Solar Orbiter

Exploring the Sun-heliosphere connection

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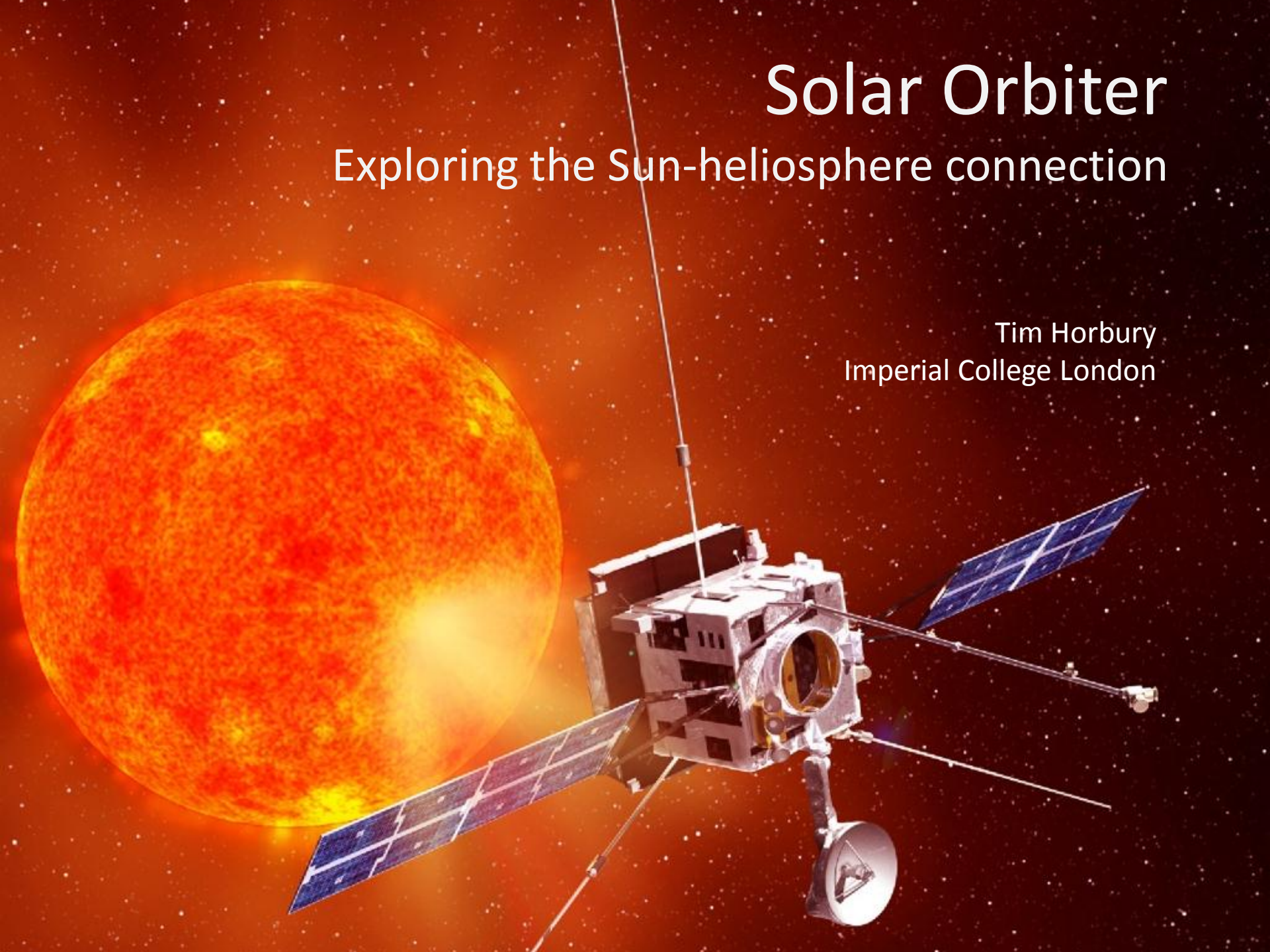

