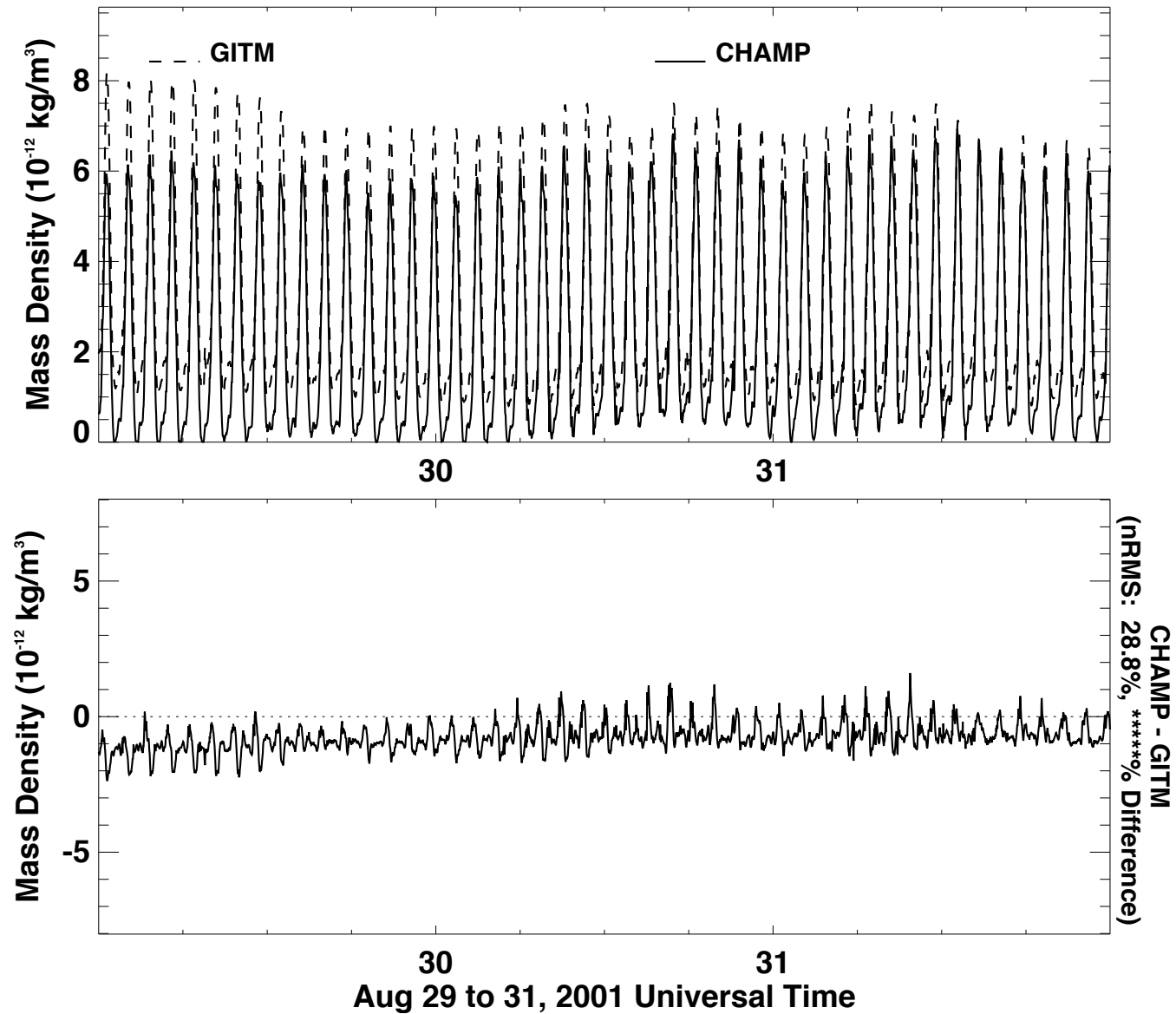


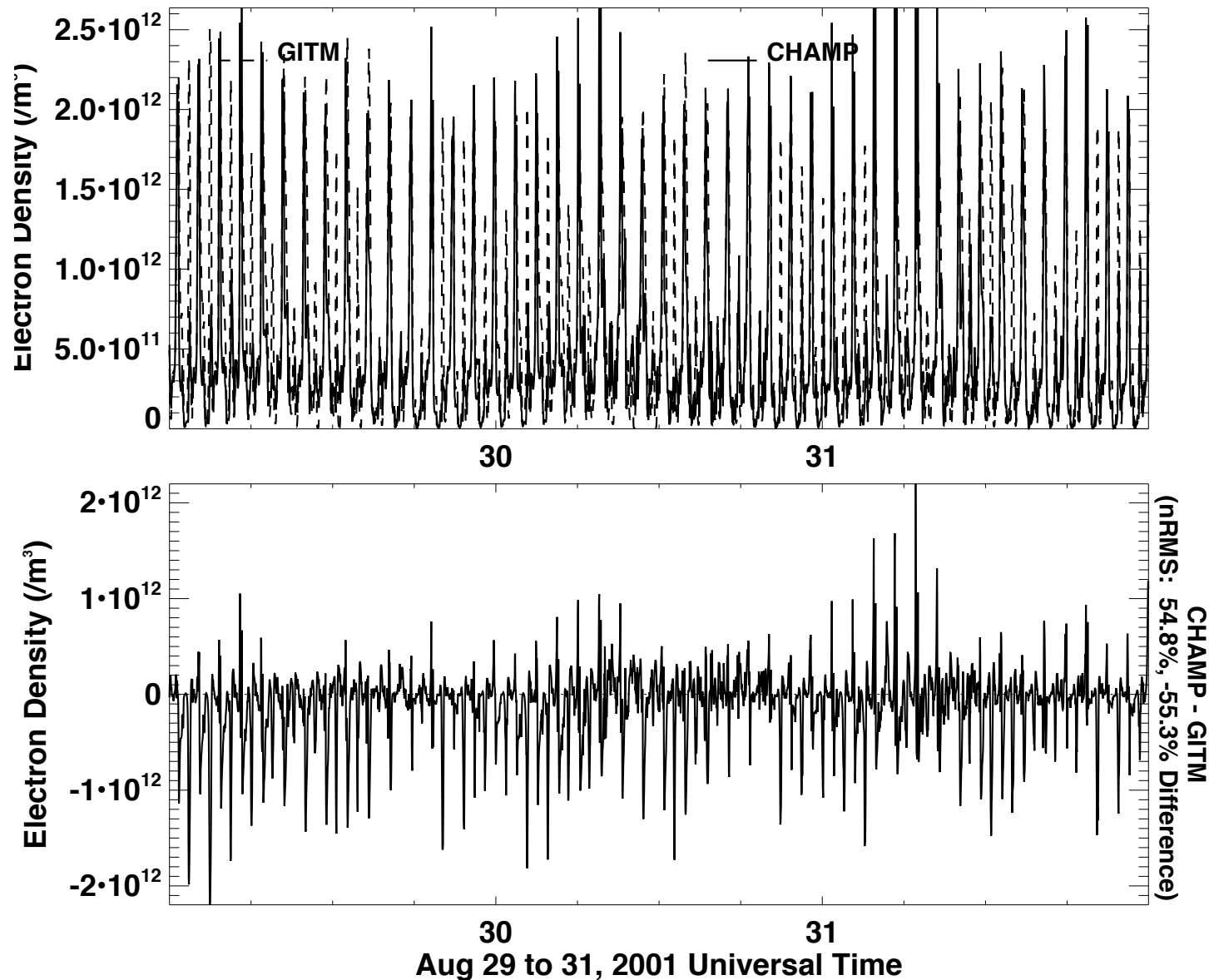
GITM Results for December 2006 and August 2001

