

ESWW11 – Forecaster Forum  
***Flaring activity in NOAA 2158***

18 November 2014

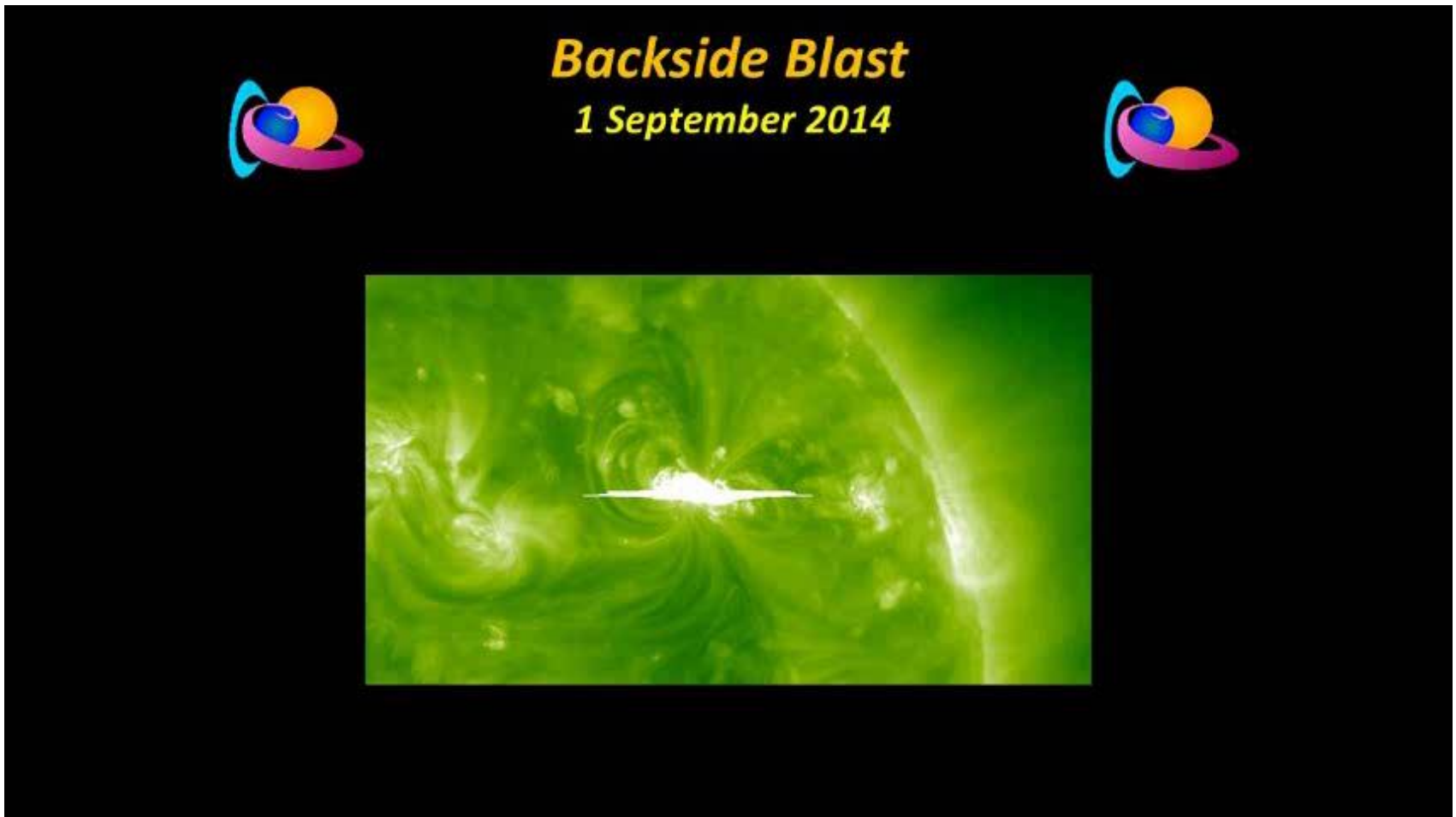
*Jan Janssens & the SIDC SW Forecast team*

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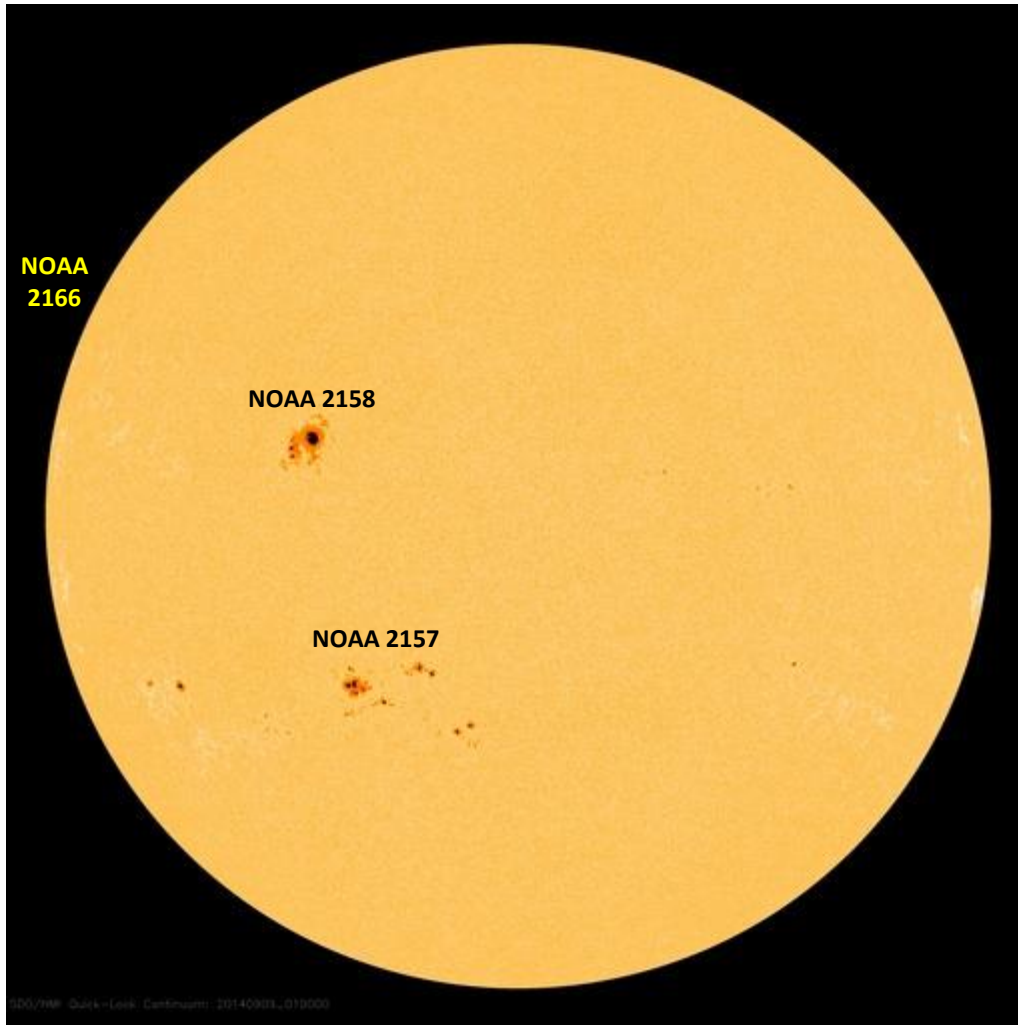
# Prelude

