

AMISR-8 AT JICAMARCA

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The Advanced Modular Incoherent Scatter Radar (AMISR) system has been in the planning and early development stages for several years. The construction of that system was recently funded and it is now in progress. In preparation for the full deployment, a subset of an AMISR face has recently been deployed to Jicamarca, Peru for the first ionospheric measurements with the system. This talk will discuss those measurements and present early results.

The AMISR is the first incoherent scatter radar (ISR) specifically designed to be easily relocated and to allow a flexible physical configuration of the antenna to match specific scientific goals. The smallest building block of the system is called a Panel and consists of a planar array of thirty-two crossed-dipole antennas with associated transmitter, receiver, and control electronics. Each panel is roughly 2m x 3.5m in size and weighs approximately 385 kg. The AMISR-8 sent to Peru consists of eight panels, a 400 Hz power source, Up and Down Converters for the RF drive and reception, two data acquisition systems including digital receiver cards and PC-class computers to support basic data acquisition as well as interferometry, a panel serve computer, a network time server, and calibration electronics.

The capabilities of AMISR are well suited to this deployment. Its ability to change antenna look directions on a pulse-by-pulse basis is especially useful for probing the spatial structure of various coherent echo regions above Jicamarca. Especially when combined with interferometric sampling of the received waveforms, fine scale structures can be probed in detail. The information gathered will furthermore be extrapolated with the idea in mind of extending the array for a possible future deployment.

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