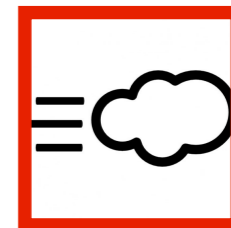


SOLAR WIND

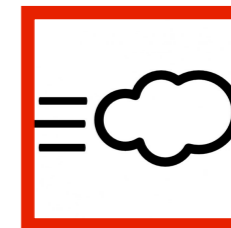
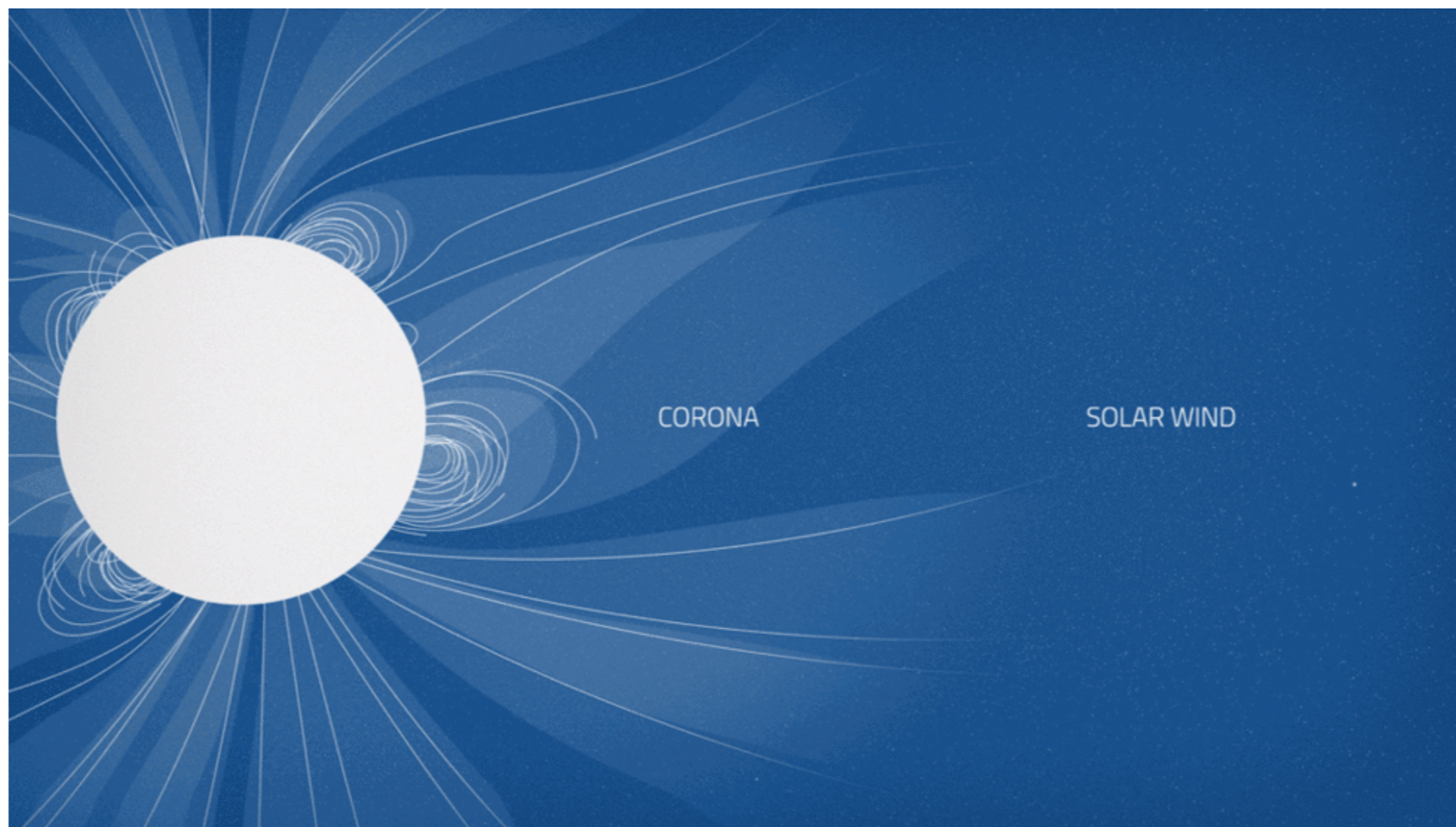


Solar wind =

Plasma

+

Interplanetary Magnetic field



Continuous radial outflow of gas - Consists of charged particles

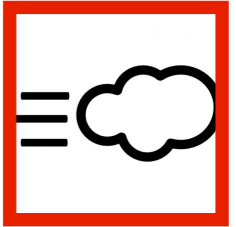
Shapes the IMF - Can carry magnetic structures.

Is the IMF **Straight/Bended**?

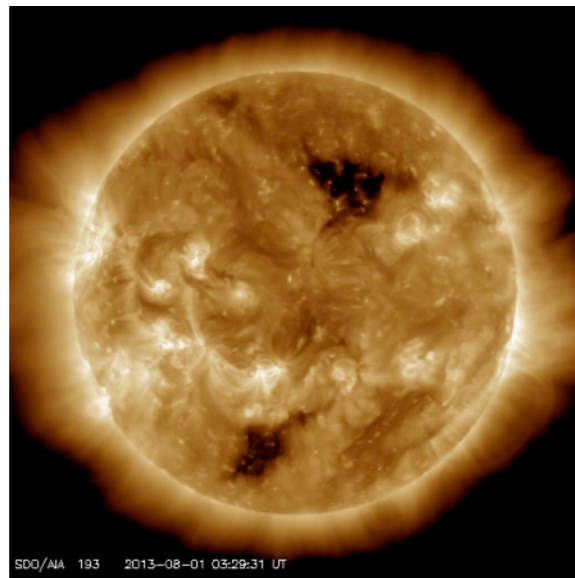
IMF are **open/closed** magnetic field lines?



SOLAR WIND VARIATIONS

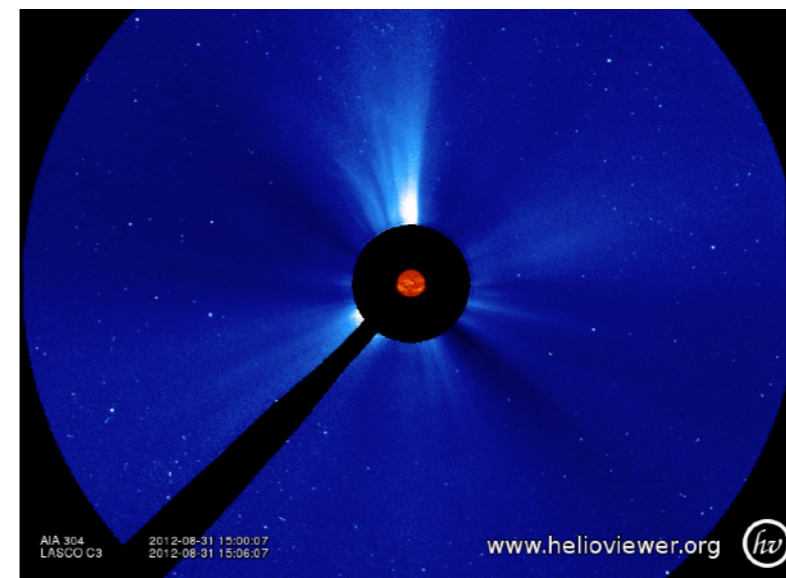


Coronal Hole



Non-eruptive
Eruptive

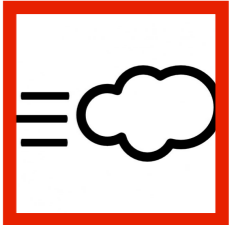
Coronal Mass Ejection



Magnetic reconnection
No magnetic reconnection



SOLAR WIND VARIATIONS

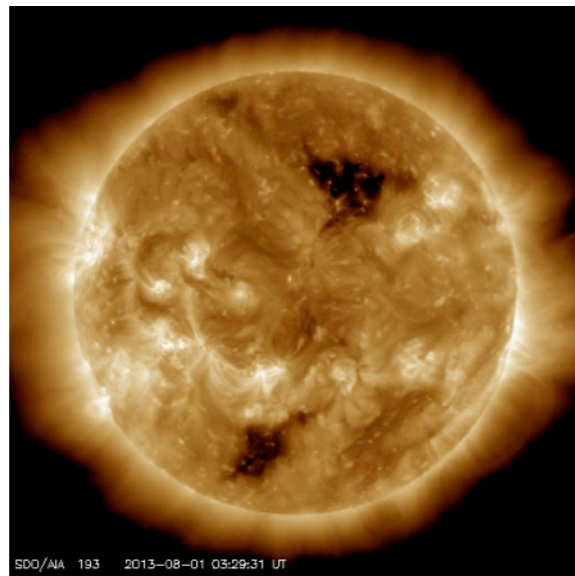


Non-eruptive
No B reconnection

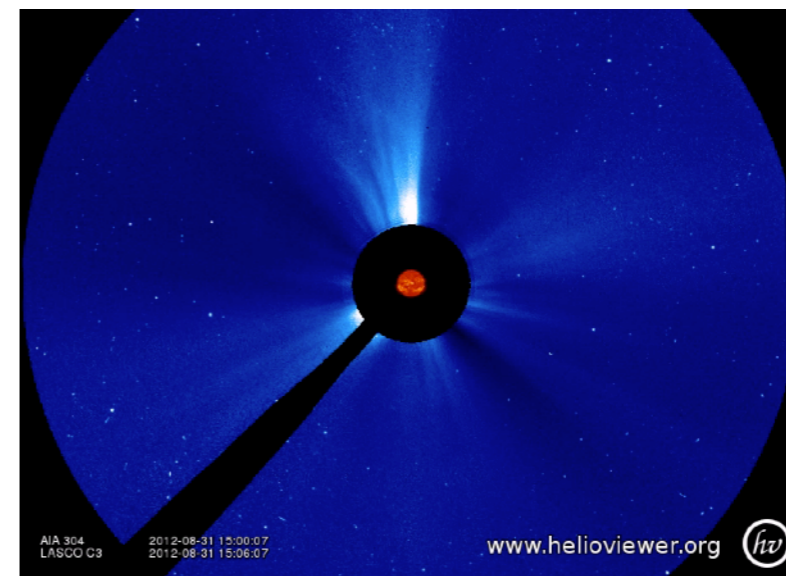


Eruptive
B reconnection

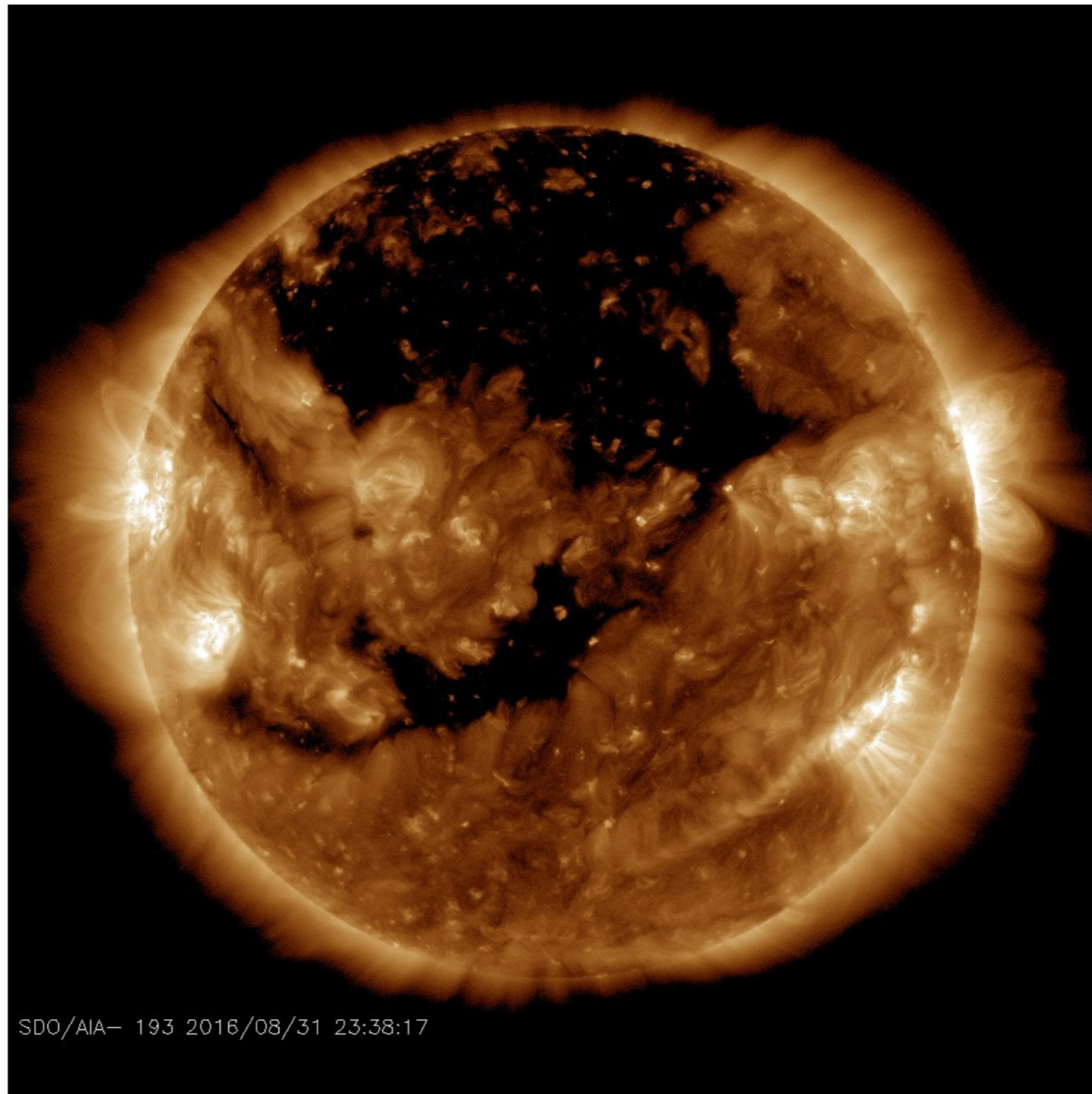
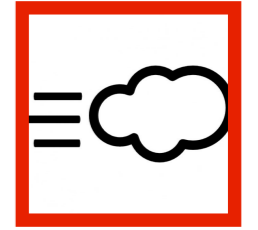
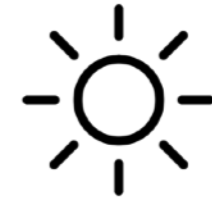
Coronal Hole