*Backside Eruption – 01 Sep @ 11:05UT*

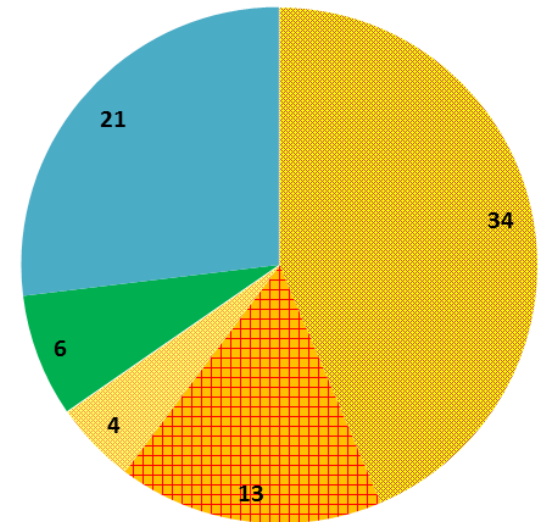


<http://stce.be/news/266/welcome.html>

# Intro to M4.5 event

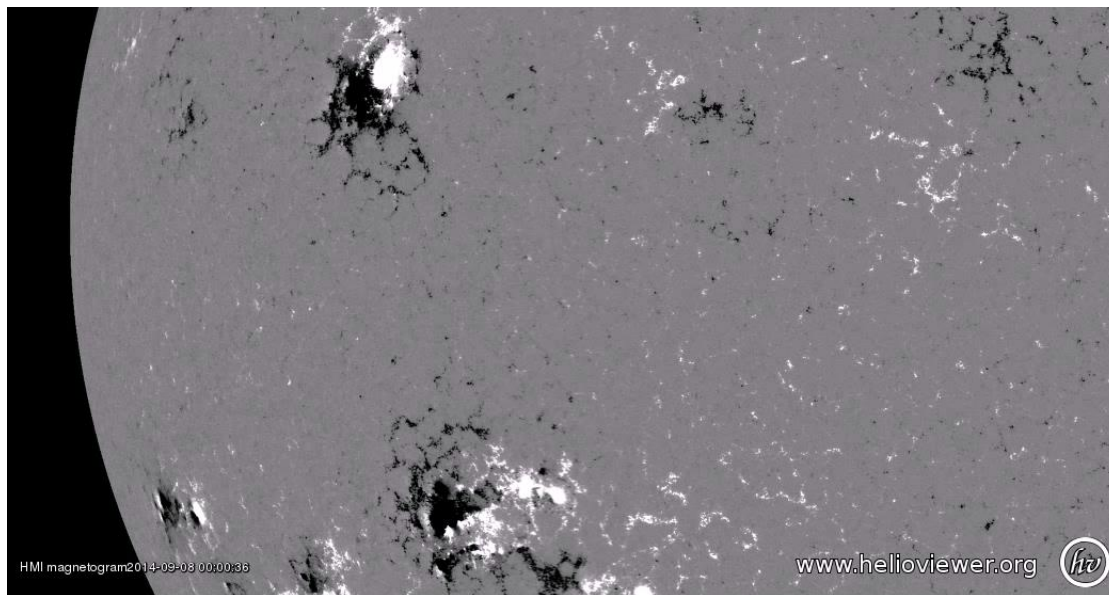
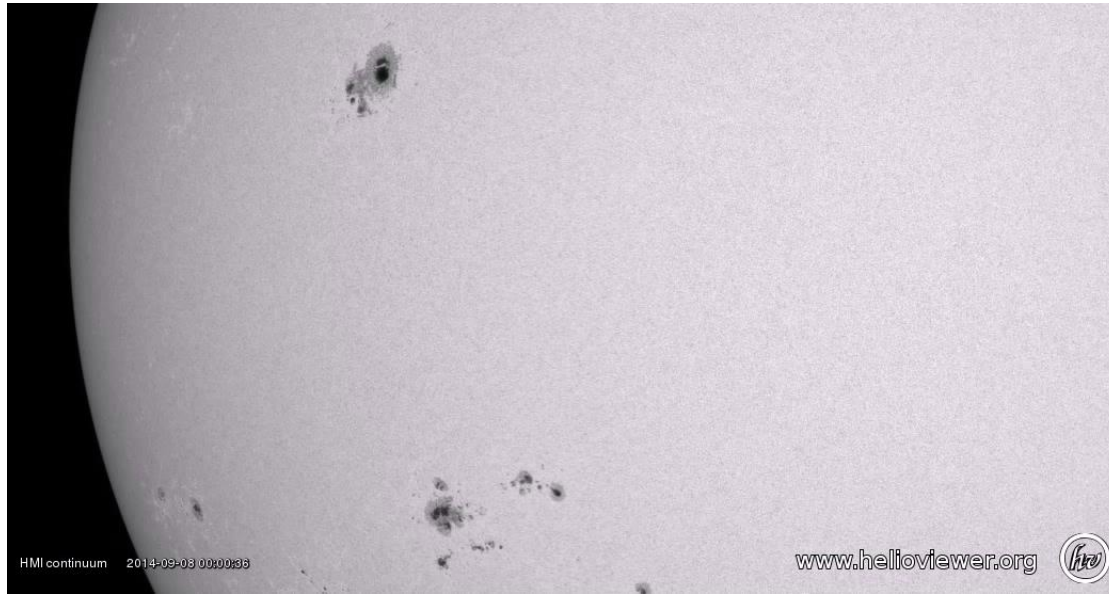


Flaring activity (4 - 17 September 2014)



