



First results from the St. Croix Coherent Scatter Radar Imager

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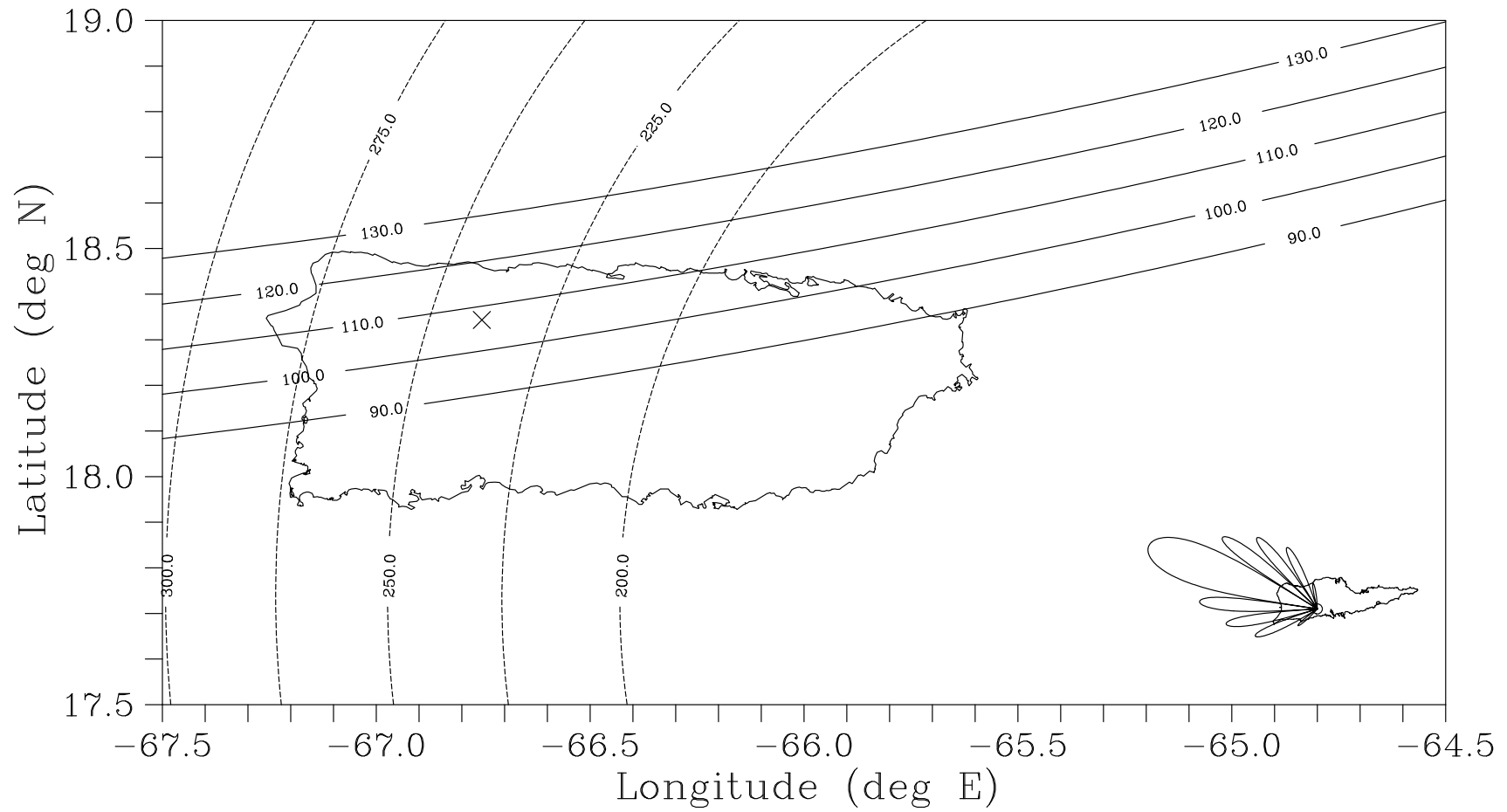
(1) Earth and Atmospheric Sciences, Cornell University, Ithaca, NY

(2) Physics and Astronomy, Clemson University, Clemson, SC

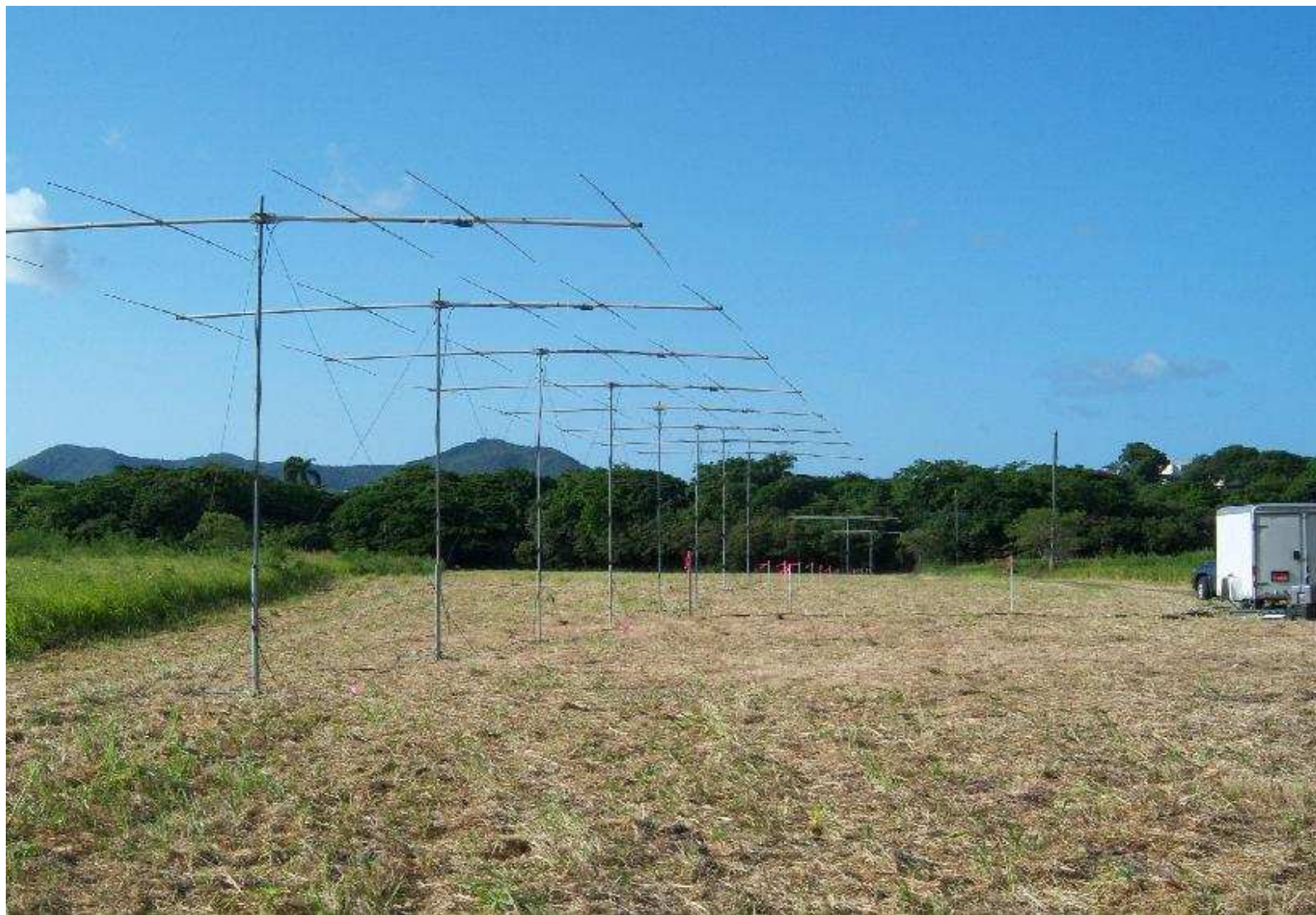
(3) University of the Virgin Islands, St. Croix, USVI

