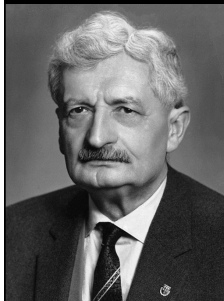
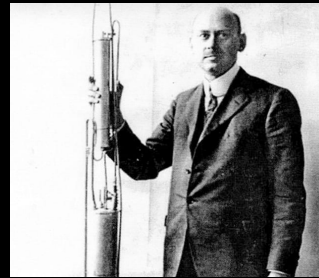
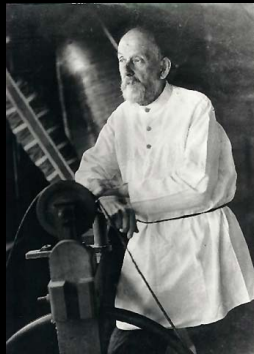




Rocketry Pioneers

- Konstantin Tsiolkovsky
- Robert Goddard
- Hermann Oberth
- Wernher von Braun
- Sergei Korolev

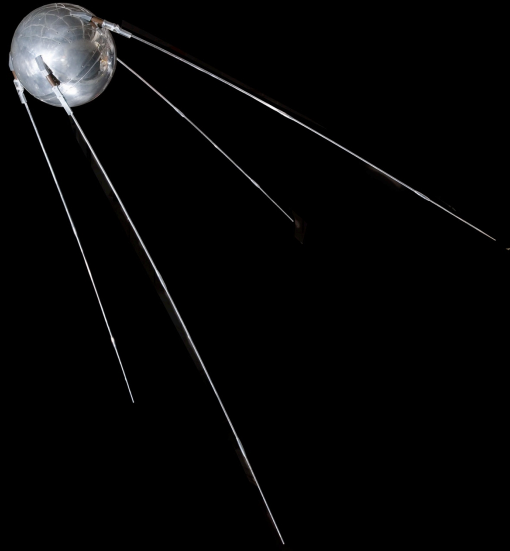


First Artificial Satellite

Sputnik I- October 4, 1957

Sputnik II

Sputnik III



Smithsonian National Air & Space Museum

American Response

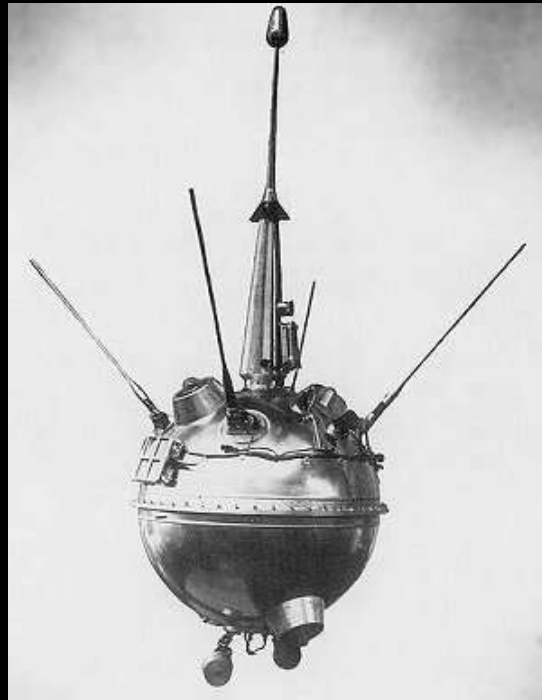
- Explorer I
- Vanguard



NASA

Luna Program

- Luna 2
- Launched September 12, 1959
- Impact September 13th



Russian Academy of Sciences

First Manned Launch

- Yuri Gagarin
- April 12, 1961
- One, 108 minute orbit



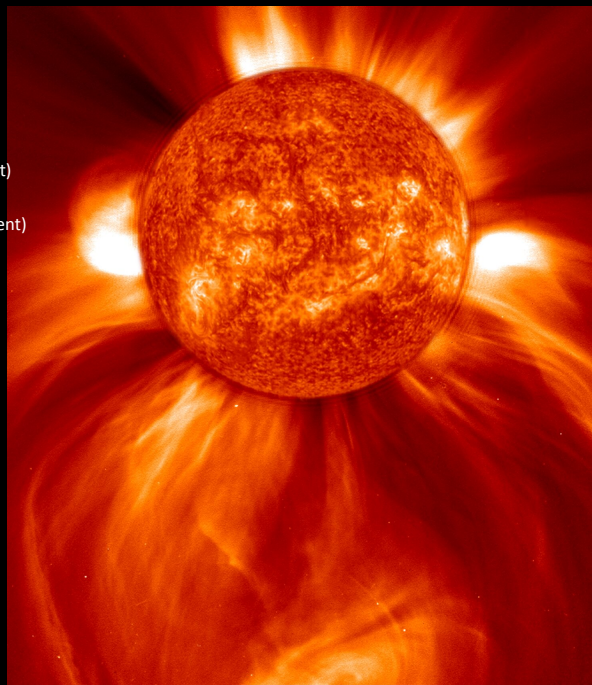
First American in Space

