First observations of polar mesosphere summer echoes in Antarctica.

AUTORES:


RESUMEN:

A 25-kW peak power 50-MHz radar was installed at the Peruvian base on King George Island, Antarctica (62°S), in early 1993. A search for polar mesospheric summer echoes (PMSEs) was made during late January and early February of the first year of operation with negative results. These results have been reported in the literature [Balsley et al., 1993; 1995]. We report here results obtained during the austral summer of the second year (1994) of operation. Observations during the second year were begun earlier, i.e., closer to the austral summer solstice. PMSEs were observed during this period, albeit the echoes were much weaker than what one would expect based on earlier Poker Flat radar results at a comparable latitude (65°N) in the Northern Hemisphere. A large and measurable asymmetry in PMSE strength in the two hemispheres therefore exists. We explain this asymmetry by postulating a difference in summer mesopause temperatures between the two hemispheres of ~7.5 K. This difference has been estimated using an empirical relationship between the variations of the Poker Flat PMSE power as a function of temperature given by the mass spectrometer incoherent scatter extended (MSISE-90) model.