(4) Arecibo Radio Observatory, Arecibo, Puerto Rico

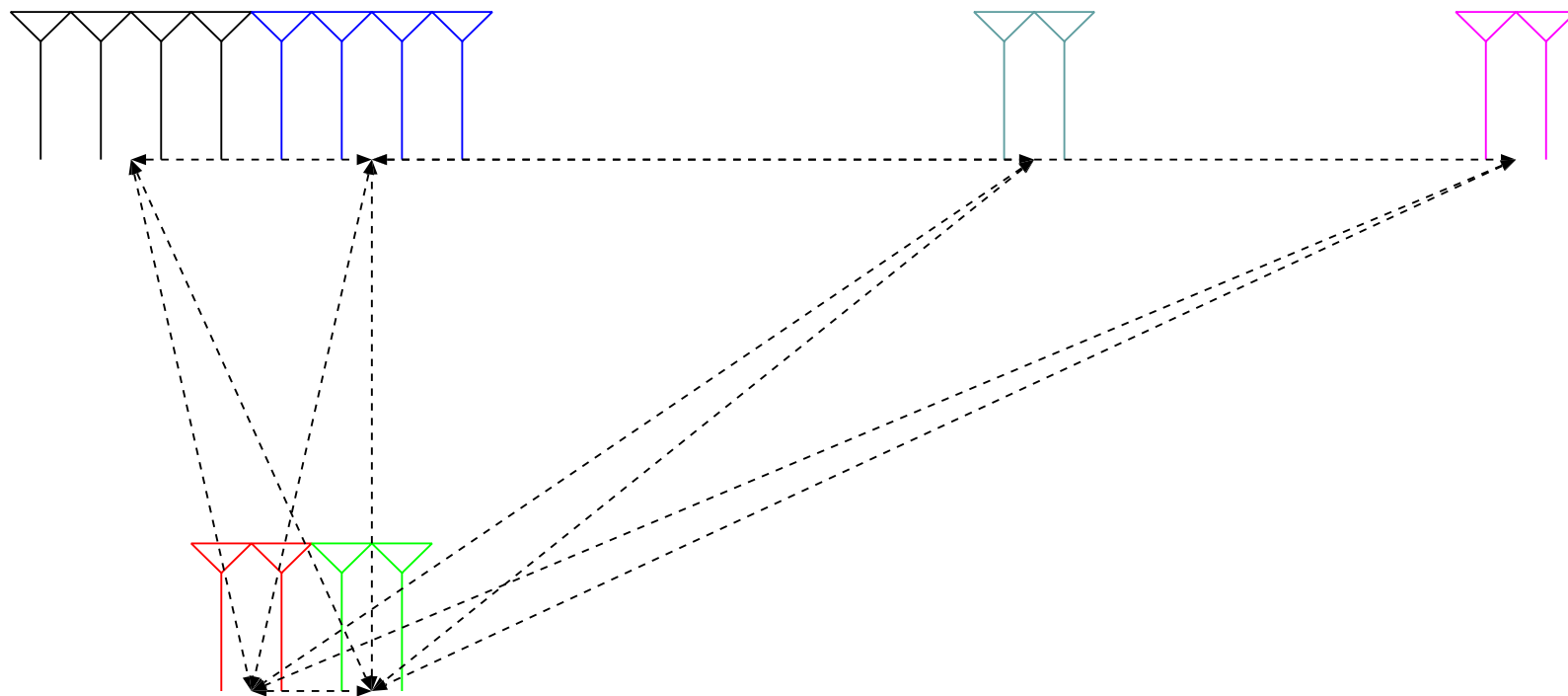
location location location

