Genesis team scientists and engineers continue their work on the mission's sample return canister in a specially constructed clean room at the U.S. Army Proving Ground in Dugway, Utah. As more of the cap- sule's contents are revealed, the team's level of enthusiasm for the amount of science obtainable continues to rise.

On Sept. 16, the project reported the science canister that holds the majority of the mission's scientific samples was lying upside down—on its lid. Scientists are very methodically working their way "up" from the bottom portion of the canister by trimming away small portions of the canister's wall. The team continues to extract, from the interior of the science canister, small but potentially analyzable fragments of collector array material.

One-half of a sapphire wafer was collected on Sept. 14—the largest piece of collector array to date.

"We are bouncing back from a hard landing, and spirits are picking up again," said Orlando Figueroa, deputy associate administrator for programs for the Science Mission Directorate at NASA Headquarters.

"This may result in snatching victory from the jaws of defeat," added Dr. Roger Wiens of the Los Alamos National Laboratory in New Mexico, a member of the Genesis science team. "We are very encouraged.

Added NASA Administrator Sean O'Keefe: "We are pleased and encouraged by the preliminary inspection. The outstanding design and sturdy construction of Genesis may yield the important scientific results we hoped for from the mission."

The mission's main priority is to measure oxygen isotopes to determine which of several theories is correct regarding the role of oxygen in the formation of the solar system. Scientists hope to determine this with isotopes collected in the four target segments of the solar wind concentrator carried by the Genesis spacecraft. The condition of these segments will be better known after the canister's solar wind concentrator is extracted. At this time, it is believed that three of these segments are relatively intact and that the fourth may have sustained one or more fractures.

There are no concrete plans regarding the shipping date of the Gene- sis capsule or its contents from Dugway to the Johnson Space Center in Houston. The team continues its meticulous work and believes that a significant repository of solar wind materials may have survived that will keep the science community busy for some time.

The Genesis sample return capsule landed well within the projected ellipse path in the Utah Test and Training Range on Sept. 8, but its parachutes did not open. It impacted the ground at nearly 320 kilometers per hour (nearly 200 mph).

"I want to emphasize the excellent work by the navigation team to bring the capsule back exactly on target was key in our ability to recover the science," said Andrew Dantzler, director of the Solar System Division at NASA Headquarters. "In addition, the robustness of the design of the spacecraft was the reason it could take such a hard land- ing and still give us a chance to recover the samples."

The NASA Genesis Mishap Investigation Board arrived at Dugway on Sept. 10 to take charge of the investigation. Dr. Michael Ryschkewitsch is the leader of the board.

NASA said that thanks to excellent work by the Genesis Project Team, functioning as an initial response team, the wreckage of the sample return capsule and its contents of scientific samples were recovered from the dry land. The science team continues working securing and cataloging the recovered sample materials, working independently from the activities of the Mishap Investigation Board.

Since the initial recovery of the hardware, an inventory was made of the impact crater, both by visual examination and metal detector, to ensure no significant wreckage remains.

The Mishap Investigation Board determined all the science-specific hardware is not relevant to the boards work in determining the causes of the mishap. That hardware was released to the project's Science and Curation Team for continued processing.

For more information, log on to http://genesismission.jpl.nasa.gov.
Two JPL employees were recently selected for internships in the 2004 Mission Architect Development Program. The two-year program is designed to introduce the next generation of mission architects who will design and implement the agency’s JPL Missions. Each participant will be paired with a mentor who will guide them through the program, which consists of work assignments and professional development to bridge skills gaps.

Brian Cooke and Jim Devereaux are this year’s recipients.

Cooke is the integration and test manager for the Electra Baseband Processor for the Cassini Uplink Operation System. Cooke joined JPL in 1996 upon receiving his multidisciplinary engineering degree from Virginia Polytechnic Institute and State University. His first project involved working on the Cassini Uplink Operations Element (CUSE) at JPL’s new Cassini ground system for a successful launch and cruise. Cooke later joined the Microwave Telemetry, where he was responsible for maintaining and repairing critical equipment. He also participated in the design of a custom vacuum system for the Cassini vacuum testing of the Galaxy Evolution Explorer instrument, and led the GALAX instrument integration and test team.

“Having forward-looking and implementing background to the design and development of new instrument architectures for the Laboratory,” he said. “I am specifically interested in using old and new technology to gather the data the science community needs in new and novel ways.”

