Information on Solar Observing Instruments

The following document lists instruments capable of observing solar phenomena as numbered headings followed by the satellite on which they are located as well as the name of the list in which the flares they observed are stored.

SDO – Solar Dynamics Observatory

- *Launched:* 11th Feb 2010
- *First light:* 11th Apr 2010
- *Orbit:* Geosynchronous (inclined)

Instruments:

- AIA – Atmospheric Imaging Assembly
- EVE – EUV Variability Experiment
- HMI – Helioseismic and Magnetic Imager

AIA:

- *Instrument Type:* Telescope
- *Wavelengths:* 7x EUV (9-34 nm), 2x UV (160-170 nm) & 1x Visible (450nm)
- *View:* Full Disk
- *Resolution:* 1 arcsec
- *Cadence:* "10 sec or better"
- *Status:* Active

EVE:

MEGS-A:

- *Instrument Type:* Spectrograph
- *Wavelengths:* 5-18 nm & 17-37 nm
- *View:* Full Disk
- *Δλ:* 0.1 nm
- *Cadence:* 10 sec
- *Status:* Active

MEGS-B:

- *Instrument Type:* Spectrograph
- *Wavelengths:* 35-105 nm
- *View:* Full Disk
- *Δλ:* 0.1 nm
- *Cadence:* 10 sec
- *Status:* Active 3hr

MEGS-SAM:

- *Instrument Type:* Pinhole Camera & X-ray Photon Counting
- *Wavelengths:* 250 nm & 1-7 nm
- *View:* Full Disk
- *Δλ:* 1 nm
- *Cadence:* 10 sec
- *Status:* Inactive

MEGS-P:

- *Instrument Type:* Lyman-α Photometer
- *Wavelengths:* 212.6nm
- *View:* Full Disk
- *Δλ:* 10 nm

- *Cadence:* 0.25 sec
- *Status:* Active

ESP:

- *Instrument Type:* Spectrograph
- *Wavelengths:* 0.1-36.6 nm
- *View:* Full Disk
- *Δλ:* 4.7-6 nm
- *Cadence:* 0.25 sec
- *Status:* Active

HMI:

- *Instrument Type:* Vector magnetograph
- *Wavelengths:* 617.3 nm
- *View:* Full Disk
- *Resolution:* 1 arcsec
- *Cadence:* 50 sec
- *Status:* Active

Hinode

- *Launched:* 23rd Sep 2006
- *First light:* 28th Oct 2006
- *Orbit:* Sunsynchronous

Instruments:

- EIS– EUV Imaging Spectrometer
- SOT – Solar Optical Telescope
- XRT – X-Ray Telescope

EIS:

Telescope:

- *Instrument Type:* Telescope
- *Wavelengths:* 18-20.4 nm & 25-29 nm
- *View:* ±295 arcsec east-west raster or ±890 arcsec shift of FOV centre east-west
- *Raster:* 1 arcsec in 0.7 sec (Minimum step size: 0.123 arcsec)
- *Resolution:* 1 arcsec
- *Cadence:* 3 sec in dynamic events, 10 sec in active region
- *Status:* Active

Spectrograph:

- *Instrument Type:* Spectrograph
- *Wavelengths:* 18-20.4 nm & 25-29 nm
- *View:* 360 x 512 arcsec
- *Resolution:* 1 arcsec
- *Cadence:* <1 sec in dynamic events, 10 sec in active region
- *Status:* Active

SOT:

- *Instrument Type:* Telescope & Magnetograph
- *Wavelengths:* 450 nm
- *View:* 218 x 109 arcsec & 328×164 arcsec (unvignetted 264 ×164 arcsec)
- *Resolution:* ≈0.25 arcsec (175 km)
- *Cadence:* 10 sec
- *Status:* Degraded - 25th Feb 2016

XRT:

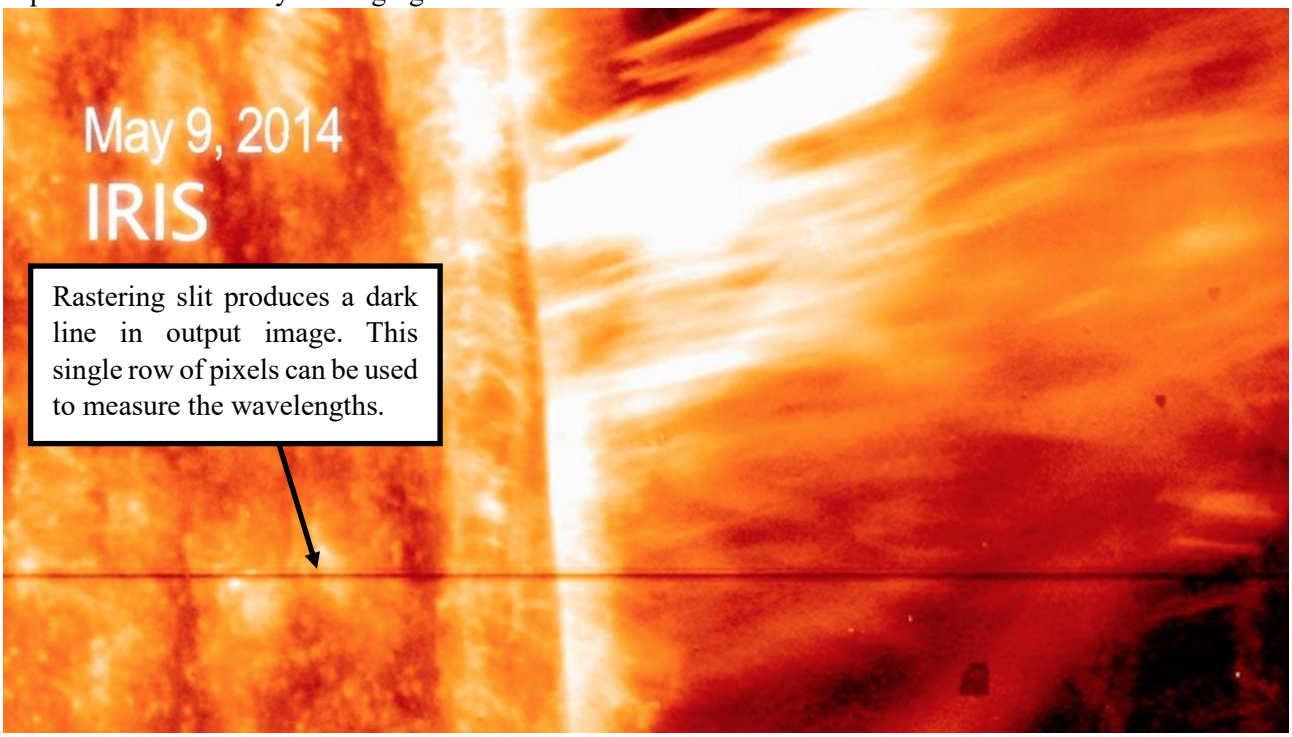
- *Instrument Type:* Telescope
- *Wavelengths:* 1.3 nm, 4.5 nm, 11.4 nm, 30.4 nm, 400 nm, 500 nm
- *View:* Full Disk
- *Resolution:* 750 km, 1 arcsec (VIS) & 1,100 km, 1.5 arcsec (X-Ray)
- *Cadence:* 10 sec of 5 sec
- *Status:* Active

IRIS

- *Launched:* 28th Jun 2013
- *First light:* 17th Jul 2013
- *Orbit:* Sunsynchronous

IRIS:

IRIS takes an image of the sun with a rastering slit overlayed, allowing for wavelength information to be captured simultaneously to imaging.



- *Instrument Type:* Spectrometer & Telescope
- *Wavelengths:* 133.2-135.8 nm & 139-140.6 nm (UV) & 278.5-283.5 nm (Near UV)
- *View:* 175 x 175 arcsec (SJI), 0.33 x 175 arcsec (slit), 130 x 175 arcsec (raster)
- *Resolution:* 0.33 arcsec (FUV), 0.4 arcsec (NUV)
- *Cadence:* 1 sec
- *Status:* Active

PROBA2

- *Launched:* 2nd Nov 2009
- *First light:* 14th Nov 2009
- *Orbit:* Sunsynchronous

Instruments:

- SWAP - Sun Watcher using Active Pixel System detector and Image Processing
- LYRA - LYman-alpha RAdiometer

SWAP:

- *Instrument Type:* Telescope
- *Wavelengths:* 17.4 nm
- *View:* Full Disk
- *Resolution:* 3 arcsec (2,200 km)
- *Cadence:* 1 min
- *Status:* Active

LYRA:

- *Instrument Type:* Radiometer
- *Wavelengths:* 115-125 nm, 200-220 nm, 17-80 nm & 6-20 nm
- *View:* Full Disk
- *Resolution:* N/A
- *Cadence:* 0.05 sec
- *Status:* Active

RHESSI

- *Launched:* 5th Feb 2002
- *First light:* 15th Feb 2002
- *End of Life:* 16th Aug 2018
- *Orbit:* Low Earth Orbit

Instruments:

- RHESSI - Reuven Ramaty High Energy Solar Spectroscopic Imager

RHESSI:

- *Instrument Type:* Telescope & Spectrometer
- *Wavelengths:* 0.003-17 MeV (soft X-rays to gamma-rays)
- *View:* Full Disk
- *Resolution:* 2.3 arcsec (1,700 km) to 100 keV, 7 arcsec (5,000 km) to 400 keV, 36 arcsec (27,000 km) to 15 MeV
- *Cadence:* 2 sec
- *Status:* Inactive

Fermi

- *Launched:* 11th Jun 2008
- *First light:*
- *Orbit:* Low Earth Orbit

Instruments:

- Fermi Gamma-ray Space Telescope

RHESSI:

- *Instrument Type:*
- *Wavelengths:*
- *View:*
- *Resolution:*
- *Cadence:*
- *Status:* Active

GOES

- *Launched:*
- *First light:*
- *End of Life:*
- *Orbit:* Geostationary

Instruments:

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RHESSI:

- *Instrument Type:*
- *Wavelengths:*
- *View:*
- *Resolution:*
- *Cadence:*
- *Status:* Active

Solar Observing Instruments: Quick Look

Lifetimes:

- SDO – 11th Apr 2010
  - AIA → present
  - EVE
    - MEGS-A → 26th May 2014
    - MEGS-B →
    - MEGS-SAM → 26th May 2014
    - MEGS-P →
    - ESP →
  - HMI → present

- Hinode – 26th Sep 2006
  - EIS → present
  - SOT → degraded 25th Feb 2016
  - XRT → present

- IRIS – 17th Jul 2013 → present

- PROBA2 – 14th Nov 2009
  - SWAP → present
  - LYRA → present

- RHESSI – 15th Feb 2002 → 16th Aug 2018

- FERMI – 11th Jun 2008 → present