- Alan Shepard
- May 5, 1961
- Suborbital 15 minute flight
- John Glenn
- February 20, 1962
- 3 orbits, 4 hours 55 minutes



Sun

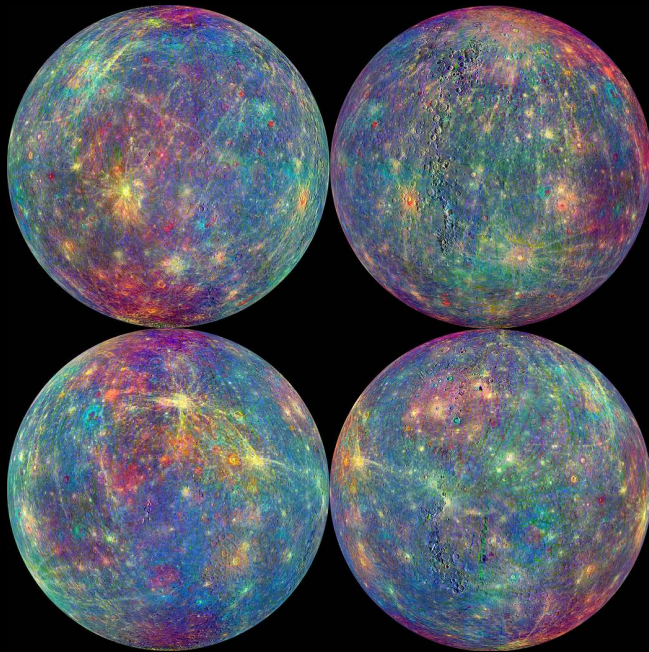
- Pioneer 5 - 9 (1960 - 1983)
- Helios A & B (1974 - 1985)
- SOHO - Solar & Heliospheric Observatory (ESA 1996 - Present)
- Stereo A & B (2006 - 2016)
- Parker Solar Probe (2018 - Present)



ESA/NASA

Mercury

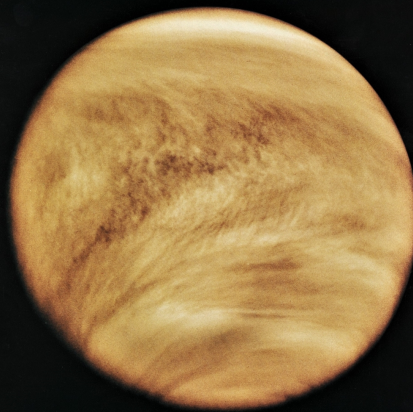
- Mariner 10 (1974 - 1975)
- Messenger (2008 - 2015)



NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution

Venus

- Venera 1 - 16 (1961 - 1984)
- Mariner 2, 5, 10 (1962 - 1974)
- Pioneer Venus Orbiter (1978 - 1992)
- Pioneer Venus Multiprobe (1978)
- Vega 1 & 2 (1985)
- Magellan (1990 - 1994)
- Venus Express (2005 - 2014)



