

Electric Field and Magnetometer Observations of the Equatorial Electrojet: an IEEY program

R.F. Woodman and O. Veliz C.

Jicamarca Radio Observatory
Instituto Geofísico del Perú
Apartado 13-0207
Lima, PERU

As part of the IEEY program, a chain of magnetometers was deployed along the Peruvian sector crossing the equatorial electrojet. Simultaneous vertical drift measurements were made using Jicamarca's normal I.S. F-region vertical drift mode as well as oblique coherent E-W electrojet drift measurements. The electrojet component of the magnetogram records can be extracted by subtracting the signature from the non-equatorial stations. As expected there is high correlation between this component and the drifts measured by both radar experiments. One of the days was magnetically disturbed. The distribution and density of the chain of magnetometers should allow us to determine the latitude extend of the fluctuating currents responding to the fluctuating electric field.

Figure captions

Figure 1) Geographical location of the magnetometer chain deployed for the IEEY (O. Veliz, personal communication).

Figure 2a) Magnetogram records corresponding to different latitudes north and south of Jicamarca on March 18, 1993, a quiet day.

Figure 2b) Magnetogram and vertical drift on the same time scale.

Figure 3a) Same as in 2) but for April 8, 1993, an active day. Only three stations are shown: Piura (+12.2° Dip), Ancón (+1.3° Dip) and Tacna (-6.8° Dip).

Figure 3b) Magnetogram and vertical drift for April 8, 1993 in the same time scale. Notice the correlation between the short time scale fluctuations.

Figure 3c) Magnetogram and horizontal drift velocity obtained by a tilted beam radar.

