



Magnetospheres of the Outer Planets 2015

Georgia Tech Global Learning Center, 84 5th St. NW, Atlanta, GA 30308-1031

Sunday, 31 May

17:00-19:00 Opening Reception and Registration

Location: School of Earth and Atmospheric Sciences, 311 Ferst Drive, Atlanta, GA 30332-0340 (**not in the Global Learning Center!**)

Monday, 01 June

08:30 Registration opens

08:45-09:00 Welcome and Introduction (MOP SOC/LOC)

09:00-09:15 Welcome Words (L. Gregory Huey, Chair, School of Earth and Atmospheric Sciences)

Session 1: Periodic Phenomena and Rotation Rates (Chair: Emma Bunce)

09:15-09:45 Hill, Thomas: Rotation periods of the giant planets (**tutorial**)

09:45-10:05 Provan, Gabrielle: Saturn's magnetospheric oscillations (**invited**)

10:05-10:25 Southwood, David: The origin of Saturn's magnetic periodicities: Northern and southern current systems (**invited**)

10:25-10:55 Coffee Break

10:55-11:10 Vasyliunas, Vytenis: Puzzles of Saturn's dual periodicities: irrelevance of the rotation rate

11:10-11:25 Carbary, James: A Summary of Saturn's Periodicities to Date & An Unusual New Approach to Explaining the Periodicities

11:25-11:40 Yates, Japheth: Magnetic phase structure of Saturn's 10.7-hour oscillations

11:40-11:55 Kivelson, Margaret: Tests of a proposed mechanism for control of young injection events at Saturn

11:55-13:30 Lunch Break

Session 2: Titan's Magnetospheric Interaction (Chair: Sven Simon)

- 13:30-14:00 Cravens, Thomas: Titan's highly variable plasma interaction: A review after ten years of Cassini observations (**tutorial**)
- 14:00-14:15 Edberg, Niklas: The structure of the ionosphere of Titan and factors controlling it
- 14:15-14:30 Feyerabend, Moritz: Multiple pick-up tails at Titan: a hybrid simulation study
- 14:30-14:45 Regoli, Leonardo: Access of energetic particles to Titan's exobase: a study of Cassini's T9 flyby
- 14:45-15:05 Wei, Hanying: Ion cyclotron waves at Titan (**invited**)

15:05-15:35 Coffee Break

- 15:35-15:55 Kurth, William: Titan's Interaction With the Supersonic Solar Wind (**invited**)
- 15:55-16:10 Woodson, Adam: Mapping the distribution of H⁺, H₂⁺, H₃⁺, CH_x⁺, and C₂H_x⁺ near Titan: encounters TA–T83

Session 3: Deep Space Missions – Status and Development (Chair: Philippe Zarka)

- 16:10-16:30 Gombosi, Tamas: Cassini's Proximal Orbits (**invited**)
- 16:30-16:50 Ryabov, Volodymyr: Insights on Jupiter's DAM Radio Emissions with Unlimited Spectral Resolution (**invited**)
- 16:50-17:05 Cecconi, Baptiste: JUICE/RPWI/JENRAGE: a low frequency radio imager at Jupiter
- 17:05-17:25 Krupp, Norbert: Jupiter's global magnetospheric and moon-magnetosphere interaction science addressed by the particles and field instruments onboard the JUICE spacecraft (**invited**)
- 17:25-17:40 Ebert, Robert: Science Opportunities for the Jovian Auroral Distributions Experiment (JADE) During Juno's Approach to Jupiter

Tuesday, 02 June

Session 4: Auroral Phenomena and MI-Coupling I (Chairs: Henrik Melin, Katerina Radioti)

- 09:00-09:30 Moore, Luke: Tutorial on MI Coupling (**tutorial**)
- 09:30-09:50 O'Donoghue, James: Ground-based studies of Saturn's aurorae using H₃⁺ (**invited**)
- 09:50-10:05 Strobel, Darrel: Saturn's Variable Thermosphere: Implications for the Cassini Proximal Mission
- 10:05-10:20 Blake, James: Temperature and intensity mapping of H₃⁺ emission as a function of altitude in Saturn's upper atmosphere

10:20-10:35 Melin, Henrik: Multi-platform observations of Saturn's aurorae during the 2013 observing campaign