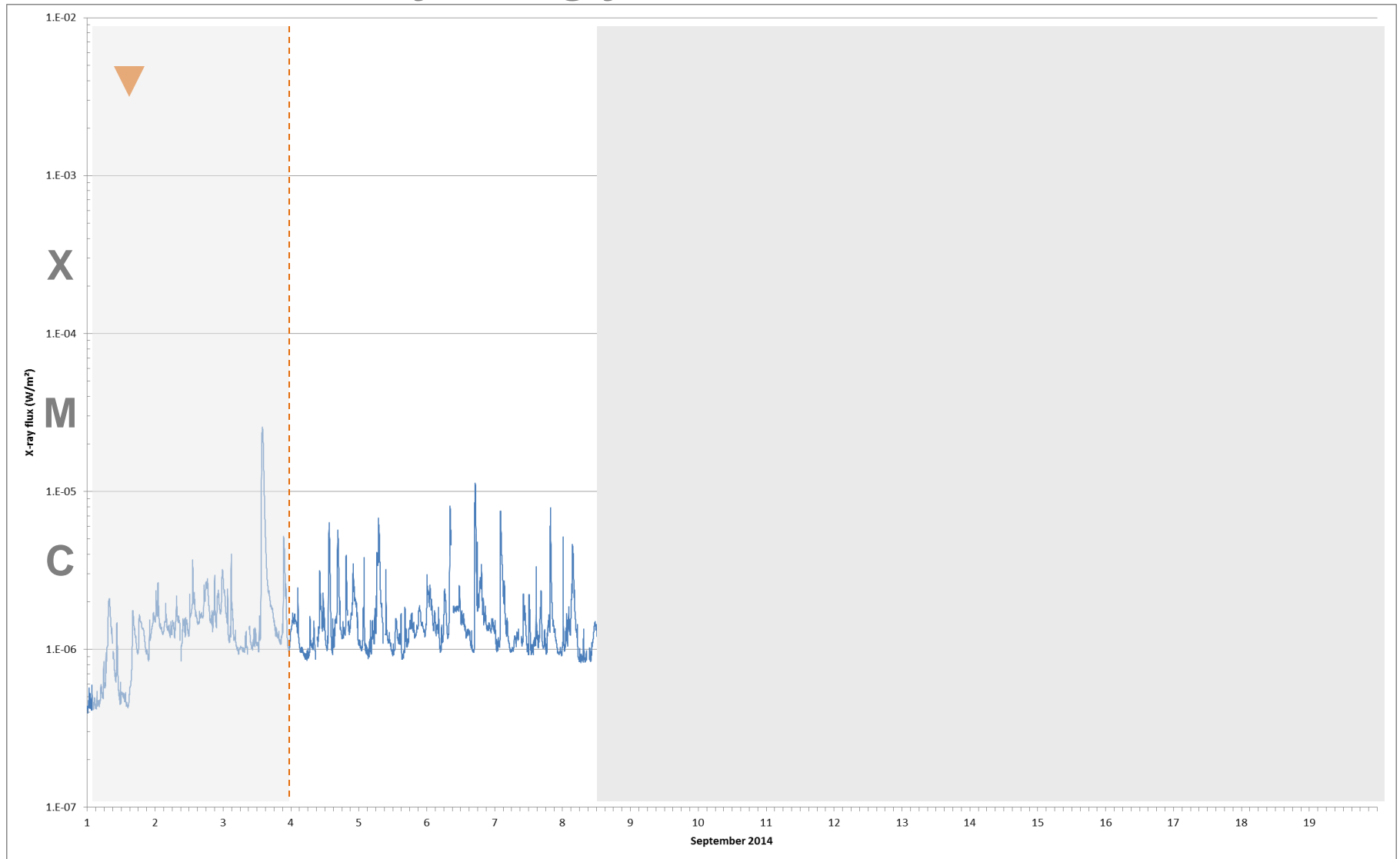
■ NOAA 2157 (32C/2M) ■ NOAA 2158 (11C/1M/1X) ■ NOAA 2166 (2C / 2M)  
■ NOAA 2164 (6C) ■ Rest + UNK (21C)

# NOAA 2157 and NOAA 2158



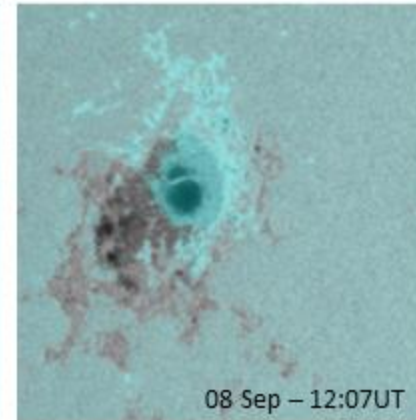
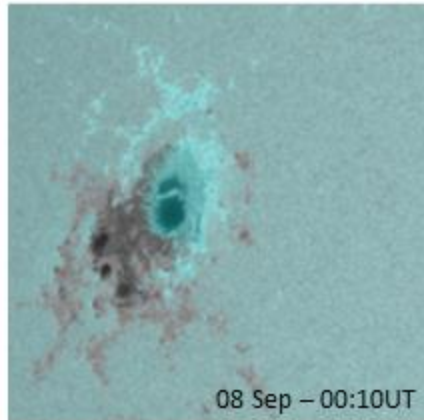
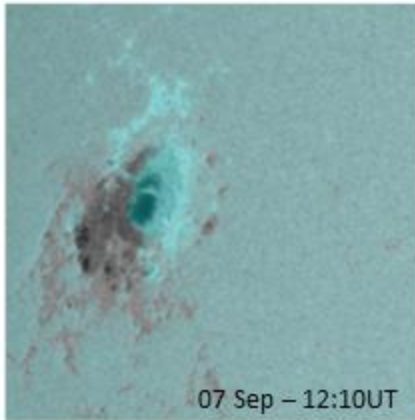
# Intro to M4.5 event

