



Ionospheric responses to the 15-16 July 2000 magnetic storm in the western Pacific region

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The great geomagnetic storm of 15-16 July 2000 causes severely anomalous behavior in the low and equatorial ionospheres. We analyze ionograms data recorded by a longitudinal chain from mid- to low latitude of ionosondes at Chung-Li, and Cebu, as well as the total electron content (TEC) derived from the Global Positioning System (GPS) receivers at SHAO, YMSM, KDNM, and PIMO, to study the ionospheric response to this severe storm. The results show that the vertical TEC value and variation of NmF₂ significantly decrease at 16 July. Further, the variation of F-peak height (HmF₂) shows that the disturbance dynamo dominates during this event. Meanwhile, it also observed a G-condition occurrence after SSC onset. It indicates that the negative phase could be caused by an increased N₂/O ratio and its associated loss coefficients. Finally, possible mechanisms are proposed and discussed.