

The solar wind's geomagnetic impact and its Sun–Earth evolution

Predictive models for space weather and for the Parker Solar Probe orbit

PhD defense by
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Thursday, 1 November 2018, 14:00
Seminarraum Astrophysik (SR 17, F 05.104)

Two topics

Title

The solar wind's geomagnetic impact and its Sun–Earth evolution

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Predictive models for space weather and for the Parker Solar Probe orbit

Two topics

Study 1

The solar wind's geomagnetic impact – Predictive models for space weather

Two topics

Study 1

The solar wind's geomagnetic impact – Predictive models for space weather

Study 2

The solar wind's Sun–Earth evolution – Predictive models for the Parker Solar Probe orbit

1 Solar wind

2 Study 1

3 Study 2

Solar wind
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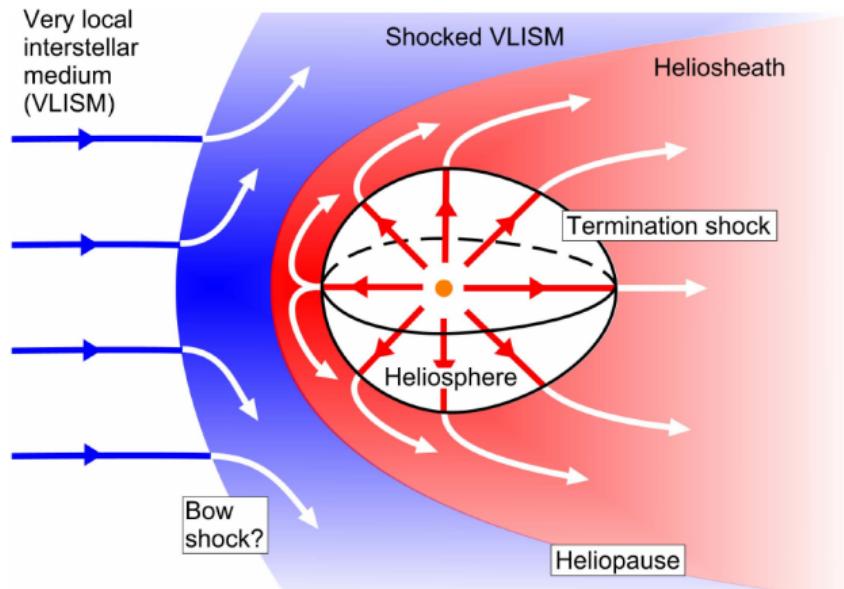


Total Solar Eclipse 2017

© 2017 Miloslav Druckmüller, Peter Aniol, Shadia Habbal

Credit: Miloslav Druckmüller, Peter Aniol, Jan Sládeček, 2008

Solar wind



Credit: Owens & Forsyth (2013, Fig. 9)

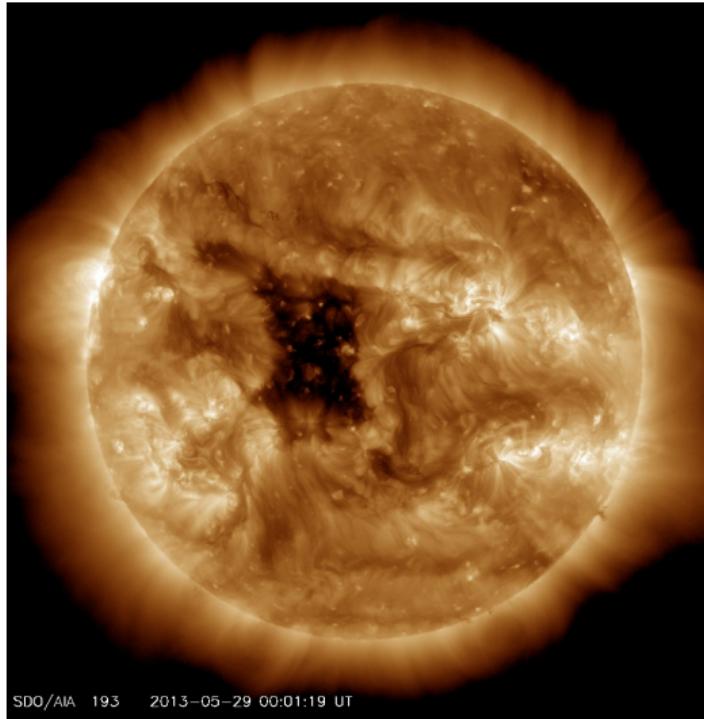
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SDO/AIA 193 2013-05-29 00:01:19 UT

Credit: NASA/SDO and the AIA, EVE and HMI science teams

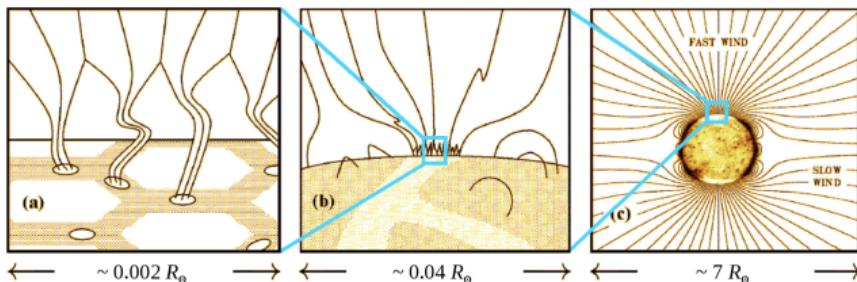
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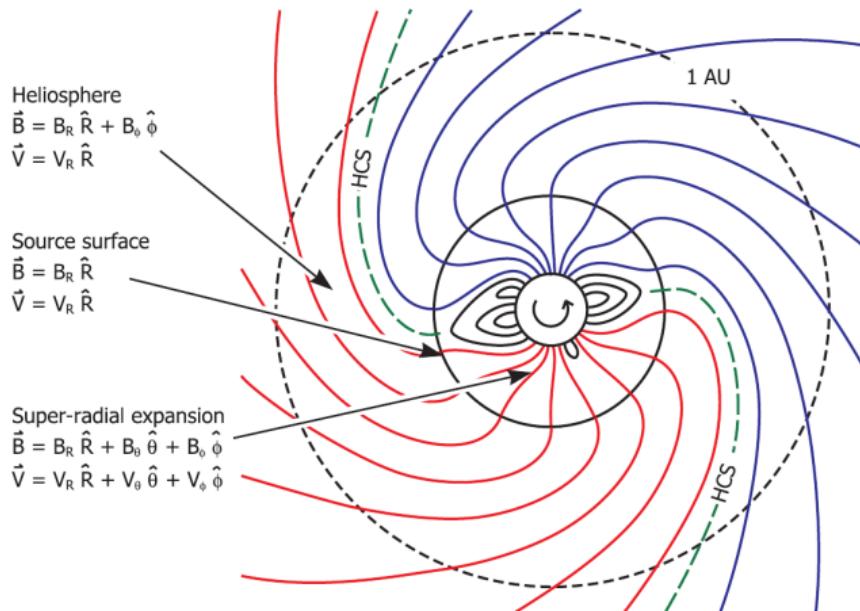
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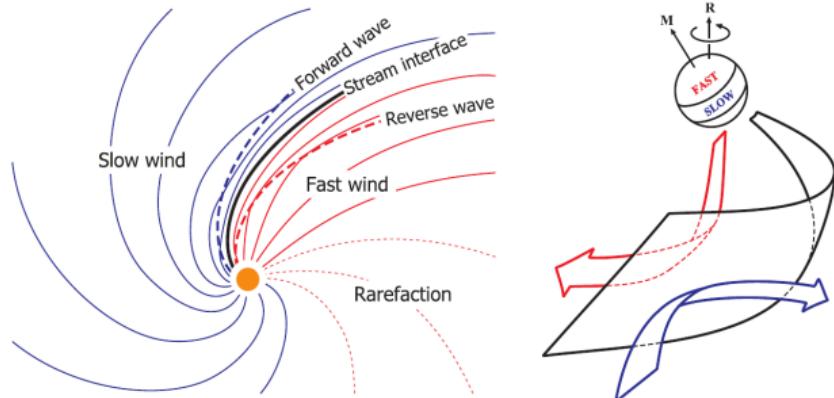
Courtesy of S. R. Cranmer

Solar wind



Credit: Owens & Forsyth (2013, Fig. 1), adapted from Schatten et al. (1969, Fig. 1)

Solar wind



Credit: Owens & Forsyth (2013, Fig. 7); right panel adapted from Pizzo (1991, Fig. 2)

