ΔB calculation

Post processing allows calculation of magnetic perturbations from all current systems modeled by any magnetosphere–ionosphere coupled model

- Model validation: developed for and extensively tested in study commissioned by NOAA SWPC.

GEM Modeling Challenge results

Online time series plotting tool

Challenge events:

- Event 1: October 29th, 2003 06:00 UT - October 30th, 06:00 UT
- Event 2: December 14, 2006 12:00 UT - December 16, 00:00 UT
- Event 3: August 31, 2001 00:00 UT - September 1, 00:00 UT
- Event 4: August 31, 2005 10:00 UT - September 1, 12:00 UT
- Event 5: May 15, 2005 00:00 UT - May 16, 00:00 UT
- Event 6: July 9, 2005 00:00 UT - July 11, 00:00 UT

Metrics studies:

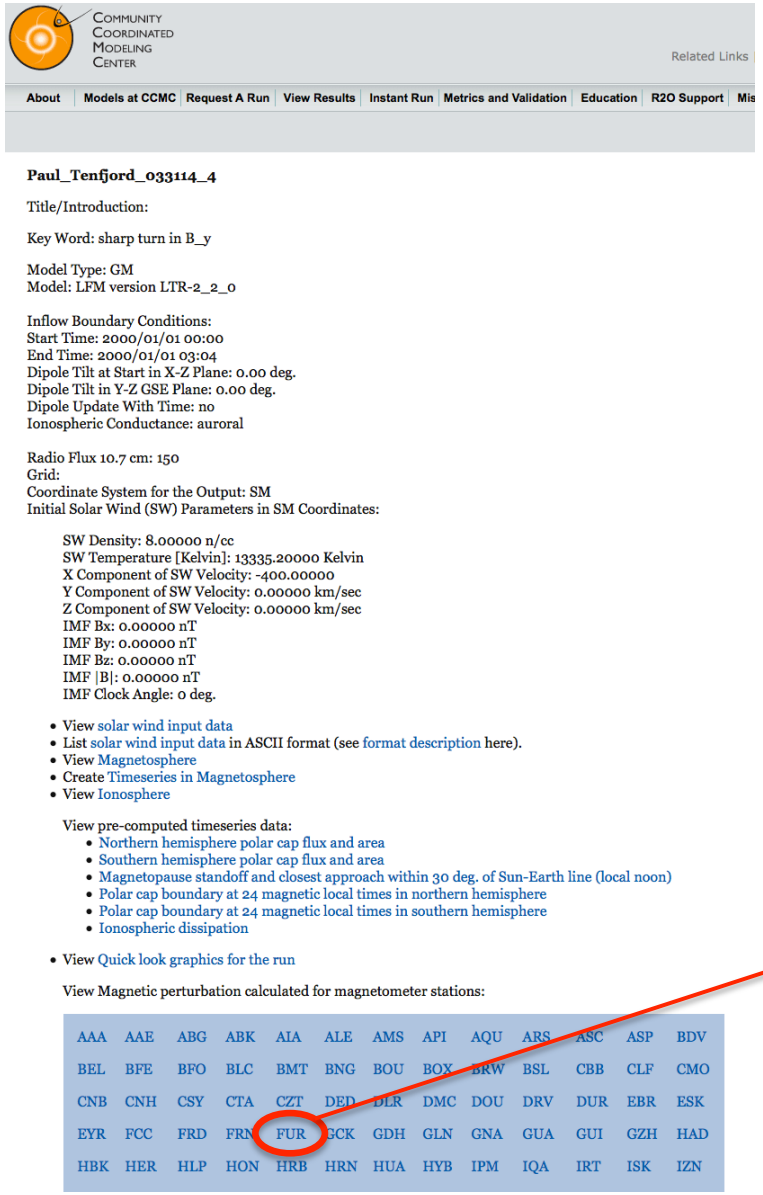
- 1: Magnetic field at geosynchronous orbit (GOES)
- 2: Magnetopause crossings by geosynchronous satellite (GOES and LANL)
- 3: Plasma density/temperature at geosynchronous orbit (LANL)
- 4: Ground magnetic perturbations (ground based magnetometers)
- 5: DST - final or provisional DST index from WDC, Kyoto (1-hour index) or from USGS (1-minute data)
- 6: Pointing Flux