Using Different Drivers

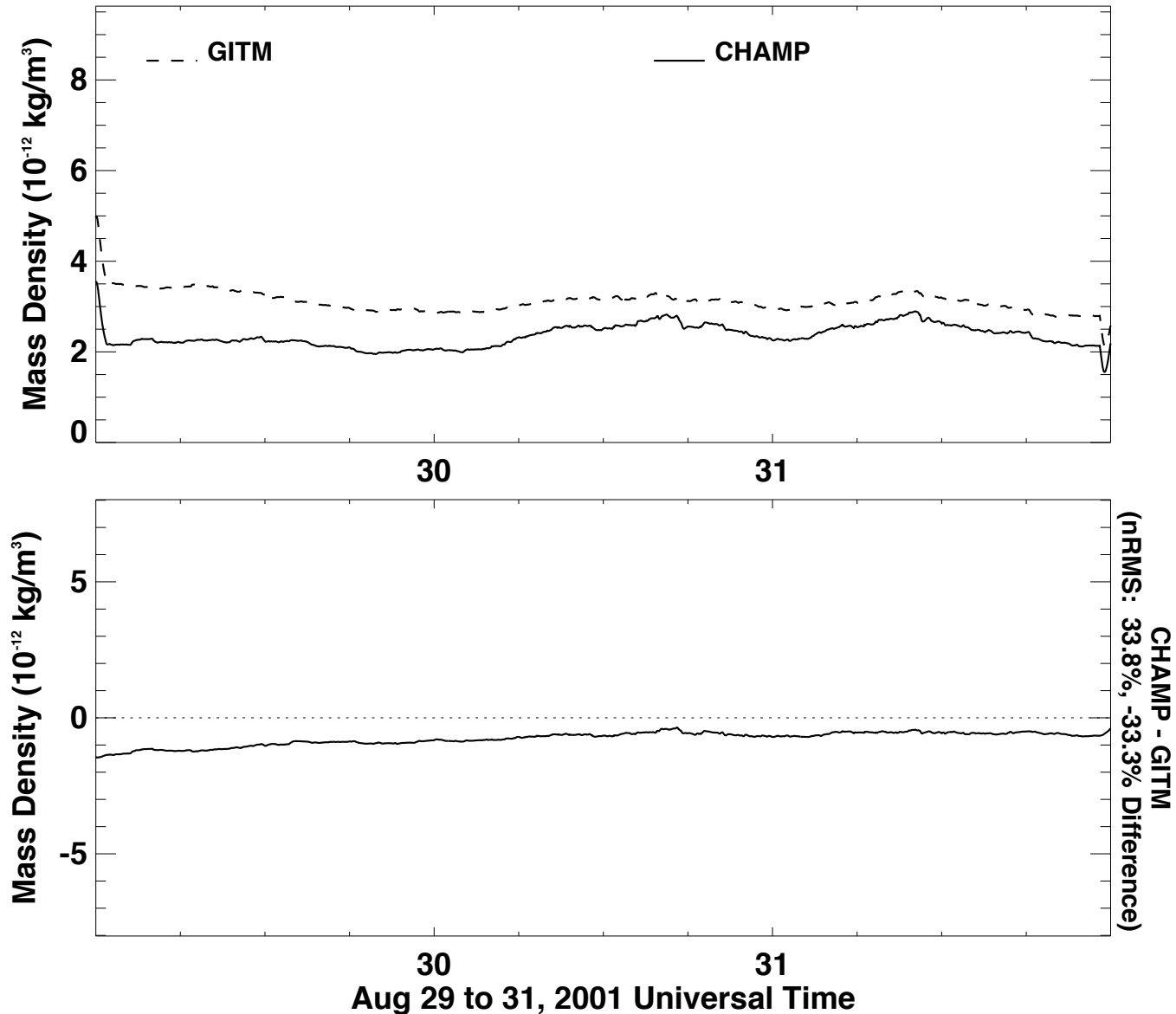
Plot Intro – Mass Density Raw



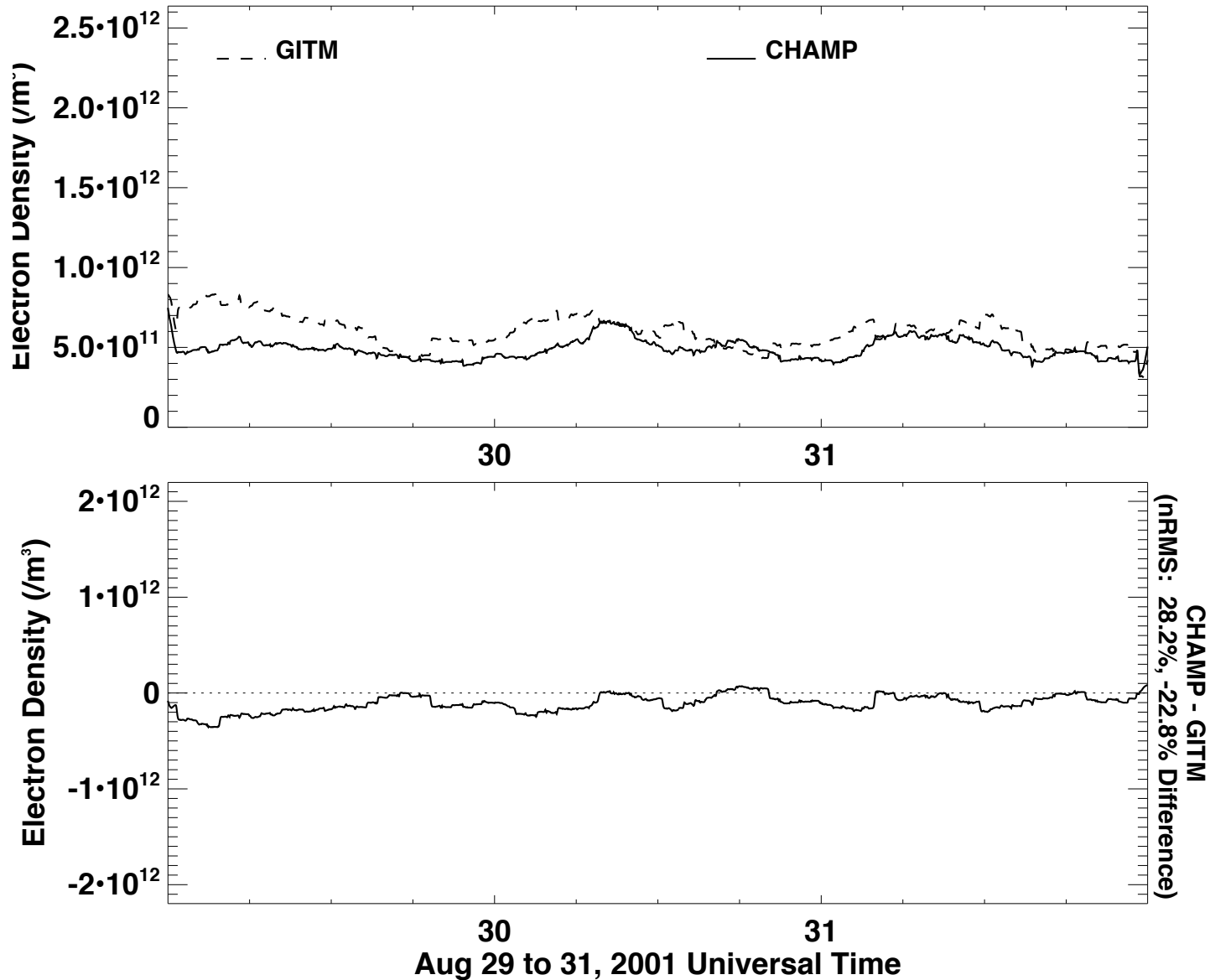
Plot Intro – [e-] Density Raw



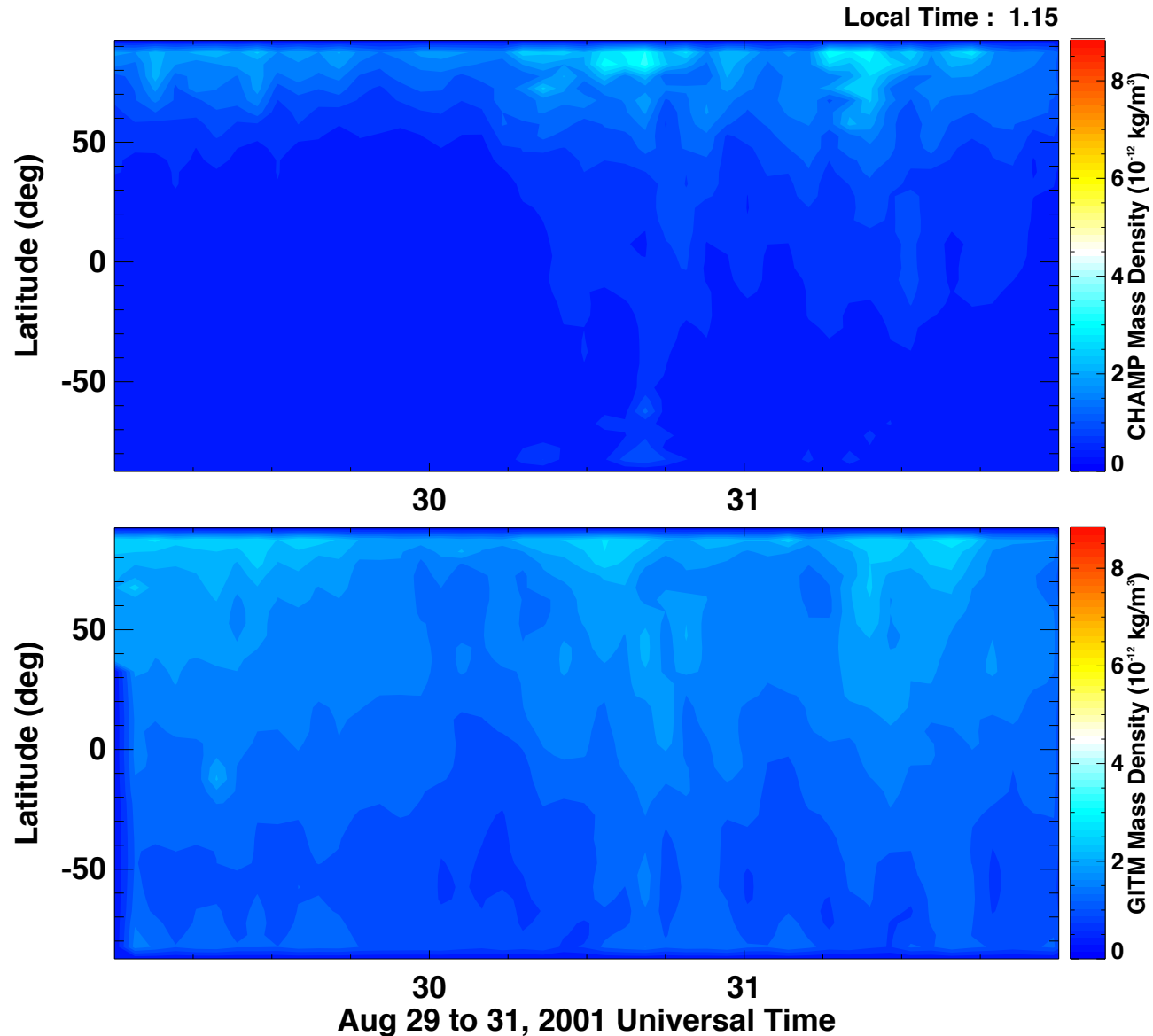
