

Preliminary Results of Swapping Drivers

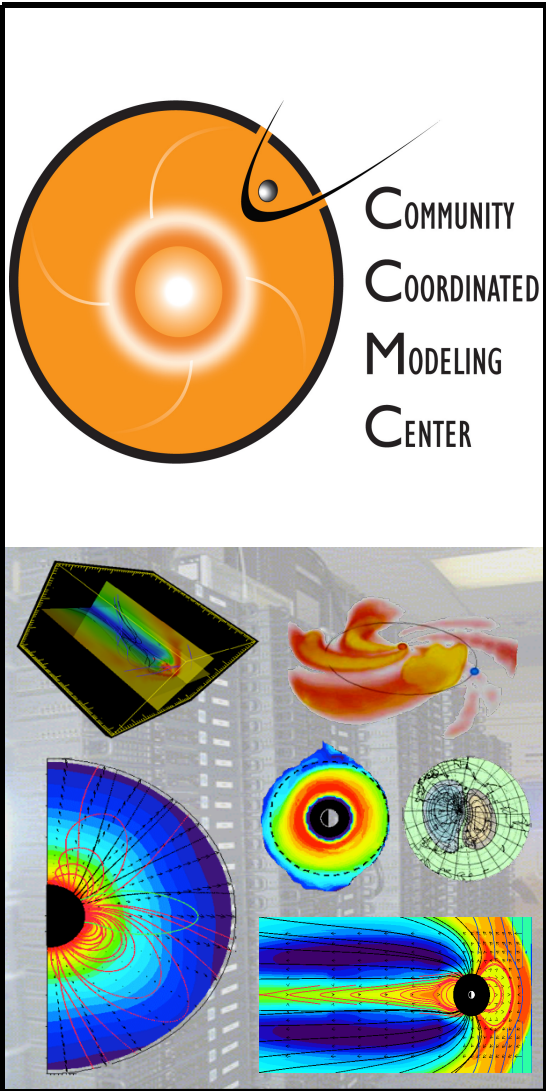
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<http://ccmc.gsfc.nasa.gov>

NASA Goddard Space Flight Center



Tools for swapping drivers: [Kameleon-converter](#)

- convert model output in a common science data format.
- outputs of ionosphere electrodynamics models (Weimer, AMIE, global MHD models, and etc.):
 - electric potential
 - electron average energy
 - electron energy flux
- outputs of inner magnetosphere models driven by global MHD models (e.g., CRCM driven by SWMF, RCM driven by SWMF or by Tsyganenko Model):
 - electric fields

Tools for swapping drivers: [Kameleon-interpolator](#)

- can be called as a subroutine from any code to provide values on the grid (tested with CTIPe and TIE-GCM, and will be implemented for GITM)

call [kameleon\(model,itime,mlts,mlats,variables,values_output\)](#)

- model: weimer, amie, or swmf
- itime: itime(1)=year, itime(2)=month, itime(3)=day
 itime(4)=hr, itime(5)=min, itime(6)=sec
- mlts(nlat,nmlt), mlats(nlat,nmlt)
- variables: ep (electric potential),
 eave (electron average energy),
 eflux (electron energy flux)
- values_output(variables,mlats,mlts)

CTIPe run with Kameleon

Electric potential:

call weimer05(angle,swbt,tilt,swvel,swden,exns,eyns)

call kameleon(model,current_epoch,mlts,mlats,**ep**,exns,eyns)