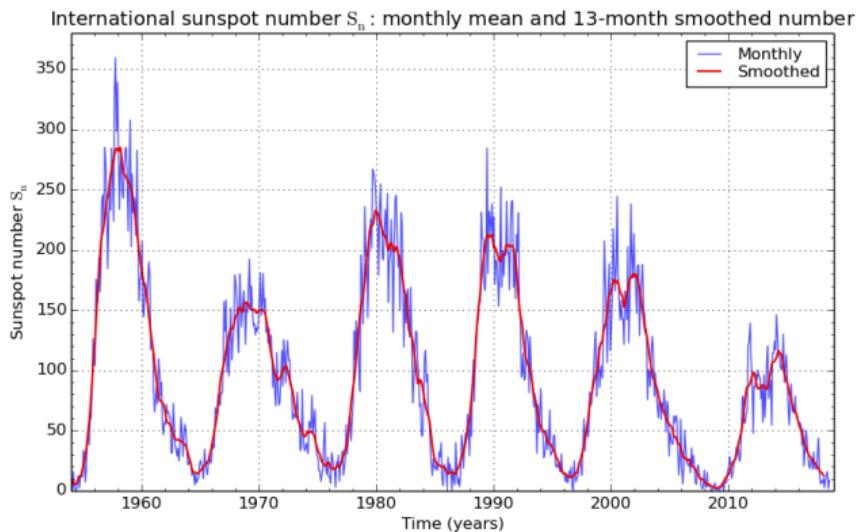
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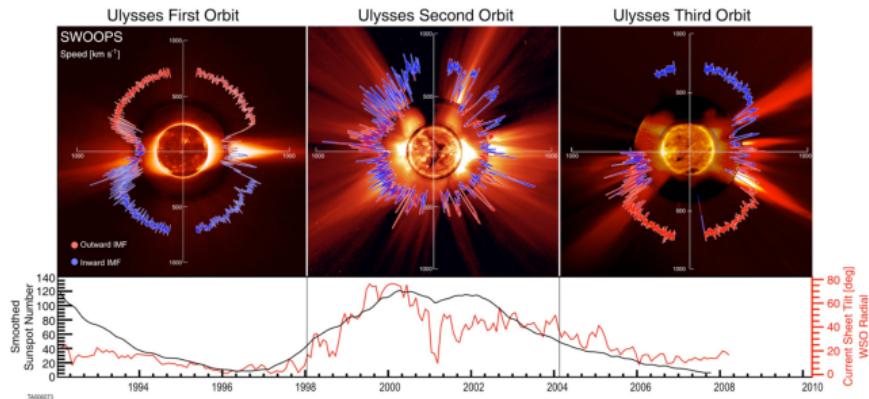
Solar wind



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2018 September 1

Credit: SILSO data/image, Royal Observatory of Belgium, Brussels, 2018

Solar wind



Credit: McComas et al. (2008a, Fig. 1)

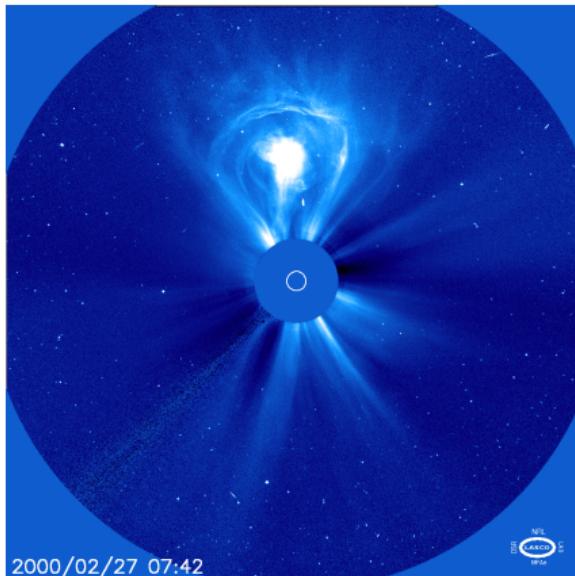
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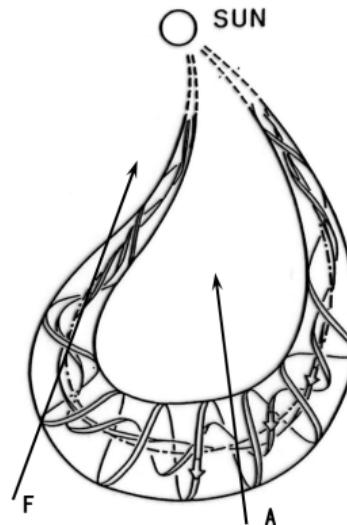
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Solar wind



Courtesy of SOHO/LASCO consortium. SOHO is a project of international cooperation between ESA and NASA



Credit: Marubashi & Lepping (2007, Fig. 1, panel (a))

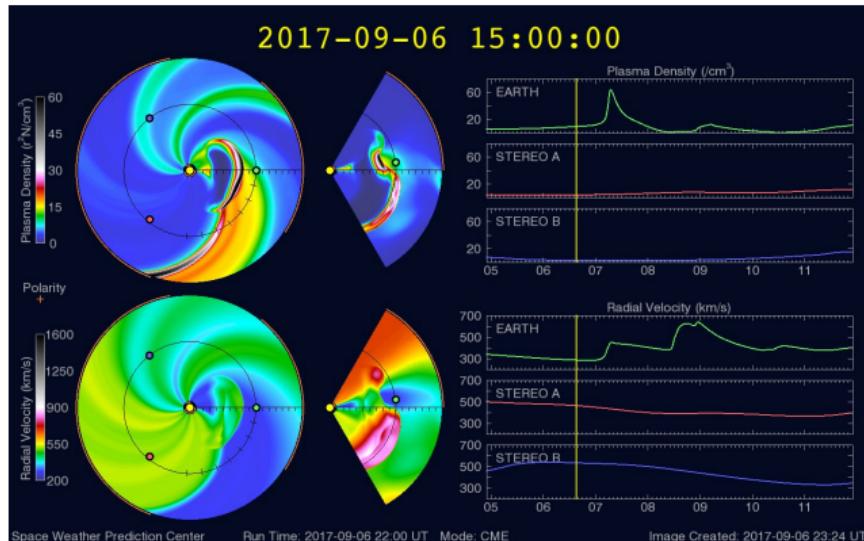
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Credit: SWPC: WSA-Enlil Solar Wind Prediction. NOAA National Centers for Environmental Information

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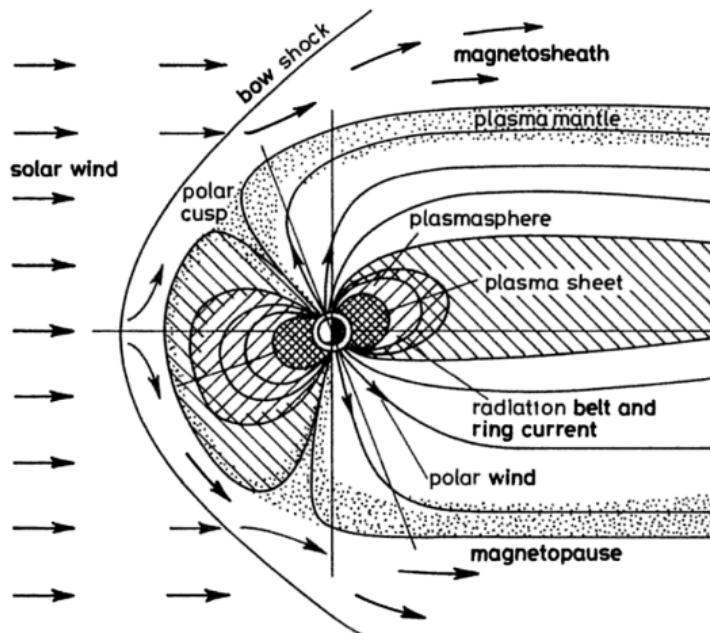
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Geomagnetic impact of the solar wind