Plot Intro – Mass Density Averaged



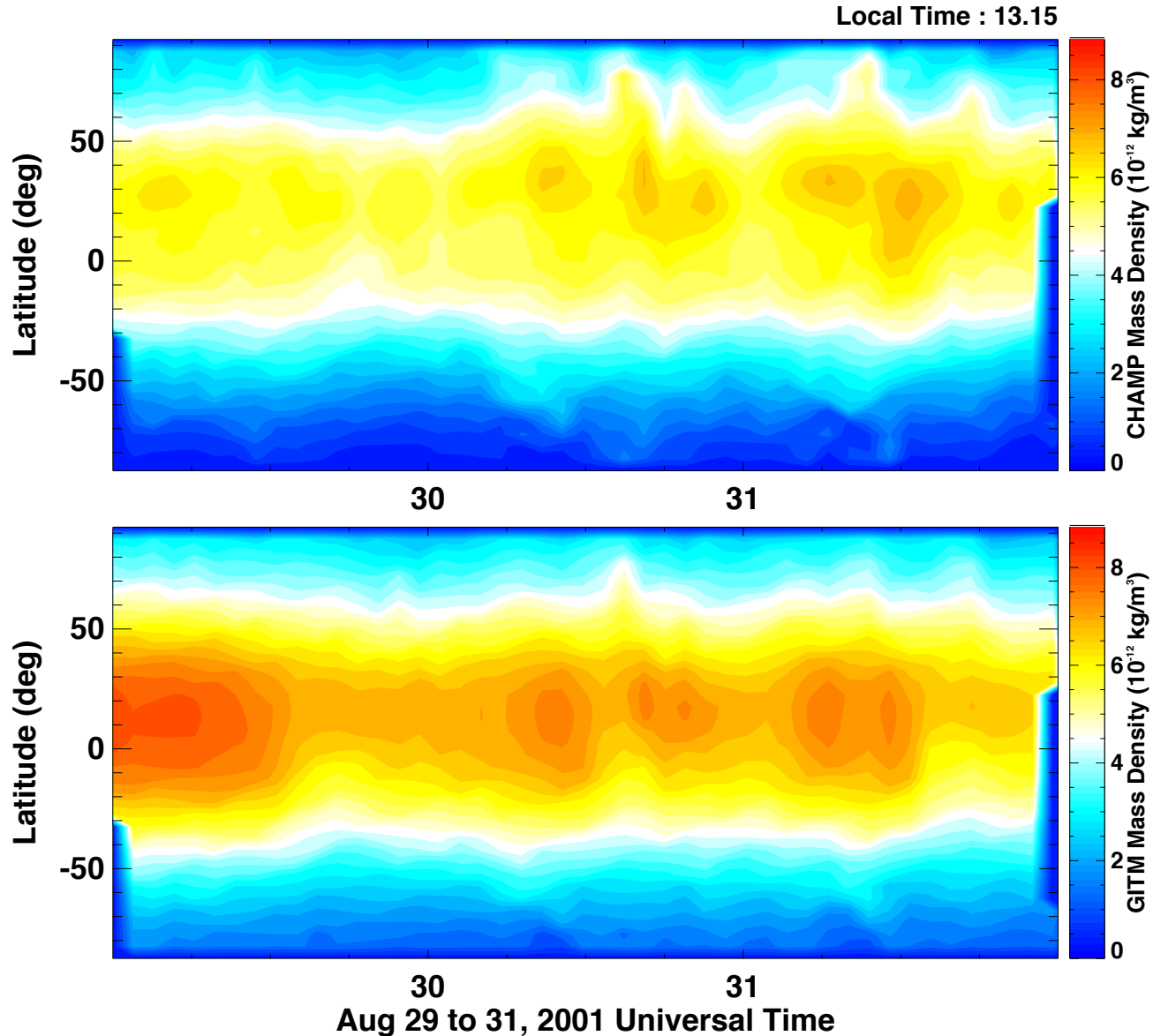
Plot Intro – [e-] Density Averaged



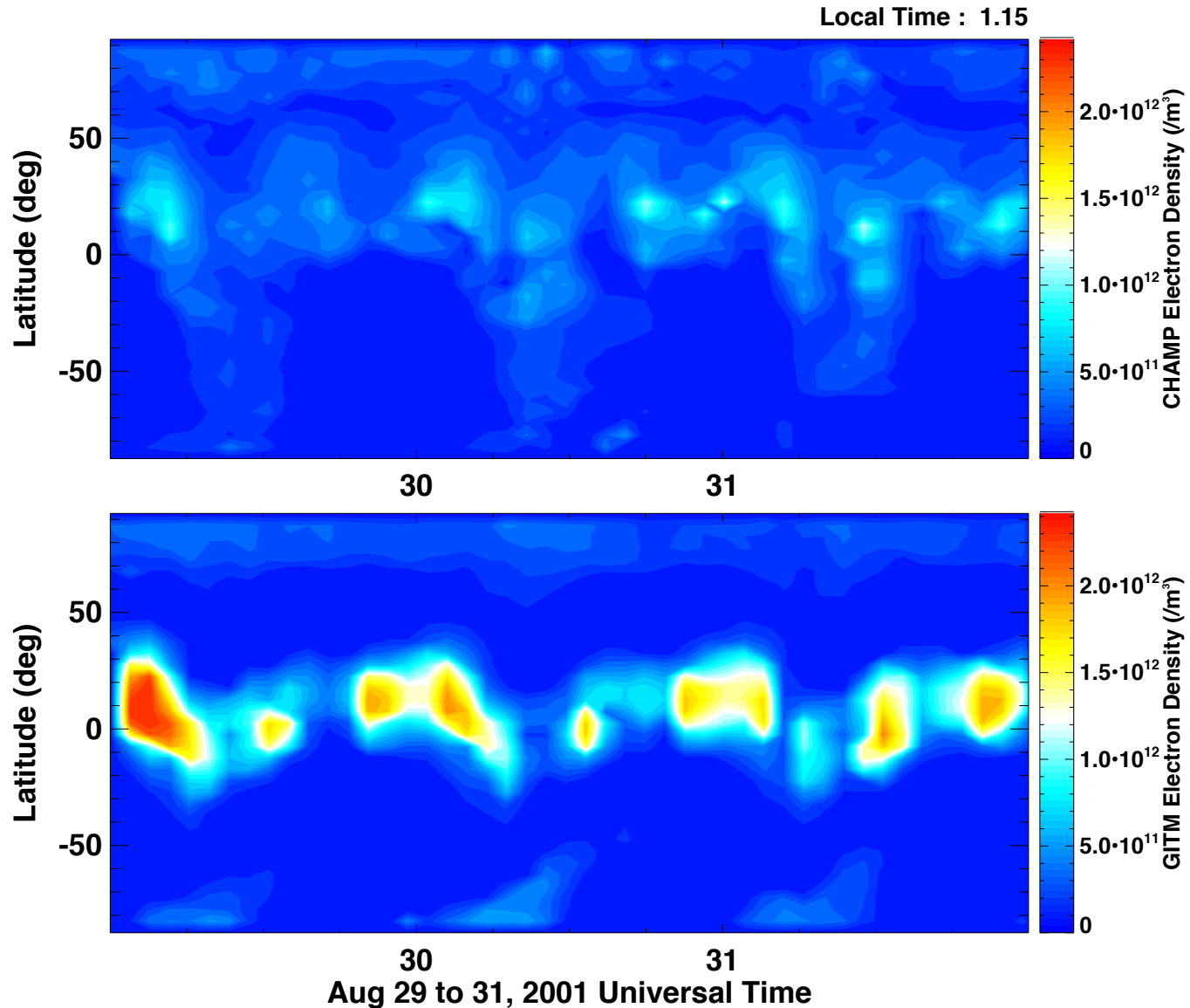
Plot Intro – Mass Density Ascending