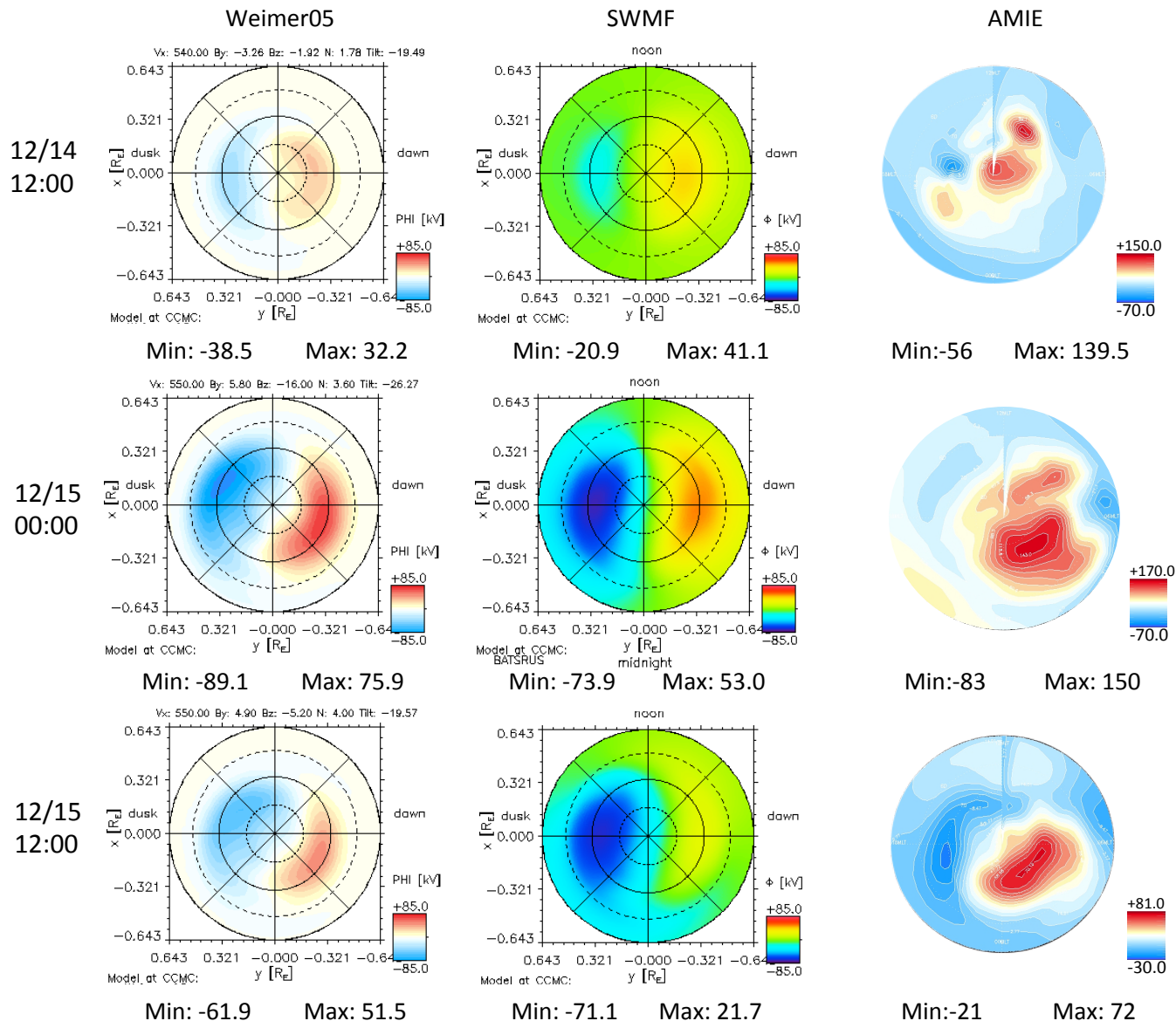
Particle precipitation:

call tiros(THMagd,ESSa,LL,QT,DEN,**GW**,EMAs,CMAps,PROfile,DMSp)

call kameleon(model,current_epoch,mlons,mlats,**eflux**,QT)?