10:35-11:05 Coffee Break

11:05-11:25 Badman, Sarah: In-situ & remote sensing studies of outer planet aurora **(invited)**

11:25-11:40 Radioti, Aikaterini: Auroral vortices at Saturn

11:40-12:00 Grodent, Denis: Auroral emission at Jupiter (through Juno's UVS eyes) **(invited)**

12:00-12:15 Dunn, William: Responses of Jupiter's X-ray Aurora to a Coronal Mass Ejection

12:15-12:30 Gray, Rebecca: Auroral Evidence of Large Scale Radial Plasma Transport at Jupiter

12:30-14:00 Lunch Break

Session 5: Auroral Phenomena and MI-Coupling II (Chair: Carol Paty)

14:00-14:15 Vogt, Marissa: Magnetosphere-ionosphere mapping at Jupiter: Quantifying the effects of using different internal field models

14:15-14:30 Gerard, Jean-Claude: Hubble spectral observations of the Jovian aurora: precipitated flux and electron mean energy

14:30-14:45 Ozak Munoz, Nataly: Energetic Ion Precipitation and Auroral Emission at Jupiter

14:45-15:00 Roth, Lorenz: Search for Europa plume signals and characterization of the oxygen atmosphere aurora in a large set of HST images

15:00-15:15 Lamy, Laurent: Auroral signatures of Uranus post equinox: continued observations and implications

15:15-17:15 Poster Session I (related to oral program of Monday and Wednesday)

17:15-18:00 MOP 2017: Presentations and Ballot

Wednesday, 03 June

Session 6: Moon-Magnetosphere Interactions, Not Titan (Chair: Chris Paranicas)

09:00-09:15 Higgins, Charles: Characteristics of the Jupiter Decameter Io-D Source

09:15-09:30 Schmidt, Carl: Optical Spectroscopy of the Io Plasma Torus in Support of Hisaki/EXCEED

09:30-10:00 Bonfond, Bertrand: Connecting planets to their moons: The auroral satellite footprints **(tutorial)**

- 10:00-10:15 Retherford, Kurt: Io's SO₂ atmosphere silhouetted by Jupiter Lyman-alpha during transit events
- 10:15-10:30 Rubin, Martin: Self-consistent Multi-fluid MHD Simulations of Europa's Exospheric Interaction with Jupiter's Magnetosphere
- 10:30-10:45 Bloeckler, Aljona: Modelling Europa's interaction with Jupiter's magnetosphere: Influence of plumes in Europa's atmosphere on the magnetospheric environment
- 10:45-11:15 [Coffee Break](#)**
- 11:15-11:30 Musacchio, Fabrizio: The spatial structure and temporal variability of Ganymede's auroral ovals from Hubble Space Telescope observations
- 11:30-11:45 Lavrukhin, Alexander: Field aligned currents and accelerated electron beams in the Ganymede's magnetosphere
- 11:45-12:00 Lindqvist, Jesper: Callisto and Europa Plasma Interactions: Hybrid Modeling Including Induction From Subsurface Oceans
- 12:00-12:20 Hsu, Hsiang-Wen: Dust-plasma coupling at Enceladus and beyond (**invited**)
- 12:20-12:35 Jones, Geraint: Directly-detected electron beams near Enceladus
- 12:35-12:50 Motschmann, Uwe: Enceladus' total nanograin production
- 12:50-13:05 Schaible, Micah: High energy electron processing of icy regoliths around Saturn
- 13:05-13:30 [MOP 2015 Conference Photo](#)**
- 13:30-18:30 [Free Afternoon \(ticket for Georgia Aquarium included in conference package\)](#)**
- 18:30-21:30 [MOP 2015 Dinner at the Historic Academy of Medicine, 875 West Peachtree Street NE, Atlanta, GA 30309](#)**

Thursday, 04 June

Session 7: [Magnetospheric Structure and Dynamics, Observations I](#) (Chair: Fran Bagenal)

- 09:00-09:20 Strangeway, Robert: Observational Lessons from Earth for the High Latitude Magnetospheres of Giant Planets (**invited**)
- 09:20-09:35 Felici, Marianna: Cassini observations of ionospheric plasma in Saturn's magnetotail lobes
- 09:35-09:50 Zarka, Philippe: Jovian Radio Emissions triggered by Solar Wind Shocks and Inferred Magnetospheric Subcorotation
- 09:50-10:05 Kao, Melodie: Measurement of Magnetic Field Strengths in 30-60 Jupiter-Mass Brown Dwarfs and Implications for Dynamo Theory

