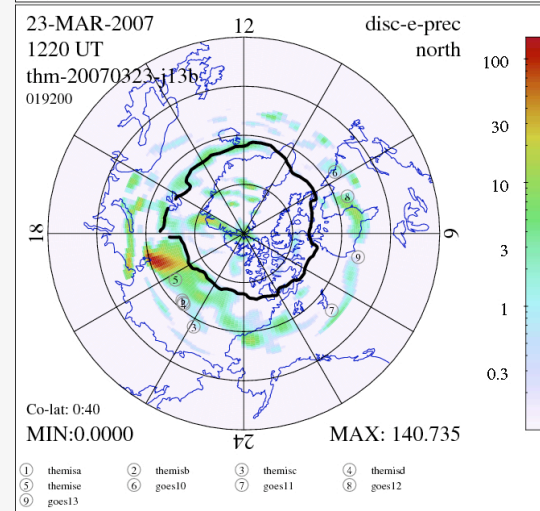
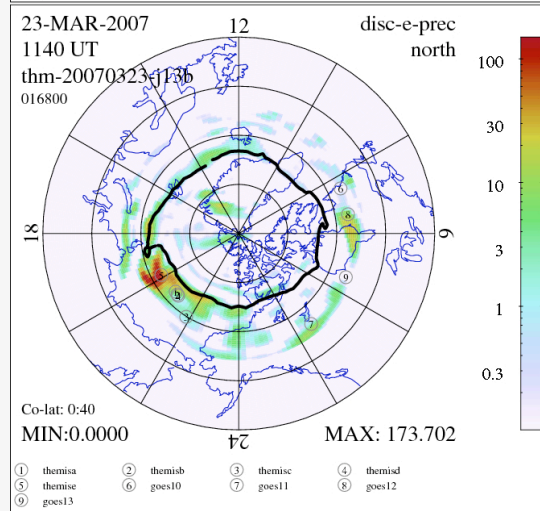
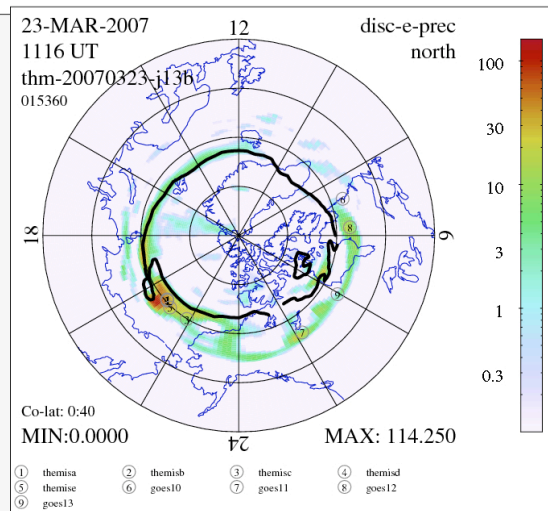
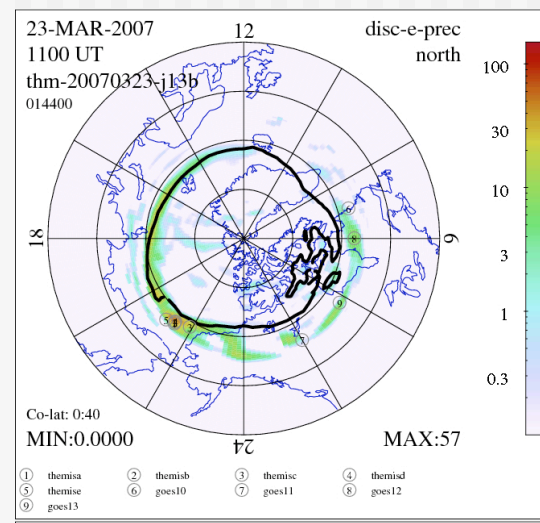
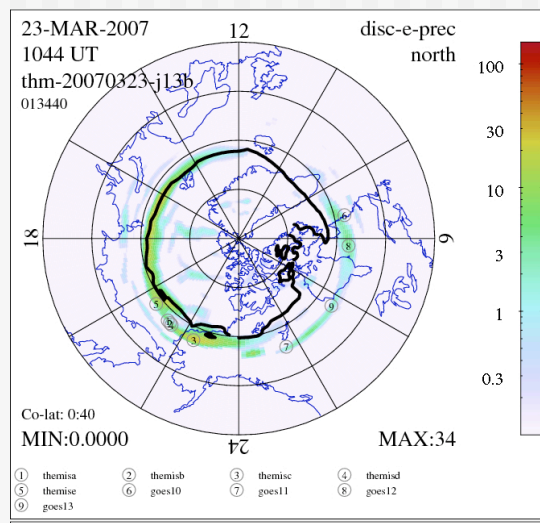
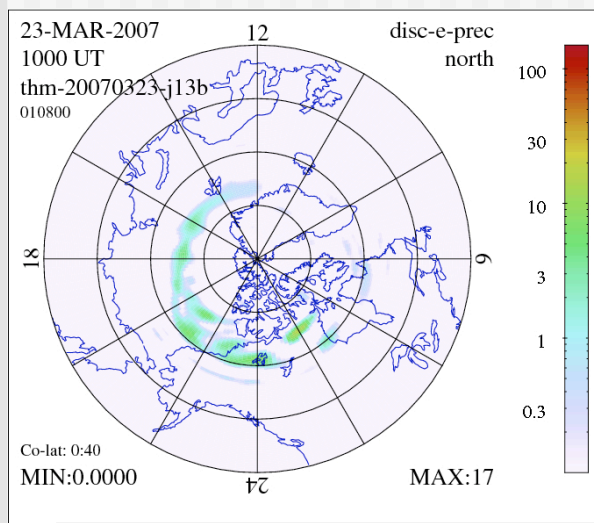