PERUVIAN IEEY STATIONS

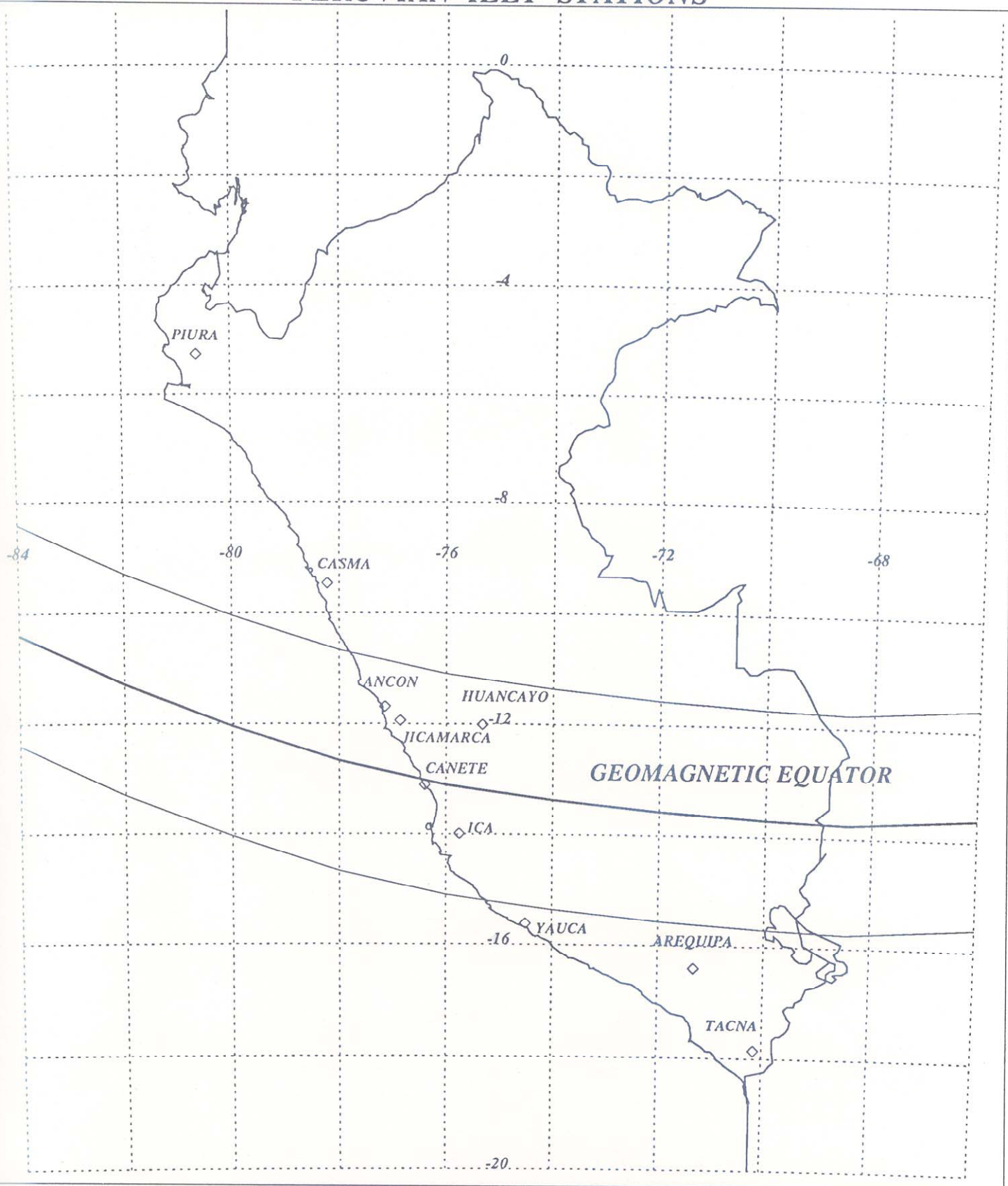


Fig 1

Diurnal Variation Range for H Component