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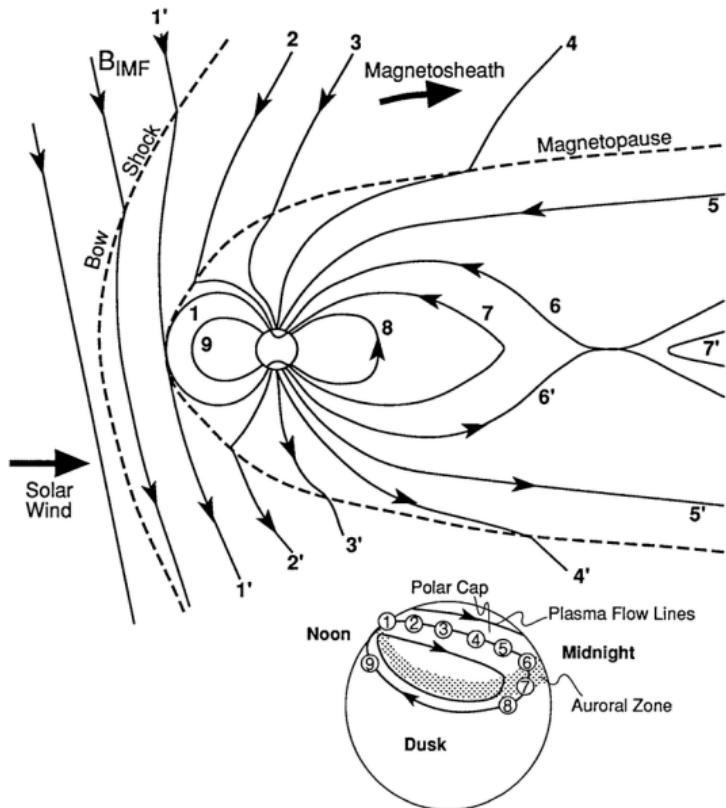
Credit: Davies (1990, Fig. 2.12)

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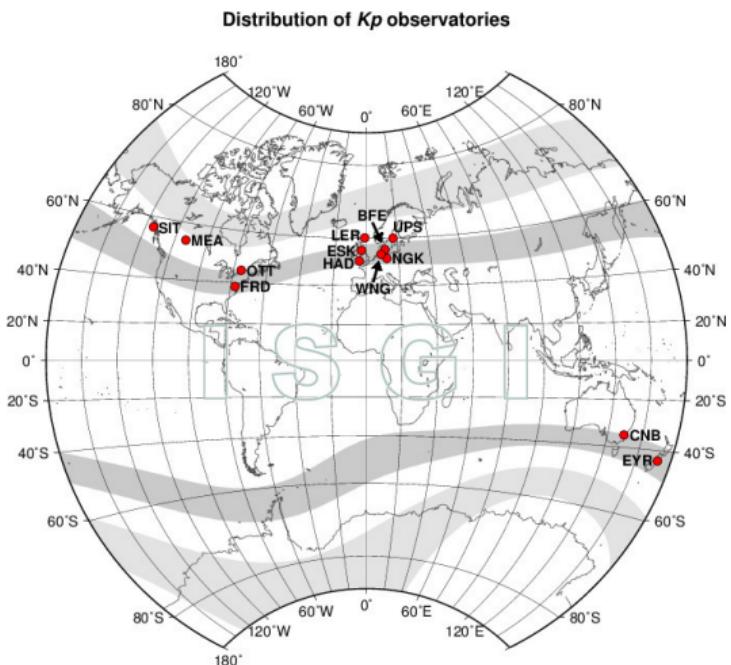
Credit: Hughes (1995, Fig. 9.11)

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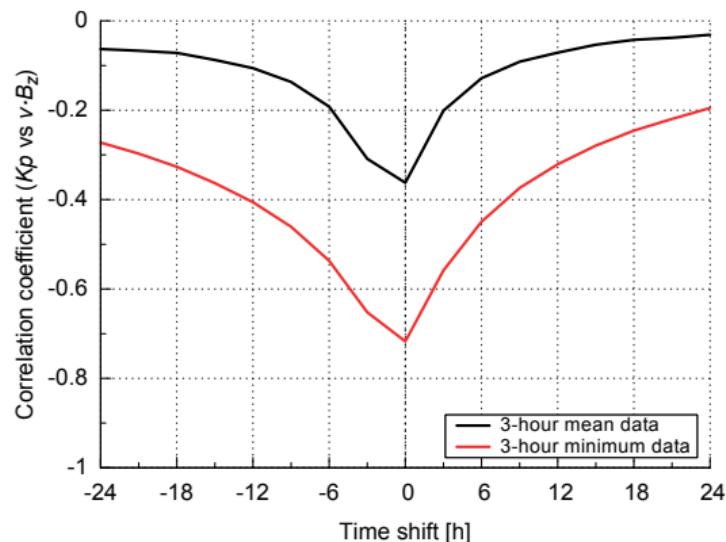
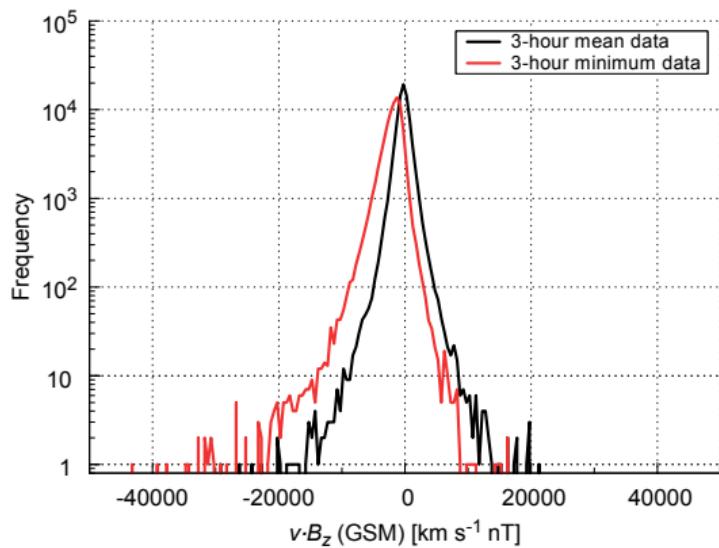
Courtesy of International Service of Geomagnetic Indices (ISGI), 2013

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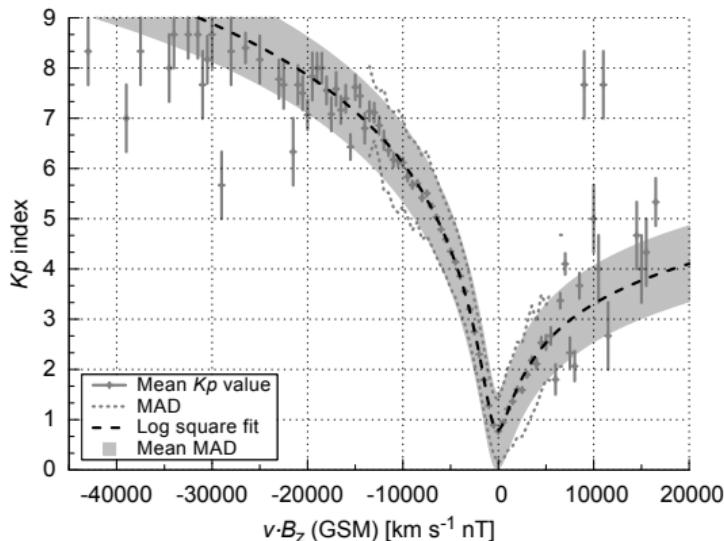
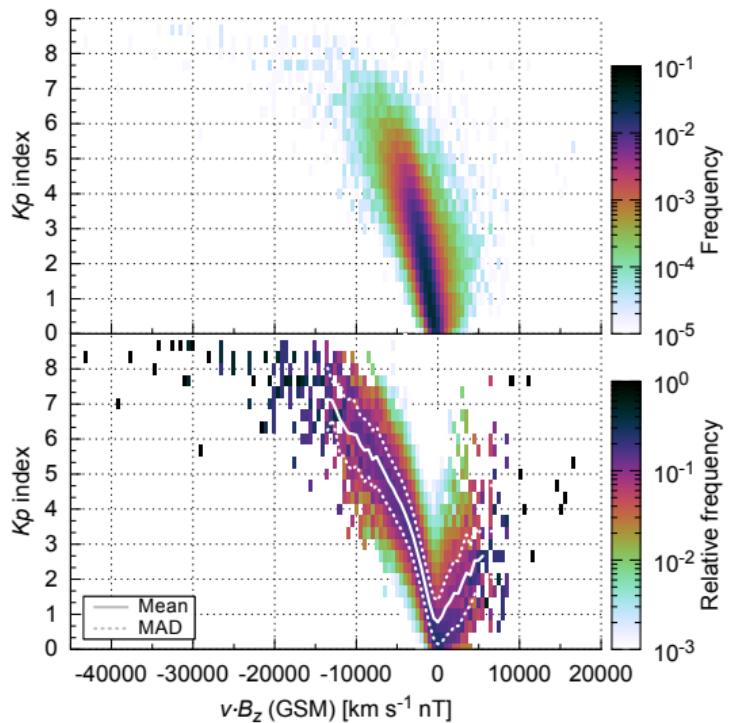