10:05-10:25 Thomsen, Michelle: Plasma and magnetic field observations observations from source to sink at Saturn **(invited)**

10:25-10:55 Coffee Break

10:55-11:10 Mitchell, Don: Composition of Suprathermal Particles in Saturn's Magnetotail

11:10-11:25 Saur, Joachim: Turbulent magnetic field fluctuations in the magnetospheres of Jupiter and Saturn

11:25-11:40 Valek, Philip: Observations of the Jovian Mid-Magnetosphere by the New Horizons Solar Wind Around Pluto (SWAP) Ion Spectrometer

11:40-11:55 Pilkington, Nathan: Significant Asymmetries in Saturn's Magnetosphere

11:55-12:10 Sergis, Nick: Particle pressure and ring current density radial profiles in a realistic Saturnian plasma sheet

12:10-12:30 Mauk, Barry: Interactions of plasma, energetic particles, and neutral gases at Jupiter **(invited)**

12:30-14:00 Lunch Break

Session 8: Magnetospheric Structure and Dynamics, Observations II (Chair: Chris Arridge)

14:00-14:15 Yoshikawa, Ichiro: Overview of Hisaki (EXCEED) observations

14:15-14:30 Murakami, Go: Response of Jupiter's inner magnetosphere to solar wind derived from extreme ultraviolet spectroscopy

14:30-14:45 Tschiya, Fuminori: Local electron heating in the Io plasma torus associated with Io observed by the HISAKI satellite

14:45-15:00 Yoshioka, Kazuo: Radial transport of electrons in Jupiter's inner magnetosphere observed by EXCEED on Hisaki

15:00-15:15 Paranicas, Chris: Radial and azimuthal motion of Saturn injections

15:15-15:30 Menietti, Doug: Importance of Plasma Waves Observed at Saturn and Jupiter

15:30-15:45 Farrell, Bill: The Enceladus Plasma Torus and Ring Interactions: Cassini Orbit Insertion Observations as a Touchstone for the Proximal Encounters

15:45-17:45 Poster Session II *(related to oral program of Tuesday, Thursday and Friday)*

17:45-18:00 Announcement of the Host of MOP2017, "Passing the MOP" Ceremony

Friday, 05 June

Session 9: Magnetospheric Structure and Dynamics, Theory (Chair: Xianzhe Jia)

- 09:00-09:20 Delamere, Peter: Global modeling of the dynamics of the giant planet magnetospheres **(invited)**
- 09:20-09:35 Ma, Xueyuan: On the magnetic flux interchange process at giant magnetospheres
- 09:35-09:55 Achilleos, Nick: Models of Planetary Magnetodiscs **(invited)**
- 09:55-10:10 Smith, Todd: Can Jovian neutral tori provide insight into satellite source rates?
- 10:10-10:25 Reed, Joseph: The role of Io in the dynamics of Jupiter's magnetosphere: A sandpile modelling approach

10:25-10:55 Coffee Break

- 10:55-11:10 Rajendar, Ashok: Seasonality and Mass Loading in Saturn's Magnetosphere
- 11:10-11:25 Tilley, Matt: Modeling the effects of plasma pressure anisotropy on Saturn's global magnetosphere
- 11:25-11:40 Ramer, Kate: Simulations as a Tool for Data Analysis: The Effect of Magnetospheric Stretching on Saturn's Plasma and Field Parameters
- 11:40-11:55 Masters, Adam: Assessing magnetopause reconnection at the giant planets

11:55-12:15 Thoughts on the Concept of MOP in Future Years (Fran Bagenal)

12:15-13:45 Lunch Break

Session 10: Energetic Particles and Radiation Belt Physics (Chair: Elias Roussos)

