

HAARP Digisonde Description

Output (ionograms) from the HAARP DPS-4D digisonde will provide:

- a. Support of operational systems, including shortwave radio communications and OTH radar systems. This support can be in the form of predictions of propagating frequencies at given times and locations in the future (e.g., over the ensuing month) or the provision of real-time updates (updated as frequently as every 15 minutes) to detect current conditions such that system operating parameters can be optimized.
- b. Scientific research to enable better prediction of ionospheric conditions and to understand the plasma physics of the solar-terrestrial interaction of the Earth's atmosphere and magnetic field with the solar wind.

The areas of research pursued by users of the more sophisticated features of the Digisonde® sounders include polar cap plasma drift, auroral phenomena, equatorial spread-F and plasma irregularity phenomena, and sporadic E-layer composition [Buchau et al., 1985; Reinisch 1987; and Buchau and Reinisch 1991]. There may be some driving technological needs (e.g., commercial or military uses) in some of these efforts, but many are simply basic research efforts aimed at better understanding the manifestations of plasma physics provided by nature.

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