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An opposite response of the ionosphere at eastern and western hemispheres during storm recovery phases

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The ionospheric total electron content (TEC) derived from the Beidou system at Asian-Australian longitudes exhibited as long-lasting daytime enhancement during the storm recovery phase, 09-11 September 2017, which has been recently reported by Lei et al. (2018). By checking the TEC perturbations from the global positioning system (GPS) at all longitudes, we found similar TEC enhancement at the eastern hemisphere during the recovery phase of this storm, while daytime TEC at the western hemisphere exhibited as prominent reduction. In situ electron density measurements from the Swarm satellites, as well as the equatorial electroject (EEJ) from two ground stations at different longitudes showed perturbations consistent with that of TEC, implying a longitudinal dependent electrodynamics response of the ionosphere during this storm recovery phase. Earlier, a similarly opposite response of the ionosphere at eastern and western longitudes was reported by Zhou et al. (2017) for the recovery phase of 2015 St. Patrick's Day storm.