ION COMPOSITION IN THE SUN EARTH SYSTEM

ICSES

DURANGO, COLORADO 2019

Sunday 28th July to Saturday 3rd August, 2019

FORT LEWIS COLLEGE
DURANGO, COLORADO
USA.
OVERVIEW

Sunday 28th July

- 16:00-18:00: ARRIVAL AND REGISTRATION: STUDENT UNION BUILDING FOYER
- 18:00-SUNSET: ICEBREAKER BBQ: Student Union Terrace (weather permitting!!)

Monday 29th July (Vallecito Room)

- 08:20-08:25: WELCOME AND MEETING LOGISTICS
- 08:25-11:15: SESSION 1
- 15:00-17:50: SESSION 2
- 17:50-18:50: DISCUSSION SESSION 1

Tuesday 30th July (Vallecito Room)

- 08:25-12:15: SESSION 3
- 15:00-17:50: SESSION 4
- 17:50-18:50: DISCUSSION SESSION 2

Wednesday 31st July

- TBD: RETURN TRAIN DURANGO TO SILVERTON!!
- TBD: COLLABORATION DISCUSSIONS ON THE TRAIN!!

Thursday 1st August (Vallecito Room)

- 08:25-11:45: SESSION 5
- 13:45-16:05: SESSION 6
- 16:05-17:00: DISCUSSION SESSION 3
- 19:00-LATE: CONFERENCE BANQUET IN THE BALLROOM

Friday 2nd August (Vallecito Room)

- 08:55-12:15: SESSION 7
- 15:00-17:50: SESSION 8
- 17:50-18:50: DISCUSSION SESSION 4

Saturday 3rd August (Vallecito Room)

- 08:25-11:45: SESSION 9
- 11:45: FUTURE PLANS AND MEETING CLOSE
ICEBREAKER: Student Union Terrace
SESSIONS: Vallecito Room
BANQUET: Ballroom

FROM DURANGO BY CAR

ONLY PARK WHERE THERE ARE NO PARKING METERS.
PARKING IS FREE DURING THE MEETING

THE SKY STEPS!
529 Steps Walk to Durango
Take "College Drive" to FORT LEWIS COLLEGE.
Monday 29th July

08:20: Welcome and Meeting Logistics  Mick Denton

**SESSION 1 (Chair: Joe Borovksy) All Talks 20 Minutes + 10 Mins Questions**

08:25: Detailed Ion Composition Measurements at the Edge of the Dusk Plasmapause  
John Foster

08:55: Spatial / Temporal variations in the ion source populations inferred from ePOP and DMSP magnetic conjunctions  
Bill Peterson

09:25-09:45 ---BREAK---

09:45: Where do oxygen ions from the plasma mantle end up?  
Audrey Schillings

10:15: Storm-time proton energy spectra measured by the Van Allen Probes  
Danny Summers

10:45: On the role of heavy energetic ions for the dynamics of the magnetosphere: Cluster observations  
Elena Kronberg

11:15 END

**SESSION 2 (Chair: Naomi Maruyama) All Talks 20 Minutes + 10 Mins Questions**

15:00: The influence of ion dynamics and composition on EMIC wave growth and structure in the inner magnetosphere  
Lauren Blum

15:30: On the cold plasma in magnetospheric physics  
Gian Luca Delzanno

16:00-16:20 ---BREAK---

16:20: Solar Wind Source of Plasma within a Magnetosphere: Lessons from Earth and Saturn  
Robert Allen

16:50: High-Density O+ in the Outer Magnetosphere  
Stephen Fuselier

17:20: Multiple Satellite Observations of Oxygen Torus in the Inner Magnetosphere  
Masahito Nosé

17:50 END

**17:50:18:50 Discussion 1 (Chairs: Vania Jordanovol and Mike Henderson)**

"**SOLAR WIND OR IONOSPHERE? WHICH IS THE DOMINANT SOURCE OF IONS IN THE MAGNETOSPHERE?"**
Tuesday 30th July

**SESSION 3 (Chair: Stephen Fuselier)  All Talks 20 Minutes + 10 Mins Questions**

08:25: Dispersive Alfvén wave control of O+ ion outflow energy and energy density in the magnetosphere.  Art Hull
08:55: Local changes of relative helium abundance within the solar wind  Tereza Ďurovcová
09:25: Outflow of heavy ions from the terrestrial ionosphere: Cluster RAPID observations  Stein Haaland

09:55-10:15  ---BREAK---

10:15: Insights from heavy ion composition in the solar wind  Sue Lepri
10:45: Sources of O+ in the plasma sheet  Lynn Kistler
11:15: Generating Right-hand and Linearly Polarized Parallel EMIC Waves in the Inner Magnetosphere  Sean Fu
11:45: Stochastic Alfvénic O+ energization and ionospheric outflow in a global simulation  Bill Lotko
12:15 END

**SESSION 4 (Chair: Raluca Ilie)  All Talks 20 Minutes + 10 Mins Questions**

15:00: Heavy and Molecular Ions in Ionospheric Ion Up-flows and Outflows  Andrew Yau
15:30: HOPE and RAM-SCB Comparisons of O+ Enhancements in the Inner Magnetosphere  Phil Fernandes