- 13:45-14:00 Palmaerts, Benjamin: Statistical analysis and multi-instrument overview of the quasi-periodic 1-hour pulsations in Saturn's outer magnetosphere
- 14:00-14:20 Girard, Julien N.: Remote observations of Jupiter's and Saturn radiation belts with LOFAR **(invited)**
- 14:20-14:40 Kollmann, Peter: Losses and Transport of Energetic Particles at Saturn and Jupiter **(invited)**
- 14:40-14:55 Mauk, Barry: How do we quantitatively compare planetary space environments?
- 14:55-15:10 Clark, George: A Mission-Averaged Data Analysis Approach to Modeling the keV-Energy Electrons at Saturn
- 15:10-15:25 Roussos, Elias: Inferring the mass of Saturn's main ring system from energetic charged particle measurements

15:25-15:40 Closing Words (MOP SOC/LOC), End of MOP 2015

Poster Session I: Tuesday, 15:15-17:15

Periodic Phenomena / Deep Space Missions / Moon-Magnetosphere Interactions (Including Titan)

Display time: Tuesday, 09:00 - Wednesday, 12:00

Authors are kindly asked to remove their posters before Wednesday, noon.

1. Kumamoto, Atsushi: Feasibility of the exploration of the subsurface ocean of Jupiter's icy moon based on Jovian hectometric radiation observations
2. McComas, David: Jovian Auroral Distributions Experiment (JADE) on the Juno Mission to Jupiter
3. Allegrini, Frederic: Jovian Auroral Distributions Experiment-Electrons (JADE-E) on the Juno Mission to Jupiter
4. Valek, Philip: Jovian Auroral Distributions Experiment (JADE-I) on the Juno Mission to Jupiter
5. Katoh, Yuto: Science objectives and implementation of Software-type Wave-Particle Interaction Analyzer (SWPIA) by RPWI for JUICE
6. Kasaba, Yasumasa: Telescopes Dedicated to the Observations of Jupiter, Planets and Exoplanets at Haleakala, Hawaii
7. Cecconi, Baptiste: Virtual Observatory tools and Amateur Radio Observations Supporting Scientific Analysis of Jupiter Radio Emissions
8. Clarke, Tracy: Probing Jovian Decametric Emission with the Long Wavelength Array Station 1
9. Imai, Masafumi: Jupiter's decametric radio common observation campaign from LWA1, NDA, and URAN-2 in late 2014 and early 2015
10. Higgins, Charles: Radio Jove: Citizen Science for Jupiter Radio Astronomy
11. Yoneda, Mizuki: D-line brightness of Jupiter's sodium nebula during the Hisaki mission
12. Steffl, Andrew: Ground-Based Observations of the Io Plasma Torus in Support of Hisaki/EXCEED
13. Magalhaes, Fabiola: Ground based observations of Io plasma torus variability
14. Molyneux, Philippa: Hubble Space Telescope observations of variation of the O I 135.6 nm/ O I 130.4 nm ratio in Ganymede's atmosphere
15. Grava, Cesare: Spatial and Spectral Asymmetries of Exospheric Sodium in the Wake of Io's Plasma Interaction
16. Stauffer, Blake: Wave propagation in the Io plasma torus
17. Sebek, Ondrej: Plasma interaction at Io: Multi-species hybrid simulations
18. Copper, Matthew: Two Dimensional Modeling of the Io Plasma Torus
19. Harnett, Erika: Comparative Study of the Induced Magnetospheres around Io and Europa within the global Jovian magnetosphere
20. Travnicek, Pavel: Interaction of Europa with Jovian Plasma Torus
21. Bagenal, Fran: Plasma Conditions at Europa's Orbit
22. Dols, Vincent: Europa's Atmospheric Neutral Escape: Importance of Symmetrical O₂ Charge Exchange
23. Lavrukhin, Alexander: Ganymede's orbit position relative to Alfvénic radius in Jupiter magnetosphere
24. Fatemi, Shahab: Jovian plasma interaction with Ganymede
25. Ben Slama, Mehdi: Ganymede's orbital period induction signals

