

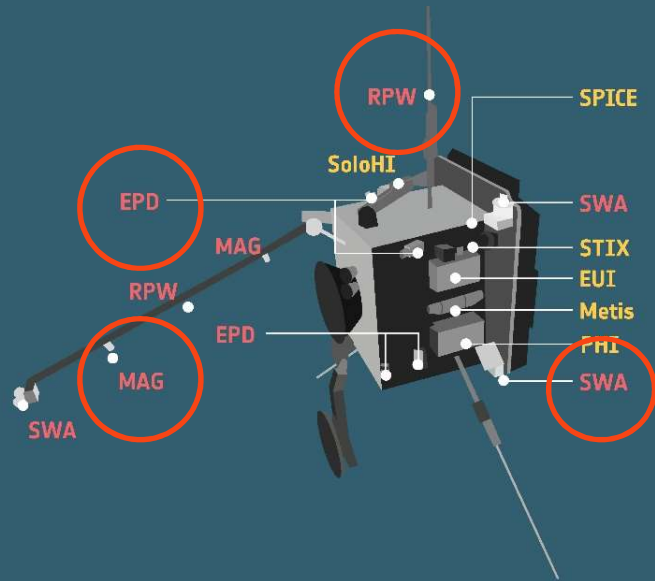


Royal Observatory
of Belgium

Linking EUI to in situ instruments

Luciano Rodriguez, Andrei Zhukov, Bogdan Nicula, David Berghmans, Cis Verbeek, Frédéric Auchère, Tim Horbury, Ronan Laker, Stefano Livi, Javier Rodriguez-Pacheco, Angels Aran, Raul Gómez Herrero, Milan Maksimovic, Vratislav Krupar

EUI Consortium meeting
30/11/2020



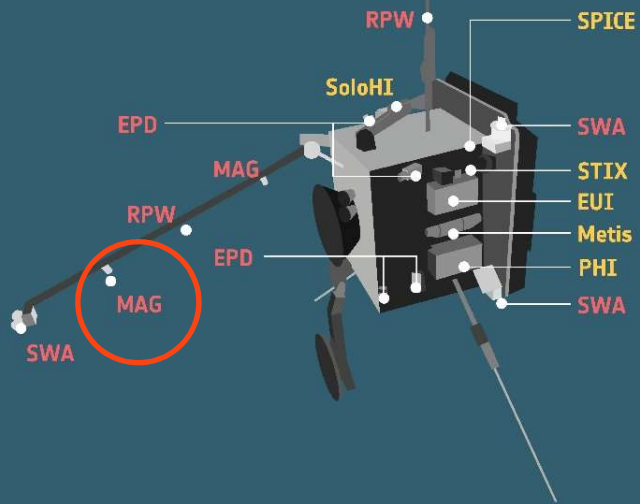
- The *in situ* instruments
- The remote-sensing instruments

Starting point: email offer to in situ instruments to provide EUI data for their studies