NASA

Low Earth Orbit: Space Stations

- Salyut 1
- April 19, 1971
- Mir
- February 20, 1986 - 1996
- Skylab
- May 14, 1973 - February 1974
- ISS
- 1998 - Present
- First crew: November 2, 2000



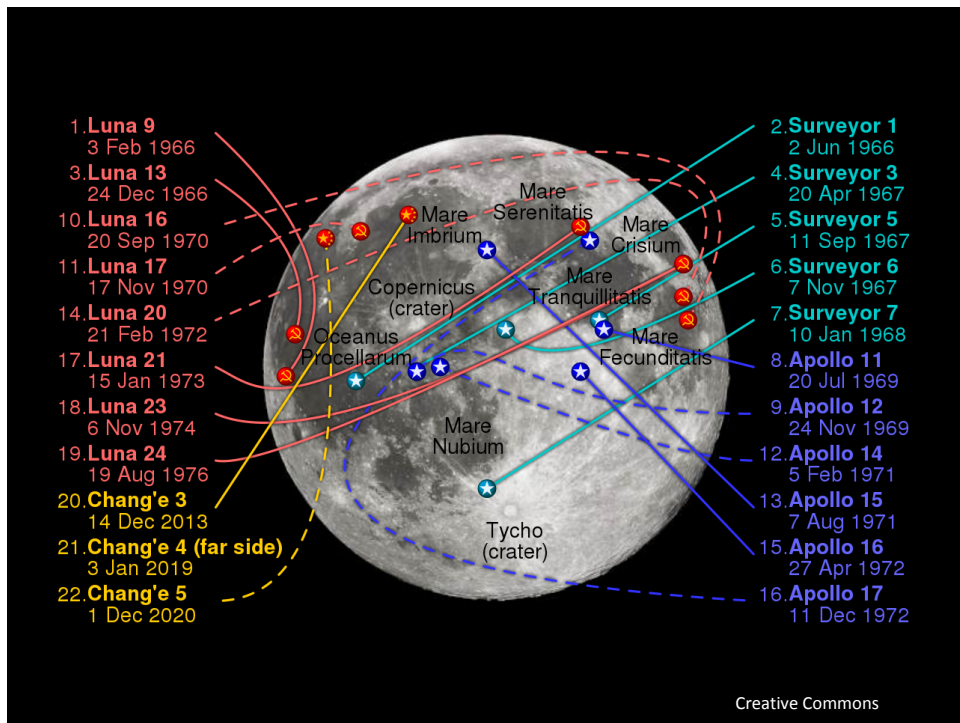
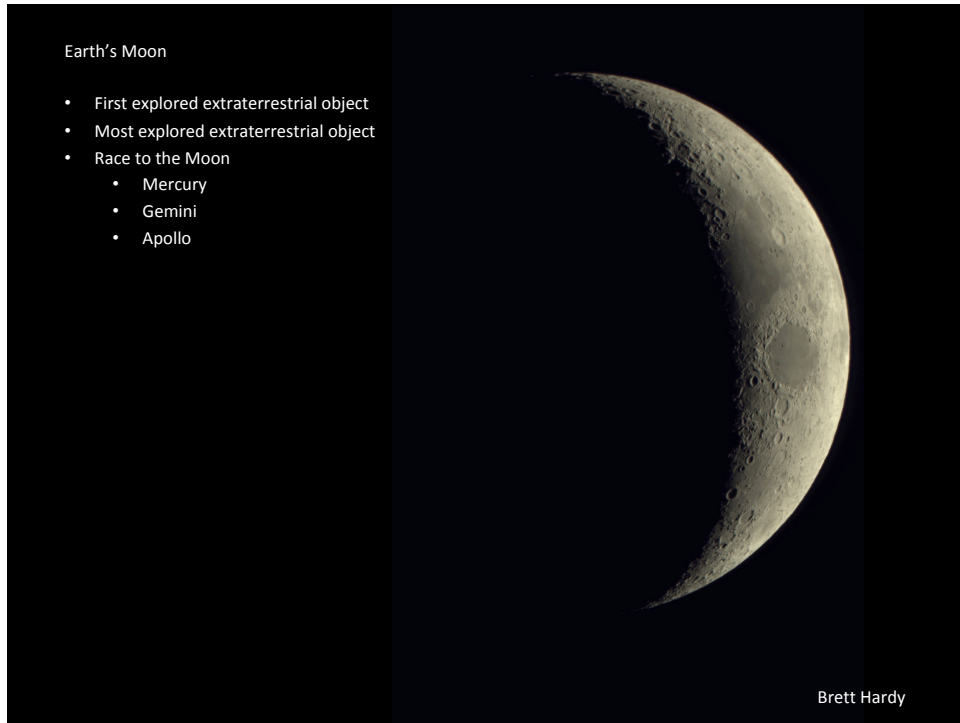
NASA

