



Space Weather Developments SPACESTORM and BAS

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Background

- SPACECAST European forecasting prototype
- SPACESTORM Continue forecasting
 - Focus on satellites
 - Modelling – severe SW events
 - Forecasting – radiation belts
 - Experiments – radiation dose, and test new materials testing
 - User Community – Insurance, Sat Operators, Designers
- Focus on MEO, GEO and slot region
- Focus on internal charging and surface charging, and total dose
- Use data to drive models, and interpret results
- High and low energy electron nowcast
- High energy electron forecast
- Link to effects – satellite charging, dose rate



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Model and Data Activities

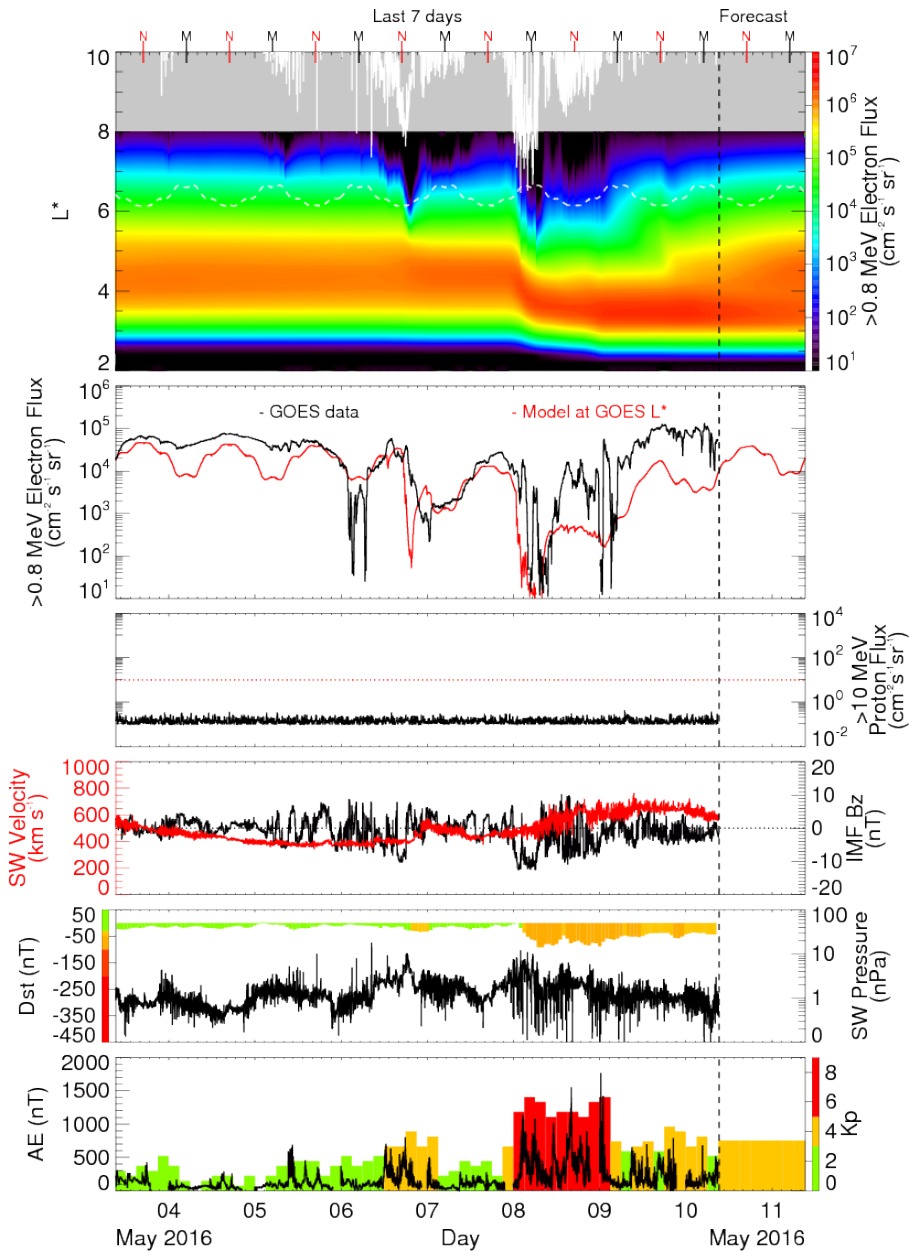
- Radiation belt model – BAS-RBM
 - High energy electron radiation belts
 - Forecasting – 24 hrs ahead
 - Extends to whole outer radiation belt – MEO, GEO, Slot region
 - Combined with satellite and ground based data for interpretation
 - Combine with effects – internal charging
- Severe event analysis
 - 1 in 100 year event – electron fluence for MEO, GEO, LEO
- Other instruments
 - SuperDARN radars – track disturbances at high latitudes - GPS
 - Joule heating – satellite drag



