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Commissioner of Public Lands, UNM Sign Agreement to Begin Construction on Long Wavelength Array Sites

Commissioner of Public Lands Patrick Lyons and the University of New Mexico today signed an agreement to commence construction of the first two sites of the Long Wavelength Array (LWA) on state trust lands in Catron and Socorro counties.

"The selection of these sites establishes the start of the construction phase of a great new telescope," said Greg Taylor, UNM professor and scientific director of the LWA project.

Research and development conducted over several years is now complete and the LWA project is ready to break ground. The LWA will be a next generation radio telescope with imaging power two to three orders of magnitude better than current or past capabilities below the broadcast FM bands (i.e., 10 – 88 MHz).

Centered on the plains of San Agustin, the best site for radio astronomy in North America, it will complement and share key infrastructure with the major National Science Foundation Very Large Array (VLA), located in Socorro. The LWA will provide high-precision, synoptic views of the ionosphere and solar weather events, and of a variety of astrophysical phenomena.

"The greatest discoveries in astronomy have often followed technical breakthroughs expanding astrophysical discovery space," said LWA Project Scientist Namir Kassim of the Naval Research Laboratory. "The Long Wavelength Array will take advantage of high end computing and emerging innovations in digital processing, calibration, and imaging to achieve significant improvements over current capabilities in this frequency range thus offering to dramatically increase our knowledge of the Universe."

"This instrument will be a major element in New Mexico's leadership role in space physics complementing not only the VLA but adding to capabilities at New Mexico's national laboratories, universities, and the new emphasis at AFRL in New Mexico on space weather," added Taylor.

UNM is developing the LWA in cooperation with a number of scientific organizations, including: Los Alamos National Laboratories, Air Force Research Laboratory, Naval Research Laboratory, Jet Propulsion Laboratory, National Radio Astronomy Observatory, Virginia Tech and University of Iowa.

The LWA has been supported by the New Mexico Congressional delegation for the past four years, through the Office of Naval Research. The University of New Mexico has a significant number of faculty and students involved in LWA research and development.

“The University of New Mexico is a valued trust beneficiary and business partner,” Lyons said. “This agreement is another example of how together we are creating a new generation of technological advancements and educational opportunities.”

“The partnership between the Land Office and UNM is very important to the success of the LWA,” Taylor stated.

When completed, the LWA will be an array of 53 “stations,” each a 100-meter diameter field of approximately 250 antennas that acts as an individual telescope. Linked by data fibers, the stations will be combined to synthesize an instrument about 400 kilometers across. Before reaching that capability, a 16-station array is scheduled that will enable a better understanding of complex imaging through the ionosphere and will provide opportunities for major scientific discovery. This initial effort is expected to take six years, with an investment of $33 million.

Commissioner Lyons and the State Land Office manage nine million acres of surface estate and 13 million acres of mineral rights held in trust, primarily for education. Revenues earned from energy production, agricultural leases, and community and business development on trust lands support public schools, seven universities, and a number of other institutions and programs. In 1898, the United States Congress designated UNM as a trust beneficiary. Since Commissioner Lyons took office in 2003, UNM has earned $49 million in trust revenue.