

1.44 SIMULTANEOUS OBSERVATIONS OF KA BAND PROFILER AND GPM DUAL-FREQUENCY PRECIPITATION RADAR OVER TROPICAL CENTRAL ANDES (12.0° S)

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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. The complex topography of the Andes, which covers much of the Peruvian territory, makes the precipitation obtained by satellite be underestimated. On the other hand, the atmospheric models are not able to adequately represent the rains, because the physical and microphysical processes of clouds and precipitation in the Andes are not well known.

In order to obtain atmospheric data to study the physical processes associated with water and energy balance; in 2015 the Instituto Geofísico del Perú implemented the Atmospheric Microphysics And Radiation Laboratory (LAMAR), Huancayo Observatory (12.0°S, 75.3°W, 3313 m asl). As part of LAMAR, a Ka-band cloud profiler (MIRA-35C) was installed in late 2015, for cloud and rainfall estimation, along with a disdrometer (PARSIVEL2) and a few rain gauges.

In this work, we will present some case of study of simultaneous observations between MIRA-35C and Dual-Frequency Precipitation Radar (DPR) onboard the GPM. We will analyse the vertical profiles of reflectivity, rainfall rate, and drop size distribution with focus in the fixed shape factor of the gamma distribution. Some uncertainties derived from complex topography will be discussed.