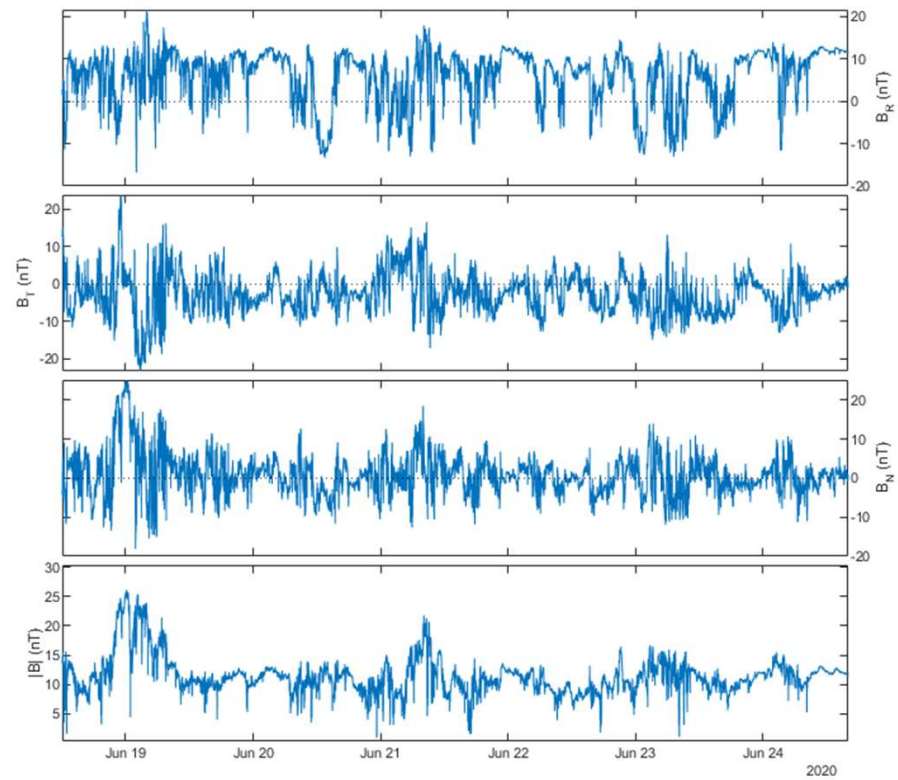


In situ instruments

MAG

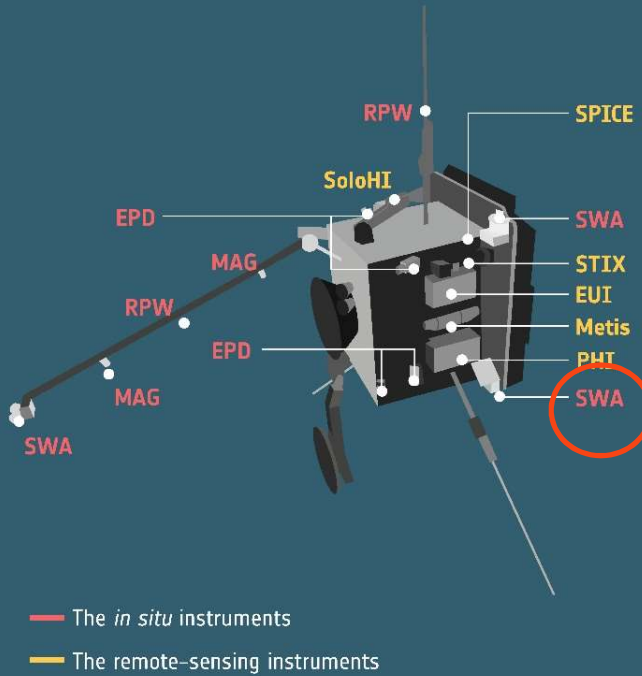


- The *in situ* instruments
- The remote-sensing instruments



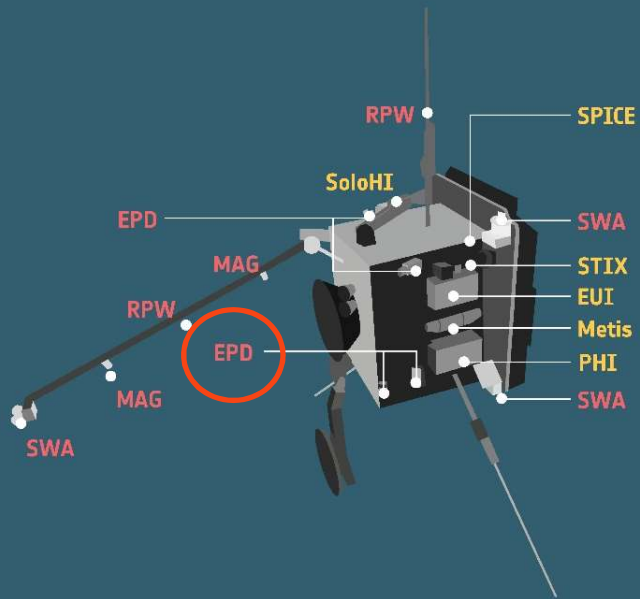
In situ instruments

SWA

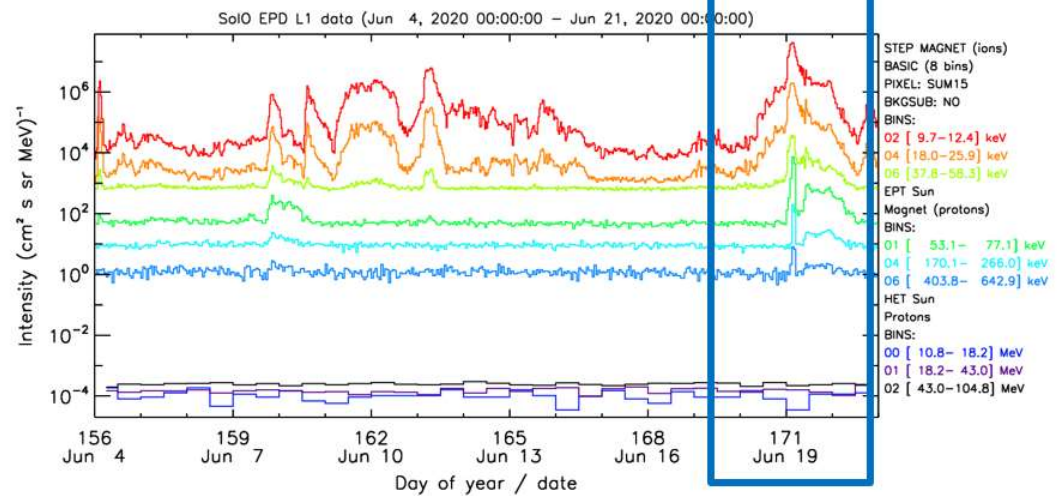


In situ instruments

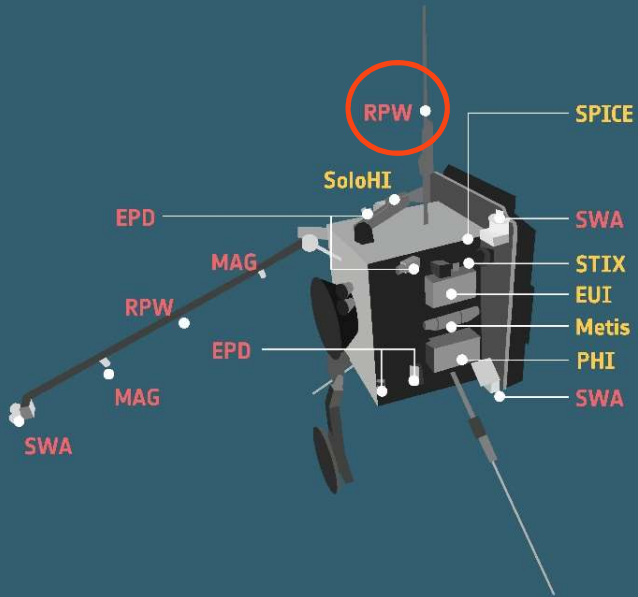
EPD



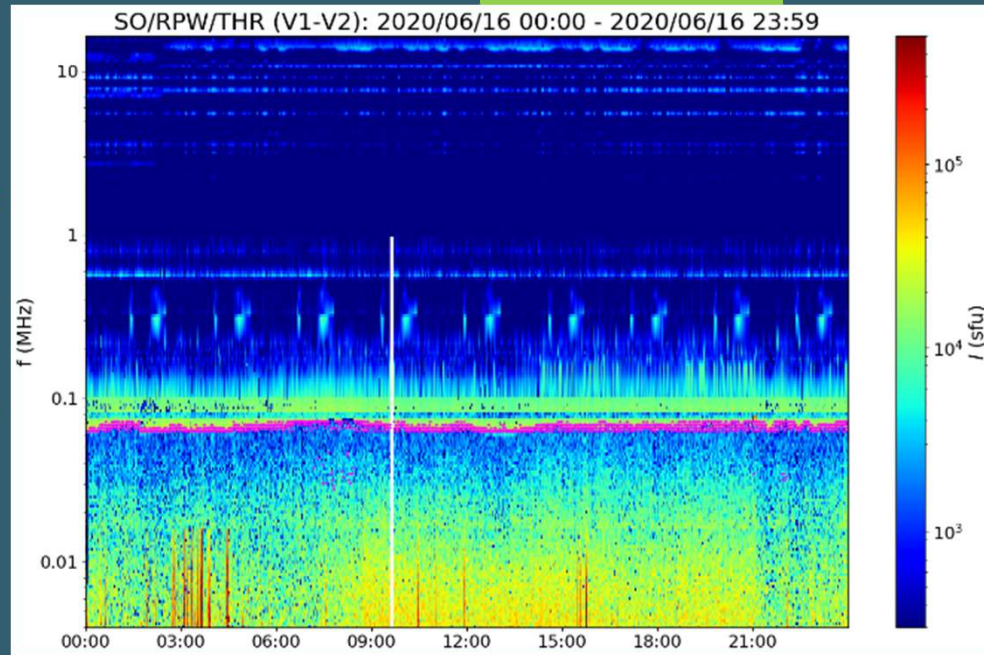
- The *in situ* instruments
- The remote-sensing instruments



