The background of the slide is a composite image of the solar system. On the left, a large, bright, orange-yellow sun with visible solar flares and a glowing corona dominates the frame. In the upper right corner, the Earth is shown as a blue and white sphere with visible continents and clouds. In the center, the Moon is visible as a small, grey sphere. The background is a deep black space filled with numerous small, white stars.

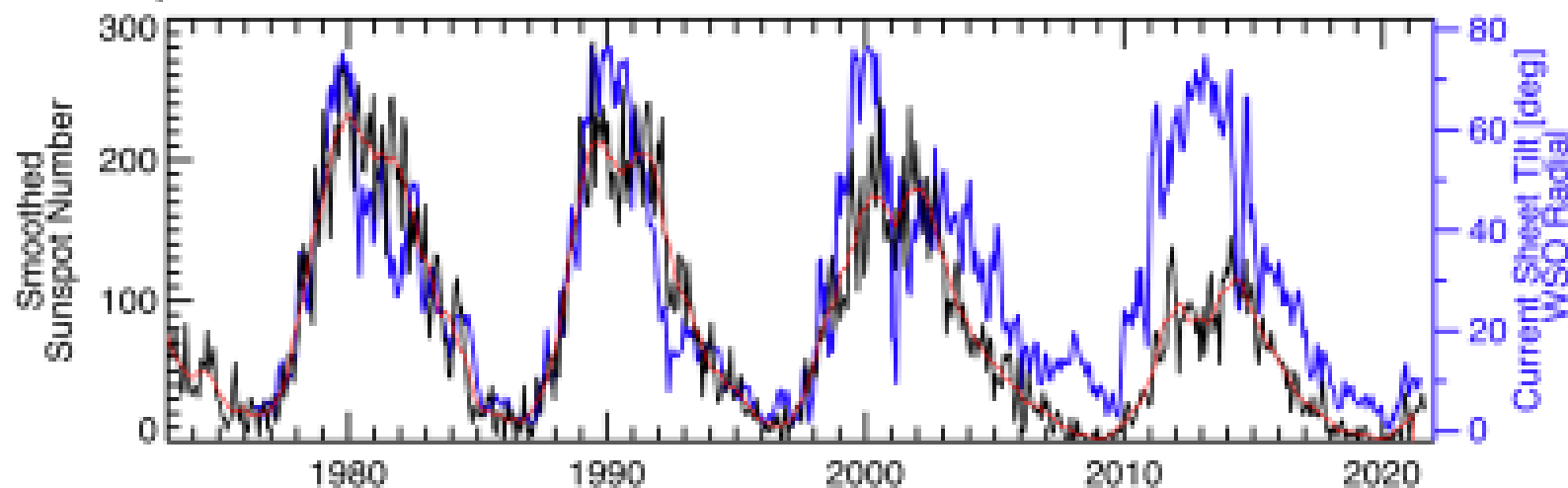
Whole Heliosphere and Planetary Interactions Workshop

An Overview of Working
Groups, by the Group
Leaders

Working Group 1 – Characterizing the Whole Heliosphere at Solar Minimum

Heather Elliot- Carlos Martinis

Purpose: To study the global connected structure of the heliosphere and planetary space environments/atmospheres.