THEMIS substorm 2007-03-23, ~1100UT OpenGGCM simulation results

Jimmy Raeder
2007-09-18 webex telecon

Onset, ionosphere discrete e- precipitation

- First 'brightening' at 1044 UT
- Not triggered by northward IMF turn
- Shrinking of polar cap
- THEMIS maps right into WTS



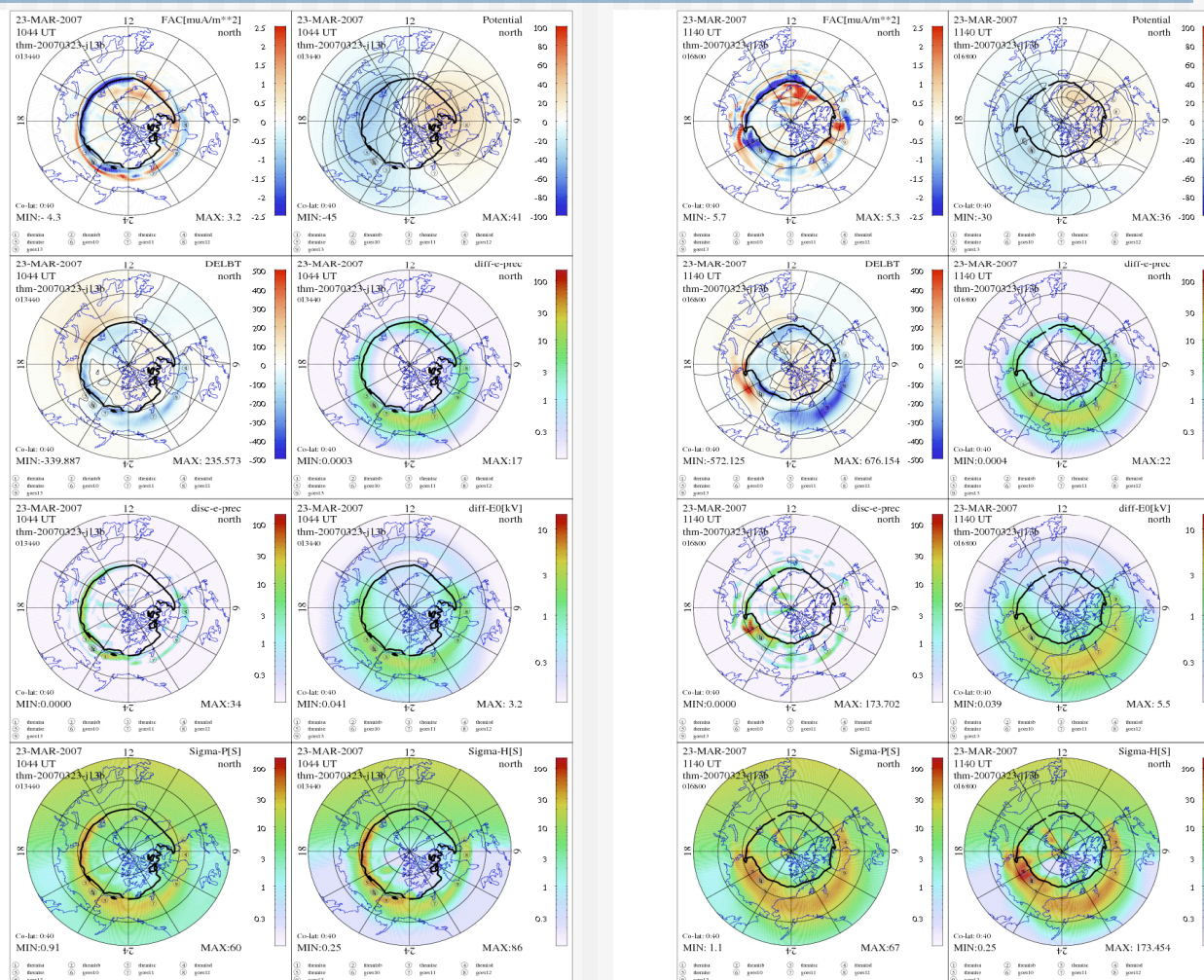
Onset, ionosphere discrete e- precipitation