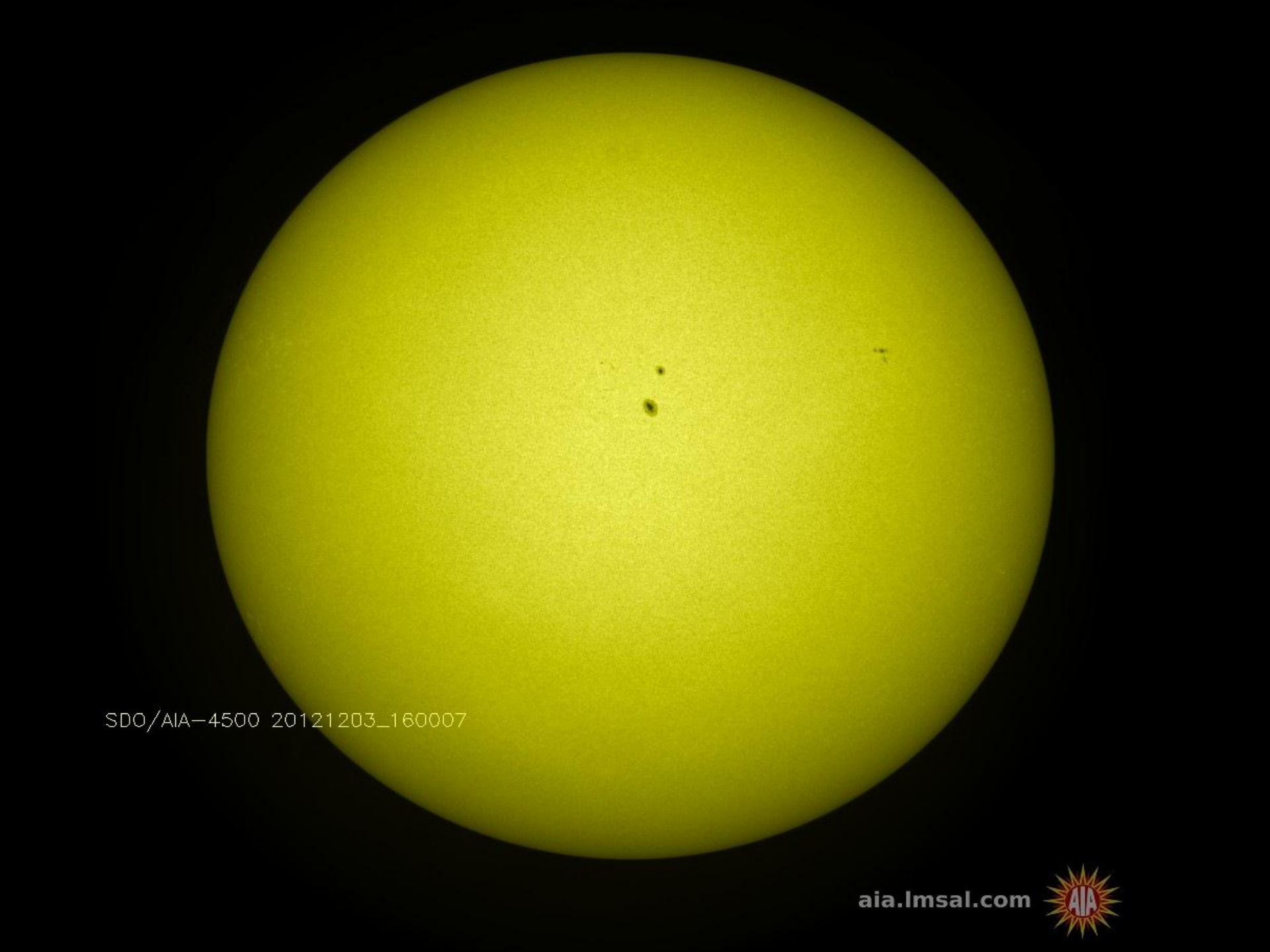
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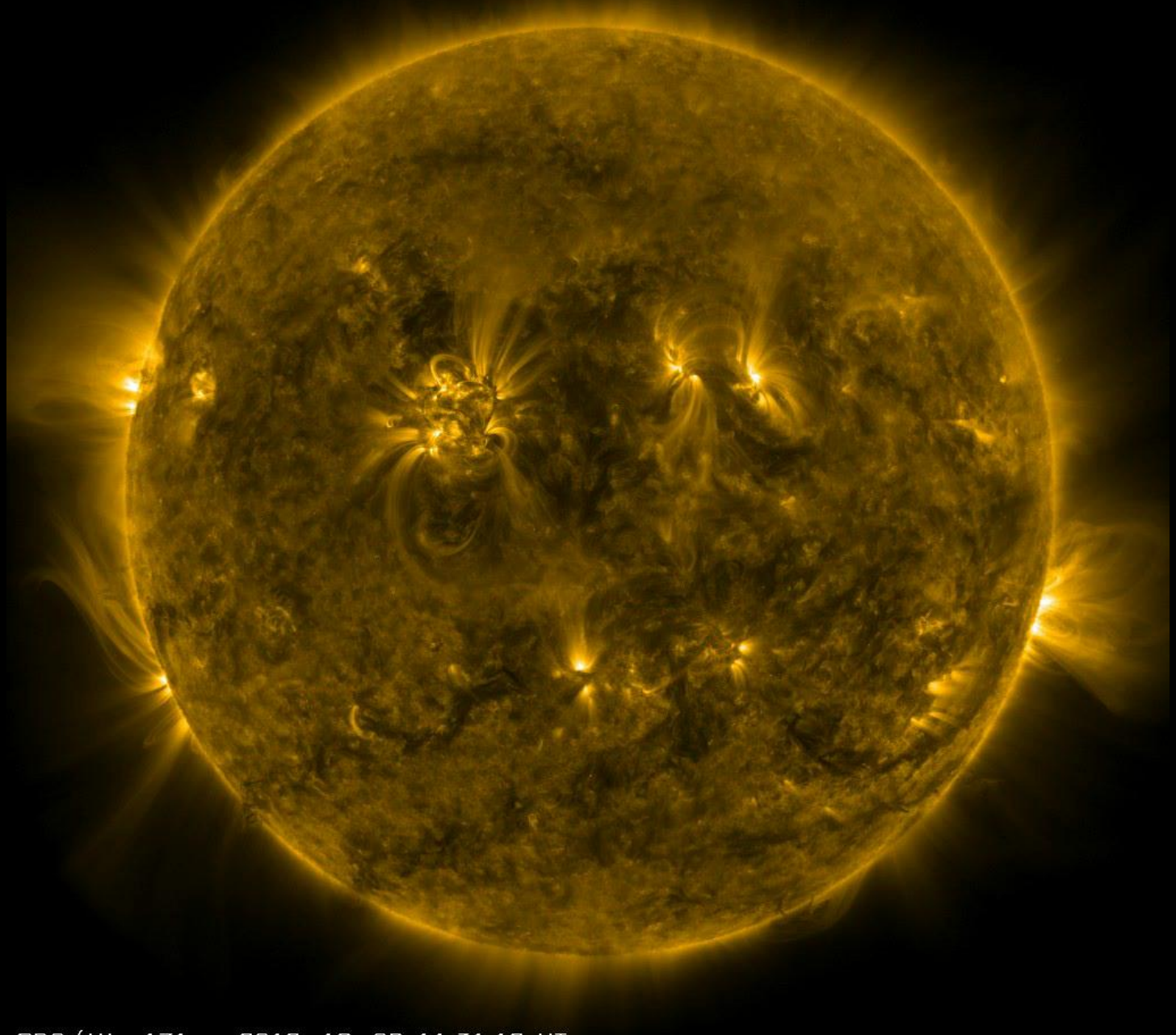