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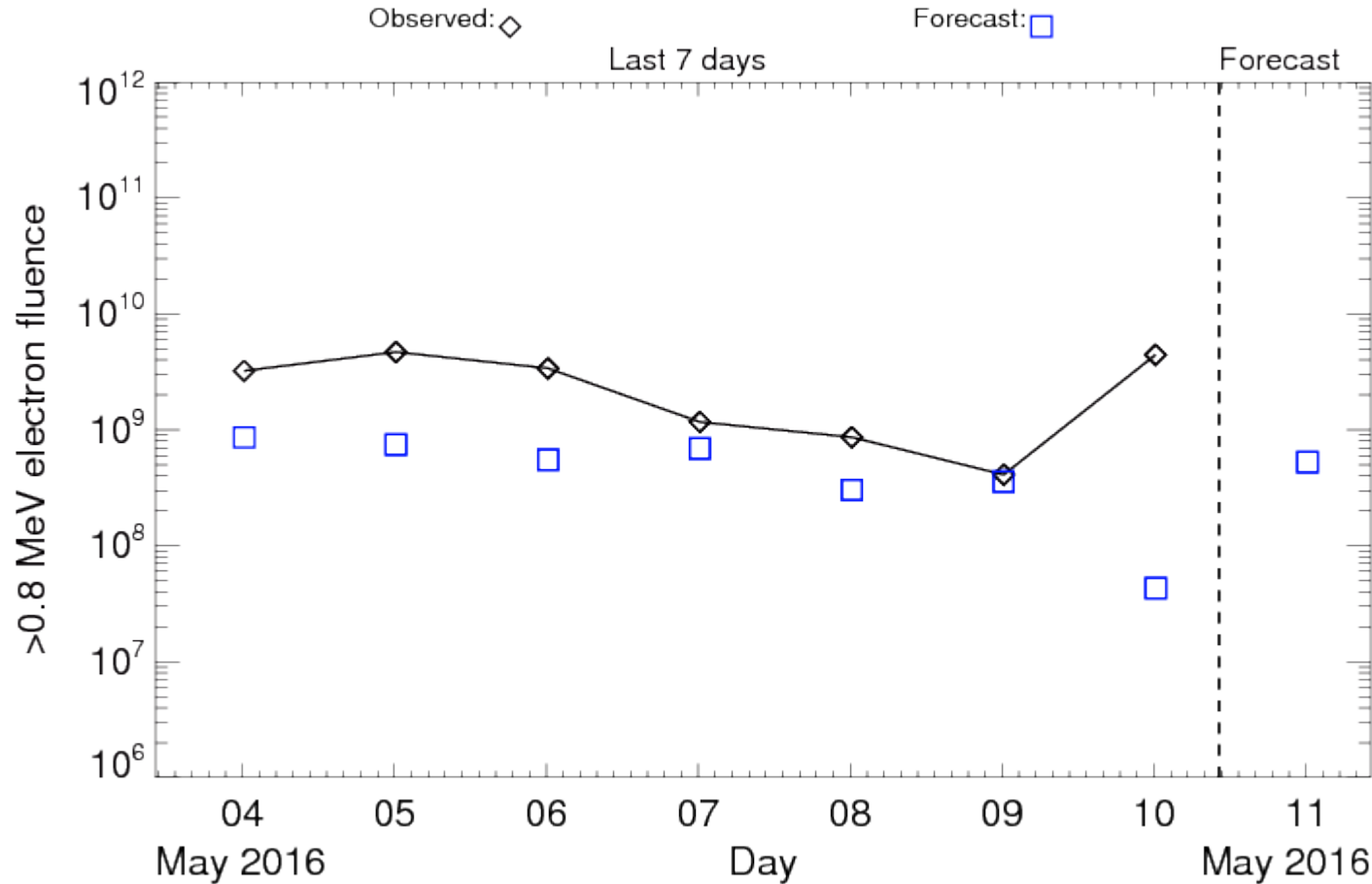
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Risk Indicators for Selected Orbits