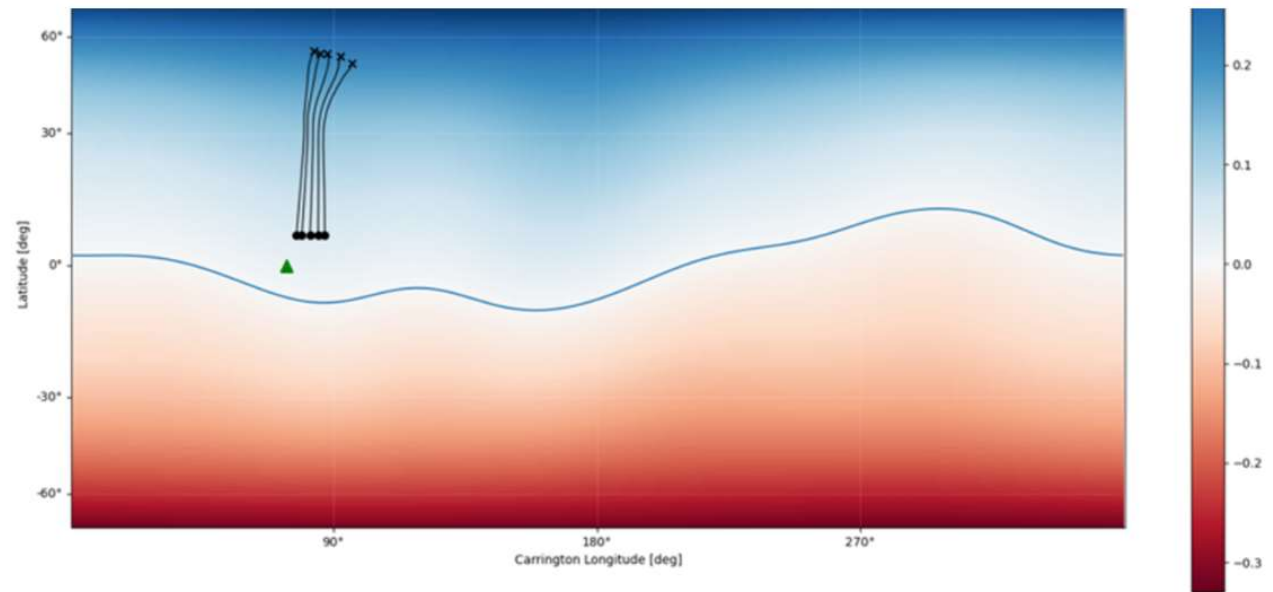
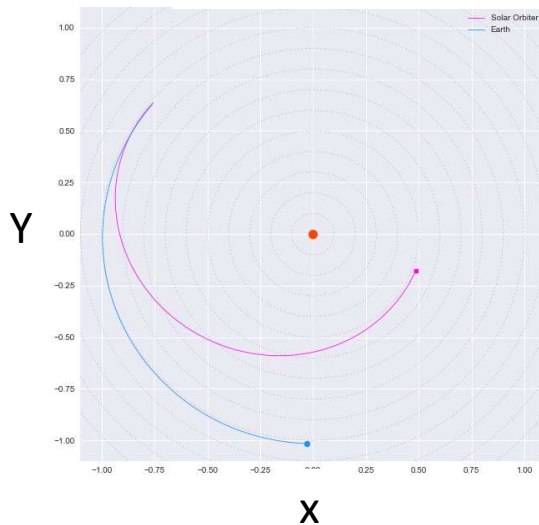
RPW