Low Earth Orbit: Satellites

- Alouette 1: March 11, 1959
- Anik Communication Satellites
- Anik A1: November 9, 1972

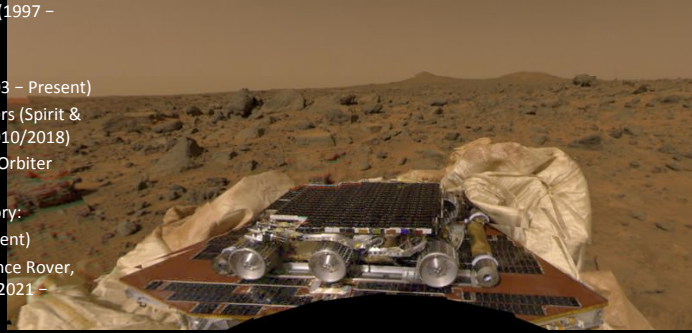


Telesat Canada



Mars

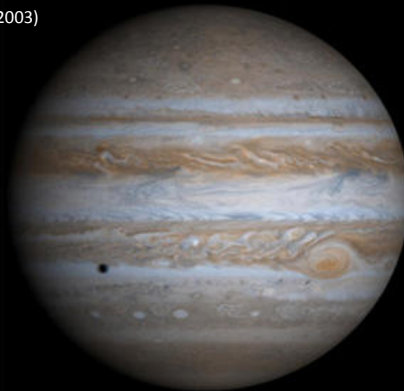
- Mariner 4 (1965)
- Mars 2 (1971 – 1972)
- Phobos 2 (1989)
- Mars Pathfinder/Sojourner (1997)
- Mars Global Surveyor (1997 – 2006)
- Nozomi (2003)
- Mars Express (ESA 2003 – Present)
- Mars Exploration Rovers (Spirit & Opportunity 2003 – 2010/2018)
- Mars Reconnaissance Orbiter (2006 – Present)
- Mars Science Laboratory: (Curiosity) 2012 – Present)
- Mars 2020: Perseverance Rover, Ingenuity helicopter (2021 – Present)



NASA

Jupiter

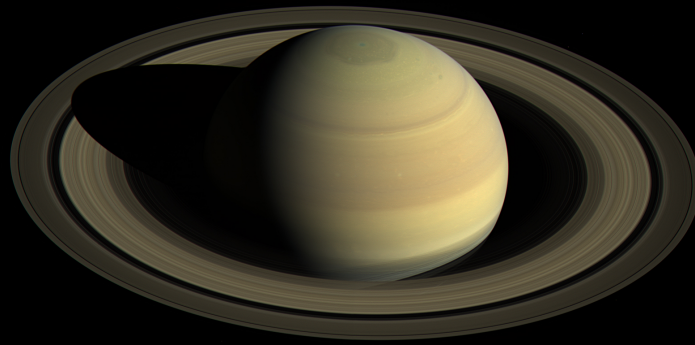
- Pioneer 10 – 11 (1973, 1974)
- Voyager 1 & 2 (1979)
- Galileo Orbiter & probe (1995 – 2003)
- Juno (2016 – 2018)



