

Poster.1: . **A preliminary assessment of convection-permitting simulations over southeastern South America performed with the WRF model**

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Abstract

A two-member ensemble of convection permitting simulations using the Weather Research and Forecasting model (WRF) has been performed over an area covering subtropical South America (from 70°W to 50°W and from 34°S to 17°S). The simulations span a 6-month period covering a warm season from October 2015 to March 2016. The 2015-2016 warm season was identified as one of the wettest seasons on record over the region. For performing these simulations, the WRF model was driven directly by the ERA-Interim reanalysis. Additionally, a 20-km resolution simulation performed with the WRF model driven by ERA-Interim reanalysis is used for evaluation purposes. Simulations are compared against three satellite-based precipitation observations which provide 3-hourly precipitation data at roughly 0.1°x0.1° (lat-lon) spatial resolution. The variety of observational data allows including the observational uncertainty of precipitation in the region. The analysis is focused on evaluating several features of the 3-hourly simulated precipitation with emphasis on extremes. The diurnal cycle of heavy precipitation and the diurnal cycle of the frequency of heavy precipitation over several subregions within the domain is also assessed. Additionally, the empirical distribution of the 3-hourly precipitation is assessed. The analysis allows identifying the major differences and benefits of convection-permitting simulations vs a lower resolution simulation in which deep convection is parameterized.