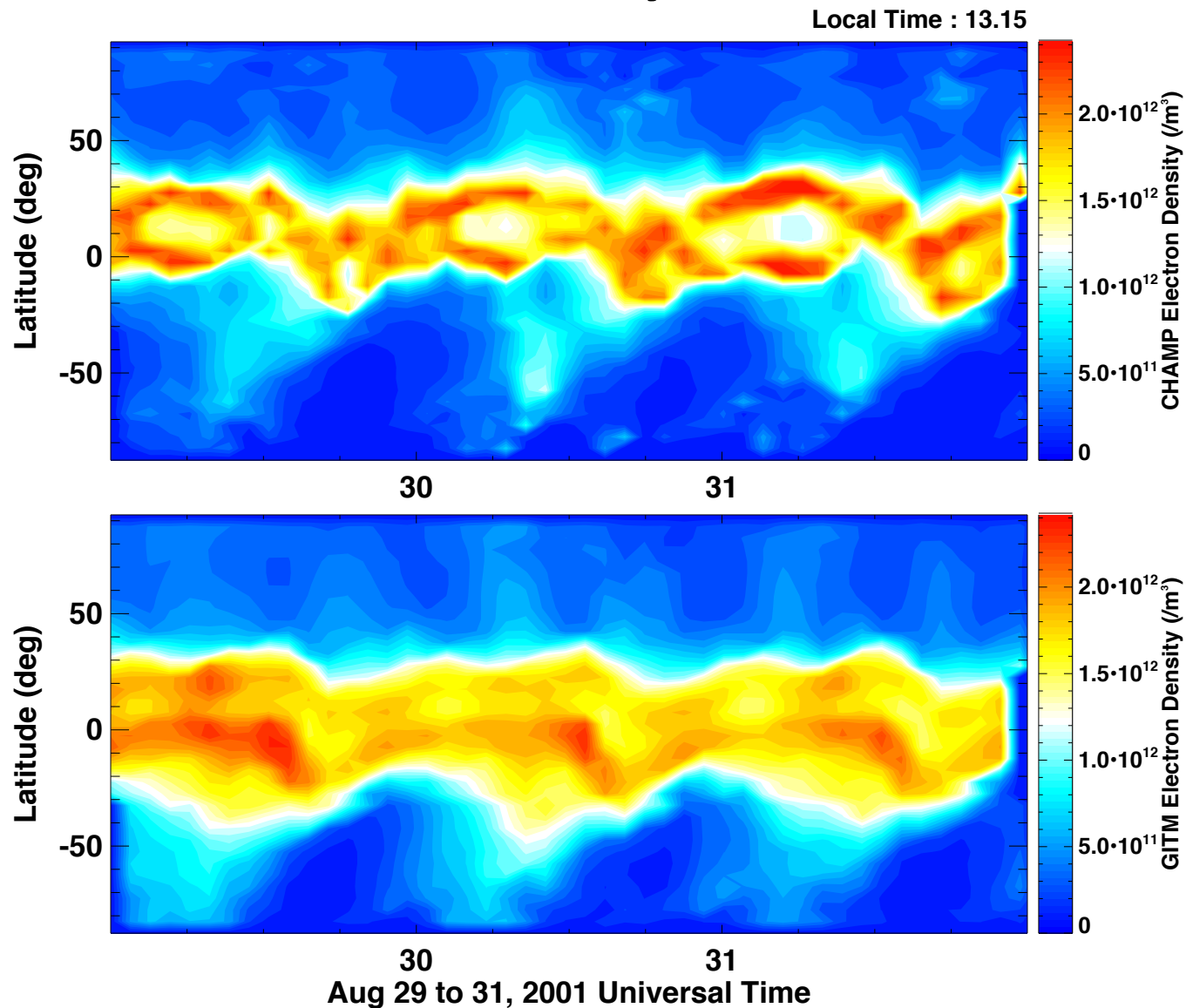
Plot Intro – Mass Density Descending



Electron Density - Ascending



Electron Density - Descending



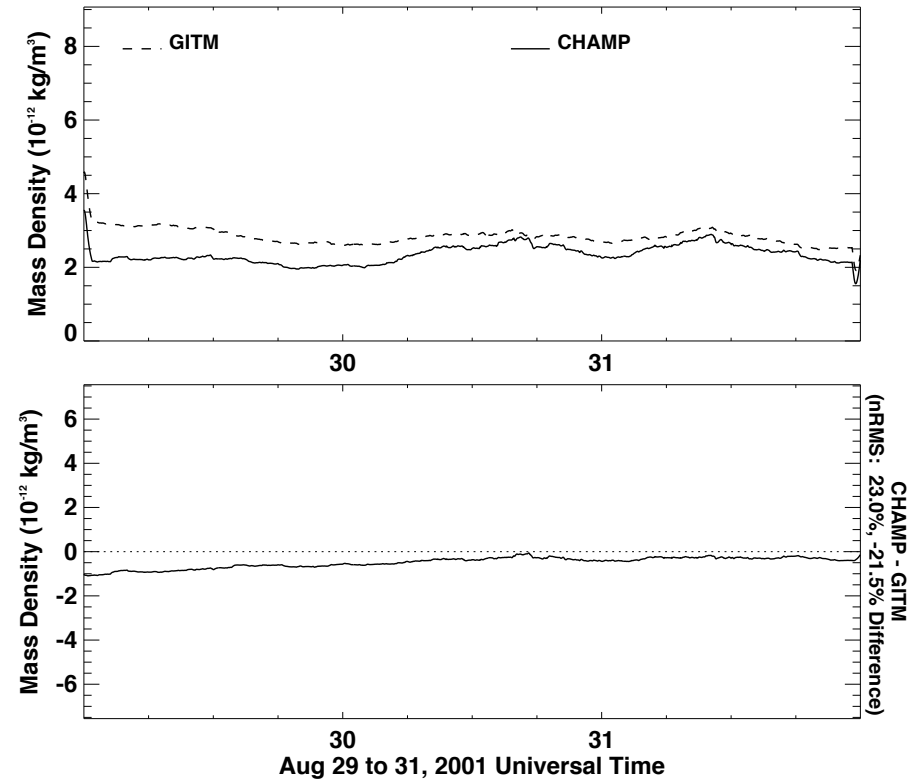
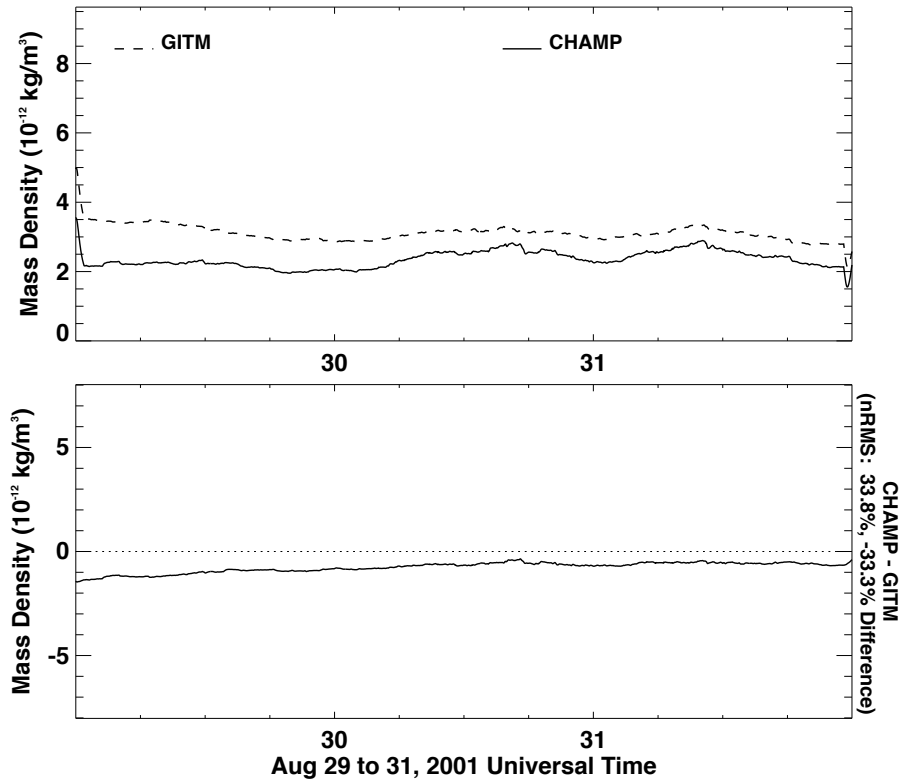
Runs

