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The Ionospheric Responses to the Lower-atmosphere Disturbances Associated with Typhoon

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The coupling between ionosphere and lower atmosphere is one of the important subjects in the space physics. A large number studies have shown that there is a close relation between the ionosphere and lower-atmosphere disturbances which can be caused by severe weather activities. Typhoon is one of the important sources in the lower-atmosphere. By the use of the continuous HF Doppler shift observation data in time, a study of ionospheric response to typhoon has been carried out. The results of analyses showed that the significant wave-like disturbances (in general, medium scale acoustic-gravity waves (AGWs)) appeared firstly and always formed the medium-scale traveling ionospheric disturbances (TIDs) in the ionosphere; Then these TIDs showed quite clear periodicity and their periods varied with time and gradually grew longer; After sunset, the wave-like disturbances with large magnitudes often excited the mid-latitude Spread-F; And the sunrise-like phenomena often appear in non-sunrise time during the period the typhoon exists, and so on. This study has important scientific significance for the further studying of the coupling between ionosphere and the disturbances of lower-atmosphere.