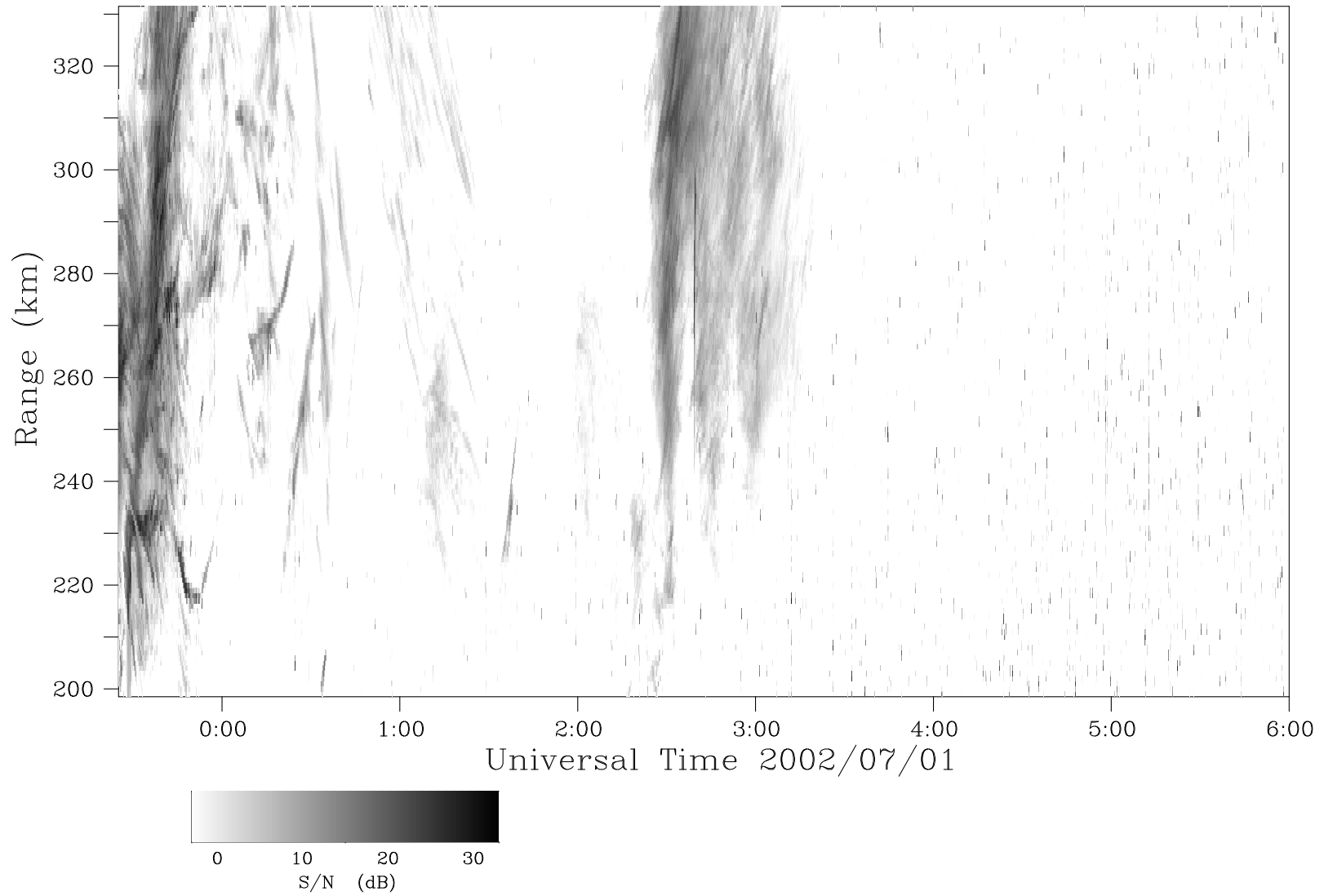


St. Croix radar



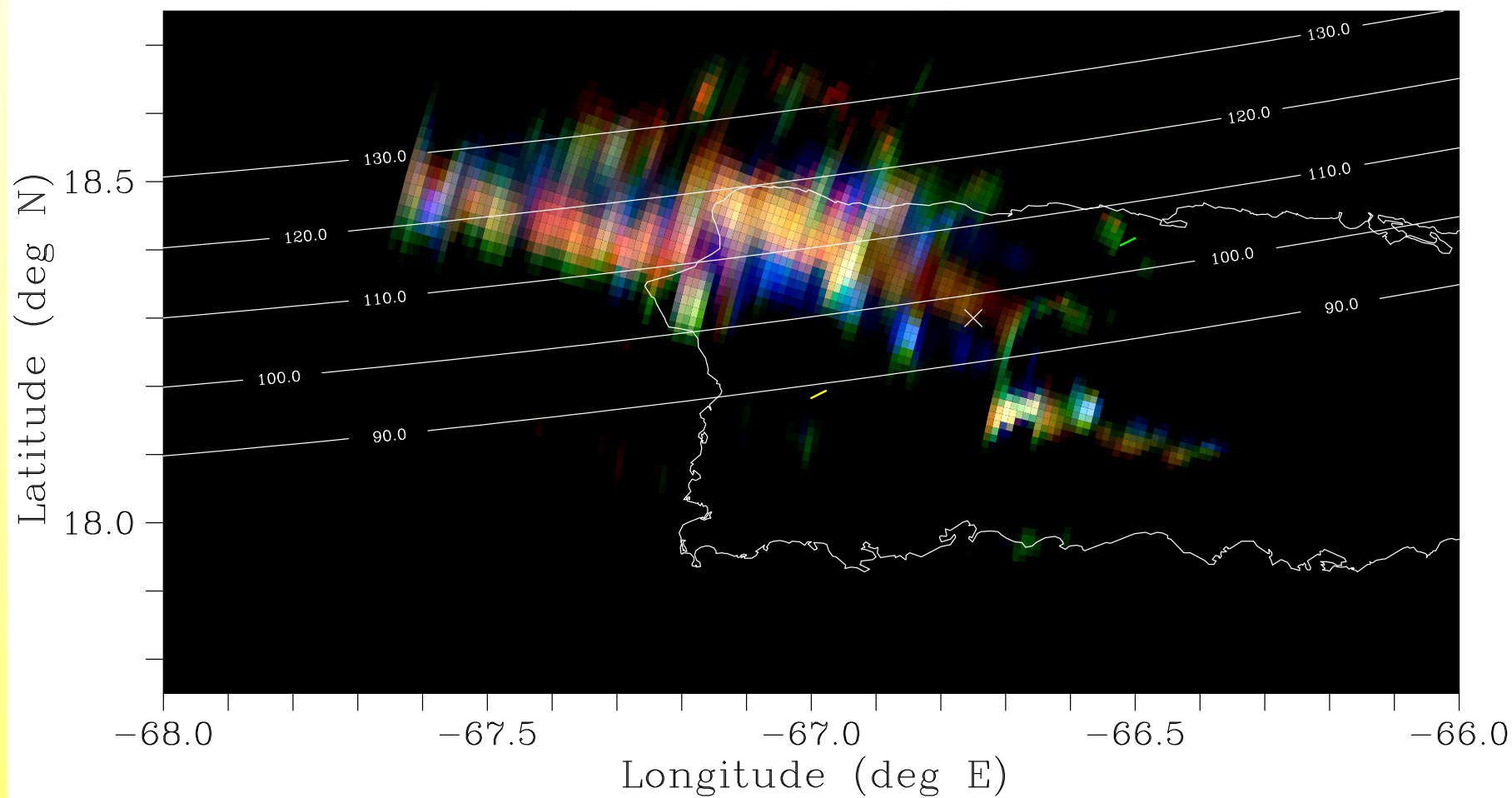
aperture synthesis





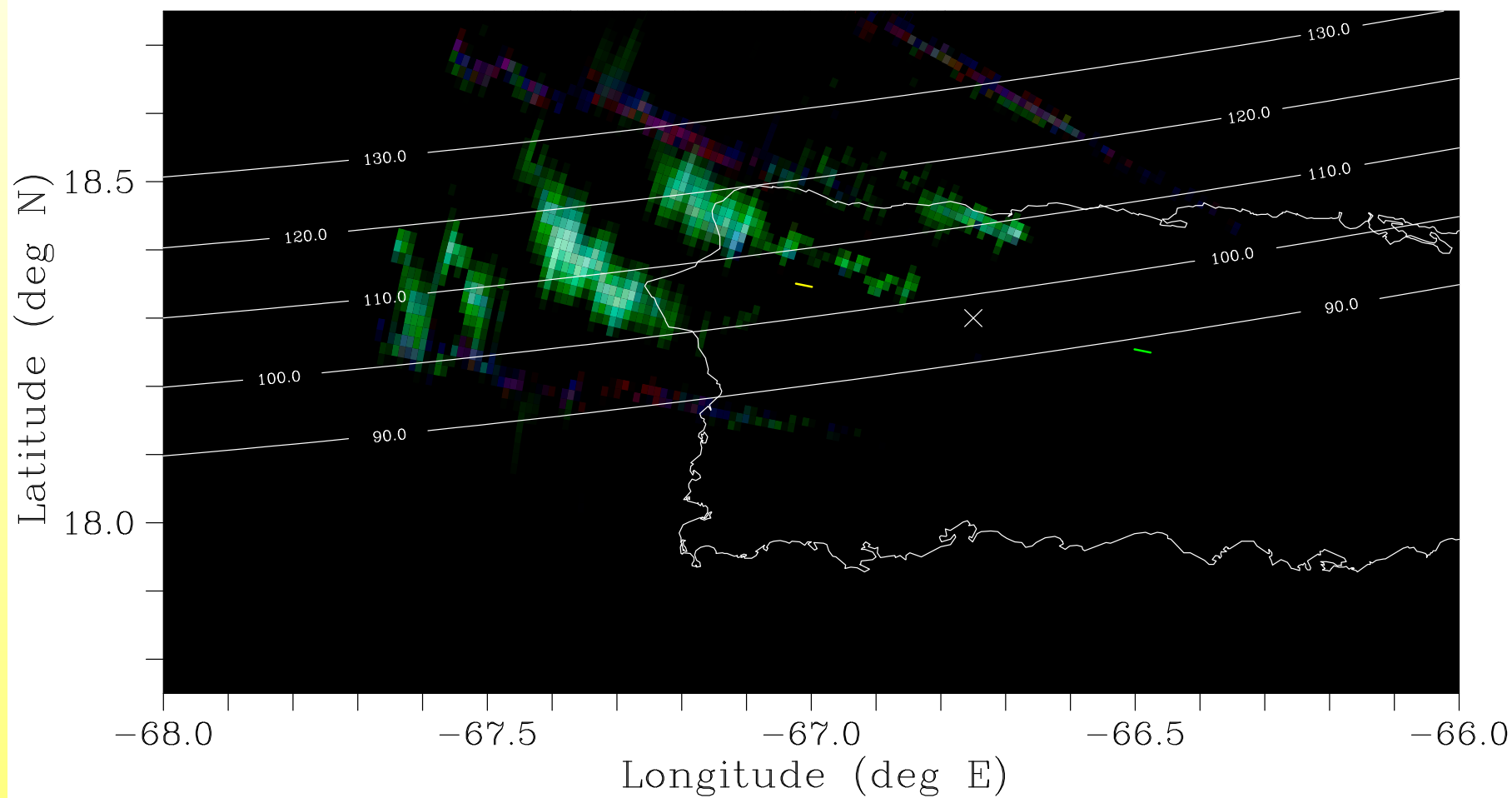