*No flaring from NOAA 2158*



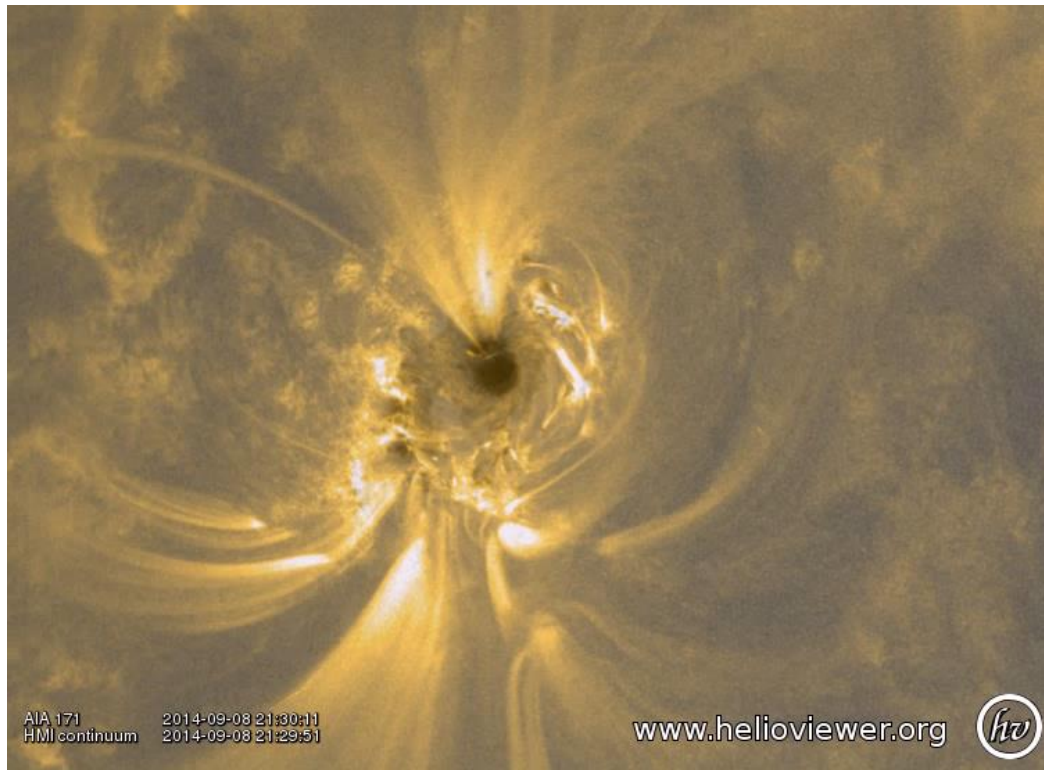
# Intro to M4.5 event

*Magnetic delta-configuration NOAA 2158*



# M4.5 flare in NOAA 2158

9 September - 00:29UT

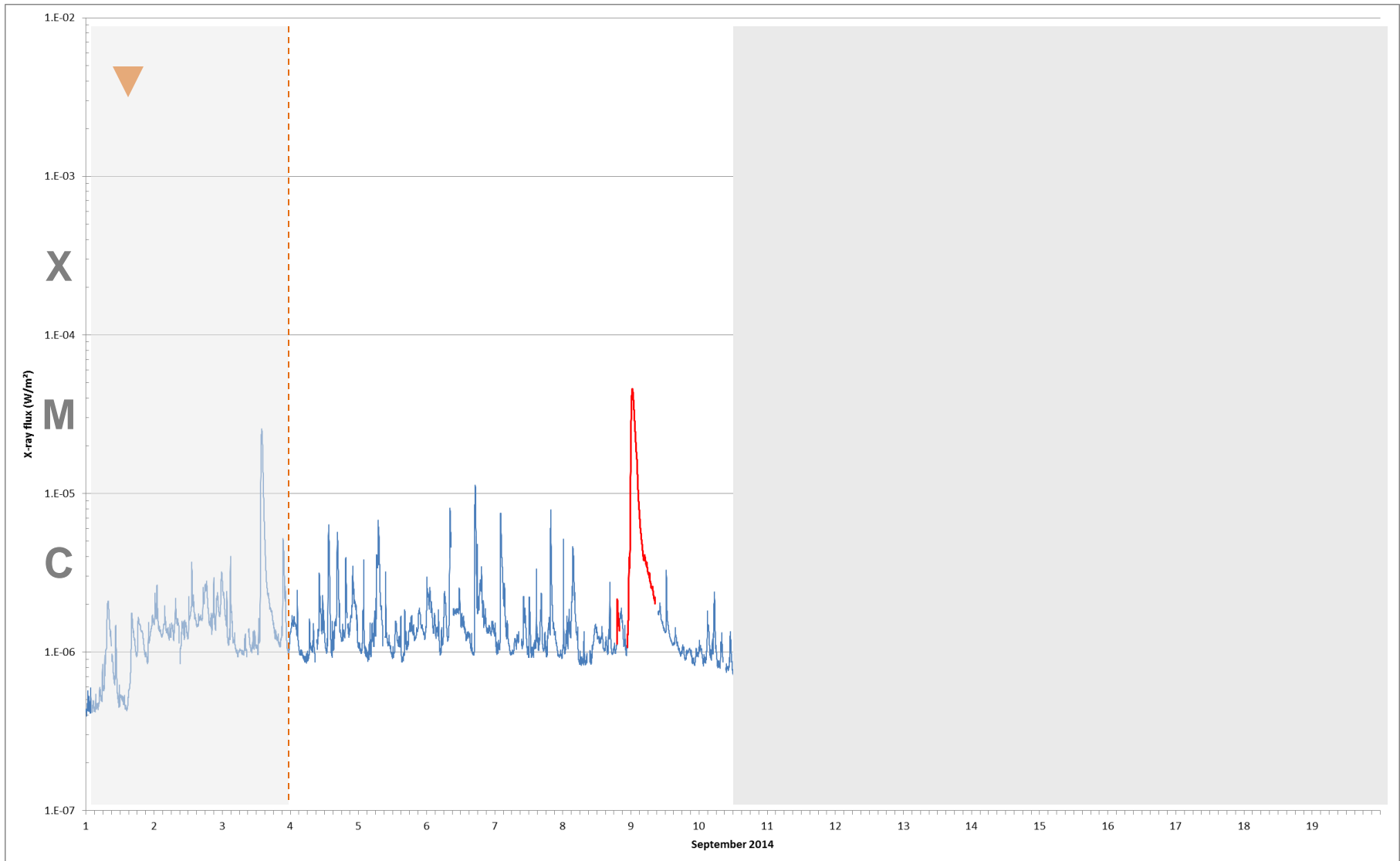


- Long Duration Event: Start on 08 Sep at 23:12UT, end on 09 Sep at 01:31UT
- No signature in proton flux



