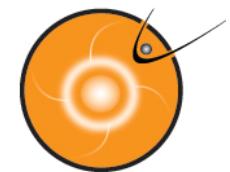


High-Latitude Energy Dissipation compared with DMSP Observations

Lutz Rastätter
Ja Soon Shim, E. Ceren Eyigüler,
Maria M. Kuznetsova

Community Coordinated Modeling Center

Also: Joule Dissipation and Orbit-Averaged Density

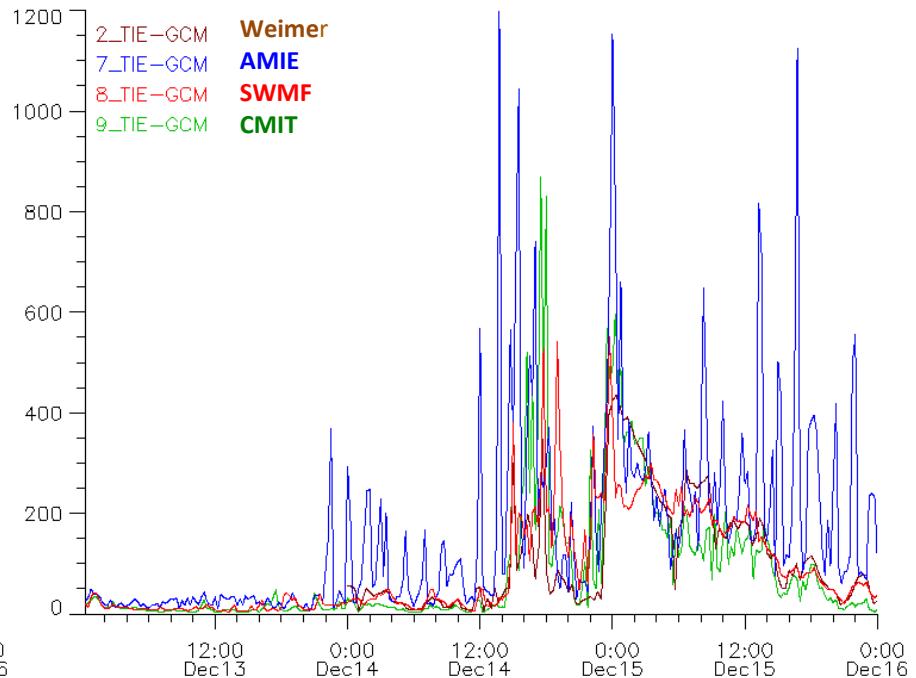
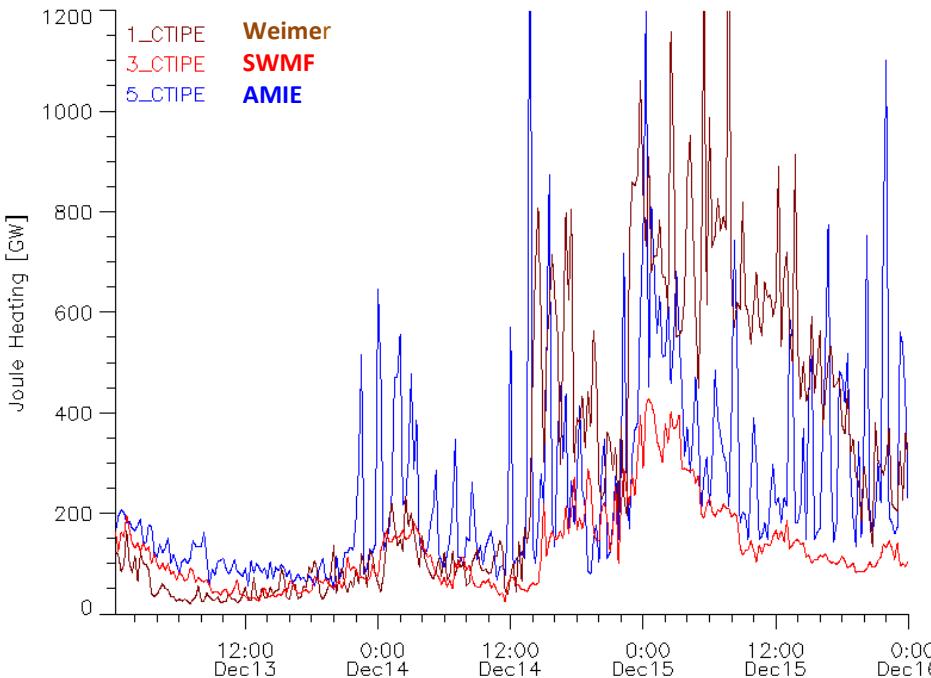