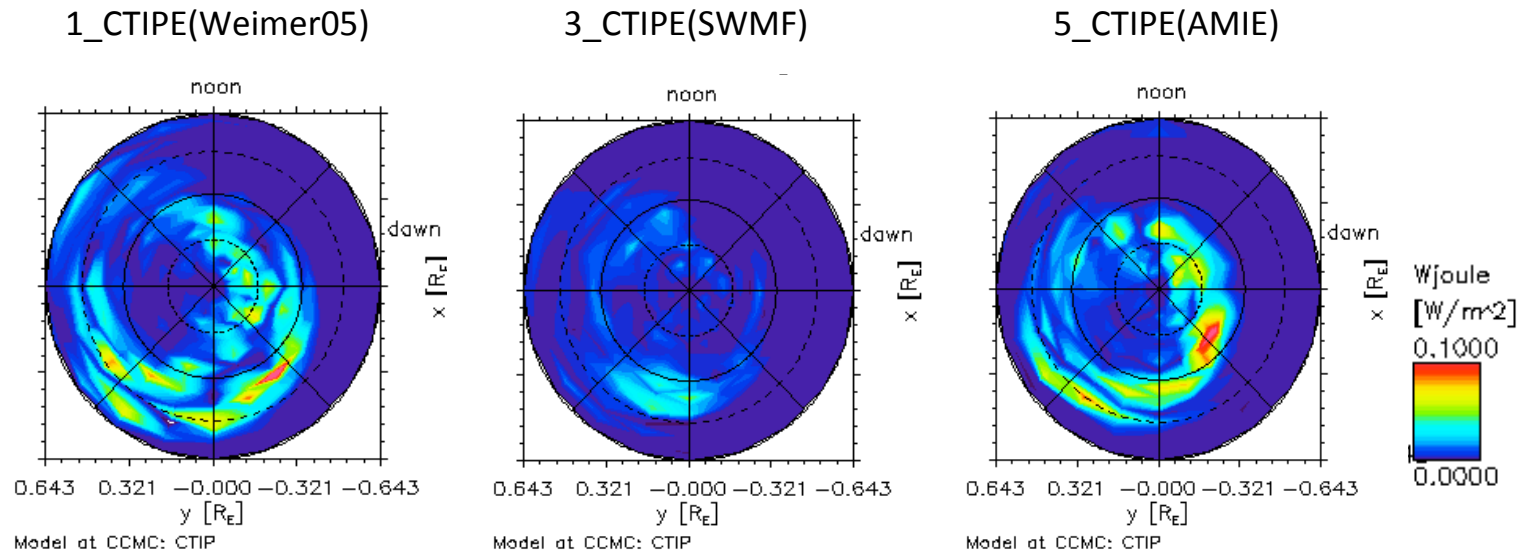
❖ Weimer 2005 output in CDF format will be prepared to test the tools

Electric Potential (northern hemisphere)

