
HOW NASA
STUDIES THE
SPACE NEAR
EARTH

1
00:00:00,610 --> 00:00:06,080
NASA studies the space around our home planet to protect our technology and satellites flying through it.

2
00:00:06,080 --> 00:00:10,530
We call this region geospace.

3
00:00:10,530 --> 00:00:14,670
At first glance, it appears empty.

4
00:00:14,670 --> 00:00:23,820
But invisible particles and magnetic fields create a space weather system that can impact our space assets.

5
00:00:23,820 --> 00:00:31,270
To understand space weather, there are tools to make the invisible processes, visible.

6
00:00:31,270 --> 00:00:36,070
Soft x-rays map the outer boundaries of geospace.

7
00:00:36,070 --> 00:00:41,810
The borders of Earth’s magnetic field protect our planet from radiation.

8
00:00:41,810 --> 00:00:46,160
Energetic neutrals survey charged particles trapped in Earth’s magnetic field.

9
00:00:46,160 --> 00:00:52,550
These particles can fuel storms in geospace.

10
00:00:52,550 --> 00:00:56,540
Radiation from hydrogen highlights where Earth’s outer atmosphere interacts with space.

11
00:00:56,540 --> 00:01:03,270
Some of our atmosphere leaks into space through the exosphere.

12
00:01:03,270 --> 00:01:06,140
Extreme ultraviolet light shows the cold, dense pool of particles closest to Earth.

13
00:01:06,140 --> 00:01:12,600

The plasmasphere shrinks and swells during space weather events.

14
00:01:12,600 --> 00:01:16,530
The aurora, which we can see with our own eyes, is also visible in far ultraviolet light.

15
00:01:16,530 --> 00:01:22,080
Auroras visibly trace out the magnetic field lines near Earth.

16
00:01:22,080 --> 00:01:26,170
Extreme ultraviolet light reveals the layer of space closest to Earth.

17
00:01:26,170 --> 00:01:31,780
GPS signals and radio waves can be distorted when traveling through this region.

18
00:01:31,780 --> 00:01:35,480
Optical imagers, which take pictures in visible light, show the ionosphere and aurora.