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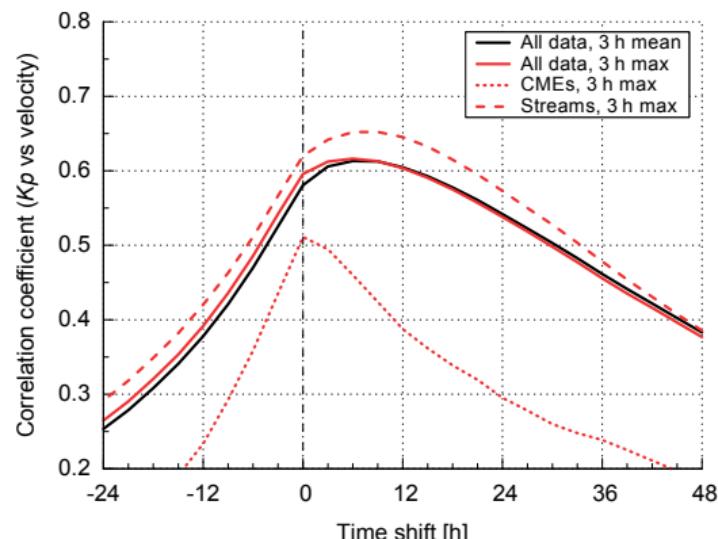
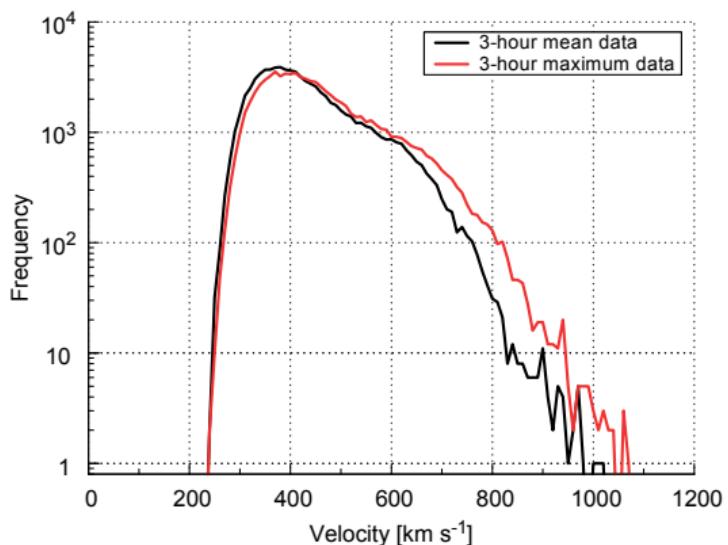


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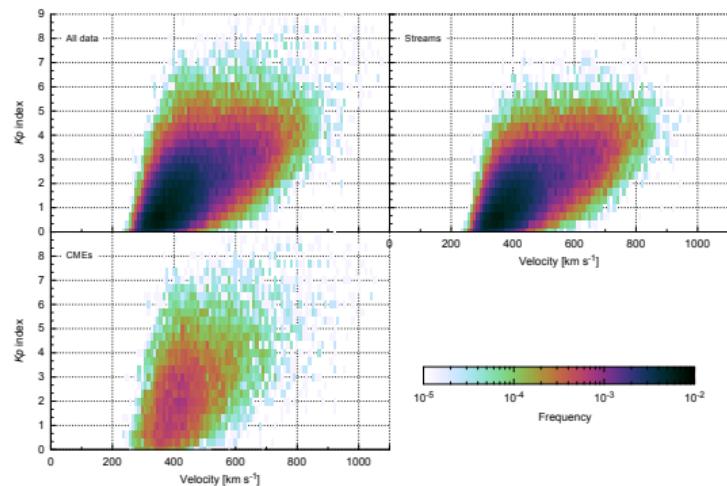


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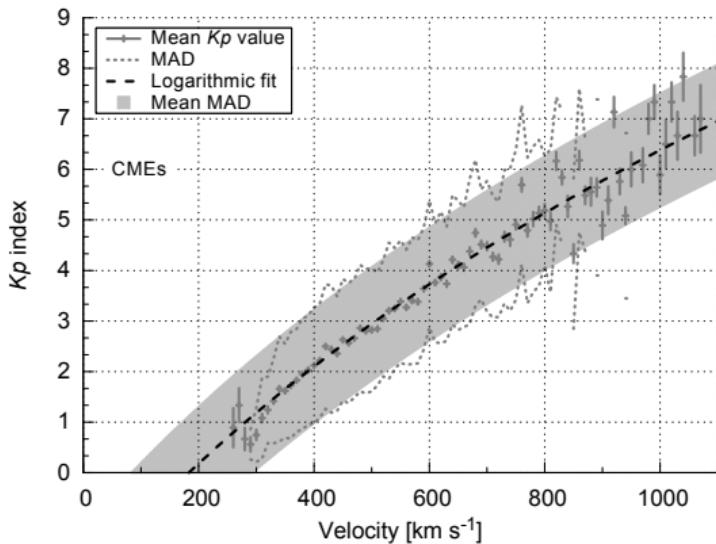
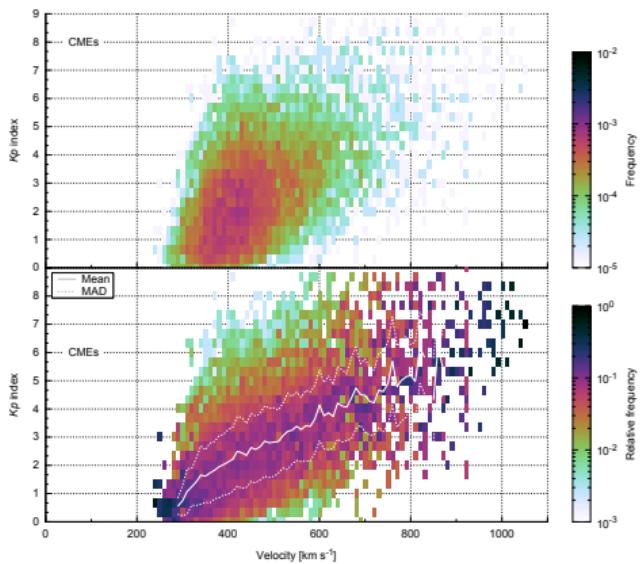


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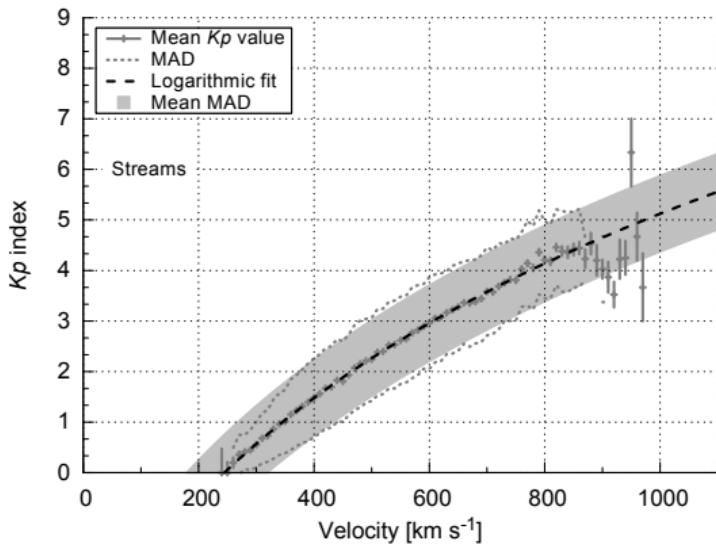
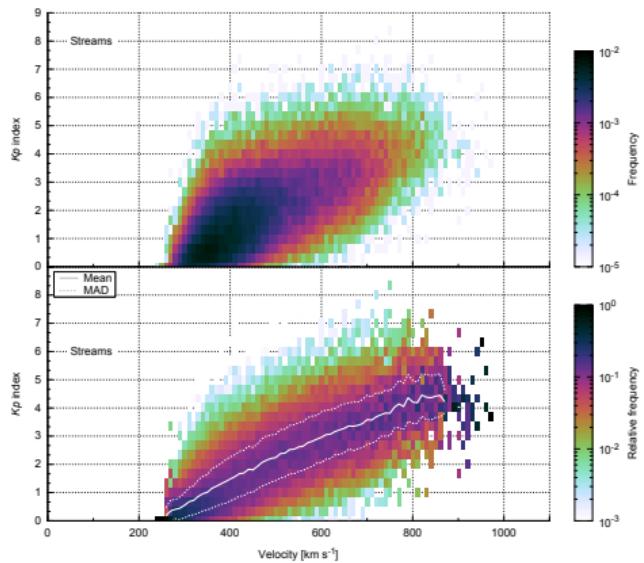