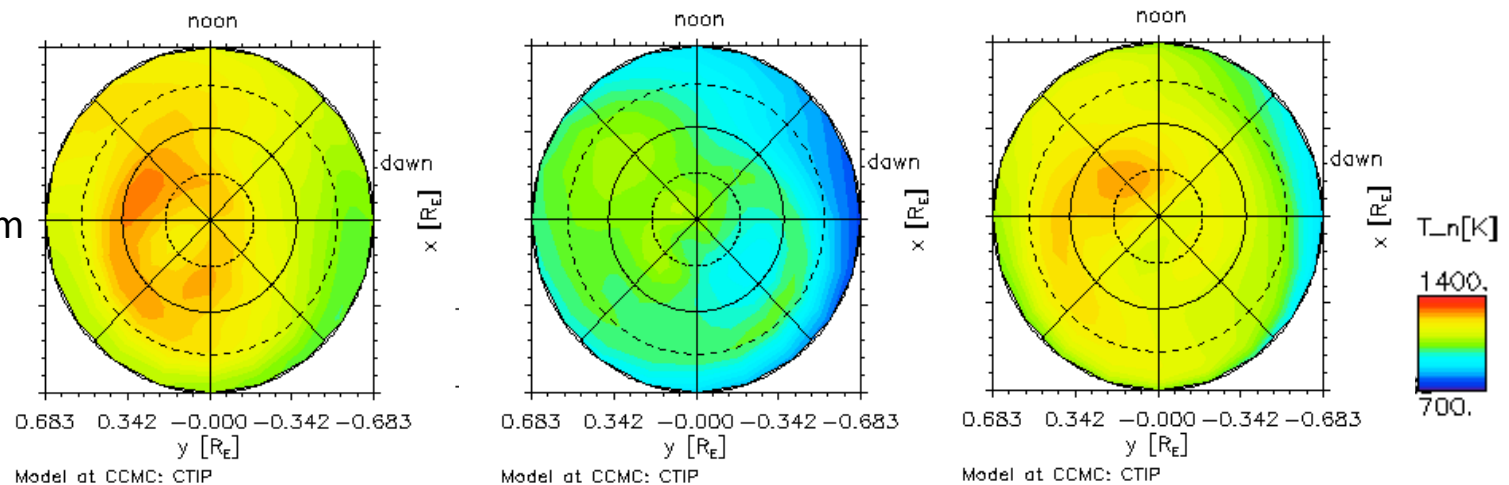


Joule Heating & Tn (NH) (12/15/2006 00:00) : CTIPE

JH

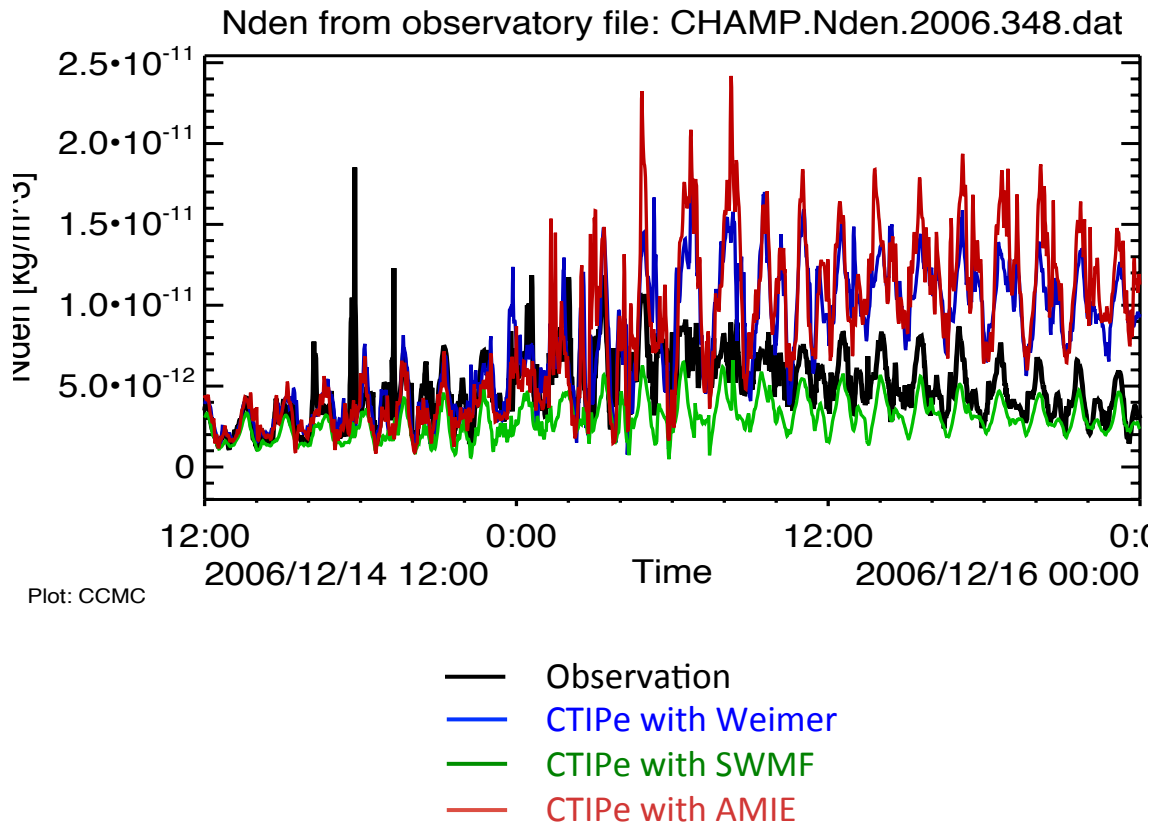


Tn @400km



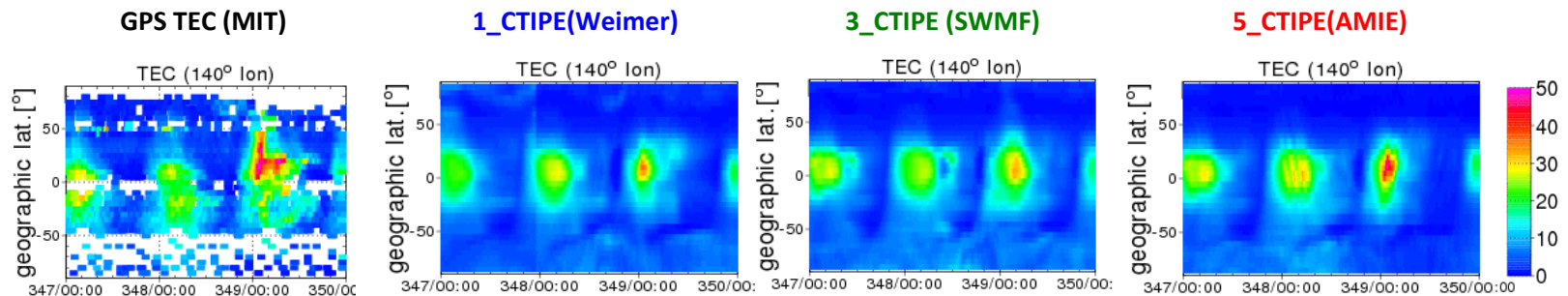
