



SWAP, a new EUV imager for solar weather monitoring

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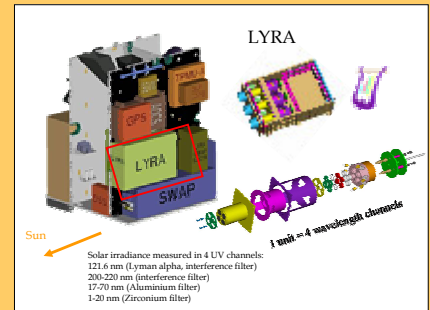
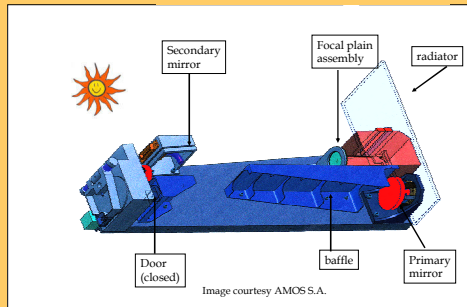



<http://swap.oma.be>

SWAP (Sun Watcher using Active Pixel System detector and Image Processing) is a solar EUV imager that has been selected to fly on PROBA-2.

PROBA-2 is a small technology demonstration mission of ESA, planned for launch end 2006. Besides SWAP, the solar monitoring payload will also consist of the UV radiometer LYRA (Large Yield Radiometer).

Both instruments are proposed as space weather monitors and contain a variety of hardware and software innovations.

proba II
satellite

- 2 Years mission, launch late 2006
- LEO sun-synchronous 10h30 orbit (see below)
- 60 cm x 70 cm x 85 cm, 120 kg

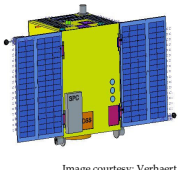
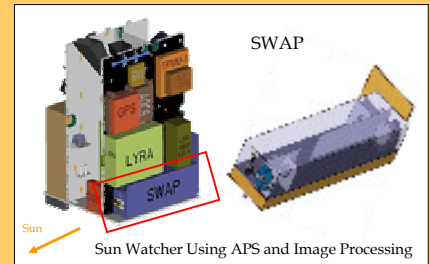


Image courtesy: Verhaert

SWAP will use an off-axis Ritchey Chretien telescope equipped with a specifically EUV enhanced CMOS APS detector. This type of detector has advantages that promise to be very profitable for solar EUV imaging.

SWAP will provide solar corona images in a band pass centered around 17.5 nm which corresponds to the million degree corona. An image cadence of 1 min is baselined.



Observations with the 17.5 nm wavelength allows to detect phenomena, such as solar flares or 'EIT-waves', associated with the early phase of coronal mass ejections.

SWAP: Solar Weather Monitor

- 'EIT/CME watch like' images: 1024x1024 images of the solar corona at 17.5 nm
- Target image cadence: 1 min

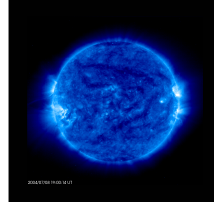


Image recognition software will be developed that automatically detects these phenomena and sends out space weather warnings.

A strong wavelength showing solar weather phenomena

EIT 19.5 nm SPIRIT 17.5nm

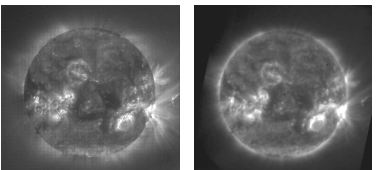
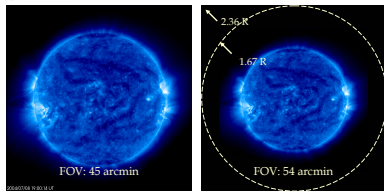


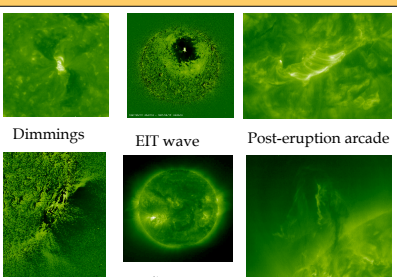
Image Courtesy: V. Slemzin

Together with its sister instrument LYRA (Lyman-alpha Radiometer) onboard PROBA-2, SWAP will serve as a high performance solar monitoring tool to be used in operational space weather forecasting. The SWAP data will complement the observations provided by SOHO-EIT, and STEREO-SECCHI.

Enlarged field of view



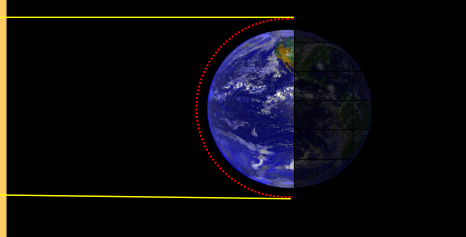
FOV: 45 arcmin FOV: 54 arcmin



Dimmings EIT wave Post-eruption arcade

Loop openings flares Erupting prominences

Sun-synchronous 10h30 orbit:
50 min EUV visibility during each 90 min orbit




SWAP onboard PROBA II satellite