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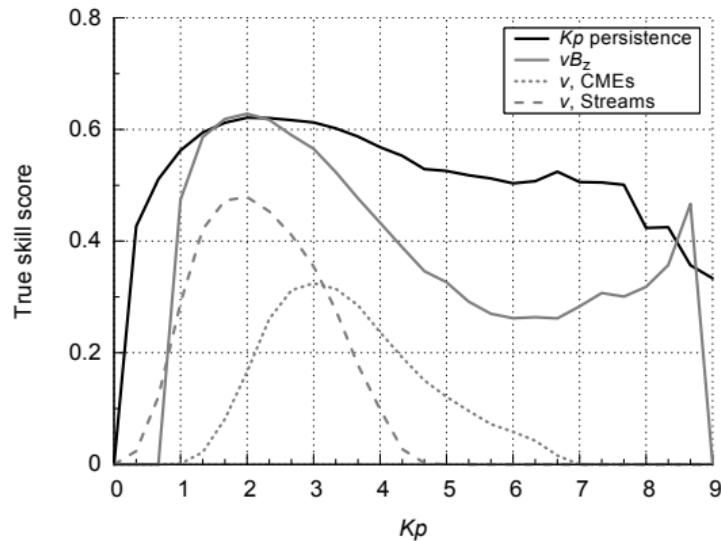
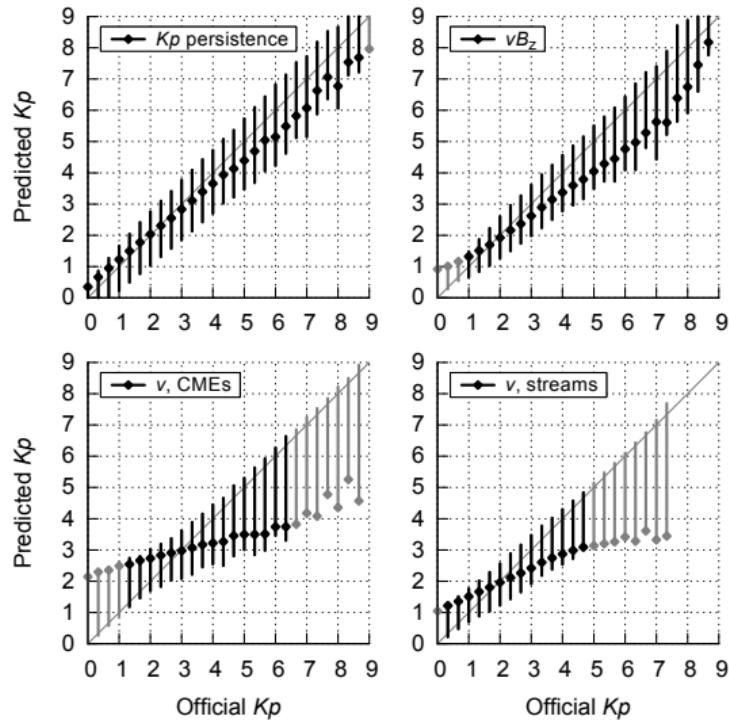


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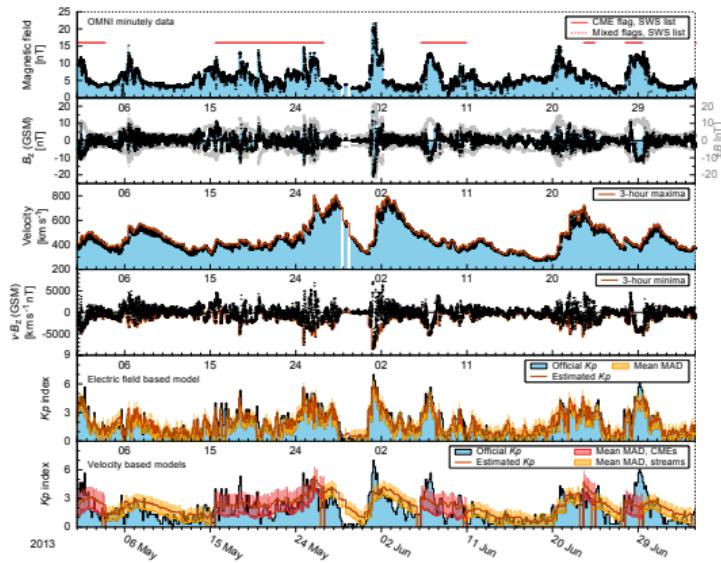


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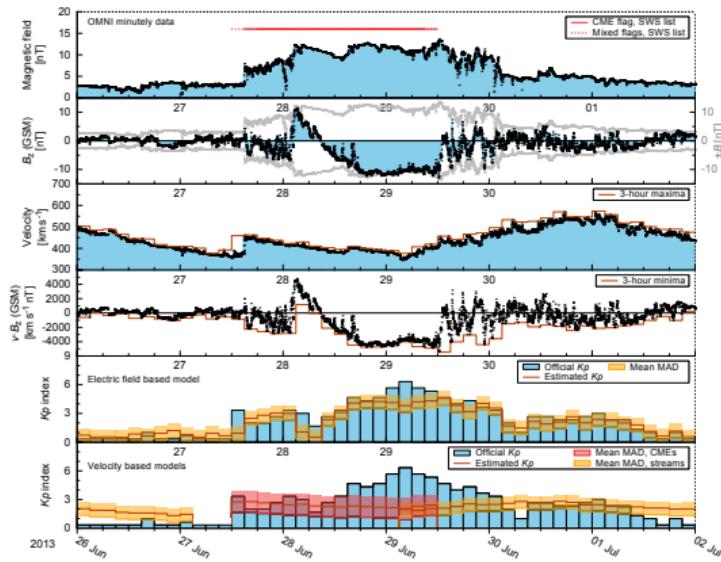


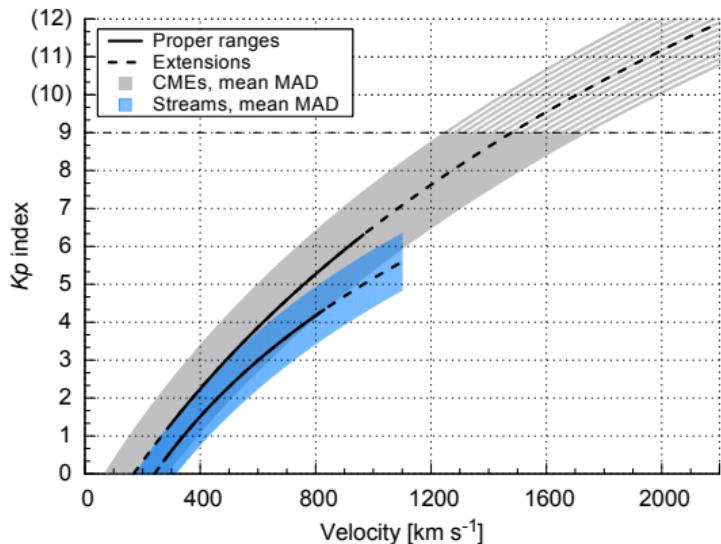
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Sun–Earth evolution of the solar wind

