

Why big sunspot 12192 did not produce CME ?

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The sunspot 12192 had an area 2750 MSH (Millionth Solar Hemisphere), which was the biggest in recent 24 years after the appearance of the sunspot 6368 (3080 MSH) in November 1990. Hence this sunspot attracted many people's interest, and had been suspected to produce big flares and big magnetic storms. In fact, this spot produced 6 X-class flares during two weeks between 17 Oct and 30 Oct. This was the most number of X-class flares per one active region during this cycle. However, curiously, these 6 X-class flares did not lead to coronal mass ejections (CME), so that the solar wind in these weeks had been quiet and there were no major magnetic storms. The Hida Observatory of Kyoto University succeeded to observe two X-class flares (X1.1 flare at UT0503 (peak time) of 19 Oct and X3.1 flare at UT2140 (peak time) of 24 Oct) that occurred in this region, using SMART telescope and Domeless Solar Telescope (DST).

In this talk, we will report the detailed observations of the big sunspot 12192 as well as X-class flares in this region, and discuss why this big sunspot did not produce CME even though it produced 6 X-class flares, giving the conclusion that the bigger the sunspot area, the more difficult to produce CME for the flares with the same X-ray intensity.

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