

# Science Updates

## **NASA Launches Dawn Spacecraft To Probe Asteroids**

National Aeronautics and Space Administration (NASA) launched its *Dawn* spacecraft on September 27, 2007, to explore two asteroids located in the asteroid belt. The fundamental objective of NASA's ambitious space mission is to shed light on the early solar system by exploring the two largest bodies in the belt between Mars and Jupiter: an asteroid named Vesta and a dwarf planet named Ceres.

Scientists chose the two targets not only because of their size but because they are so different from one another. Vesta, not exactly spherical in shape, is dry and rocky, and appears to have a surface of frozen lava. It is where many of the meteorites found on Earth came from. Ceres, upgraded to a dwarf planet in 2006, is nearly spherical, icy and may have frost-covered poles. Both formed around the same time 4.5 billion years ago.

## **Scientists Use Body Heat To Generate Electricity**

German scientists have developed a way of harnessing heat from the body to generate electricity. It was confirmed by the Fraunhofer Institute for Integrated Circuits on August 6, 2007. The method uses the difference between the body's surface temperature and that of the surrounding environment. The institute said the energy produced this way can be used to power medical equipments. The system works on the principle of thermo-electric generators—semi conductor elements, which extract electrical energy from the temperature difference between a hot and cold environment.

## **Journey To Mars Begins**

A US space probe named Phoenix Mars Lander was successfully launched on August 4, 2007 from Cape Canaveral, Florida, US, which began its nine-month journey to Mars, where it will dig for clues to past and present life. The Lander's assignment is to dig through the Martian soil and ice in the arctic region and use its onboard scientific instrument to analyse the samples it

retrieves. The solar-powered Phoenix is equipped with a 2.35 metre robotic arm that will enter vertically into the soil. The craft is scheduled to complete its 680 million km journey to Mars on May 25, 2008.

## **Atlantis Returns Safely**

Space shuttle Atlantis that carried Indian-American astronaut Sunita Williams along with six crew members landed safely at Edwards Air Force Base in California, USA on June 22, 2007 at 1.19 a.m. (IST). Sunita, who had set off from Cape Canaveral on December 9, 2006 on space shuttle Discovery, made history by staying 195 days in space, the longest by a woman. She also set the world record for a female astronaut on spacewalks, totalling 29 hours and 17 minutes.

## **Water Found On An Extrasolar Planet**

Scientists have reported the first conclusive discovery of the presence of water vapour in the atmosphere of a planet beyond our Solar System. The discovery was made by analysing the transit of the gas giant HD189733b, 63 light-years away, in the constellation Vulpecula, across its star in the infrared. Instead of a rocky world like Earth, HD189733b is large, about 1.15 times the mass of Jupiter. Located 4.5 million km from its star, it orbits the star in 2.2 days. In comparison, Earth is 150 million km from the Sun; even Mercury, the innermost planet, is 70 million km away. HD189733b's atmospheric temperature is about 1,000 Kelvin.

## **Satellite Launched For Nigeria**

China launched a communication satellite for Nigeria at Xichang on May 14, 2007, a first for an African country and the first time China provided both the satellite and the launch service. The Nigerian Communication Satellite, a super-hybrid geo-stationary satellite will provide communication service for Africa, parts of the Middle East and southern Europe. The long March 3-B carrier rocket blasted off from Xichang Satellite Launch Centre in Southwest China's Sichuan province.

## **Scientists Find Most Earth-like Planet**

A team of European astronomers announced the discovery of the most Earth-like planet on April 24, 2007. The planet was discovered by the European Southern Observatory in La Silla, Chile. The planet, which is named 581C for the red dwarf star Gliese 581 it orbits, is by far the most habitable planet found outside our solar system. The research team has concluded that the average temperature of the planet falls somewhere between 32° and 104° Fahrenheit. Although the planet orbits a red dwarf star much closer to it in comparison to the Earth, the tiny star gives off a much dimmer red light and lasts longer than our Sun.

However, astronomers believe that unlike the Earth, the planet does not rotate on an axis and circles Gliese 581 once every 13 days. Because the planet does not rotate, the side facing its sun would always be bright. Besides having appropriate temperatures, liquid water probably exists in abundance on its surface, according to discoverers.

The new planet is about five times heavier than Earth, and gravity there would be about 1.6 times stronger in comparison to the Earth. Scientists have theorised that the planet is rocky like the Earth but the possibility exists that it is a frozen "ice ball", with liquid water on its surface. However, either way it is much larger in diameter than Earth. It is 20.5 light years away from Earth.

Planet 581C was discovered by a telescope, which uses a special instrument that splits light to find wobbles in different wavelengths known as Doppler Effect.

## **Gene To Stop Cancer Found**

Chinese scientists have identified a gene variant which appeared to protect people from various types of cancer. In the latest issue of the journal *Nature Genetics*, the experts said that they had studied the DNA of nearly 10,000 Chinese people over six and a half years and had found that the gene variant appeared far more frequently than those who are cancer free. It is well known that the gene Caspase-8 (CASP 8) regulates cell death. Programmed cell death is important because it prevented cells from dividing and spreading uncontrollably, a process that results in cancer.