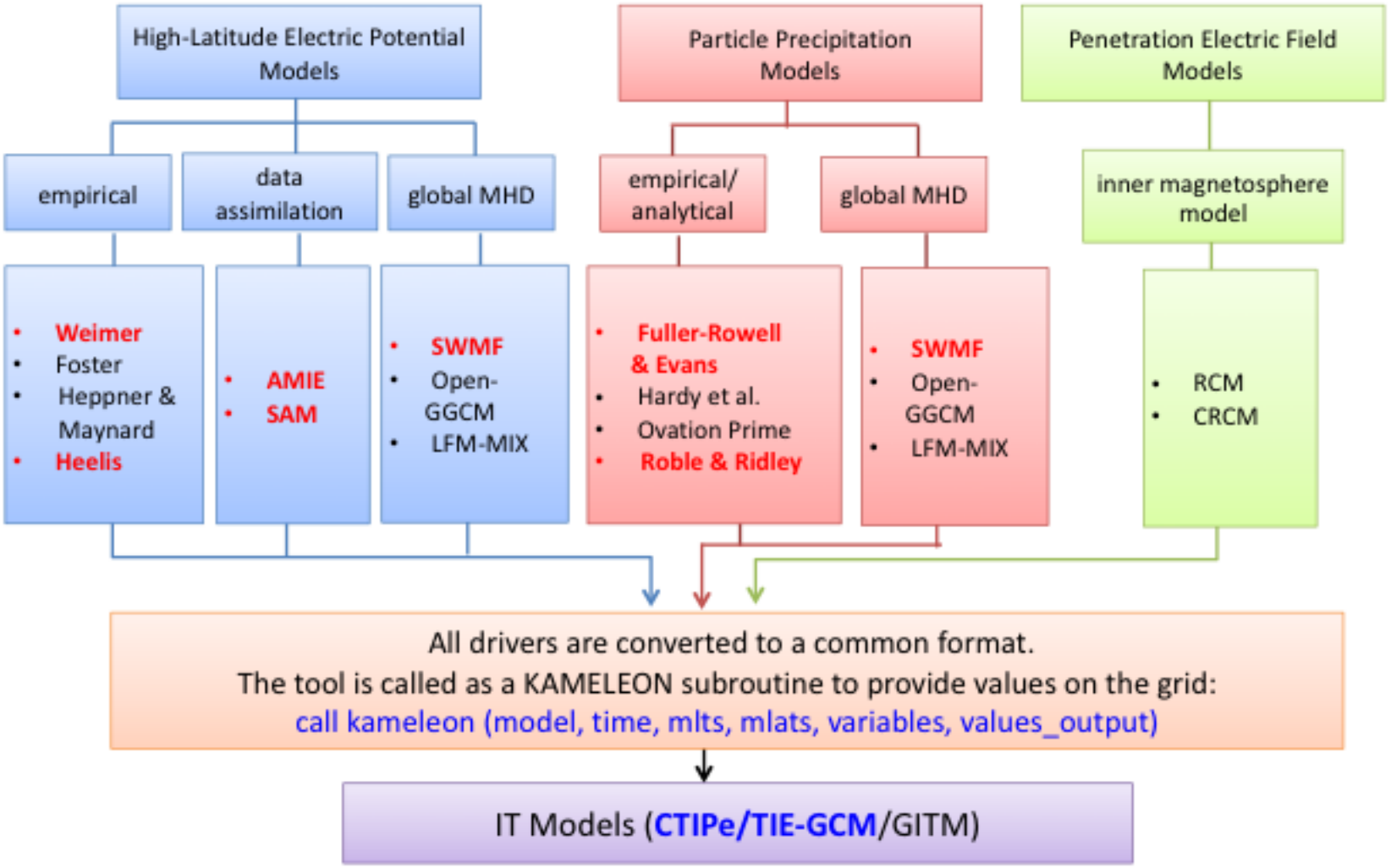
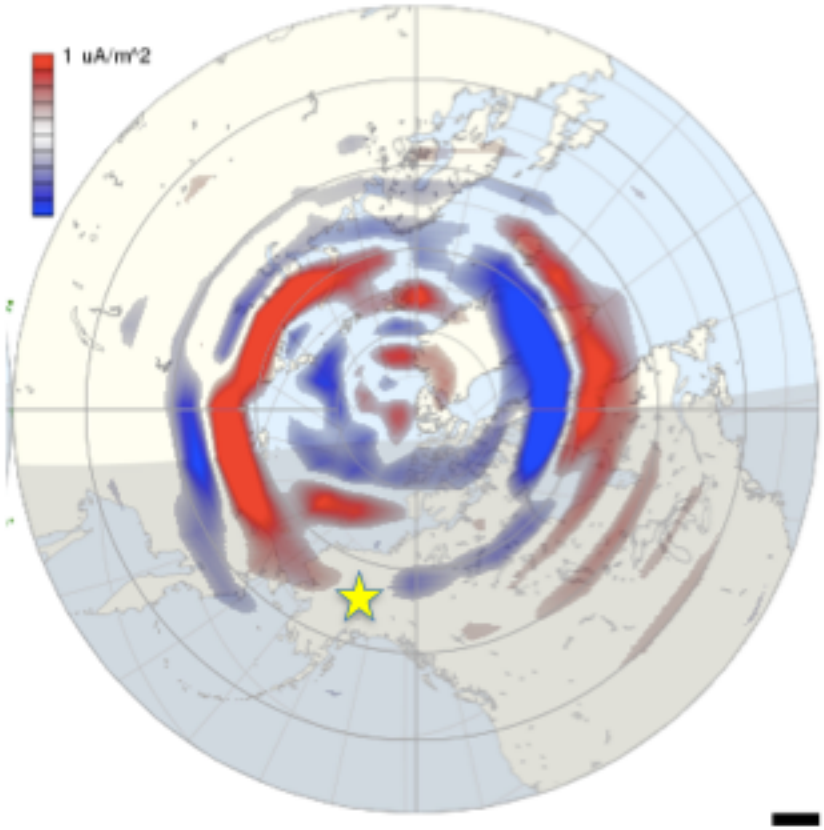
CCMC Tools - Shim et al.