Coronal Mass Ejection

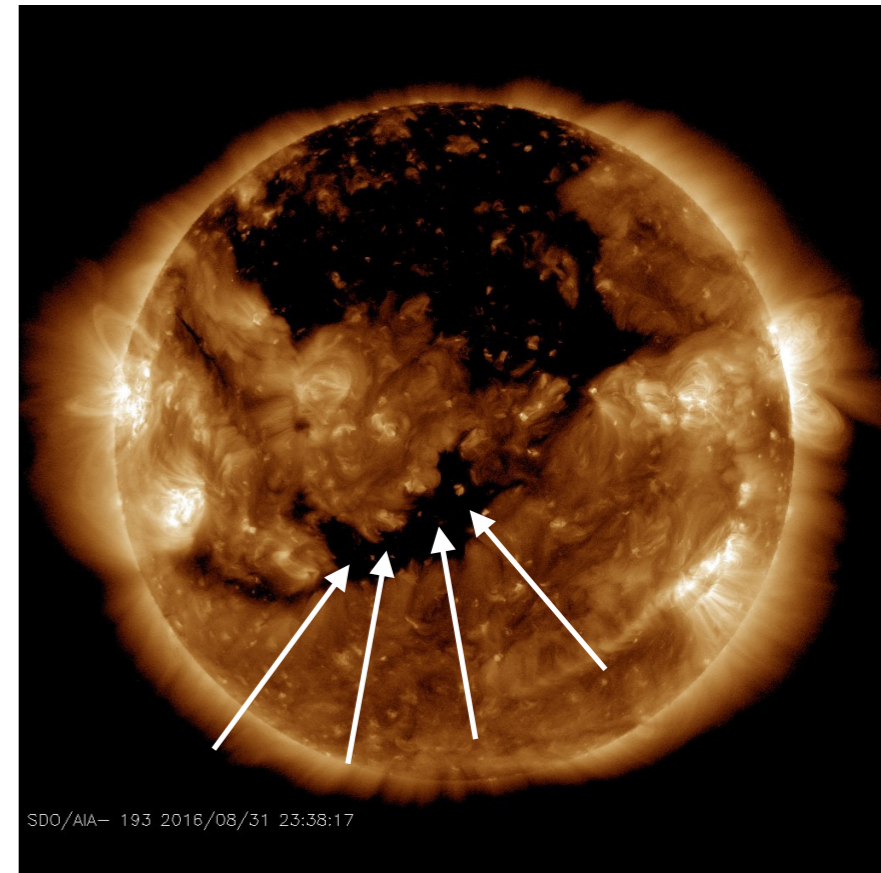
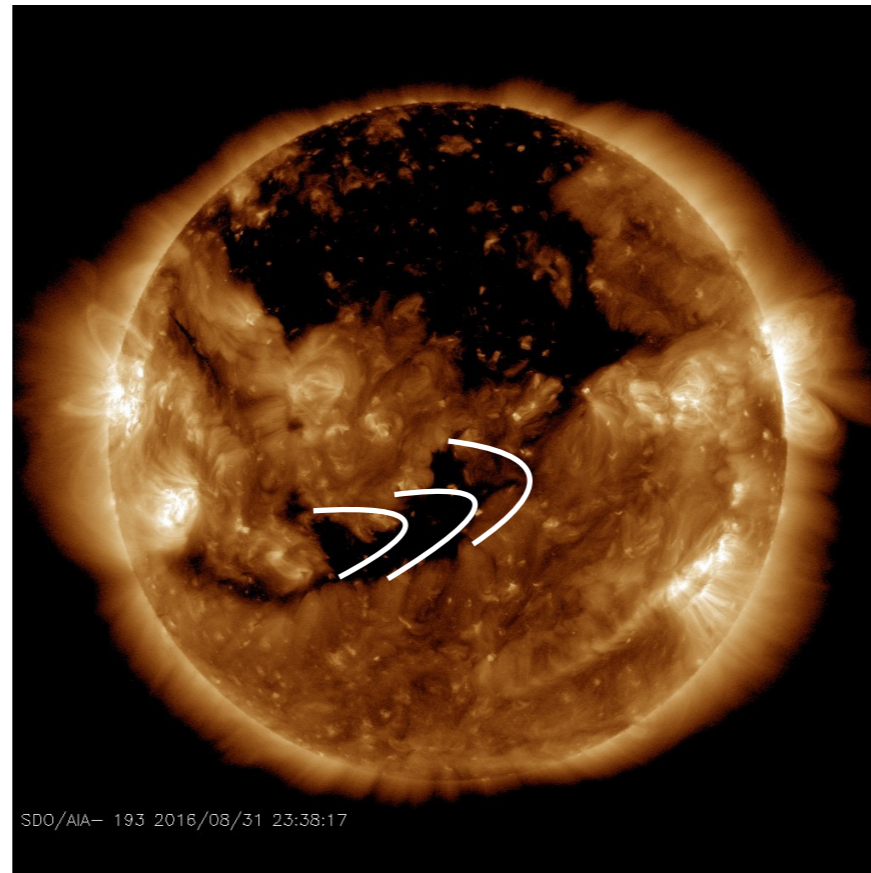
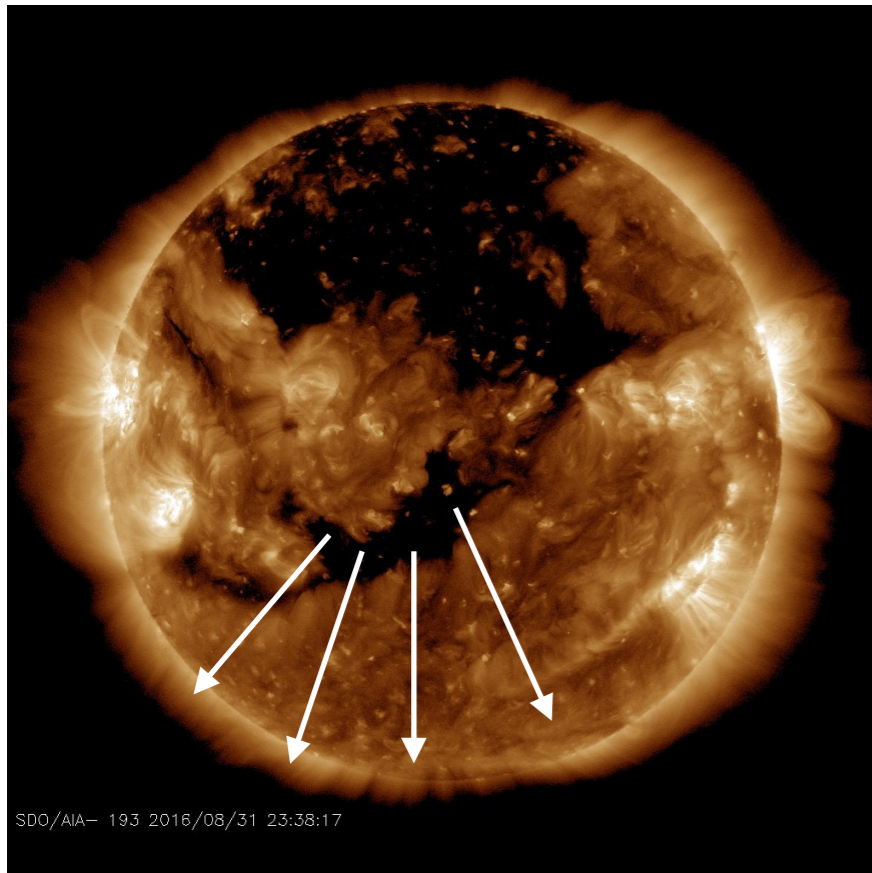
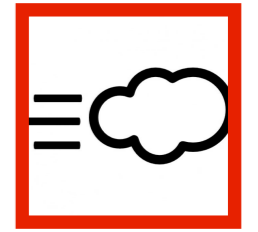


CORONAL HOLE

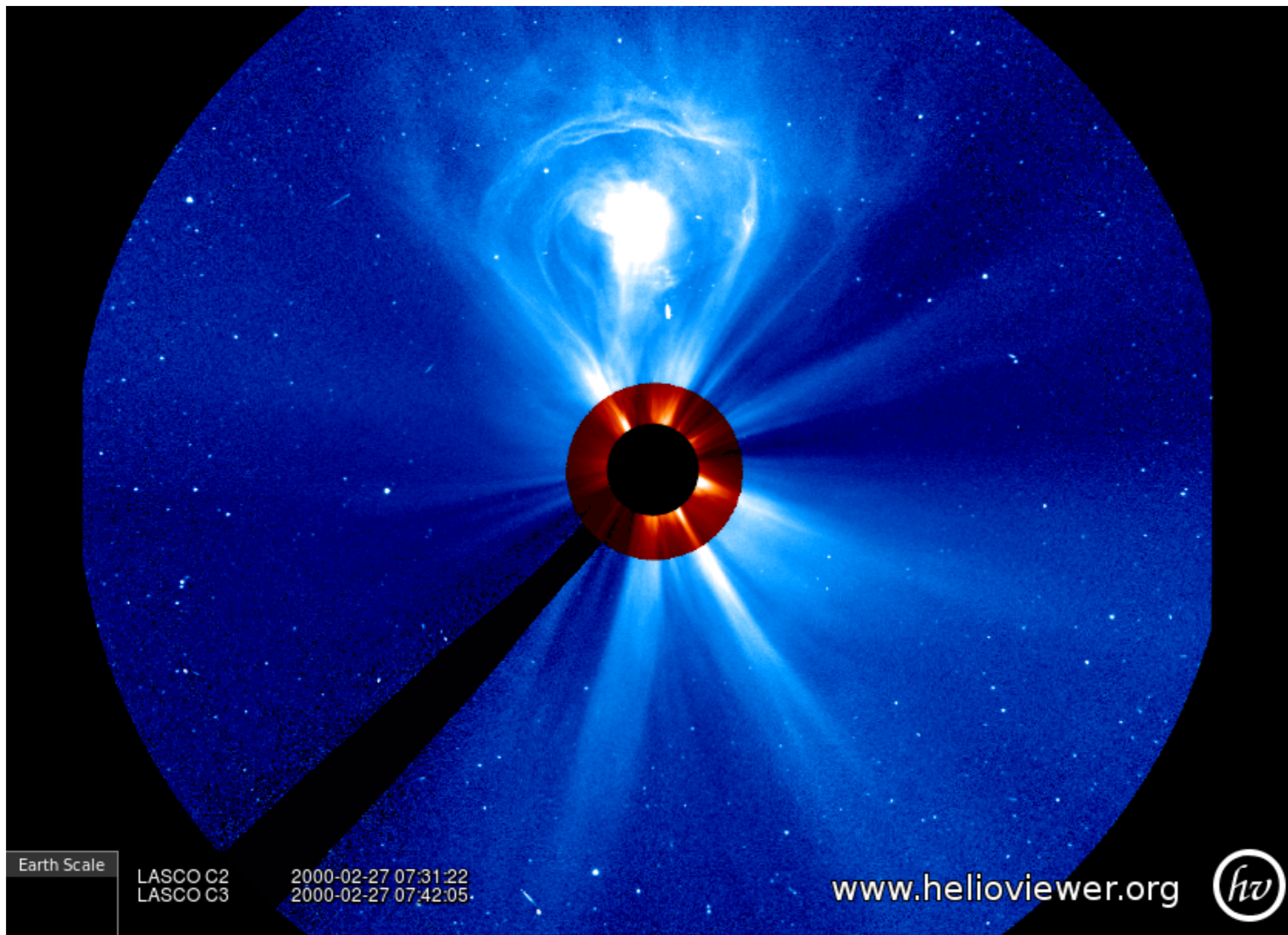
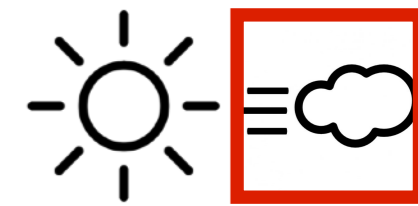


