CONJUGATE POINT OBSERVATIONS OF KILOMETER AND METER SCALES IRREGULARITY ZONAL DRIFT VELOCITIES

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Simultaneous observations of VHF and L-band scintillations were carried out during the Conjugate Point Equatorial Experiment (COPEX) campaign held from October 1st to December 10th 2002 over four sites in the Brazilian territory. The main objective of this campaign was to study the ionospheric bubbles dynamics and spatial distribution to investigate their generation mechanisms and their development along the same magnetic field line. The GPS (scintillation monitors) and VHF receivers were installed at Campo Grande (20.5^o S, 54.7^o W, -22.3^o dip angle), Alta Floresta (9.7^{o}S, 56.0^o W, -3.38^o dip angle), Cachimbo (9.5^{o}S, 54.8^{o}W, -4.25^o dip angle) and Boa Vista (2.8^o N, 60.7^o W, -22.0^o dip angle). In this work we will focus only in the zonal spaced GPS (1.575 GHz) and VHF (240 MHz) receivers' data. These receivers were set up to estimate ionospheric irregularities zonal velocities. The 100 m east-west magnetically spaced GPS receivers (SCINTMON) configuration was adopted to estimate the zonal velocity of the irregularities at 350 km height with a Fresnel scale size of about 400 m. The VHF receivers measured the zonal velocities of the irregularities with scale size of about 1 km from signals received by the geostationary satellites Fleetsat 7 (- 100^o W) and Fleetsat 8 (-23^o W) and using two sets of two antennas spaced about 100 m in the magnetic east-west direction. The velocities measured by these two methods were compared and the limitations and errors in the zonal velocity calculations for both methods are discussed.

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