

4CF14-2014-000009

Abstract for an Invited Paper
for the 4CF14 Meeting of
the American Physical Society

The Long Wavelength Array¹

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The Long Wavelength Array (LWA) will be a new multi-purpose radio telescope operating in the frequency range 5-88 MHz with angular resolution of a few arcseconds. Scientific programs include exploration of the high-z universe, extrasolar planets, ionospheric physics and space weather. The LWA will consist of 50 stations that are each comprised of 256 pairs of crossed dipoles. The first station of the LWA, called LWA1, is located near the center of the Very Large Array (VLA) and has been operating since 2011 as a stand-alone instrument. The new LWA-OVRO station (located at the Owens Valley Radio Observatory) has been completed and a new station LWA-SV is under construction at the Sevilleta Wildlife Refuge just north of Socorro, NM. We have also developed basic station infrastructure and have 32 antennas at LWA-NA (located near the end of the VLA's North Arm). There may also be a possibility to combine these stations with the new, wide-band, low frequency capability on the VLA. I will discuss how these activities might be used to optimally design the LWA, and how we plan to carry out scientific observations every step on the way to the LWA. As an example of this philosophy I will present a number of scientific results obtained from LWA1.

¹Support for operations and continuing development of the LWA1 is provided by the National Science Foundation under grant AST-1139974 of the University Radio Observatory program.