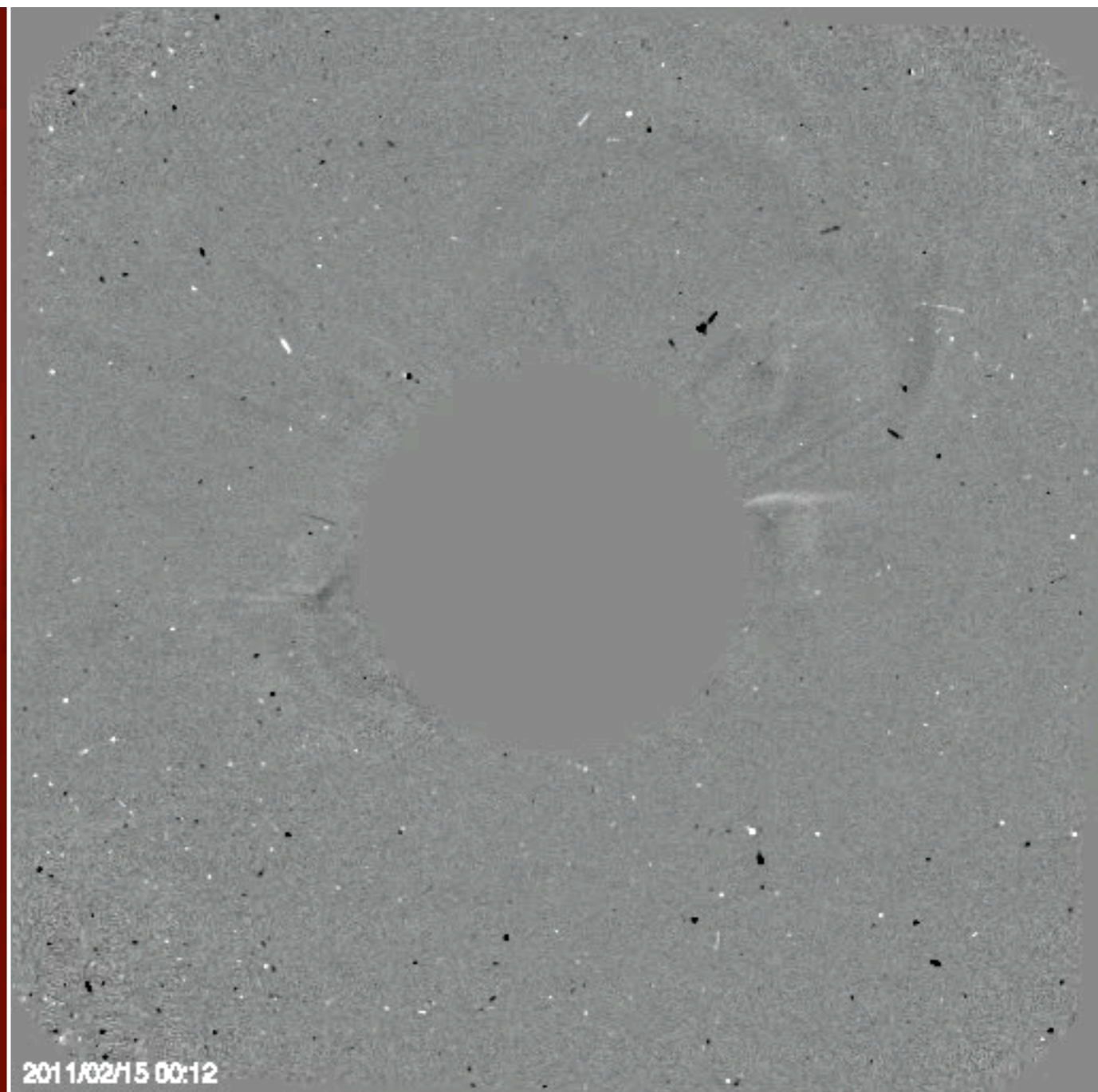
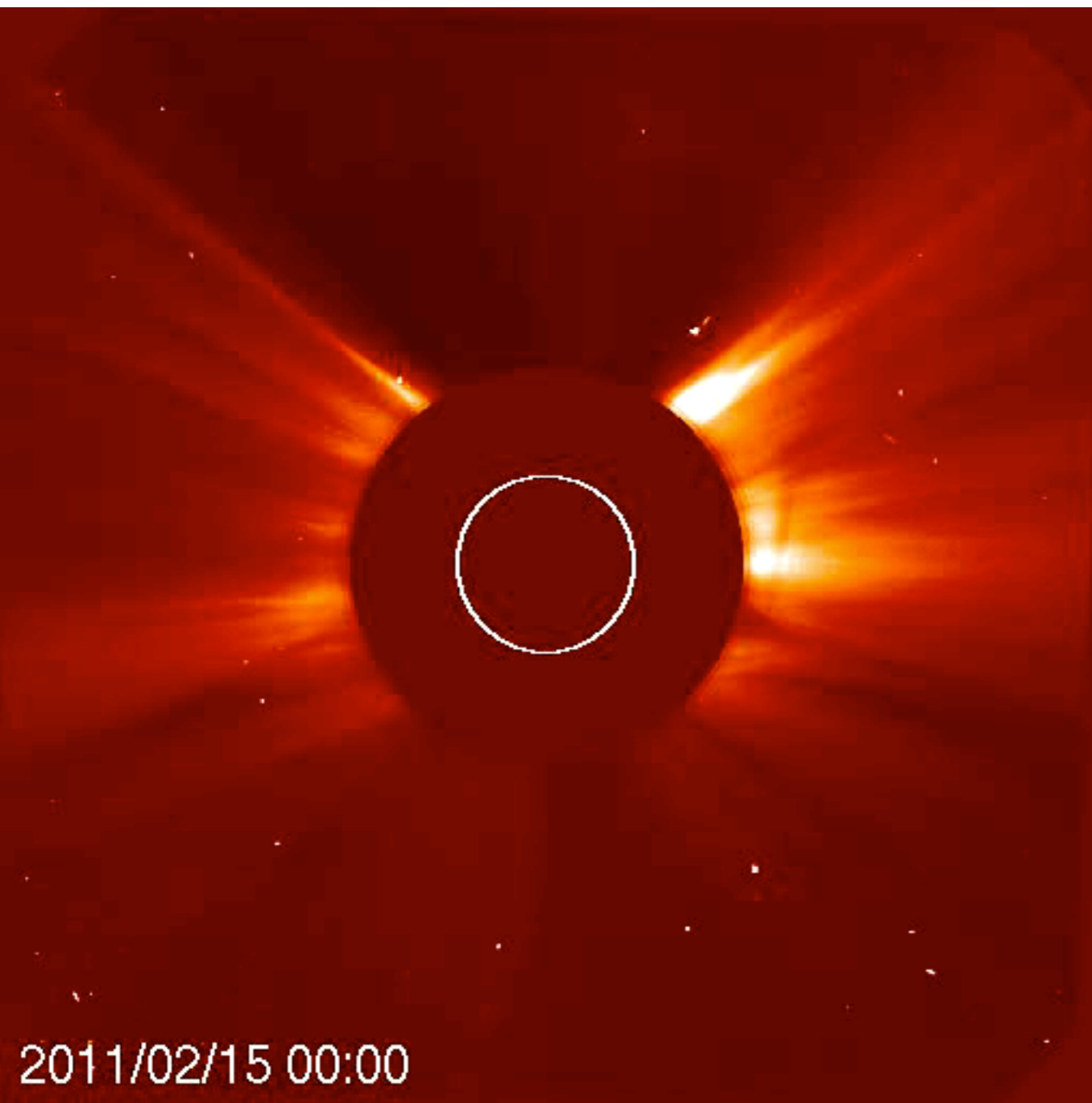
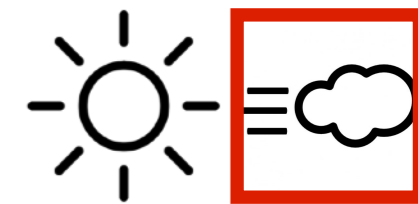
SDO/AIA- 193 2016/08/31 23:38:17