Date : March 18, 1993

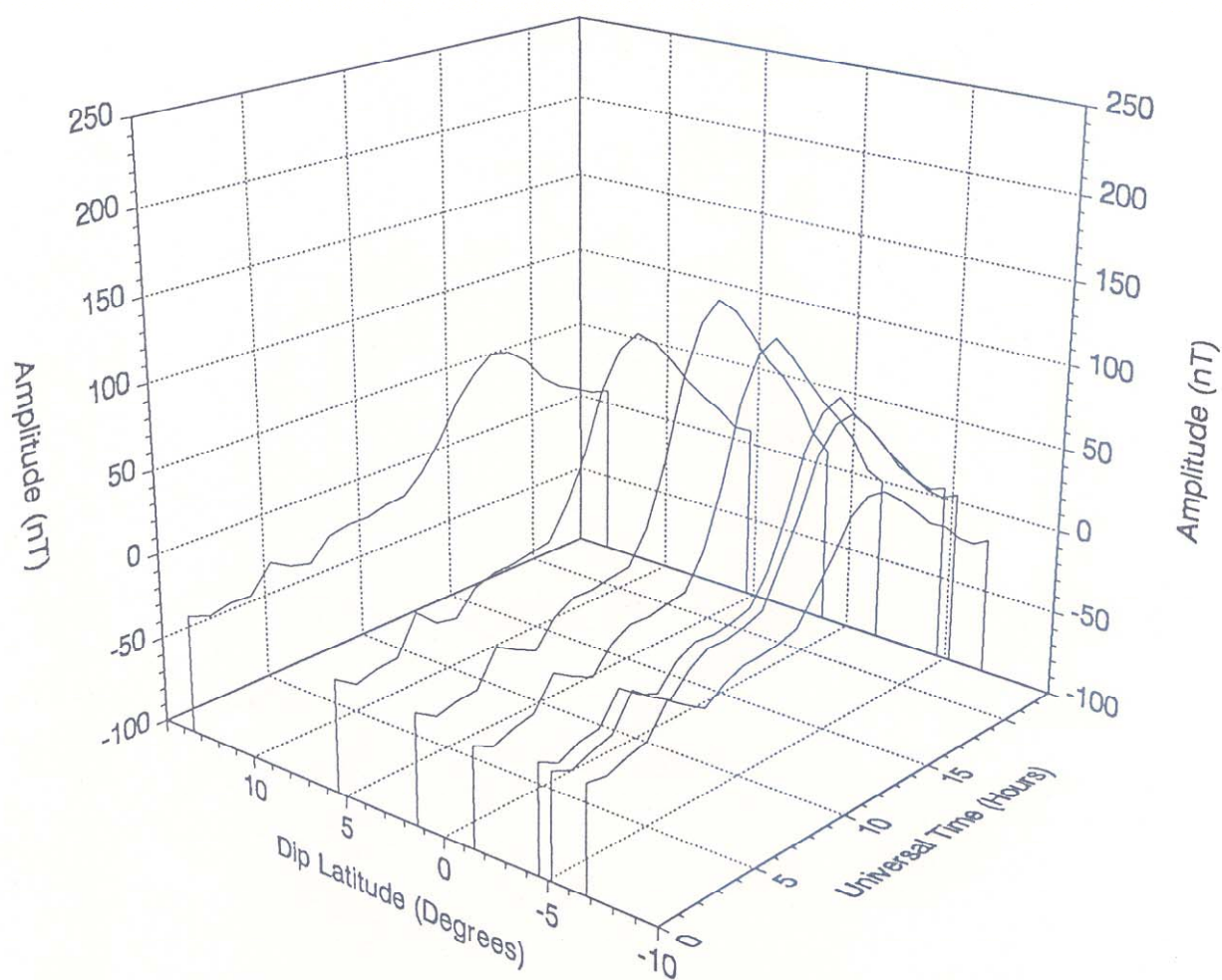
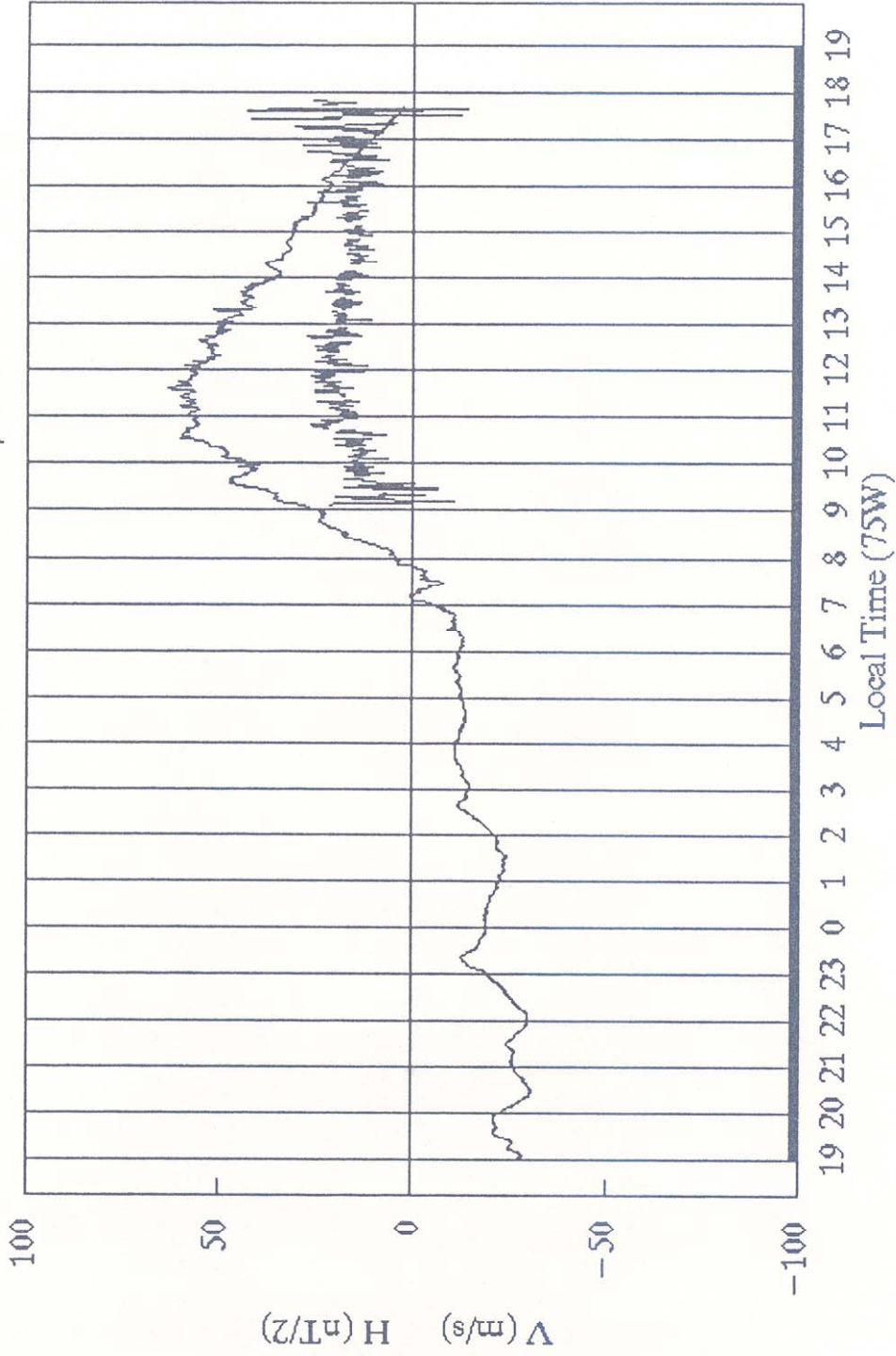