CTIPe runs driven by SWMF/AMIE/Weimer

Neutral density at the CHAMP location

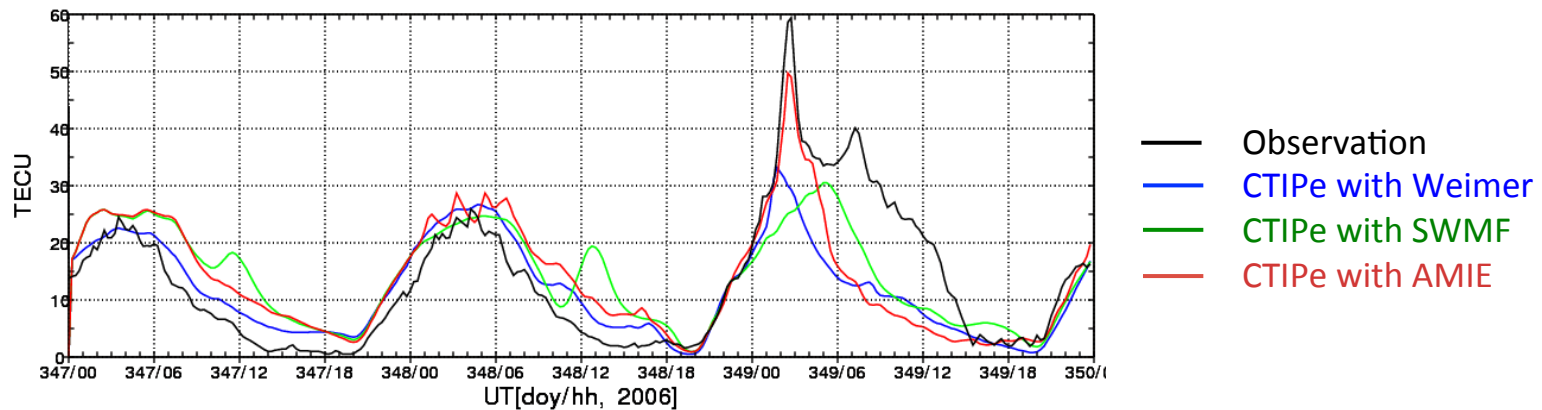


CTIPe runs driven by SWMF/AMIE/Weimer

TEC at 140° E