- Movie shows expansion nicely
 - Not sure if this will work on webex, cut and paste URL into your browser
-

http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.ionosphere-movies/thm-20070323-j13b.iof.prec_e_fe_2.1.60.0TO40.mpg

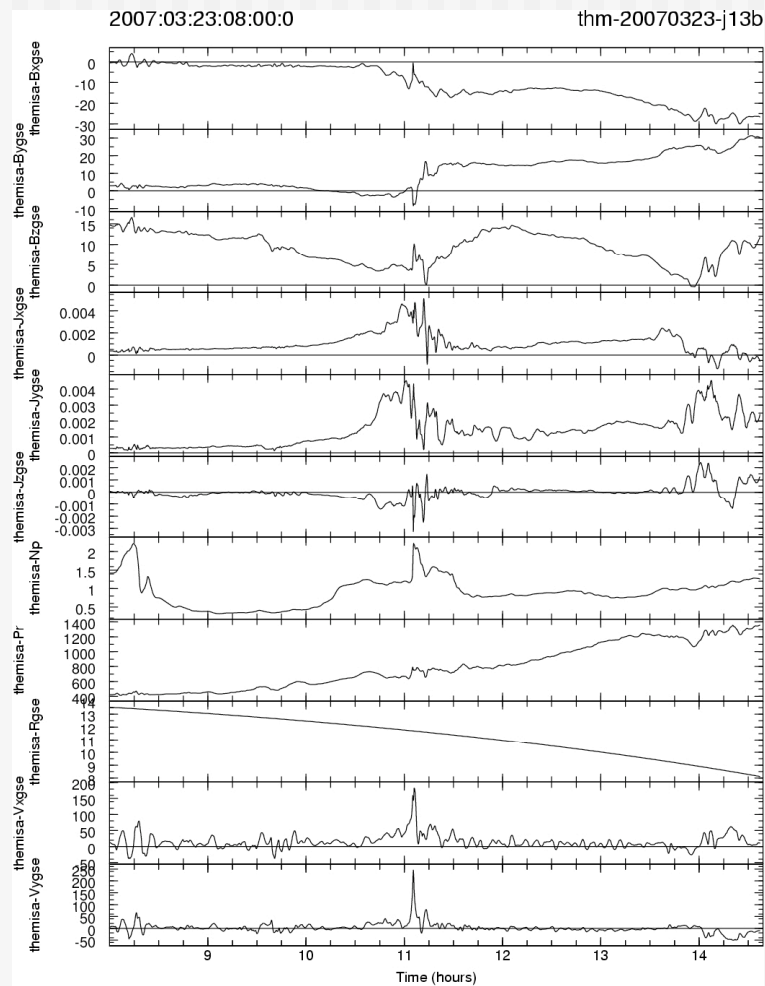
http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.ionosphere-movies/thm-20070323-j13b.iof.prec_e_fe_2.1.60.180TO140.mpg

- Top left to bottom right: FAC, Phi, N-S ground perturbation, diffuse e- E-flux, discrete e- E-flux, e- mean energy, Pedersen conductance, Hall conductance.
- Southern hemisphere also on the web: <http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.ionosphere-2d-plots/>