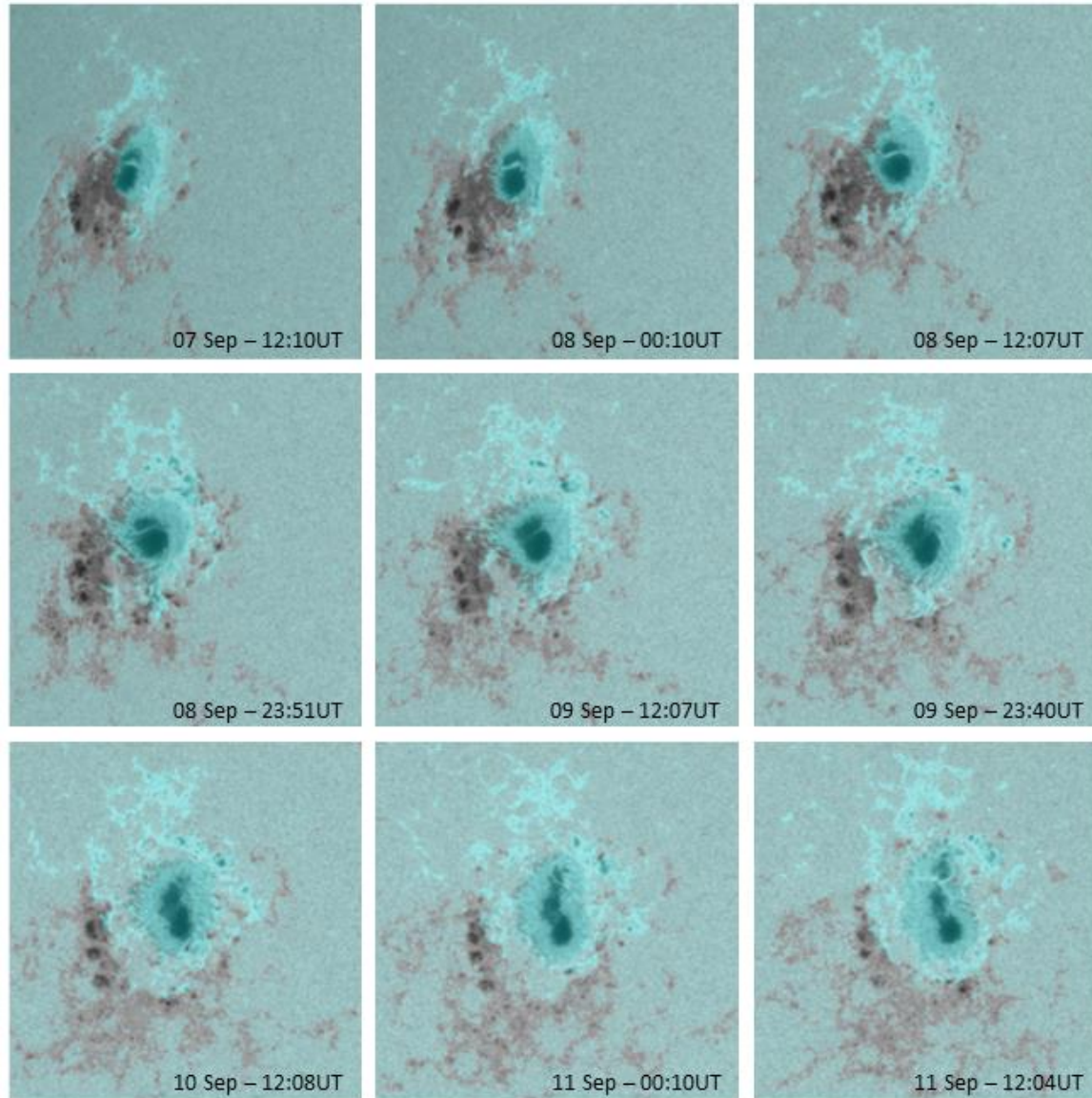
# Intro to X1.6 event

*Except for M-flare, STILL no flaring from NOAA 2158*



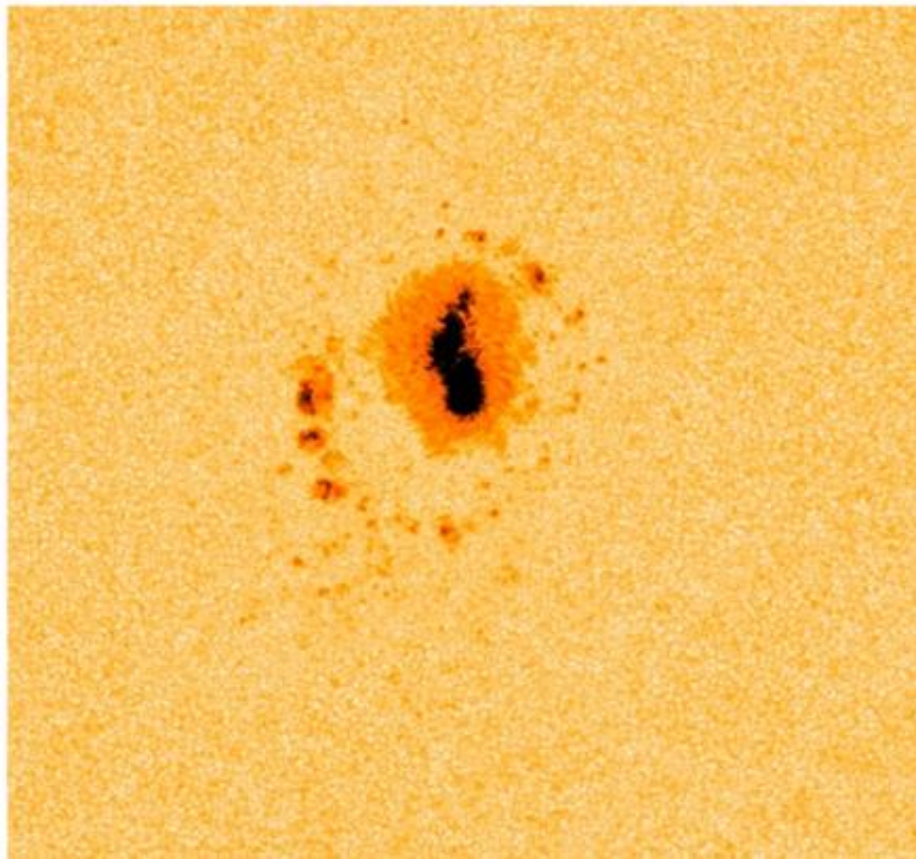
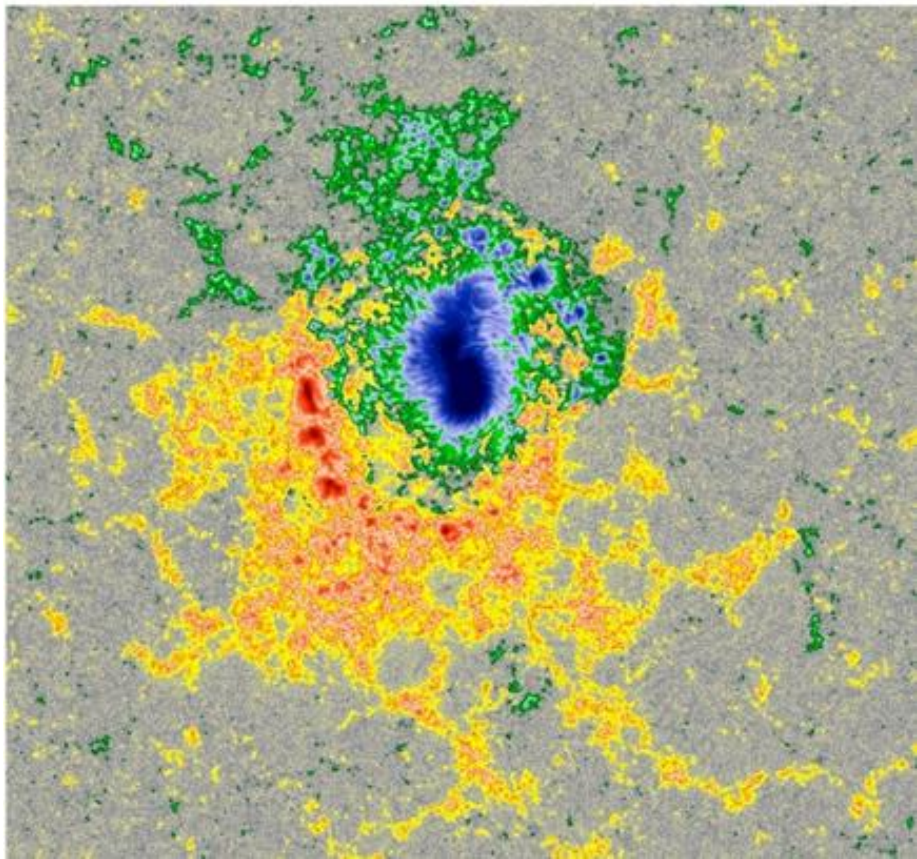
# Intro to X1.6 event