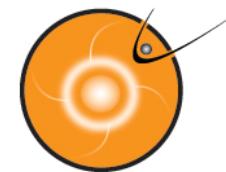
Driver Effect on Joule Heating

Multiple high-latitude electric potential drivers possible:

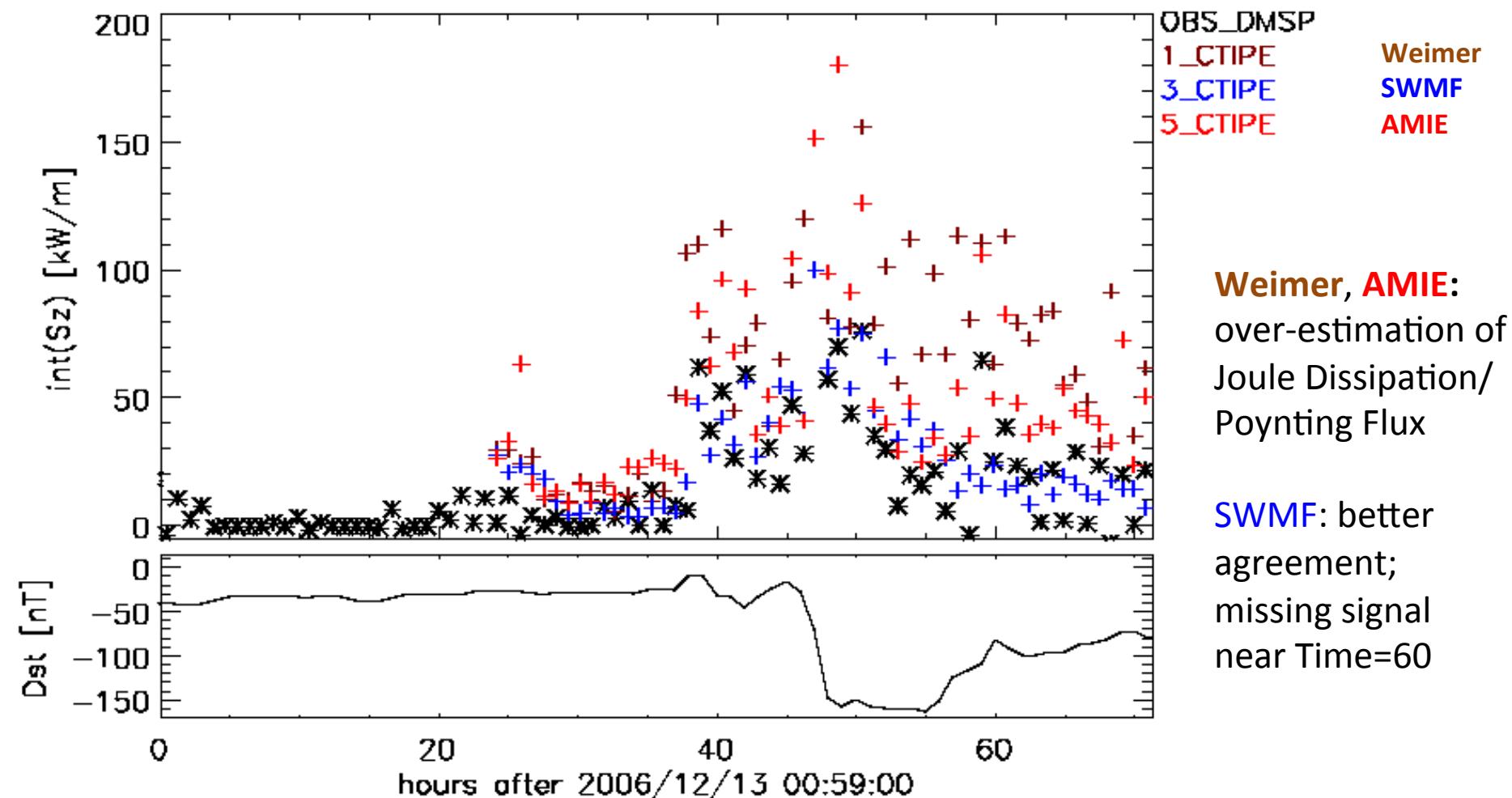
- Built-in (in both, CTIPe, TIE-GCM):
 - Weimer
- External:
 - CMIT (TIE-GCM is part of fully coupled model)
 - SWMF (via Kameleon)

