

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)

Title

Two topics

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

Study 1

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

Title

Two topics

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

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

4 part two

5 part 3

Solar wind
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Study 1
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Study 2
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part 3
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References

Solar wind

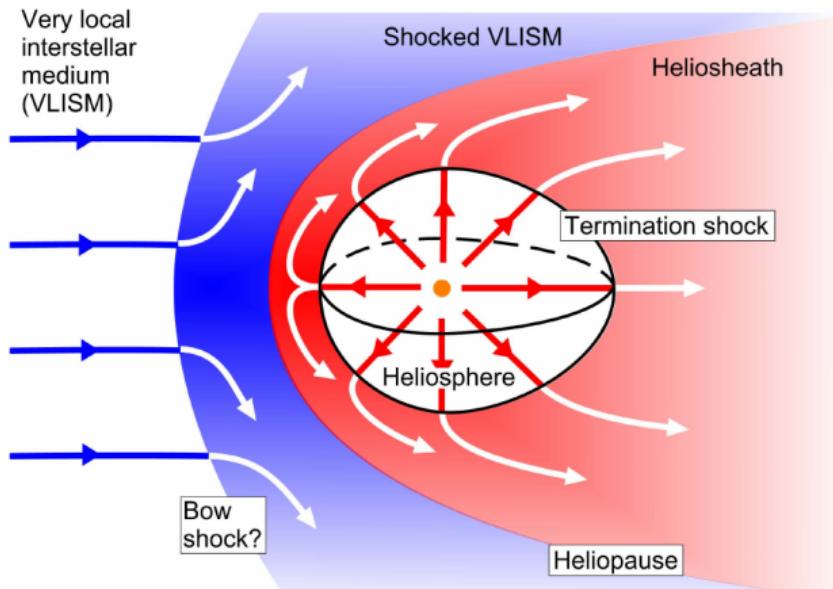


Total Solar Eclipse 2017

© 2017 Miloslav Druckmüller, Peter Aniol, Shadia Habbal

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

Solar wind



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

Solar wind
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Study 1
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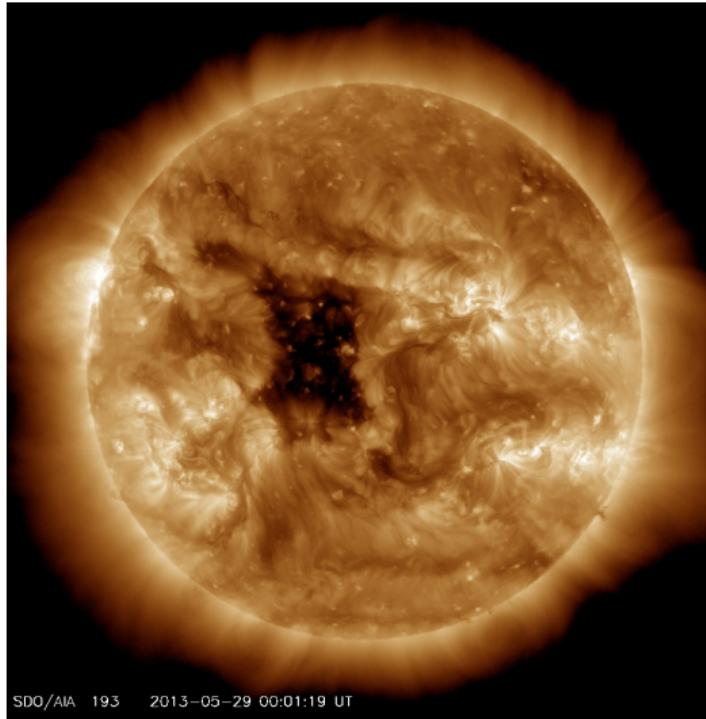
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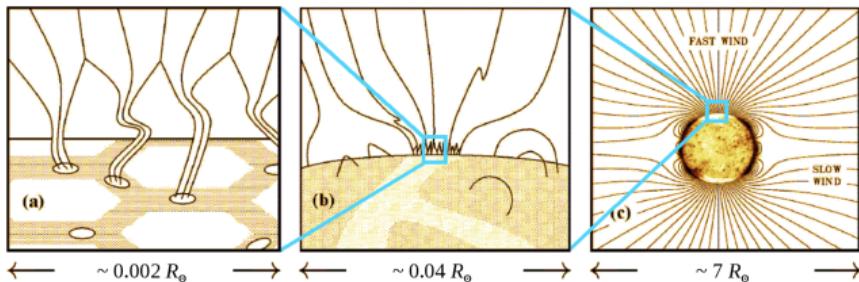
References

