E113-026 **Room: 304** **Time: May 27 9:15-9:30**

The physics behind a probabilistic space weather forecast of MeV electrons at geosynchronous orbit

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The terrestrial radiation belts respond to large-scale solar wind structures such as coronal mass ejections (CMEs) and corotating interaction regions (CIRs), and the solar wind parameter dependence coexists. For example, we found that the high-speed solar wind associated with CIRs is more effective on average for large flux enhancement than the high-speed solar wind associated with CMEs, and the large flux enhancement depends not only on the solar wind speed but also on the sector polarity of interplanetary magnetic field (IMF) and seasons. The large flux enhancement tends to occur when the sector polarity meets so-called spring-toward fall-away rule, indicating that the southward IMF offset of a few nT is essential for the flux enhancement. We suggest that the acceleration by whistler-mode waves during HILDCAAs (High Intensity Long Duration Continuous AE Activities) is a plausible mechanism for the flux enhancement, which is consistent with above observations. Based on the findings described above, we developed a probabilistic forecast algorithm of the flux alert at geosynchronous orbit using stream interfaces and interplanetary shocks as a precursor of CMEs and CIRs, respectively. The probabilistic forecast is open to public via internet (http://www.hbksw1.stelab.nagoya-u.ac.jp/). Based on one year operation, we also report our forecast performance, comparing with other nowcast/forecast models.