

Satellites



What is a satellite?

A satellite is an object that orbits a planet. Satellites can be natural or they can be artificial.

The largest satellite orbiting Earth is the Moon. This is Earth's only **natural satellite**.

Artificial satellites are put into orbit for a range of purposes, such as mapping and surveillance.

The same physics applies to satellites orbiting the Earth as to planets orbiting the Sun.



Geostationary and polar orbits

Artificial satellites can have different types of orbit, depending on their purpose. What are the differences between **geostationary** and **polar** satellite orbits?

Click on the buttons to find out.



geostationary

polar



Uses for geostationary satellites

Geostationary satellites are particularly useful because they stay fixed above a single point on Earth.

This makes them useful for **communications** and **satellite TV** broadcasting, because the satellite never goes out of range.

Satellite dishes can be fixed to face in the correct direction, without the need to track the movement of the satellite.

Geostationary satellites are also used for **weather forecasting**.



Problems with geostationary satellites

There are some disadvantages to geostationary satellites.

- All geostationary satellites must orbit over the equator at a specific altitude of 36,000 km. There are limited slots in this orbit, which can lead to disputes when different countries want a certain slot.
- A geostationary satellite can only 'see' a certain area of the Earth's surface – the rest is hidden from view.
- All geostationary satellites are a long way from Earth, which causes delays in signals. This can be a disadvantage during commercial or military communications.

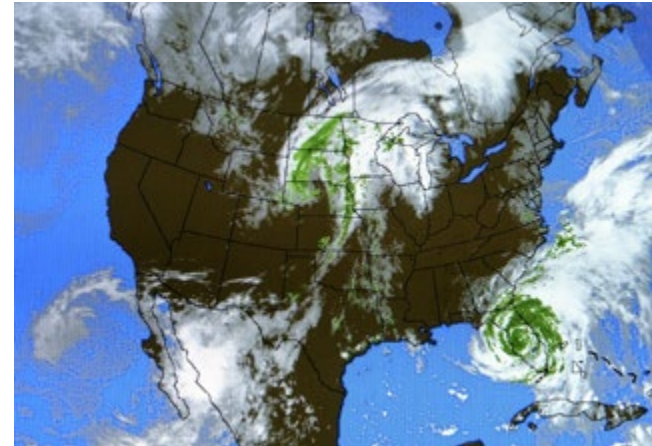


Uses for polar orbit satellites

Polar satellites are particularly useful because they orbit at a low altitude and high speed.

This makes them useful for **mapping**, as they can image the Earth's surface in higher resolution than more distant satellites.

It also makes them useful for observation purposes, such as **military surveillance**, or **weather monitoring**, as they can view the whole of the Earth's surface in one day.



However, polar satellites must be tracked from the ground, and will be out of range for much of the time, causing delays in data retrieval.



Which type of satellite?

Which type of satellite orbit does each statement apply to?

type of satellite	polar	geostationary
orbit height	?	?
orbital period	?	?
orbital speed	?	?
orbital position	?	?
example of use	?	?

slow



solve

