

Quantitative Assessment of Radiation Belt Modeling: 2014 Session Schedule

[Time limit: Invited -- 8 min/talk, Contributed -- 5 min/talk]

Session 1 (Tue, 10:30-12:15 PM, Ports Ballroom VI-VIII):

Description: *“Joint Session with Radiation Belts & Wave Modeling focus group”*. In this joint session, the RBWM FG (finishing this year) will wrap up their accomplishments in the past 5 years and then set up the stage for our introduction of the new FG of Quantitative Assessment of Radiation Belt Modeling. We will discuss the remaining open questions in RB modeling and connect them to our FG goals and challenges.

1. RBWM FG: Wrap-up of the RBWM FG
2. Weichao Tu, Jay Albert, Wen Li, Steve Morley: Introduction to the new FG of Quantitative Assessment of Radiation Belt Modeling
3. All: Open discussions

Session 2 (Tue, 01:30-03:00 PM, Ports Ballroom VI-VIII):

Description: *“Review existing RB models and discuss where we are and what are needed”*. In this session, we solicit short presentations discussing the existing models for the acceleration, transport, and loss of radiation belt particles. In general, we welcome talks that not only showcase their results, but also include discussions like: “Mechanism ___ is evidently necessary, though not sufficient since ___.” We will discuss questions such as: what are “standard” RB codes not doing well enough? vs. What are we not doing at all but probably should be?

1. Vania Jordanova: Review of the convection-diffusion type radiation belt models (invited)
2. Alex Glocer: Recent RBE model results on radiation belt dynamics (invited)
3. Yuri Shprits: Review of the diffusion-type radiation belt models (invited)
4. Richard Thorne: Recent diffusion model results on radiation belt dynamics (invited)
5. Greg Cunningham: Recent DREAM3D model results on radiation belt dynamics
6. Anthony Chan: Recent SDE model results on radiation belt dynamics (invited)
7. Scot Elkington: MHD/SDE methods and results
8. Adam Kellerman: MLT-dependent reanalysis of radiation belt electrons: Case studies using several satellites and different magnetic field models
9. All: End-of-session discussion

Session 3 (Tue, 03:30-05:00 PM, Ports Ballroom VI-VIII):

Description: *“Various magnetospheric wave characteristics and their global distribution required in RB modeling”*. In this session, we solicit short presentations focusing on characterizing various wave properties that are required as inputs to RB models. The topics will cover ULF waves, chorus and hiss, EMIC waves, magnetosonic waves, etc., and their effects on RB particles. We will review the available wave models and discuss what are still missing for RB modeling.

1. Louis Ozeke: Specifying ULF wave properties and quantifying radial diffusion (invited)
2. Peter Chi: Occurrence of high-m ULF waves in the magnetosphere as observed by ST-5 satellites
3. Michael Hartinger: The effect of magnetopause motion on fast mode resonance
4. Kyungguk Min: Specifying EMIC wave properties based on statistical THEMIS data (invited)
5. Richard Denton: Simulation of pitch angle scattering of relativistic electrons by EMIC waves
6. Nigel Meredith (presented by Wen Li): Global model of lower band and upper band chorus from multiple satellite observations (invited)

7. Wen Li: Construction of the dynamic global chorus wave distribution based on POES electron precipitation
8. Maria de Soria-Santacruz Pich: Global distribution of plasmaspheric hiss waves inferred from POES observations
9. Ksenia Orlova: Activity dependent global model of electron loss inside the plasmasphere
10. Qianli Ma: The distribution of magnetosonic waves in the Earth's inner magnetosphere
11. All: End-of-session discussion

Session 4 (Wed, 10:30-12:15 PM, Ports Ballroom VI-VIII):

Description: *“Seed populations, plasma density, and magnetic field configuration required in RB modeling”*. In this session, we solicit short presentations specifying other required inputs for driving RB simulations, which include particle seed populations, plasma density, magnetic field configuration, last closed drift shell, etc. Again, we will review what are currently available and discuss what are still missing.

1. Natalia Ganjushkina: Event-fitted magnetic field model (invited)
2. Adam C. Kellerman: On the influence of magnetic field model errors on data assimilation and radiation belt modeling
3. Joachim Birn: Modeling the seed population of radiation belt electrons (invited)
4. Natalia Ganjushkina: 5-50 keV electrons in the inner magnetosphere: Observations and modeling
5. Drew Turner: Energetic particle injections and their contributions to the outer belt seed population
6. Alexander Boyd: Using Phase Space Density to look at the Radiation Belt Seed Population
7. Chia-Lin Huang: Electron dropouts due to magnetopause shadowing: statistical study using GOES data and last closed drift shell calculation
8. Richard Denton: Ion composition at geostationary orbit, and its effect on EMIC waves
9. Justin H Lee: THEMIS statistics on low-energy ion compositional properties and their application to observations and modeling of EMIC waves
10. All: End-of-session discussion

Session 5 (Wed, 01:30-03:00 PM, Ports Ballroom VI-VIII):

Description: *“Wrap-up discussion and plan for future FG activities”*. In this final session, we will wrap up this year’s FG with more big-picture discussions, and plan for future FG activities for mini-GEM and next year. One important future activity is the ‘RB dropout’ and ‘RB buildup’ Challenges. Here we solicit short presentations proposing interesting dropout/buildup events for our future challenges.

Part 1: Empirical RB Studies

1. Bob Johnston: AE9/AP9/SPM: Update for the GEM Community
2. Yi-Jiun Su: Specification of > 2 MeV electron flux as a function of local time and geomagnetic activity at geosynchronous orbit
3. Larry Lyons: Earthward penetrating meso-scale flow bursts leading to electron loss via EMIC waves
4. Hong Zhao: The 90 deg-minimum pitch angle distribution in the slot region and inner belt

Part 2: Wrap-up discussions and planning for future FG activities

Potential challenge events:

5. Wen Li: Radiation Belt Electron Acceleration by Chorus Waves During the 17 March 2013 Storm
6. Weichao Tu: RB electron dropout and acceleration during the October 2012 event