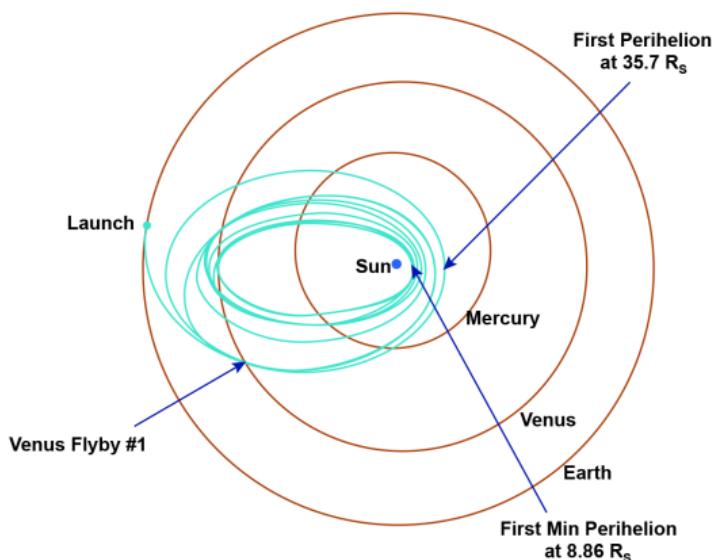
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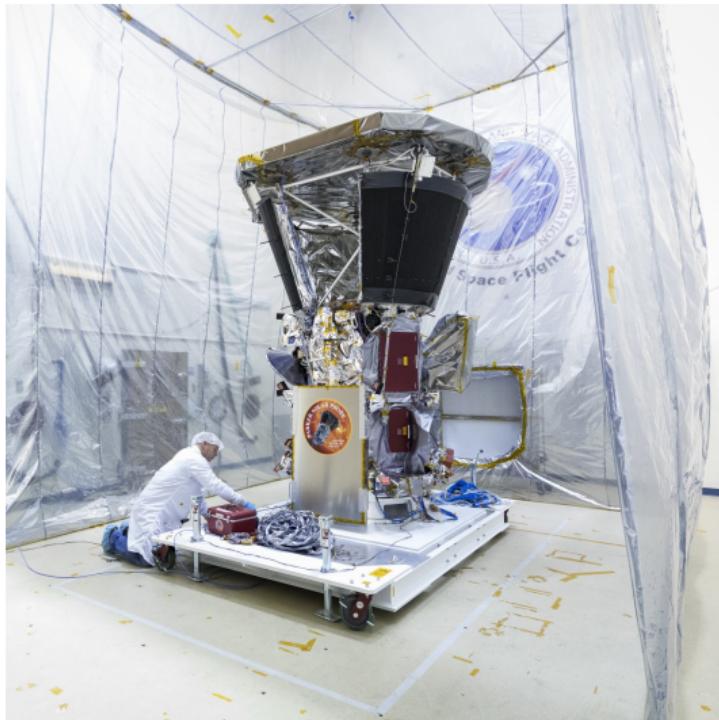
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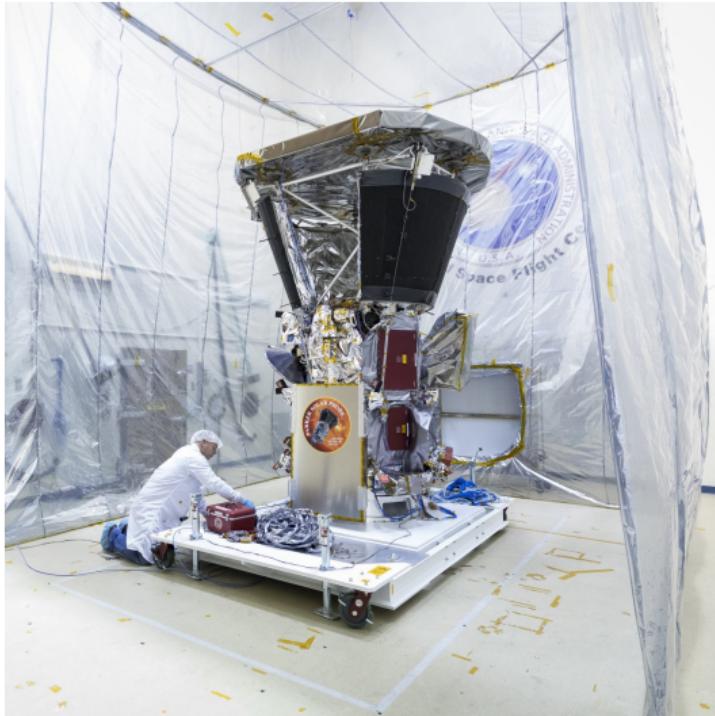
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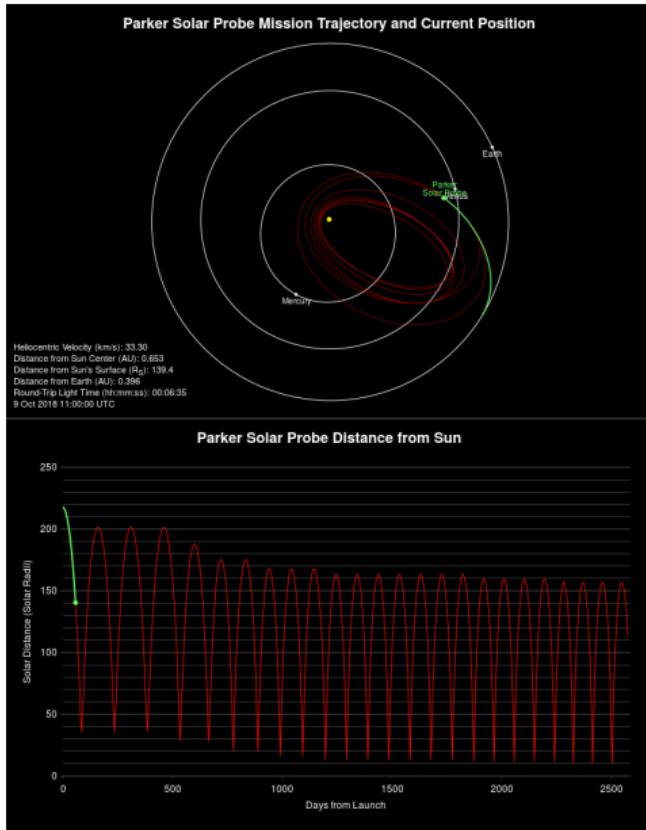
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Credit: NASA/Johns Hopkins APL/Ed Whitman, 2018



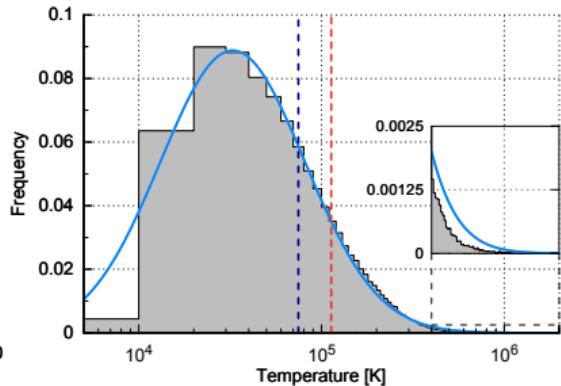
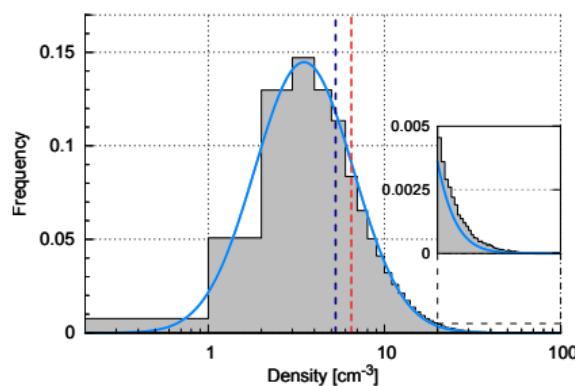
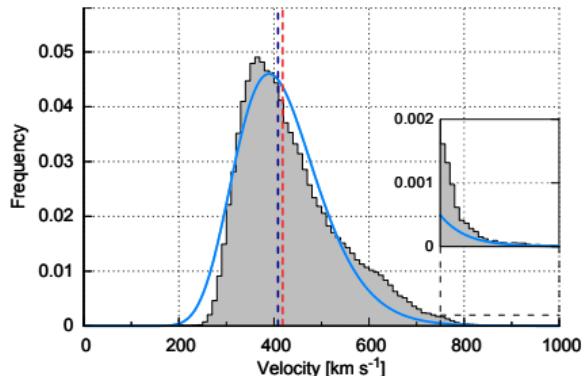
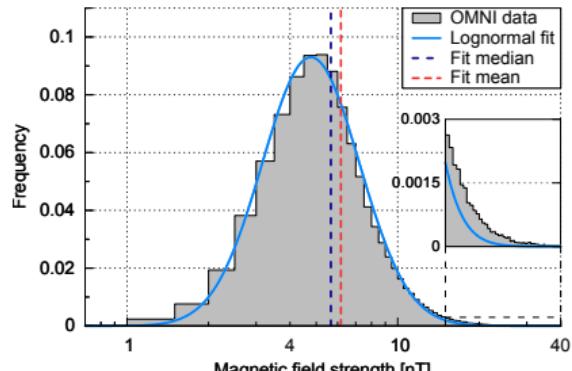
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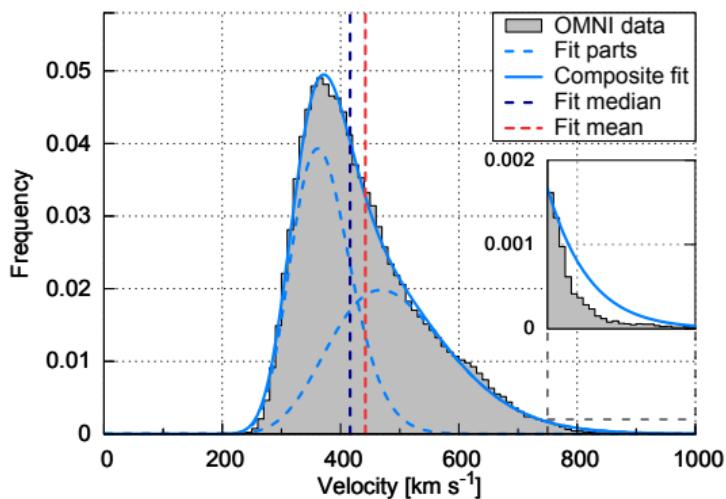
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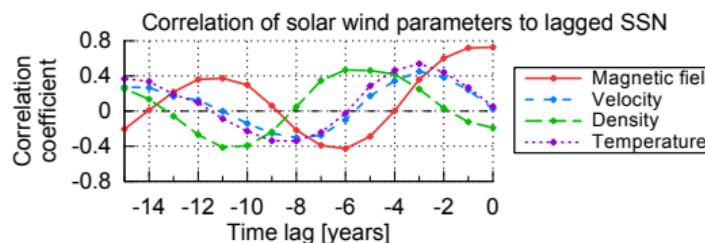
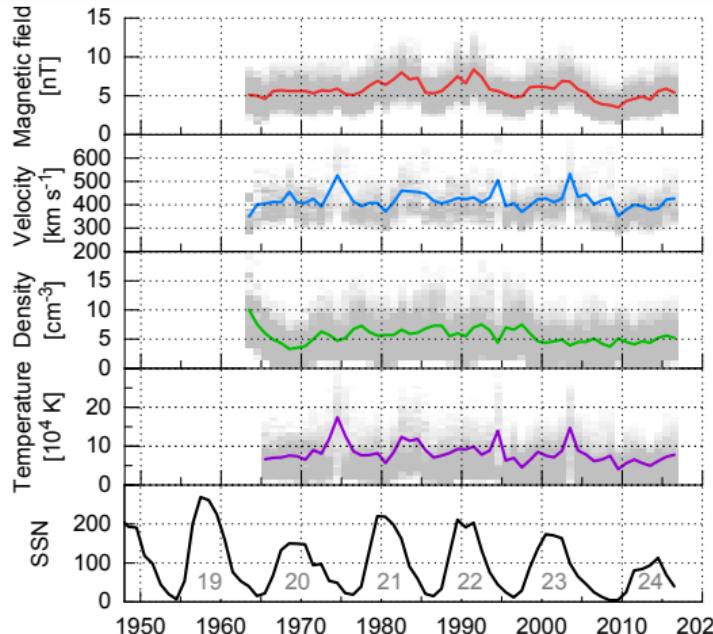


