

13.18 RAINFALL RATE ESTIMATION USING HYDRO-ESTIMADOR (GOES) AND DUAL POLARIMETRIC RADAR IN A COASTAL TROPICAL BASIN OF PERU

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Peru is a vulnerable country to natural hazards from hydrometeorological origin with great social and economic impact, such as the intense rainfall in the northern and central coast during the “El Niño Costero 2017” phenomenon. Usual Peruvian conditions in the coast are very dry and observations of meteorological events are scarce. Due to the wide and complex topography, rain gauges are not representative of the area, which represent a limitation for hydro-meteorological studies.

In early 2018, the Instituto Geofísico del Perú and the Advanced Radar Research Center of the University of Oklahoma, installed a Dual-polarimetric X-band radar (PX-1000) in middle basin of Rimac (12.0°S, 76.5°N, 2900 m asl) for a better understanding of meteorological events and spatial quantification of rainfall.

In this work, we will evaluate the Hydro-Estimador from NOAA’s Geostationary Operational Environmental Satellites (GOES) and rainfall rate estimations based on polarimetric measurements obtained from PX-1000. Uncertainties derived from stratiform and convective rain and possible applications for operational use will be discussed.