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Ionospheric Response to Magnetic Activity at Low and Mid-Latitude Stations

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A b s t r a c t

The *F*2-layer response to the moderate storm of 5-7 April 2010 was investigated using data from two equatorial stations (Ilorin: lat. 8.5°N, 4.5°E; Kwajalein: lat. 9°N, long. 167.2°E) and mid-latitude (San Vito: lat. 40.6°N, long. 17.8°E; Pruhonice: lat. 50°N, long. 14.6°E). Before storm commencement, enhancement, and depletion of *NmF*2 values were observed in the equatorial and mid-latitude stations, respectively, indicating the latitudinal dependence of the pre-storm event. All the stations with the exception of Kwajalein show positive phase in *NmF*2 response at the storm onset stage. Positive phase in *NmF*2 continues over Ilorin and appears on the daytime ionosphere of Kwajalein on 6 April, whereas negative phase suppressed the positive feature in Pruhonice and San Vito until the recovery condition. The differences in the response of *F*2-layer to the storm for the two equatorial stations were attributed to their longitudinal differences. On the average, both the *AE* and D_{st} indices revealed poor correlation relationship. More studies are required to ascertain this finding.

Key words: moderate storm, equatorial station, ionosphere, electric field, positive phase, mid-latitude.