



Note: This file can not replace watching the video lecture. Because the video lecture contains more explanation through graphical elaboration.

Certified Junior Astronaut Training Course



Origin of Satellites and their roles (Part 4)





This lecture will answer the following inquiry:



What are the different roles of Satellites?





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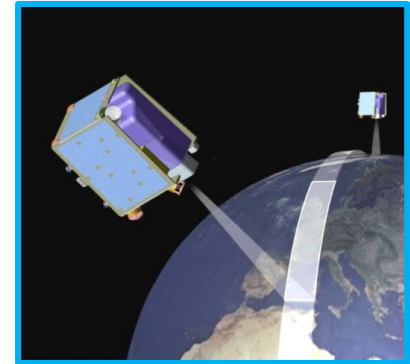


+ Remote Sensing Satellites:

They capture images of earth to use it in various Remote Sensing and Geographic Information Systems "GIS" applications. These applications serve different fields such as agriculture, irrigation, urban planning, geology, survey, map production and several other civil and military applications. Examples of these satellites include:

- + US Satellite World View 2
- + German Satellite Rapid Eye

+ Military Reconnaissance Satellites are a similar type to these satellites but having special specifications regarding imaging capabilities and Revisit Time.





Cont.. What are the different roles of Satellites?



+ **Communications & TV Broadcasting:**

They transmit telephone calls and data. They also provide the internet service and TV and Radio broadcasting. Examples of these satellites include:

- + Egyptian Satellite NileSat for TV Broadcasting
- + British Satellite Inmarsat for communications



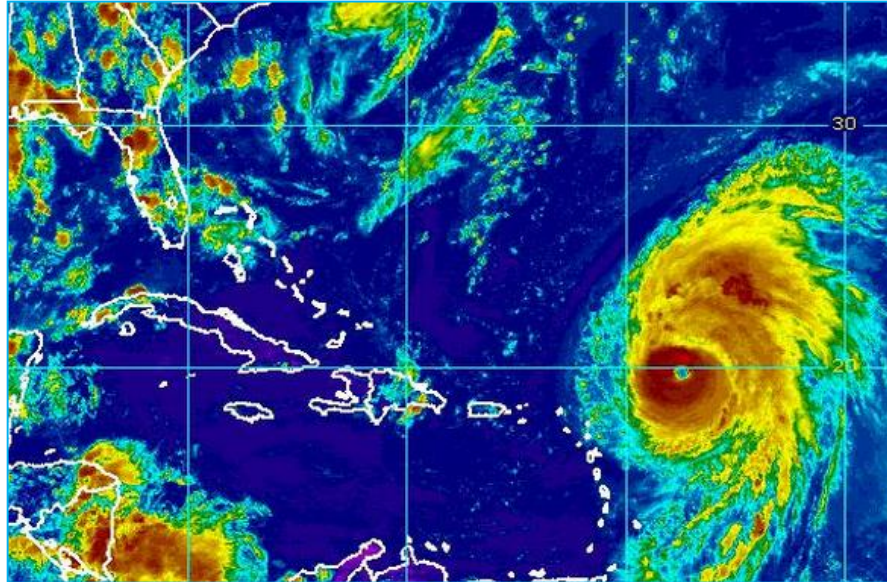


Cont.. What are the different roles of Satellites?

Weather Satellites:

They help in predicting the temperature of the atmosphere, earth surface, surface of seas and oceans, humidity ratios and study of climate changes. Examples of these satellites include:

-  US Satellite GEOS
-  US Satellite NOAA





Cont.. What are the different roles of Satellites?



Navigation Satellites:

They are composed of a large number of satellites that reaches 27 satellites covering earth. They aim to provide ground coordinates; including elevation from the sea level and timing to be used in navigation, and locating movement paths and directions by people, vehicles, vessels and planes. They are also used in guiding some rockets towards their targets. Examples of these satellites include:

- US Satellite series GPS
- Russian Satellite series GLONASS
- European Satellite series Galileo





Cont.. What are the different roles of Satellites?



