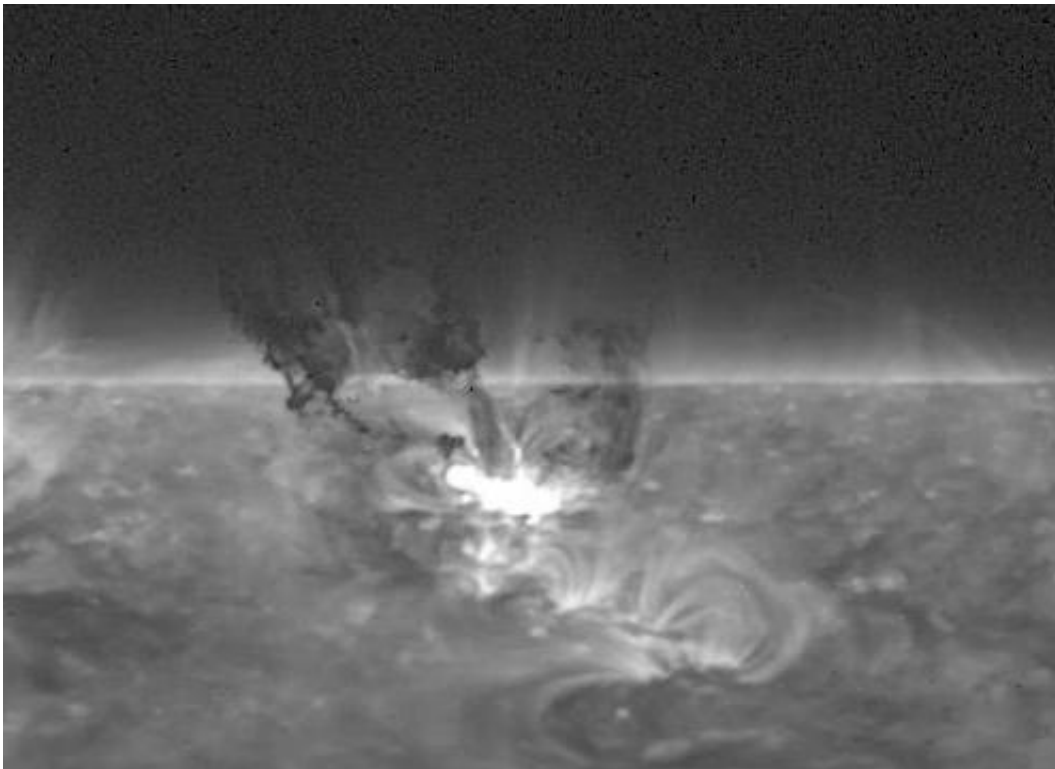


# Small sun-watcher Proba-2 offers detailed view of massive solar eruption

June 10 2011

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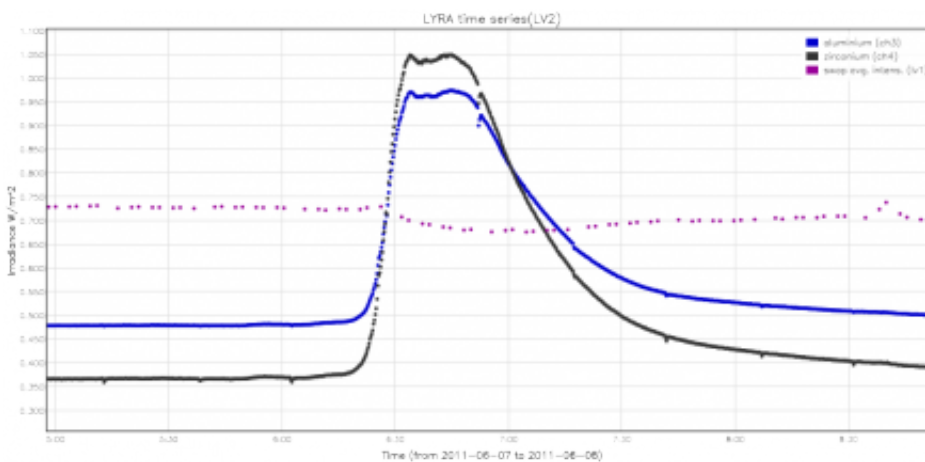


7 June 2011 M2.5-class solar flare observed by Proba-2's SWAP instrument. This image has been warped to show the event as it might appear to an observer flying just above the surface of the sun. A massive prominence eruption took place, as a mass of high-energy particles and superheated gas rose up from the Sun's surface. This gas was relatively cool - about 80 000 K - which explains why it appears quite dark at the extreme ultraviolet wavelength that SWAP observes in.

(PhysOrg.com) -- ESA's Proba-2 small Sun-watcher was among the flotilla of satellites on watch as the Sun erupted spectacularly this week.

After years of relative quietness, the [Sun](#) is waking up. Tuesday 7 June saw a medium-class M2.5 solar flare, associated with a proton storm, a coronal mass ejection that glanced past Earth on Thursday 9 June and an accompanying burst of radio energy.

ESA's Proba-2 satellite was launched in November 2009, during the most inactive period of the solar cycle, but now the Sun is growing more active as it progresses towards 'solar max', expected in 2013.



