

MAGNETIC ACTIVITY EFFECTS ON RANGE TYPE SPREAD-F AND VERTICAL  
PLASMA DRIFTS AT FORTALEZA AND HUANCAYO FROM  
IONOSONDE MEASUREMENTS

by

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ABSTRACT

Ionosonde measurements are used to study the effects of magnetic activity on spread-F and on the post-sunset enhancement ( $V_{zmax}$ ) of the F-region vertical plasma drift at two longitudinally separated stations, Fortaleza and Huancayo, situated along the magnetic equator, in the American sector, during a period of high solar activity. The analysis is made for three different levels of magnetic activity. It is seen that, during the winter,  $V_{zmax}$  and the range spread F occurrence (RSFO) in the pre-midnight hours systematically increase with  $K_p$  at both locations. During the summer and equinoxes the RSFO decreases with magnetic activity in the pre-midnight hours and increases in the post-midnight hours, the increase being generally more pronounced during very disturbed periods.  $V_{zmax}$  increases with magnetic activity at Huancayo and decreases at Fortaleza during the summer. During the equinoxes  $V_{zmax}$  deduced from ionosonde measurements shows almost no variation with magnetic activity although during individual months of the equinoctial period both increases and decreases are seen. During some months the variation in  $V_{zmax}$  for very high magnetic disturbances has opposite sense to that corresponding to moderate conditions.