Fig 2 a)

IONOSPHERIC V.DRIFT AND H. VARIATIONS

DATE: MARCH 17-18, 1993



2 High Rx B

Fig 2b)

Diurnal Variation Range for H Component
Date : April 8, 1993

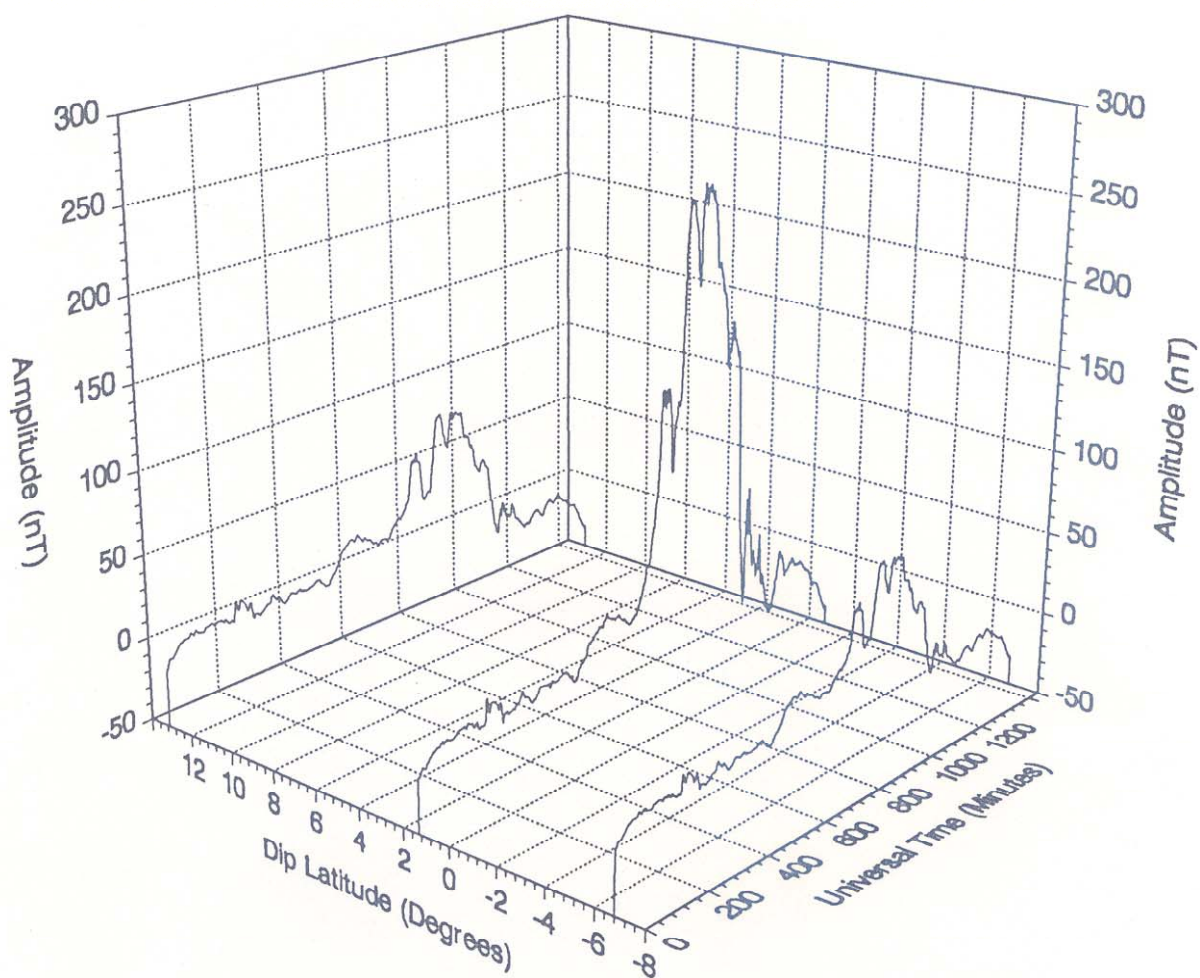
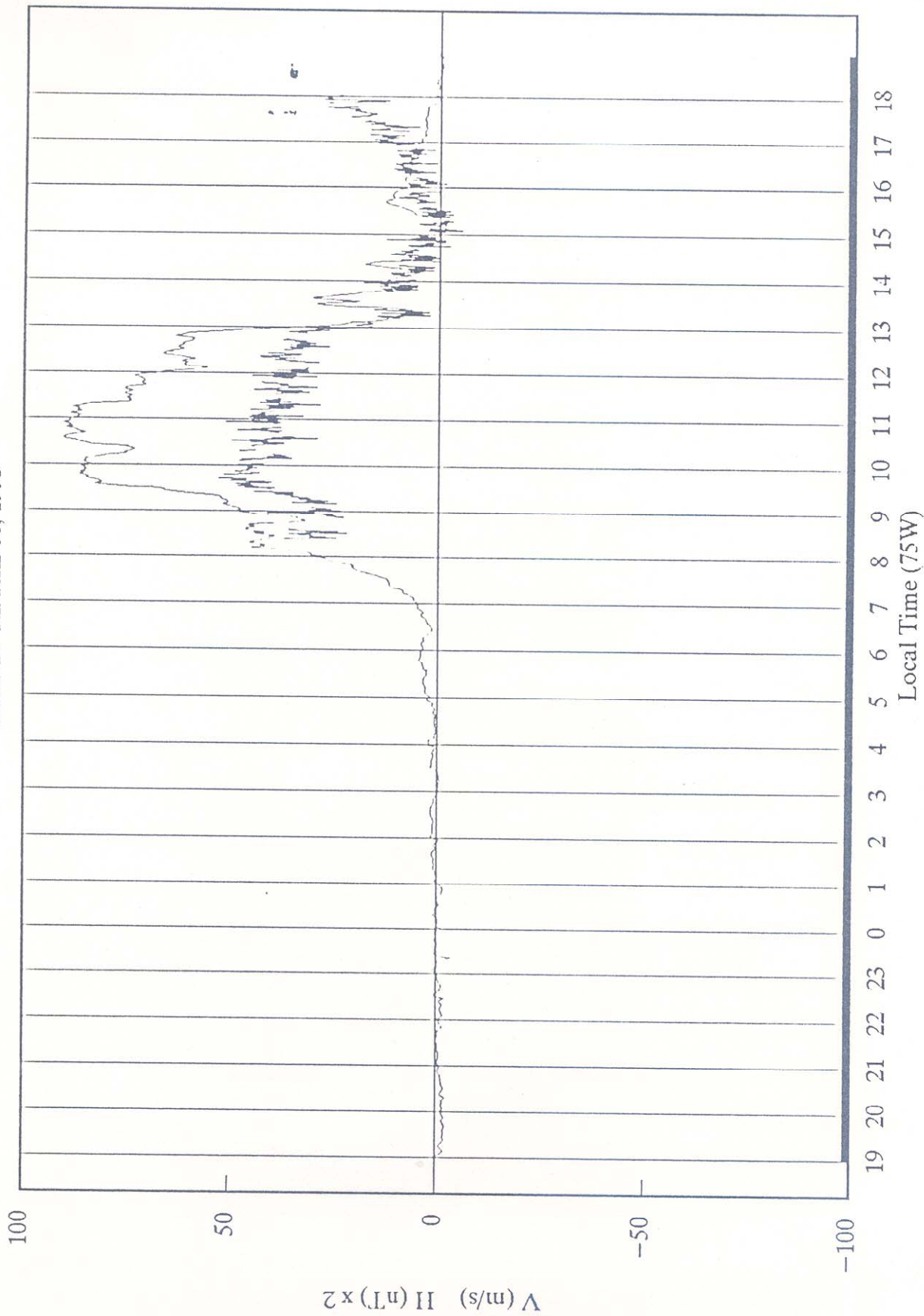