Solar wind



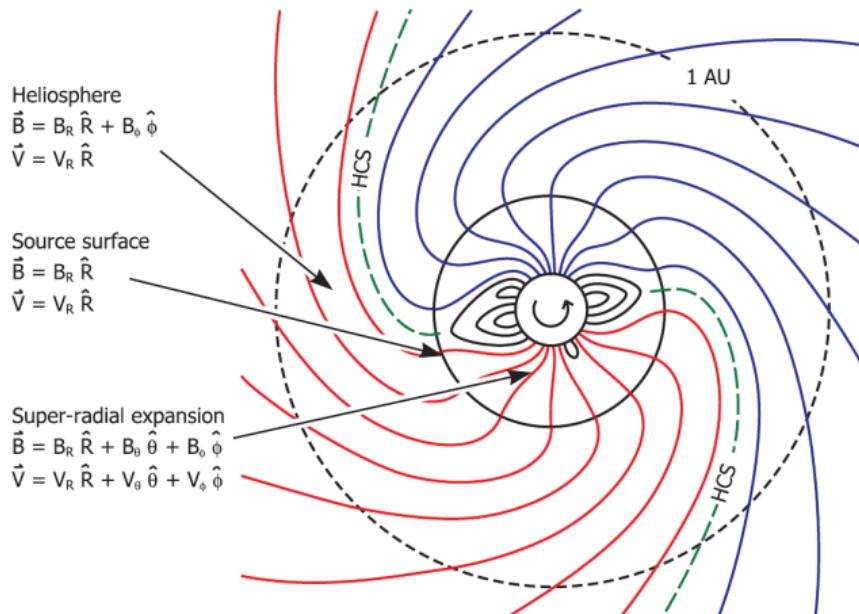
Credit: NASA/SDO and the AIA, EVE and HMI science teams