- December 2012 (2.5 deg x 5 deg)
 - Photoelectron efficiency of 12%
 - Weimer, SWMF, Astra AMIE
 - Photoelectron efficiency of 12% + less more efficient auroral energy deposition
 - Weimer, SWMF, Astra AMIE
 - Photoelectron efficiency of 6%
 - Weimer, SWMF, Astra AMIE
- August 2001
 - Photoelectron efficiency of 6% (2.5 deg x 5 deg)
 - Weimer, SWMF
 - Photoelectron efficiency of 4% (1.875 deg x 5 deg)
 - Weimer, SWMF

August Mass Density

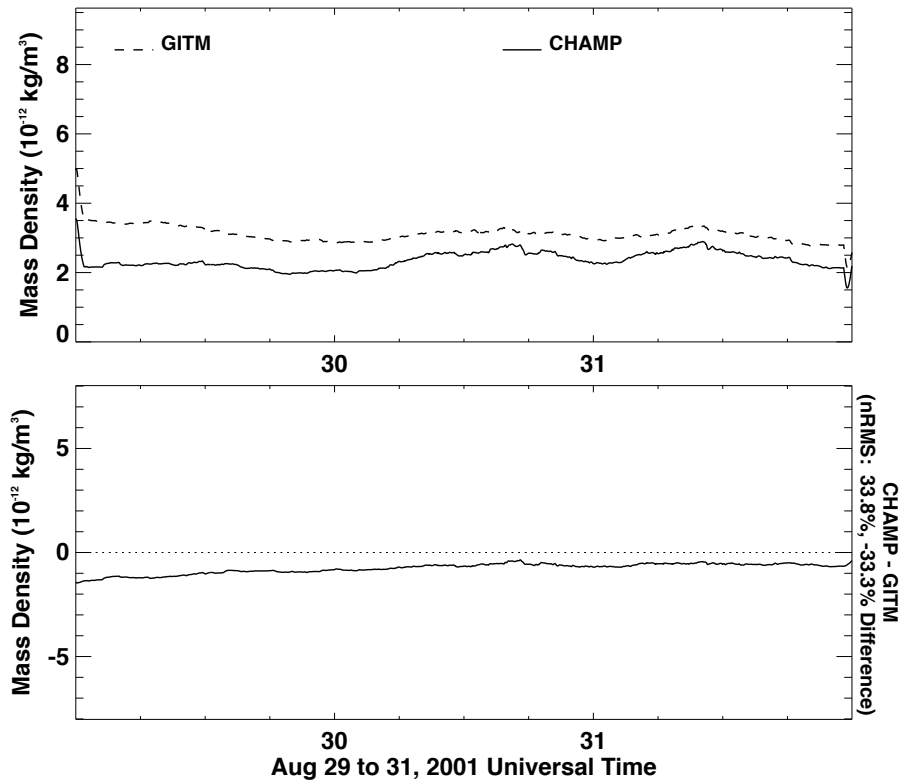
Weimer Driven

Weimer Driven w/ Higher Res and slightly lower photoelectron heating