B OF CORONAL HOLE



CORONAL MASS EJECTION





SOHO / LASCO c2



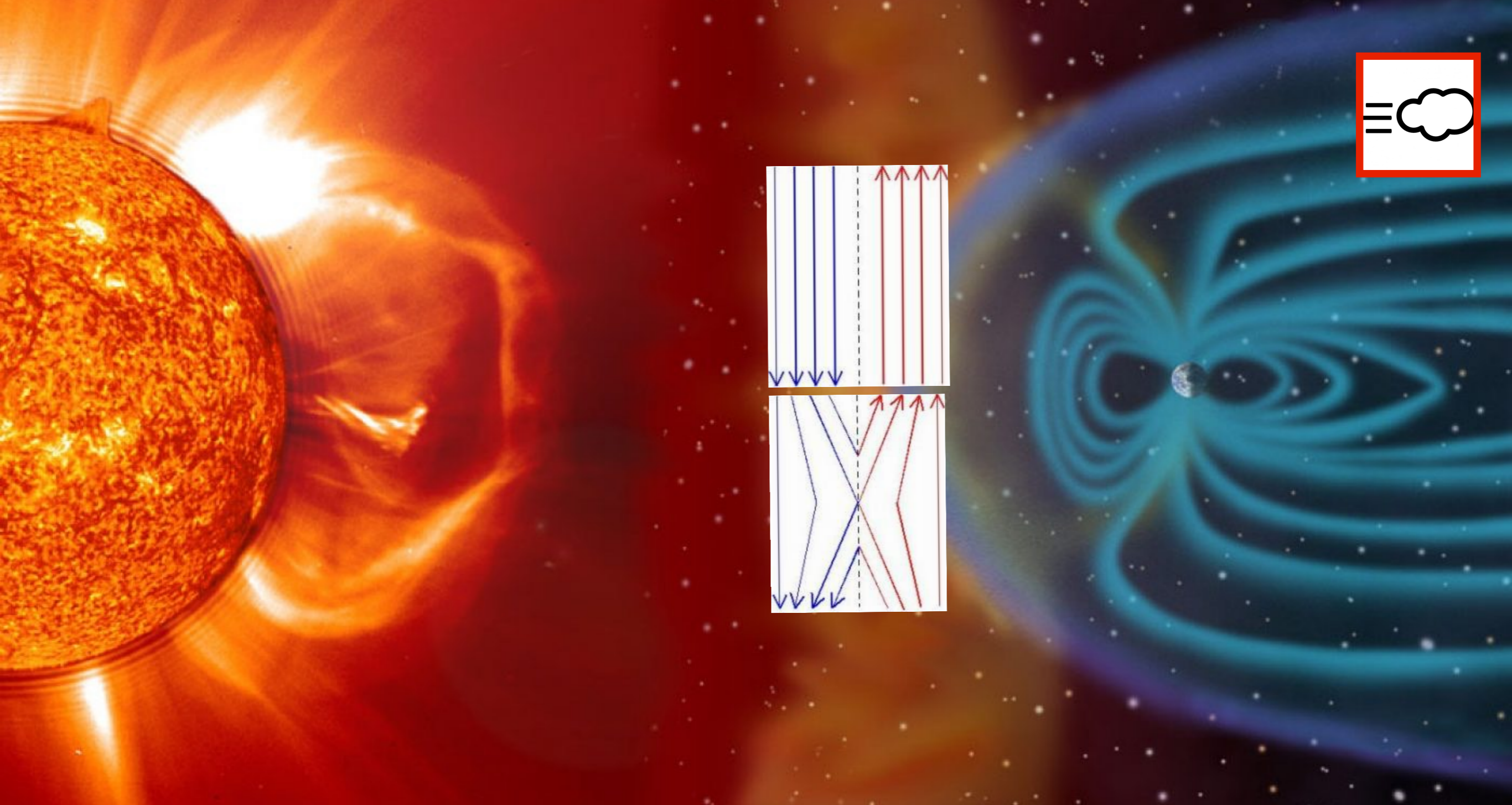
running difference





NEAR EARTH

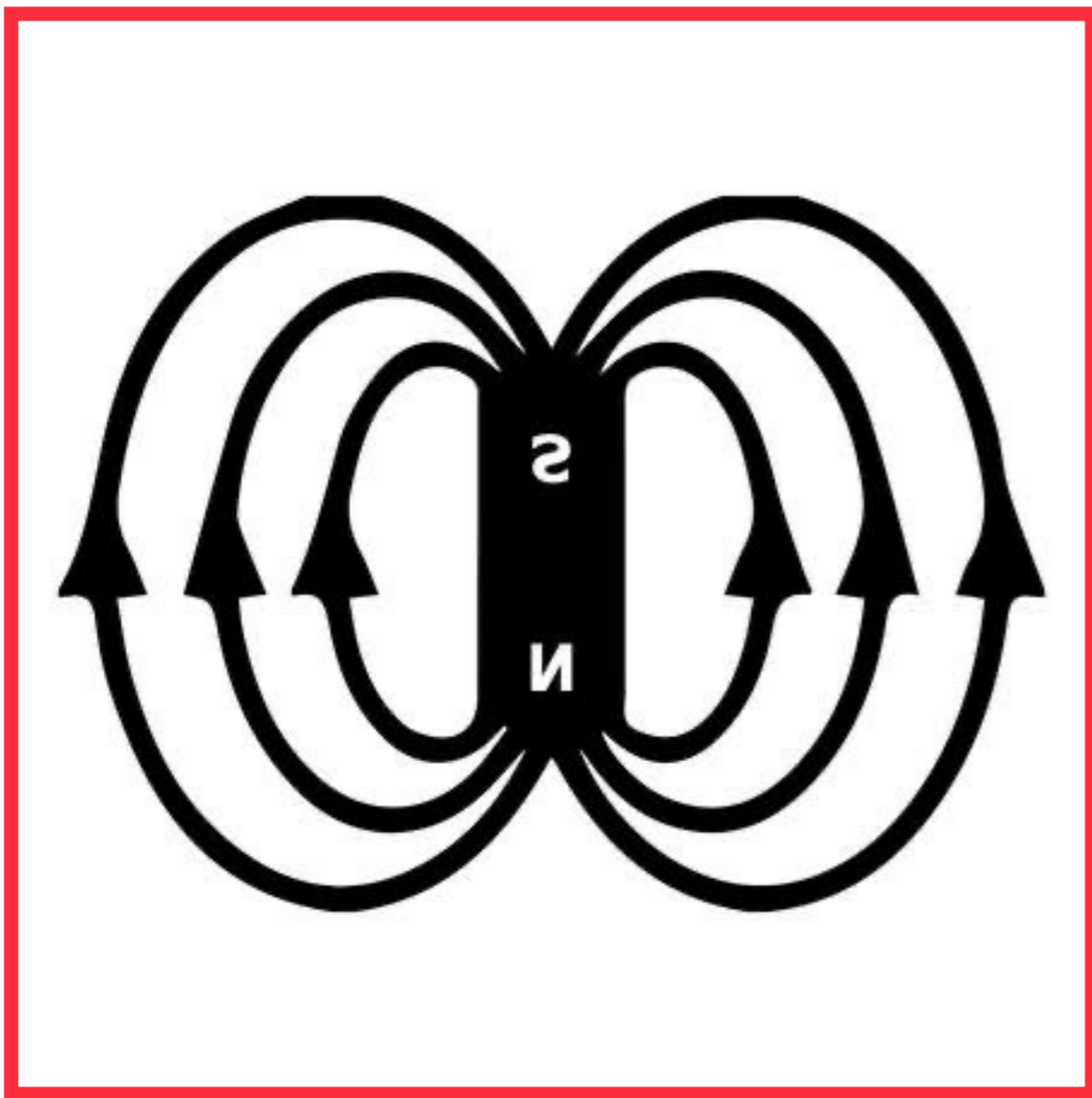




RECONNECTION

The magnetic field carried by the solar wind can couple with the magnetic field of Earth. This coupling is stronger when the solar wind magnetic field is opposite to the magnetic field of Earth.



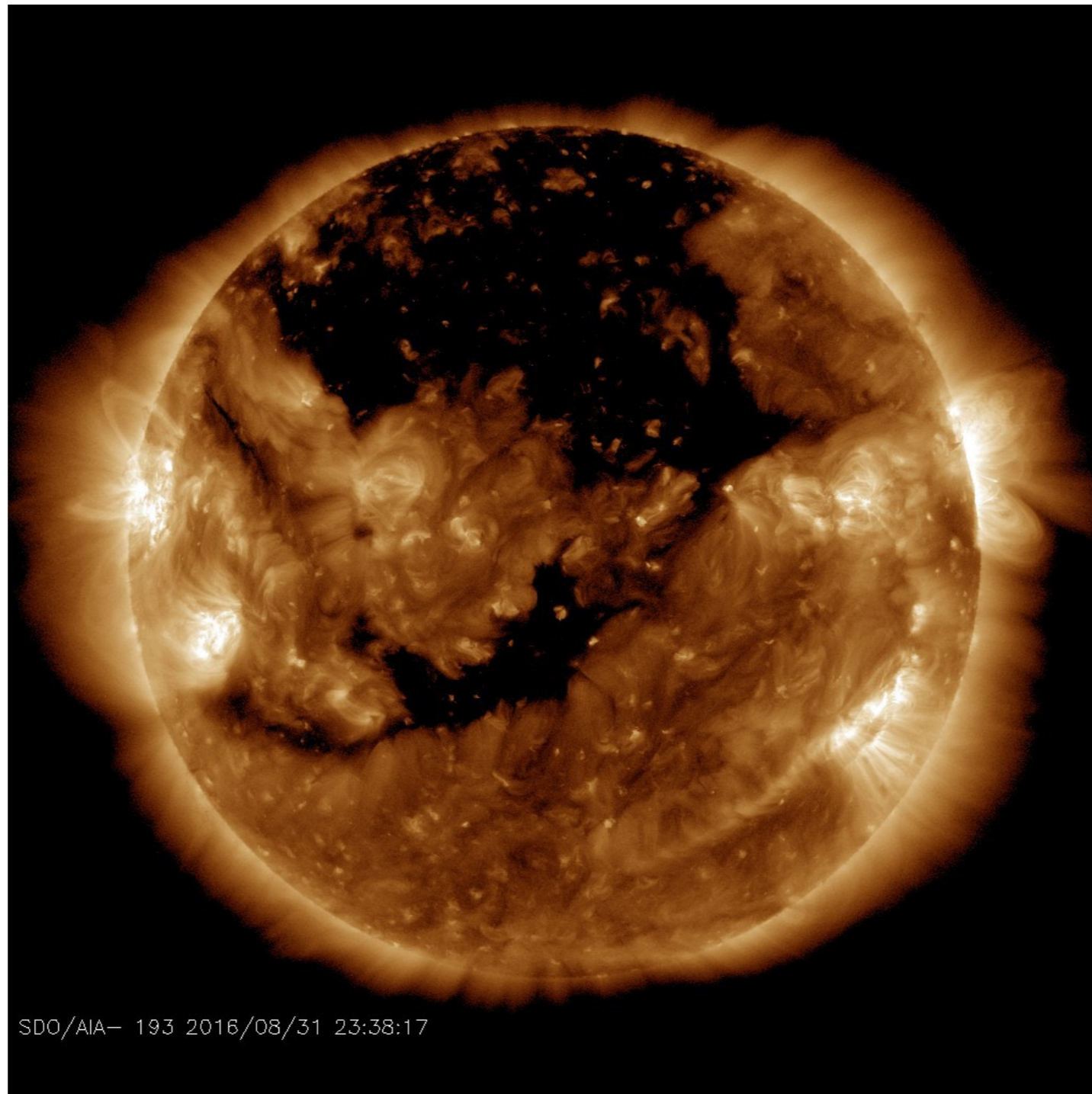
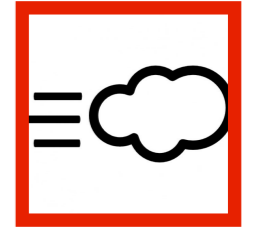


GEOMAGNETIC STORM

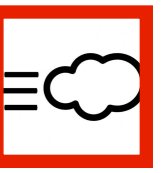
How does the Solar Wind looks like at LI?



CORONAL HOLE

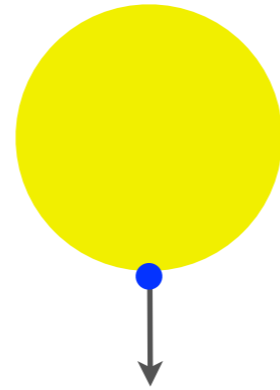


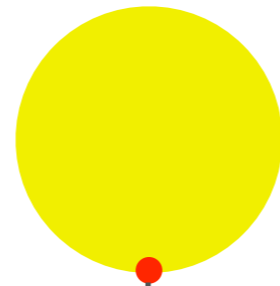
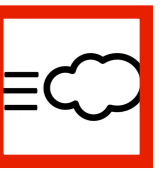
SDO/AIA- 193 2016/08/31 23:38:17

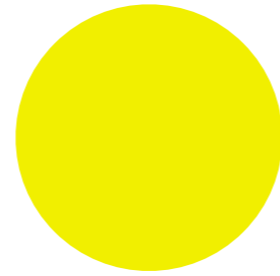
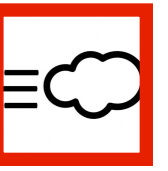


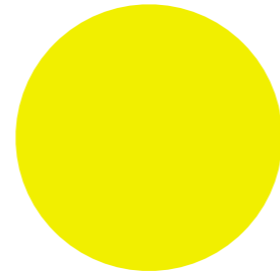
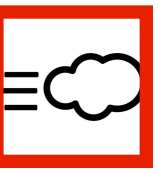
WHAT HAPPENS WHEN FAST CATCHES SLOW?

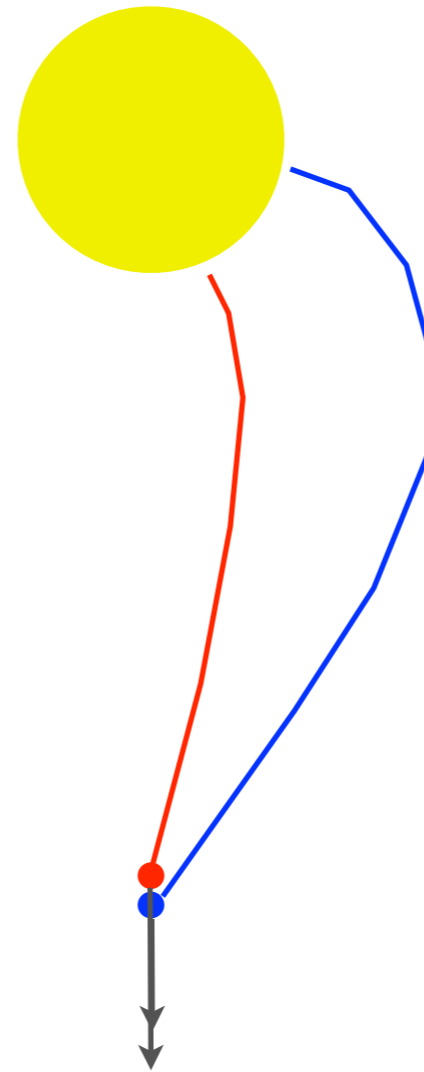
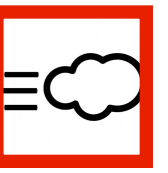
Top View











