



M1.9 Flare Triggers Earth-Directed CME and Geomagnetic Storms

Description

On July 30, solar activity was moderate. This happened after Region 4492 created a long solar flare. The flare happened at 17:00 UTC. At the same time, a gas eruption appeared in the sky.

Two radio signals were noted. The first signal was at 16:27 UTC, moving fast at 853 km/s. The second signal was at 16:45 UTC, moving even faster at 1,681 km/s. Other radio events occurred around the same time.

A type of energy called proton flux went over the S1 level at 18:45 UTC. It peaked at 18 pfu later that night. The level fell below S1 at 00:30 UTC on July 31 but rose again after lunch.

The SWPC, a weather agency, said this extra energy was likely from the solar flare. They warned of more S1 conditions on July 31 and August 1. They also expected regular levels of another type of energy through August 2.

A solar event is likely to reach Earth early on August 2. There may be changes to technology in space and on Earth.

Vocabulary List:

1. **flare** //flɛr// (noun): a sudden bright burst from the Sun
2. **radio** //ˈreɪdiəʊ// (adjective): using invisible waves to send information
3. **proton** //ˈprəʊtən// (noun): a very small, positively charged particle
4. **flux** //flʌks// (noun): a flow or movement of something
5. **peaked** //pi:kt// (verb): reached the highest point or level
6. **technology** //tɛkˈnɒlədʒi// (noun): machines and tools used for practical purposes

Comprehension Questions

Multiple Choice

1. What date did a long solar flare occur?

Option: July 30

Option: August 1



Option: July 31
Option: August 2

2. What was the speed of the second radio signal noted?

Option: 853 km/s
Option: 1,681 km/s
Option: 900 km/s
Option: 1,500 km/s

3. What level did proton flux peak at later that night?

Option: 15 pfu
Option: 18 pfu
Option: 20 pfu
Option: 25 pfu

4. At what time did proton flux exceed the S1 level?

Option: 17:00 UTC
Option: 18:45 UTC
Option: 16:27 UTC
Option: 00:30 UTC

5. When is the solar event expected to reach Earth?

Option: August 3
Option: August 1
Option: August 2
Option: July 30

6. Which agency warned of more S1 conditions?

Option: NASA
Option: NOAA
Option: SWPC
Option: ESA

True-False

7. The gas eruption appeared before the solar flare.

8. The first radio signal was moving at a speed of 1,681 km/s.



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9. Proton flux fell below the S1 level at 00:30 UTC on July 31.
10. The solar event is expected to have no effect on technology.
11. The SWPC is a weather agency.
12. More S1 conditions were expected on July 30.

Gap-Fill

13. The flare occurred at 17:00 UTC and was created by Region 4492. The first radio signal was noted at 16:27 UTC moving at _____ km/s.
14. The peak proton flux was at _____ pfu later that night.
15. Proton flux fell below S1 at _____ UTC on July 31.
16. The SWPC warned of more S1 conditions on July 31 and _____ 1.
17. A solar event is likely to reach Earth early on _____ 2.
18. The extra energy from the solar flare was expected to cause changes to technology in space and on _____ .

Answer

Multiple Choice: 1. July 30 2. 1,681 km/s 3. 18 pfu 4. 18:45 UTC 5. August 2 6. SWPC

True-False: 7. False 8. False 9. True 10. False 11. True 12. False

Gap-Fill: 13. 853 14. 18 15. 00:30 16. August 18. Earth

CATEGORY

1. Sci/Tech - LEVEL1

POST TAG

1. CME
2. ESL learning
3. esl news
4. geomagnetic storm



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5. Level 1
 6. long-duration
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