

121 –

Plenary Agency 6

Nat Gopalswamy, Pertti Makela, and S. Yashiro

Code 671, NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA

An update on space weather phenomena during the weak solar cycle 24

We are well into the declining phase of solar cycle 24, which proved to be one of the smallest cycles since the beginning of the 20th century. Accordingly, all the space weather effects are rather subdued and display a strong discordance with the sunspot number (SSN). On the other hand, the galactic cosmic ray intensity has doubled compared to the corresponding epoch in cycle 23.

There were two SSN peaks during the cycle-24 maximum period, one in 2012 and the other in 2014. The first peak had a smaller SSN than the second one. However, energetic coronal mass ejections (CMEs), large solar energetic particle events, and major geomagnetic storms were all more abundant during the first peak. The only phenomenon that agreed with the SSN is the number of X-class solar flares. This indicates a discordant behavior also between CMEs and flares implying a different distribution of the released energy into flare heating and mass motion.

We provide a detailed comparison between various activities at the Sun during cycles 23 and 24 and their space weather consequences.