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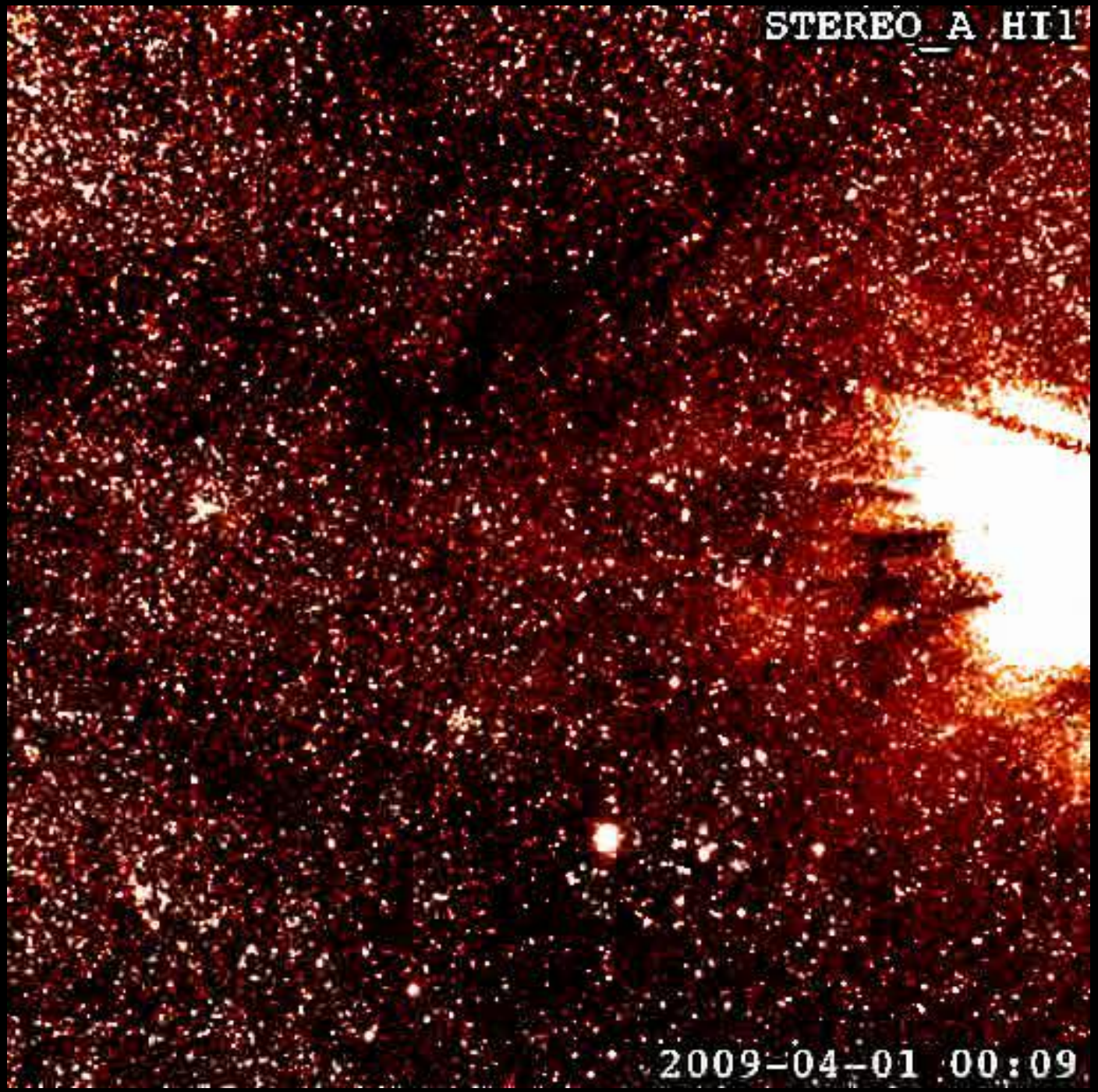
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