

Oral.1: **15:45-16:00. Improvements in simulating tropical-extratropical cloud bands over South America by using convective-permitting models.**

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Abstract

Tropical-extratropical cloud bands are typical of the subtropical South American climate, occurring mainly during the rainy season and producing more than 60% of the season's precipitation. Thus, their correct representation in climate models is fundamental for the accuracy of simulated subtropical precipitation. Here, we investigate the representation of the tropical-extratropical cloud bands in two convective-permitting simulations. The first, produced by the UK Met Office, is a 10-year simulation with 4.5 km spatial resolution. The second model is a 20-years retrospective simulation produced by the NCAR Water System Program, using a WRF model with 4-km grid spacing. The cloud bands are identified using an objective detection algorithm applied to OLR, as described by Zilli et al. (2020). Characteristics of these cloud bands, including precipitation and circulation variables, are compared to ERA5 reanalysis. Previous analysis of a similar CPM model over Africa (CP4-Africa) identified an improvement in the convective activity during cloud band events due to improvements in the upper-level westerly winds over the subtropics (Hart et al. 2018). Over South America, Zilli et al. (in prep.) identified similar biases in CMIP-like simulations, resulting in biases in the cloud band events. By using CPMs simulations, we expect to identify improvements in the representation of the South American cloud band events similar to those identified over Africa.