*NOAA 2158 is decaying; no delta configuration*



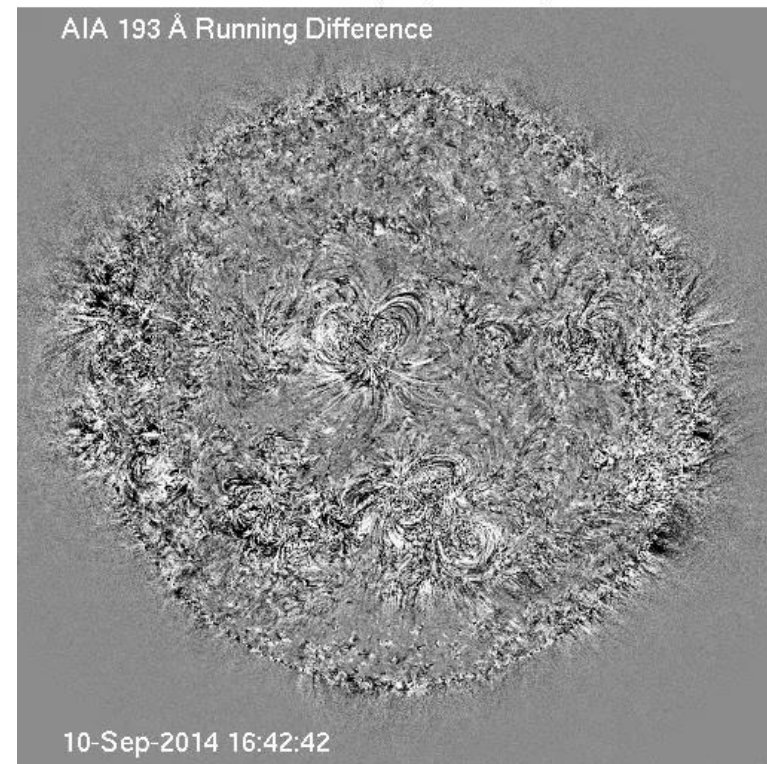
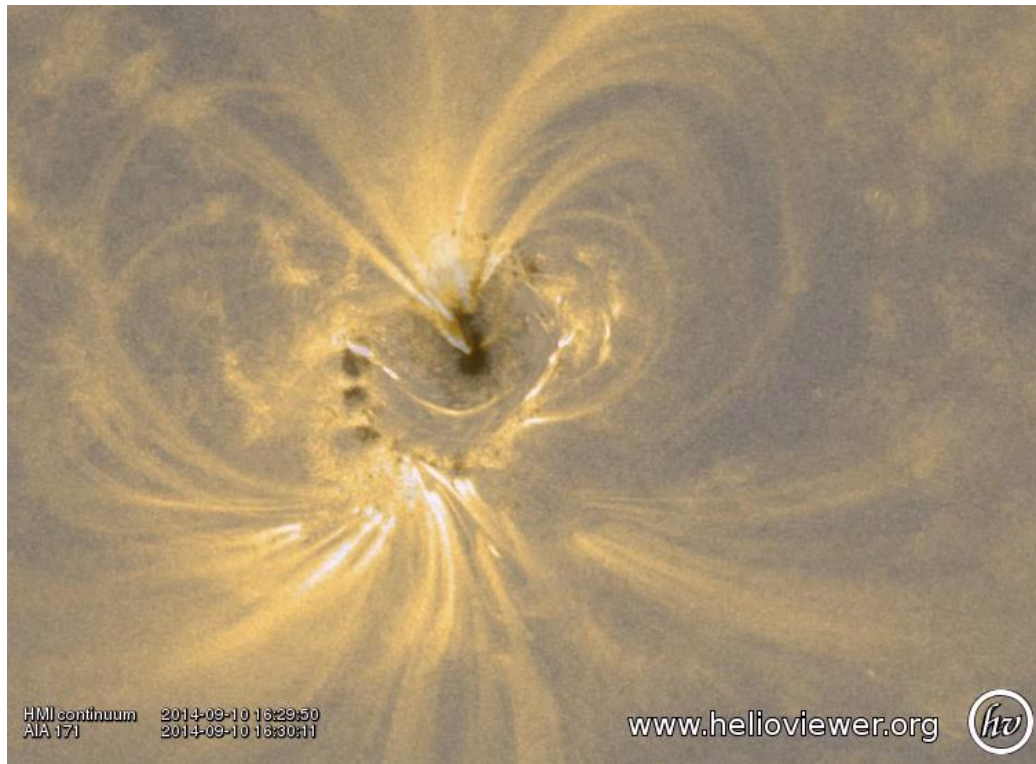
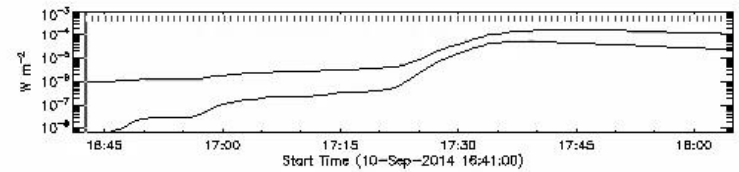
# Intro to X1.6 event