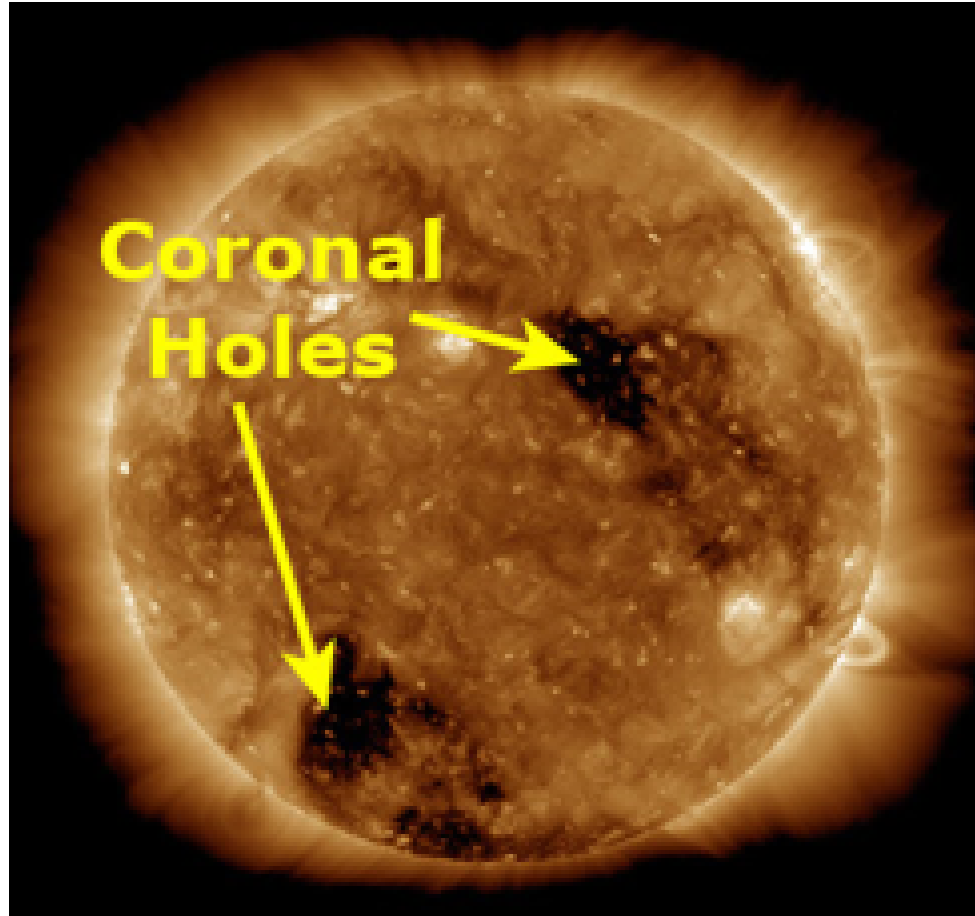


Day of Week	Date	Time (Mountain Time)	Activity
Tuesday	09/14/2021	08:30 AM - 09:00 AM	<u>Scene Setting:</u> Characterizing the Whole Heliosphere at Solar Minimum; Pete Riley
Tuesday	09/14/2021	10:45 AM - 11:55 AM	<u>Focused Topic:</u> Sun-Heliosphere “Mosaic” ; Ian Hewins, Rohit Chhiber, Alberto Vasquez, Discussion
Friday	09/17/2021	08:05 AM - 09:05 AM	<u>Focused Topic:</u> “Quiet-time” Impacts on Planets ; Xiaohua Fang, Xuguang Cai, Bernard Jackson, Pontus Brandt, Dan Gershman, Discussion
Friday	09/17/2021	10:20 AM - 12:00 PM	Posters

High Speed Streams WG#2

- High speeds streams are an important phenomenon that touch every aspect of Heliophysics