- The *in situ* instruments
- The remote-sensing instruments



16 June 2020

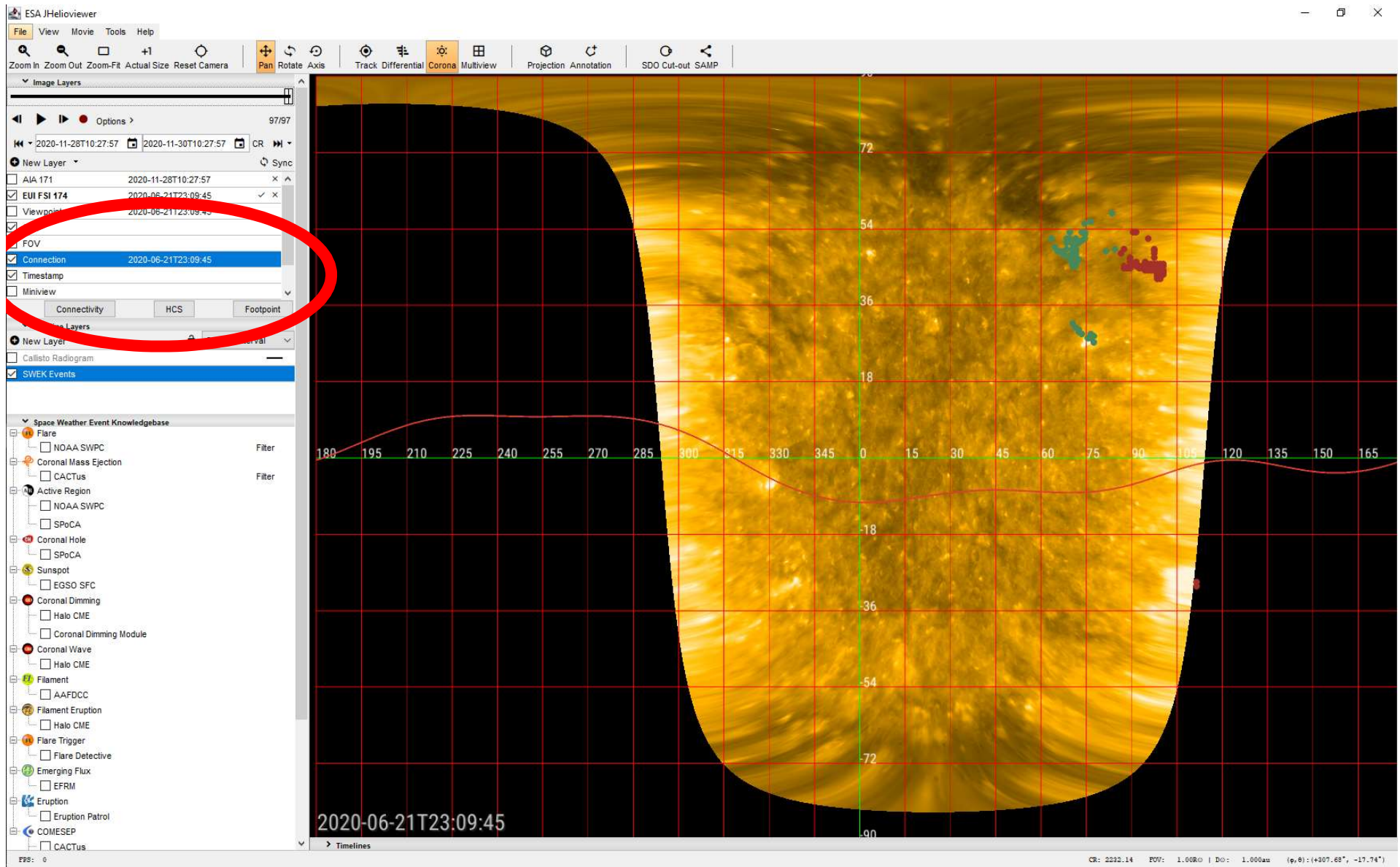


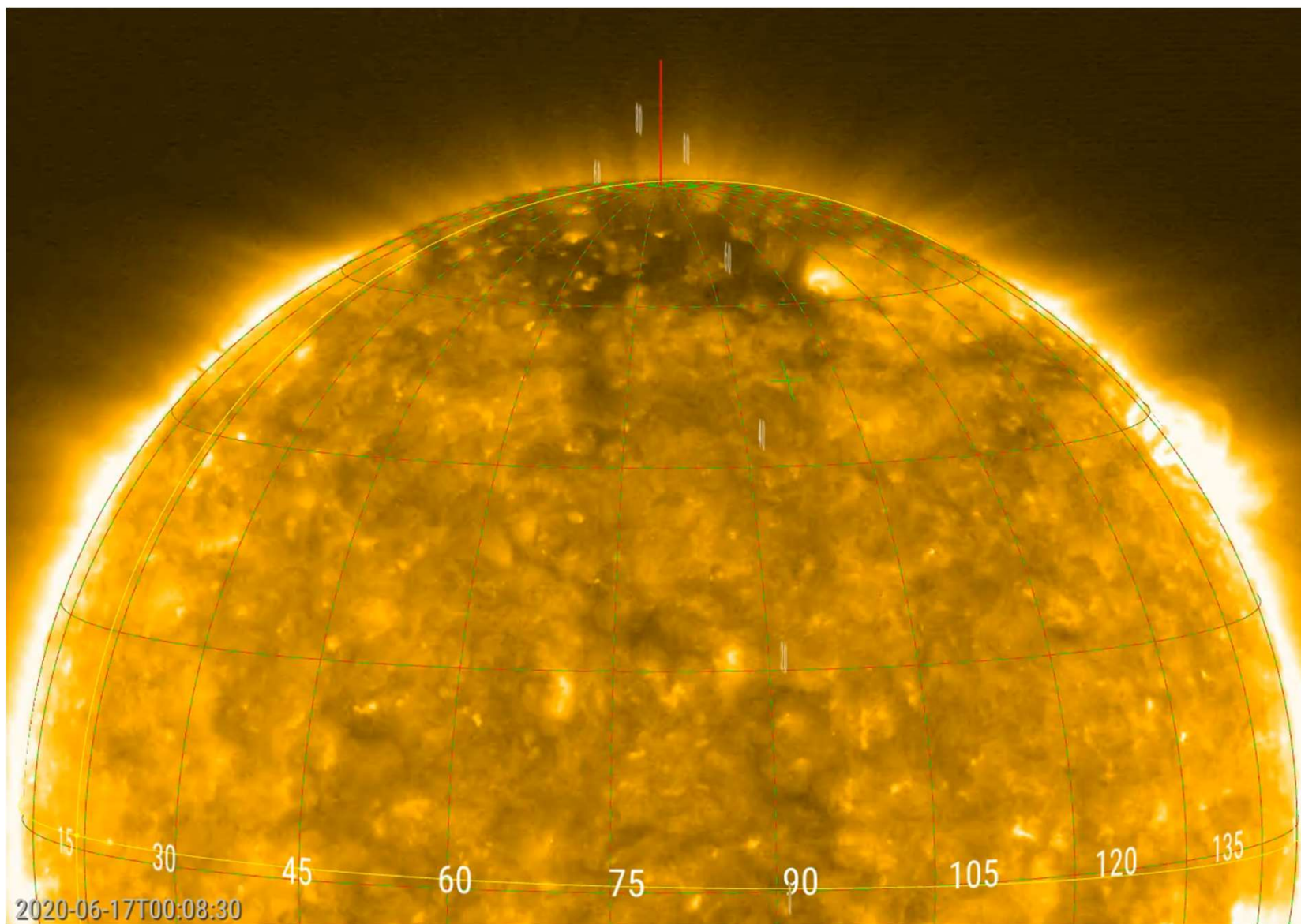
The black dots are the ballistically mapped Orbiter footprints; the crosses are the PFSS-mapped surface points (which is where we should be looking in the images).