Interaction Region
Rotates together with the Sun



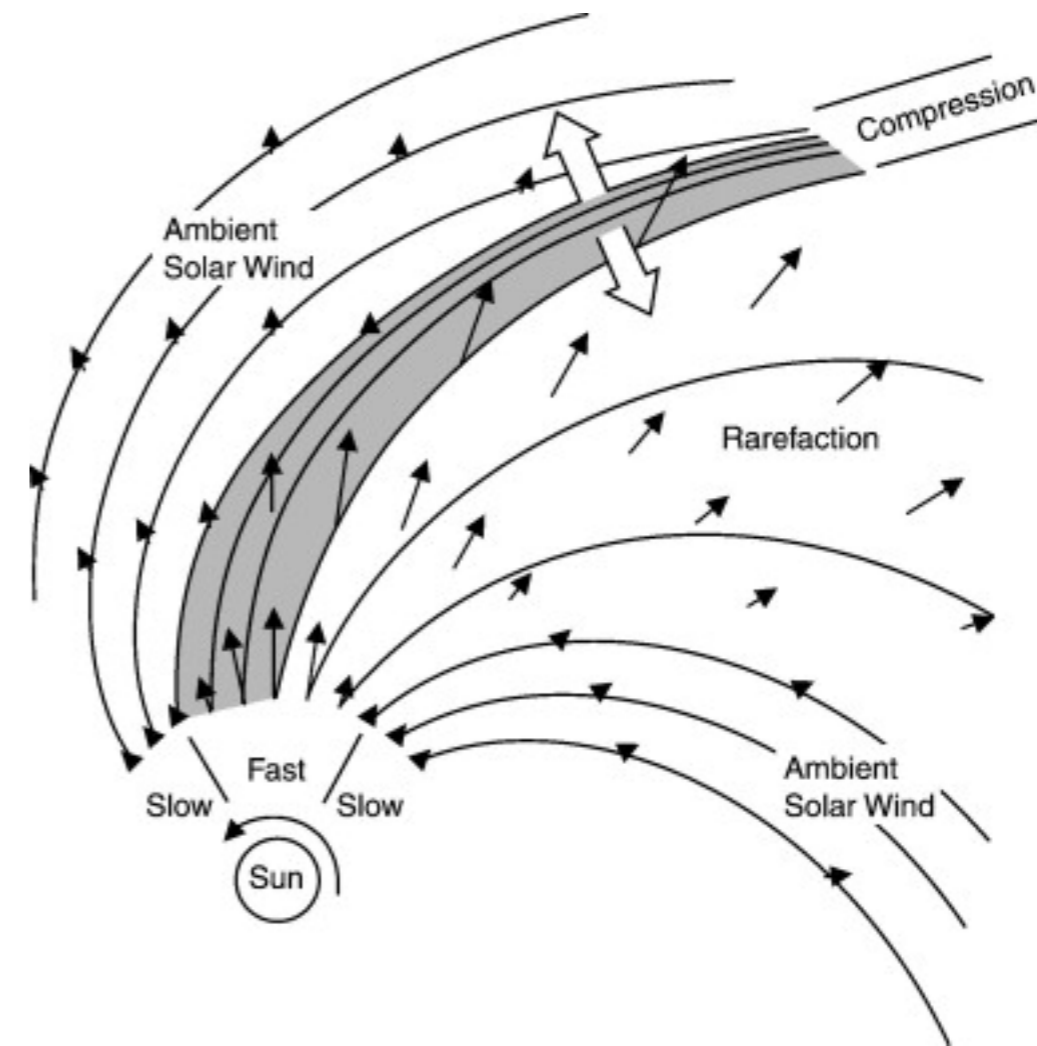
Co-rotating Interaction Region



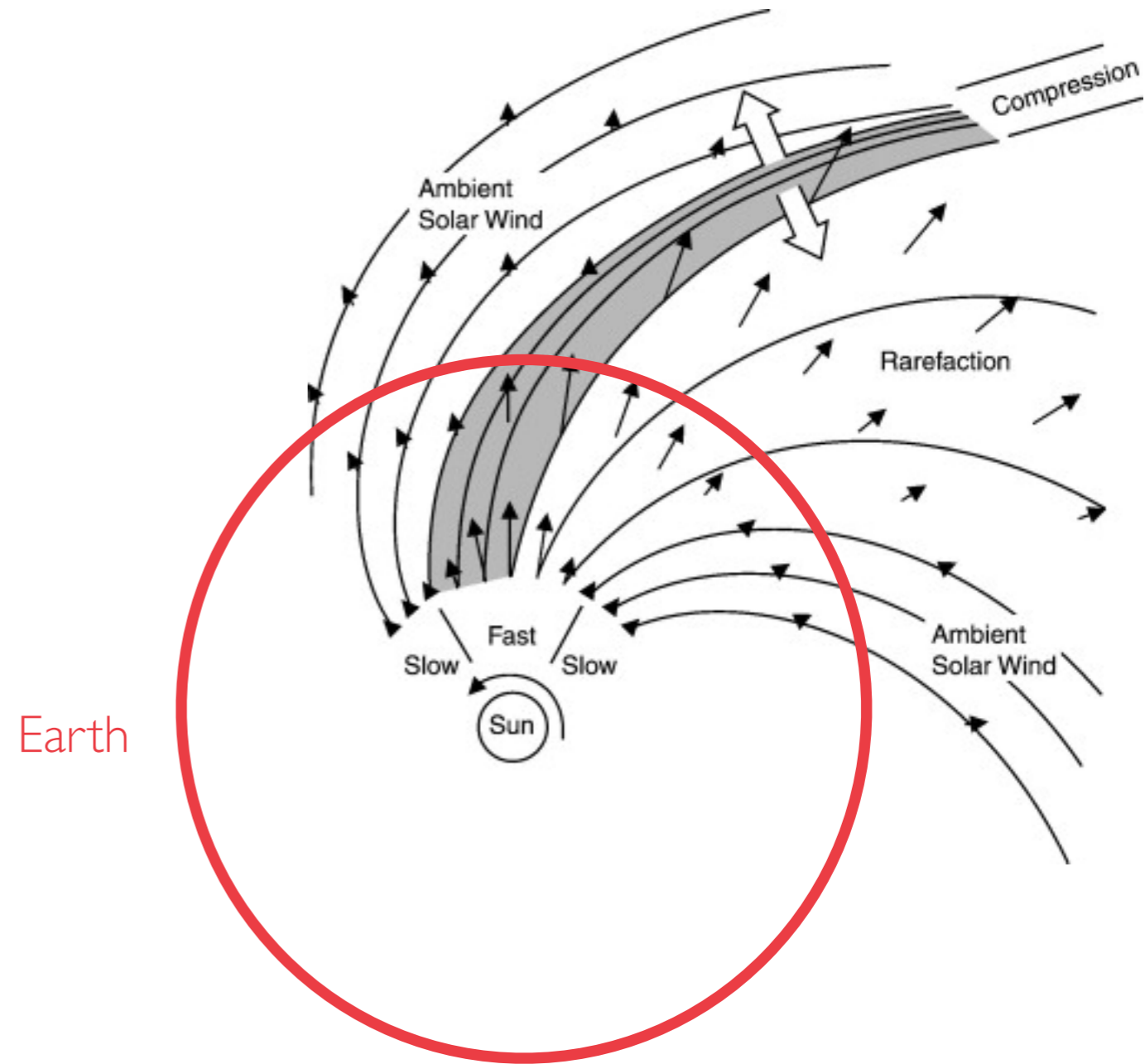


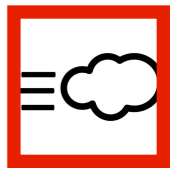
CORONAL HOLE

- Co-rotating structure
- Radial!