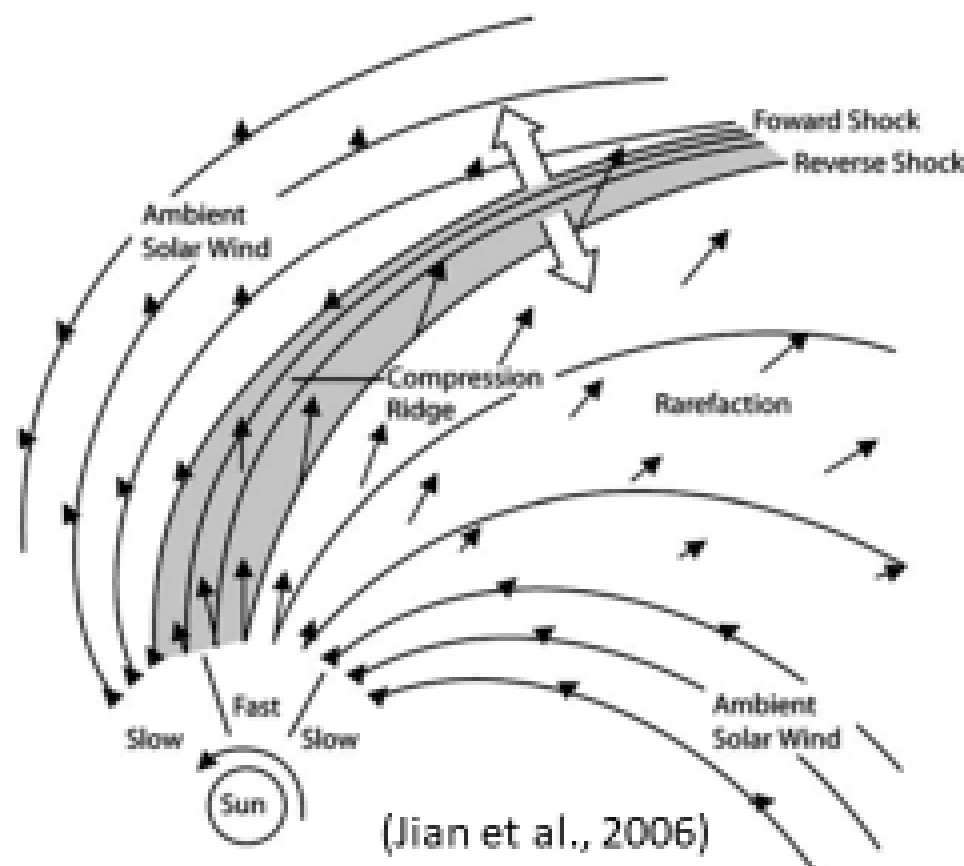
Credit: UCAR



- They originate from coronal holes at the Sun

High Speed Streams

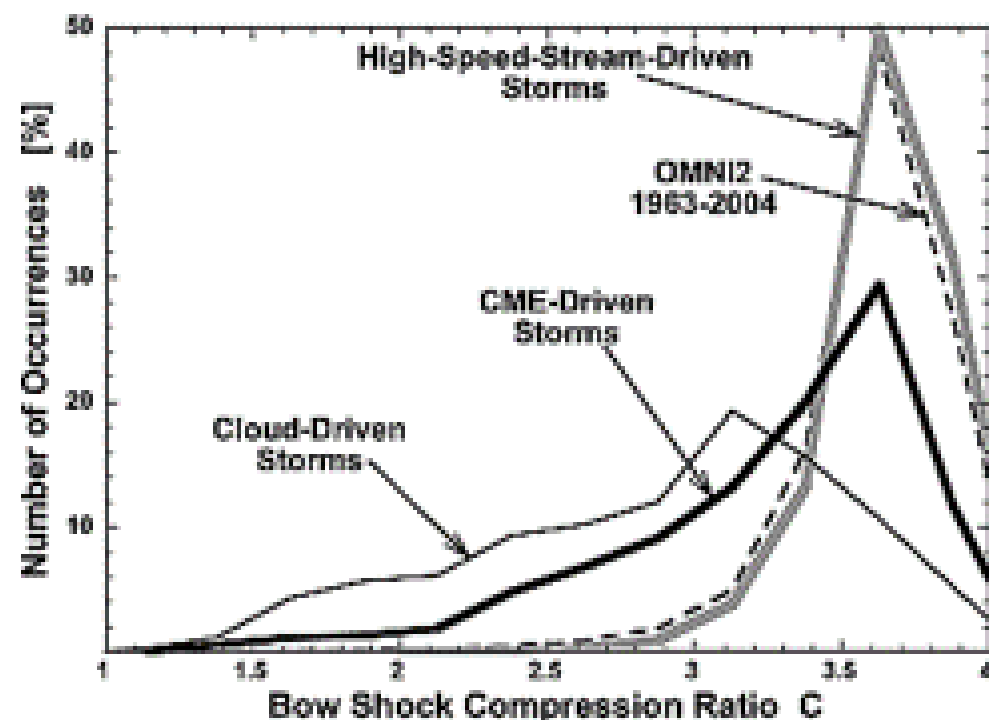
- High speed streams are an important phenomenon that touch every aspect of Heliophysics



