

Fast Wind Jet At The Earth's Dip Equator

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The thermospheric zonal wind forms a fast wind jet at the Earth's dip equator instead of the geographic equator. This remarkable feature is revealed in two sets of independent observations made two decades apart. One is from the CHAMP satellite during the year of 2002 and the other is from the DE-2 satellite during Aug. 1981 – Feb. 1983. Both observations show that this wind jet is eastward at night with speed reaching 150 ms^{-1} , and westward around noon with speed over 75 ms^{-1} . These fast wind jets are observed during local times of fully developed equatorial ionization anomaly (EIA). On the other hand, a channel of slow wind is found on the dip equator during the period of 05–08 MLT, which corresponds to local times before the EIA develops. These features strongly suggest the ion drag being the principle cause for shifting the wind jet from the geographic equator to the dip equator.