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Convection over Mendoza region, the underlying mechanism and the consequences

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Two key factors determine the characteristics of climatology in the region of Mendoza (Argentina). On the one hand, the generation of high intensity mountain waves are a consequence of the proximity of the Andes Cordillera. On the other hand, the presence of the South Pacific anticyclone crossing South America from the Pacific Ocean to the Atlantic Ocean is a factor affecting the advection of moisture over the continent.
This presentation is concerned by the problem of intense convection over Mendosa region, the underlying mechanisms and the consequences. The study has been conducted with the use of analysis from European Centre of Medium Range Weather Forecasts, the Weather Research and Forecasting Model, and data from GOES satellite and radar images. The main result is that, in spite of the presence of orography, mountain waves are ineffective at generating convection over Mendoza which instead is due to the convergence of moist enthalpy near the ground. The phenomenon is highly dependent on the position of the anticyclone which provides the moisture and at the same time creates the convergence zone.