

Metadata Details

Title

Some Features of PCS Magnetic Pulsations in Dakshin Gangotri, Antarctica.

Science Keywords

Category	Solid Earth
Topic	Geomagnetism
Expedition Year	1985-1986
ISO Topic	Geodesy

Summary

Abstract

Magnetic pulsation data in the Pc5 range (150-600 sec periodicity) in February 1986 at Dakshin Gangotri, Antarctica were analysed through (i) Power spectral methods (ii) 3-Dimensional polarisation (iii) Complex demodulation and (iv) Single station transfer function for the induction vectors. Dynamic spectra showed that the oscillations were confined to basically three bands of frequencies. The anticipated change in ellipticity and polarisation (left handed to right handed) across the magnetic local noon was not observed suggesting that plasmopause location may be further west of the station. For all the three frequency bands the orientation of the major axis of the ellipticity of polarisation was quite stable as a function of time. The induction arrows computed for 350, 200 and 150 Sec and periodicity point to inland contrary to the expected direction towards the deep oceans, suggestive of some conductive structure in the Antarctic landmass close to the magnetic station.

Purpose

During the Fifth Indian Scientific Expedition to Antarctica, useful magnetic data were collected between 15 January and 28 February, 1986. Fluxgate magnetometer housed in a well insulated cabin was buried below the ground level in the ice-shelf to minimise temperature variations. The output was taken in two modes: (i) for Normal daily variation and (ii) for Magnetic pulsations in the pass-band 1 to 33 mHz (30 to 1000 sec periodicity), The output was fed to a digital data logger with internal crystal-controlled clock system and sampled every 30 sec. Analog records were also simultaneously obtained which clearly revealed the good quality of data, completely free from artificial noise except for duration when the HF communication system was operated.

Data Center