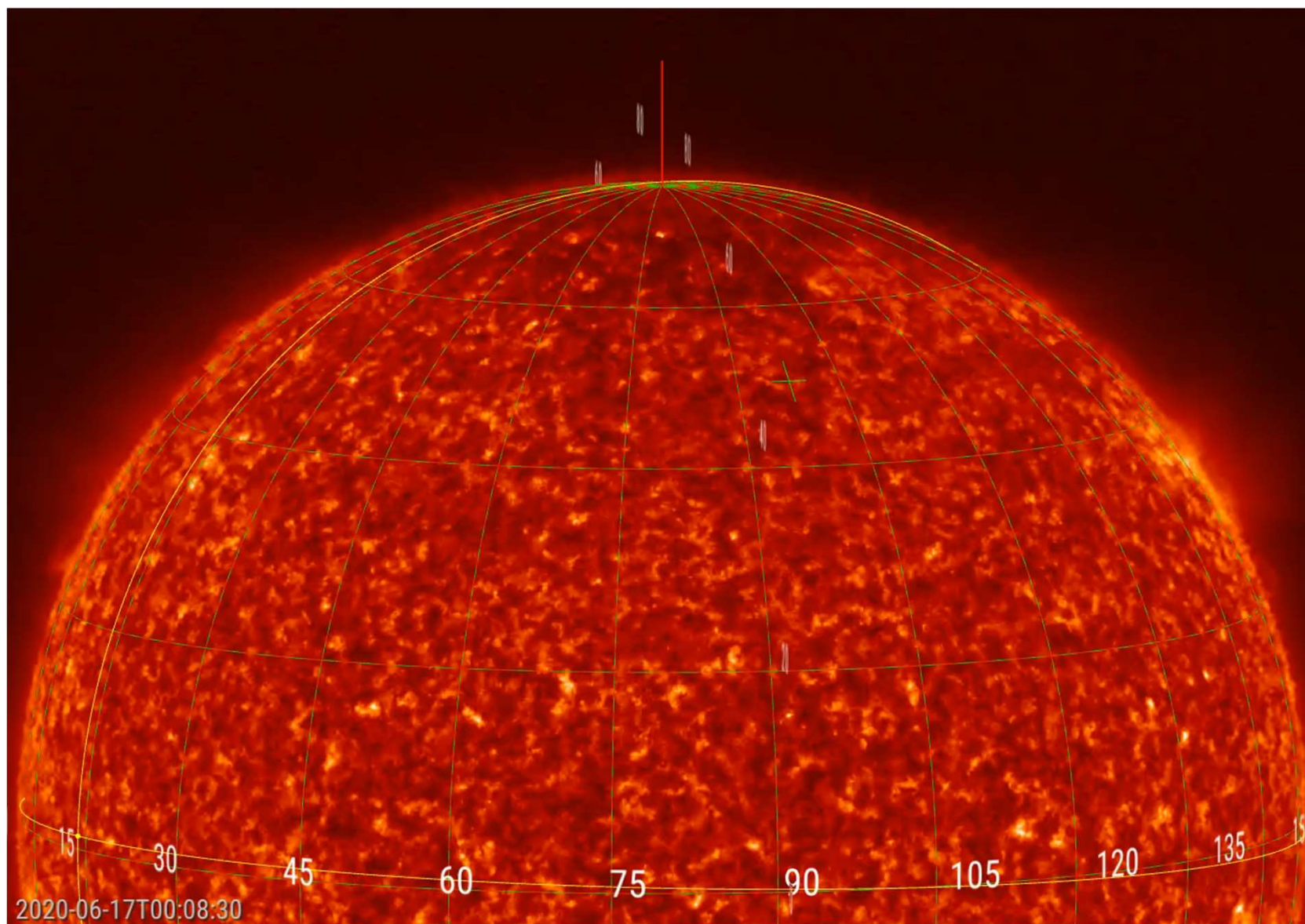
Here are the Carrington lats and longs of those footprints.

	Carrington Long	Carrington Lat
0	96.38759	49.88311
1	92.32847	52.35952
2	87.95915	53.38909
3	85.56766	53.53671
4	83.37838	54.30436

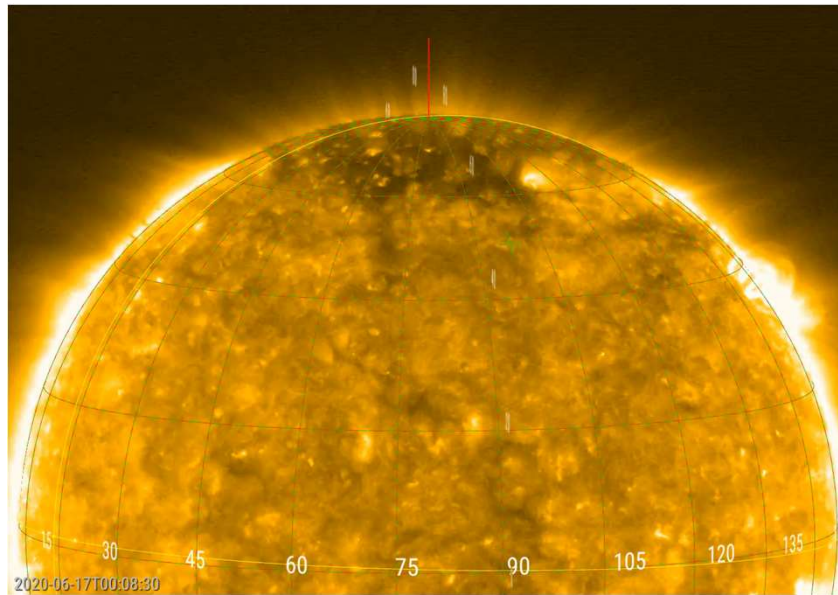
- Start from a timeseries of MAG data and the location of SOLO
- Ballistically map back to the Sun ($2.5 R_s$), using $V_{sw} = 500 \text{ km/s}$
- Time and location of plasma release on the Sun ($2.5 R_s$)
- Use PFSS to go from the source surface to the solar surface





