

Scientists bring low frequency, 'First light' to the Jansky Very Large Array

July 20 2012, Daniel Parry



The Jansky Very Large Array radio astronomy telescope array consists of twenty-seven, 230-ton, 25-meter diameter dish antennas that together comprise a single radio telescope system. Credit: National Radio Astronomy Observatory

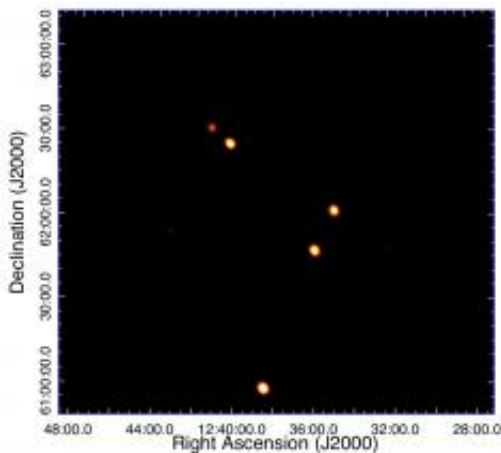
U.S. Naval Research Laboratory scientists from the Radio Astrophysics and Sensing Section of the Remote Sensing Division in conjunction with radio astronomers and engineers from the National Radio Astronomy Observatory (NRAO), Socorro, N.M., achieve "First Light" image, May 1, 2012, at frequencies below 1-gigahertz (GHz) on the Jansky Very Large Array (JVLA).

Through the combined expertise of NRL and NRAO scientists and engineers, a new, modern, wide-band receiver system has been developed and is being deployed onboard the JVLA to enable much

more sensitive observations over a much broader frequency range extending from 50 megahertz to 500 megahertz (MHz).

Using the first five of the 27 new very high-frequency (VHF) receivers successfully brought into operation, astronomer Dr. Frazer Owen, NRAO, reached an important milestone, mapping the radio sky at 337 MHz.

"The use of over 100 megahertz of bandwidth in the first image is a dramatic illustration of the breakthrough to instantaneous wideband systems at frequencies below one gigahertz," said Dr. Namir Kassim, section head, NRL Radio Astrophysics Section. "This represents a poorly explored part of the electromagnetic spectrum that is important for ionospheric and astrophysical research and to the Navy's mission for navigation and communications."



This "First Light" image is a critical milestone on the way to outfitting all 27 of the 25-meter dishes of the JVLA with the new low frequency capability. This map of the radio sky at 337 MHz taken May 1, 2012, by the five Very Large Array (JVLA) 25m telescopes presently outfitted with the new NRL/NRAO developed

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