Global Aerospace Corporation In the Press

IT'S A GAS

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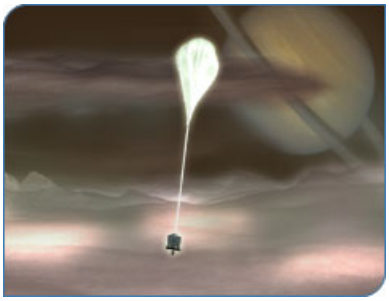
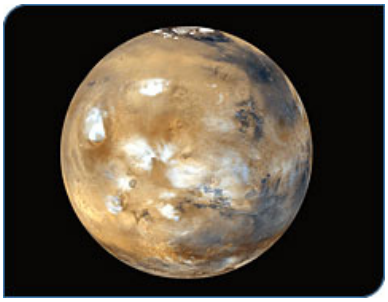


Balloons have long been utilized as a low-cost way to observe the cosmos and are routinely employed in observations of the Earth's atmosphere. According to a recent review by a NASA scientist, the future of planetary exploration could lie in balloons that contain innovative steering devices and robot probes.

Dr. Alexey Pankine, a fellow at the NASA Institute for Advanced Concepts (NIAC), presented an analysis of balloon applications for planetary science at the World Space Congress in Houston, Texas last month. His study, Directed Aerial Robot Explorers or DARE, is funded by NIAC.

At the heart of the study are balloons that can float in planetary atmospheres for many days. While balloons have been frequently used in planetary exploration, their wider use has been restrained by the inability to control their paths in strong atmospheric winds. It is not possible to simply attach an engine, as this would convert the balloon into an aircraft, which would make it too heavy, too power dependent and too expensive to send to another planet or high up into the atmosphere.

As a possible solution, Global Aerospace Corporation has proposed the use of an innovative device called the StratoSail® that allows the user to control the path of a planetary balloon. The device is essentially a wing that hangs on a long tether several kilometres below the balloon. Strong winds and denser atmosphere at the wing altitude create a sideways lifting force that pulls the entire system.



The DARE report analysed the use of the StratoSail® device on several planets, including Venus, Mars, Jupiter and Titan (a satellite of Saturn). Dr. Pankine found that a small, light wing was able to pull the balloon with a velocity of about 1 m/s across the winds on those planets. This may not seem like very much, but applied constantly for the duration of a long mission, it would allow for pole-to-pole exploration of the atmospheres of Venus and Titan, as well as targeted observations of Mars and the vast Great Red Spot of Jupiter.

The DARE platforms would carry high-resolution cameras and other instruments to study surfaces and atmospheres of the planets. Dr. Pankine envisions small probes being deployed over a small site of interest. Such robot probes could analyse atmosphere during their descent on Venus or Jupiter and then crawl around the soft landing on the surfaces of Mars and Titan.

"The ability to alter the flight path in the atmosphere and to deploy the probes would vastly

expand the capabilities of planetary balloons and make possible breakthrough observations that are not feasible with any other platform," says Dr. Pankine.