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The Future of the High frequency Active Auroral Research Program (HAARP)

Abstract:

The HAARP facility, located in Gakona Alaska, is the world's premier laboratory for active experimentation in the ionosphere and upper atmosphere. Understanding the ionosphere is particularly important because it affects long-distance communication, navigation, and radar applications relying upon radio propagation through this ionized atmospheric region.

The primary component of HAARP, the Ionospheric Research Instrument (IRI), is a phased array of 180 HF tower antennas spread across 33 acres and capable of radiating 3.6 MW into the upper atmosphere and ionosphere. The array is fed by five 2500 kW generators, each driven by a 3600 hp diesel engine (4 + 1 spare). Transmit frequencies are selectable in the range 2.8 to 10 MHz. HAARP is owned by the Space Vehicles Directorate of the Air Force Research Laboratory (AFRL/RV) in Albuquerque, NM.

In 2013 AFRL/RV decided that they no longer needed the facility, and by prior arrangement, were prepared to remediate the site. In response to a letter writing campaign and petition by the scientific community, the Secretary of the Air Force directed that the demolition be postponed until May, 2015 to allow time for another federal agency, a consortium of academic or research institutions, or the University of Alaska, to build a plan to sustain the facility and preserve its capability to enable fundamental ionospheric research.

For the past year the Geophysical Institute of the University of Alaska Fairbanks has been in active negotiations with the Air Force and a sustainment plan for HAARP, using a pay per use model may soon be approved and implemented preserving HAARP for future upper atmospheric investigations.