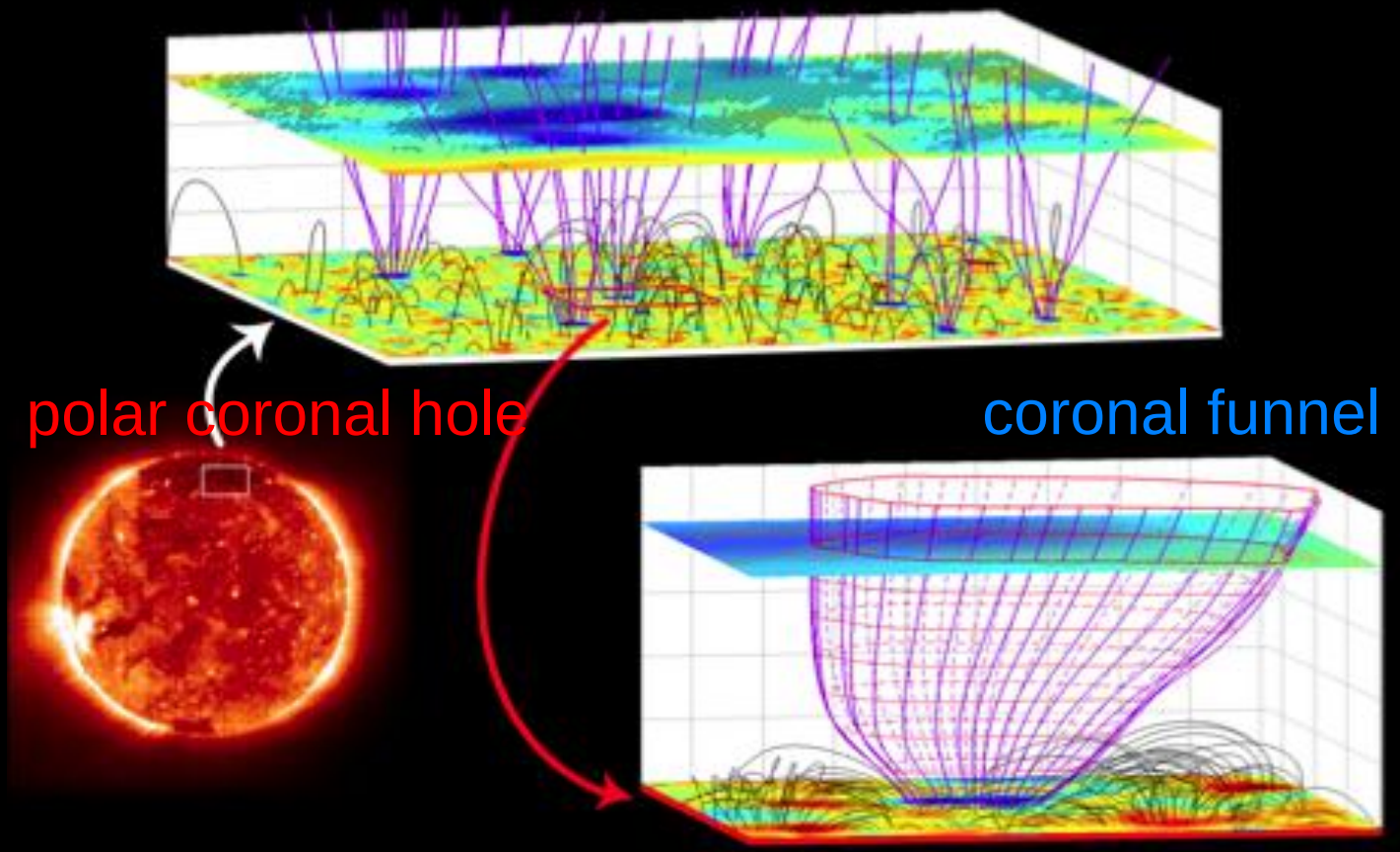
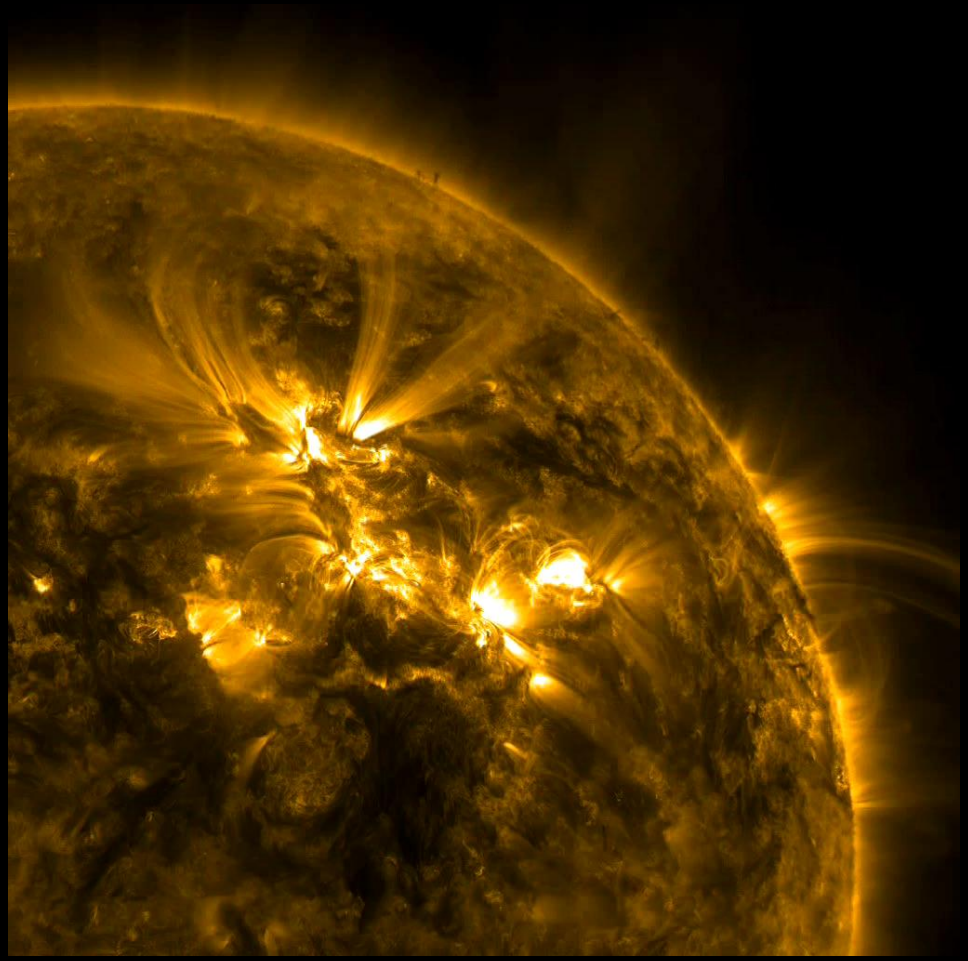
How is the solar wind formed?