- They originate from coronal holes at the Sun
- As they expand into the pre-existing solar wind they form Stream Interaction Regions (SIR) and Co-rotating Interaction Regions (CIR).

High Speed Streams

- High speeds streams are an important phenomenon that touch every aspect of Heliophysics

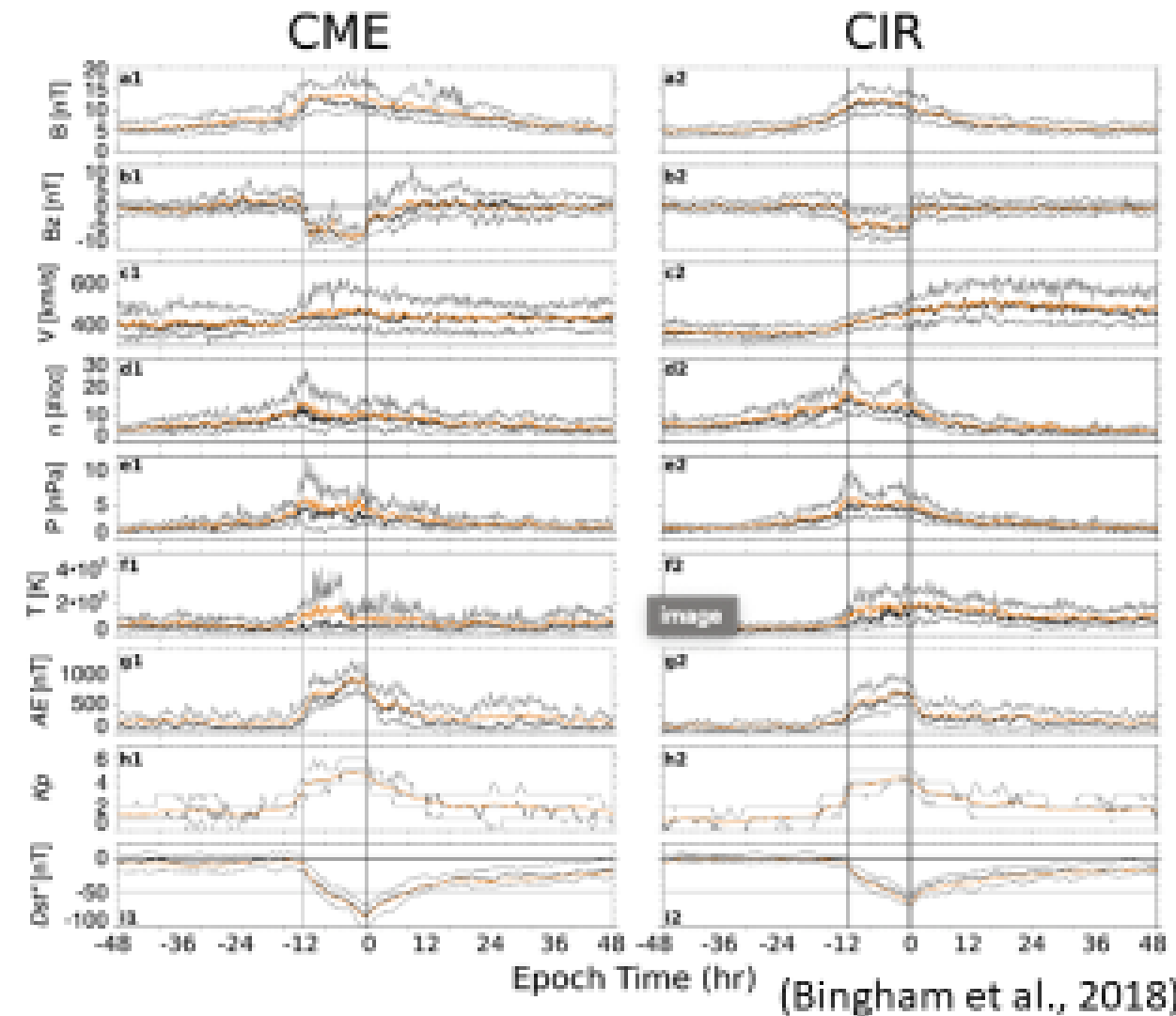


(Borovsky & Denton, 2006)

- They originate from coronal holes at the Sun