aperture synthesis imaging

2002/07/01 23:36:35

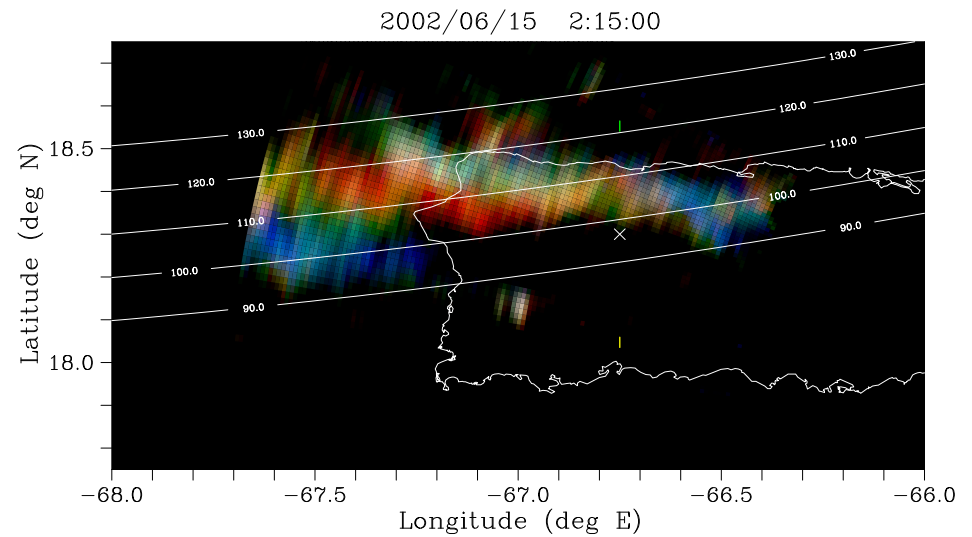
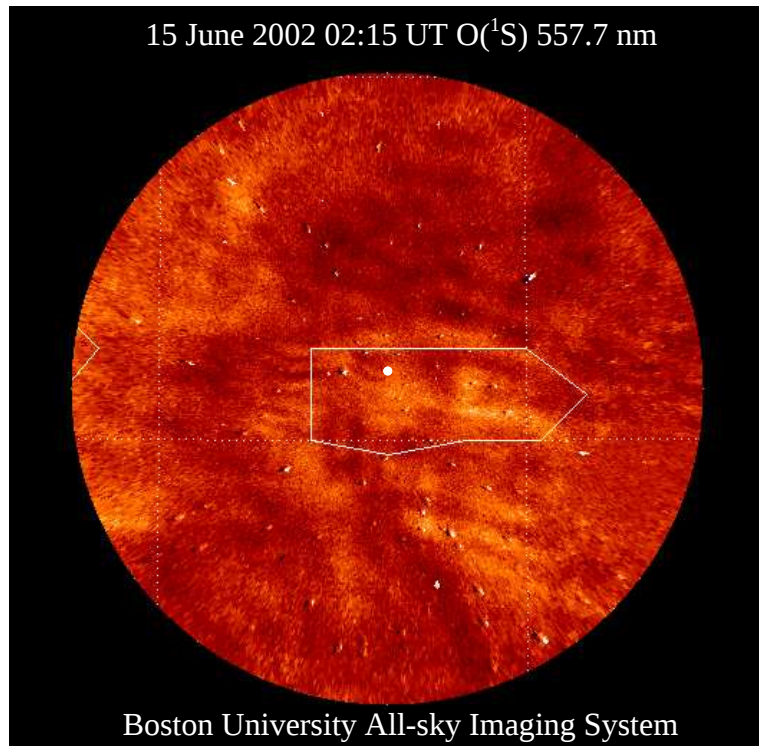