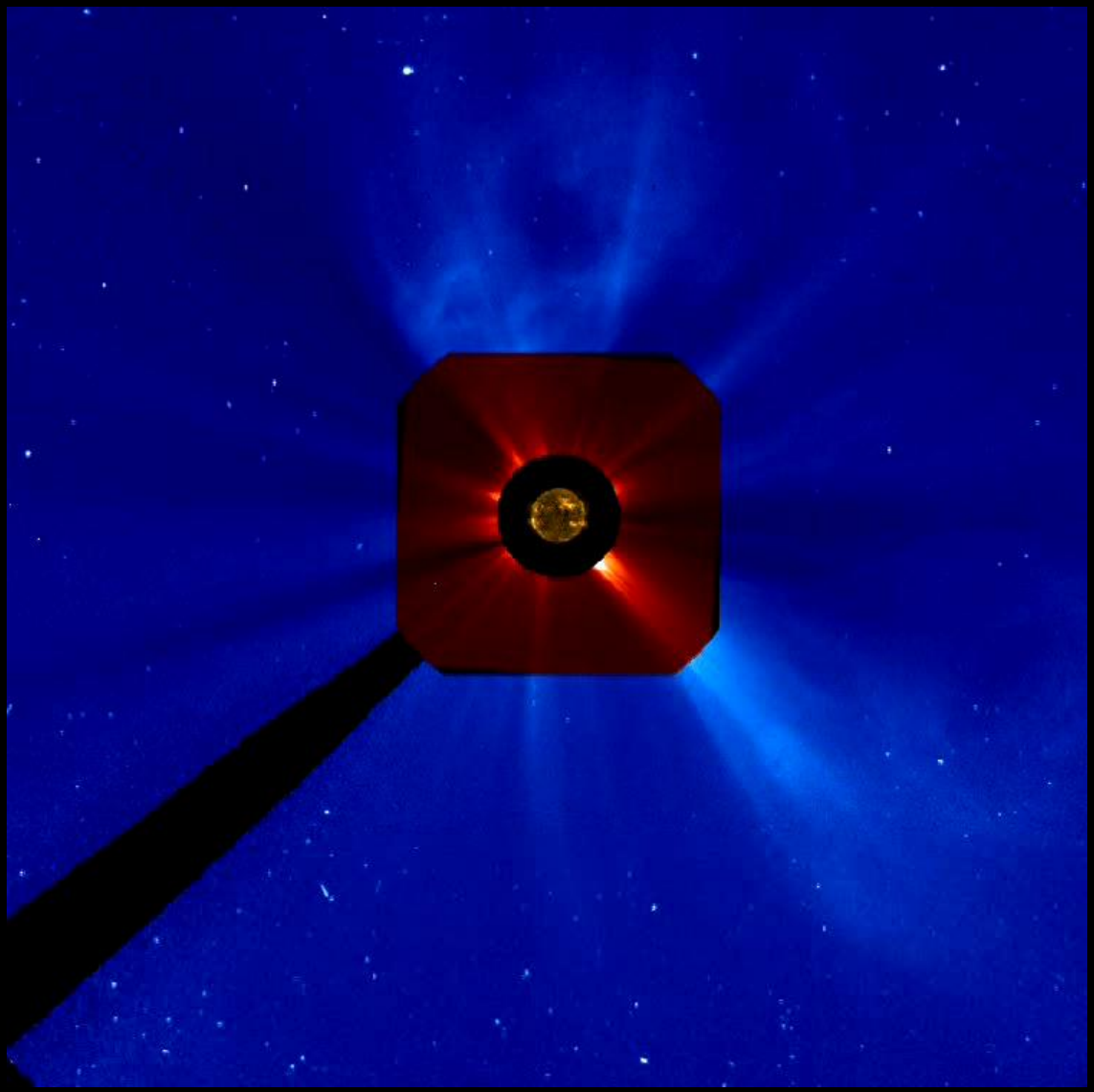


Tu, Zhou, Marsch et al., Science 2005

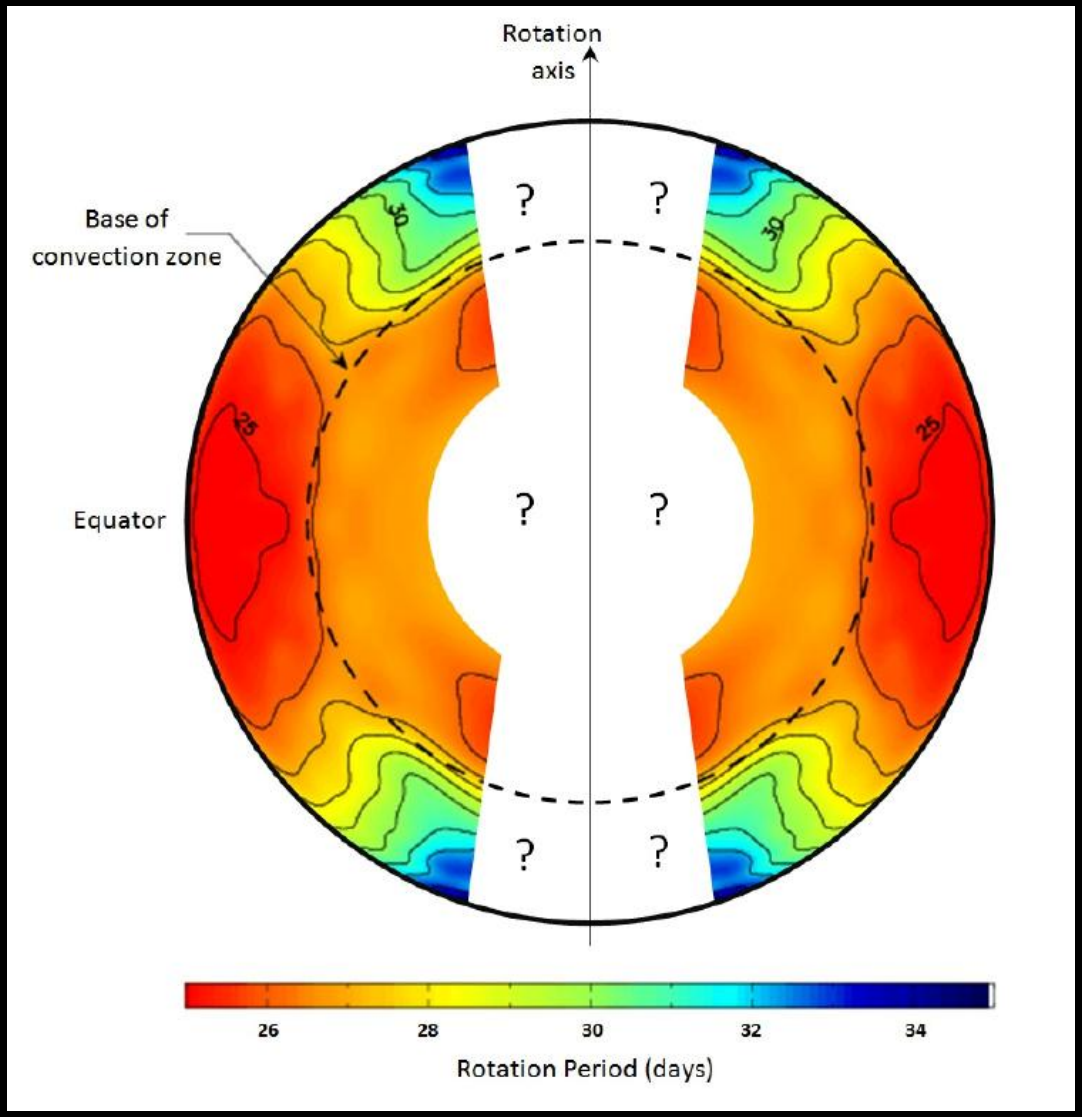
