Outline of WG 2 Sessions: Interplanetary Phenomena

Working Group Leaders:
Ian Richardson and Ilia Roussev

Are CMEs Driving the Solar Wind at Maximum or Along for the Ride?

(Chairs: Richardson and Roussev)

Monday 14:00 – 17:00

Science Discussion: Origins of variations in solar wind properties during the solar cycle (e.g., magnetic field strength, composition (He), modulation of cosmic rays, etc.) and to what extent CMEs play a role.

Invited Speakers:

1. Ian Richardson (NASA/GSFC), *Variation in Average Solar Wind Conditions During the Solar Cycle – Is There a Role for ICMEs*
2. Mat Owens (BU), *Heliospheric Flux and ICMEs*
3. Janet Luhmann (SSL/UCB), *Solar Wind Sources – Where Are We Now?*
4. Sue Lepri (UM), *The Nature and Variability of the Open Magnetic Flux in the Heliosphere From In-situ Observations and MHD Models*
5. Justin Kasper (MIT), *Coronal Regulation of the Solar Wind Helium Abundance Over the Solar Cycle*

Modeling and Observations of IP Shocks, (I)CMEs and SEPs

(Joint Session with WG 3; Chairs: Richardson and Roussev)

Tuesday 10:30 – 12:30

Science Discussion:

1. How well do current modeling studies agree with observations?
2. What is the 3-D structure of ICMEs and the related shock waves?
3. How do shock parameters, shapes, and lateral extents change during propagation through the heliosphere?
4. How do the configurations of shocks and magnetic fields near the Sun influence particle acceleration (e.g., by shocks, stochastic acceleration at flare sites) and transport?

Invited Speakers:

1. Hilary Cane (NASA/GSFC), *Using Energetic Particles to Understand the Interplanetary Characteristics of CMEs and Their Shocks*
2. Justin Kasper (MIT), *Characterizing Interplanetary Shocks at 1 AU*

Modeling and Observations of IP Shocks, (I)CMEs and SEPs

(Part II)

Tuesday 14:00 – 17:00

Invited Speakers:

1. Chip Manchester (UM), *Post-Shock Compression and Forward-Reverse Shock Pair Resulting From CME Interaction With a Bimodal Solar Wind*
2. Jozsef Kota (UA), *SEP Acceleration at CME-Driven Shocks: The Possible Role of Acceleration in the Sheath Between the Shock and the CME*
3. Adam Szabo (NASA/GSFC), *Determination of the Properties of Interplanetary Shocks*

Origin and Evolution of the Solar Wind

(Joint Session with WG 1; Chairs: Abbett and Roussev)

Tuesday 14:00 – 17:00

Science Discussion:

1. How well do we understand the physical connection from the photosphere through the corona to the heliosphere?
2. What is the topology of the open magnetic field of the Sun, and how does it evolve?
3. What are the sources for heating and acceleration of the solar wind?

Invited Speakers:

1. Len Fisk (UM), *Diffusion of Open Magnetic Flux and Its Consequences*
2. Spiro Antiochos (NRL), *Constraints on Coronal Hole Topology*
3. Nathan Schwadron (SwRI), *Relating the Sub-Parker Spiral Structure of the Heliospheric Magnetic Field to Dynamic Sources of Solar Wind*
4. Scott McIntosh (SwRI), *Does the Chromosphere Have Heliospheric Impact?*

End-to-End Modeling of CMEs and SEPs

(Joint Session with WG 1&3; Chairs: Abbett and Roussev)

Thursday 10:30 – 12:30

Session Description:

1. This session will focus on the progress and challenges in modeling CMEs and SEPs from the Sun to the Earth.
2. We will discuss how solar particles are accelerated at CME-driven shocks and transported in interplanetary space, and what needs to be done to improve present models of CME initiation and evolution in the low corona.

Invited Speakers:

1. Janet Luhmann (SSL/UCB), *CISM End-to-End Space Weather Modeling Progress and Plans*
2. Robert Weigel (LASP/CU), *Present Status and Future Challenges of Modeling the Sun-Earth System*

End-to-End Modeling of CMEs and SEPs

(Part II)

Thursday 14:00 – 17:00

Invited Speakers:

1. Igor Sokolov (UM), *Solar Energetic Particles: Acceleration and Transport in Realistic Magnetic Fields*
2. Gang Li (IGPP/UCR), *How Particles Are Accelerated to High Energies in Large SEP Events – A Secret Recipe,*
3. David Ruffolo (Mahidol University - Bangkok), *Finite Time Shock Acceleration and Fits to ESP Ion Spectra*