

PARALLEL SESSION C: IMPACTS AND APPLICATIONS
C2: REGIONAL ATMOSPHERIC AND OCEAN CIRCULATION SYSTEMS

**Precipitation seasonality, variability and associated dynamical processes
over eastern Africa**

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Most of the annual rainfall over the Horn of Africa (HoA) occurs in two distinct rainy seasons, from June to September (known as Kiremt) and from February to May (Known as Belg), which correspond to periods when the ITCZ crosses the equator in its annual migration. In general, rainfall in the HoA depends on the interplay between low-level inland moisture transport by the regional tropical circulation systems and upper-level dynamic perturbations inducing sufficient vertical motion and/or destabilization of the air column with respect to moist convection to produce deep precipitating cloud. With regard to the former, the East African low-level jet (EALLJ) is a prominent feature of the spring circulation over the HoA. The EALLJ strongly affects the temporal and spatial distribution of rainfall over East Africa. Failures of rainfall are a recurring phenomenon, with recent major droughts recorded in 1999-2000, 2008-2009, and 2011. These often have catastrophic consequences, with many millions of people suffering starvation and displacement and appear to be part of a decadal trend of declining precipitation. Climate projections also indicate that rainfall over this region is vulnerable to global warming. Here the representation of precipitation seasonality, variability and associated dynamical processes in the Africa-CORDEX ensemble is investigated. The focus region is eastern Africa, generally, and the Horn of Africa, in particular. In order to have confidence in future projections over this important region, we must first understand how well the Africa-CORDEX ensemble is able to reproduce observed variability, trends and dynamics. To this end we begin with the evaluation runs before investigating projected changes in the future simulations.

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