

Four powerful salvos from the Sun



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This is a rare happening, and a sign that our Sun's activity will peak in 2013 : over a period spanning just 48h, astrophysicists have observed four consecutive solar eruptions of the most energetic category. Scientists at the Observatoire de Paris study assiduously the phenomena of this type produced by our day star, using not only ground-based instruments, but also NASA's Solar Dynamics Observatory satellite.

Premières éruptions solaires intenses de 2013 Les deux premières éruptions récentes, dimanche 12 et lundi 13 mai 2013, étaient de classe X1.7 et X2.8. Deux éjections de masse coronales ont suivi au-dessus du limbe du Soleil, en haut à gauche. Les images sont issues des satellites SDO de la Nasa et Soho de l'ESA. (SDO / Nasa / Soho / ESA)

These eruptions have led to extremely rapid coronal mass ejections, at speeds in excess of 1500 kilometres/second, accompanied by a flux of energetic particles. While none of them was directed towards the Earth this time, this could change for farther outbursts in the days to come, as the sunspots which are the seat of this phenomenon approach the centre of the solar disc.

Astronomers at the Observatoire de Paris, members of the Laboratoire d'Études Spatiales et d'Instrumentation en Astrophysique [1] at Meudon, who are specialists in solar physics, are following closely the day star's regain of activity. They are currently able to use their dedicated ground-based instruments, in particular those on the Meudon site (Hauts-de-Seine) of the Observatoire de Paris, and also to exploit the pictures taken in the extreme ultra-violet domain by NASA's SDO/AIA satellite, as well as the light curves recorded in X-rays by the American meteorological satellite GOES. The up-coming ESA Solar Orbiter mission will enable us to identify how these eruptions propagate through the interplanetary medium.

Video

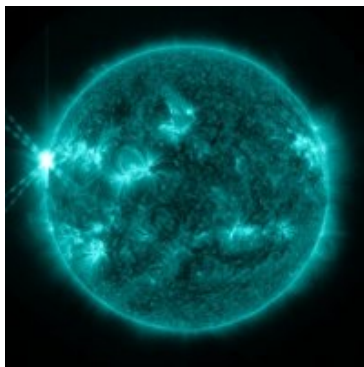
See the film of the four solar flares, prepared by Observatoire de Paris' researchers, with SDO images :



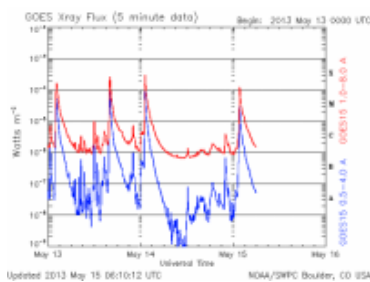
(Nasa / Observatoire de Paris / LESIA)

Images

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Eruption sur le Soleil En deux jours, notre étoile a émis quatre bouffées intenses, les 13, 14 et 15 mai 2013. Voici l'une d'elles photographiée en ultraviolet extrême par le satellite Solar Dynamics Observatory. (Nasa / SDO / AIA)



Courbe de lumière X Cette courbe de lumière montre les quatre pics d'émission en rayons X enregistrés par le satellite météo américain Geostationary Operational Environmental Satellite GOES. (GOES)

More +

See the December 20 2012 press release which indicates that Earth dwellers have no reason to fear a global catastrophe.

[1] The Laboratoire d'Études Spatiales et d'Instrumentation en Astrophysique LESIA is a science department of the Observatoire de Paris. It is associated with the CNRS, with the Pierre and Marie Curie university, and with the Paris Diderot university.