

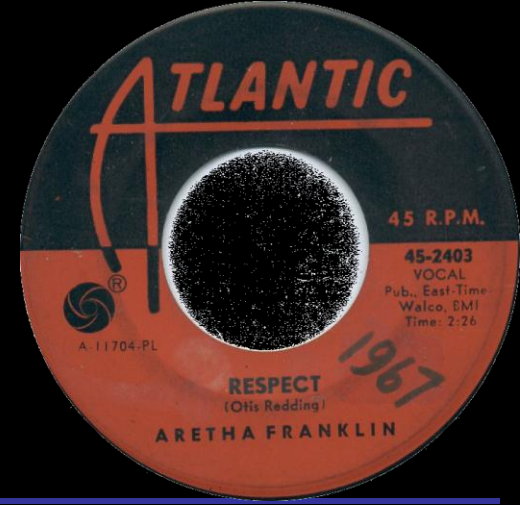
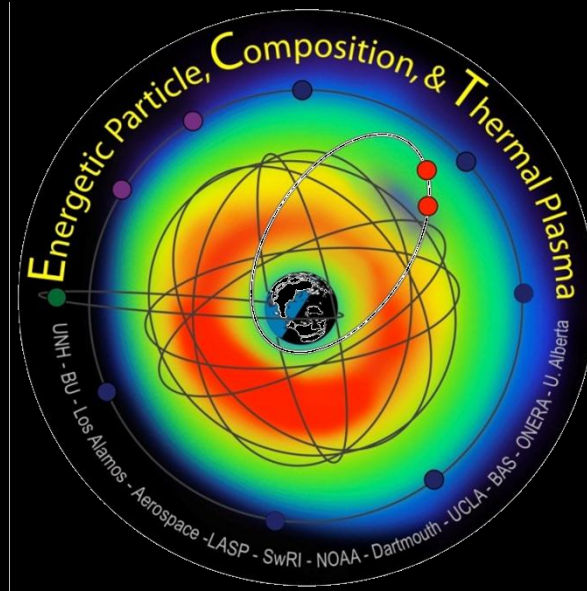
RBSP

Van Allen Probes

Status Report from the Radiation Belt Storm Probes (RBSP) – Energetic particle, Composition, and Thermal plasma (ECT) Suite Science Investigation

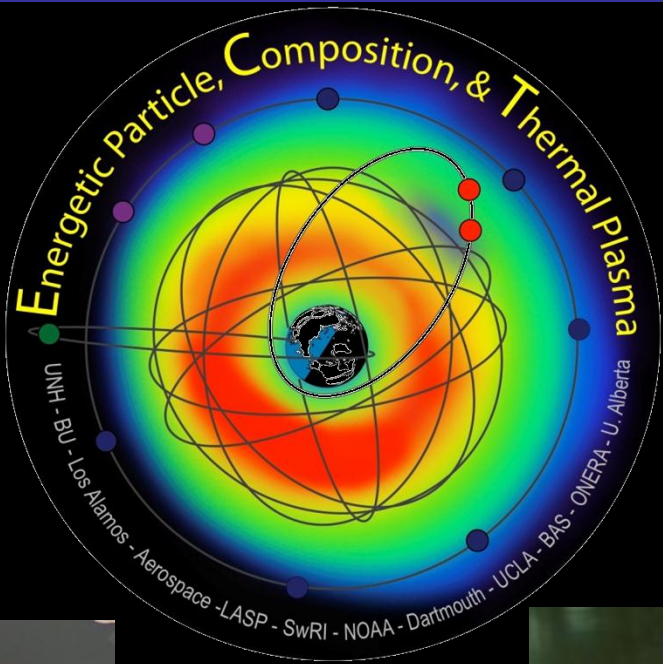
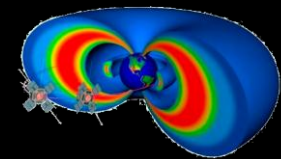
H. E. Spence and the RBSP-ECT Science Team

