Radar observations of equatorial electrojet irregularities with a UHF wind profiler at Jicamarca: Preliminary Results

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Portable low-cost CLear Air and Rainfall Estimation (CLAIRE) radar was developed at the Jicamarca Radio Observatory (JRO) that will provide tropospheric winds, turbulence, and rainfall estimations. The 445-MHz CLAIRE system consists of four Yagi-Uda phased array antennas, one for transmission and three for reception, arranged in a quasi- monostatic system.

Although CLAIRE was not designed to investigate the daytime equatorial electrojet (EEJ) irregularities, the backscattered echoes coming from the EEJ region should be strong enough to be detected by this radar. This opens the possibility of studying and comparing the characteristics of the EEJ echoes at different frequencies at JRO. For this purpose, special radar campaigns will be carried out at Jicamarca running CLAIRE and the 50 MHz JULIA system with antenna beams pointing vertically. The Doppler shifts of the type I EEJ echoes measured with CLAIRE will be compared with the ones obtained with the 50 MHz JULIA system. The characteristics of the measured signals will be analyzed and described in this presentation.