

## **5.22 EVALUATION OF HEAVY RAINFALL EVENTS IN THE PERUVIAN ANDES USING WRF MODEL AND WEATHER RADAR**

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The Weather Research and Forecast model (WRF) was implemented in the Geophysical Institute of Peru in operational mode in order to evaluate its capacity to predict heavy rainfall events in the Peruvian Andes. The study is focused in the Rimac river basin, one of the more important basin for water resources for Lima, the city capital, as well as for the risk management related to landslides and avalanche during the rainy season.

The WRF was run in 3 domains (18, 6 and 2 km). In this paper we present the event occurred February 15 and 16, 2018. To validate the model, precipitation data of eight surface stations was used, as well as precipitation data obtained from PX1000 polarimetric weather radar and the band-14 from GOES 16 images were used. Statistical parameters (RSME, BIAS and correlation coefficient) and a qualitative comparison for the spatial distribution of precipitation were used.

Preliminary analysis showed that the WRF's peak of precipitation occurred three three hours early than observed. The best correlation is observed in the middle part of the basin. Precipitation is overestimated with a bias of 0.10 mm / h and an RSME of 1.34 mm / h in average. The model has a good performance to predict the event achieved the spatial distribution similar then observed by the weather radar and GOES, reproducing the main characteristics of the precipitation in the middle part of the basin, near the city of Lima.