16:00-16:20  ---BREAK---

16:20: Ionosphere-Thermosphere: The Main Ion Source to the Magnetosphere  Laila Andersson
16:50: Observations of Oxygen Abundance Enhancements in the Inner Magnetosphere using Van Allen Probes  Alisha Vira
17:20: Suprathermal heavy ion plasma composition from Wind: First exploration of a new dataset from STICS  Jim Raines
17:50 END

**17:50:18:50 Discussion 2  (Chairs: Sue Lepri and Jim Raines)**

"**HEAVY IONS : IS THERE A HIDDEN POPULATION OF HEAVY IONS IN THE MAGNETOSPHERE?**"
Wednesday 31st July

TRAIN JOURNEY: DURANGO TO SILVERTON (RETURN)

DETAILS AND TIMES TO FOLLOW

COLLABORATION DISCUSSIONS ON THE TRAIN!!!
Thursday 1st August

• **SESSION 5** *(Chair: Katherine Garcia-Sage)* All Talks 20 Minutes + 10 Mins Questions

08:25: On the accumulation of O+ in the plasma sheet and inner magnetosphere: when, where, how? **Matina Gkioulidou**
08:55: Solar wind temperature parameters near 1 AU: Statistical properties **Lynn Wilson III**
09:25: The Alpha-to-Proton Number Density and the Mesoscale Structure of the Solar Wind **Joe Borovsky**

09:55-10:15 ---BREAK---

10:15: Nitrogen Band for Electromagnetic Ion Cyclotron Waves: A New Perspective **Muhammad Bashir**
10:45: On the Unexpected Consequences of Outflow on the Magnetosphere **Dan Welling**
11:15: Multi-Species Dispersion Patterns in the Van Allen Probes HOPE Data: Observations and Modeling **Mike Henderson**
11:45 END

• **SESSION 6** *(Chair: Bill Peterson)* All Talks 20 Minutes + 10 Mins Questions

13:45: On the role of Ion Composition in verifying the physical links between solar and heliospheric plasmas observed by the remote sensing and in situ payload components on Solar Orbiter. **Chris Owen**
14:15: Imaging the Magnetosphere in Soft X-rays **David Sibeck**

14:45-15:05 ---BREAK---

15:05: The effect of self-consistent ionospheric outflow on magnetotail stability and flows **Katherine Garcia-Sage**
15:35: Modeling the causes and consequences of ionospheric outflow **Alex Glocer**

• **16:05:17:00 Discussion 3** *(Chairs: Roger Varney and Lynn Kistler)*

"**ORIGIN AND EVOLUTION OF SOLAR WIND: WHAT DOES THE COMPOSITION TELL US?**"

• **19:00 to LATE** *Banquet in the Ballroom*
Friday 2nd August

**SESSION 7 (Chair: Laila Andersson) All Talks 20 Minutes + 10 Mins Questions**

08:55: On the factors that control plasmaspheric ion composition  
**Naomi Maruyama**

09:25: Modeling Ion Composition Effects in the Inner Magnetosphere  
**Vania Jordanova**

09:55-10:15  ---BREAK---

10:15: On the role of ionospheric heavy ions in the dynamics of the near-Earth environment  
**Raluca Ilie**

10:45: Oxygen ion dynamics in the Earth’s ring current: Van Allen Probes observations  
**Chao Yue**

11:15: Warm proton populations in the magnetotail under quiet conditions: Statistical analysis based on two-component fits of distribution functions  
**Kunihiro Keika**

11:45: Ambipolar Electric Fields in the Polar Cap Topside Ionosphere  
**Roger Varney**

12:15 END

**SESSION 8 (Chair: Masahito Nosé) All Talks 20 Minutes + 10 Mins Questions**

15:00: The role of O+ on Local and Global Changes During Reconnection in the Magnetotail  
**Chris Mouikis**

15:30: GAMERA-CHIMP simulations of ionospheric outflow and evolution  
**John Lyon**

16:00-16:20  ---BREAK---

16:20: Heavy Ion Composition In The Notch: Multi-point Views of Dynamics in the Inner Magnetospheric Dayside Plume - Plasmapause Region  
**Philip Erickson**

16:50: Biased HOPE: A concept for low energy composition measurements and what we can learn  
**Brian Larsen**

17:20: Formation of ion multiple nose structures associated with enhanced convection  
**Cristian Ferradas**

17:50 END

**17:50:18:50 Discussion 4  (Chairs: Elena Kronberg and Audrey Schillings)**

"COMPOSITION AND RECONNECTION: WHAT ROLE DOES THE COMPOSITION PLAY?"
Saturday 3rd August

- SESSION 9 (Chair: Gian Luca Delzanno) All Talks 20 Minutes + 10 Mins Questions

08:25: Solar wind in the de Hoffmann-Teller frame
      Zdeněk Němeček

08:55: Plasmasphere, Torus, and Cloak: A Comprehensive View of the Typical Distribution
       of Cold-to-Warm Ions in the Inner Magnetosphere  Jörg-Micha Jahn

09:25-09:45 ---BREAK---

09:45: Temperature Dependence of Plasmaspheric Ion Composition
       Jerry Goldstein

10:15: Reprocessing of GOES Magnetospheric Proton Observations for Use in an Empirical
       Flux Model       Juan Rodriguez

10:45: Characteristics of Ion Kinetic Energies Dominating Plasma pressure: Spatial
       Distributions and Mass Dependence       Kunihiro Keika

11:15: Plasma Transport from Inner Magnetosphere to Dayside Magnetopause
       Mick Denton

MEETING ENDS