aperture synthesis imaging

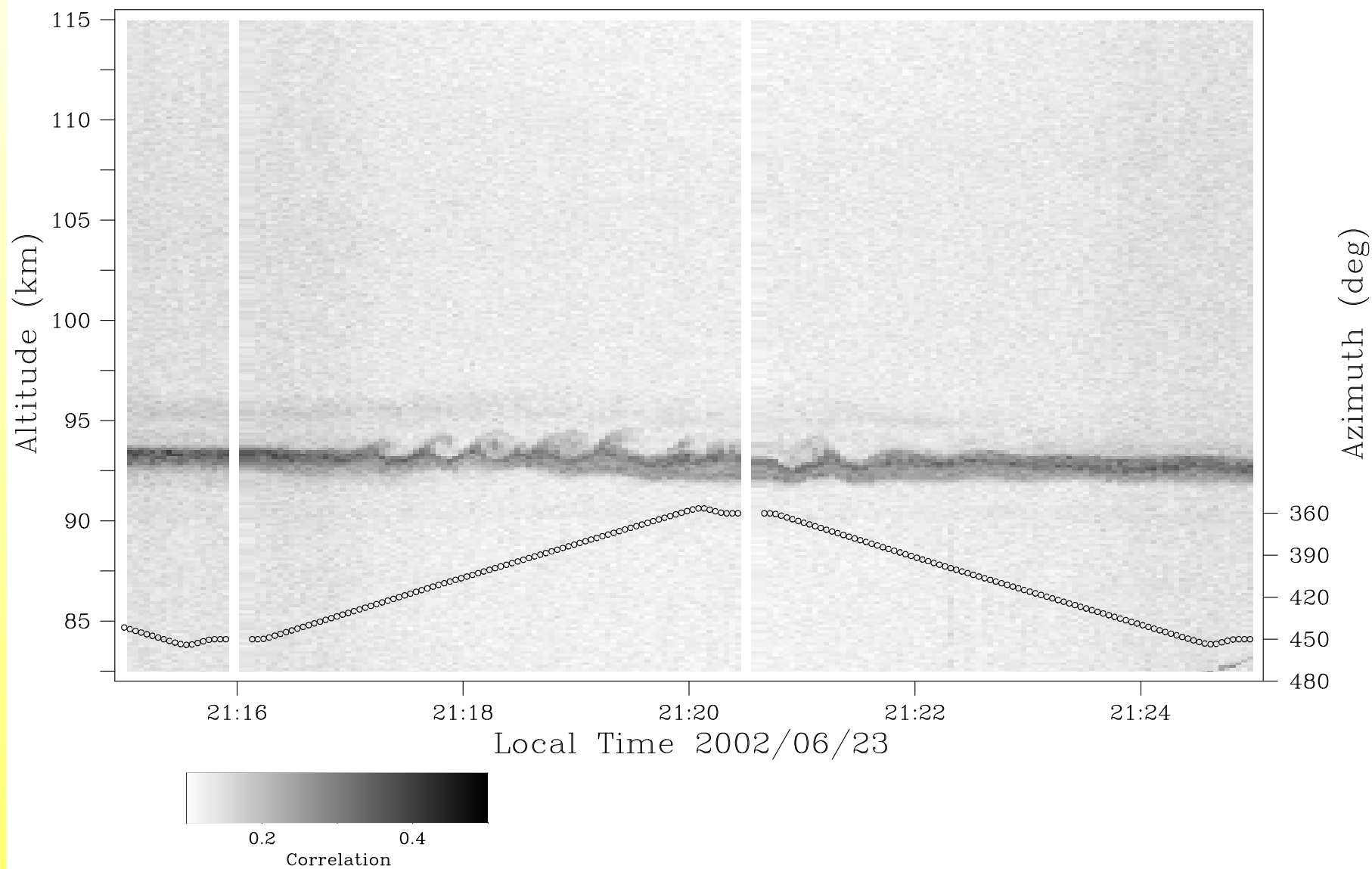
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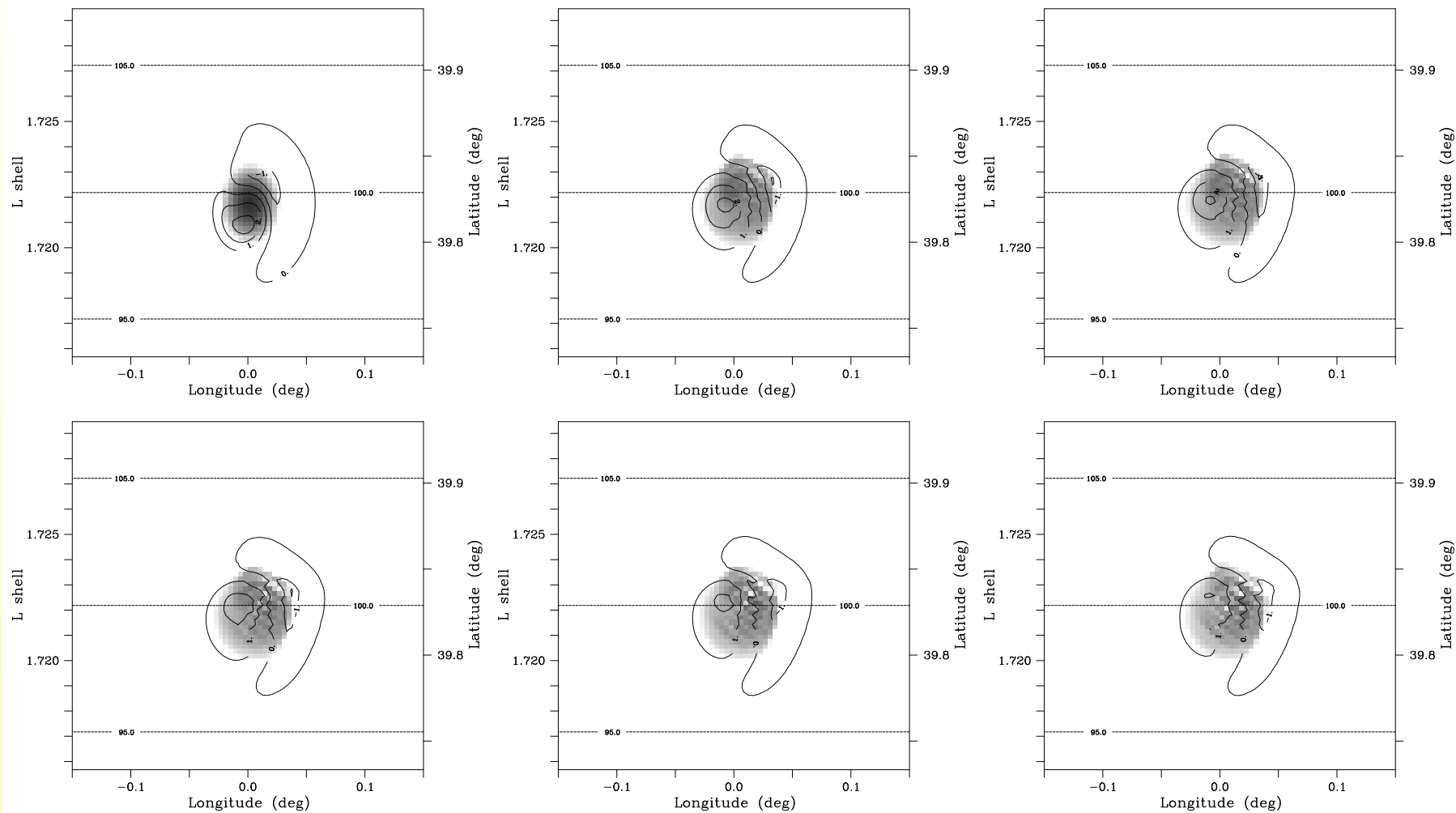
optical comparison