Solar wind



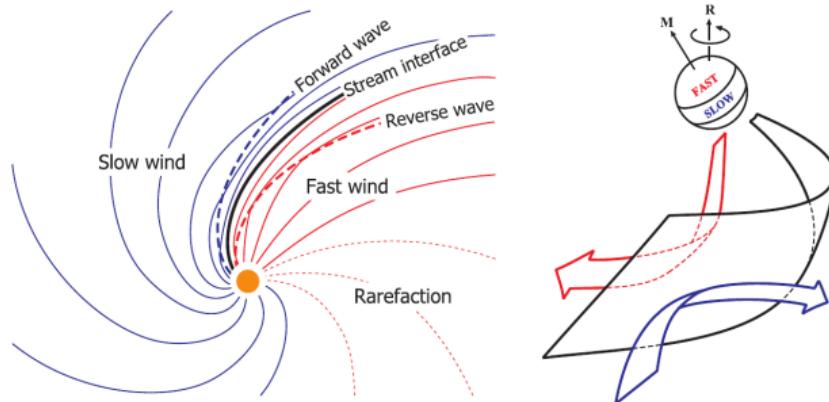
Courtesy of S. R. Cranmer

Solar wind



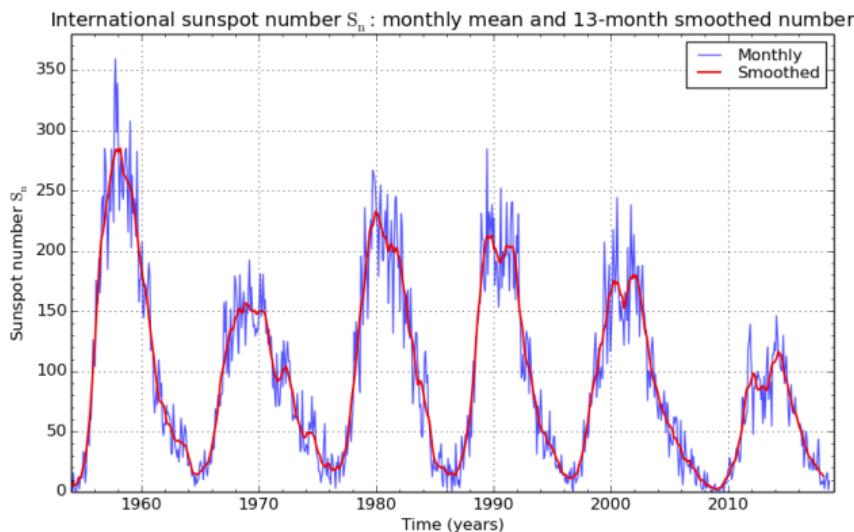
Credit: Owens & Forsyth (2013, Fig. 1), adapted from Schatten et al. (1969, Fig. 1)

Solar wind



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

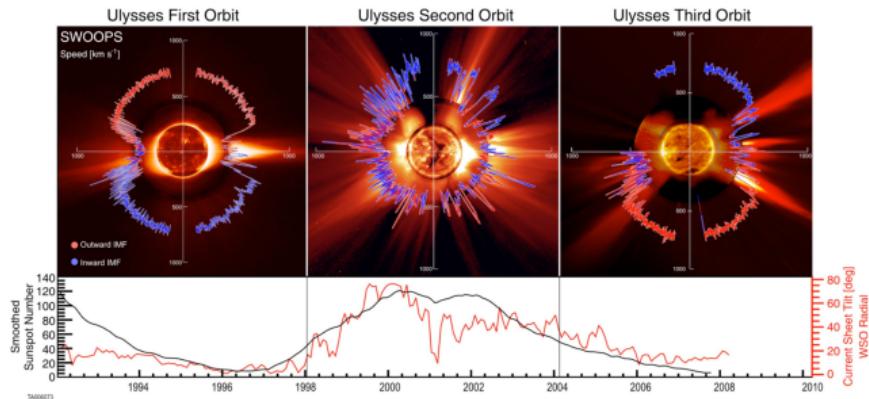
Solar wind



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

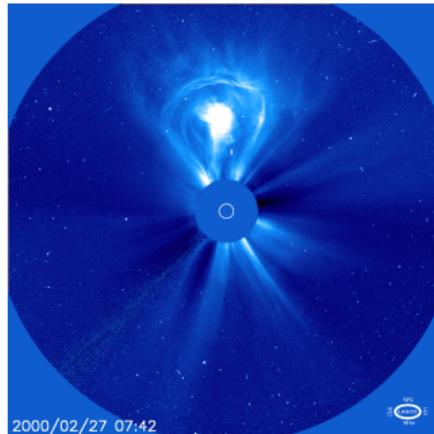
Credit: SILSO data/image, Royal Observatory of Belgium, Brussels, 2018

Solar wind

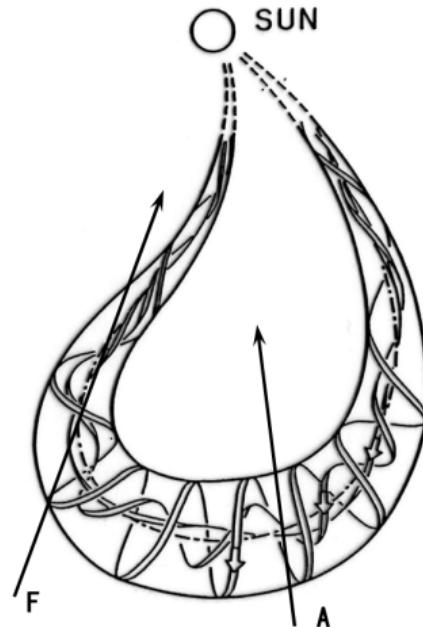


Credit: McComas et al. (2008a, Fig. 1)