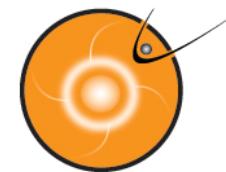
Joule Dissipation – total northern hemisphere



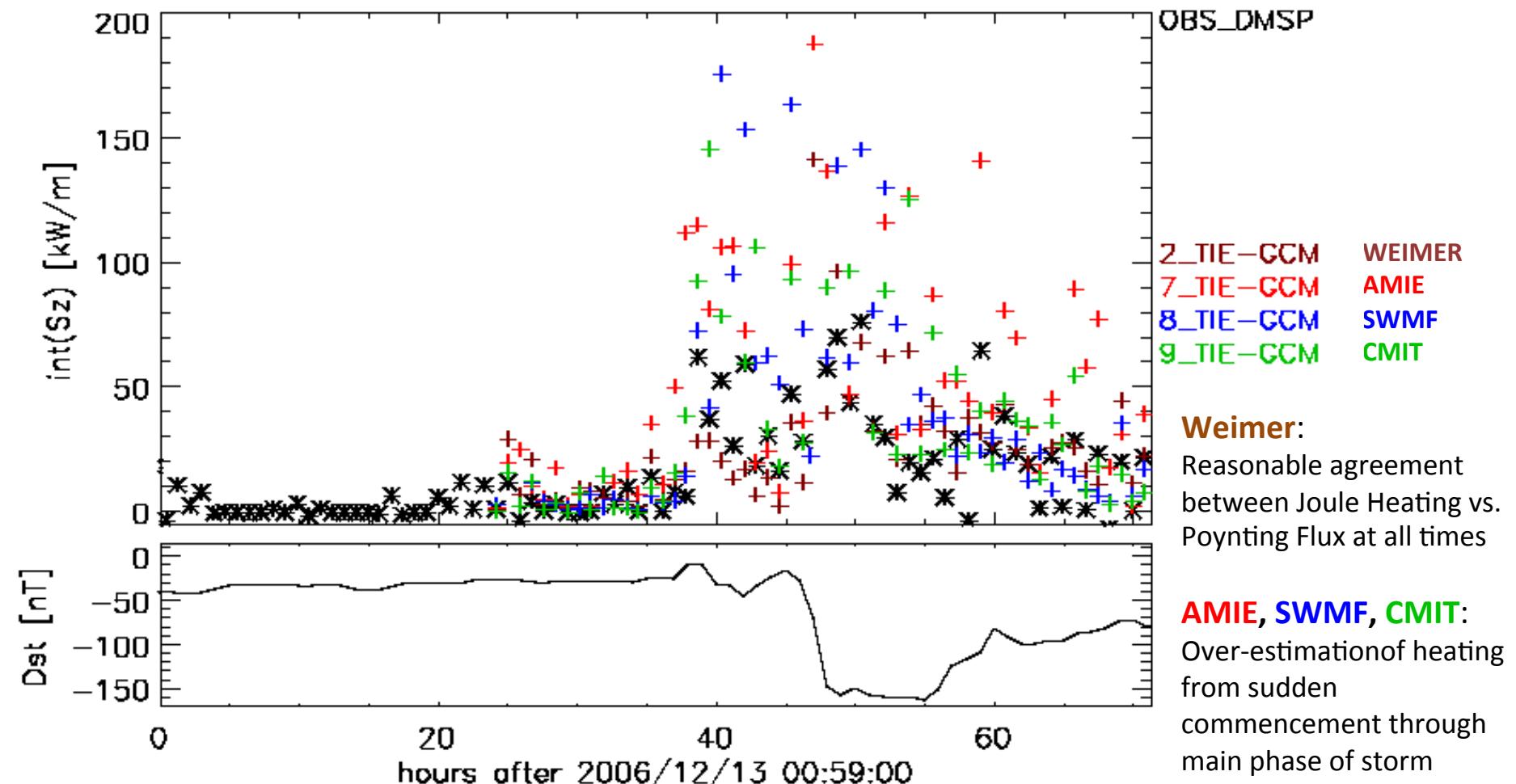


Analysis by DMSP pass - CTIPE





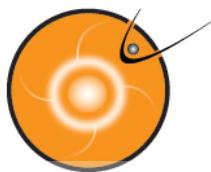
Analysis by DMSP pass – TIE-GCM



Weimer:
Reasonable agreement
between Joule Heating vs.
Poynting Flux at all times

AMIE, SWMF, CMIT:
Over-estimationof heating
from sudden
commencement through
main phase of storm

WEIMER, SWMF, CMIT:
good agreement during
recovery (Time>55 hours)



Orbit-averaged density