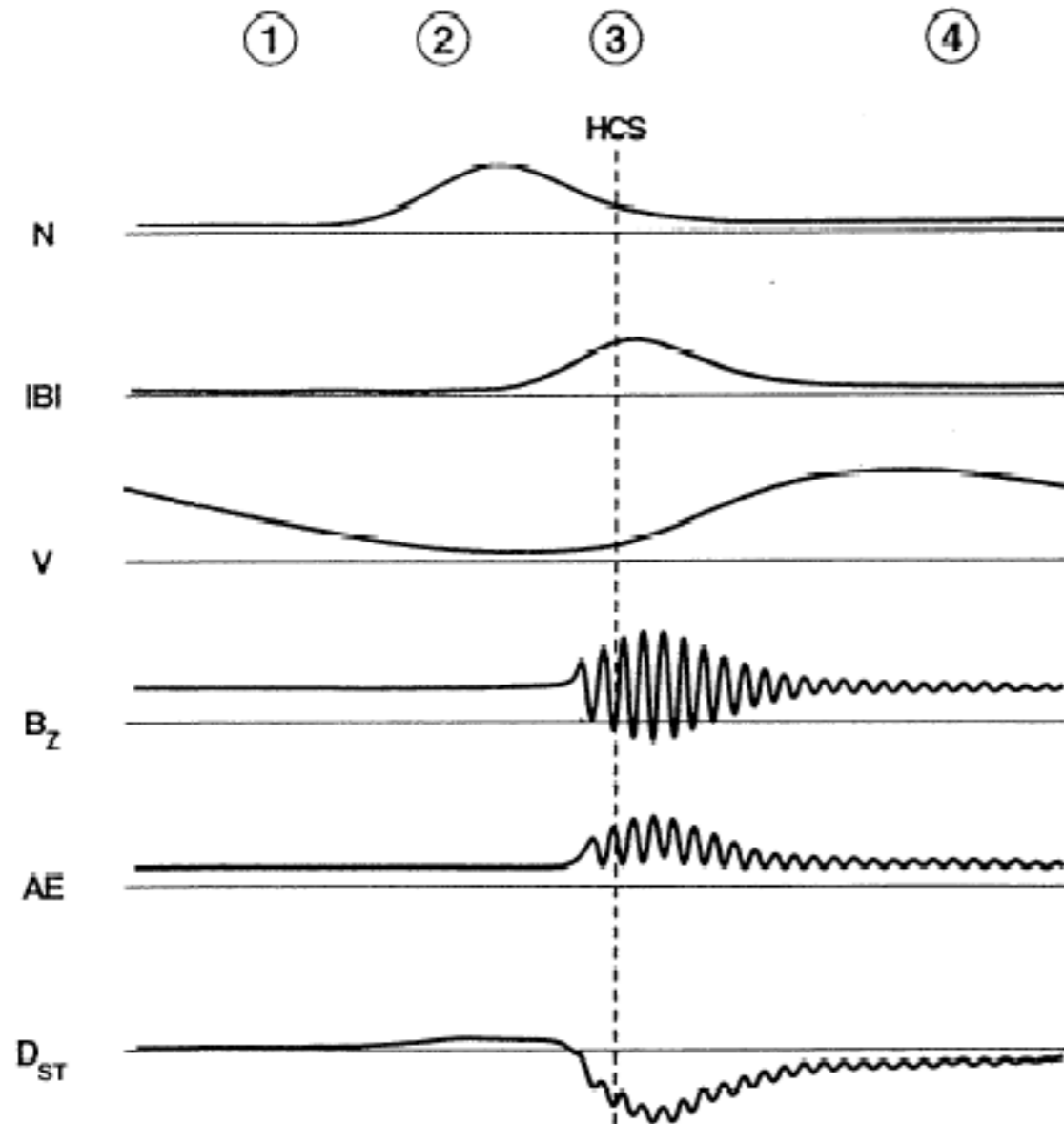


Coronal Hole

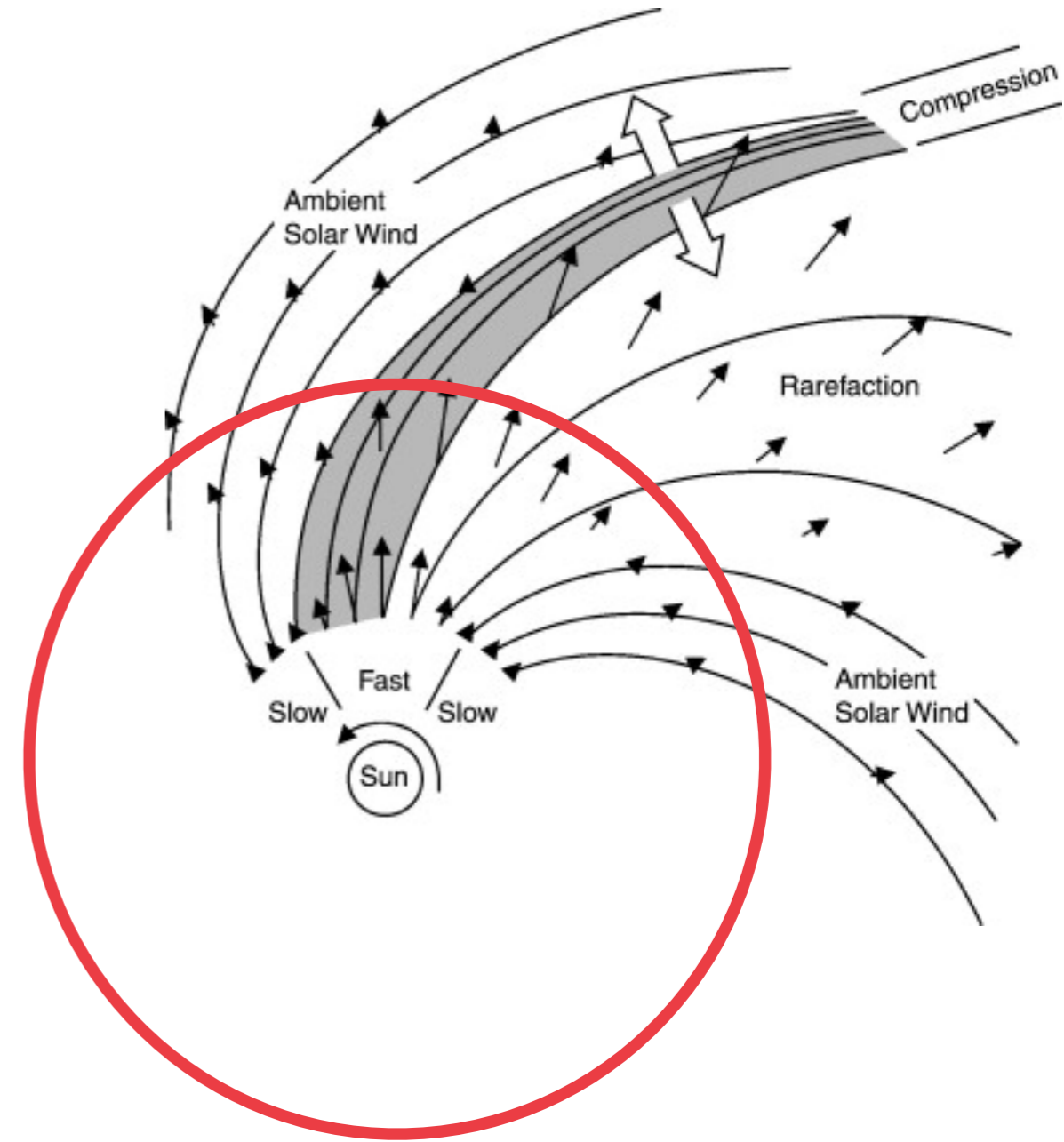




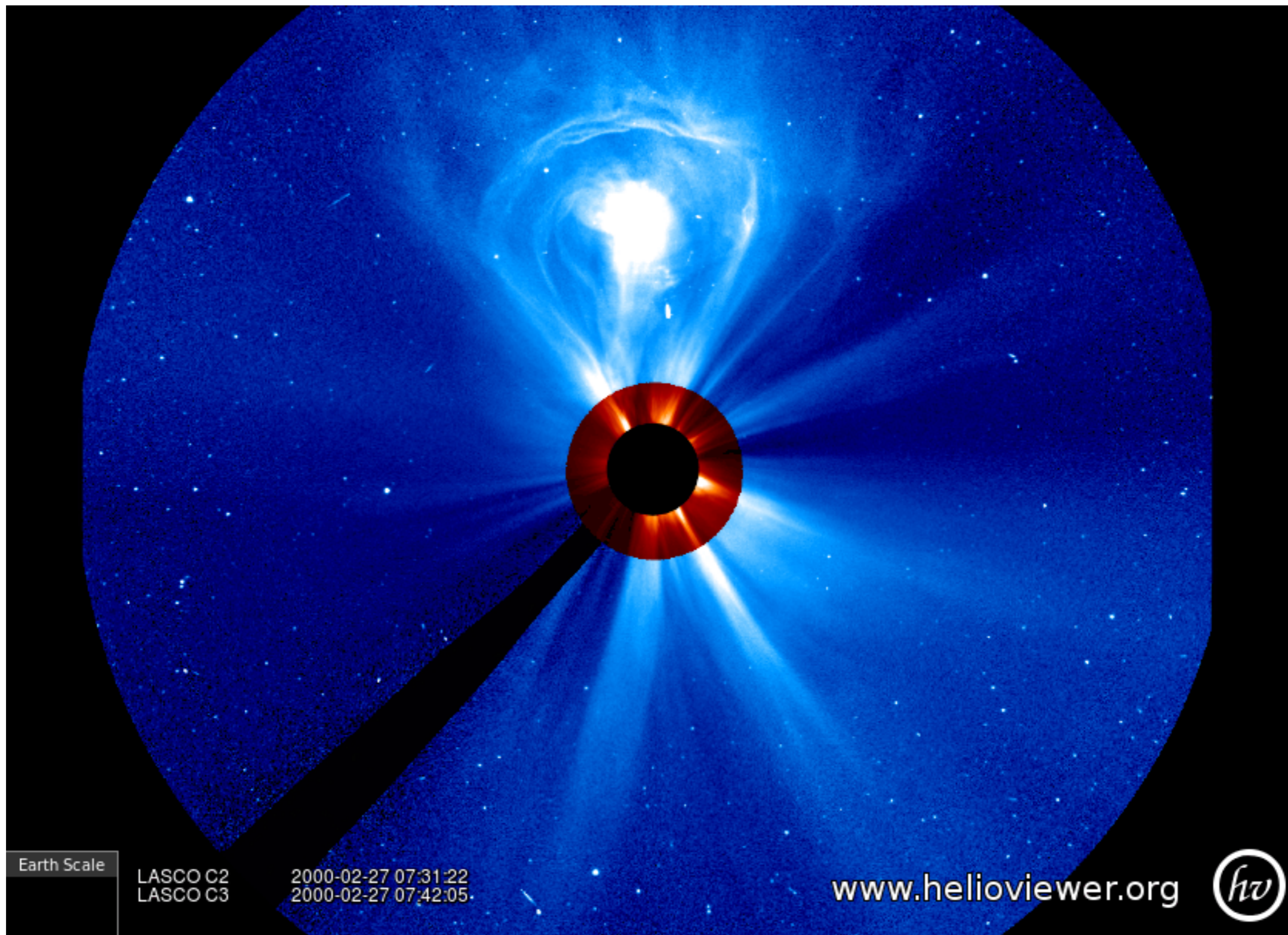
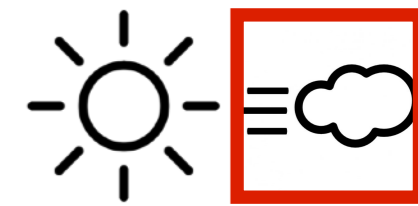
Coronal Hole



Earth



CORONAL MASS EJECTION



Earth Scale

LASCO C2
LASCO C3

2000-02-27 07:31:22
2000-02-27 07:42:05

www.helioviewer.org



Temperature of CH and CME

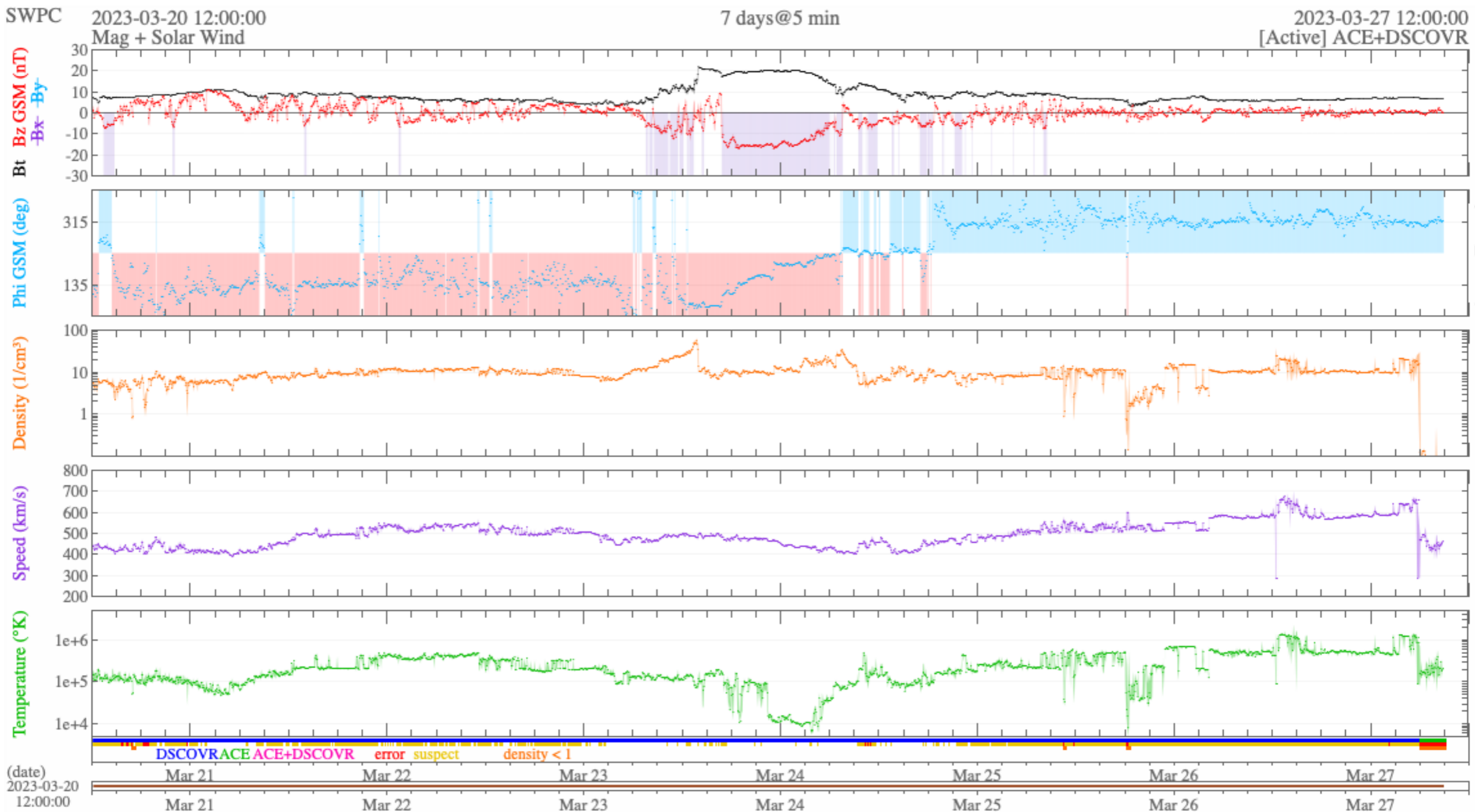


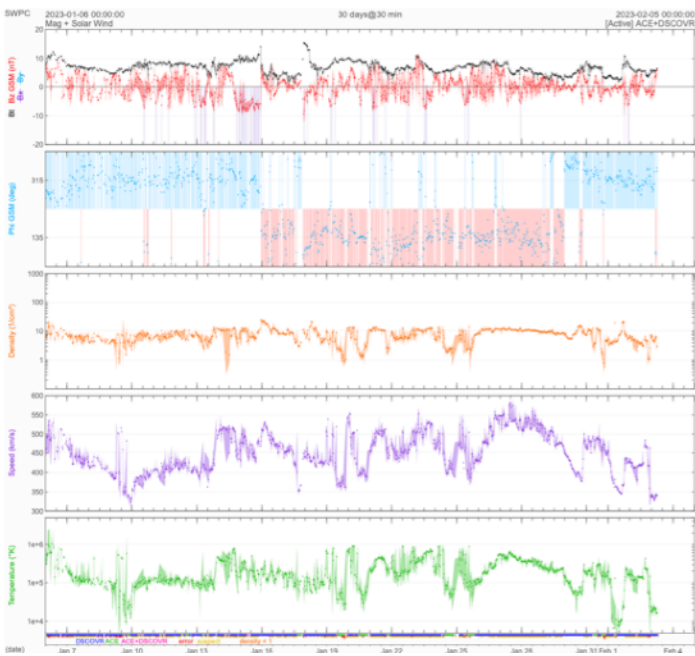
SOLAR WIND IN LI

<https://www.swpc.noaa.gov/products/real-time-solar-wind>

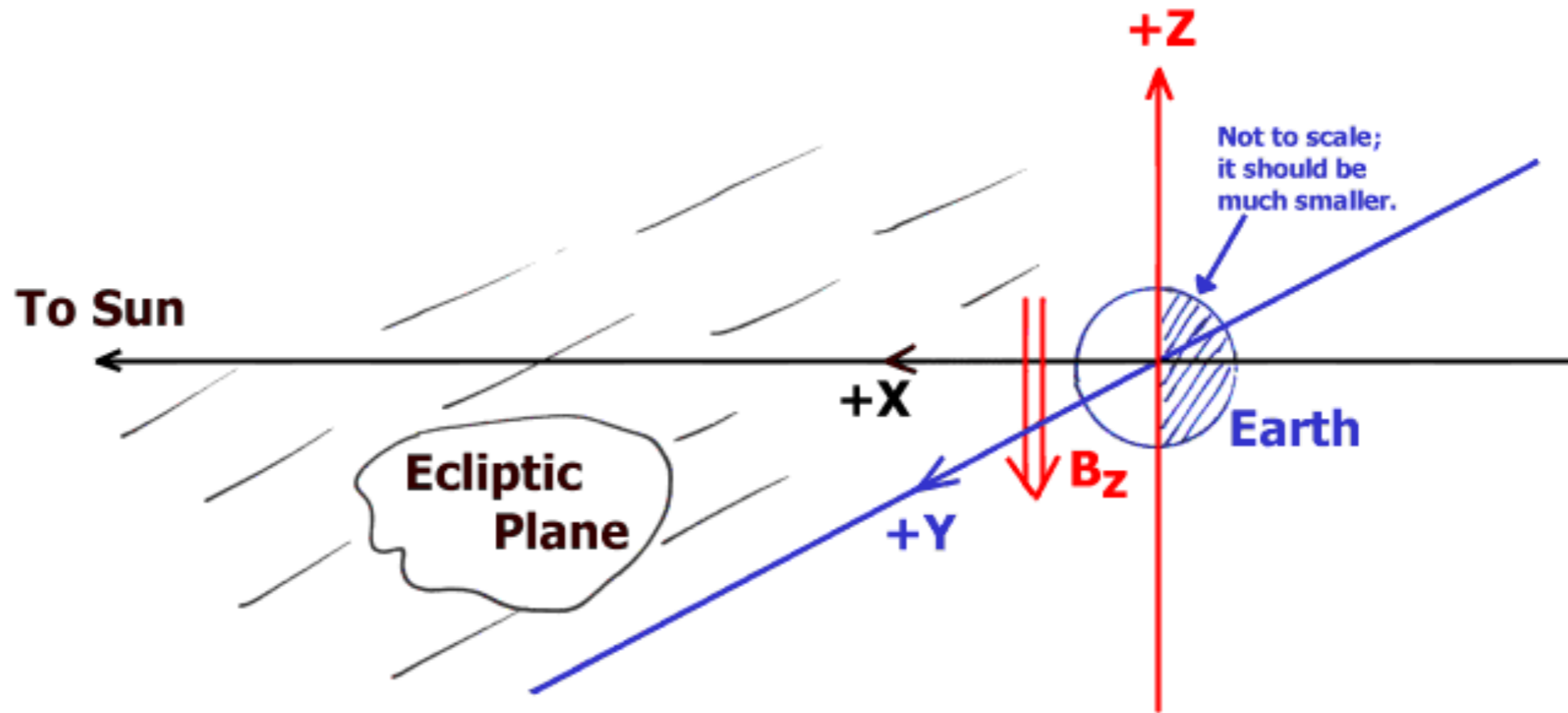
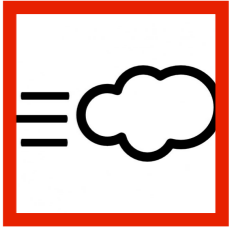