*NOAA 2158 decaying; no delta configuration*



# X1.6 flare in NOAA 2158

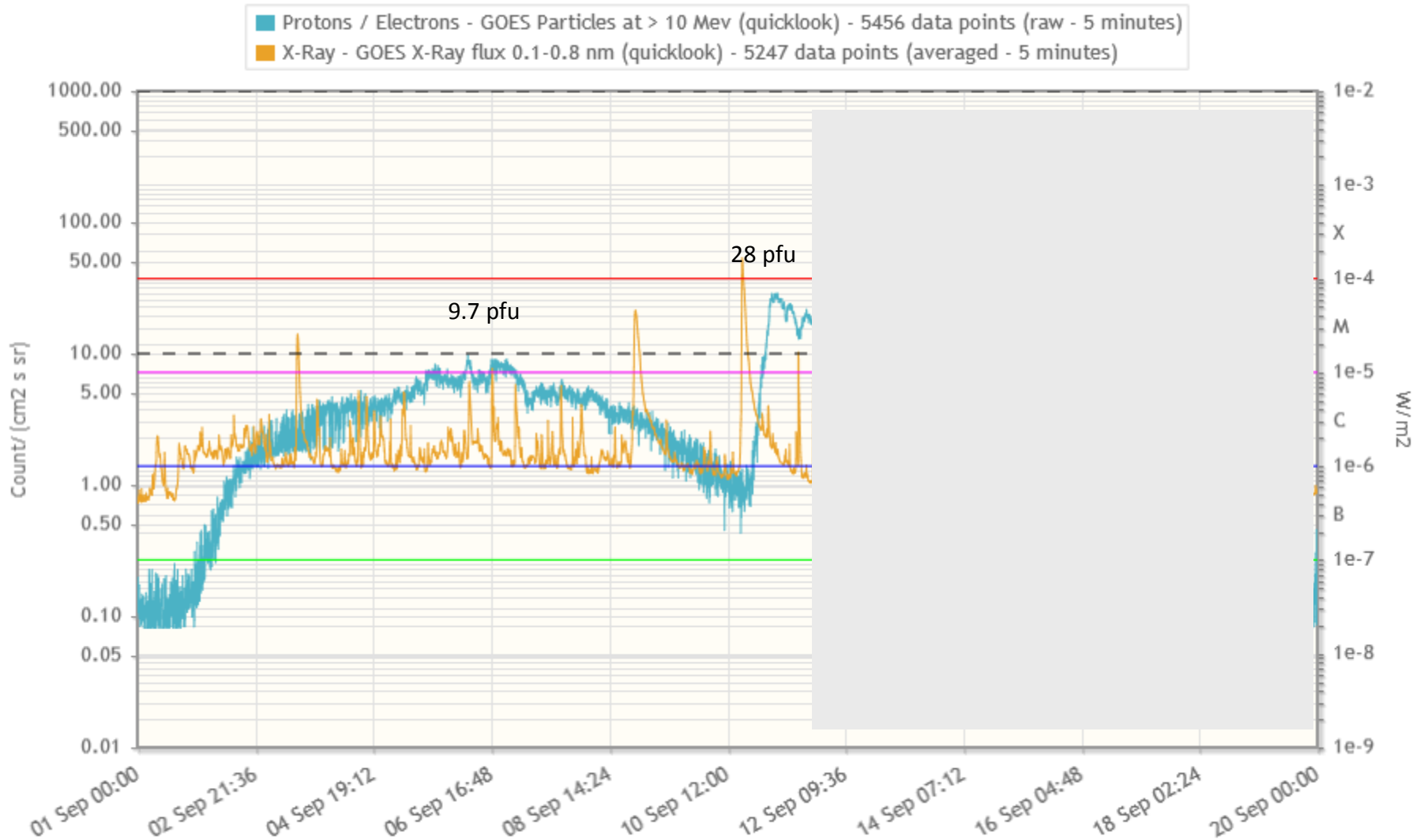
10 September – 17:45UT



Nariaki Nitta (LMSAL)