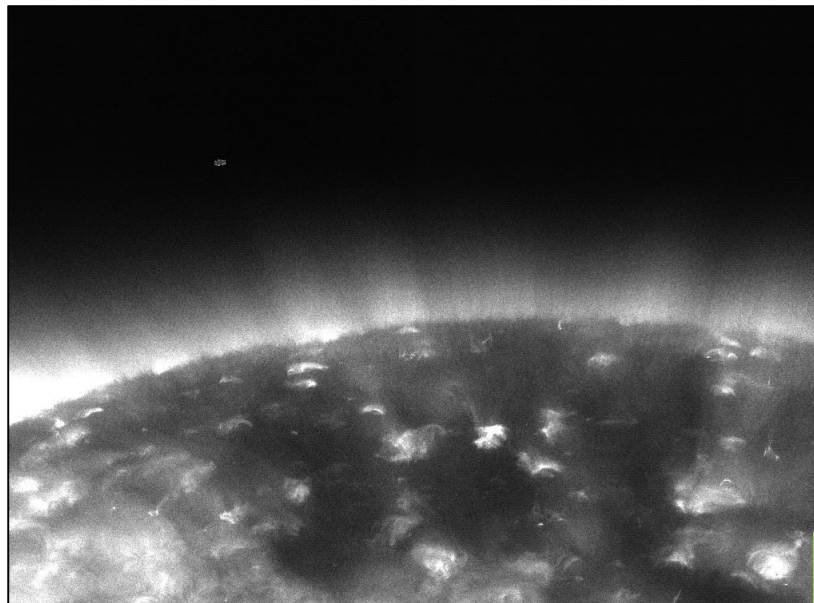
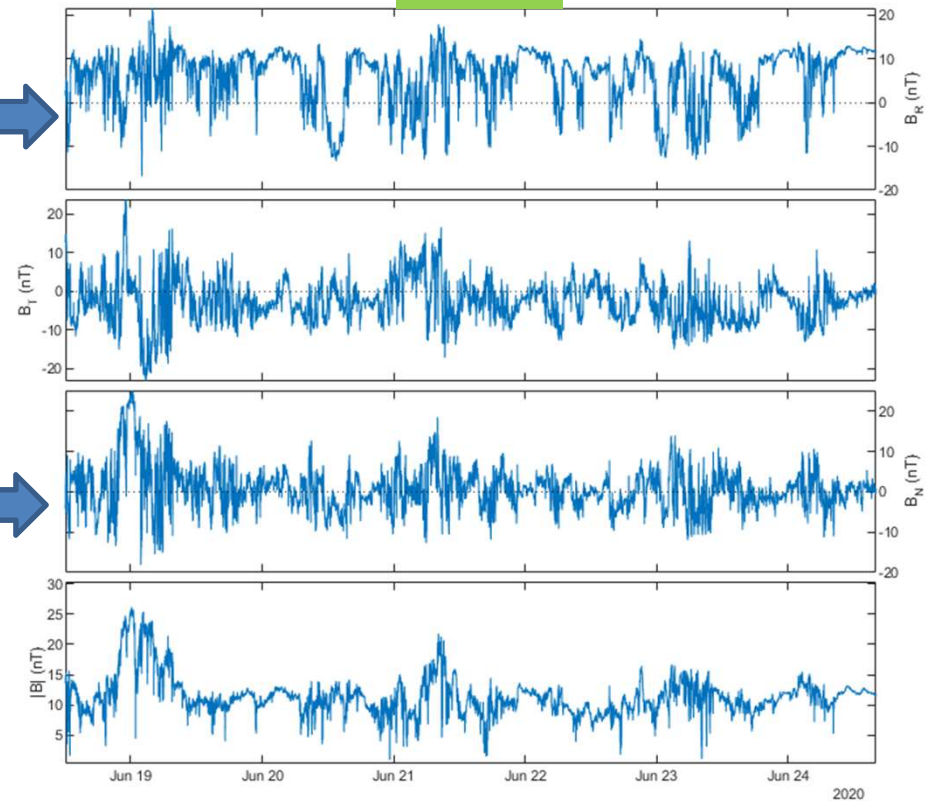


EUI-MAG June 2020



EUI FSI

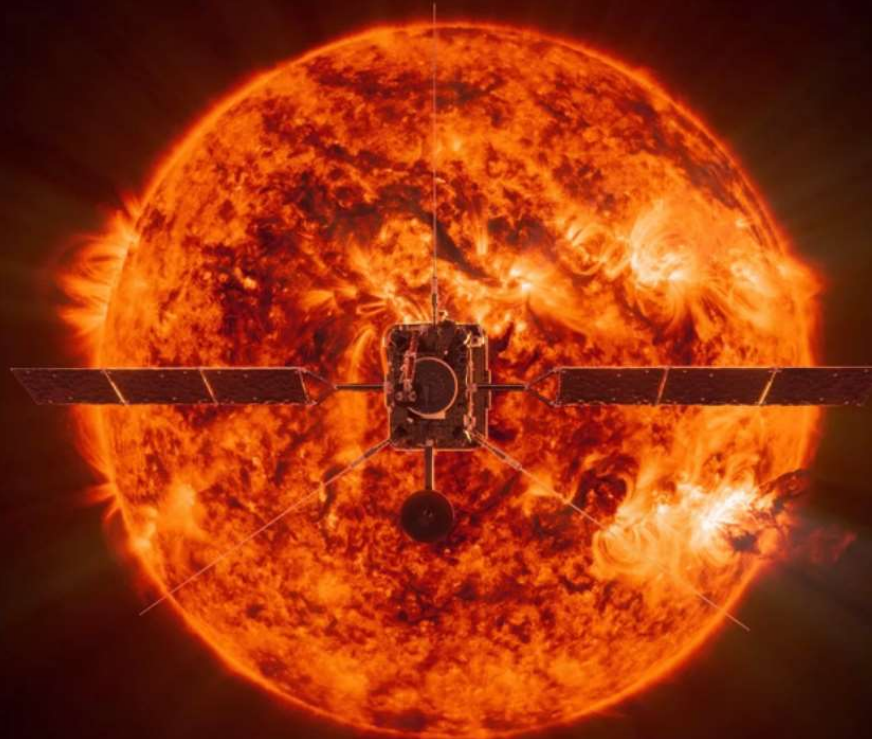
MAG



EUI HRI

Solar Orbiter: connecting remote sensing and in situ measurements

Tim Horbury
Ronan Laker
Frederic Auchère
Luciano Rodriguez
Milan Maksimovic
Stefano Livi
and many others