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))

Solar wind
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Study 1
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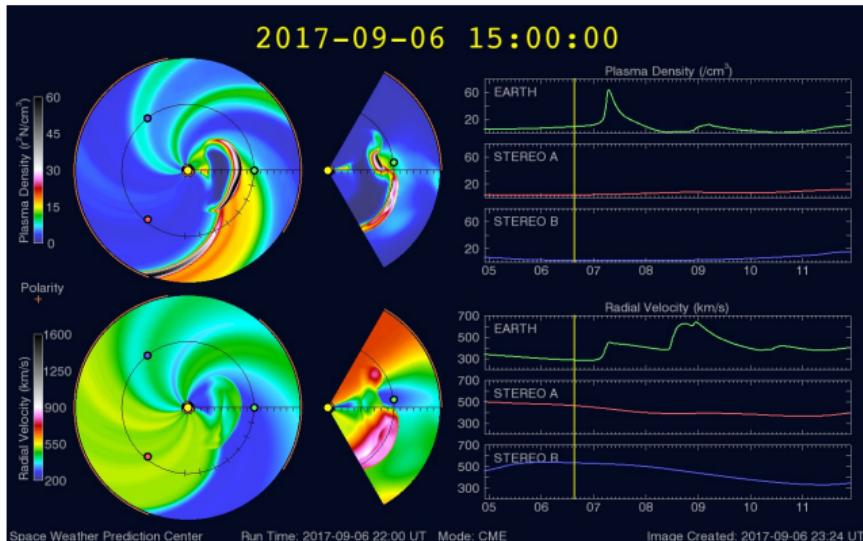
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References

Solar wind



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

Solar wind
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References

Solar wind

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1 Solar wind

2 Study 1

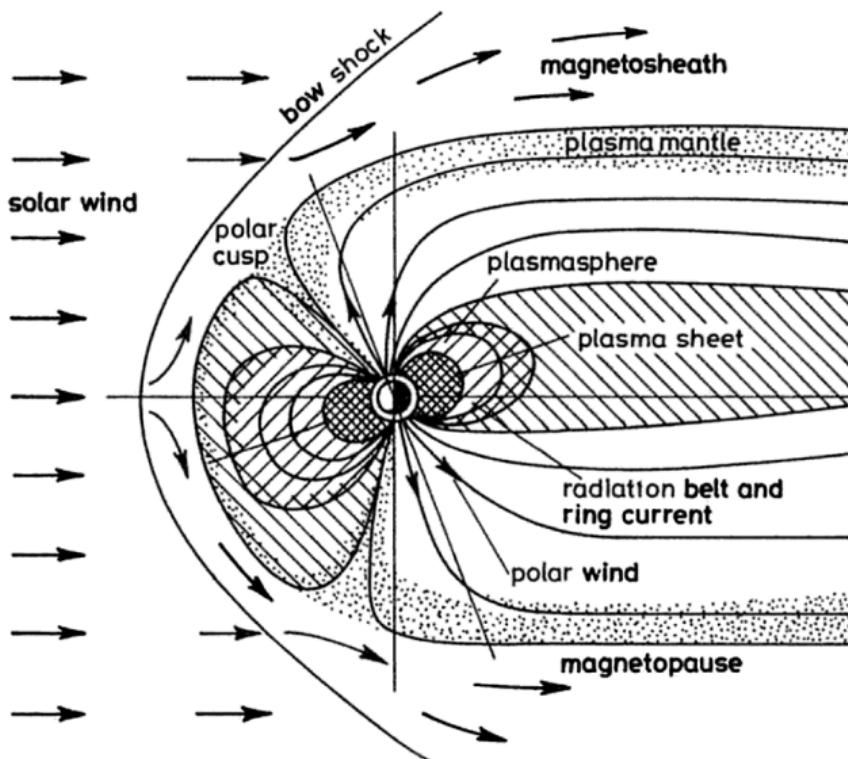
3 Study 2

4 part two

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Geomagnetic impact of the solar wind