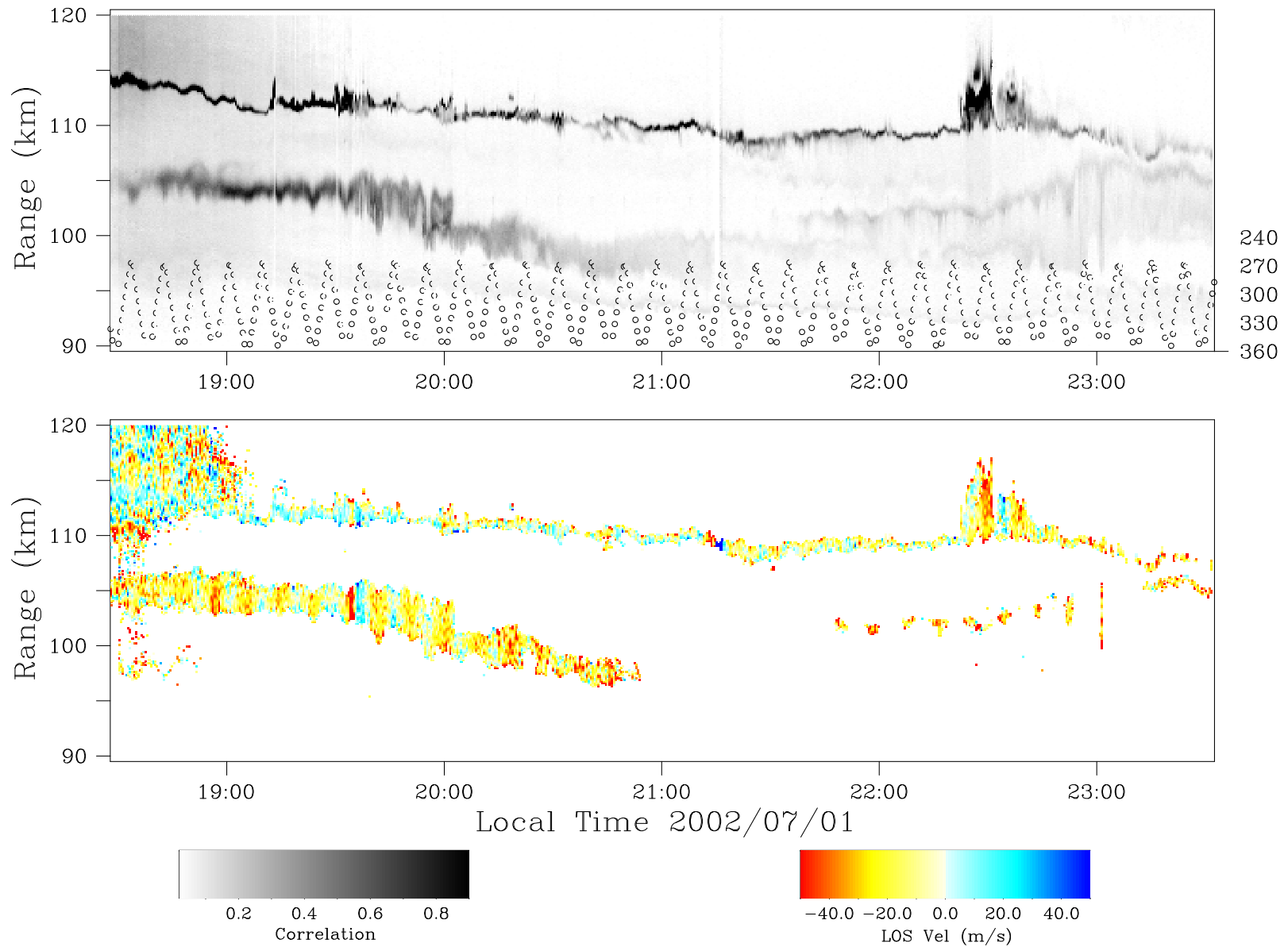
Arecibo coded pulse



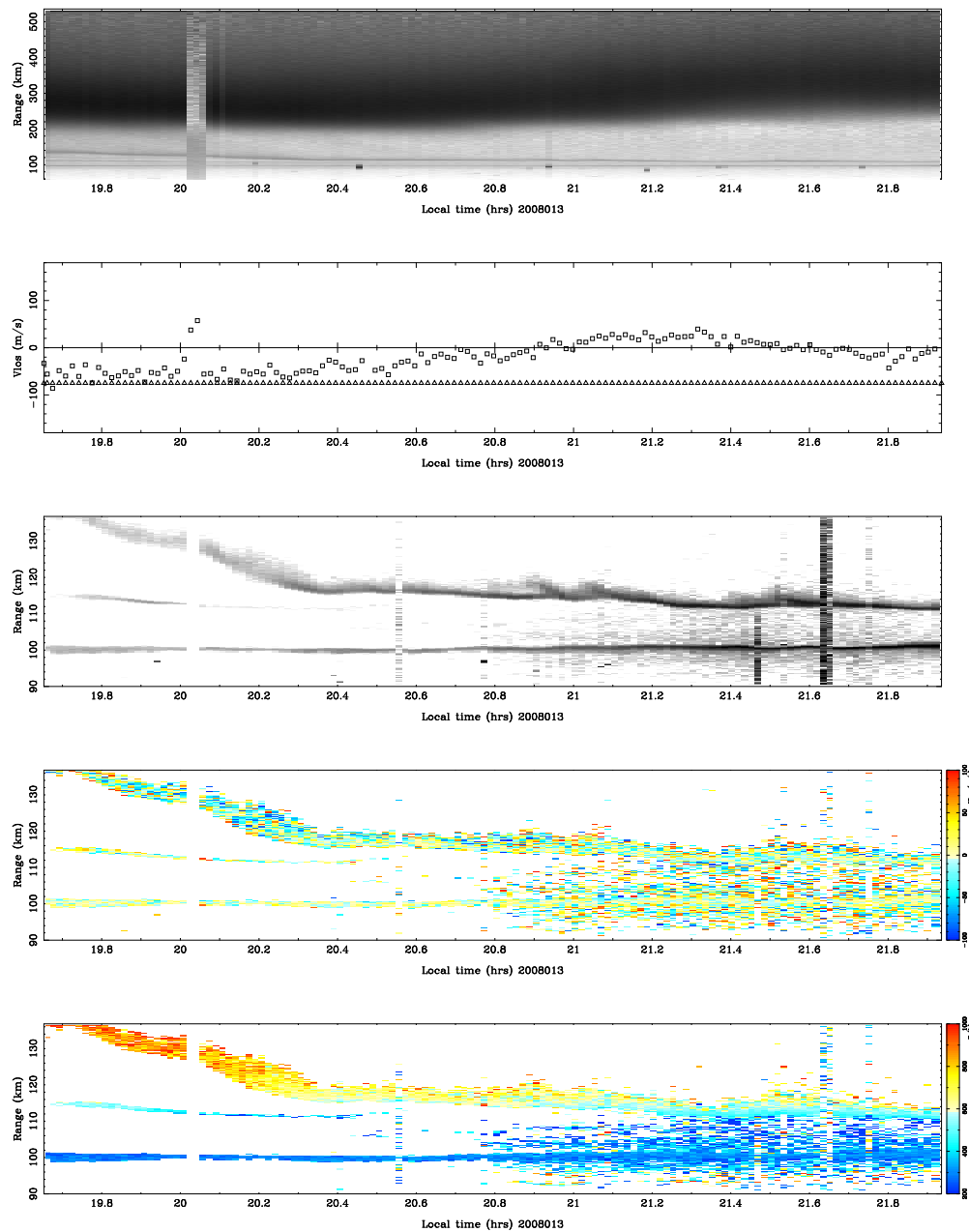
3D simulation



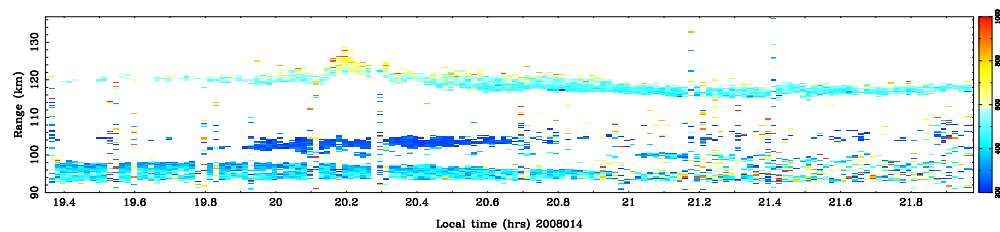
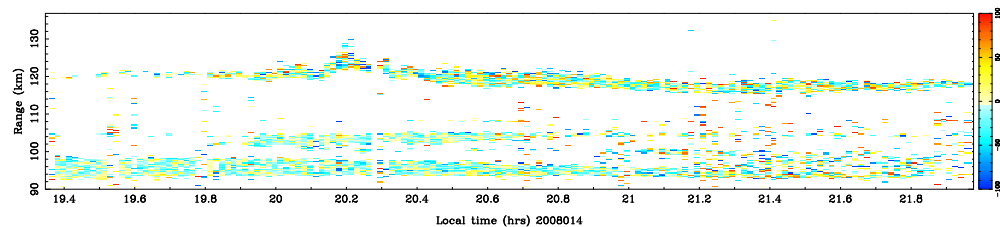
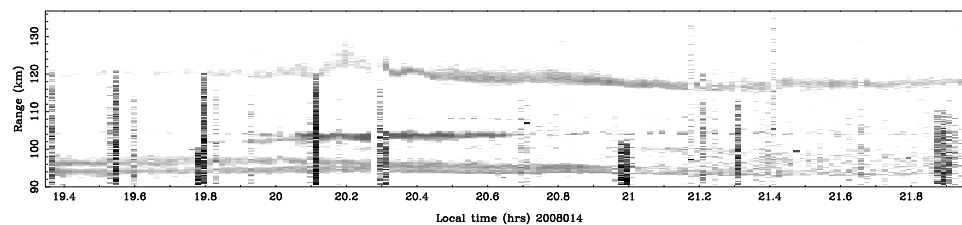
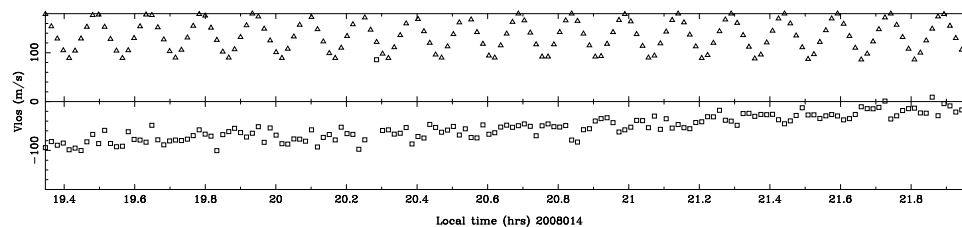