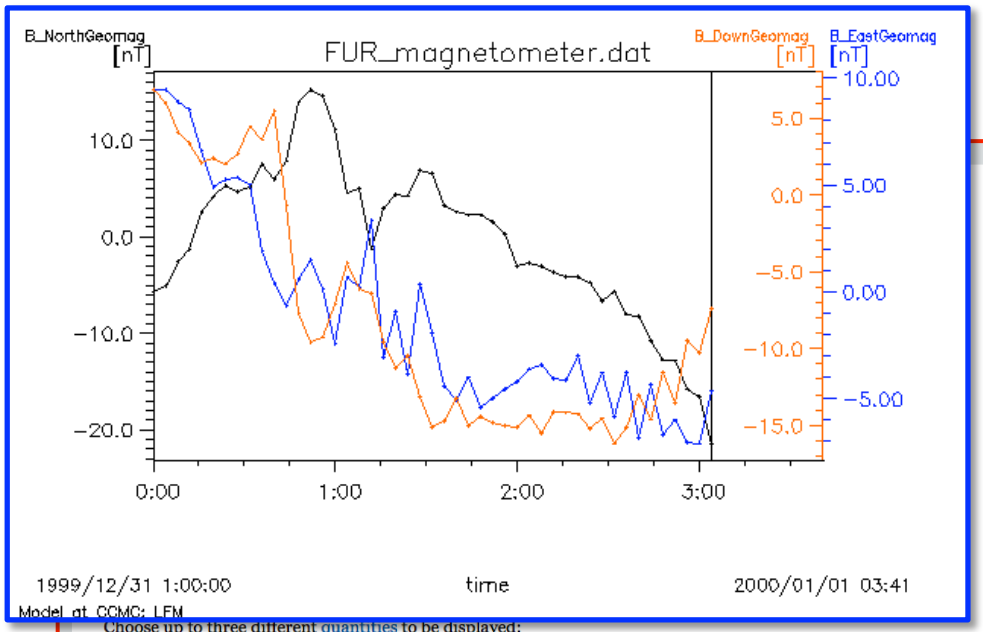
	Metrics Study 1	Metrics Study 2	Metrics Study 3	Metrics Study 4	Metrics Study 5
Event 1	GOES12 GOES10	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1991 LANL-1990 GOES12 GOES10	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1991 LANL-1990	YKC MEA NEW FRN IQA PBQ OTT FRD HRN ABK WNG FUR	KYOTO USGS
Event 2	GOES12 GOES11	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1989 GOES12 GOES11	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1989	YKC MEA NEW FRN IQA PBQ OTT FRD HRN ABK WNG FUR	KYOTO USGS
Event 3	GOES10 GOES08	LANL-01A LANL-97A LANL-1994 LANL-1990 GOES10 GOES08	LANL-01A LANL-97A LANL-1994 LANL-1990	YKC MEA NEW FRN IQA PBQ OTT FRD ABK WNG FUR	KYOTO USGS
Event 4	GOES12 GOES10	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1990 GOES12 GOES10	LANL-02A LANL-01A LANL-97A LANL-1994 LANL-1990	YKC MEA NEW FRN PBQ OTT FRD HRN ABK WNG FUR	KYOTO USGS

Magnetic perturbations ΔB

- Run-on-Request: ΔB available for all magnetosphere models.