University of New Hampshire

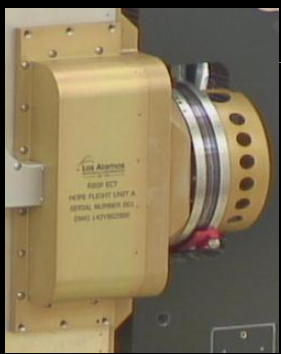




ECT In-flight Instrument Performance Meets or Exceeds all Requirements



- All 12 ECT instrument packages working beautifully and as designed: 1 HOPE, 4 MagEIS (1 “Low”, 2 “Mediums”, 1 “High” [w/ ion telescope], and 1 REPT per s/c)
- ECT inflight performance during commissioning meets or exceeds measurement requirements – as good or better than ground tests
- Background rejection techniques successful on all instruments
- Fine tuning is ongoing...



HOPE

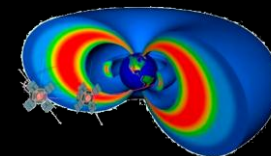
MagEIS



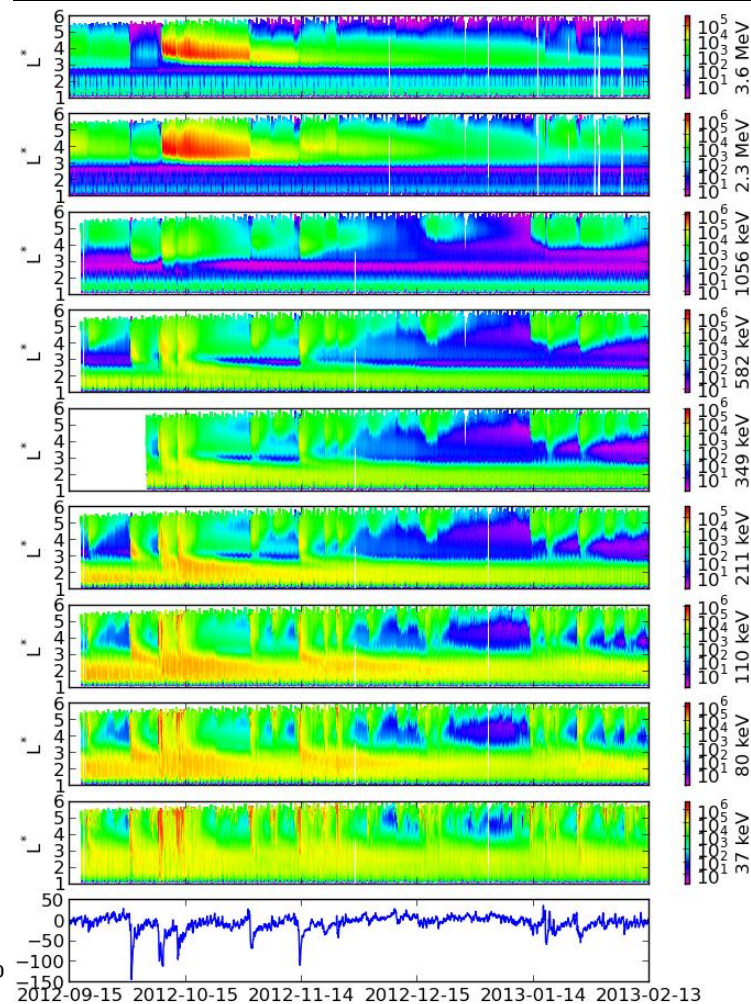
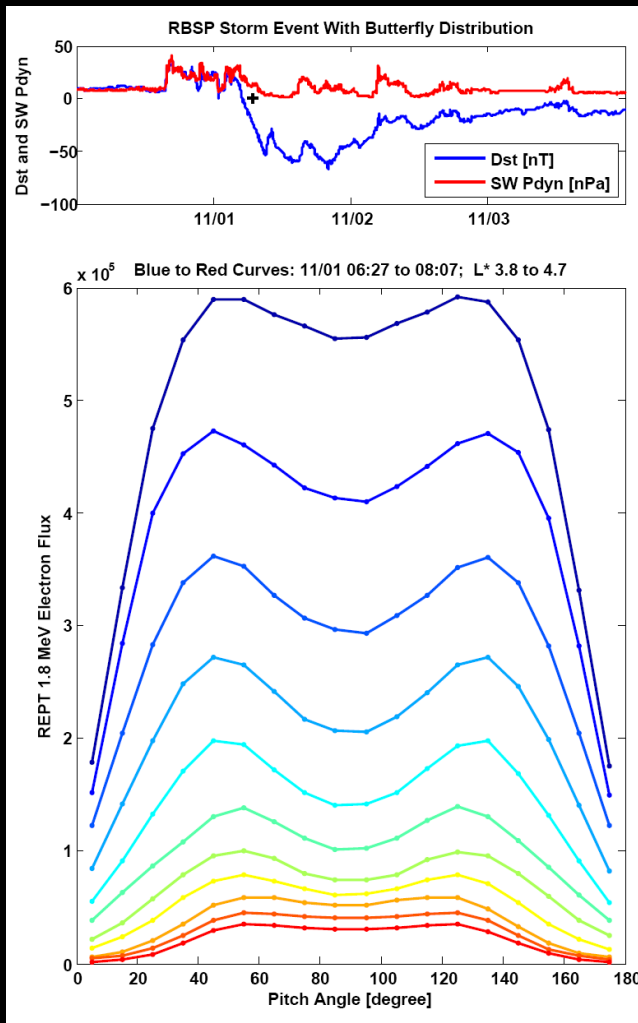
REPT



