

## Solar wind driven periodic variations in Geospace



Figure 1. Period variations in auroral intensities observed by DMSP/SSUSI



Figure 2. High frequency (period < 10 hours) variations in ground magnetic field data were only detected at auroral latitudes (red line)

## Periodic variations in solar wind electric field caused similar variations in the magnetosphere and ionosphere

- Global auroral intensity showed the same variations at multiple frequencies of solar wind electric field
- Ground magnetic field displayed the same periodical variation, especially at auroral latitudes
- Periodic solar wind electric field variation provided sustained energy into the geospace and caused disturbances in the thermosphere (O/N2 depletion) for a month. This provides a way for a long term space weather forecast.

Zhang et al., (2021) JGR, e2021JA029387