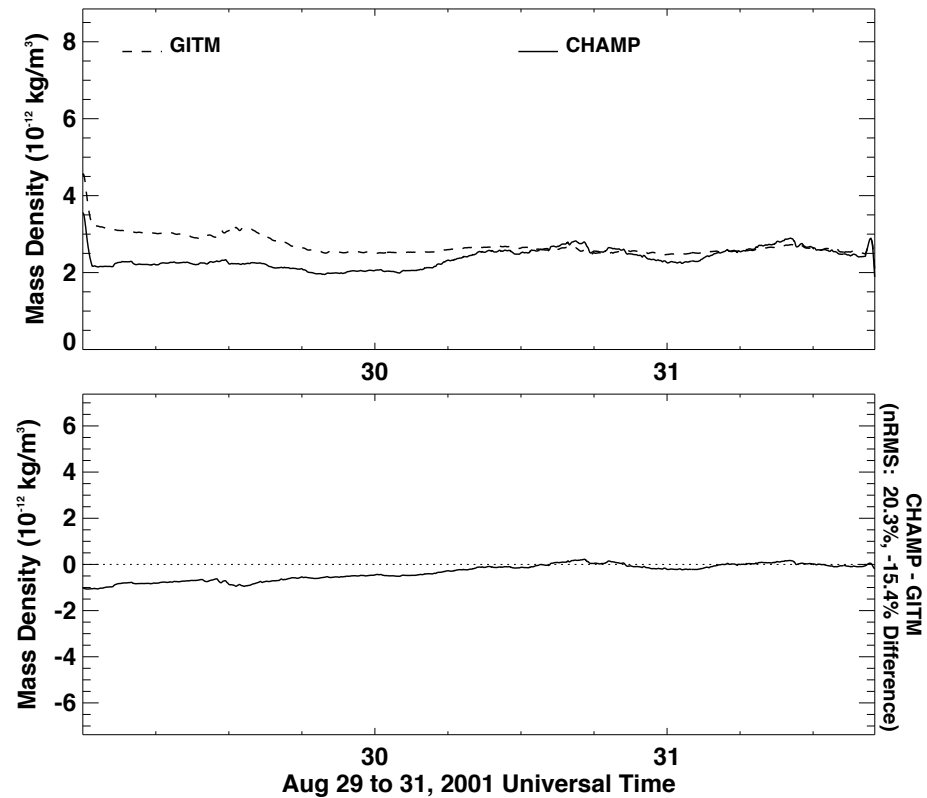


August Mass Density

Weimer Driven

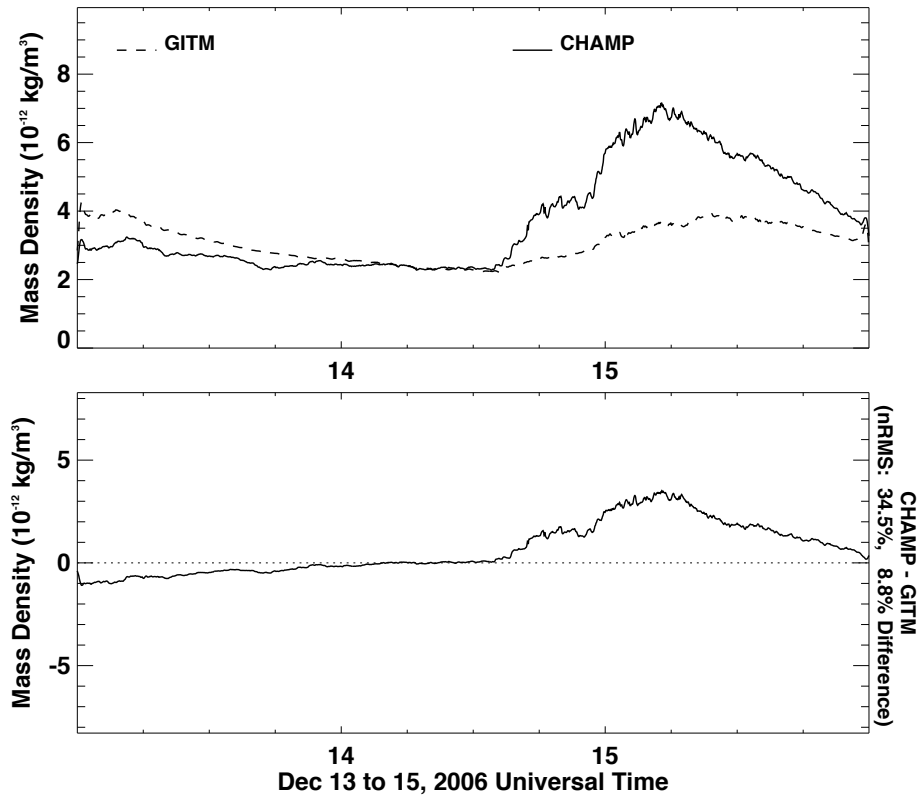


SWMF Driven w/ Higher Res and slightly lower photoelectron heating

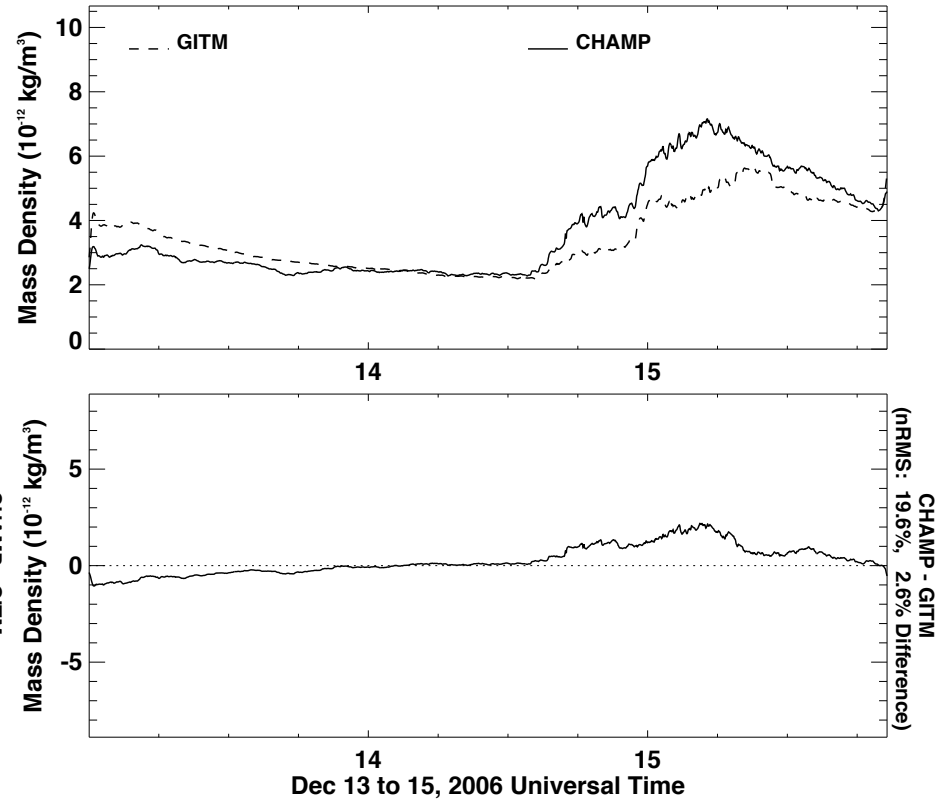


December Mass Density

Weimer Driven

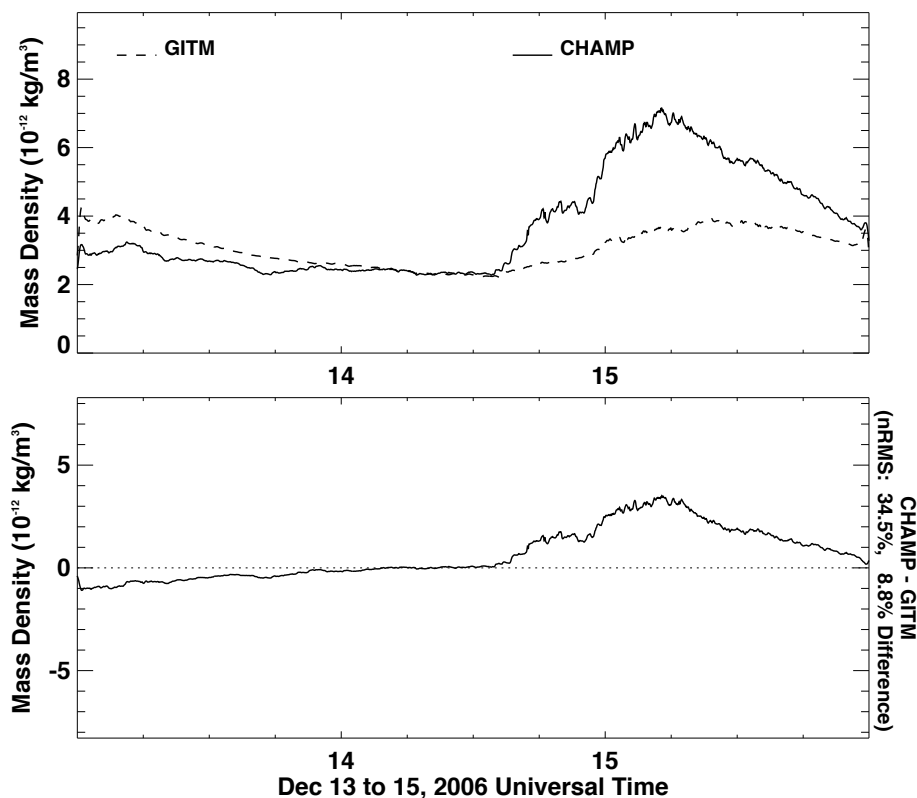


SWMF Driven

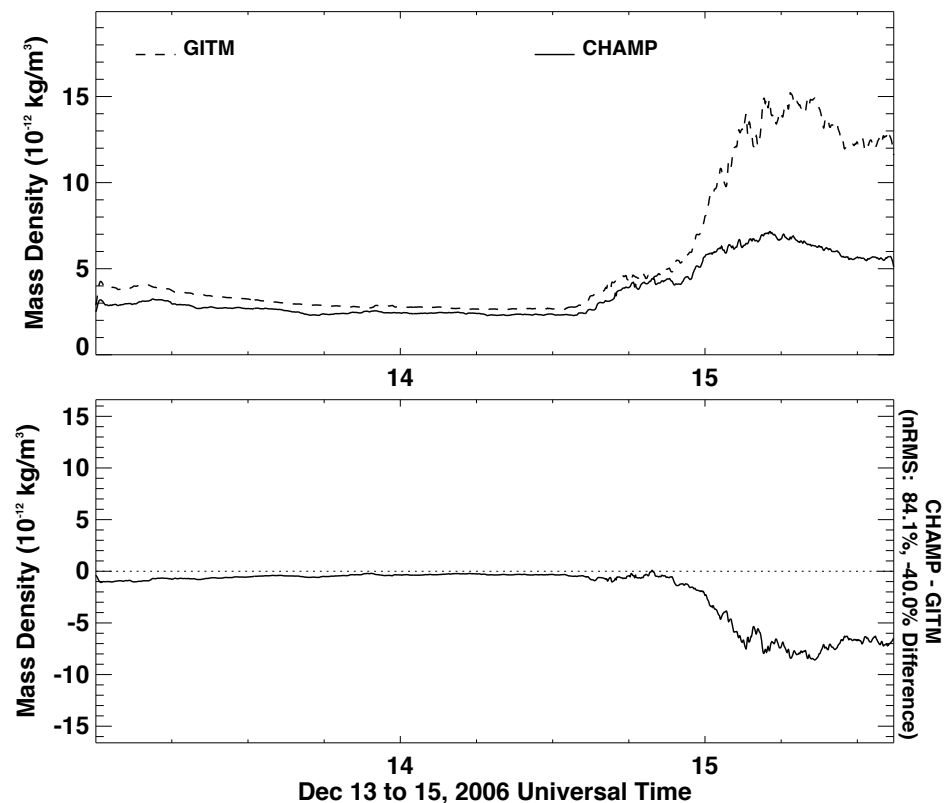


December Mass Density

Weimer Driven

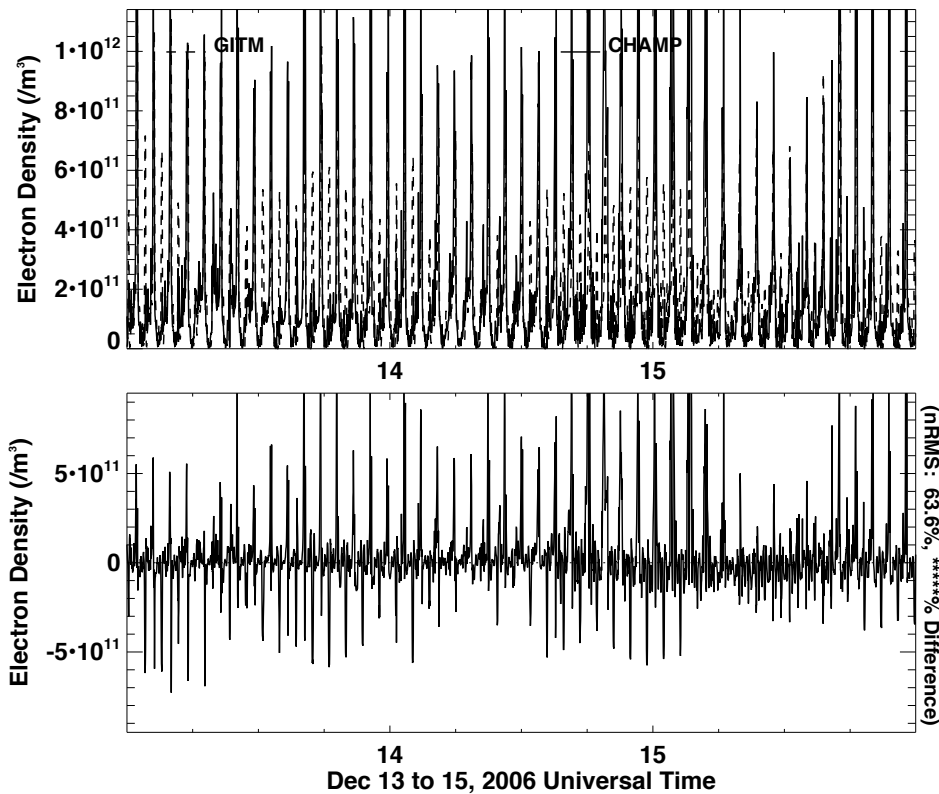


Astra AMIE Driven

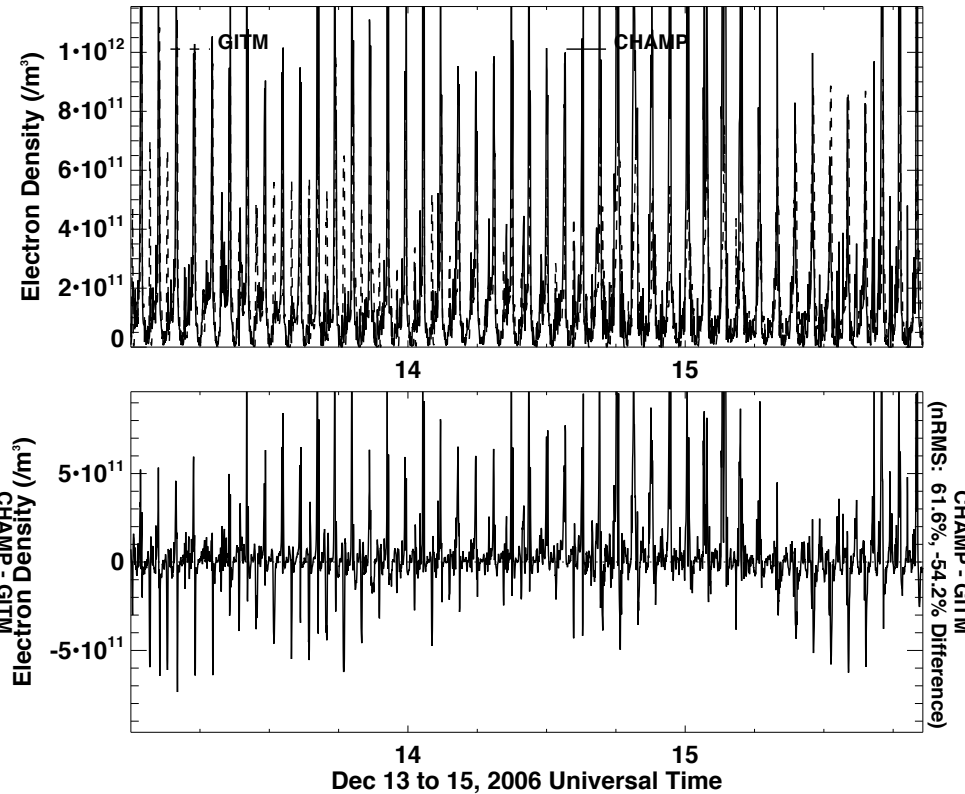


December Electron Density

Weimer Driven

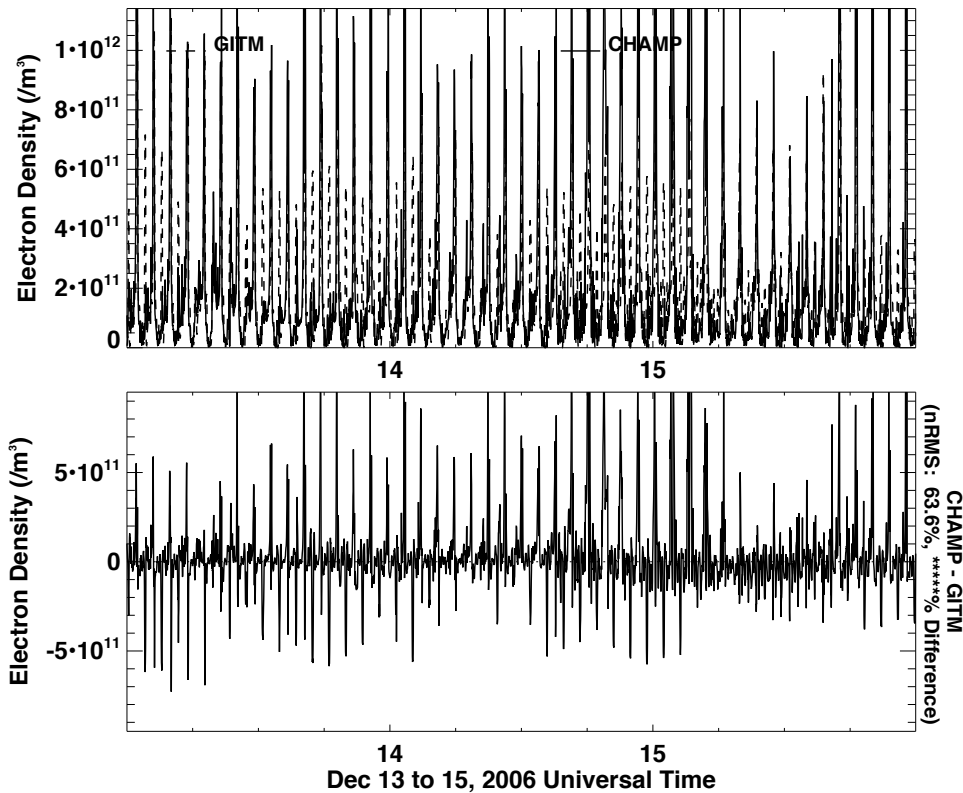


