

**Solar wind-magnetosphere-ionosphere coupling and its impact on equatorial ionospheric electrodynamics during the 23 March 2023 geomagnetic storm: Effect of sudden decrease of solar wind dynamic pressure**

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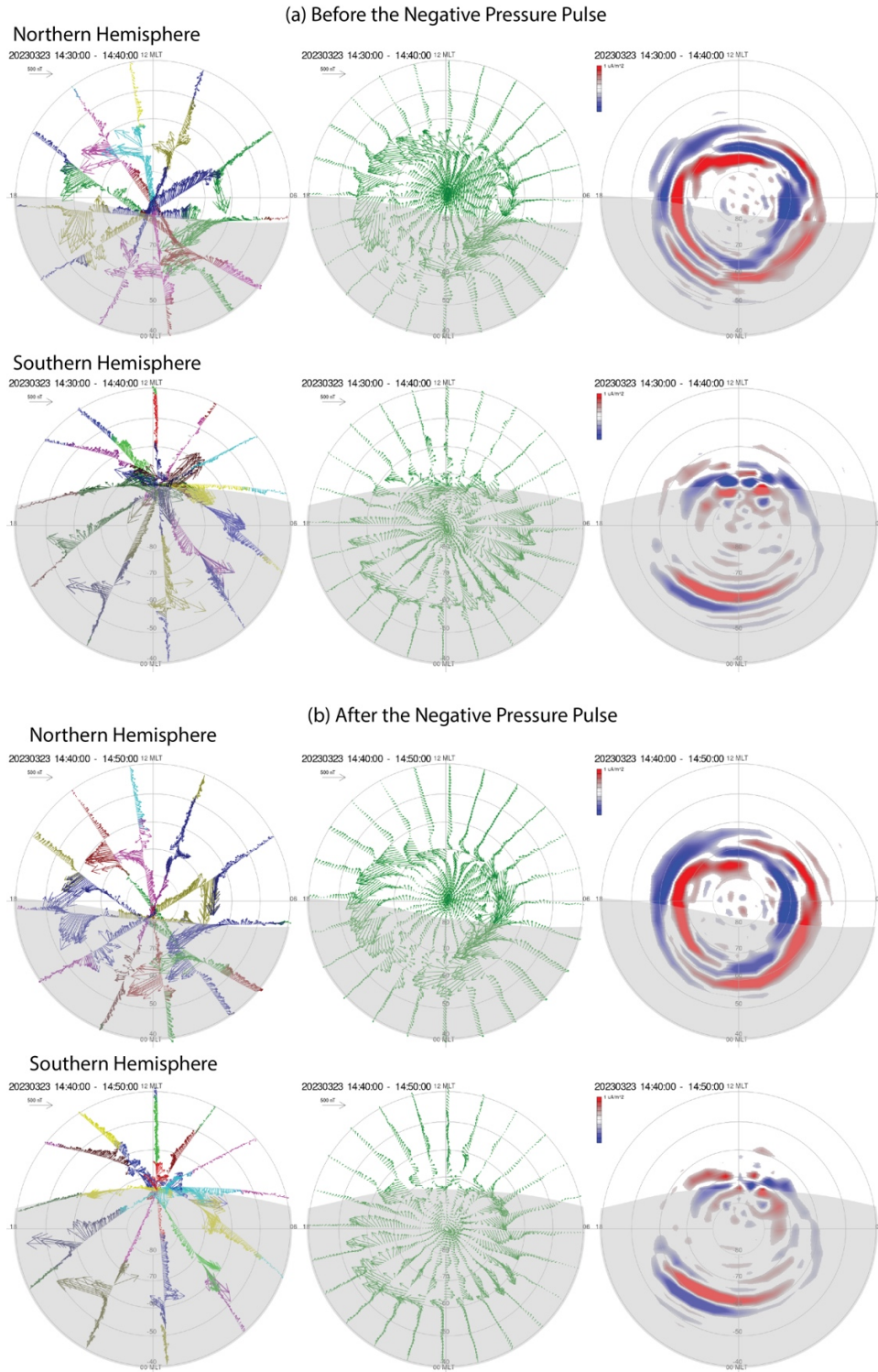
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**Introduction**

This supporting information provides the AMPERE observations of global magnetic field perturbations and large-scale field-aligned current maps before and after the negative pressure pulse at 1440 UT on 23 March 2023.



**Figure S1.** AMPERE global maps of observed magnetic field perturbations (left), fitted magnetic field perturbations (middle), and derived large-scale field-aligned currents patterns (right): (a) Before the negative pressure pulse 1430-1440 UT; (b) After the negative pressure pulse 1440-1450 UT.