

Messages from on high

Over 500 satellites orbit the Earth delivering broadcasting; voice, internet and emergency communications; environmental and scientific monitoring; and global navigation and positioning systems for planes, ships and vehicles.

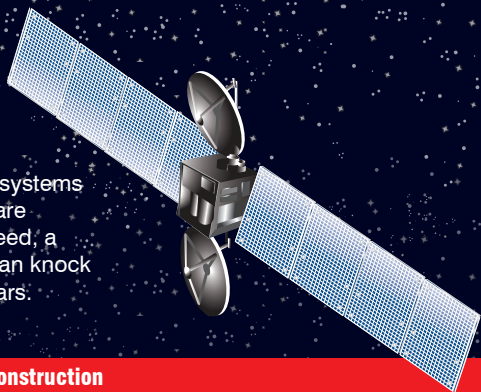
Most communication satellites are launched into an orbit 35,786km above the equator (Geostationary orbit, or GEO) and rotate with the Earth, appearing motionless to an observer on the ground.



Low Earth Orbit (LEO) satellites occupy orbits starting from a few hundreds of kilometers above Earth to around 1,000km. LEO constellations need even larger numbers of satellites to provide constant Earth coverage.

Space debris is a growing problem. Disused satellites, discarded launch systems and fragments caused by collisions are putting satellites at risk. At orbital speed, a fragment measuring less than 1cm can knock out a satellite costing millions of dollars.

Medium earth orbit (MEO) satellite systems, positioned at altitudes ranging from 8,000-15,000km above the Earth, require a larger constellation of spacecraft – typically 10-15 satellites – to maintain coverage of the Earth.

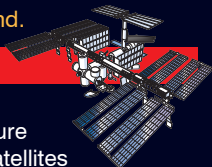


Construction

• Manufacture	Around 2 years
• Cost	Hundreds of millions of dollars to build, launch and operate
• Lifespan	Over 15 years for GEO satellites
• Capacity	Transmit trillions of bits of data/second.

Coordination

International cooperation and coordination is essential to ensure interference-free operation of satellites and their coexistence with ground-based services sharing the same radio frequency bands.



ITU is the UN agency charged with the global management of spectrum and associated satellite orbits, including GEO slots, helping bring modern communications to communities worldwide.