SWMF Driven

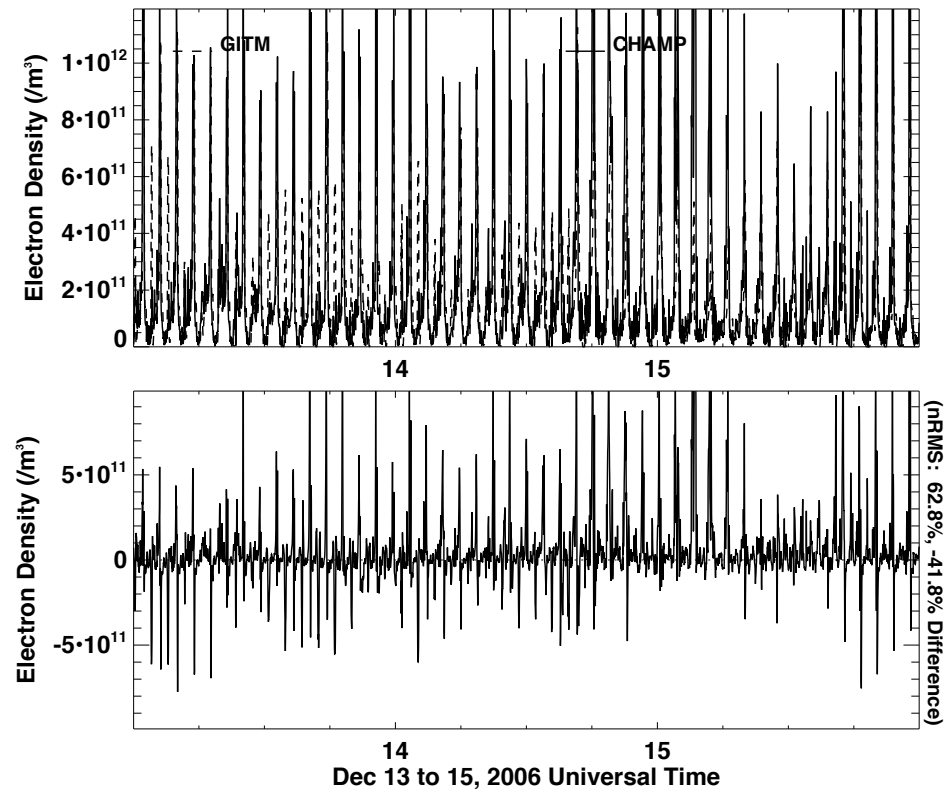


December Electron Density

Weimer Driven

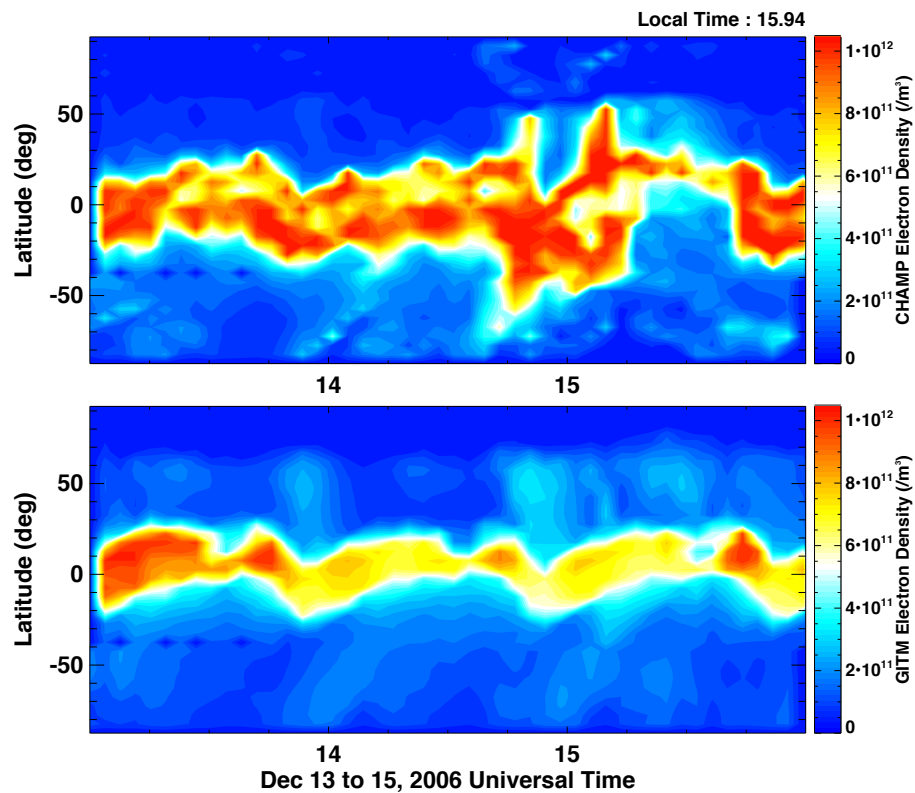


Astra AMIE Driven

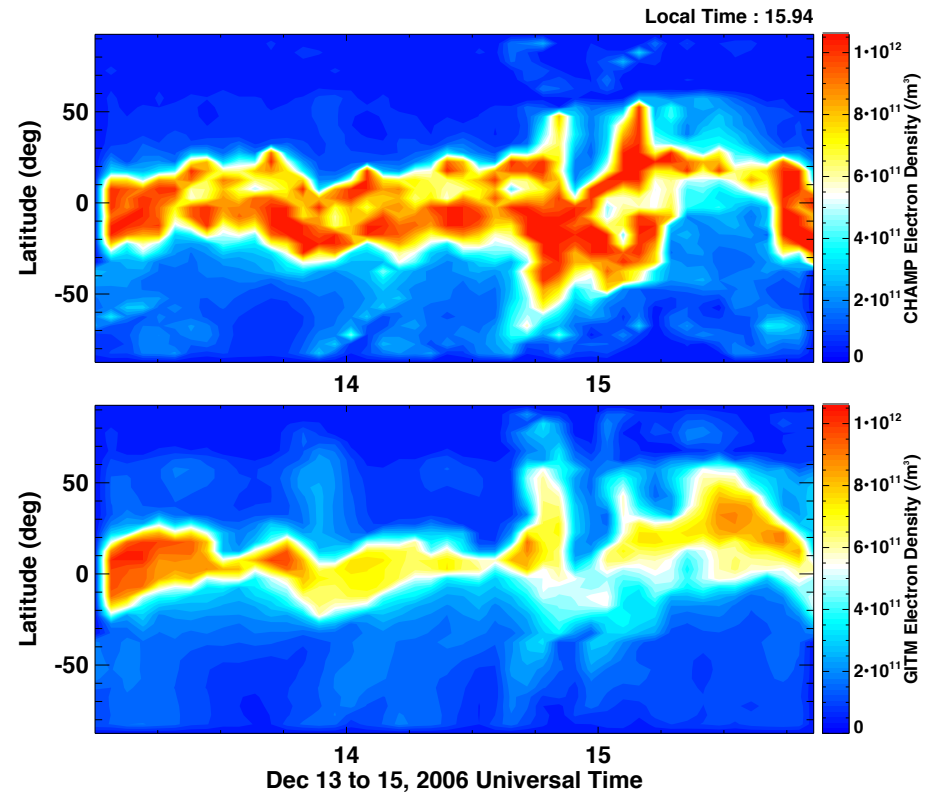


December Electron Density

Weimer Driven

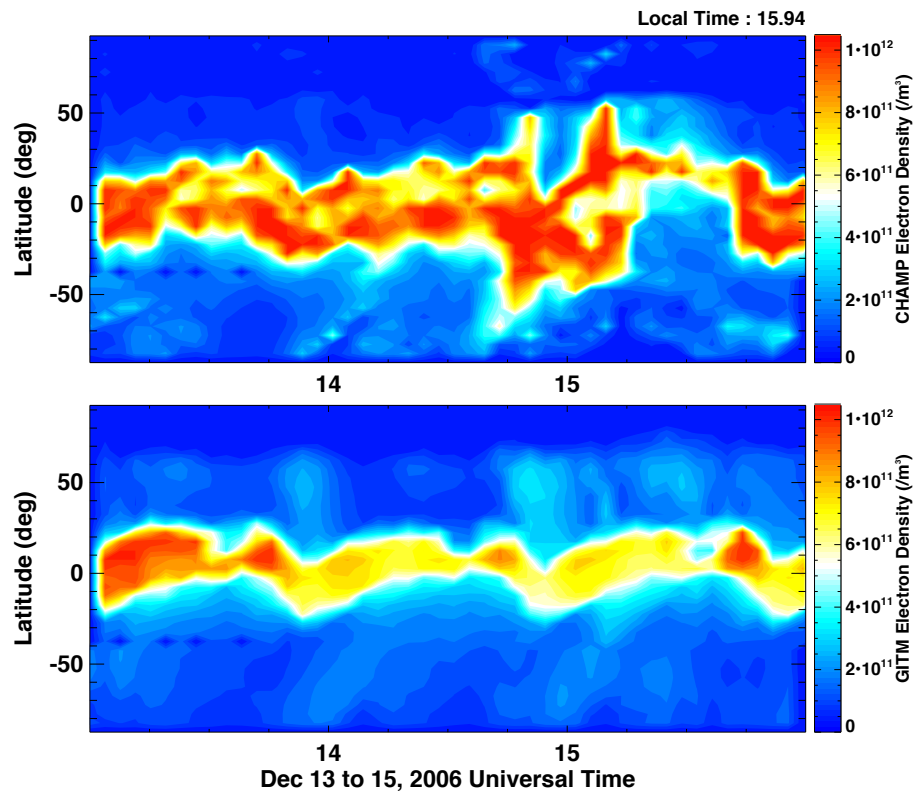


SWMF Driven

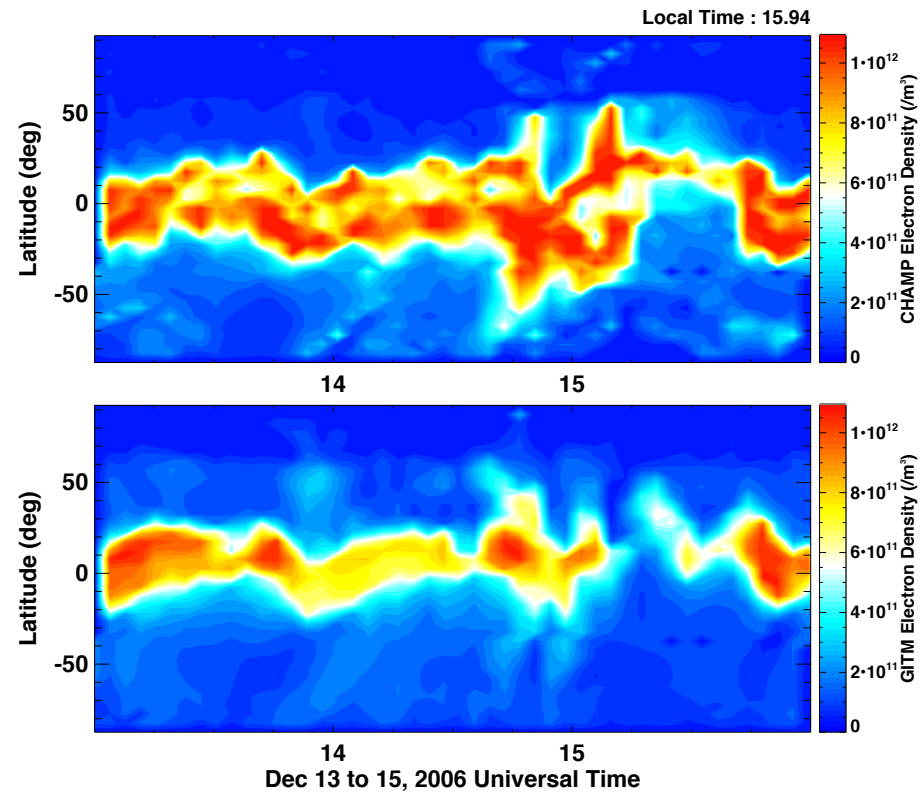


December Electron Density

Weimer Driven



Astra AMIE Driven



Conclusions

- For both events a photoelectron heating rate of about 4% would be optimal.
 - All of the December 2006 runs were done with 6%
- August 2001
 - SWMF with high resolution (1.875 deg latitude) performed best for mass density
- December 2006
 - No model performed really well during the storm
 - Weimer under predicted the mass density dramatically
 - SWMF under predicted the mass density a bit, but had the best results of the three
 - AMIE produced by ASTRA produced an extremely large perturbation in the mass density and over predicted it.
 - For electron densities, all three produced similar errors in the equatorial region (although there were both qualitative and quantitative differences in the results)