

Monitoring and Forecasting of particle environment around GEO -Japanese perspective-

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Radiation Belt Electron Flux Forecast

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Top | Hazard Map at GEO | Observation Data Box | Forecast Performance | Electron Flux Variation | About This Site | What is the Radiation Belt?

Electron Flux Forecast Update at: 2013/03/24 16:01 (UTC)

Today 2013/03/24
Quiet
 Daily ave. 478 [cm²-sr-s]
 Daily max. 1621 [cm²-sr-s]

Tomorrow 2013/03/25
Quiet
 Daily ave. 229 [cm²-sr-s]
 Daily max. 1230 [cm²-sr-s]

The Day After Tomorrow 2013/03/26
Quiet
 Daily ave. 158 [cm²-sr-s]
 Daily max. 851 [cm²-sr-s]

Description of Symbols(For details, please click here)

- Quiet <1,000 [cm²-sr-s]
- High >=1,000 [cm²-sr-s]
- Extreme >=10,000 [cm²-sr-s]

Daily Update: 10:00 (UTC)
 Forecast period: 24 hours from today 10:30 (UTC)

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Hazard Map at GEO (geostationary earth orbit)

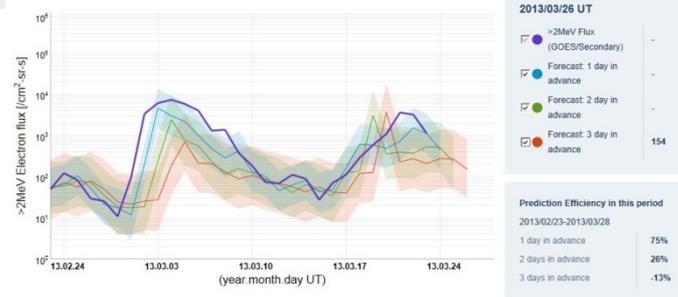
2013/03/23 - 2013/03/25 Update every 10min. / Last update : 2013/03/24 17:10 (UTC)

>2MeV electron flux [cm²-sr-s]

2013/03/25 19:00 UT (10:00 MLT)
 Observation (GOES/Secondary) -
 Forecast 1240
 Blue band: Forecast error range(Standard deviation: ±1σ)

This plot forecasts electron flux at a longitude of GOES/Secondary.

Comparison with observation value and forecast value (2013/02/23-2013/03/28)



Local time hazard map at GEO

Change plot date
 Yesterday | Today | Tomorrow

135 E

06MLT, 12MLT, 18MLT, 00MLT

Legend:
 Quiet (Green)
 High (Yellow)
 Extreme (Red)
 Japan's present location (J)
 MTSAT-2 (HIMAWARI-7) (M)
 GOES/Primary (O)
 Your input (A)

Currently, GOES >2MeV flux is used for this forecast.

<http://seg-web.nict.go.jp/radi/en/>

Space Environment Data Acquisition Monitor (SEDA) onboard Himawari-8,9



| Items | Description |
|---------------------------|--|
| Number of Channels | Protons : 8 (individual 8 sensor elements) Electrons : 8 (8 stacked plates in one elements) |
| Energy Range | Protons : 20 MeV – 100 MeV Electrons : 0.2 MeV – 5 MeV |
| Time Resolution | 10 sec. |
| Field of View | Protons : ± 39.35 deg. Electrons : ± 78.3 deg. |

Electron Sensor
Proton Sensor
(8 Units)



- **High-energy particle environment over Japanese sector will be monitored by SEDA.**
- **Near-real time SEDA data is provided from JMA to NICT. We will provide SEDA data as part of space weather information after quality-check and **calibration of the data.****

Longitude: ~ 140 deg.