ACE
DSCOVR





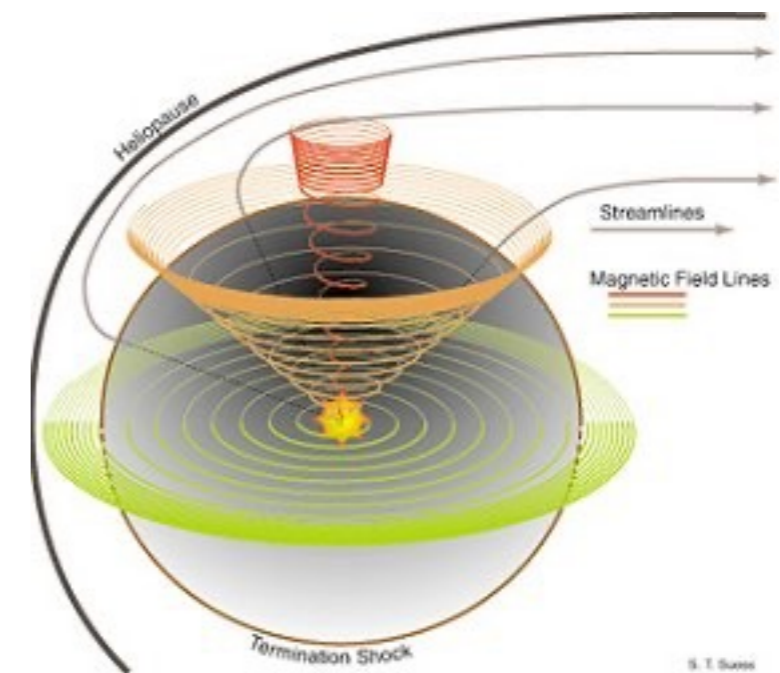
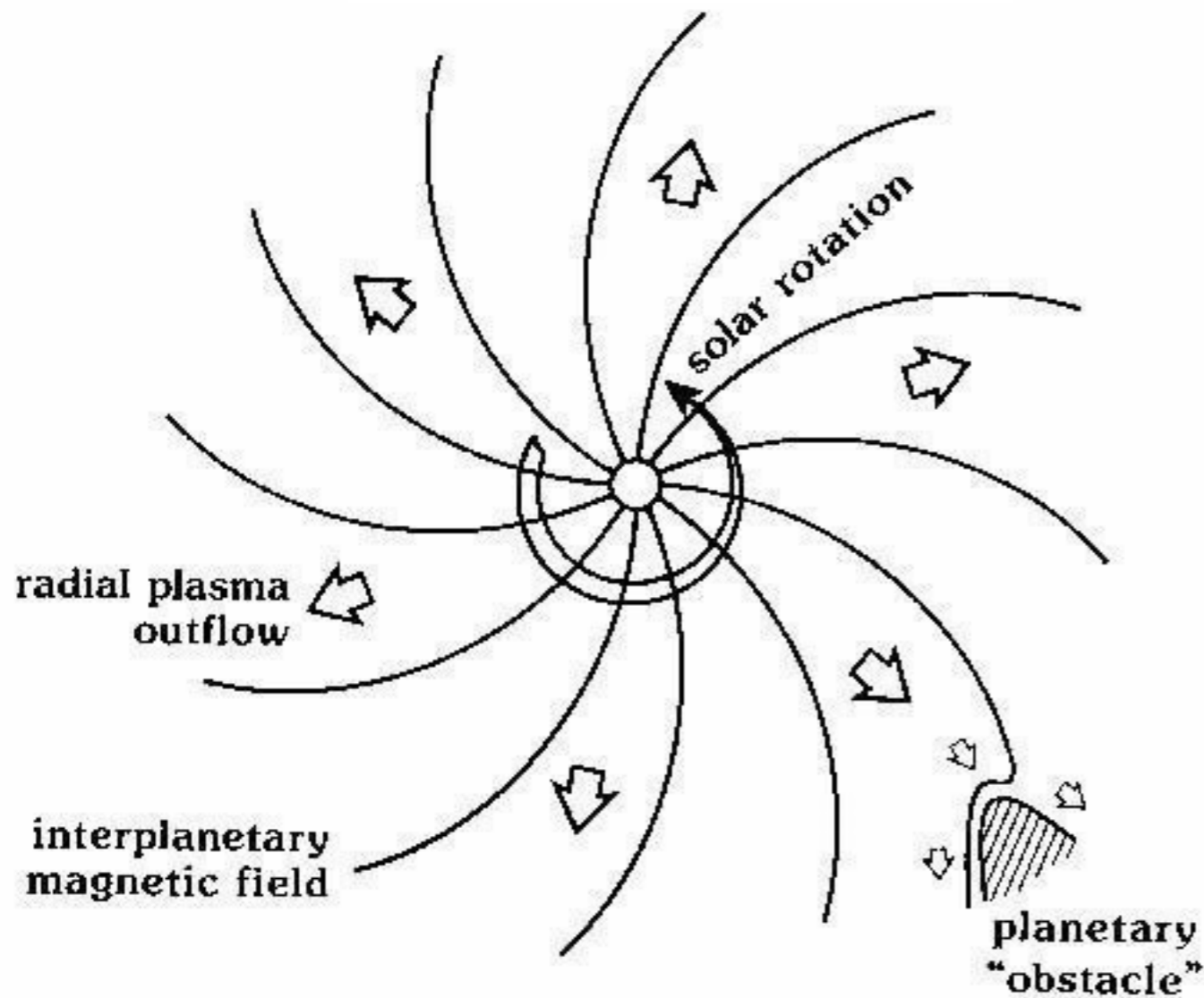
COORDINATE SYSTEM

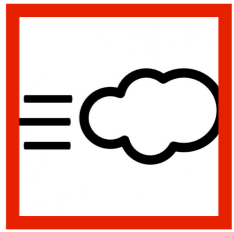
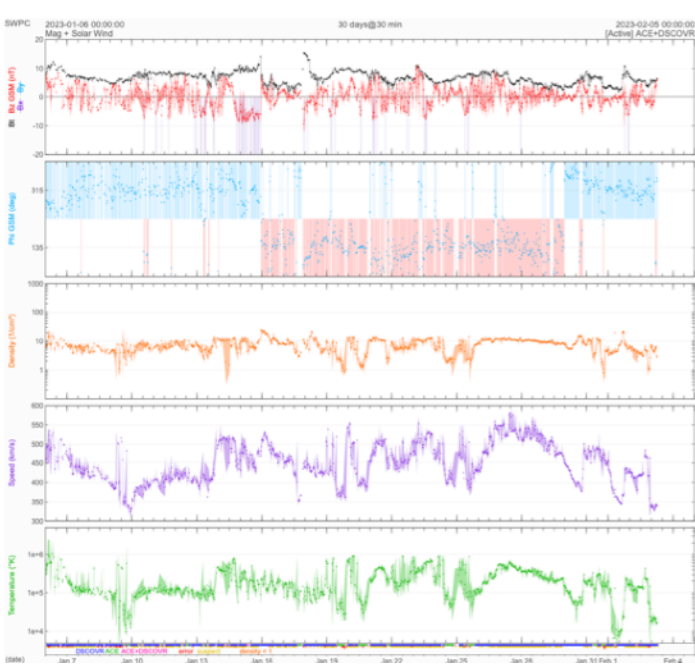


+Z is perpendicular to the Ecliptic Plane.

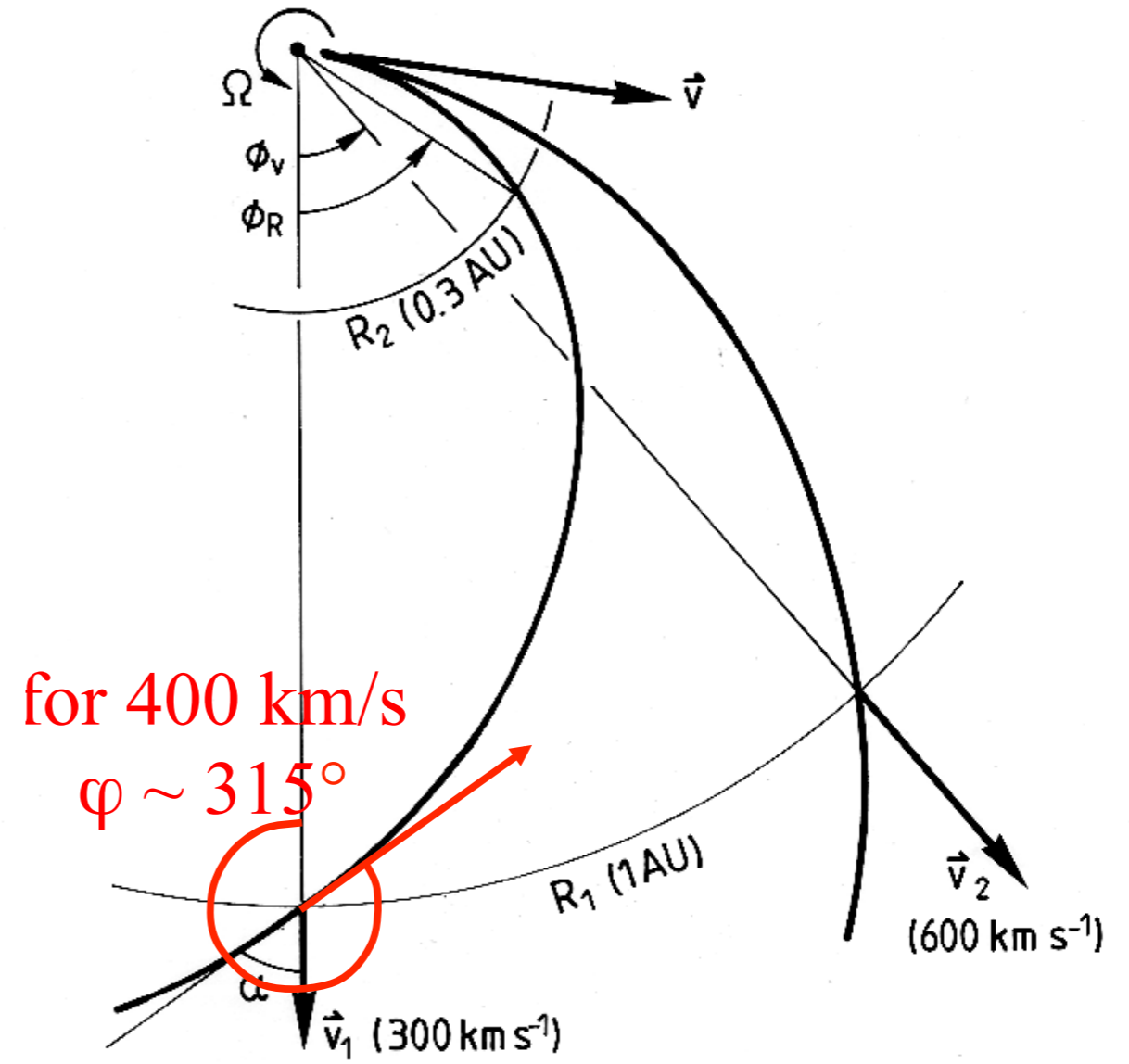
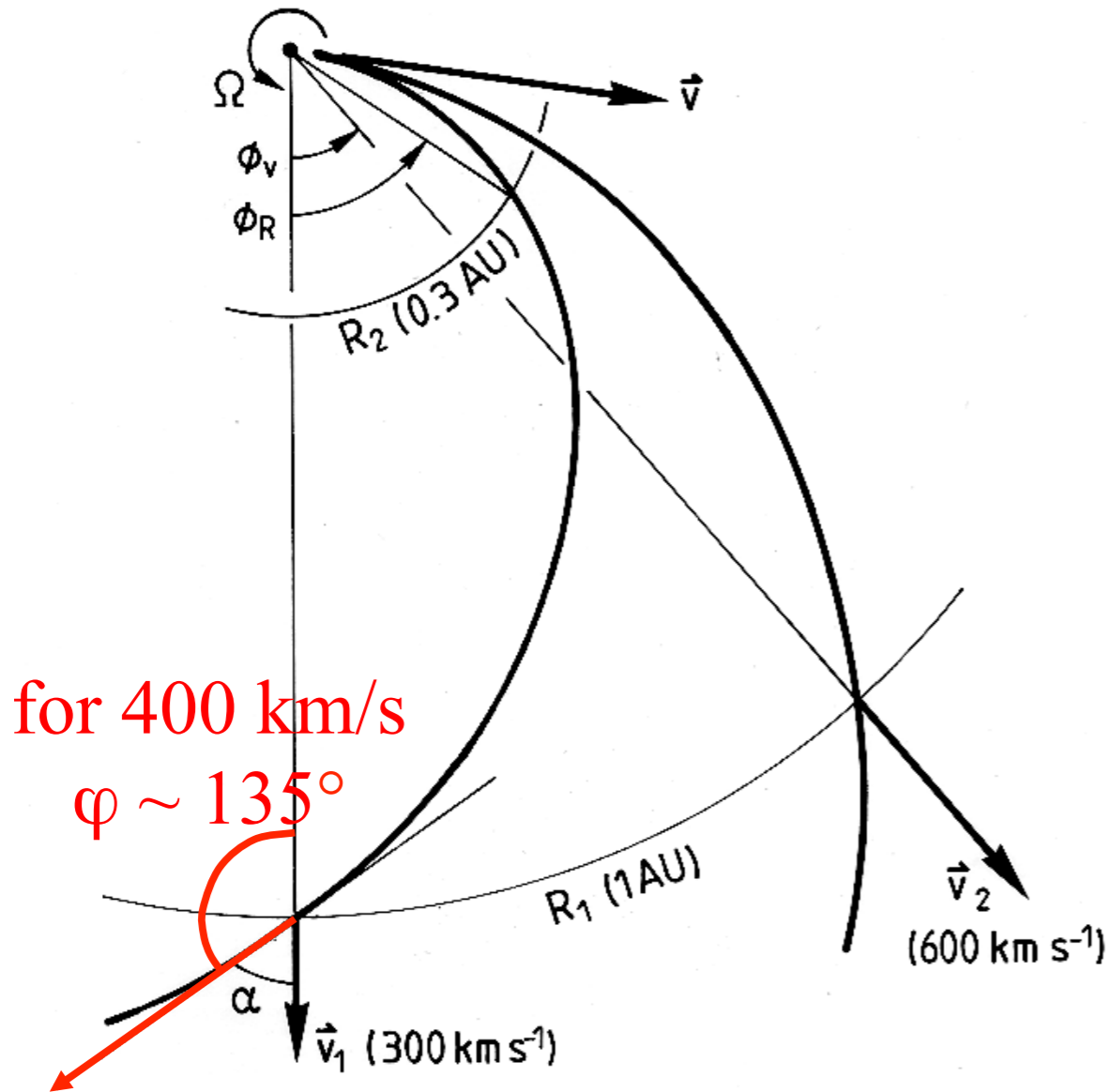
PARKER SPIRAL

