

IEEY PROJECT: THE AMERICAN SECTOR

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ABSTRACT

A description of the activities and efforts related to the International Electrojet Year (IEEY) in the American Sector (190°E-330°E) is given with a focus on the participation of the Latin American stations that are located in the EE belt.

IEEY period: September 1st, 1991 to March 31, 1993*.

* Extended to December 31, 1993.

1. THE IEEY IN PERU

Incoherent and coherent scatter radar observations have been concurrently carried out with geomagnetic observations utilizing the Peruvian magnetometer network. The objective was to compare the magnetometer signatures with E-fields measured by the radar and to study electrojet and counter-electrojet electrical forcing systems under quiet and active magnetic conditions.

The period of observation of the experimental campaign cited above was that of the regular world days, namely, 16-18 March, 1993.

During that period, simultaneous measurements of F-region vertical drifts and coherent backscatter measurements of the E-region were performed at the Jicamarca Observatory.

The other observational campaigns related to IEEY in the Peruvian territory consisted of observations with the Peruvian coastal magnetometer network. The objective of that campaign was the analysis of the characteristics of the equatorial electrojet in Peru and the study of the interaction of the electrojet regions with current systems flowing in the ionosphere and in the internal mantle.

The Peruvian magnetometer stations are located in the following cities: Huancayo, Anoon Observatory, Piura, Casma, Cañete, Guadalupe, Yauca, Arequipa and Tacna.

2. THE IEEY IN BRAZIL

The International Workshop on the IEEY Data Organization and Analysis was held at INPE headquarters, at São José dos Campos, Brazil, during the period October 19-23, 1992.

A large number of theoretical and experimental papers on studies of the equatorial electrojet have been presented in the workshop cited above. About 16 scientists from abroad participated in this symposium.

The symposium audience recommended setting up an international data bank aiming the studies of the equatorial electrojet under the international coordinatorship of Dr. Christine Amory-Mazaudier.

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Observational campaigns of the equatorial electrojet in the Brazilian region:

Regular observations utilizing magnetometer and ionosonde were performed in São Luis and Fortaleza.

It has been recently set up a network of magnetic equatorial magnetic stations in Brazil, that is, a chain of eight fluxgate magnetometers which have been deployed on ground perpendicularly to the direction of the magnetic dip equator near the 60° west meridian. The profile ranges from Porto Velho (8.8°S , 63.9°W , 6.3° dip) to Cuiabá (15.35°S , 56.05°W , -10.7° dip) (see also Table 1). Eight stations at Porto Velho, Ariquemes, Ji Paraná, Pimenta Bueno, Comodoro (Colibri), Pontes e Lacerda and Cuiabá in August 1992 were installed. Only five stations worked simultaneously during October, November and December 1992. Since the stations are operated unattended some of them suffered mishandling of curious neighbors and at one station the battery was stolen. The stations under went repairing in March 1993 and only in the second week of July all the eight stations were working together. Hopefully good data from August 1993 onwards are expected.

Also four equatorial magnetic stations are operated on the eastern coast of the country. Those stations are Belém (1.4°N , 48.4°W , $+7.6^{\circ}$ dip), São Luis (2.6°S , 44.2°W , 0.9° dip), Teresina (5.1°S , 42.7°W , -5.4 dip) and Eusébio (3.9°S , 38.5°W , -8.4° dip).

Acknowledgements. The information on the Brazilian magnetometers and ionosondes shown above were kindly provided by Dr. Nalin Trivedi (Instituto Nacional de Pesquisas Espaciais/ INPE) and Dr. M. A. Abdu (INPE), respectively, and the information on the Peruvian side were kindly provided by Dr. Ronald Woodman (Instituto Geofísico del Peru).

IEEY Project: The American Sector

STATION NAME	GEOGRAPHIC COORDINATES	DIP ANGLE DEGREES
PORTO VELHO	8.80S , 63.9W	+6.3
ARIQUEMES	9.56S , 63.04W	+4.0
JI PARANÁ	10.85S , 61.95W	+1.5
PRES.MEDICI	11.20S , 61.80W	+0.5
PIM. BUENO	11.60S , 61.20W	-0.6
VILHENA	12.72S , 60.13W	-2.9
COLIBRI	13.70S , 59.80W	-5.2
PONTES E LACERDA	15.26S , 59.2W	-8.3
CUIABÁ	15.35S , 56.05W	-10.7
BELÉM	1.40N , 48.40W	+7.6
SÃO LUIZ	2.60S , 44.20W	+0.9
EUSÉBIO	3.90S , 38.50W	-8.4
TERESINA	5.10S , 42.70W	-5.4

Table 1. *Brazilian Magnetometer Stations*