Driver-Swapping (MI Coupling) Patch-Panel Tool



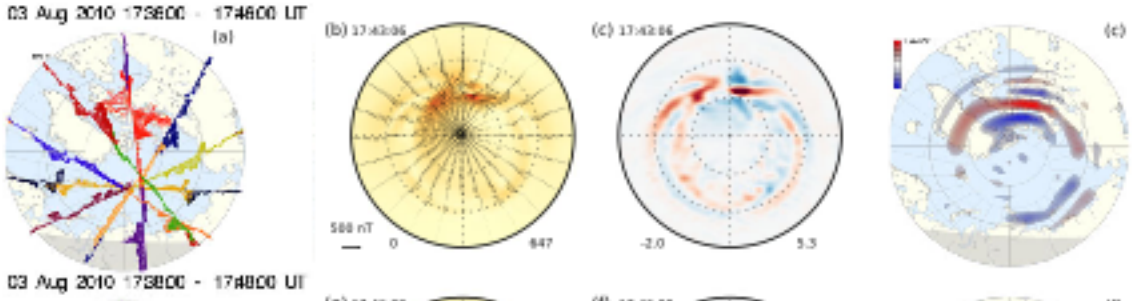
FACs to predict conductance - Bob Robinson (CUA/GSFC)



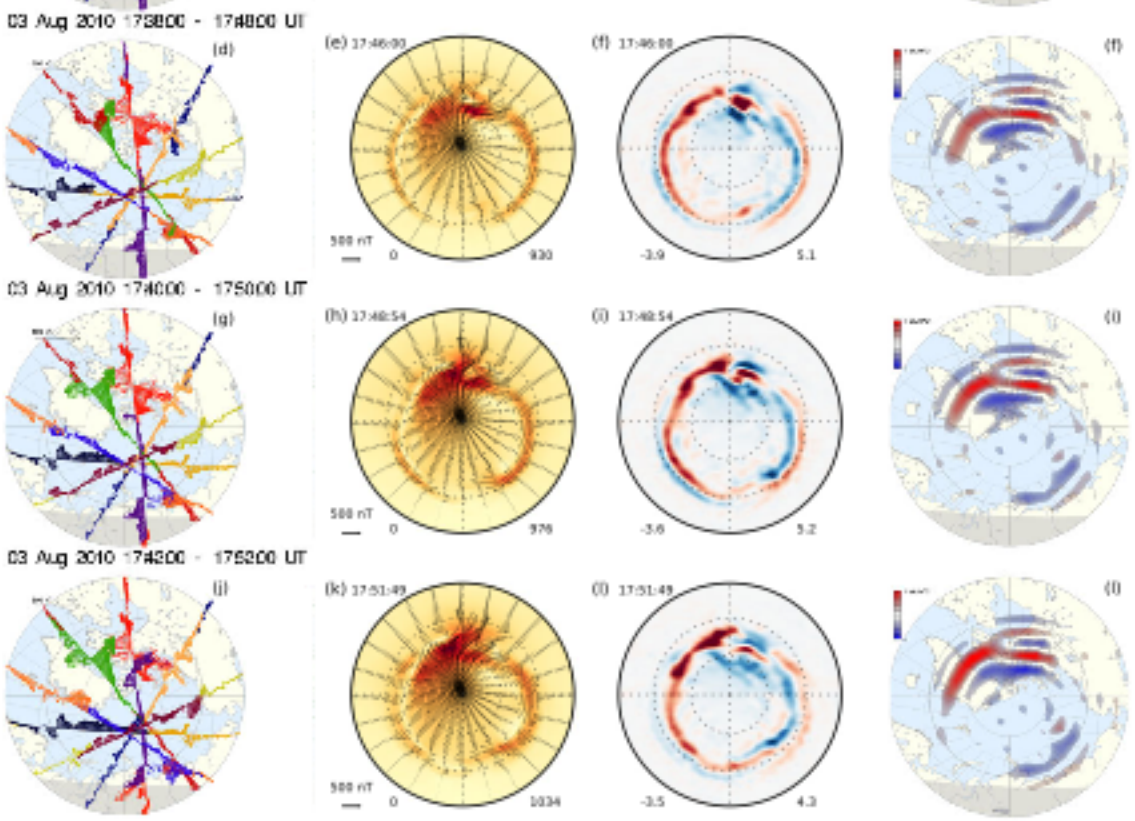
PFISR has been measuring ionospheric electron densities, ion and electron temperatures, and plasma drifts almost continuously every 10 minutes since 2009. With AMPERE, it provides ~1.5 million simultaneous measurements of field-aligned currents and ionospheric parameters, including conductivities.