How do transient events evolve?



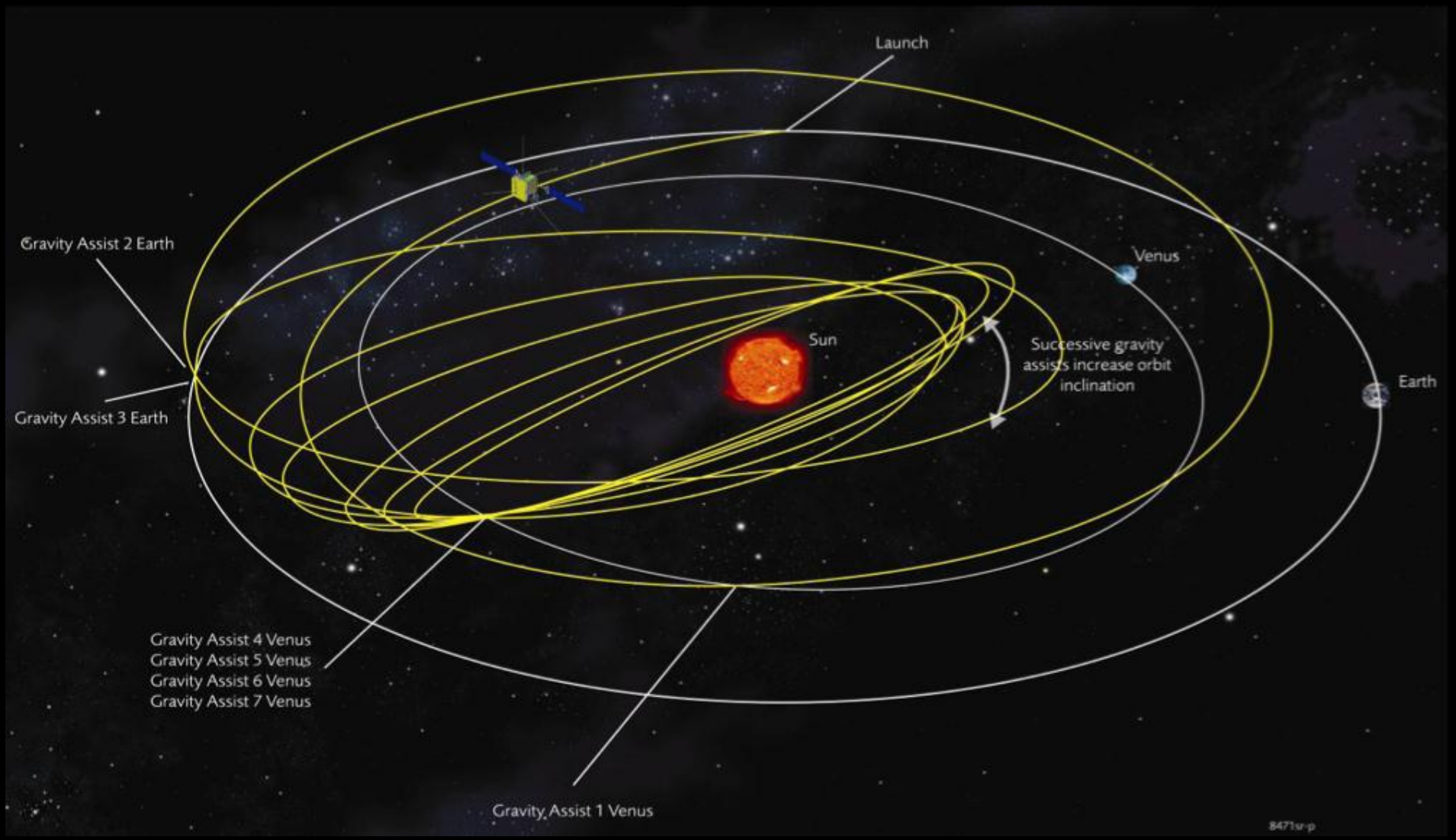
How are solar particles accelerated?