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Credit: Davies (1990, Fig. 2.12)

Solar wind
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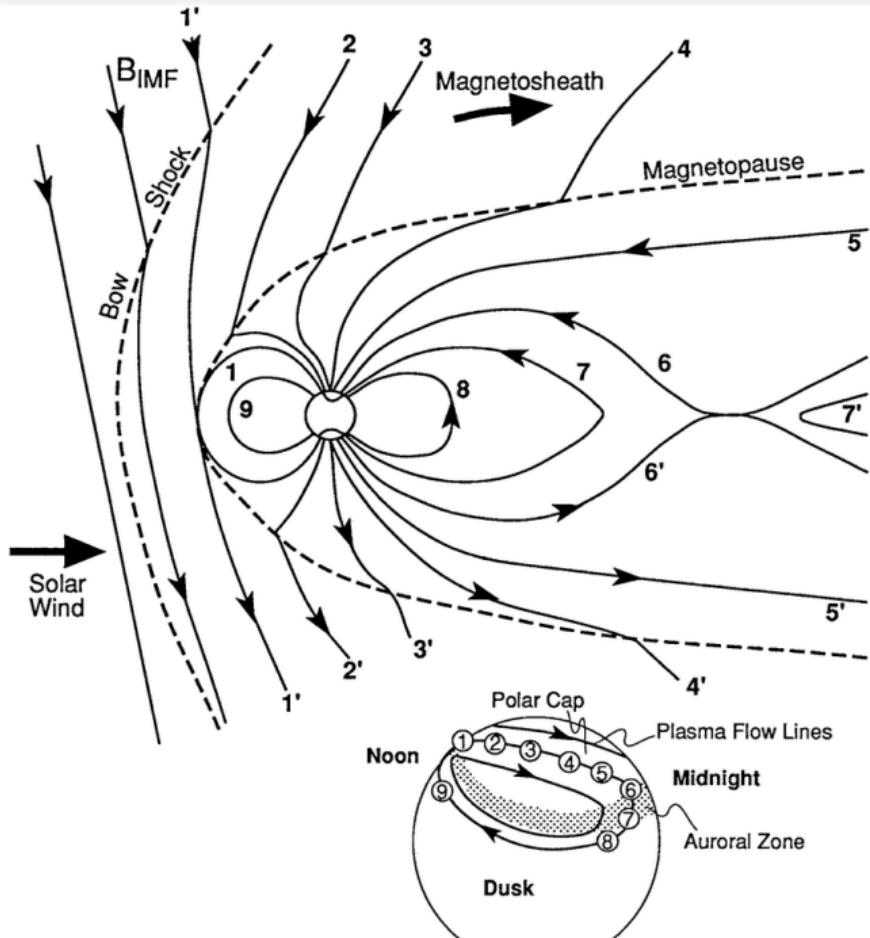
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References