Real-time forecast of the >0.8 MeV electron fluence at geostationary orbit



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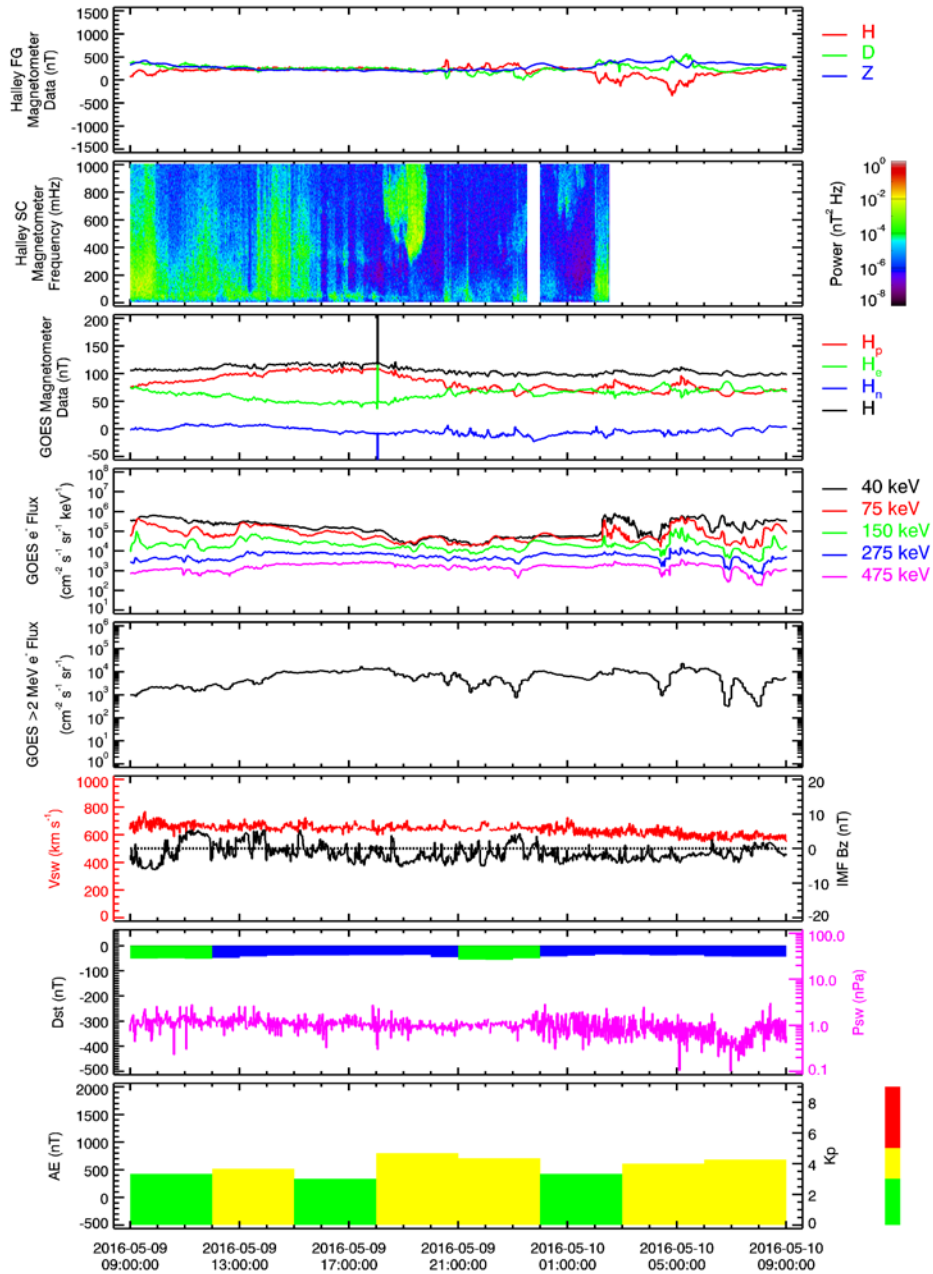
Plot created: Tue 10 May 10:23:10 2016 UTC



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Development