MHD comparisons to AMPERE - Merkin et al.

Iridium dB | LFM dB | LFM FAC | AMPERE FAC



- Model FAC change rapidly in response to shock. AMPERE pattern does not resolve the time



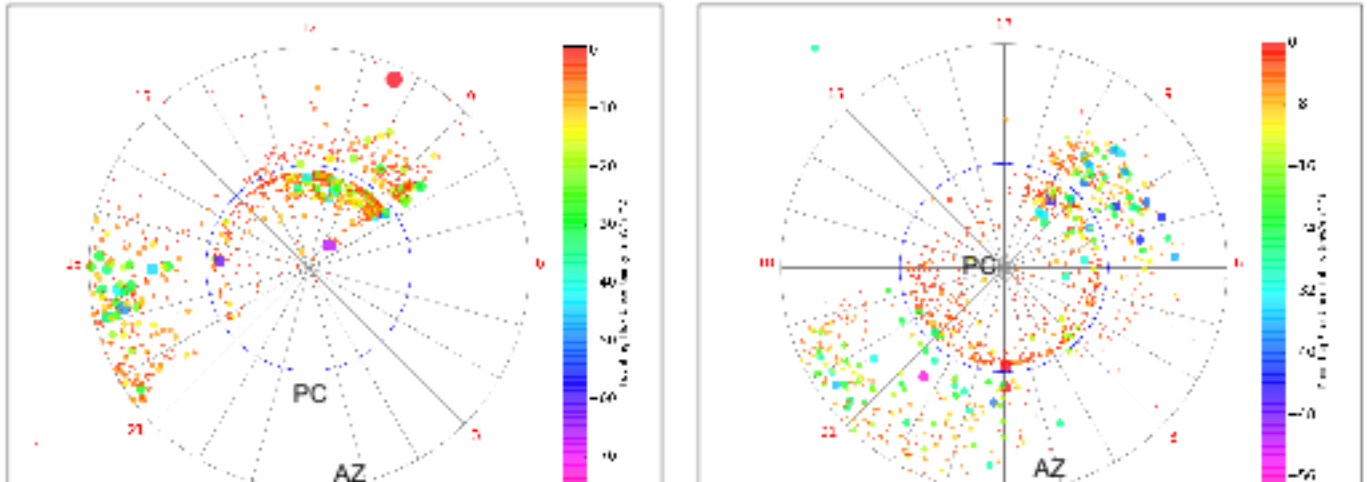
resolve the time evolution.

- Time-dependence is a major challenge.
- But if you are careful and patient, significant information can be extracted from individual spacecraft tracks.

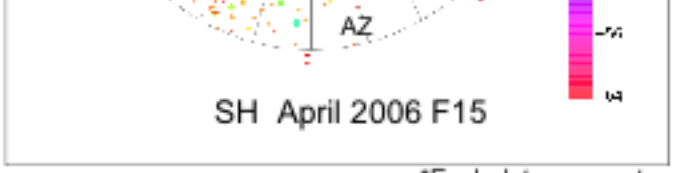
Merkin et al. [2013]

Knipp, Kilcommons, and Redmon

DMSP Poynting Flux in Auroral Boundary Coordinates



NH April 2006 F15



SH April 2006 F15

*Each dot represents the maximum value of the of the pass

During this relatively quiet month long interval there is:
- Ubiquitous low level polar cap Poynting Flux
- Concentration of Poynting flux in mid morning hours in PC and AZ

Auroral Boundary Coordinates defined by Redmon et al. (2010)
- Determined by particle flux characteristics from DMSP
- PC = polar cap; AZ = Auroral Zone

Goals

- Collect observations of conductance and drivers of conductance to use as ground truth for conductance models
- Quantify agreement/disagreement between data and models
- Determine reasons for data/model, model/model, and data/data differences in these parameters

- Demonstrate global effects of conductance models

Questions

- What conductance-related data will be most useful for validation?
  - Are FACs a promising parameter to determine self-consistent conductances for global models?
- Which event or events will we focus on to initialize this challenge?
  - CCMC has compiled an event list that Mike will go over after the talks
- How can we do model-data comparisons in meaningful ways to understand model strengths and weaknesses?