The magnetic field stays connected to the Sun. As the Sun rotates, the magnetic field gets bended. Nevertheless, the plasma goes radial.

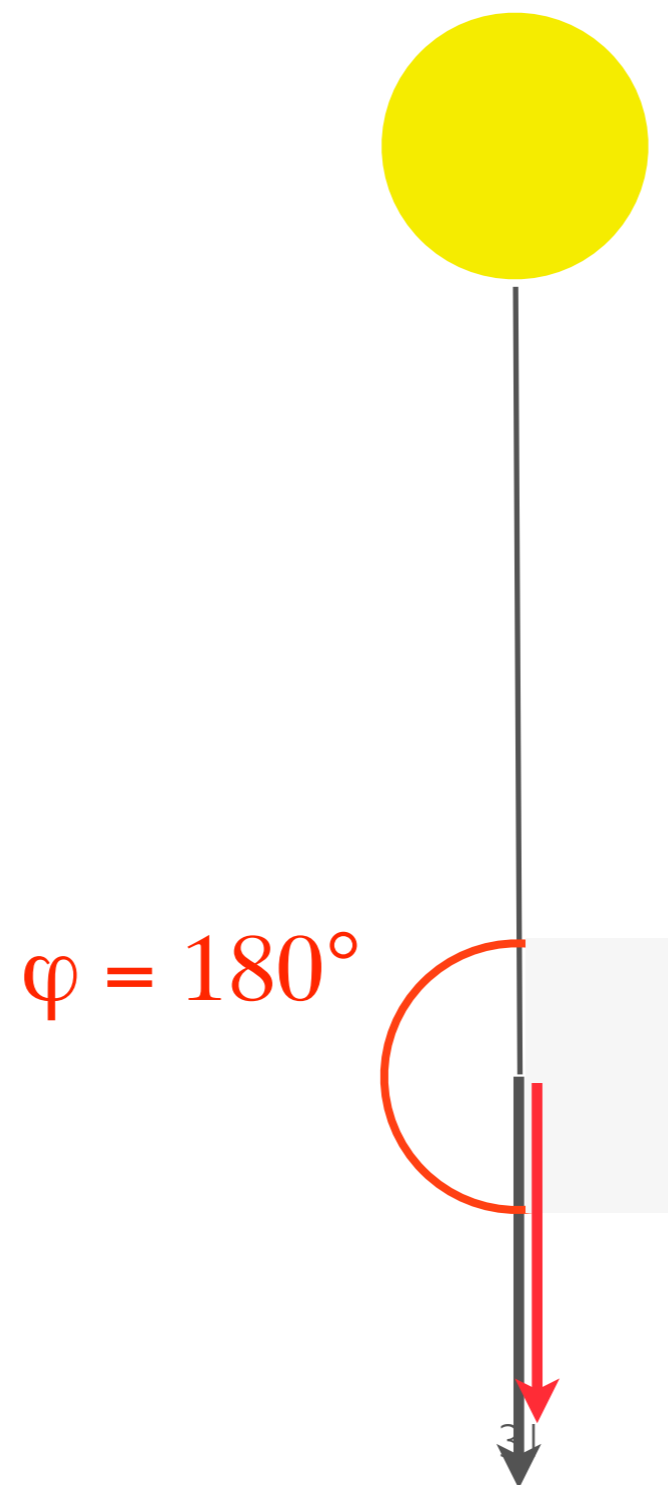
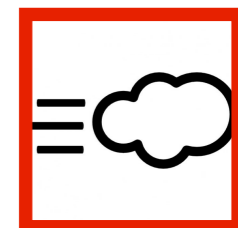




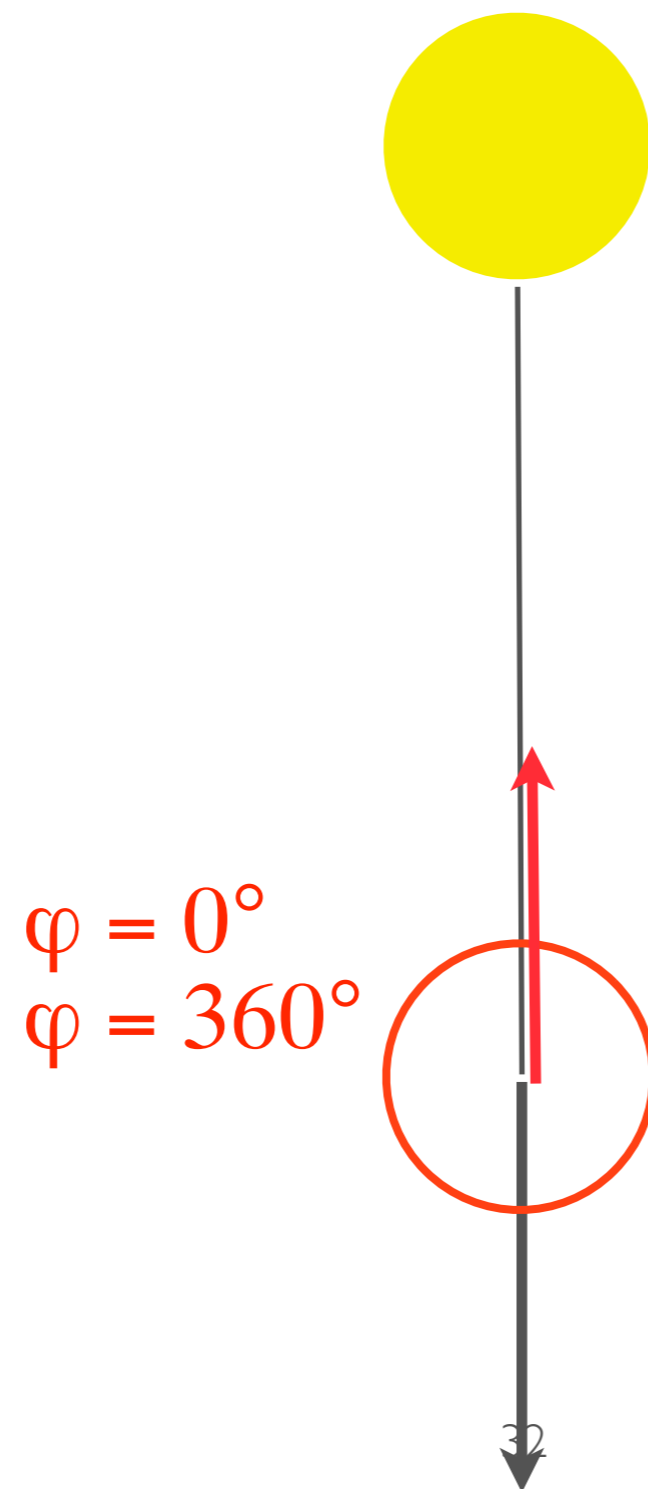
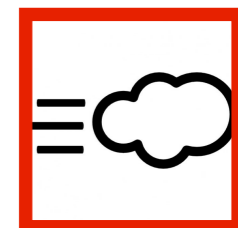
IMF POLARITY



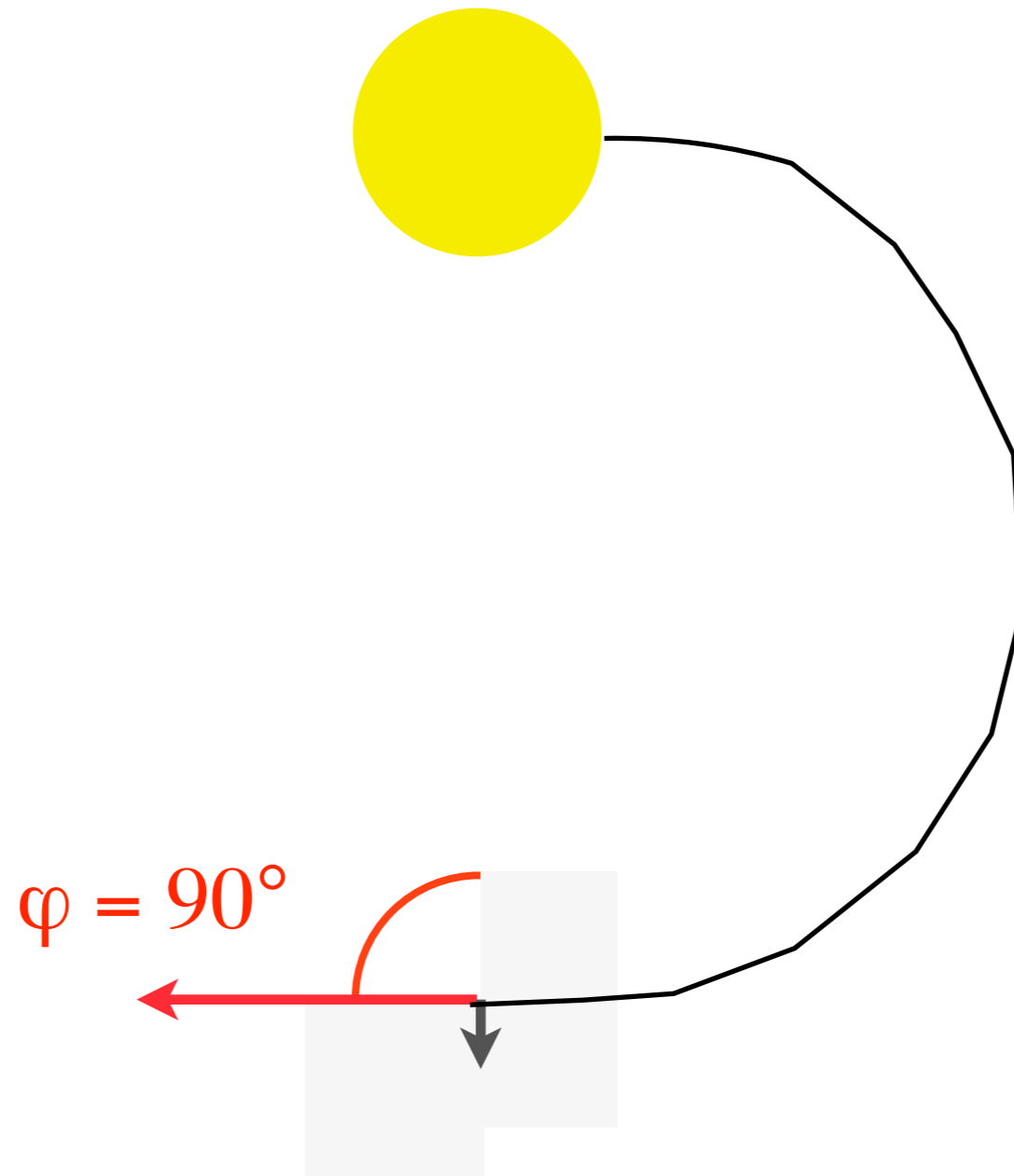
EXTREME FAST



EXTREME FAST



EXTREME SLOW



SOLAR WIND IN LI

<https://www.swpc.noaa.gov/products/real-time-solar-wind>



ACE
DSCOVR