- As they expand into the pre-existing solar wind they form Stream Interaction Regions (SIR) and Co-rotating Interaction Regions (CIR).
- When they reach a planetary body they compress both the bowshock and magnetopause

High Speed Streams

- High speeds streams are an important phenomenon that touch every aspect of Heliophysics

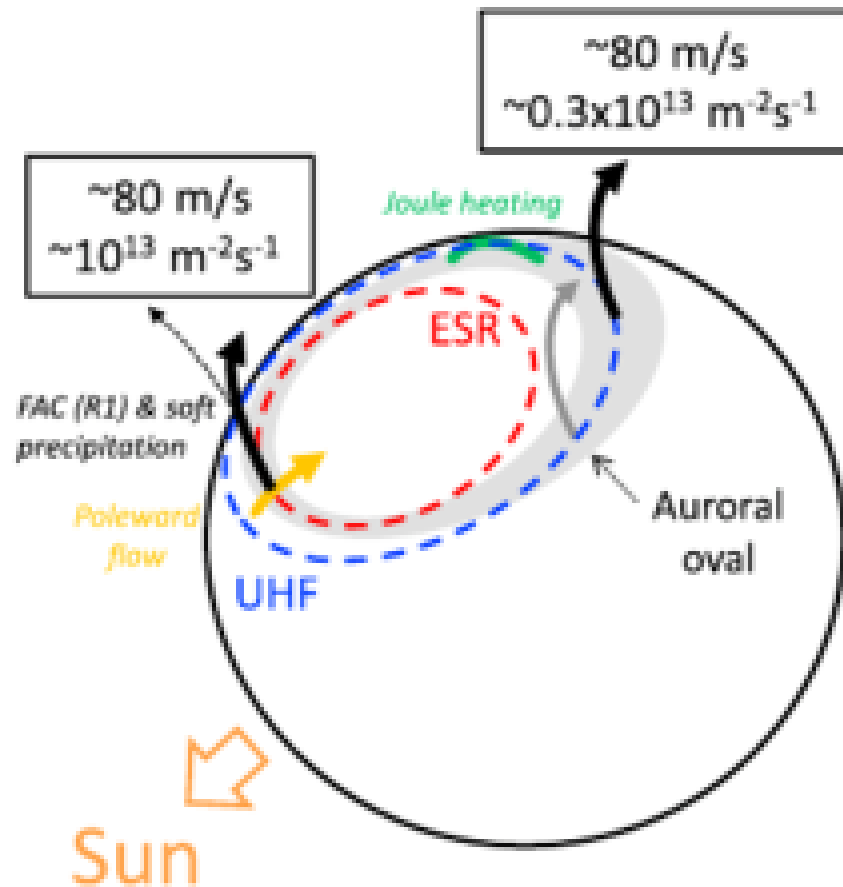


- In turn this then drives geomagnetic storms leading to enhanced wave activity, electron acceleration and precipitation

