hindcasts over South America using different initial and lateral condition
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Abstract:
This work compares and evaluates the seasonal precipitation forecasts produced by the Eta Model nested in the CPTEC atmospheric general circulation model(AGCM) and by the model nested in the CPTEC coupled ocean-atmosphere general circulation model (CGCM). The Eta Model seasonal hindcasts was run for the years 2001 until 2007. The results are investigated for two seasons: December-January-February (DJF) and June-July-August (JJA), which are the rainy and dry seasons, respectively, over most of South America. The Eta Model was configured with 40-km horizontal resolution and 38 layers, and covers a domain, which includes South America, most of Central America and part of Atlantic and Pacific Oceans. The forecast length was 4.5 months. The model was carried out using initial and lateral boundary conditions provided by AGCM and CGCM runs. Anomaly persisted sea surface temperature was daily updated when AGCM conditions was used; and forecasted sea surface temperature provided by CGCM was used when nested to this model. Precipitation, latent heat and shortwave radiation fluxes at the surface provided by the Eta Model are compared against observations and Reanalysis data. This work investigates the precipitation over the Inter-Tropical Convergence Zone (ITCZ). The ITCZ is responsible for the most precipitation over Brazilian Northeast Region during the rainy season DJF. Results using AGCM conditions indicate overestimated precipitation over the ITCZ region, whereas results using CGCM conditions the precipitation bias produced by the Eta Model is significantly reduced. In general, the results from Eta Model using CGCM conditions produced smaller errors than using AGCM conditions for the rainy and dry seasons.
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