Ágnes Komáromi | Matej Kečkeš
Karl-Franzens-Universität Graz

SYMPOSIUM:TRENDS AND CHALLENGES OF SATELLITE BASED EARTH OBSERVATION FOR ECONOMICS AND SOCIETY

Space exploration from past to present and the future

22nd of December, 2015

SPACEX PROJECT
The first vertical landing of an orbital rocket's first stage on land, in order to take-off with the same rocket (FALCON 9).
American aerospace manufacturer and space transport services company headquartered in Hawthorne, California. It was founded in 2002 by entrepreneur Elon Musk with the goal of reducing space transportation costs and enabling the colonization of Mars.
SpaceX has since developed the Falcon launch vehicle family and the Dragon spacecraft family, which both currently deliver payloads into Earth orbit.

MARS ROVERS
It is an automated motor vehicle that propels itself across the surface of the planet Mars upon arrival. Rovers have several advantages over stationary landers: they examine more territory, and they can be directed to interesting features, they can place themselves in sunny positions to weather winter months, and they can advance the knowledge of how to perform very remote robotic vehicle control.

Spirit: 10th of June, 2003; landed: 4th of January, 2004
Opportunity: 7th of July, 2003; landed: 25th of January, 2004.
Curiosity: 26th of November, 2011; landed: 6th of August, 2011

20th of November, 1998

INTERNATIONAL SPACE STATION (ISS)
A space station, or a habitable artificial satellite, in low Earth orbit.
Its first component launched into orbit in 1998, and the ISS is now the largest man-made body in low Earth orbit and can often be seen with the naked eye from Earth.
The ISS consists of pressurised modules, external trusses, solar arrays, and other components.
ISS components have been launched by Russian Proton and Soyuz rockets, and American Space Shuttles.
The ISS serves as a microgravity and space environment research laboratory in which crew members conduct experiments.

SHUTTLE - MIR PROGRAM
The Shuttle–Mir Program was a collaborative space program between Russia and the United States. In this program American Space Shuttles visited the Russian space station Mir.
George Bush and Boris Yeltsin made an agreement in 1992: one American astronaut would board the Russian space station Mir and two Russian cosmonauts would board a Space Shuttle.

1992

24th of April, 1990

HUBBLE SPACE TELESCOPE
It was launched into low Earth orbit in 1990 and remains in operation. Although not the first space telescope, Hubble is one of the largest and most versatile, and is well known as both a vital research tool and a public relations boon for astronomy. The HST is named after the astronomer Edwin Hubble.
At the moment, it is flying Servicing Mission 4, the sixth and final Hubble mission.

APOLLO - SOYUS TEST PROJECT
Apollo–Soyus or Soyus–Apollo was the first joint U.S.–Soviet space flight, as a symbol of the policy of détente that the two superpowers were pursuing at the time.
This mission ceremoniously marked the end of the Space Race that had begun in 1957 with the Sputnik launch.

July, 1975

20th of July, 1969

MOON LANDING - APOLLO 11
Neil Alden Armstrong was the American astronaut who successfully landed and walked on the Moon.
He was the capitain of the Apollo 11 program and landed together with Edwin Aldrin on the Moon.
The landing was controlled manually while not having enough fuel left. But, because of Armstrongs legendary calmness a the succesfully ended the mission.
'That's one small step for man, one giant leap for mankind.'

VALENTINA TERESHKOVA
Valentina was the first woman to have flown in space.
She has been selected from more than 400 applicants and five finalists to pilot Vostok 6.
She was the only one choosen withouth testflying experiences.
She completed 48 orbits of the Earth in her three days in space.

16th of June, 1963

12th of April, 1961

YURI GAGARIN
Yuri Alekszejevics Gagarin was the first envoy of humanity to outher space.
He became the first outer space traveller, when his Vostok spacecraft completed an orbit of the Earth.
Gagarin became an international celebrity, and was awarded many medals and titles, including Hero of the Soviet Union, the nation's highest honour.

UNCOPUOS and UNOOSA
The 18-member Ad Hoc Committe on the Peaceful Uses of Outer Space is established in 1958 to discuss the scientific and legal aspects of the exploration and use of outer space.
UNCOPUOS was instrumental in the creation of the five treaties and five principles of outer space.
The Committee has two subsidiary bodies: the Scientific and Technical Subcommittee, and the Legal Subcommittee, both established in 1961.
Now the UNCOPUOS has 84 members.
UNOOSA was first set up as a small expert unit within the Department for Political Affairs in New York to support the work of COPUOS. It was later transformed into a division and in 1992 renamed as the Office of Outer Space Affairs and relocated to the United Nations Office in the Vienna International Centre.

1958

3rd of November, 1957

THE FIRST ANIMAL INTO EARTH'S ORBIT
SPUTNIK - 2: The first spacecraft to carry a living animal, the dog Laika.
Bigger than Sputnik - 1, it was a 4 meters high cone-shaped capsule with a base diameter of 2 meters, that weighed around 500 kg.
It was not designed to separate from the rocket core that brought it to orbit, bringing the total mass in orbit to 7.79 tons.
Unfortunatelly, there was no option to get back the animal to Earth, so they made a plan to lull Laika after 10 days, but the animal died before in overheating.
That was the first attempt to monitor living being in outer space.

SPUTNIK - 1
The first artificial satellite was launched into Earth's orbit by the Union of Soviet Socialist Republics.
It was a 83.6kg heavy and 58 cm (23 in) in diameter polished metal sphere, with four external radio antenas to broadcast radio pulses.
After 3 months it burned up in the Earth's atmosphere.
The Russian word for „fellow traveller".

4th of October, 1957

20th of June, 1944

Wernher von Braun - The V-2 rocket became the first artificial object to cross the boundary of space with a vertical launch

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