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ポスター 1 : 11/4 PM1/PM2 (13:45-18:15)

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Temporal evolution of nightside plasma mass in the inner magnetosphere during a geomagnetic storm using the Arase measurement

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We investigate the spatial and temporal evolution of the ion mass density and average ion mass on the nightside in the inner magnetosphere during a geomagnetic storm that started on 25 August 2018. To evaluate the ion mass density and average ion mass on the nightside, we applied the magnetoseismic technique for the 29 transient toroidal waves (TTWs) observed at substorm onsets by the Arase satellite. These TTWs are excited on the nightside (22-03 magnetic local time) and in the southern hemisphere from -30 to -15 magnetic latitudes. We determined the fundamental eigen frequency of TTWs from the spectra of the azimuthal component of the magnetic field and derived the mass density from the eigen frequency. We also determined the electron number density from the plasma wave experiment (PWE) from Arase. We found that the average ion mass enhancement exists around the plasmopause in the early and late recovery phases of the geomagnetic storm and the ion mass enhancement around the plasmopause disappears during the end of the early recovery phase. These results may suggest that the oxygen torus are formed on the nightside during the recovery phase and they do not stay steady locations on the nightside.