



A magnetospheric response to artificial ionospheric heating

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A magnetospheric response to an HF ionospheric heater turning on and off was found in magnetic pulsation observations from Kilpisjärvi, near Tromsø, Norway, over a frequency range up to 5 Hz. The event occurred on 16 Feb 1996, as the powerful HF O-mode pump wave at 4.04 MHz was modulated in a 4-min on, 6-min off cycle. The response to one of these 4-minute HF pulses was seen as two broadband pulses in the vertical and horizontal magnetic field components, with the first pulse corresponding to HF on and the second pulse, of opposite polarity, to HF off. The magnetometer pulses are delayed with respect to the HF pulse by an amount that is still being determined. Delayed by about 1.5 s from the initial magnetic pulses there are weaker pulses, apparently magnetospheric echoes. We present a detailed analysis and possible interpretation of the event for which EISCAT tristatic radar and other geophysical data also exist.