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Variation of the intensity of waves on Sierra Nevada (Owens Valley) due to the proximity of a Cyclone

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During an experiment conducted in March-April 2006 on the Sierra Nevada region (Owens Valley) radio soundings were launched in order to obtain the characteristics of the waves generated by wind blowing over the mountains. The radio-sounding data includes profiles of horizontal wind profiles, temperature, humidity and pressure. They are supplemented by European Centre for Medium-Range Weather Forecasts (ECMWF) analysis, and simulation using Weather Research and Forecasting Model (WRF).
An interesting result was that there were periods of intense wave activity, separated by calmer periods in which the waves are of weaker amplitude. This difference is explained by the distance of a cyclone , which as it approaches the coast and partly entering the continent, a strong wind blows over the mountains and generates waves of large amplitude. When the cyclone is far from the mainland, the wind on the mountain ills is weaker as well as the generated waves. High amplitude waves can break creating levels of static instability (SI). The number of instability points among other characteristics of the field are used as test for the intensity of the wave activity.