

# Tryst with space, 50 years on...

**SPACE ANNIVERSARY** Today marks an important day in the history of manned space flights. Exactly 50 years ago, Soviet cosmonaut Yuri Gagarin made the first manned space journey. Twenty years later, on the same day, space shuttle Columbia was launched. Eventually, Columbia met its end in February 2003, killing its seven astronauts including Kalpana Chawla, while re-entering the earth's atmosphere, writes **C Sivaram**

On April 12, 1961, exactly fifty years ago, the first manned space flight was made by Soviet cosmonaut Yuri Gagarin. He made a single orbit around the earth. A few months later, on August 6-7, 1961, cosmonaut Titov made 17 orbits of the earth. John Glenn, who became the first American astronaut to orbit the earth (there were two earlier sub-orbital flights) made three orbits on February 20, 1962. The Russian manned flights maintained an edge over those of the US in the early 1960s. The first space walk was by Alexei Leonov. The first woman to orbit the earth, Valentina Tereshkova, was in space for over seventy hours from June 16-19, 1963. On October 12, 1964, the Soviets had another first when three cosmonauts were sent in one spacecraft Vokshod I.

The US space programme was struck by disaster on January 27, 1967, when three Apollo astronauts were killed when testing their spacecraft on the ground. This caused a delay in the first manned Apollo flight. The first space flight death occurred in April, 1967, when Vladimir Komarov was killed when the parachute did not open when the spacecraft descended. In June 1971, three more cosmonauts were killed after completing 24 days orbiting the earth on the space station Salyut.

## The era of Apollo missions

The Apollo manned missions to the moon started with Apollo-8, when around the Christmas of 1968, they made the first manned flight around the moon (no landing). The landmark lunar landing was done by Apollo 11 astronauts led by Neil Armstrong, who along with Aldrin became the first human beings to walk on the moon's surface, on July 20, 1969. The Apollo spacecraft carried life support systems which supplied the astronauts with oxygen, food and water. Oxygen and water were carried in tanks and food was freeze dried and stored in packages. Solid wastes were sealed into bags, while liquid wastes were released into space. The astronauts made six moon landings between July 1969 and December 1972.

Apollo 12, carrying Charles Conrad and Alan Bean in the lunar module Intrepid, landed on the ocean of storms on November 19, 1969. Apollo 13, commanded by Jim Lovell had a lucky escape and returned to earth in April, 1970, without making a moon landing. Apollo 15 astronauts David Scott and James Irwin landed their module in the Apennine Mountains on July 30, 1971 and used a lunar rover which carried them around 25 km on the moon. The last manned flight to the moon, Apollo 17 carried astronauts Cernan and geologist Harrison Schmidt who landed their module in the Taurus Mountains on December 11, 1972.

The last few missions, each, brought back on average, a hundred kilograms of lunar rock samples. Many of the unmanned Russian Luna probes also brought back lunar soil (ending with Luna 24 in 1976, while their unmanned Lunokhod rover (remote controlled from earth) traversed several kilometers on the moon in 1970.

## Apollo-Soyuz collaboration

In July 1975, Russia and the US had their first joint manned space flight, the Apollo-Soyuz project. Both Russian and American manned spacecrafts in subsequent years have carried several astronauts from various other countries, including India (Rakesh Sharma became the first Indian astronaut in 1984). The American space station, Skylab, was pushed down to earth (by increased solar activity) and burnt up in the atmosphere in 1979. Work on the



**HISTORIC DAYS** (Above) The team (Kalpana Chawla on the extreme left) on the Columbia mission. (Top) A newspaper front-page heralding Yuri Gagarin's entry into space. PHOTOS: NASA

reusable shuttle spacecraft culminated in the flight of Columbia on April 12, 1981, twenty years after Gagarin's main flight.

## Columbia set-back

Unfortunately, Columbia met its fiery end in February 2003 killing the seven astronauts (including Kalpana Chawla on her second shuttle flight), while reentering the Earth's atmosphere. Earlier the shuttle programme had received considerable set-back in January 1986, when "Challenger" exploded on take off killing all seven astronauts, including Sally Ride. There have been more than fifty women astronauts and 500 men. Sunitha Williams was another India born astronaut who spent six months working in the International space station (ISS). The shuttle also served a useful purpose in launching several spacecrafts from orbit and carrying out of repairs (by the astronauts), for example, on the Hubble spacecraft which was serviced a couple of times. The ISS is mainly a joint US-Russian effort. The shuttle flights would soon cease (by the end of 2011).

For the first forty years or so, people in space were either astronauts or cosmonauts. Representatives of more than three dozen countries have gone into orbit on board either on American or Russian spacecrafts. However, in 2003, Yang Liwei aboard the manned spacecraft Shenzhou 5 became the first taikonaut, a Chinese astronaut in a Chinese spacecraft.

## Time for vyomanauts?

Now, with India having an ambitious manned space programme, the term vyomanauts has been touted (*Vyoma*, pronounced *veehma*, from the Sanskrit word for sky or space). The other word bandied about was gaganaut (*gagan*, also Sanskrit for sky). ISRO is in the process of choosing four vyomanauts from a pool of 200 fighter pilots. First crewed space mission is planned for 2015 when two *vyomanauts* would fly in a 275 kilometer low earth orbit.

Of 38 craft launched towards Mars, only 19 made it! Again there has been a lot of debate about the exorbitant costs of manned missions. At present prices, Apollo flight is more than two hundred billion dollars. The US has cancelled the scheduled (2025) Constellation manned moon mission. The future of manned space flights looks more attractive for space tourism, with many private space agencies (like Falcon 9, Virgin Galactic, etc.) out to make profitable returns.