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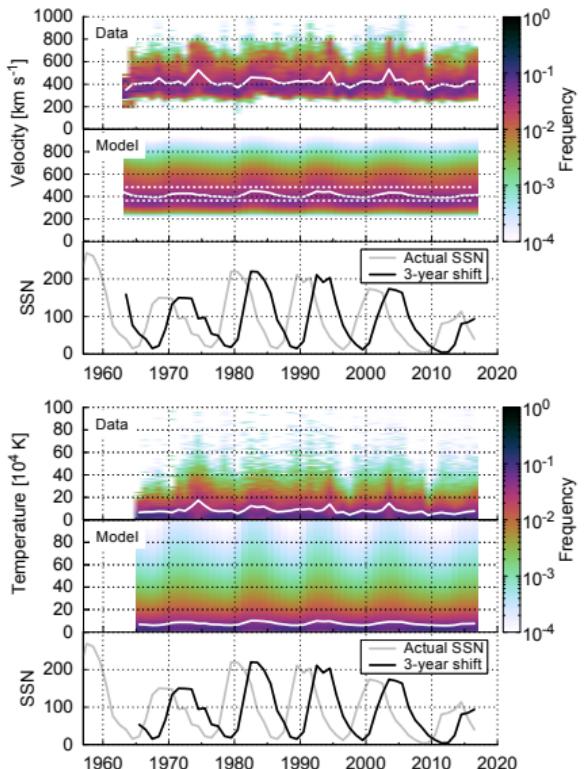
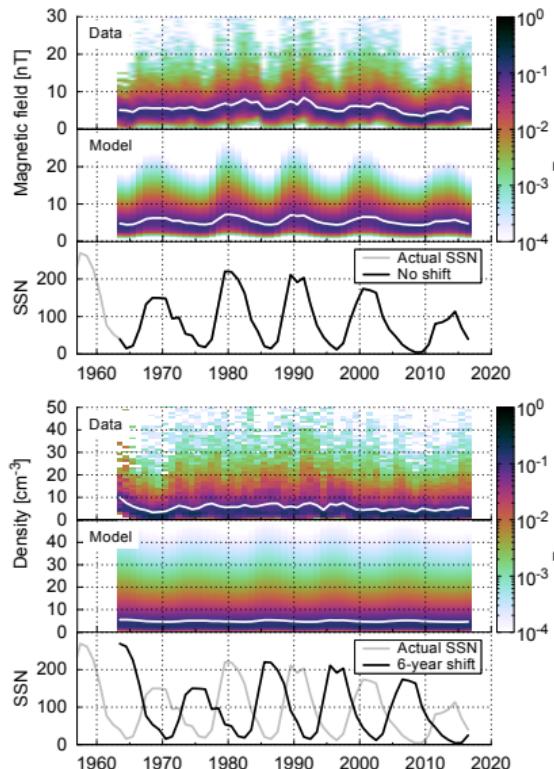


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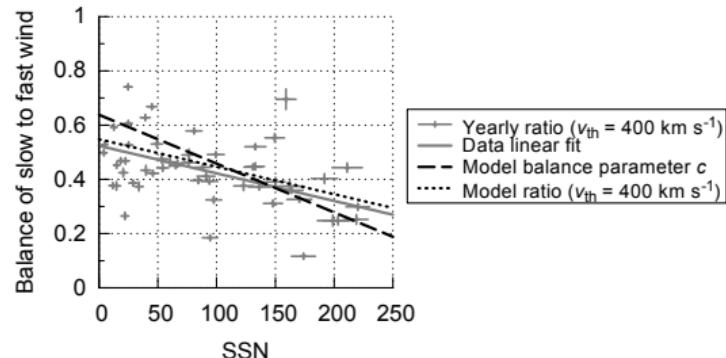
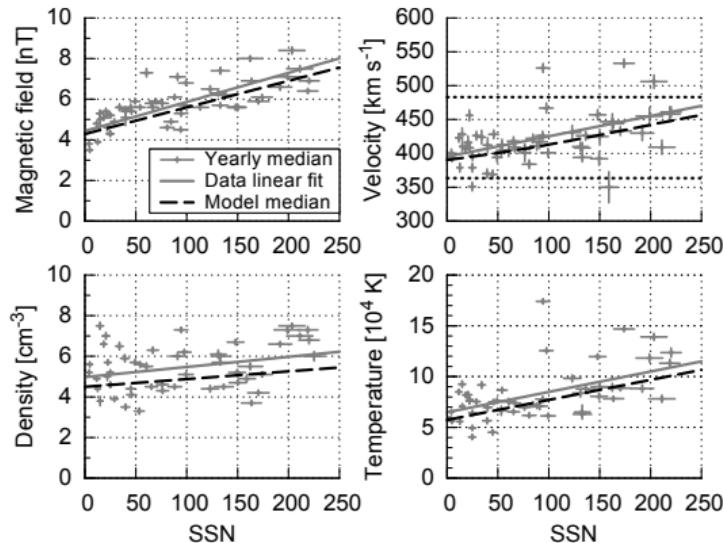


