NASA enlists three Maryland firms for mission

Joe Bacchus

Though some days it may seem as if the entire future of American space exploration is in doubt, several Maryland organizations are still helping NASA to prepare for possible trips to Mars and beyond.

Three Maryland organizations and agencies will split approximately $7 million to research and develop a sensor web that would explore how the pieces of Earth's environment interact, which could also explain the environments of moons and other planets.

The grants were made through NASA's Science Mission Directorate, Earth Science Division with the goal of developing new information technology for space exploration, said Erica Hupp, NASA spokeswoman.

The Greenbelt-based NASA Goddard Space Flight Center will receive about $4.2 million, George Mason University's Greenbelt-based Laboratory for Advanced Information Technology and Standards $1.4 million and the Beltsville-based Institute of Global Environment and Society Inc.'s Center for Research on Environment and Water $1.2 million.

Paul Houser, a researcher at the institute, said a sensor web is essentially a group of sensors spread throughout an environment - on the ground, in the air and in the sea - whose mass of data can be used to create models.

He compared it to a hurricane path graphic. However, like the distant end of the predicted route that fans out in uncertainty, an environmental model can only be as good and complex as its input. Houser said the NASA funds would go to develop math models of more efficient, more intricate sensor webs.

We can see that uncertainty change when we put better information in the model, Houser said.

Michael Seablom, a Goddard researcher, said better what if? scenarios could save a lot of time and money associated with blown weather forecasts. He remembers a day when the Washington area was expected to receive one inch of snow - but instead received 18, leaving the region in disarray. He said the data collected beforehand was good, but it just wasn't enough.

The real problem was they didn't collect the data where they needed to collect it, he said.

Hopefully, a sensor web would change that.

Houser noted that while a sensor web is still only theoretical, it could even ultimately be used to help NASA explore and colonize other heavenly bodies. For example, a web could help locate ice or other potential water sources that would be vital to any long-term colony.

They could probably pretty easily apply what we learn to a sensor web for Mars or the moon, Houser said.

In January 2000, President Bush announced a rededicated space program that would send astronauts back to the moon and eventually to Mars.

However, the present is shaking out a bit differently than the vision. The grant announcement came last week as the space shuttle Discovery remained on a launch pad in Cape Canaveral, Fla., astronauts, mission control officers and tourists unaware that, come Monday, the ship would still be resting. The shuttle was scheduled to launch Tuesday, but the discovery of a crack in the foam insulating one of the shuttle's fuel tanks put the launch in doubt.

NASA grounded the shuttle program after the space shuttle Columbia was destroyed on re-entry in 2003. There has been online one shuttle mission since and NASA has been especially cautious with planned launches.

Nonetheless, NASA and related researchers seem confident the space program will fly smoothly again. Houser says his job is to now go and help develop the senor web.

We'll do some dreaming, Houser said.