How does the solar cycle work?



A unique orbit



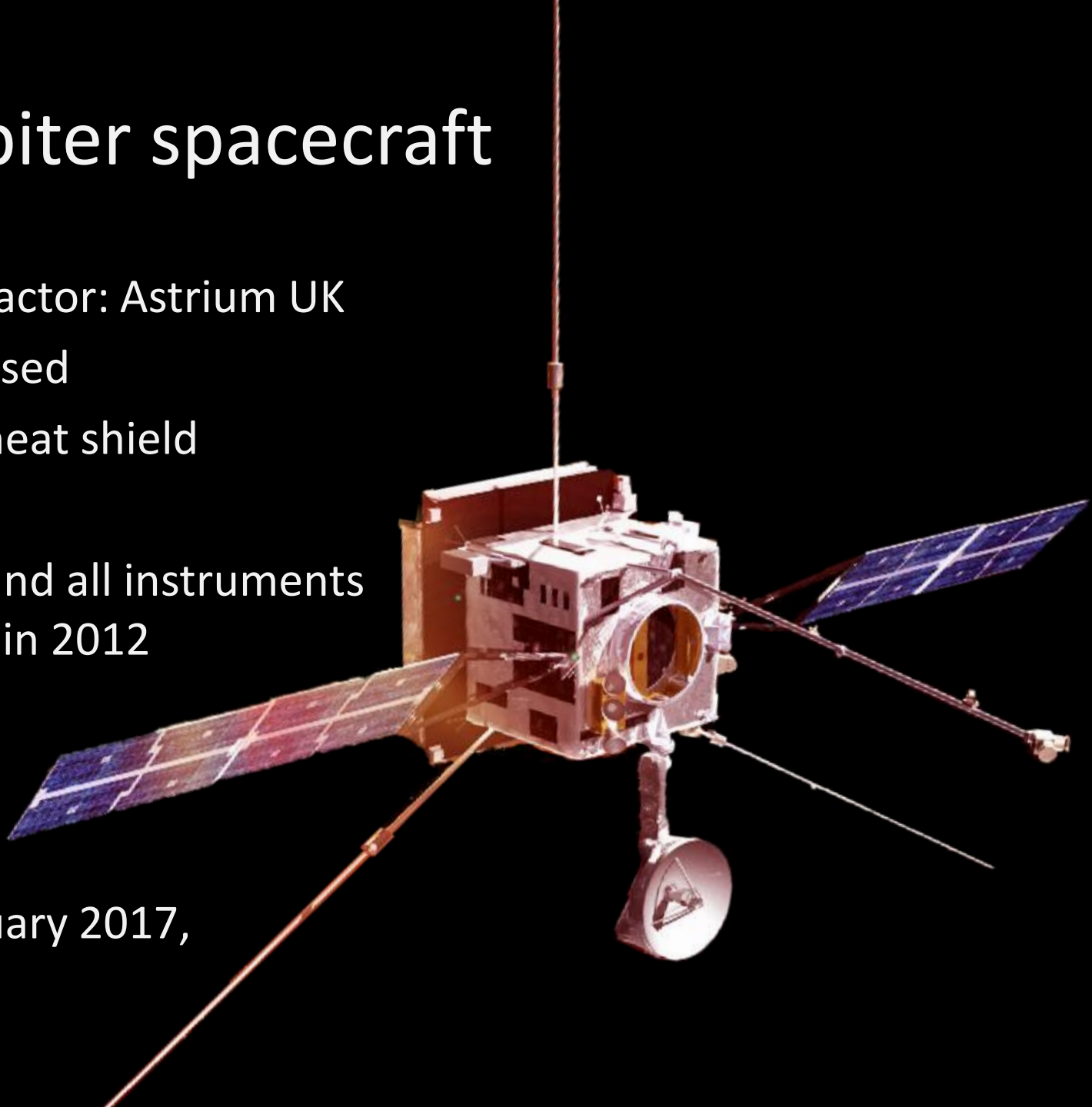
In situ instruments			
SWA	Solar wind analyser	Chris Owen, UK	Sampling protons, electrons and heavy ions in the solar wind
EPD	Energetic particle detector	Javier Rodriguez-Pacheco, Spain	Measuring timing and distribution functions of accelerated energetic particles
MAG	Magnetometer	Tim Horbury, UK	High-precision measurements of the heliospheric magnetic field
RPW	Radio and plasma wave analyser	Milan Maksimovic, France	Studying local electromagnetic and electrostatic waves and solar radio bursts
Remote sensing instruments			
PHI	Polarimetric and heliospheric imager	Sami Solanki, Germany	Full-disc and high-resolution visible light imaging of the Sun
EUI	Extreme ultraviolet imager	Pierre Rochus, Belgium	Studying fine-scale processes and large-scale eruptions
STIX	Spectrometer/telescope for imaging X-rays	Arnold Benz, Switzerland	Studying hot plasmas and accelerated electrons
METIS	Multi-element telescope for imaging and spectroscopy	Ester Antonucci, Italy	High-resolution UV and extreme UV coronagraphy
SoloHI	Solar Orbiter heliospheric imager	Russ Howard, US	Observing light scattered by the solar wind over a wide field of view
SPICE	Spectral imaging of the coronal environment	Facility instrument, Andrzej Fludra, UK	Spectroscopy on the solar disc and corona

