
NASCOM OPERATIONS
NASCOM

1
00:00:00,010 --> 00:00:04,090
[music]

2
00:00:04,110 --> 00:00:08,090
We all know that NOAA satellites help

3
00:00:08,110 --> 00:00:12,100
us forecast weather on Earth. But did you know that some weather satellites

4
00:00:12,120 --> 00:00:16,140
also forecast weather in space?

5
00:00:16,160 --> 00:00:20,230
[music]

6
00:00:20,250 --> 00:00:24,240
[music] [whoosh]

7
00:00:24,260 --> 00:00:28,270
So why is

8
00:00:28,290 --> 00:00:32,300
forecasting space weather important? The changing environmental conditions

9
00:00:32,320 --> 00:00:36,320
from the Sun's atmosphere are known as space weather. Space weather is caused by

10
00:00:36,340 --> 00:00:40,330
electromagnetic radiation and charged particles being released from solar storms.

11
00:00:40,350 --> 00:00:44,390
Changes in the magnetic fields and a continuous flow of solar particles during a

12
00:00:44,410 --> 00:00:48,410
powerful storm headed to Earth could cause disruption to communications and result

13
00:00:48,430 --> 00:00:52,410

in exposure to dangerous radiation. Space weather

14
00:00:52,430 --> 00:00:56,420
can disrupt high-frequency radio communications used by pilots.

15
00:00:56,440 --> 00:01:00,450
During geomagnetic storms, airplanes flying over the poles are diverted or rerouted

16
00:01:00,470 --> 00:01:04,460
so they don't lose critical positioning and communication with air traffic

17
00:01:04,480 --> 00:01:08,470
control. Nowadays, farmers rely strongly on

18
00:01:08,490 --> 00:01:12,490
high-precision GPS satellites to determine what to plant and where to plant it.

19
00:01:12,510 --> 00:01:16,510
If GPS technology is affected by space weather, it could produce faulty coordinates,

20
00:01:16,530 --> 00:01:20,520
resulting in losses for farmers.

21
00:01:20,540 --> 00:01:24,530
During a solar storm, satellite TV, satellite radio, and other

22
00:01:24,550 --> 00:01:28,560
satellite-based communications are at risk. Satellite operators have to avoid

23
00:01:28,580 --> 00:01:32,640
certain operations, like uploading new software or executing complicated

24
00:01:32,660 --> 00:01:36,660
maneuvers, because the data could be corrupted, or the entire satellite could even

25
00:01:36,680 --> 00:01:40,690
be damaged. Electric power workers are also

26
00:01:40,710 --> 00:01:44,720
affected by space weather, because large storms can induce currents in the electrical grid.

27
00:01:44,740 --> 00:01:48,730
overloading transformers, and causing massive blackouts.

28
00:01:48,750 --> 00:01:52,740
Space weather can also bring damaging radiation to

29
00:01:52,760 --> 00:01:56,740
astronauts in space. Astronauts need to know when they should avoid space-walks,

30
00:01:56,760 --> 00:02:00,840
and stay in better-shielded areas of the International Space Station.

31
00:02:00,860 --> 00:02:04,930
Early warning for these users is absolutely critical, which is

32
00:02:04,950 --> 00:02:08,950
why scientists and forecasters monitor GOES and other satellite data

33
00:02:08,970 --> 00:02:12,990
around the clock. The next generation of GOES

34
00:02:13,010 --> 00:02:17,040
weather satellites will provide the improved the data that space weather forecasters need

35
00:02:17,060 --> 00:02:21,070
to detect initial solar flare eruptions and issue critical early warnings.

36
00:02:21,090 --> 00:02:25,170
GOES-R data will also help forecasters measure radiation from the storm,

37
00:02:25,190 --> 00:02:29,190
and determine the final impact.

38
00:02:29,210 --> 00:02:33,380

Loaded with improved space weather instruments, the GOES-R series of satellites will provide

39
00:02:33,400 --> 00:02:37,380
continuous delivery of crucial information to all users impacted by weather, not only

40
00:02:37,400 --> 00:02:41,570
here on Earth, but also in space.

41
00:02:41,590 --> 00:02:45,600
[music]