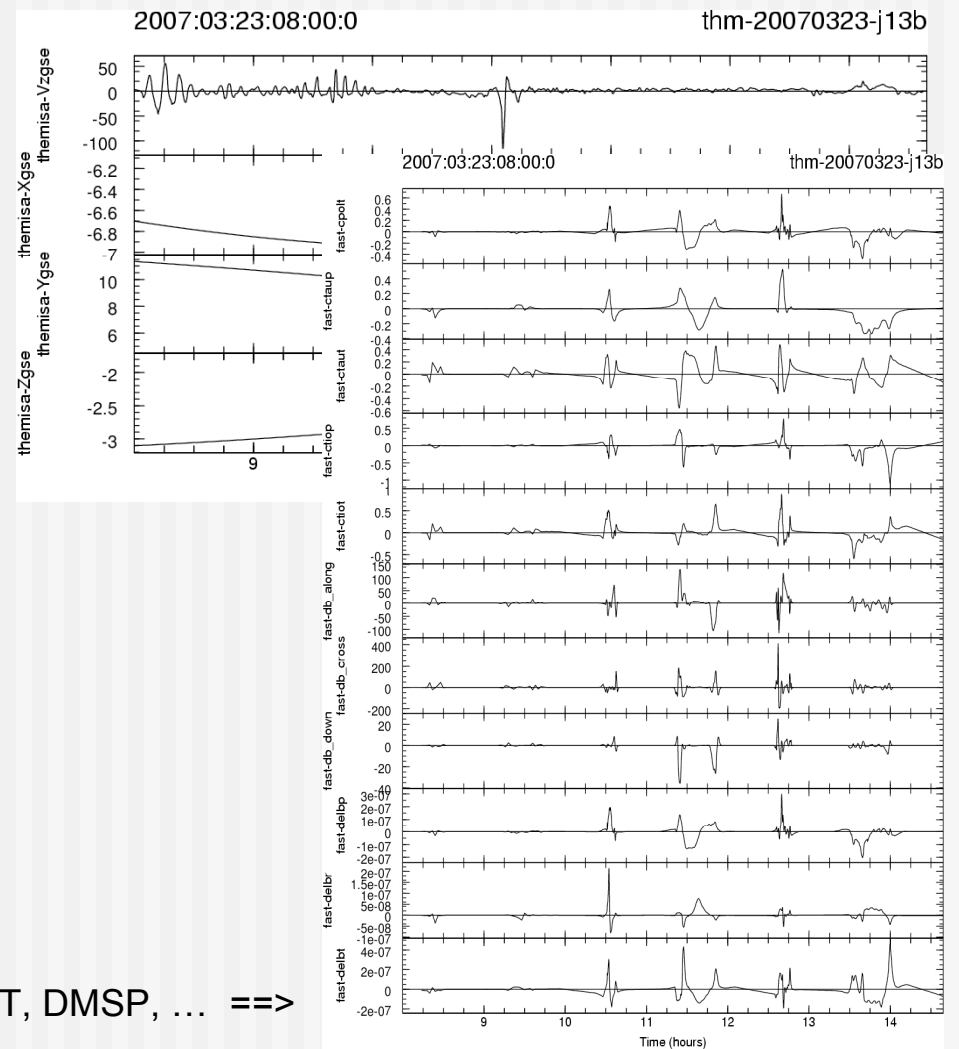


Time series at THEMIS

- Flow surge mostly in V_x/V_y
- Dipolarization, also significant B_x/B_y change
- N_p increase starting ~1020, well before onset, colder plasma.



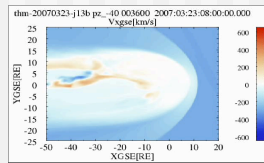
Also FAST, DMSP, ... ==>



Tail dynamics

- Reconnection active long before onset.
- Dipolarization 'fingers' neither radial nor sun-aligned, no simple picture.
- Significant entropy increase.
- Significant temperature increase (injection), can be seen spreading.

V_x at $z=-4RE$:



http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.magnetosphere-movies/thm-20070323-j13b.pz_-40.vx.0.60.-50TO20TO-25TO25.mpg

B_z at $z=-4RE$

http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.magnetosphere-movies/thm-20070323-j13b.pz_-40.bz.0.60.-50TO20TO-25TO25.mpg

Entropy:

http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.magnetosphere-movies/thm-20070323-j13b.pz_-40.ent.1.60.-50TO20TO-25TO25.mpg

Temperature:

http://themis.sr.unh.edu/~themis/runs/thm-20070323-j13b/thm-20070323-j13b.magnetosphere-movies/thm-20070323-j13b.pz_-40.tkev.1.60.-50TO20TO-25TO25.mpg