Solar Orbiter spacecraft

- Prime contractor: Astrium UK
- 3 axis stabilised
- Innovative heat shield

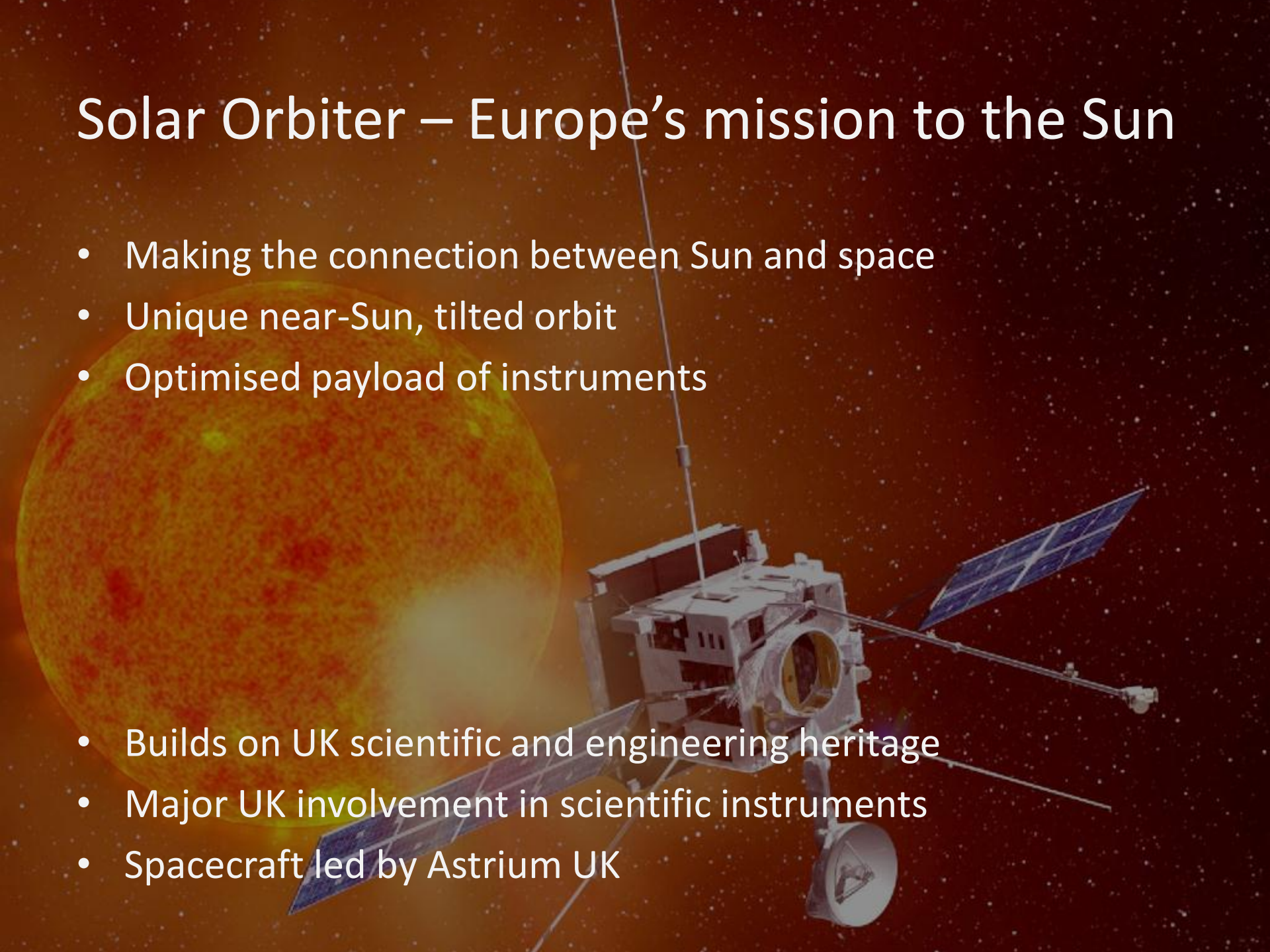
- Spacecraft and all instruments passed PDR in 2012

- Launch January 2017, Atlas V 401



Solar Orbiter – Europe's mission to the Sun

- Making the connection between Sun and space
- Unique near-Sun, tilted orbit
- Optimised payload of instruments



- Builds on UK scientific and engineering heritage
- Major UK involvement in scientific instruments
- Spacecraft led by Astrium UK