

**An MF/HF antenna array for ionospheric sounding
and measurement of ionospheric radio emissions**

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The Interamerican Radio Array, to be installed at the Interamerican University campus in Aguadilla, Puerto Rico, is intended to be used for broad-band medium and high-frequency (roughly 2 to 20 MHz) radar imaging of the ionosphere in collaboration with the University of Colorado Versatile Ionospheric Pulsed Radar (VIPR) transmitter in Cayey, Puerto Rico, 109 km distant, and with researchers using the Arecibo Observatory, which lies on a direct line between Aguadilla and Cayey. The Interamerican array will also be used for imaging of ionospheric radio emissions stimulated by the new Arecibo Observatory high-power high-frequency radio transmitter. The Interamerican array will initially have 8 receiving channels, easily expandable to 16 channels, with relatively easy further expansion to 32 and 48 channels. It will initially have about 16 antenna tower locations, also expandable. The basic array will have two crossed 130-meter-long arms each consisting of distributed dipole antennas with linear polarizations, and several antenna locations between the arms. The goals of the project include collaborative ionospheric research with the Cayey and Arecibo Observatories and the development of radio sounding, polarization, interferometry, and imaging techniques using innovative antenna and array designs.