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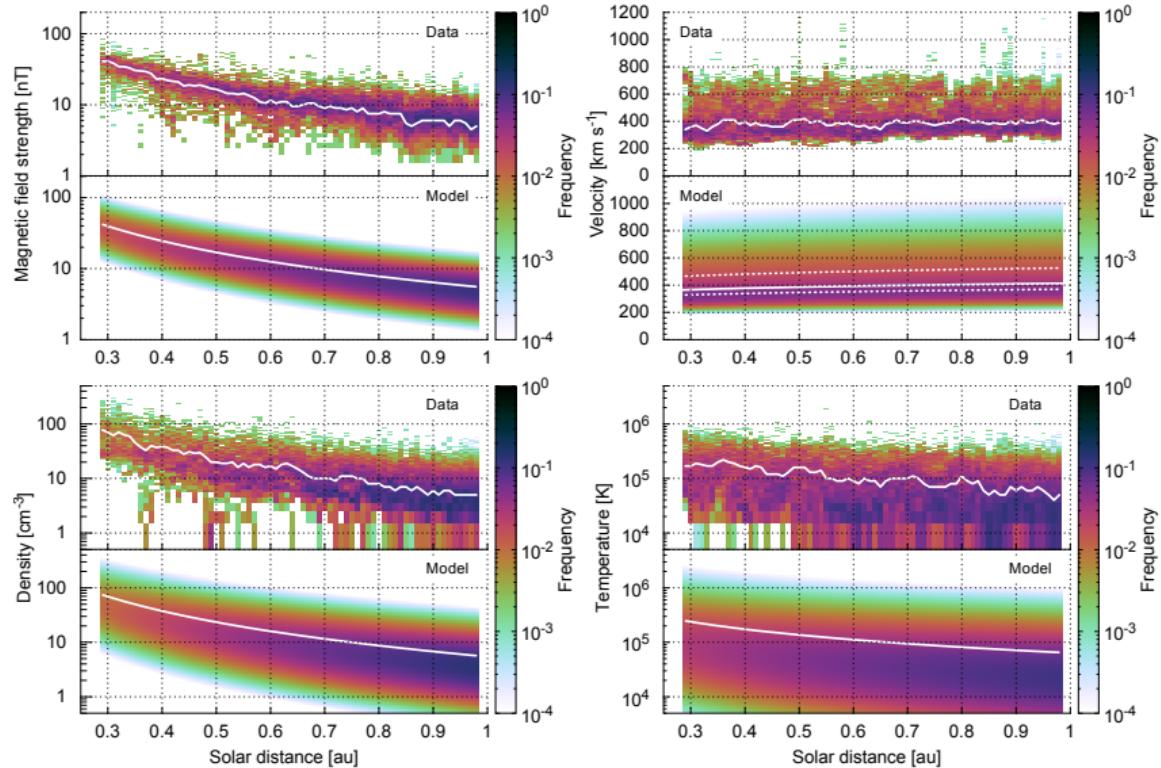


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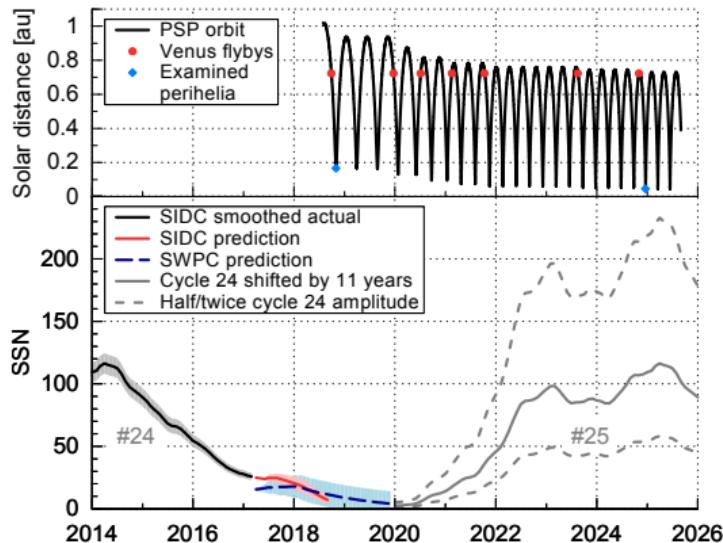


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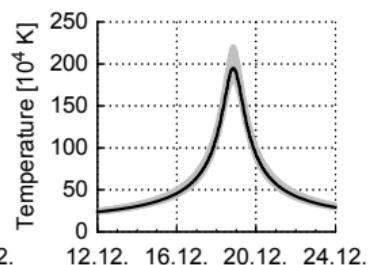
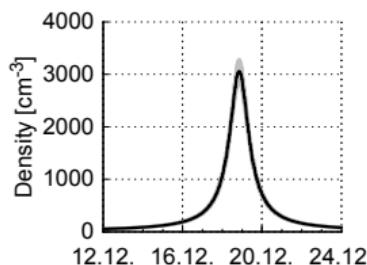
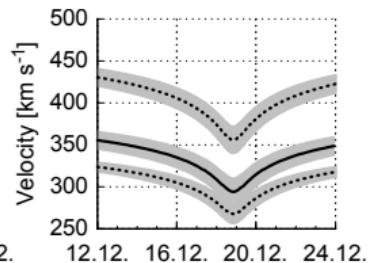
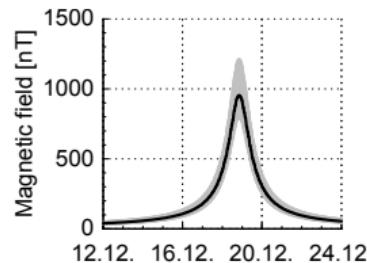
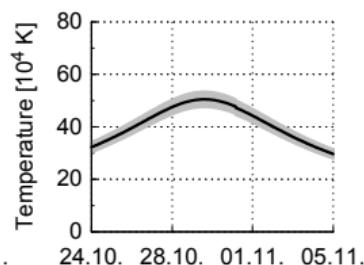
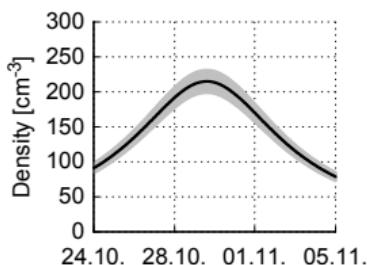
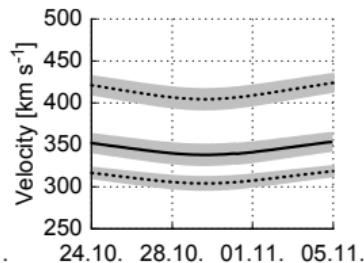
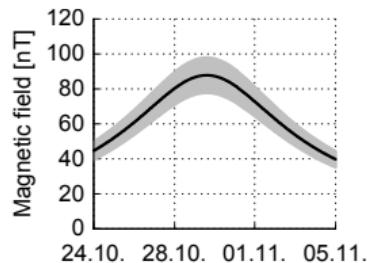


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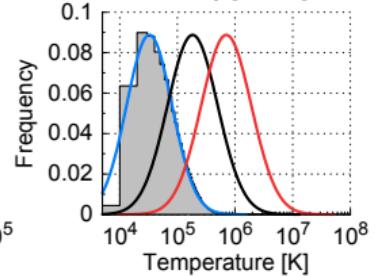
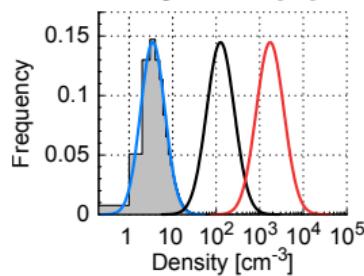
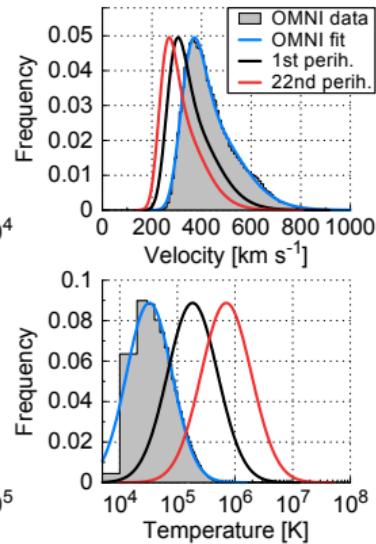
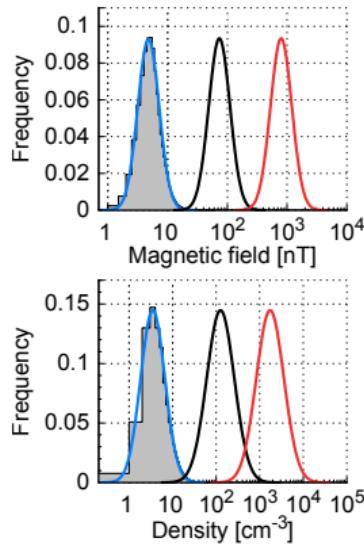


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Thank you!

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4 Backup slides

5 part two

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7 Backup slides 2

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4 Backup slides

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7 Backup slides 2

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Examples

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Remark

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Important theorem

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Sample text in red box

Examples

Sample text in green box. "Examples" is fixed as block title.

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part 3
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4 Backup slides

5 part two

6 part 3

7 Backup slides 2

Two-column slide

This is a text in first column.

$$E = mc^2$$

- First item
- Second item

This text will be in the second column and on a second thought this is a nice looking layout in some cases (Venzmer & Bothmer, 2018).

Sample

In this slide, some important text will be highlighted because it's important. Please, don't abuse it.

Remark

Sample text

Sample

In this slide, some important text will be **highlighted** because it's important. Please, don't abuse it.

Remark

Sample text

Examples

Sample text in green box. "Examples" is fixed as block title.

Sample

In this slide, some important text will be **highlighted** because it's important. Please, don't abuse it.

Remark

Sample text

Important theorem

Sample text in red box

Figure sample

A



Credit: NASA

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