ECT Data Products Developed and Delivered by the ECT-SOC/SDC

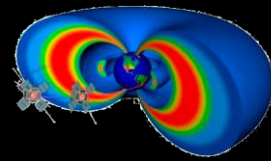


- Now routinely delivering REPT Level-3 (pitch angle) data in pipeline
- HOPE and MagEIS Level-3 data products in final development
- Phase space density calculations form the basis of first publications from the team
- Autoplot being used productively by the team





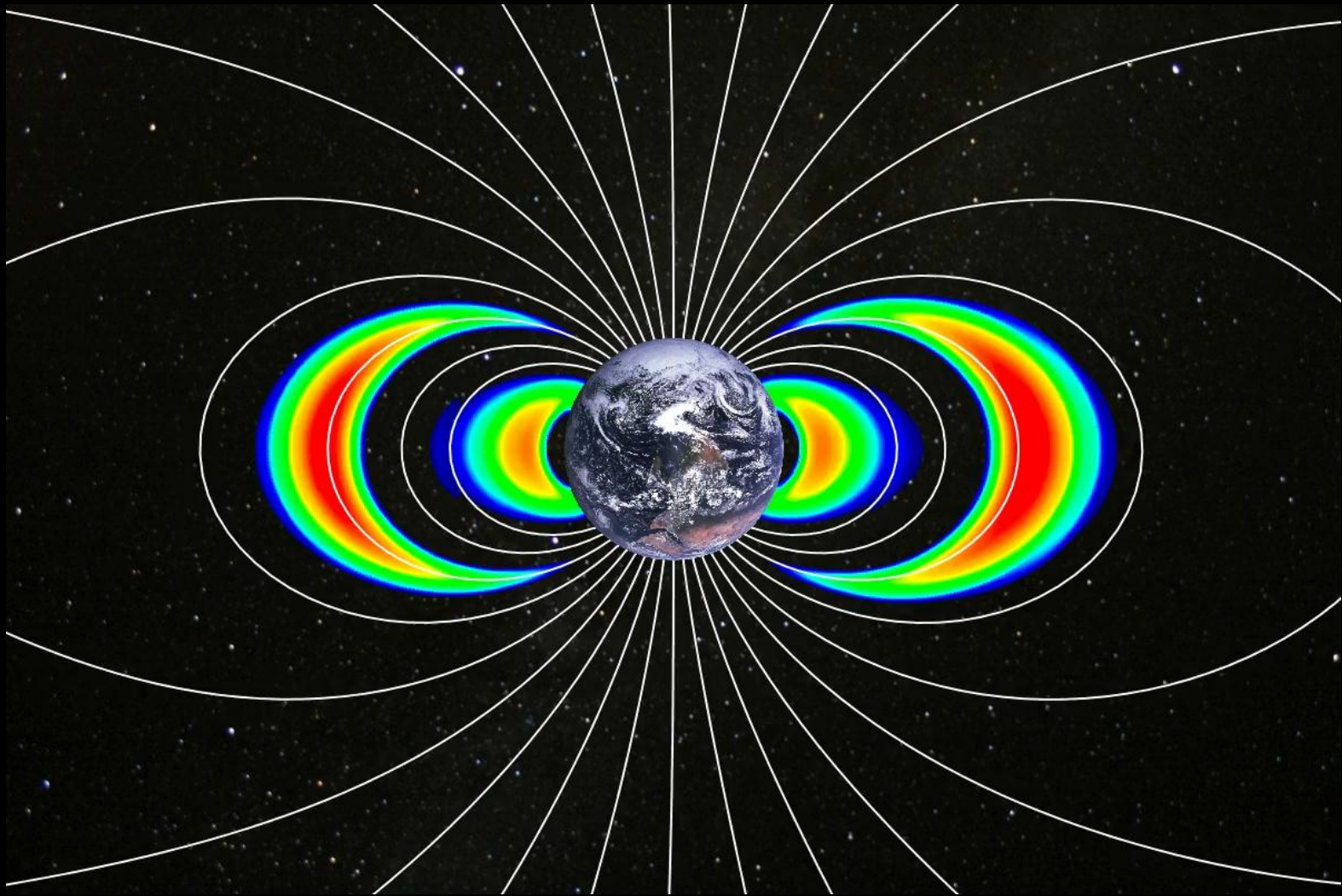
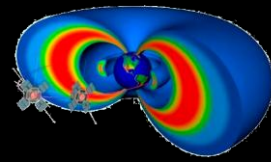
ECT Team Meeting Summary: Focused, Collaborative, Inclusive, Goal-Oriented