NASA

Saturn

- Pioneer 11 (1979)
- Voyager 1 & 2 (1980, 1981)
- Cassini Orbiter & Huygens Lander (2004 - 2017)



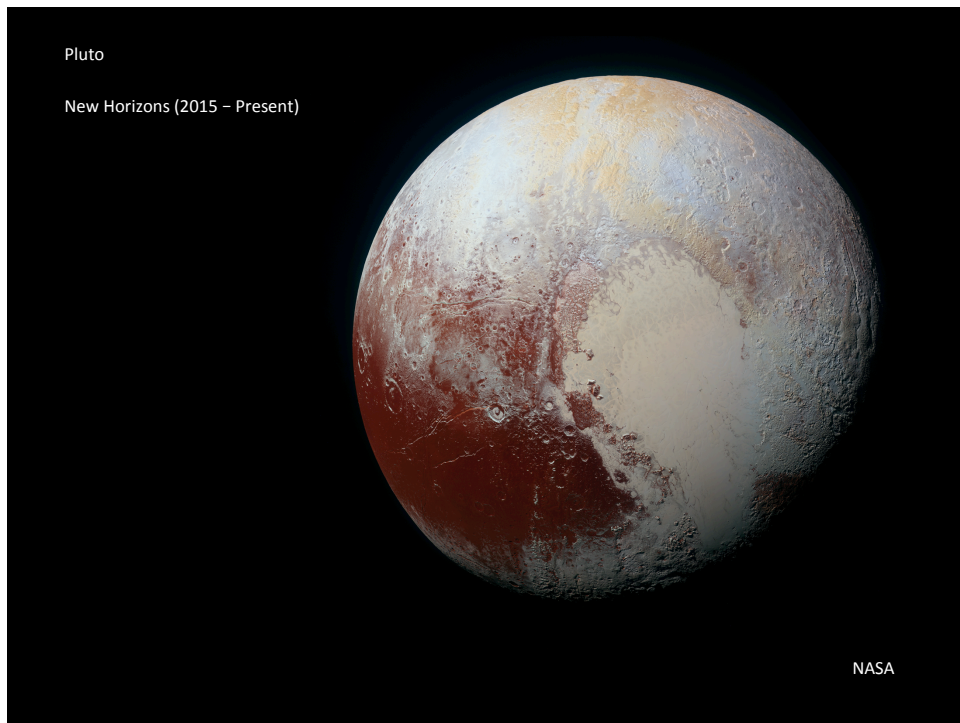
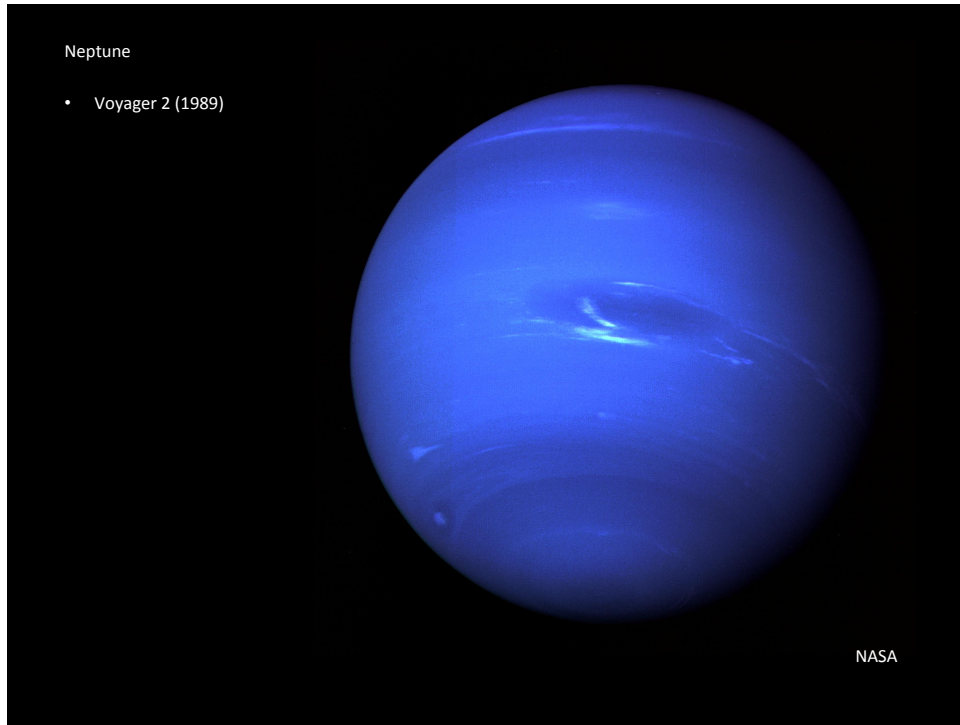
NASA

