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date: Feb 24, 2014
to: acisdude

Apparently this came from the old active region 1967, just rotating onto the sun. It maxed out at X4.9, one of the biggest flares for some time. It's still pointed well away from the earth, so I imagine we won't get any CME (or not much of it), but there could be prompt protons in an hour or two.

Fun fun fun.

Begin forwarded message:

> From: "SWPC Product Subscription Service" <SWPC.Products@noaa.gov>
> Date: February 24, 2014 7:48:36 PM EST
> To: acisdude@head.cfa.harvard.edu
> Subject: ALERT: X-ray Flux exceeded M5 (R2)
>
>
> Space Weather Message Code: ALTXMF
> Serial Number: 213
> Issue Time: 2014 Feb 25 0046 UTC
>
> ALERT: X-Ray Flux exceeded M5
> Threshold Reached: 2014 Feb 25 0044 UTC
> NOAA Scale: R2 - Moderate
>
> NOAA Space Weather Scale descriptions can be found at
> www.swpc.noaa.gov/NOAAscales
>

From: "Edgar, Richard" <redgar@cfa.harvard.edu>
To: ACIS Monitor <acisdude@head.cfa.harvard.edu>,
SOT Yellow Alert <sot_yellow_alert@head.cfa.harvard.edu>
Content-Type: text/plain; charset=ISO-8859-1

There's evidence that the shock has finally arrived at ACE from the X4.9 solar flare Monday night. The ACE Mag & SWEPAM data can be found here: http://www.swpc.noaa.gov/ace/MAG_SWEPAM_6h.html and show a disturbance at 16:08Z which is 11:08 EST.

There's no corresponding event in the ACE EPAM proton rates, though they've been rising all day. For the last 3 hours or so the P3 rate been between 10k and 20k and ratty but with no obvious upward trend (or downward). I think it's likely the P3 rate will increase somewhat further, but may not spike.

There's a comm at 12:15 PM EST lasting for an hour, and another at 10:45 PM EST, which ends just prior to belt entry (RADMON disable is at 11:48 tonight EST).

Current P3 fluence is 0.31e9. In order to reach 2.0e9 by radmon disable tonight, the average P3 flux would need to be 39k. This is a factor of 3 above the most recent 2 hour average of about 14k.

In view of these numbers, ACIS recommends that we do nothing, and accept the risk of reaching a fluence of 2e9 before the end of the orbit tonight.

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to: acisdude

AT 10pm on Feb28.2014, the radiation levels are slooooowly decreasing. P3 is at about 11,000, with a fluence so far this orbit 0f 0.45e9. At this rate, we won't hit 1e9 until after the 7am comm tomorrow morning, and won't get to 2e9 at all. There are no known further disturbances on the way, so we may finish this orbit at about 1.5e9 give or take, thanks in large part to a 30ksec HRC observation.

The higher energy ACE proton rates are all declining in parallel, so the spectrum is still very hard (the curves aren't that far apart). The whirlygig diagram on SolarHam confidently predicted that the CME shock (which got here much later than predicted) would sweep out everything in its wake. That didn't happen either. Oh well. I guess they call it "space weather" because forecasting is still an imprecise science.

The rehearsal tonight went well, so barring a sudden impact or storm, I'll plan on the concert for tomorrow. Thanks, Gregg, for filling in for the afternoon comm. I owe you one. I imagine I'll be sending out a "no telecon" summary of the radiation situation after the morning comm tomorrow (Saturday). Let's hope for a quiet weekend, shall we?

Dick

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to: SOT_Yellow_Alert

Coming up on noon EST March 1, the situation is as follows:

The ACE P3 flux is about 7,000 and ever so slowly declining. The higher-energy ACE proton rates are also declining at about the same rate. This means the traces on the plots are essentially parallel and close together, implying that the spectrum is still quite hard compared to what we see in the quiescent solar wind.

There are no known disturbances incoming. There was an M1 flare off the west limb this morning, but any CME activity is directed away from the earth and will be days coming if it's coming here.

Fluence to this point in the orbit is about 0.92e9 in the usual units. [*] At the current rate, we will exceed 1.0e9 in about 3.3 hours, around 3pm EST. We will not exceed 2.0e9 for this orbit, thanks in part to a 30 ksec observation with the HRC (during which ACIS fluence does not accrue). I calculate at the present rate we will end up with a fluence of about 1.4e9.

ACIS therefore recommends no action at the 3:15 pm EST comm this afternoon. The following comm, at 9:25 PM EST tonight occurs during the HRC observation. After that, the 6:00 AM EST comm tomorrow would give us an opportunity to reassess the situation, but with just a few hours to RADMON disable at 3:03 PM Sunday EST.

I intend to send out another summary this evening.

Dick Edgar, for the ACIS operations team.

* Note that several of the fluence monitors, including the one on the Replan Central page, are not accumulating due to the network reconfiguration in progress at 60 Garden St. in Cambridge. The ACIS group maintains such processes on han, han-v, and rhodes (all stuck), and

colossus, colossus-v, and luke-v, (all working). Good data can be obtained
from the 3rd block on the ACIS realtime page served by colossus-v, here:
http://asc1.cfa.harvard.edu/acis/RTCOLOSSUSV/acis-mean.html The systems
group anticipates all computers will be functional before the 3:15 pm comm
this afternoon, and the fluence monitors will be restarted thereafter.