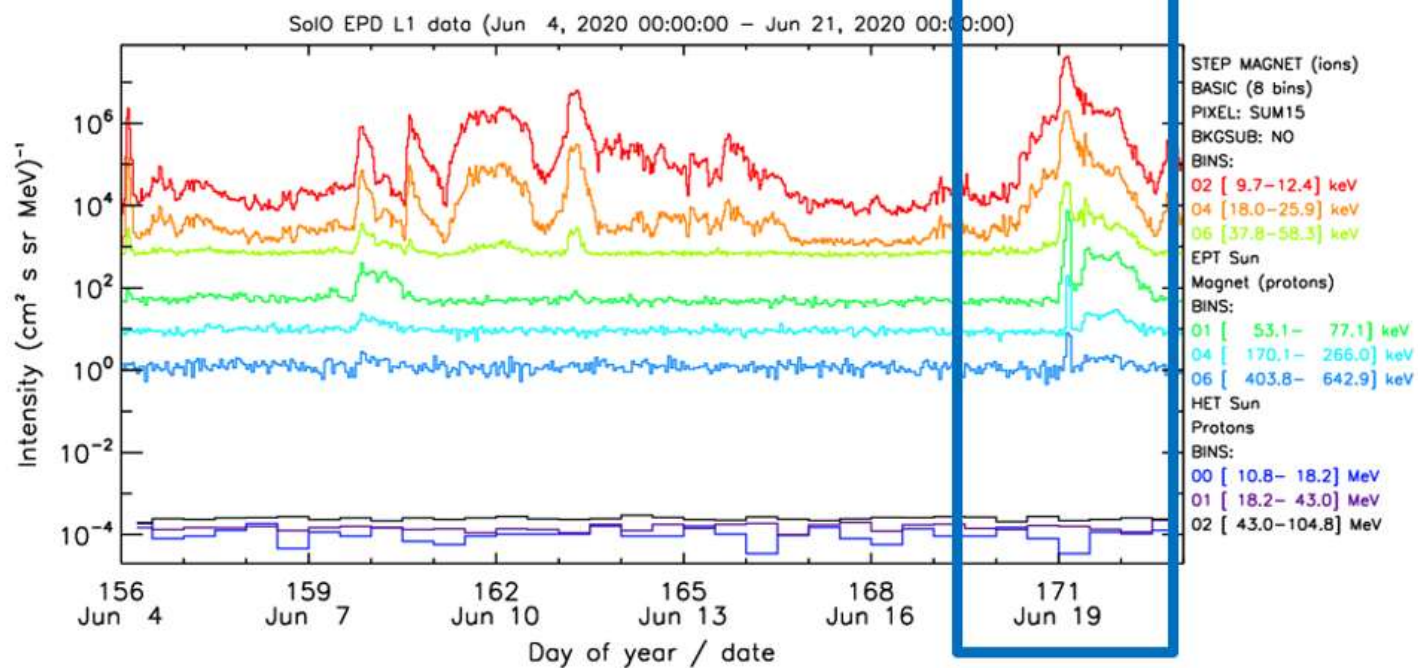
Thanks to:
SDO/AIA
GONG
JHelioViewer
HelioPy/pfsspy

