

Oral.2: **11:15-11:30. Influence of regional processes in convection over an inter-Andean valley in Colombia**

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**Abstract**

The inter-Andean valley of the Magdalena River in Colombia has been recognized as a tropical region with intense convective activity, where along- and cross-valley dynamics create an atmospheric environment favorable for convection strengthening. However, the Magdalena Valley is not the only region with high convection in Northwestern South America. This is also a feature of some neighboring regions: the Maracaibo-Catatumbo region, the place with most lightning activity on Earth; the Colombian Pacific Coast, containing one of the rainiest places on Earth; the Caribbean flatlands, a reported hotspot for mesoscale convective systems in tropical America; and the Amazon and Colombian Savannas. This work aims to elucidate possible relationships between atmospheric processes in these regions and the convection over the Magdalena Valley using high-resolution simulations with the WRF model for one month between September and October 2019. Dynamic and thermodynamic patterns in the surrounding regions and the valley itself are assessed, along with diurnal-scale processes that could enhance or decrease convective activity over the valley. Findings suggest that mid-level heating and circulations in the Amazon-Savannas and Catatumbo-Maracaibo regions contributed to instability and enhancement of nocturnal convection in the valley. At the same time, low-level fluxes from the Caribbean and Pacific flatlands provide moisture for the generation of convective systems in the valley.