

# Yuri Shprits

## Associate Researcher

### Education

Moscow Institute of Physics and Technology	Physics/Applied Math	Honors B.Sc., 1997
University of Oklahoma	Meteorology	M.S., 2001
University of California Los Angeles	Atmos Sci (Space Phys.)	M.S., 2004
University of California Los Angeles	Atmos Sci (Space Phys.)	Ph.D. 2005



### Appointments

- Visiting Professor, La Trobe University, Melbourne, Australia 2010
- Associate Researcher, Institute of Geophysics and Planetary Physics, UCLA, 2009-Present
- Associate Researcher, Dept. of Atmospheric Sciences, UCLA, 2006-2009
- Assistant Researcher, Dept. of Atmospheric Sciences, UCLA, 2005-2008
- Graduate Research Assistant, Dept. of Atmospheric Sciences, UCLA, 2002-2005
- Graduate Research Assistant, Dept. of Earth and Planetary Sciences, MIT, 2002
- Graduate Research Assistant, Dept. of Meteorology, OU, 1998-2001
- Research Associate, Dept. of Meteorology, OU, 1998
- Research Assistant, IDG Russian Academy of Science, 1995-1998

# Honors and Awards

## Invited Presentations:

- 1 Shprits, Y. Y., "Origin of killer electrons in the Earth radiation belts", ENS, Paris, France, May 2010.
- 2 Shprits, Y. Y., "Losses and Sources of Relativistic Electrons in the Earth Radiation Belts", UNIVERSAT/LRT workshop, Moscow Russia, June 2010.
- 3 Shprits, Y.Y., "Combining models and observations to understand the dynamical evolution of the radiation belts", 38th COSPAR Scientific Assembly, Bremen, Germany, July 2010.

## List of grants:

1. Development of a 3-Diffusion Code as a Radiation Belt Module in the GGCM  
Agency: NSF Period: 05/15/06 - 04/30/09
2. Quantifying Losses and Sources of Relativistic Electrons Using Kalman Filtering  
Agency: NASA Period: 06/01/06 - 05/31/09
3. The Origin of Relativistic Electrons in the Jovian Magnetosphere (PI R. Thorne)  
Agency: NASA Period: 01/01/07 - 12/31/10
4. Modeling of the Origin and Energizing of the Inner Radiation Belt Electrons and Phenomena that Mediates it  
Agency: Air Force Research Lab Period: 07/01/08 - 06/30/11
5. The Role of EMIC Waves in the Outer Radiation Belt Losses (as a UCLA PI ; PI: Ukhorskiy)  
Agency: Johns Hopkins NASA Prime Period: 07/01/08 - 06/30/11
6. Statistical Analysis of Chorus Waves and Their Effect on Pitch-angle and Energy Scattering of the Radiation Belt Electrons  
Agency: NASA Period: 12/01/08 - 11/30/12
7. UCLA-LANL Radiation Belt Reanalysis Project  
Agency: UC Period: 12/01/08 - 11/30/12
8. RAPID: Adding Energetic Particle and Magnetic Field Measurements to a Russian University Satellite Mission  
Agency: NSF Period: 03/11/2010 - 3/10/2011
9. Breaking All the Invariants: Pitch Angle Diffusion on Split Magnetic Drift Shells in the Outer Zone (as a UCLA subcontract)  
Agency: NASA Heliophysics Guest Investigator Period: 06/01/10-05/31/13
10. Title: Quantitative Analysis of the Bounce and Gyro Resonant Scattering by Magnetosonic Waves  
Agency: NASA GeoSciences Period: 07/01/10-06/30/11

**National Science Foundation Focus Group Leader** Radiation Belt and Wave Modeling Focus Group is approved at NSF GEM. FG leaders: Shprits, Elkington, Bortnik, Kletzing

**Main Scientific Organizer** of the session at the European Geosciences Union, Vienna, Austria, 2010

**Session Convener**, American Geophysical Union Assembly, San Francisco, CA, 2009

# Last Year Research Activity

RB Modeling group is growing fast

- Yuri Shprits - Researcher (Group Leader)
- Binbin Ni – Researcher, also working with R. Thorne
- Dmitri Kondrashov - Researcher, also working TCD/AOS
- Kyung-Chan Kim - Post Doctoral Scholar
- Marianne Daae - Graduate Student
- Ksenia Orlova - Graduate Student
- Dmitriy Subbotin - Graduate Student
- Nim Chau Amanda Leung - Programmer

## Data and software

SVN directory is developed and maintained for all UCLA modeling projects including VERB; FDC, and DA codes

Centralized data directory is developed.