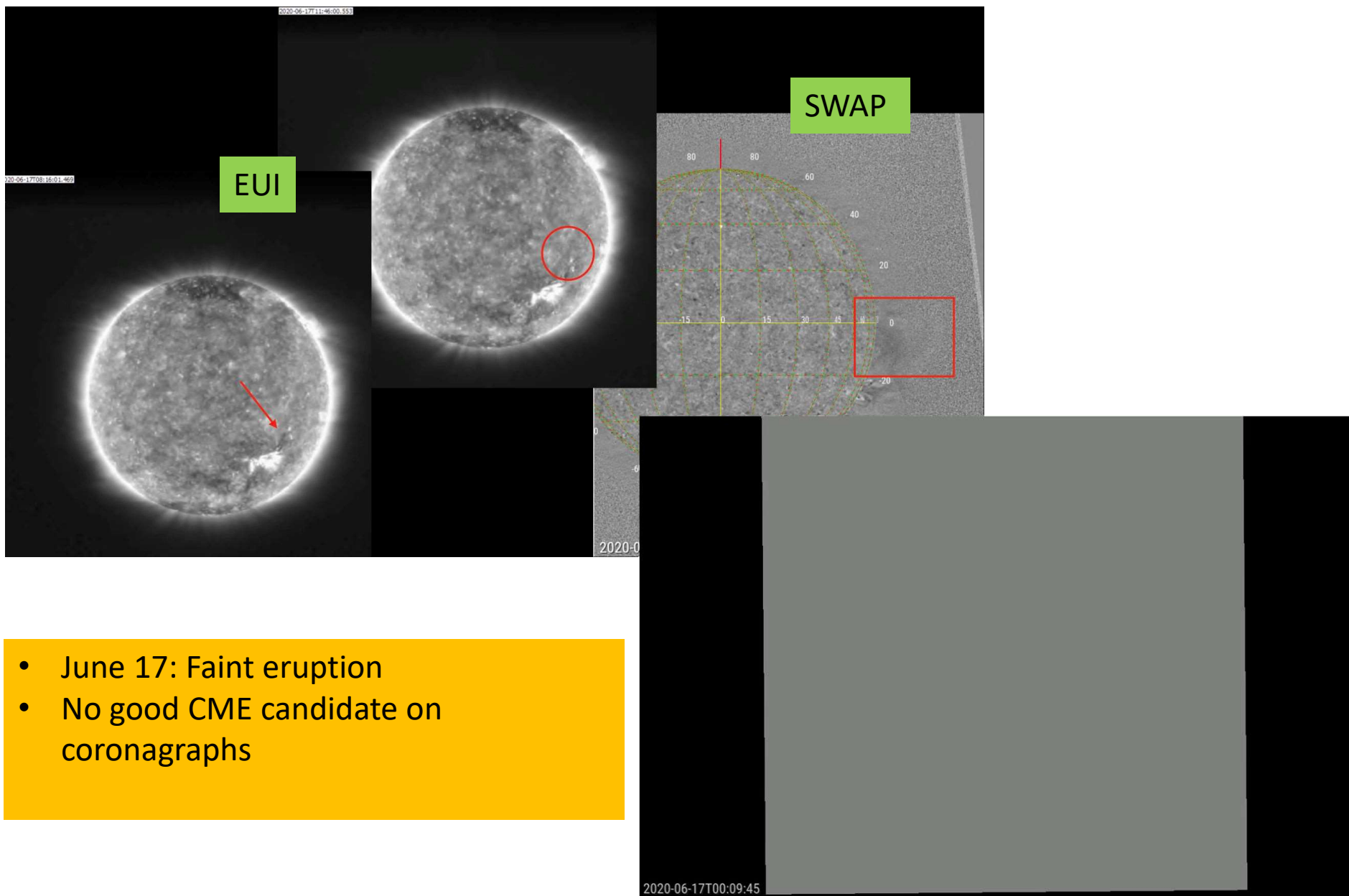


0:00:00



Summary of STEP, EPT and HET proton observations

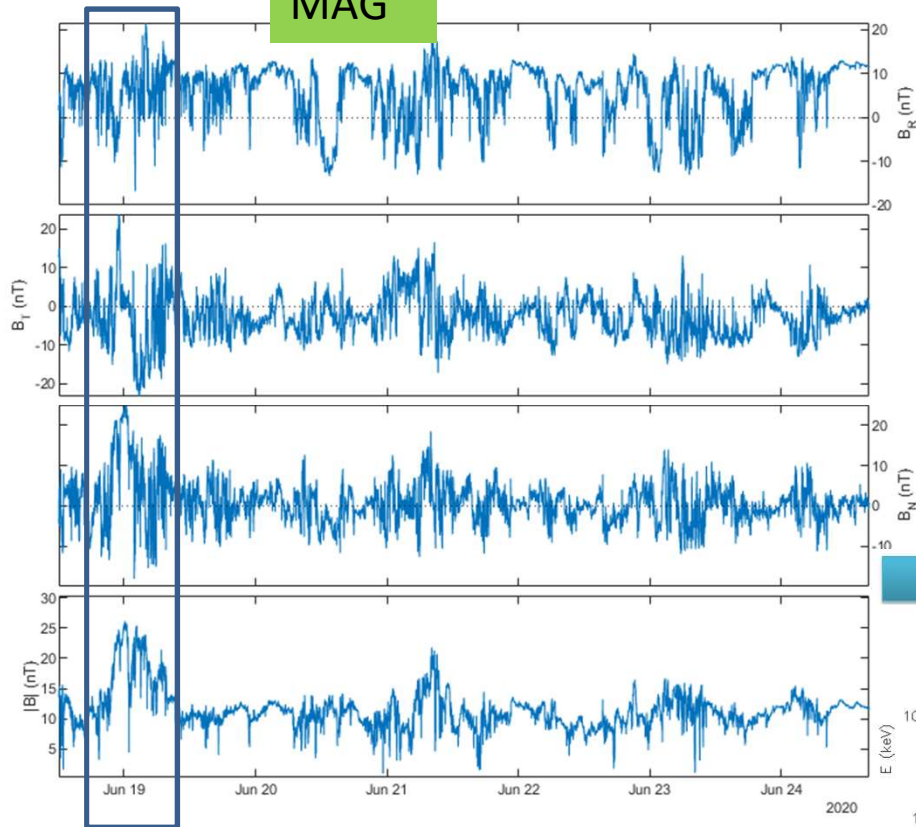




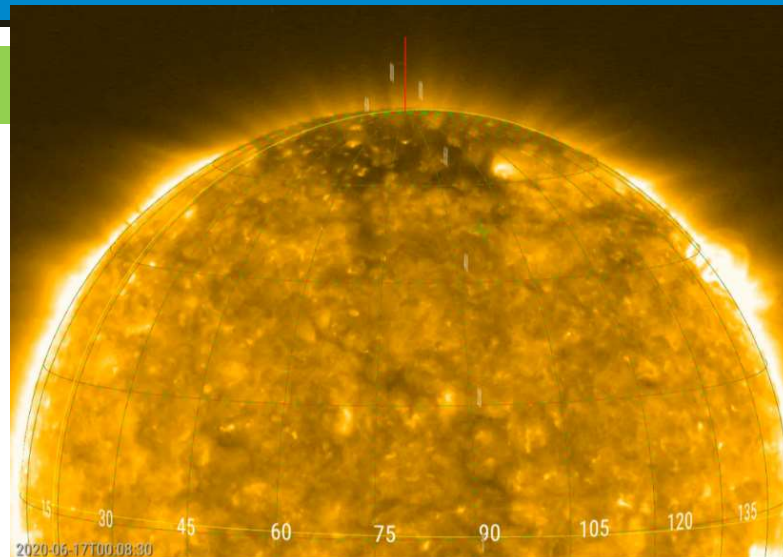
- June 17: Faint eruption
- No good CME candidate on coronagraphs

EUI - EPD June 2020

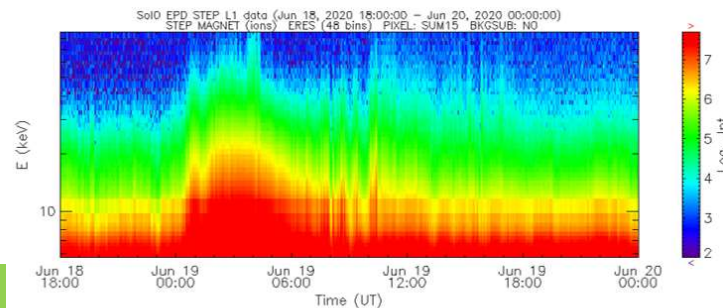
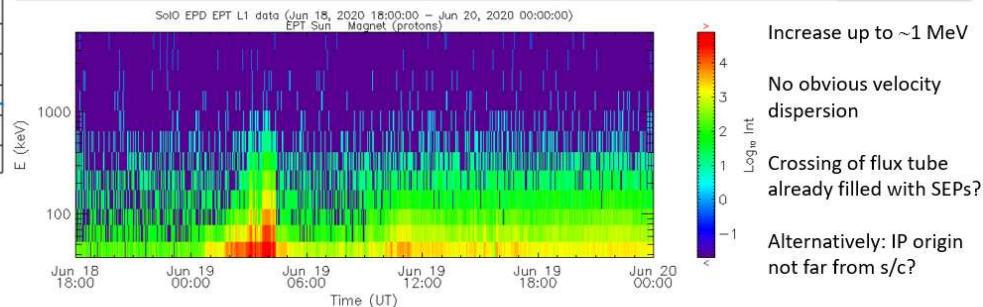
MAG



EUI



STEP+EPT-Sun proton dynamic spectrum



EPD

- Faint eruption/no good CME
- Probably SIR/CIR related

- EPD
 - Small electron event around 17:00 on August 5, accompanied by a 3He-rich SEP event.
 - There is a good SEP event on October 22.
 - Small solar electron event on October 21 (around 20h).
- RPW
 - Faint type III burst on 10/21 around 20 UT.
 - IP shock passage on 5/12 around 08 UT.
 - Intense narrowband emission on 8/4, but it is probably artificial.
 - Many radio bursts observed e.g. on 5/28 by Parker, STEREO-A, and Wind with direction-finding capabilities, when the RPW was turned off.
- MAG
 - Check footpoints in new data

- MAG
 - **Ongoing collaboration, using data from June 16-21 (AGU talk by Tim Horbury)**
 - We tried also May (MAG sees fluxrope) and August (MAG sees HCS crossing), but nothing meaningful came out.
- EPD
 - **Ongoing study about a particle increase on June 19 (AGU talk by Angels Aran)**
 - Some dates to check
- RPW
 - Several dates to check
- SWA
 - Nothing yet