- **Friday telcons keep us connected, proactive, and productive**
 - Weekly calls with instrument leads
 - All ECT co-I's join every other week
 - Extended ECT science team joins monthly
- **In-person team meetings promote deeper exploration of issues than can be done via phone**
 - Short team meeting before mini-GEM Workshop at Fall AGU meeting
 - Inclusive 2+-day RBSP-ECT team meeting in early January in Los Angeles
 - Van Allen Probes SWG meeting in late February at JHU/APL
 - Next inclusive team meeting scheduled for late April/early May at LANL
- **Focus of Phase E meetings is driven by science and ultimately toward publications with high impact for the mission**



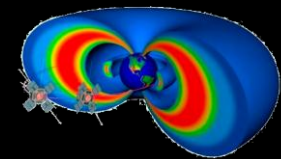
REPT captures remarkable dynamics and structure of relativistic electrons!



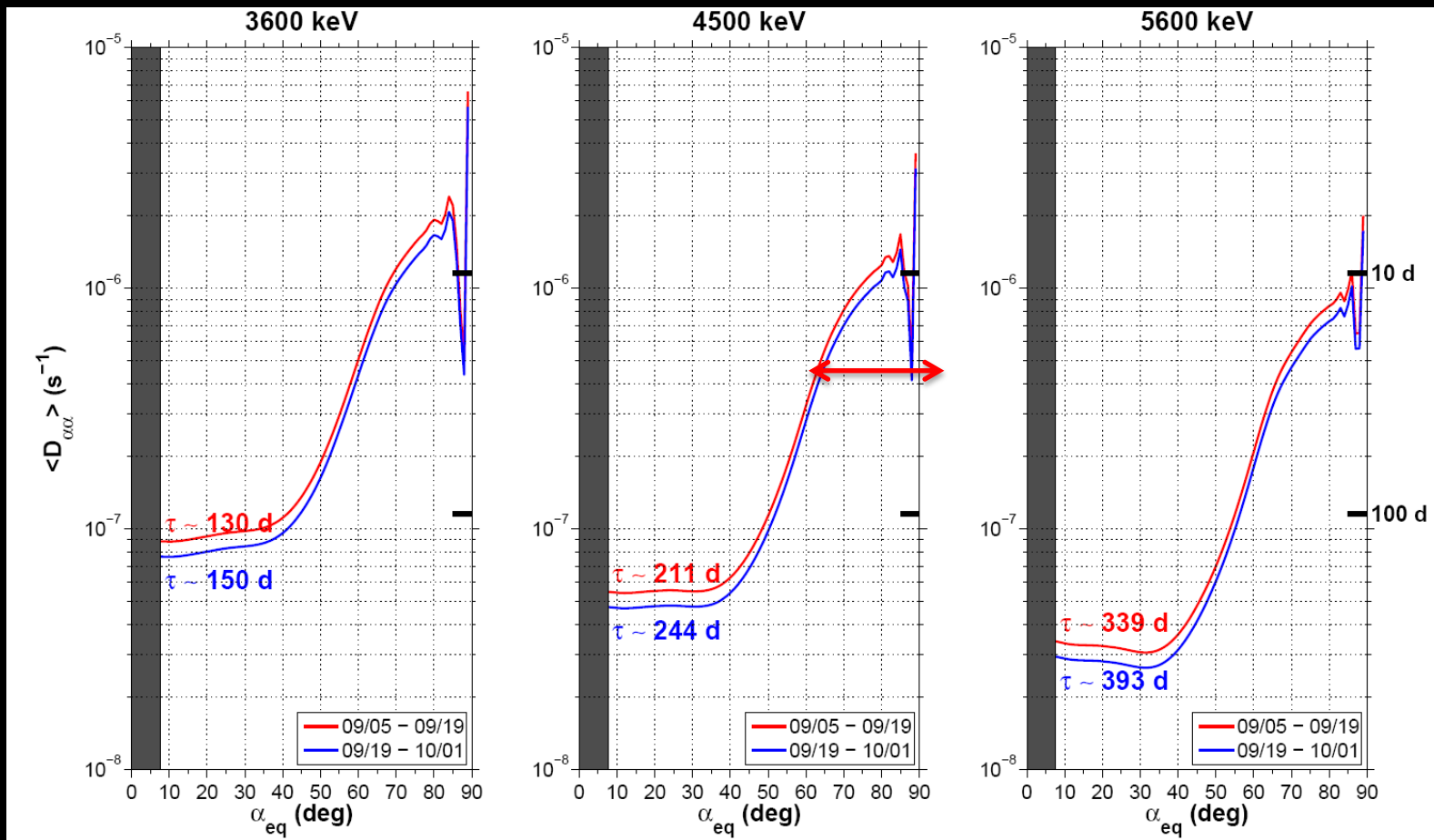
Baker et al., Science, embargo lifts on Thursday followed by briefing



Theoretical scattering rates of storage ring at L~3.2 by hiss



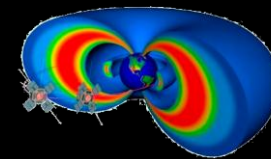
Thorne et al., GRL, in final preparation



