

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Understanding Ionospheric Effects on the LWA CHRISTOPHER WATTS, University of New Mexico, K.F. DYMOND, Naval Research Lab, MASAYA KUNIYOSHI, University of New Mexico, LONG WAVELENGTH ARRAY TEAM — The Long Wavelength Array (LWA) is a new telescope/interferometer facility being established to do astrophysical observations in the frequency range 10 MHz to 90 MHz. As such, measurements will be strongly affected by the ionosphere. In fact, part of the LWA mandate is to make highly precise measurements of the ionosphere. We present here preliminary modeling results of the effect of the ionosphere on the LWA for a single station beam. As expected, detrimental effects of a non-uniform ionosphere are most severe at lower frequency/longer wavelength. Beam divergences of as much as ± 5 degrees are to be expected. We also present results from a recent experiment using the Very Large Array (VLA) at 74 MHz and COSMIC satellite data to reconstruct the ionospheric density profile using tomographic techniques.

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Date submitted: 14 Jul 2008

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