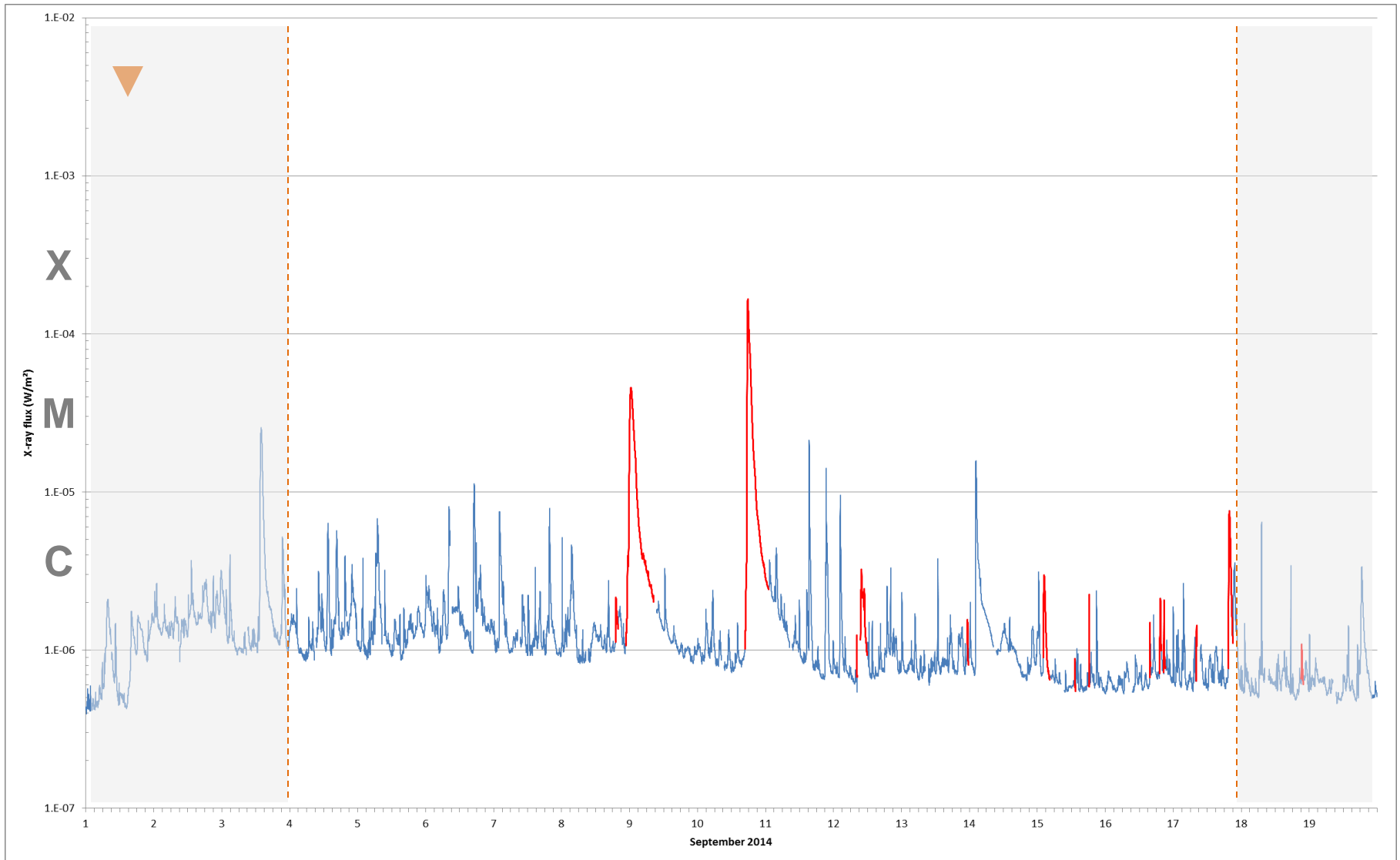
# X1.6 flare in NOAA 2158

10 September – 17:45UT



# Post X1.6 event

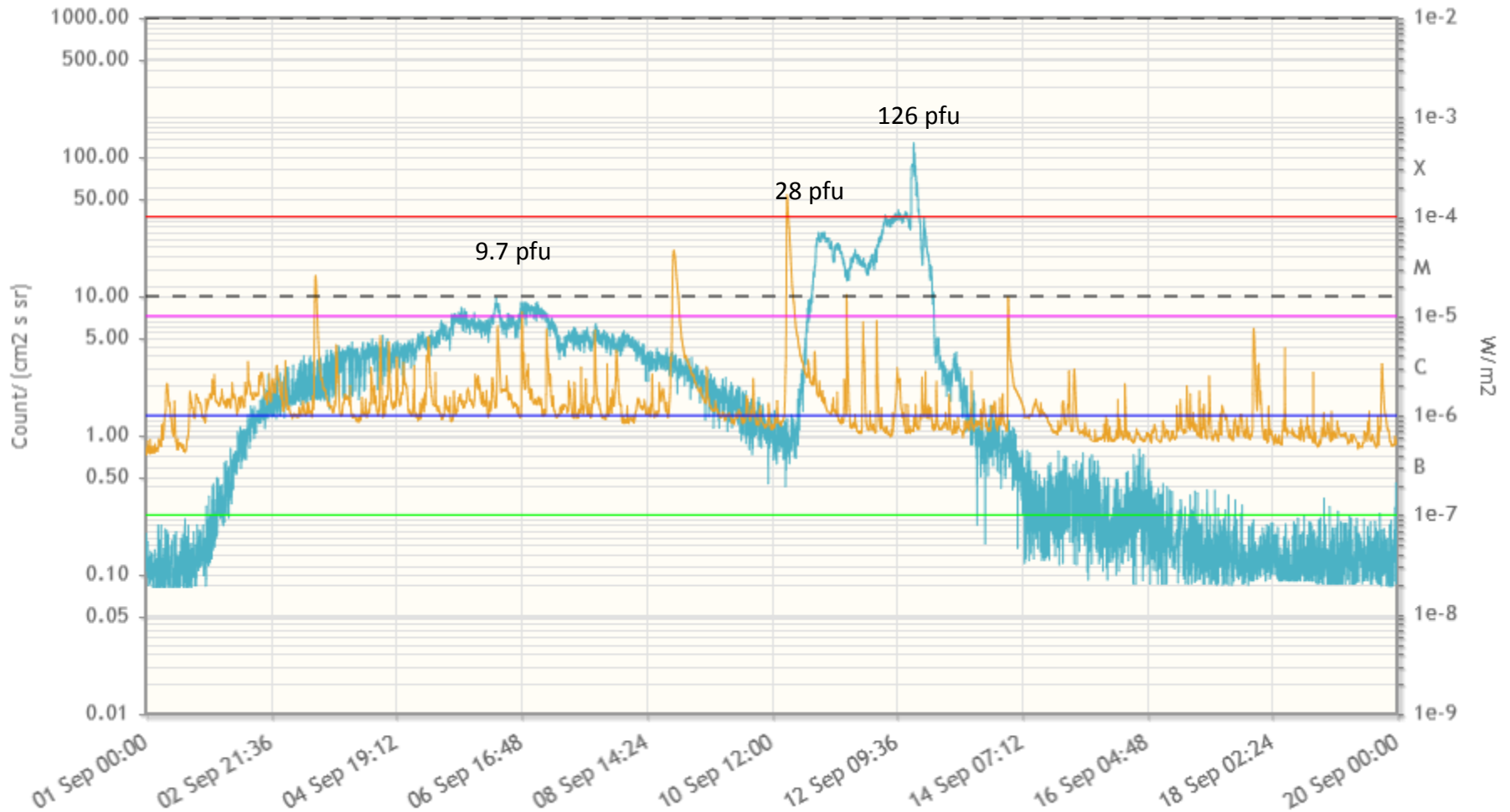
*Some C-class flaring from NOAA 2158*



# Post X1.6 event

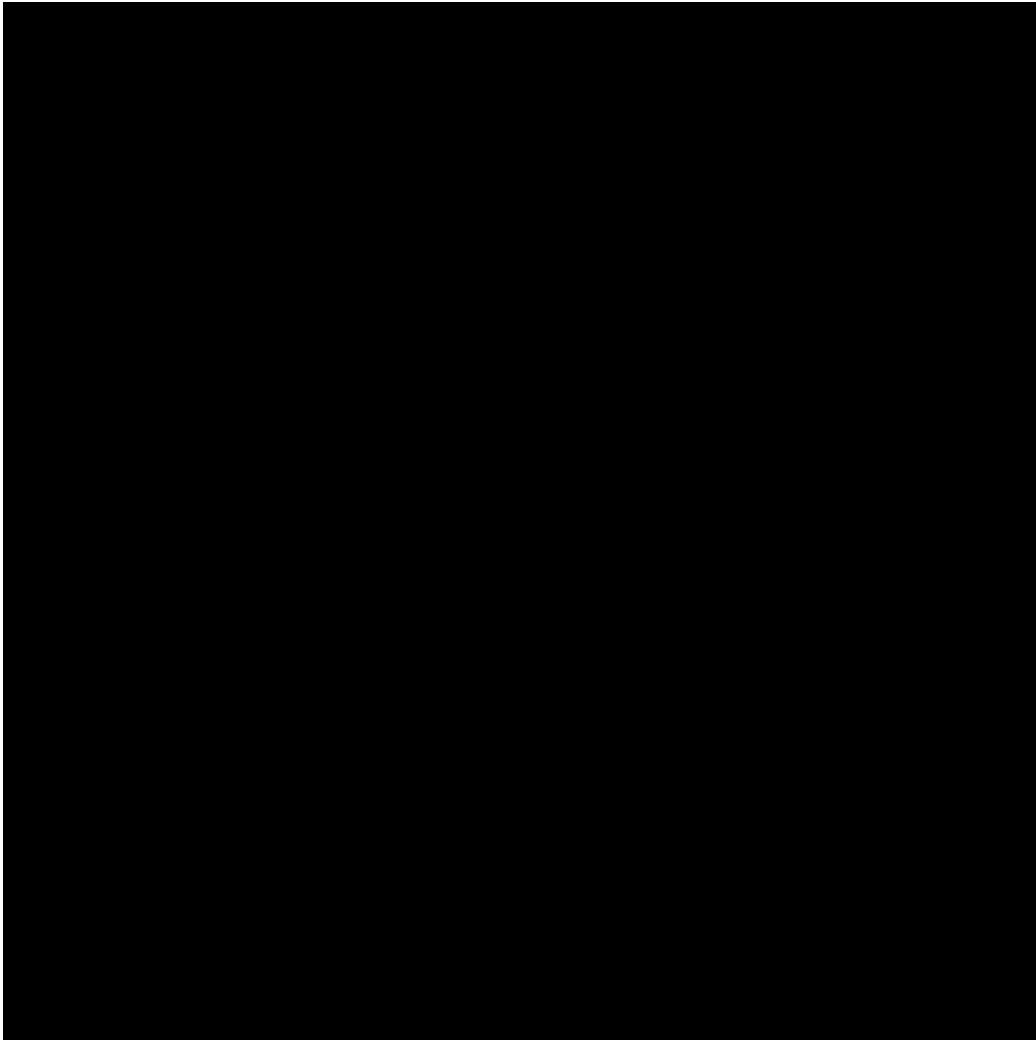
*S2-storm driven by CME from X1.6-event*

■ Protons / Electrons - GOES Particles at > 10 Mev (quicklook) - 5456 data points (raw - 5 minutes)  
■ X-Ray - GOES X-Ray flux 0.1-0.8 nm (quicklook) - 5247 data points (averaged - 5 minutes)



# Post X1.6 event analysis

## *Possible contributing factors & Flare triggers*



- Rotation of leading spot
  - *Storage of helical energy?*
  - *Also in*
    - *X2 flare from NOAA 1158 (15 Feb 2011)*
    - *X-class flares from NOAA 0930 (Dec 2006)*
- Moving Magnetic Features
  - *Also in NOAA 9236*
    - *5 X-class flares (24-26 Nov 2000)*



# NOAA 9236 (SOHO) & NOAA 0930 (Hinode)

