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Differences in ionospheric response to magnetic disturbances during main and recovery phases at Northern and Southern Hemisphere

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The paper is focused on differences in ionospheric reaction to magnetic disturbances above selected ionospheric stations located at different magnetic longitudes of Northern and Southern Hemisphere. We analysed variability of critical frequency foF2 and the F layer peak height hmF2 obtained for different longitudinal sectors of both hemispheres for main and recovery phases of magnetic storms of different intensity, which occurred within the last two solar cycles. In general, the recovery phase is characterized by an abatement of perturbations and a gradual return to the "ground state" of ionosphere. Magnetospheric substorms, typical for the main phase, as a rule cease during the storm recovery phase. However, observations of stormy ionosphere show significant departures from the climatology also within this phase comparable with those, usually observed during the storm main phase. The paper also deals with the ionospheric reaction to magnetic disturbances during the prolonged solar minimum of 2007-2009.