Himawari-8 Launch: 2014/10/07 Operation: 2015-2022

Himawari-9 Launch: 2016(plan) Operation: 2022-2028

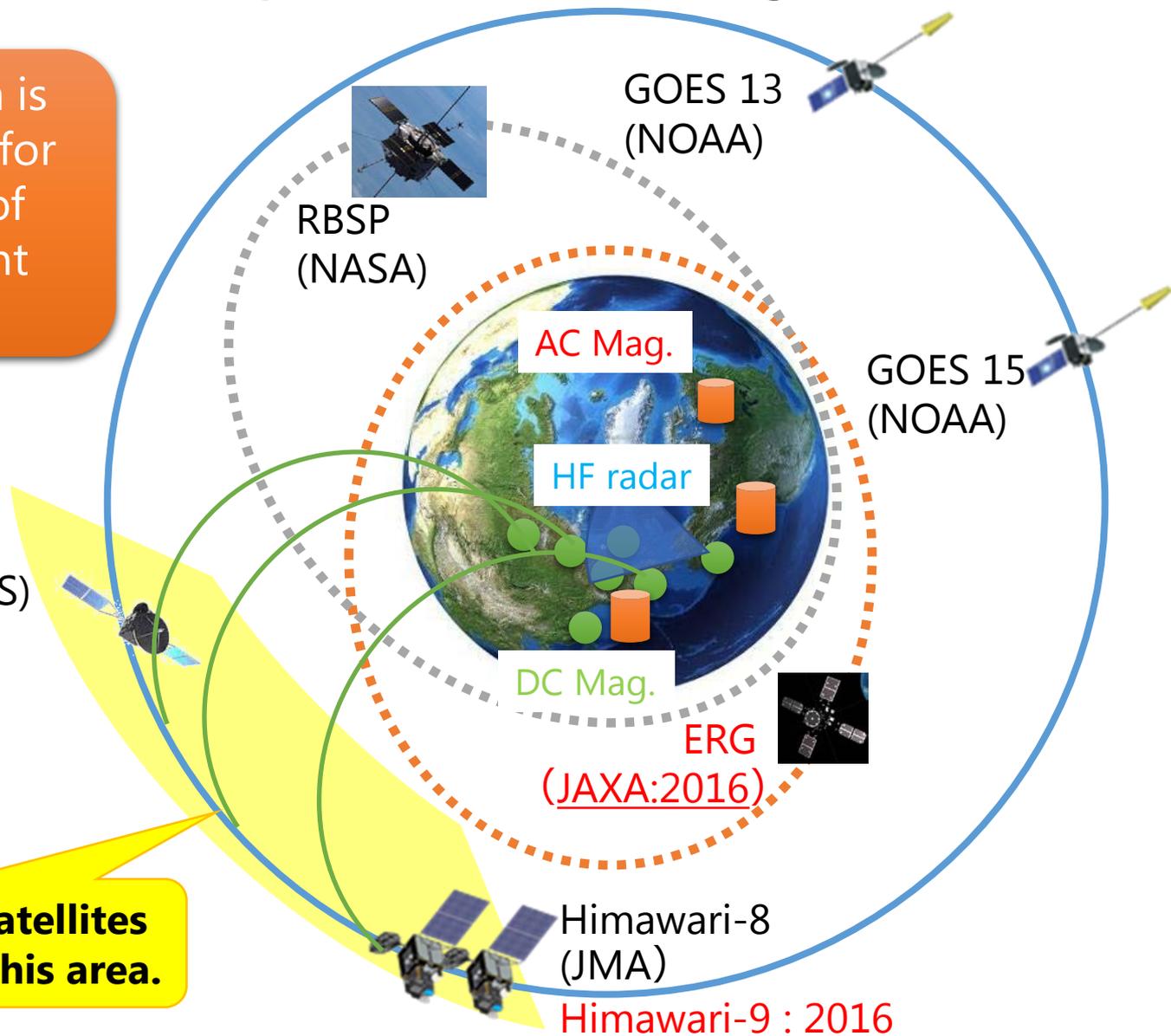
SEDA observation is started at Nov. 03, 2014.

3-Dimensional Geospace Monitoring Network

GOES particle data is important sources for global coverage of space environment around GEO

Kodama(DRTS)
(JAXA)

Japanese GEO Satellites are operated in this area.



GOES 13
(NOAA)

RBSP
(NASA)

AC Mag.

HF radar

DC Mag.

ERG
(JAXA:2016)

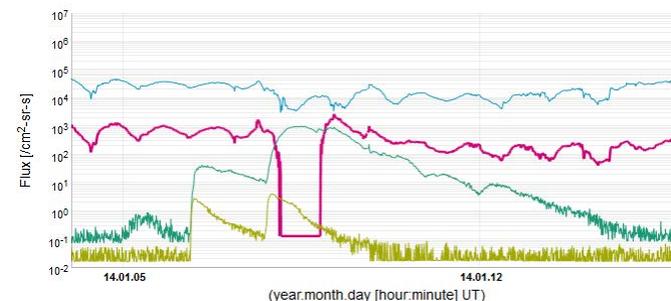
GOES 15
(NOAA)

Himawari-8
(JMA)

Himawari-9 : 2016

Comments

- GOES particle observation is a good reference of particle flux at GEO (Calibration for other satellite data)
- Continuous observation **during severe SW event** very important for practical purposes. (e.g. >2MeV electron flux during Proton event)



- Differential flux observation rather than integral flux observation (To examine internal charging)