High Speed Streams

- High speeds streams are an important phenomenon that touch every aspect of Heliophysics

CIR-driven storm case



- In turn this then drives geomagnetic storms leading to enhanced wave activity, electron acceleration and precipitation
- Which leads to an increase in ionospheric temperature and ion upflow/outflow

High Speed Stream Sessions

- Tuesday 11:55 – 12:55 PM MT
 - From Coronal Holes through Interplanetary Space
- Thursday 9:05 – 10:05 AM MT
 - Impacts of High Speed Streams to Planetary Systems
 - Open Discussion on High Speeds Streams throughout the Heliosphere.
- Please come ready to discuss high speed streams!

WG3: Comparative minima

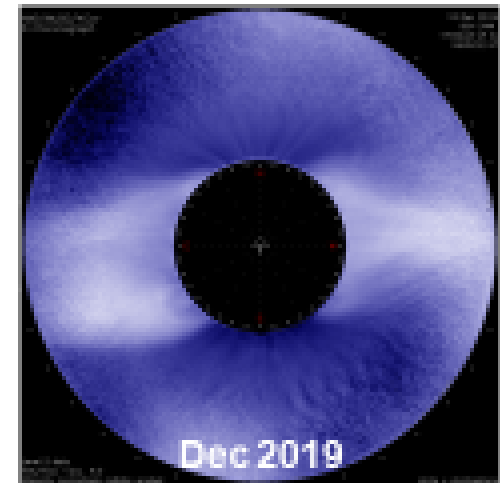
- Compare the current minimum with previous solar minima

- Solar activity measures and indices

- Solar irradiance indices
- Geomagnetic indices

- Solar wind properties

- Investigate how periods of extremely low solar activity affect the geospace and other planetary space environments



WG3 Agenda

• Wednesday

8:30-9:00 AM: **WG3 Scene Setting: Comparative Solar Minima**

David Hathaway

Janet Kozyra

10:45-11:45 AM: **WG3 Focused Topic: Space Age Solar Minima**

10:45-10:55 AM *Marty Mlynczak*

10:55-11:05 AM *Lan Jian*

11:05-11:15 AM *Ana Elias*

11:15-11:45 AM Discussion

• Friday

9:05-10:05 AM: **WG3 Focused Topic – Panel: “Maunder Minimum, long term solar variability from historical records, and impact on climate”**

Natalie Krivova, Judith Lean, Hanli Liu, Matthias Rempel,

Leif Svalgaard, Ilya Usoskin



WHPI Working Group 4

Solar Activity Throughout the Heliosphere

Group Leads: Gina DiBraccio, Rachael Filwett

What will WG4 address?

- Working Group 4: Solar Activity Throughout the Heliosphere

This working group focuses on coronal mass ejections and solar energetic particle events as they erupt off the sun, and expand out into the heliosphere, and the impact they have on planets, asteroids, comets, etc. Unlike more general CME sessions, this activity occurs during *solar minimum*.

- This working group will highlight methods, or studies, that exemplify how to use a wide range of data and modeling sources (which are typically required for studies of CMEs expanding throughout the heliosphere).
- We will showcase results and ongoing work looking at solar activity during time periods of interest (Campaigns) that have been defined by the WHPI science organizing team. https://whpi.hao.ucar.edu/whpi_campaigns.php

WG4 sessions

Plenary Wednesday 9-9:30am

Christina Lee

Wednesday 11:55-12:55 Focused Topic: Connecting Activity across the Heliosphere

Presenters: Olivier Witasse, Leila Mays, Jacob Gruesbeck, Elena Provornikova, and group discussion.

Thursday 8:05-9:05 Focused Topic: Specific Events During WHPI time periods of interest

Presenters: Emilia Kilpua, Erika Palmerio, and group discussion.