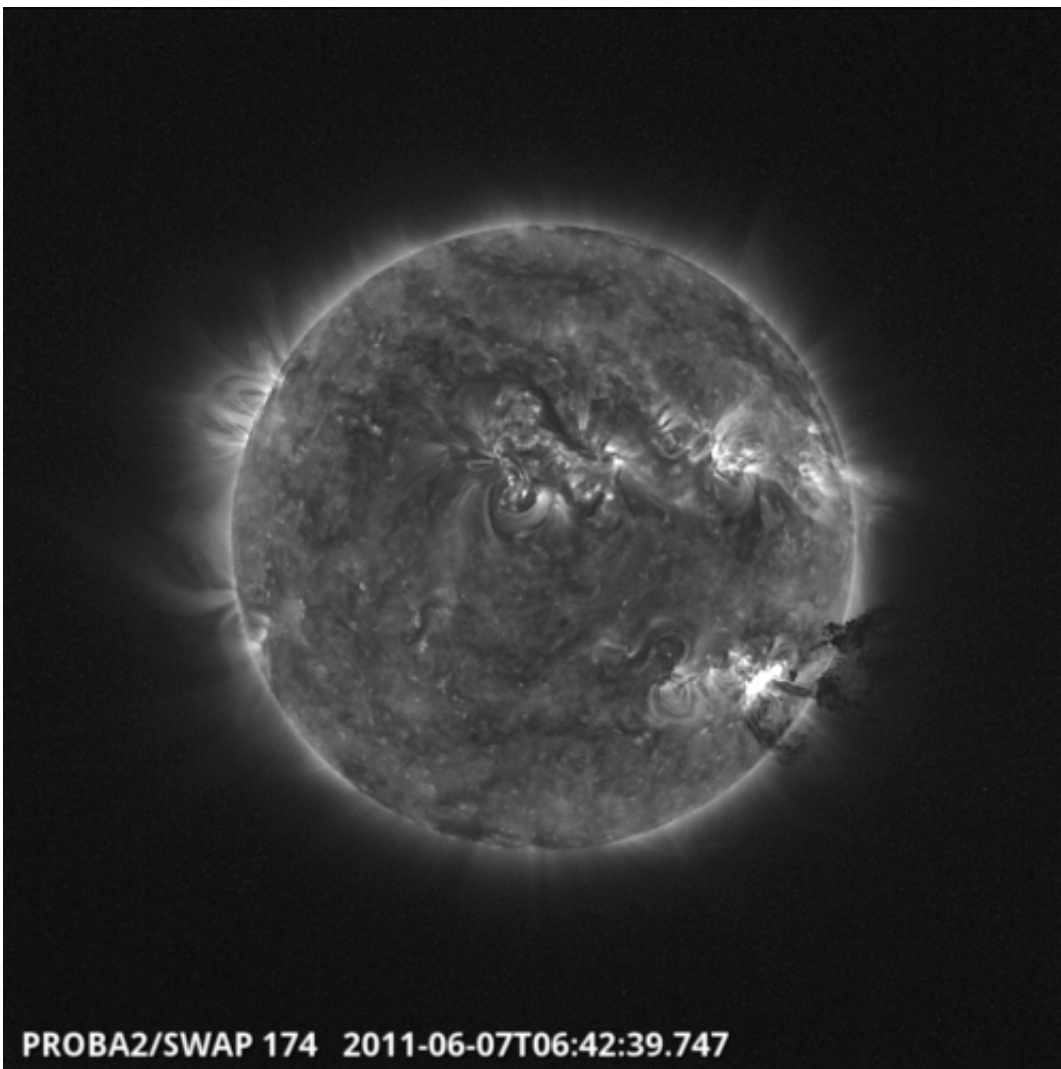
Proba-2's LYRA (Large Yield Radiometer) instrument measures the energy intensity of the Sun across four separate ultraviolet bands every 50 milliseconds, observing a spike in signal across its two short-wavelength bands due to the 7 June 2011 solar flare. The flare caused a decrease in the SWAP average intensity from Proba-2's other Sun-watching instrument, shown in here purple. Credits: ROB

Less than a cubic metre in volume, Proba-2 is the smallest member of the class of Sun-monitoring satellites that includes the ESA/NASA

SOHO, NASA's Solar Dynamics Observatory and STEREO and Japan's Hinode.

Proba-2's radiometer measures the energy intensity of the Sun across four separate ultraviolet bands every 50 milliseconds, and observed a spike across its two short-wavelength bands due to the flare.

At the same time, the satellite's SWAP Sun-imager captured the massive prominence eruption as it occurred, as a mass of high-energy particles and superheated gas rose up from the solar surface.



The 7 June 2011 solar prominence as seen by Proba-2's SWAP. Credits: ROB

This gas was relatively cool – about 80 000°C – which explains why it appears quite dark at the extreme ultraviolet wavelength of SWAP.

Much of this gas then fell back to the Sun, with dark downflows that brighten as they fall, probably due to localised heating. This darkening actually caused a decrease in the average intensity seen by SWAP.

[Proba-2](#) is a technology demonstration satellite that also houses a quartet of science instruments. The imager and radiometer are operated by the Royal Observatory of Belgium. Two instruments operated by the Czech Astronomical Institute monitor the plasma environment around the satellite, including assessing how the coronal mass ejection affects Earth's electrically charged ionosphere.

Provided by European Space Agency

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