26. Toth, Gabor: MHD-EPIC: Magnetohydrodynamics with Embedded Particle-in-Cell Simulation of Ganymede's Magnetosphere
27. Liuzzo, Lucas: Hybrid simulation of Callisto's interaction with the Jovian magnetosphere
28. Hartkorn, Oliver: A model of Callisto's ionosphere identifies the O₂ density of Callisto's neutral atmosphere
29. Jones, Geraint: Hypervelocity dust impact signatures detected by Cassini CAPS-ELS in the Enceladus plume
30. Kempf, Sascha: How much dust does Enceladus eject?
31. Omidi, Nojan: Generation of Dust Acoustic Waves at Enceladus
32. Sakai, Shotaro: Ion energy distributions and densities in the plume of Enceladus
33. Tokar, Robert: Extent and Concentration of Fresh Water Group Ions Detected by CAPS near Enceladus
34. Cowee, Misa: Quantifying the relationship between ion cyclotron wave amplitudes and ion pickup rates: Hybrid simulations at Enceladus
35. Simon, Sven: Hemisphere Coupling at Enceladus: Predictions for Cassini Flybys E20-E22
36. Krupp, Norbert: In-Situ Energetic Particle Measurements near Rhea compared to Callisto and near Enceladus compared to Europa
37. Poppe, Andrew: The electrostatic plasma environment of small bodies under non-aligned plasma flow and UV conditions
38. Hale, John: Charon's Effects on the Pluto-Solar Wind Interaction
39. Coates, Andrew: An upper limit to the field-aligned potential near Titan
40. Wellbrock, Anne: Photoelectrons at Titan near the terminator
41. Wellbrock, Anne: Negative ion observations at Titan: Density trends
42. Madanian, Hadi: Transport and Solar Cycle Activity Effects in Titan's Ionosphere
43. Ledvina, Stephen: The Role of neutral winds play in Titan's ionospheric dynamics
44. Snowden, Darci: The global precipitation of magnetospheric electrons into Titan's upper atmosphere
45. Westlake, Joseph: Energetic Oxygen Bombardment of Titan
46. Anderson, Marin: A new all-sky imager to search for decametric radio bursts from extrasolar planets
47. Carbary, James: Periodicities in Saturn's Thermal Electrons
48. Vasyliunas, Vytenis: Stress balance of "camshaft" magnetic fields
49. Ye, Shengyi: Cassini RPWS observation of Saturn's radio rotation rates after equinox
50. Hunt, Gregory: Field-aligned currents in Saturn's magnetosphere: Relationship between Sub-corotation and Planetary Period Oscillation Currents
51. Cowley, Stanley: Planetary period oscillations in Saturn's magnetosphere: Comparison of magnetic field and SKR period determinations in the post-equinox era
52. Southwood, David: Three dimensional aspects of magnetospheric circulation at Jupiter and Saturn

Poster Session II: Thursday, 15:45-17:45

Magnetospheric Structure (Theory & Observations) / Auroral Phenomena / Energetic Particles

Display time: Wednesday, 13:00 - Thursday, 18:30

Poster boards for session II are available after Wednesday, 13:00. Authors are kindly asked to remove their posters at the end of poster session II (Thursday evening).

1. Rymer, Abigail: Can Energetic Field Aligned Electron Beams Populate Saturn's Radiation Belts?
2. Rymer, Abigail: Injection event (Bubble) dynamics
3. Hamilton, Douglas: A large recent increase in the relative abundance of suprathermal C+ in Saturn's magnetosphere
4. Dumont, Maïté: Simulations of the auroral signatures of Jupiter's magnetospheric injections
5. Kotova, Anna: Galactic Cosmic Rays tracing in the inner magnetosphere of Saturn
6. Kita, Hajime: Study on short term variation in spatial distribution of Jovian radiation belt using radio interferometer and HISAKI
7. Adumitroaie, Virgil: Towards A Fast Background Radiation Subtraction Technique for the Juno Mission
8. Jia, Xianzhe: Interpretation of the Noon-to-Midnight Electric Field in Saturn's Magnetosphere Based on Global MHD Simulations
9. Ranguist, Drake: A 3D MHD Simulation of Jupiter Magnetotail Interaction with a Variable Solar Wind
10. Winglee, Robert: Modulation of tail reconnection within the Jovian Magnetosphere by the Wobble of the Io Plasma Torus
11. Chané, Emmanuel: Influence of the solar wind on the main auroral emission at Jupiter studied through global MHD simulations
12. Nichols, Jonathan: Pressure anisotropy in Jupiter's magnetodisc
13. Cao, Xin: The Effect of Periodic Rotation on the Asymmetry of Uranus' Magnetosphere
14. MacDowall, Robert: Jovian Quasiperiodic Radio Bursts as Remote Diagnostics of Magnetosphere-Solar Wind Coupling
15. Sulaiman, Ali: Saturn's very-high Mach number bow shock
16. Vandegriff, Jon: Plasma speeds in the solar wind and the magnetosphere of Saturn Derived from Cassini/MIMI measurements
17. Pisa, David: Spectral properties of electron plasma oscillations in the electron foreshock of Saturn
18. Crary, Frank: Ion cyclotron waves and ion anisotropy in Saturn's magnetosphere: Pickup ionization and plasma circulation
19. Morgenthaler, Jeff: Using Io as a plasma probe: Statistical verification of the Oliverson et al. (2001) Io plasma torus model
20. Wilson, Rob: The Relative Proportions of Water Group Ions in Saturn's Inner Magnetosphere
21. Felici, Marianna: Survey of the Plasma Composition in Saturn's Magnetotail
22. Hospodarsky, George: The role of electron density on interchange stability at Saturn
23. Persoon, Ann: Evidence for enhanced plasma densities inside the orbit of Enceladus
24. Morooka, Michiko: The characteristics of the electron density depletion near the E ring of Saturn

