



Incoherent Scatter Analysis at Jicamarca

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A number of improvements have been introduced in the analysis of incoherent scatter data at Jicamarca. Some of these concern full profile analysis whereby state parameters including plasma number density, electron and ion temperature, and ion composition are estimated simultaneously at all ranges from the available lag product measurements in view of known range-lag ambiguity functions. The long pulses used for full profile analysis are complemented by double pulses which provide a means of estimating plasma state parameters at low altitudes. Faraday rotation is used to normalize the electron densities from both pulse schemes. The overall analysis can now be performed in real time. Several factors complicate the picture, however, including increased clutter from spacecraft, space debris, and ionospheric irregularities and the changing geometry of the magnetic field over Jicamarca. Nonetheless, data quality has been improved, and so has the overall fidelity with models of the equatorial ionosphere, notably SAMI2-PE. Some residual discrepancies between measurements and models will be presented and analysed.

References

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