

**An MF/HF antenna array
for radio and radar imaging of the ionosphere**

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The Interamerican Radio Array is currently being installed at the Interamerican University Aguadilla Campus, located in northwestern Puerto Rico. It is intended for broad-band medium and high-frequency (MF/HF, roughly 2 to 25 MHz) radio and bistatic radar observations of the ionosphere. The array consists of 20 antenna elements, permanently installed, arranged in a semi-random pattern providing a good distribution of baseline vectors, and with minimum 6-meter spacing to eliminate spatial aliasing. A relocatable 6-element array is also being developed. Each element consists of a crossed pair of active electric dipoles and all associated electronics for high-time-resolution, wide-band, wide-angle, phase-coherent radio measurements. A primary scientific goal of the array is to create radio images of ionospheric radio emissions stimulated by the new Arecibo Observatory high-power high-frequency radio transmitter. Another primary science goal is the study of ionospheric structure and dynamics via coherent radar imaging of the ionosphere in collaboration with the joint University of Colorado / NOAA Versatile Interferometric Pulsed Ionospheric Radar (VIPER), located at the USGS San Juan Observatory in Cayey, Puerto Rico. The goals of the project include ionospheric research in collaboration with the Cayey and Arecibo Observatories; the development of radio sounding, polarization, interferometry, and imaging techniques; and training of students at the university and high school levels.