

## Geomagnetic conjugate observations of medium-scale traveling ionospheric disturbances using all-sky airglow imagers

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We report for the first time simultaneous observations of Medium-Scale Traveling Ionospheric Disturbances (MSTIDs) with two all-sky airglow imagers at geomagnetic conjugate points in both hemispheres. A 630nm all-sky CCD imager at Sata (31.0N, 130.7E; magnetic latitude 26N) in Japan detected MSTID as several band structures with a wavelength of 200 km on the night of August 9, 2002. The MSTID structures were elongated from NW to SE and propagated southwestward at 80 m/s. During this MSTID event, MSTID whose structures were elongated from SW to NE was observed at the geomagnetic conjugate point, Darwin in Australia (12.4S, 131.0E; magnetic latitude 23S). The MSTID propagated northwestward at the almost same velocity of the MSTID observed at Sata. To investigate magnetic conjugacy of the MSTID structures, the Darwin images were mapped to its magnetic conjugate points using the IGRF-95 model. The MSTID structures mapped from Darwin coincide closely with those in the Sata images. This geomagnetic conjugacy of the MSTID structure suggests that polarization electric field plays an important role in the generation of MSTIDs.