Computer cluster is purchased

# Teaching and Service

**National Science Foundation Focus Group Leader** Radiation Belt and Wave Modeling Focus Group is approved at NSF GEM.

FG leaders: Shprits, Elkington, Bortnik, Kletzing

**Main Scientific Organizer** of the session at the European Geosciences Union, Vienna, Austria, 2010

**Session Convener**, American Geophysical Union Assembly, San Francisco, CA, 2009

**Visiting Professor**, La Trobe University, Melbourne, Australia  
2010

# Publications During Last Year

- 1 Shprits, Y. Y. , L. Chen, and R. M. Thorne (2009), Simulations of pitch angle scattering of relativistic electrons with MLT-dependent diffusion coefficients, *J. Geophys. Res.*, 114, A03219, doi:10.1029/2008JA013695.
- 2 Ni, B. , Y. Shprits, T. Nagai, R. Thorne, Y. Chen, D. Kondrashov, and H.-J. Kim (2009), Reanalyses of the radiation belt electron phase space density using nearly equatorial CRRES and polar-orbiting Akebono satellite observations, *J. Geophys. Res.*, 114, A05208, doi:10.1029/2008JA013933.
- 3 Shprits, Y. Y. (2009), Potential waves for pitch-angle scattering of near-equatorially mirroring energetic electrons due to the violation of the second adiabatic invariant, *Geophys. Res. Lett.*, 36, L12106, doi:10.1029/2009GL038322.
- 4 Shprits, Y. Y. and B. Ni (2009), Dependence of the quasi-linear scattering rates on the wave normal distribution of chorus waves, *J. Geophys. Res.*, 114, A11205, doi:10.1029/2009JA014223.
- 5 Shprits, Y. Y. , D. Subbotin, and B. Ni (2009), Evolution of electron fluxes in the outer radiation belt computed with the VERB code, *J. Geophys. Res.*, 114, A11209, doi:10.1029/2008JA013784.
- 6 Subbotin, D. A. and Y. Y. Shprits (2009), Three-dimensional modeling of the radiation belts using the Versatile Electron Radiation Belt (VERB) code, *Space Weather*, 7, S10001, doi:10.1029/2008SW000452.
- 7 Ni, B. , Y. Shprits, R. Thorne, R. Friedel, and T. Nagai (2009), Reanalysis of relativistic radiation belt electron phase space density using multisatellite observations: Sensitivity to empirical magnetic field models, *J. Geophys. Res.*, 114, A12208, doi:10.1029/2009JA014438.
- 8 Subbotin, D., Y. Shprits, and B. Ni (2009), Three-dimensional VERB radiation belt simulations including mixed diffusion, *J. Geophys. Res.*, doi:10.1029/2009JA015070.
- 9 Chu, F., M. K. Hudson, P. Hains, and Y. Shprits (2009), Dynamic Modeling of Radiation Belt Electrons by Radial Diffusion Simulation for a Two Month Interval Following the March 24, 1991 Storm Injection, *J. Geophys. Res.*, doi:10.1029/2009JA014409.
- 10 Orlova, K. G., and Y. Shprits (2010), Dependence of pitch-angle scattering rates and loss timescales on the magnetic field model, *Geophys. Res. Lett.*, doi:10.1029/2009GL041639.
- 11 Ukhorskiy , A. Y., Y. Y. Shprits, B. J. Anderson, K. Takahashi, and R. M. Thorne (2010), Rapid scattering of radiation belt electrons by storm-time EMIC waves, *Geophys. Res. Lett.*, 37, L09101, doi:10.1029/2010GL042906.