Fig 3 a)

IONOSPHERIC V. DRIFT AND Hanc-Hpiu

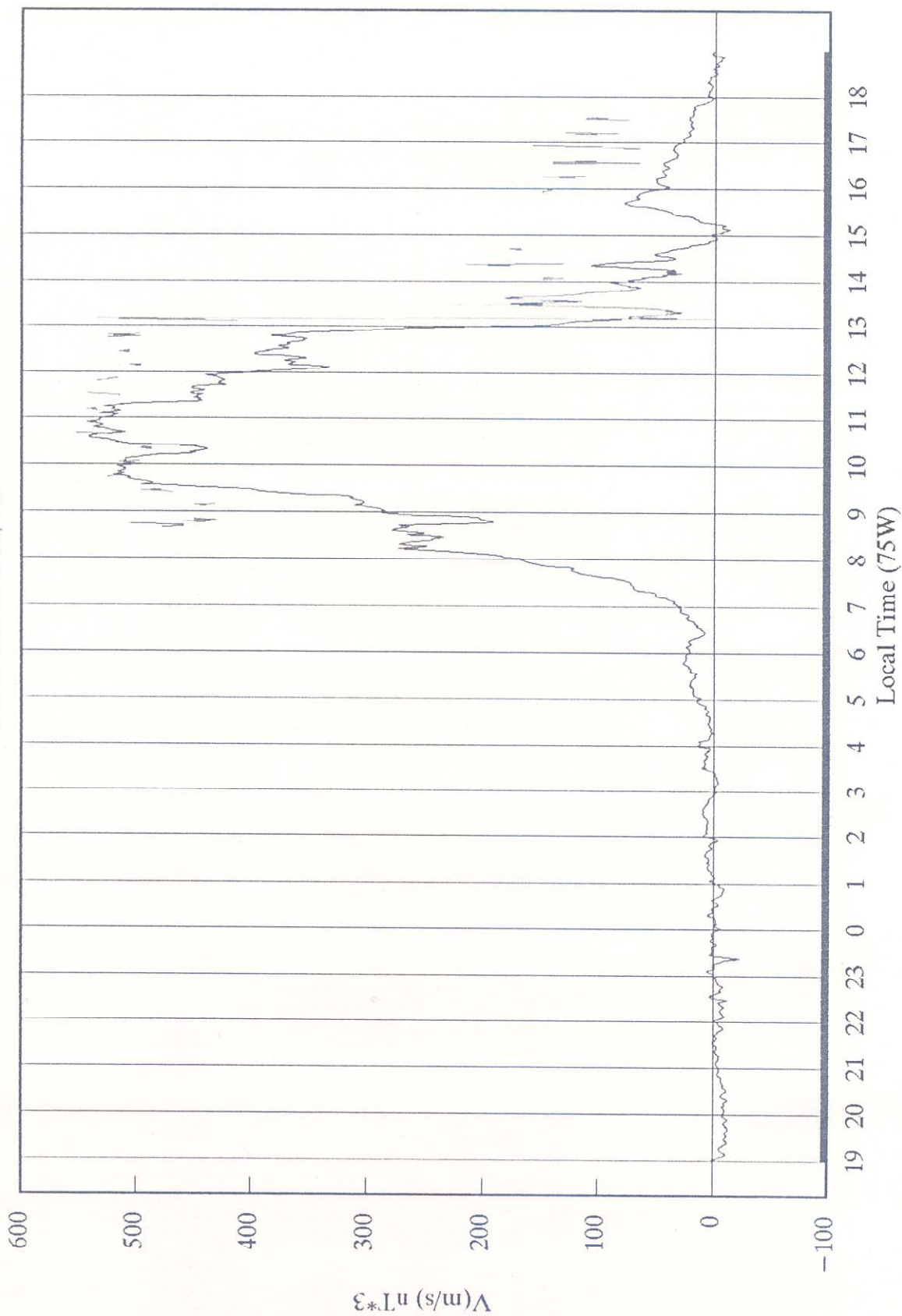
DATE: APRIL 08, 1993



— V. Drift — Hanc-Hpiu

Electrojet Drift and Electrojet (Ha - Hp)

DATE: APRIL 08, 1993



— H.Ancon — H.Piura — E.Drift