Uranus

- Voyager 2 (1986)

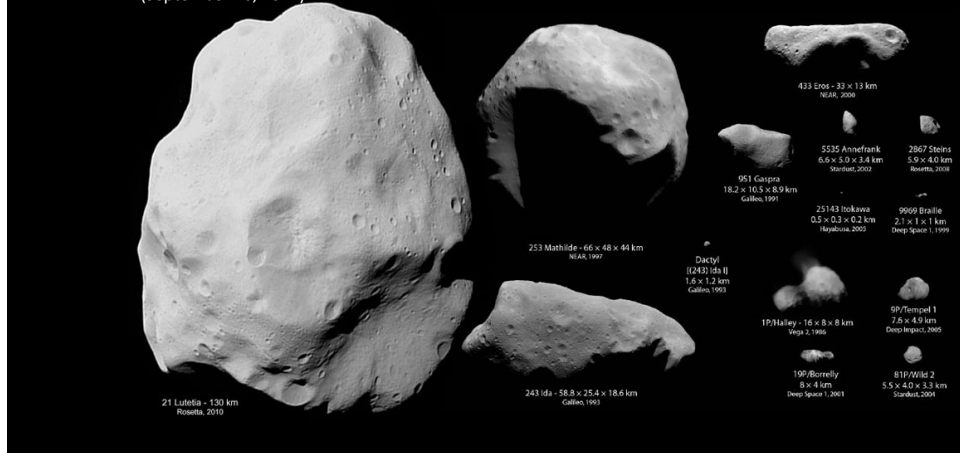


NASA



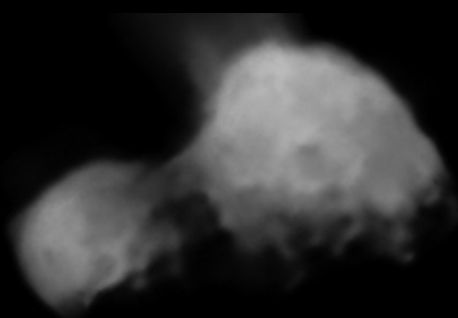
Asteroids

- Galileo: Gaspra & Ida (1991, 1993)
- NEAR: 433 Eros (1997 – 2001)
- Hayabusa 1: 25143 Itokawa (2018)
- Dawn: Vesta & Ceres (2011, 2015)
- Hayabusa 2: Ryugu (2018)
- OSIRIS-REx: Bennu (2018)
- DART (September 26, 2022)



Comets

- ICE: 21P/Giacobini-Zinner, 1P/Halley (1986)
- Vega 1 & 2: 1P/Halley (1986)
- Suisei: 1P/Halley (1986)
- Giotto: 1P/Halley (1986)
- Deep Space 1: 19P/Borrelly (2001)
- CONTOUR: 2P/Encke (2003)
- Stardust: 81P/Wild (2004)
- Deep Impact: 9P/Tempel (2005)
- Rosetta: 67P/Churyumov-Gerasimenk – 2016)



1P/Halley - 16 × 8 × 8 km
Vega 2, 1986

Russian Academy of Sciences