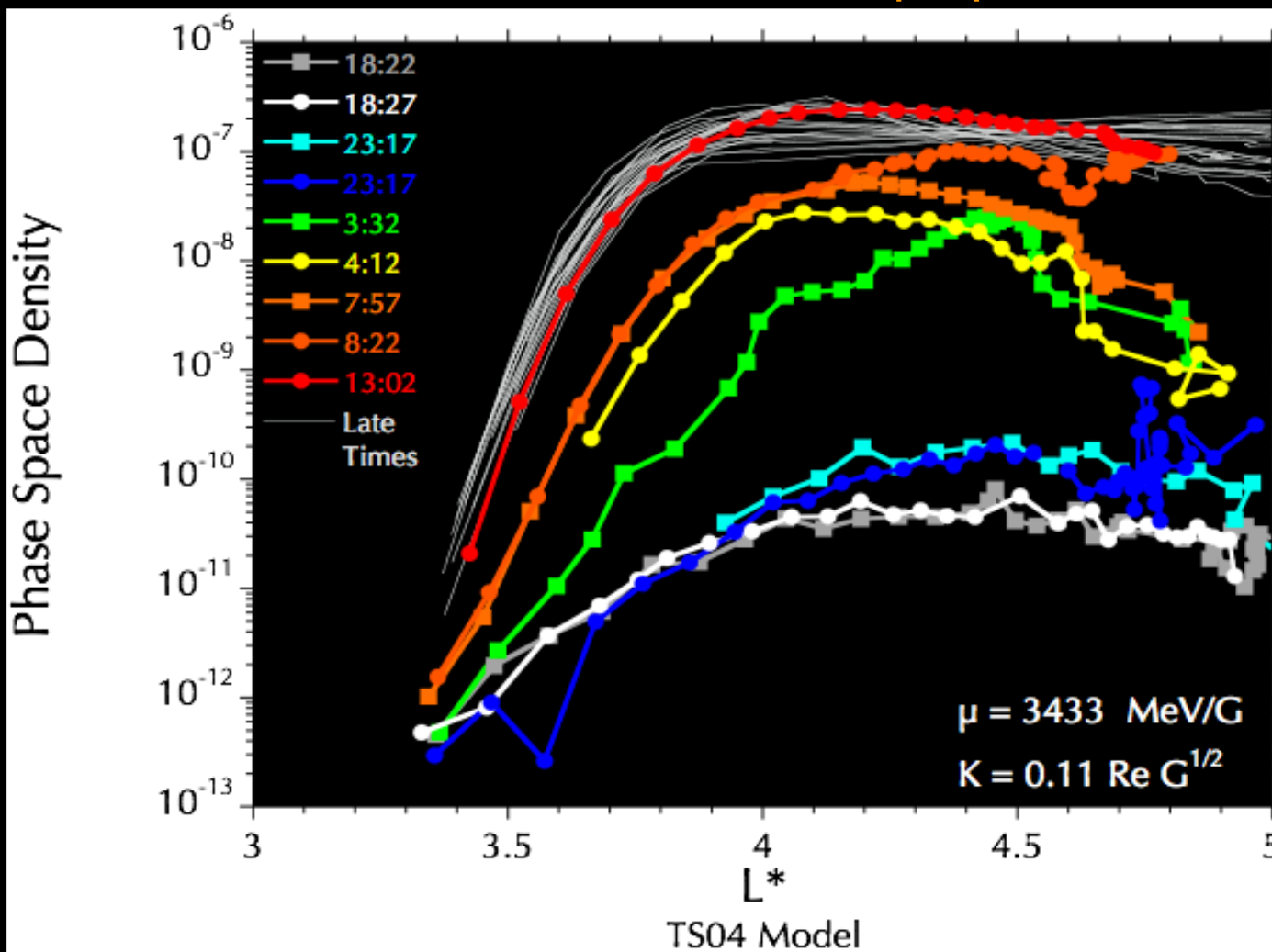
The observed decay rates of the storage ring ~ 30-40 days are consistent with the average scattering rates between 60-90 degs where the the storage ring was located



Evolution of electron PSD over 14 hrs during Oct 8-9 storm – Local acceleration in action!

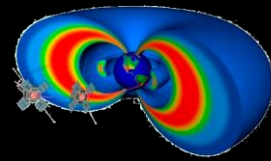


Reeves et al., Science, in final preparation





ECT Publications: More, more more!



- **ULF waves and particle modulation**
 - Ian Mann is leading a Nature (or Nature Physics) paper that incorporates Van Allen Probes data – to be submitted soon (or already?)
 - Seth Claudpierre is leading a JGR paper that explores the remarkable waves that accompany the Halloween 2012 event
- **Radiation environment model/data comparisons**
 - Shri Kanekal is leading a SWxJ publication that compares Van Allen Probes data with AE/AP models
- **End-to-End LWS Story**
 - Dan Baker/Harlan Spence are leading a publication that tells the LWS story, focusing on the radiation belt response(s) to solar drivers
- **Slot Environment**
 - Joe Fennell is leading a study of the particle environment in the slot – JGR?
- **Wave/Particle interactions, Microbursts, Seed Populations, and Magnetopause Loss**
 - Liz McDonald, Jichun Zhang, Chia-Lin Huang, Drew Turner, etc...
- **And many, many more covering the panoply of ECT science...**