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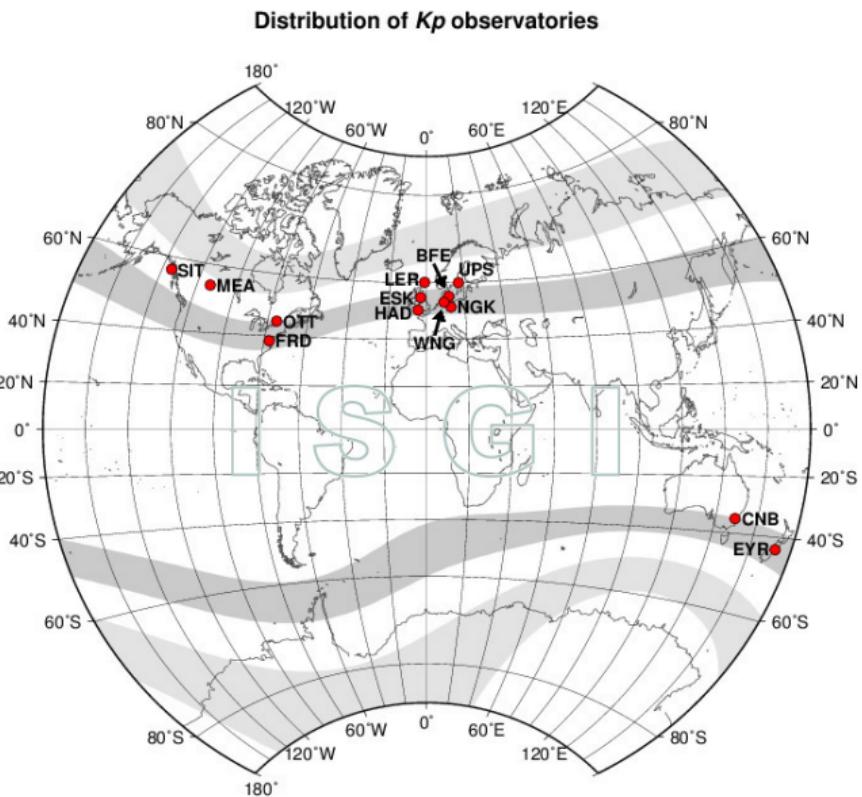
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References



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

1 Solar wind

2 Study 1

3 Study 2

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Sun–Earth evolution of the solar wind

images...

first slide

A bit more information about this

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first slide

A bit more information about this

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Definition

A definition

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1 Solar wind

2 Study 1

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Sample frame title

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

Examples

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

Sample frame title

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

Sample frame title

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

Examples

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

1 Solar wind

2 Study 1

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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

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Examples

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Important theorem

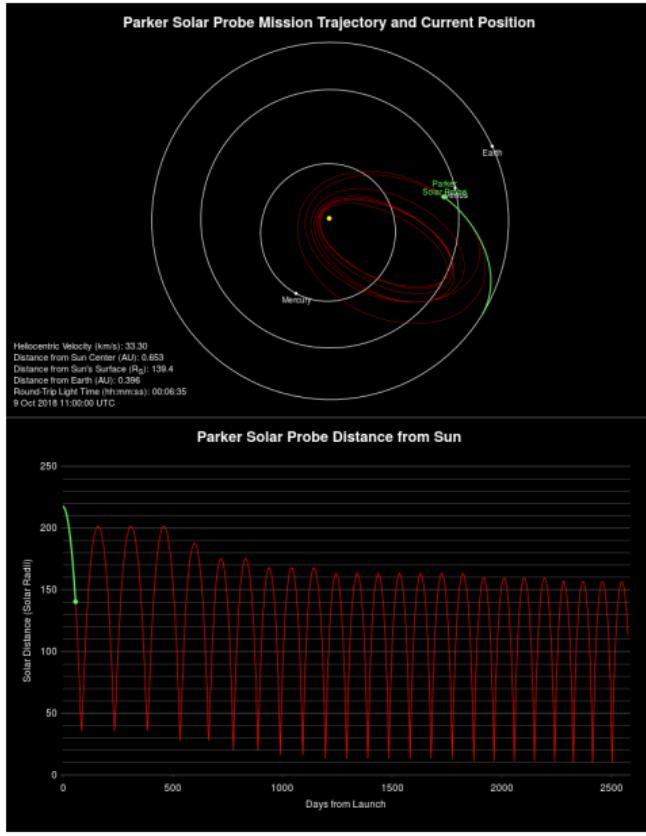
Sample text in red box

Figure sample

A



Credit: NASA



Credit: NASA

Important theorem

Sample text in red box

some text

more text

Credit: NASA

Credit: NASA

Further Reading I

Cranmer, S. R. & van Ballegooijen, A. A. 2005, *On the Generation, Propagation, and Reflection of Alfvén Waves from the Solar Photosphere to the Distant Heliosphere*, *Astrophys. J.*, Suppl. Ser., 156, 265, [DOI], [ADS].

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Further Reading II

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7 Backup slides 2

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7 Backup slides 2

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