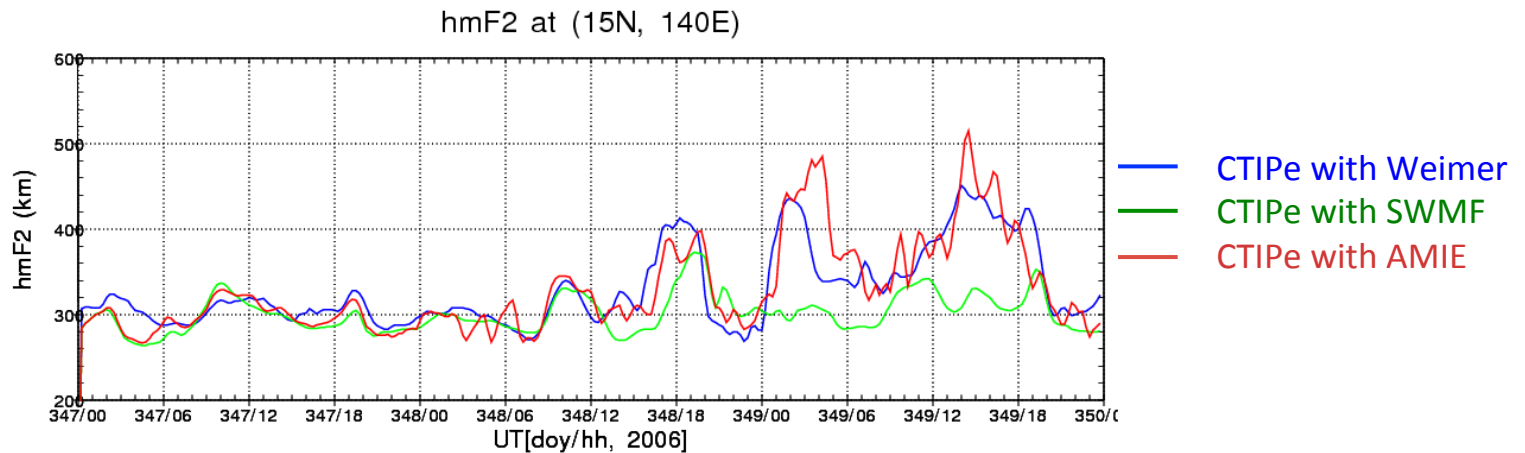
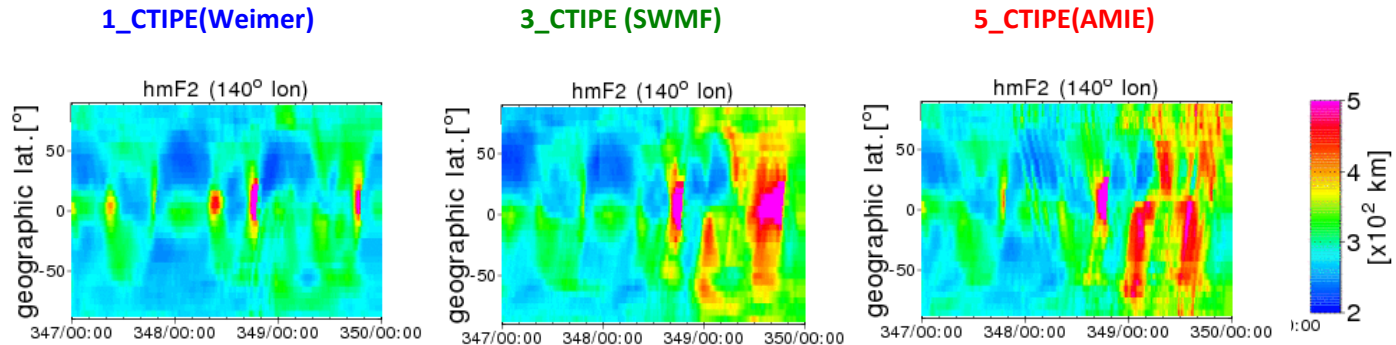


TEC at (15N, 140E)



CTIPe runs driven by SWMF/AMIE/Weimer

hmF2 at 140° E



TIE-GCM runs driven by Weimer/AMIE

TEC at 140° E