+ Astronomy Satellites or Space Telescope:

It aims to put a large space telescope in a satellite that works in a highly elevated orbit to take images of the sun and other planets that are used in astronomical studies and research. Examples of these satellites include:

+ US Space Hubble Telescope



Sources: NASA, ESA, Space Telescope Science Institute





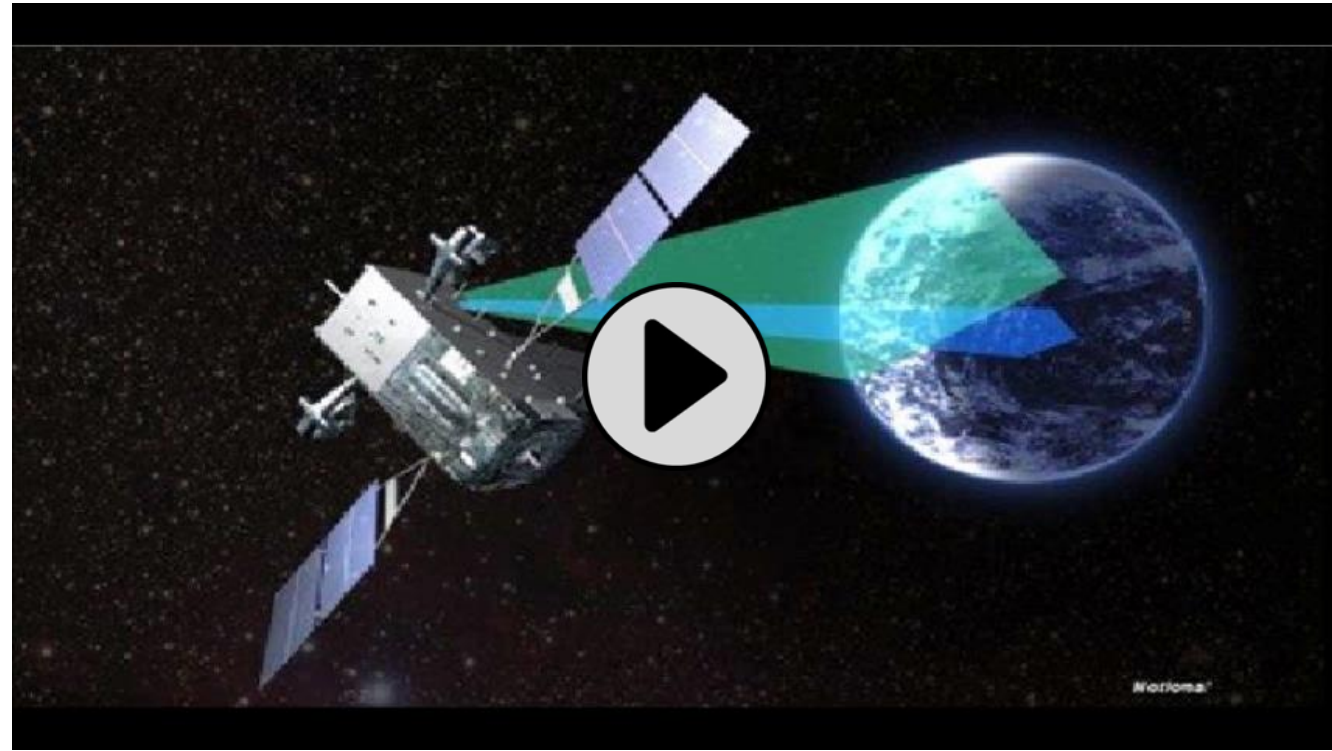
Cont.. What are the different roles of Satellites?



Early Warning Satellites:

They discover the launching of long range Ballistic Missiles operations at the time of launching through receiving infra-red rays image that are emitted from its engine. Then they send the missiles' data to the Receiving Stations, then to operation centers and finally to the interception missiles that intercept and destroy missiles before reaching the target. Examples of these satellites include:

US Satellite series DSP/SBIRS



Source: Lockheed Martin

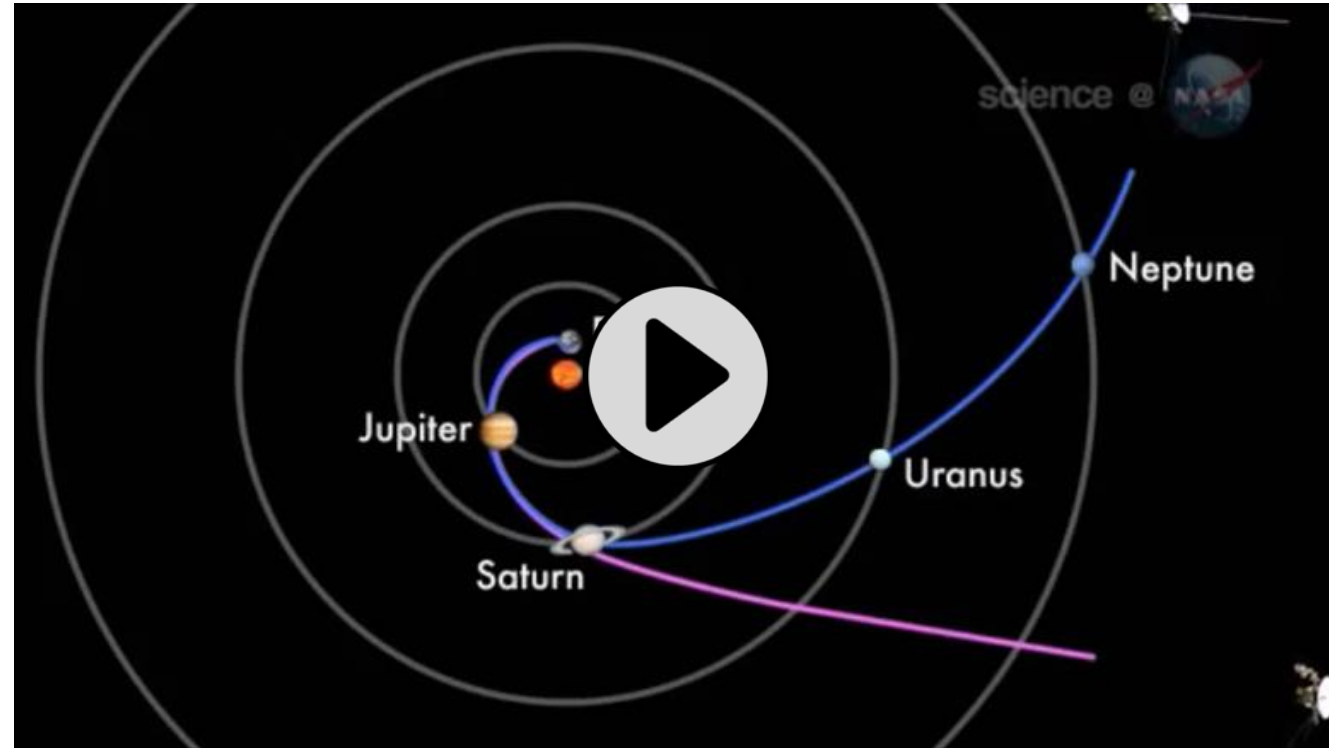


Cont.. What are the different roles of Satellites?



+ Space Probes:

They are uninhabited space-crafts that discover space and other planets. They sometimes land on these planets and automatically collect some of their samples. These missions take up to 35 years, such as the US Space Probe Voyager 1 that represents the farthest man-made object from earth surface and is likely to be the first man-made object that exits the solar system.



Source: NASA



Cont.. What are the different roles of Satellites?

+ Space Stations:

They represent a large inhabited satellite that is composed of several research laboratories in which a group of astronauts work. They conduct several scientific experiments and researches in space outside the atmosphere. One example is the International Space Station "ISS" that possesses research laboratories of the USA, Russia, Europe, Canada and Japan. They orbit earth at a rate of 15 rotations a day at an elevation of 330 Km to 410 Km.



Source: ISS Program



Cont.. What are the different roles of Satellites?



Space Shuttle:

it is an inhabited spacecraft that can return to earth and be re-launched several times. It is primarily used as a transport craft for astronauts and their operation requirements to the International Space Station. It is also used to launch satellites, space telescopes and space probes. It is sometimes used in scientific research and experiments.



Source: naturevidios.com



Thanks for your undivided attention