25. Ye, Shengyi: In-situ measurements of Saturn's dusty rings based on dust impact signals captured by Cassini RPWS
26. Hedman, Matthew: What Happened to Saturn in December of 2011?
27. Roussos, Elias: Penetration of large scale, energetic charged particle injections in Saturn's inner magnetosphere
28. Tao, Chihiro: Properties of Jupiter's Magnetospheric Turbulence Observed by the Galileo Spacecraft
29. Kane, Mark: Hot ion spectra and anisotropies in the nightside magnetosphere during the Cassini solstice mission
30. Jackman, Caitriona: Field dipolarization in Saturn's magnetotail with planetward ion flows and energetic particle flow bursts: evidence of quasi-steady reconnection
31. Arridge, Chris: Cassini in situ observations of a magnetic reconnection ion diffusion region in Saturn's magnetotail
32. Arridge, Chris: Saturn's outer auroral emission: Origin and local time dependence from in situ electron observations
33. Jasinski, Jamie: Saturn's Magnetospheric Cusp as observed by Cassini
34. Nicolaou, Georgios: The Deep Jovian Magnetotail as Observed by Solar Wind Around Pluto (SWAP) Instrument on board New Horizons
35. Nicolaou, Georgios: Boundary Regions in the Deep Jovian Magnetotail as Observed by the Solar Wind Around Pluto (SWAP) Instrument on New Horizons
36. Smith, Andy: Magnetic reconnection in Saturn's magnetotail: A comprehensive magnetic field survey
37. Khurana, Krishan: Local Time Asymmetries in the Magnetospheres of Outer Planets
38. Tao, Chihiro: Variation of Jupiter's Aurora Observed by Hisaki/EXCEED - Auroral Parameters and Magnetospheric Dynamics Exploration
39. Ray, Licia: Jupiter's thermospheric winds and energy budget
40. Ray, Licia: Characteristics of Jupiter's auroral acceleration region
41. Imai, Kazumasa: Characteristics of Jupiter's decametric modulation lanes observed by LWA1
42. Kasaba, Yasumasa: Horizontal and vertical structures of Jovian IR aurora emission observed by SUBARU / IRCS
43. Bonfond, Bertrand: The Main Auroral Emission at Jupiter: Altitude profile and Dawn-Dusk Asymmetry
44. Kimura, Tomoki: Multi-wavelength observations of Jupiter's aurora with Hisaki and other space telescopes
45. Sakai, Shotaro: Plasma dynamics in Saturn's middle-latitude ionosphere and implication for magnetosphere-ionosphere coupling
46. Stallard, Tom: Ground-based observational evidence for Gas Giant atmosphere/magnetosphere interactions
47. Pryor, Wayne: Search for Satellite Effects on Saturn's Auroras in Cassini UVIS Data
48. Schneider, Nick: Discovery of Diffuse Aurora on Mars
49. Clarke, John: MAVEN and the Solar Wind Interaction with Mars
50. Lamy, Laurent: The Auroral Planetary Imaging and Spectroscopy (APIS) service
51. Pineda, J. Sebastian: A Panchromatic View of Auroral Phenomenon on Brown Dwarfs