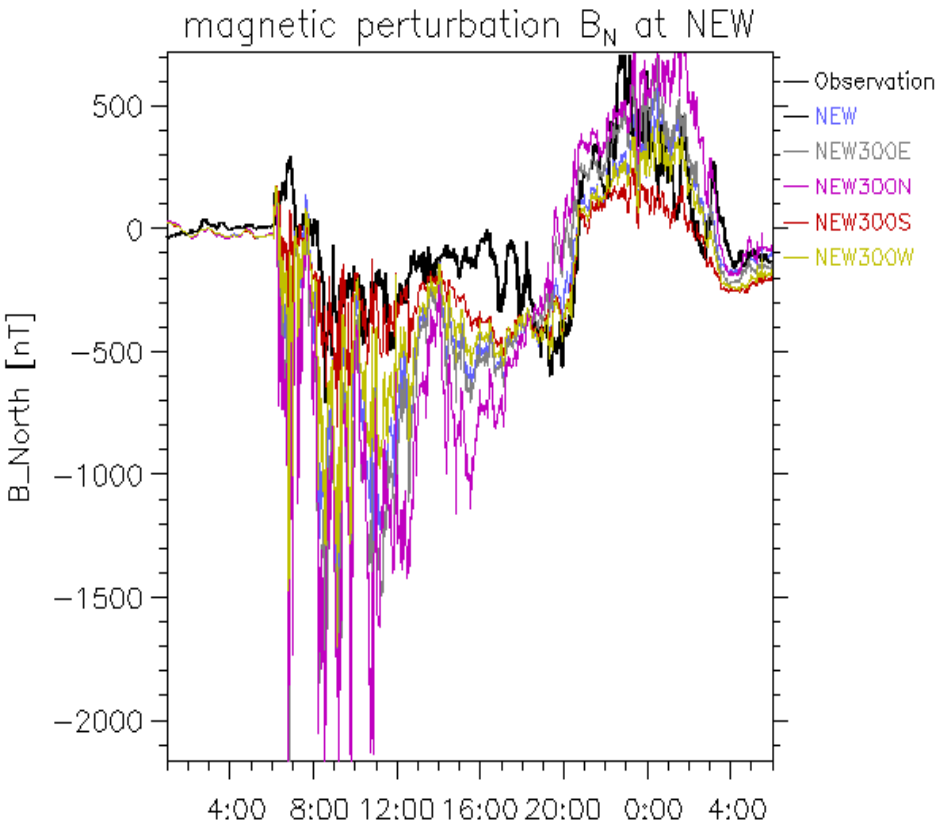
Run on Requests



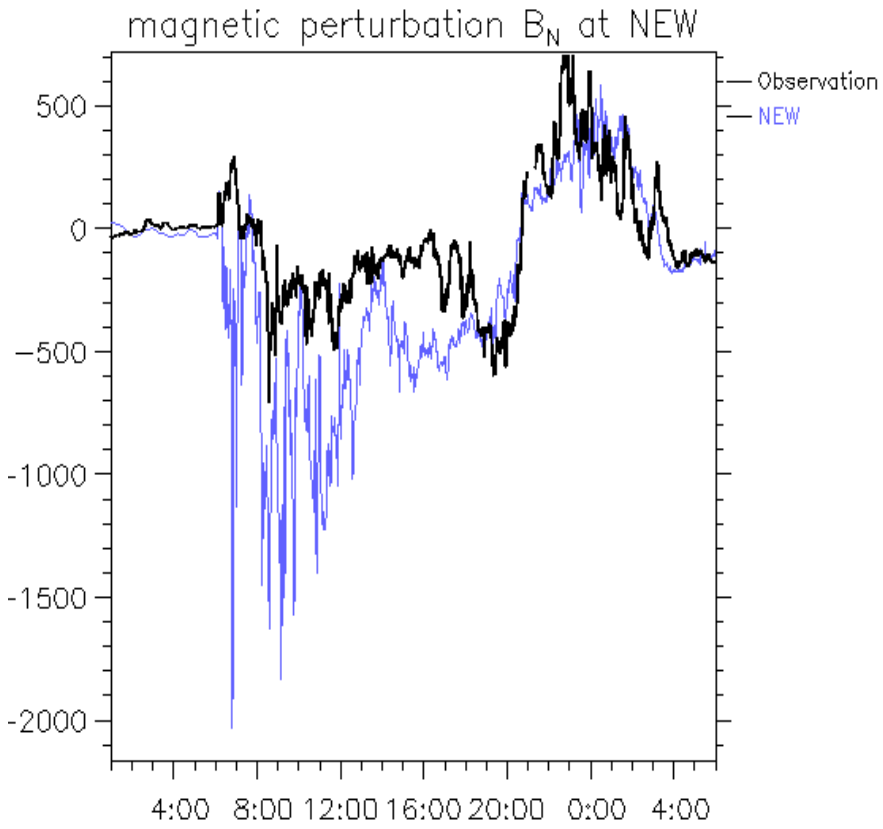


ΔB at 130 magnetometer positions

Ensemble of virtual magnetometers



300 km distance



Oct. 29-30, 2003 (Halloween Storm)

Observation and **model** at NEW

DEMO?