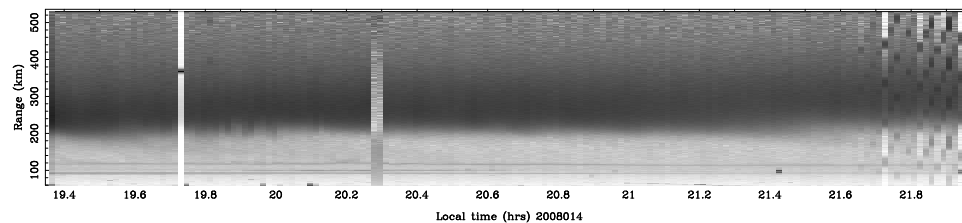
Arecibo double pulse



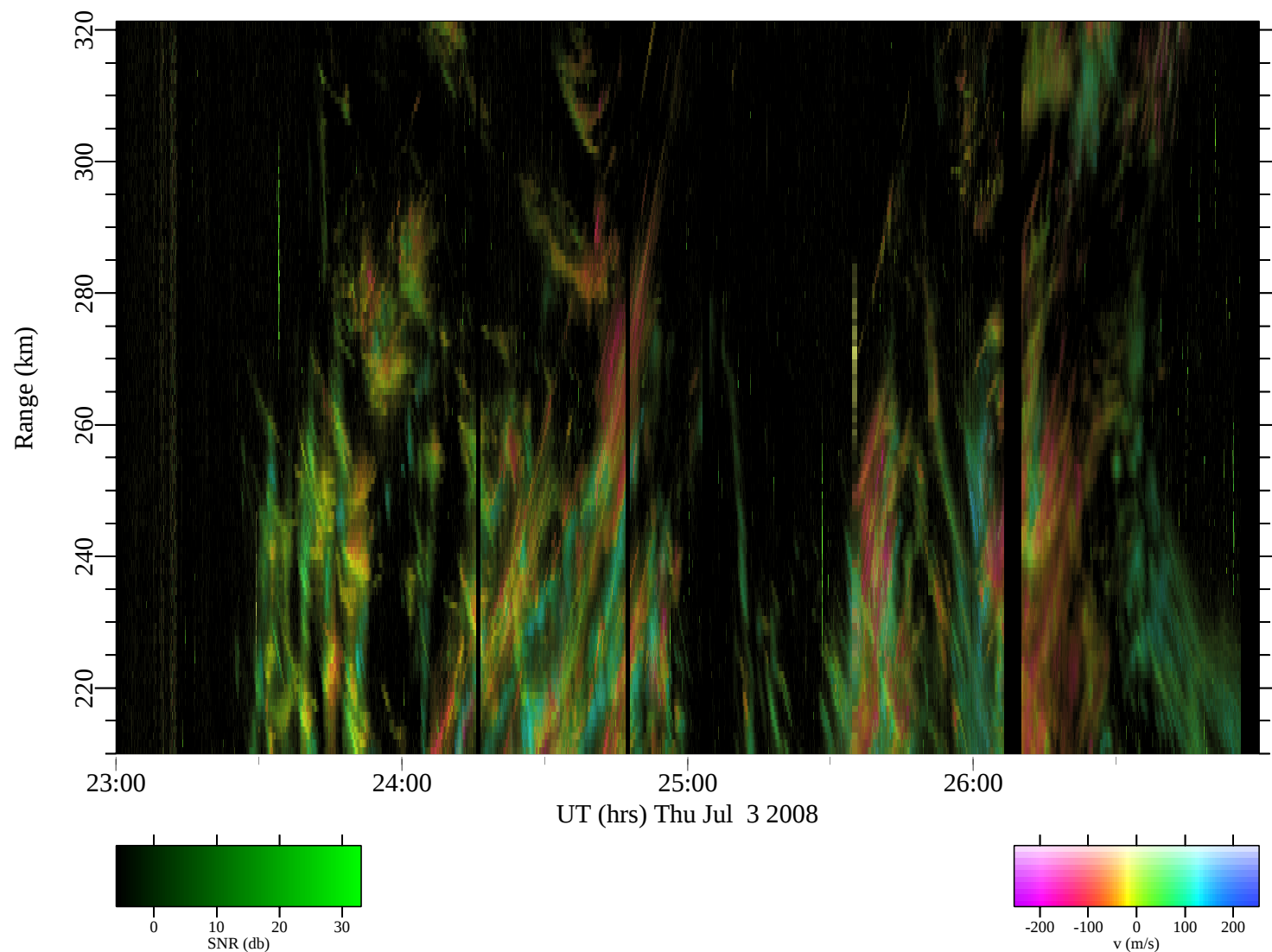
World day data



World day data



new observations



July 4, 2008

- Observations point to neutral dynamics as the source of midlatitude sporadic *E* layer structuring. Dielectric properties of the plasma lead to its subsequent polarization. A number of plasma instabilities then seem able to produce irregularities from kilometric to meter scales.
- Assessing neutral stability requires neutral wind and temperature profile estimates, which can only be provided by Arecibo. The measurements are challenging but feasible.