Devereaux is the cognizant engineer for the ELECTRA Baseband Processor for the Cassini Uplink Operations System. He has worked with Mars Telecommunications Writer and Mars Science Laboratory. Her area of expertise is telecommunications system engineering, where she has applied her knowledge of communications systems on a myriad of projects. Devereaux joined JPL during her senior year at the Massachusetts Institute of Technology. She received her master’s from USC in communications engineering. Her work includes telecommunications engineering for Solar Probe Plus and Square Space Telescope, radio science operations for MRO, radio science engineering for Cassini, beam-ascend antenna system engineering for the Deep Space Network, live satellite TV stations in Antarctica and the Amazon, and wireless health被抓Die for the space station.

The light equipment work for BMO inspired me to get immersed in spacecraft development outside of the telecom regime,” Devereaux said. “The announcement for applications to the Mission Architect Development Program seemed the perfect opportunity to supplement my education with both classroom and hands-on experience on all other aspect of a space mission.”

Interns’ work assignments include, but are not limited to, participation in the MAB Operation Analysis Group, from X support, Aquarius Project support, proposal process support, and a three-to-six month internship at NASA Headquarters. In the area of educational development, some of the highlighted courses are NASA Project Management, JPL Project Manager Workshop, Cost Planning and Estimating, Proposal Preparation and Writing, and Mars Mission and Systems Design.

“We have a shortfall of mission architects needed to sustain the Laboratory’s current and future requirements,” noted Steve Matsouk, manager of the Mission and Systems Architecture Section and a selection committee member. “The Mission Architect Development Program is a way to train new mission architects that we otherwise wouldn’t have. It was conceived to bring people in with specialties to fill that need.”

Cooke and Devereaux were selected by the Mission Architect Development Program to fill the positions created by the recent retirement of two mission architects that we otherwise wouldn’t have. It was conceived to bring people in with specialties to fill that need.”

The call for Mission Architect Development Program internship applications is expected to go out this fall. Information on the program can be found at http://eis/adp.
This finding comes from more than a year’s worth of data from the JPL-managed Gravity Recovery and Climate Experiment, or Grace. Grace is a two-spacecraft, joint partnership of NASA and the German Aerospace Center.

Results published in the journal Science show that monthly changes in the distribution of water and ice masses could be estimated by measuring changes in Earth's gravity field. The Grace data measured the height of up to 10 centimeters (4 inches) of groundwater accumulations from heavy tropical rains, particularly in the Amazon basin and Southeast Asia. Smaller signals caused by changes in ocean circulation were also visible.

Launched in March 2002, Grace tracks changes in Earth's gravity field. Grace senses minute variations in gravitational pull from local changes in Earth's mass. To do this, Grace measures, to one-hundredth the width of a human hair, changes in the separation of two identical spacecraft in the same orbit approximately 220 kilometers (137 miles) apart.

Grace maps these variations from month to month, following changes imposed by the seasons, weather patterns and short-term climate change. Understanding how Earth's mass varies over time is an important component necessary to study changes in global sea levels, polar ice phenomena that influence climate.

"Measurements of surface water in large, inaccessible river basins have been difficult to acquire, while underground aquifers and deep ocean currents have been nearly impossible to measure," said Dr. Byron Tapley, Grace principal investigator at the University of Texas Center for Space Research. "Grace gives us a powerful new tool to track how water moves from one place to another, influencing climate and weather. These initial results give us great confidence Grace will make critical contributions to climate research in the coming years," he added.

"The unparalleled accuracy of the Grace measurements opens a number of new scientific perspectives," said Dr. Christoph Reigber of GeoForschungsZentrum Potsdam in Germany. "Observations of mass variations over the oceans will assist in interpreting annual signals in long-term sea-level change that have become an important climate change indicator." Reigber said.

Dr. Michael Watkins, Grace project scientist at JPL, said the results mark the birth of a new field of remote sensing. "Over the past 20 years, we've made primitive measurements of changes in Earth's gravity field over scales of thousands of kilometers, but this is the first time we've been able to demonstrate gravity measurements can be truly useful for climate monitoring," he said.

"The Grace gravity measurements will be combined with water models to sketch an exceptionally accurate picture of water distribution around the globe. Together with other NASA spacecraft, Grace will help scientists better understand the global water cycle and its changes," Watkins added.

In a related report in Geophysical Research Letters, researchers from the Cooperative Institute for Research in Environmental Sciences, the University of Colorado and JPL used 11 months of Grace data to improve estimates of changes in water levels. They found Grace can determine how much water is stored in global oceans to an accuracy of 1.5 centimeters (0.59 inches) in height over regions 1,000 kilometers (about 600 miles) across. They used the data to refine water storage estimates for the Mississippi and Amazon rivers, and rivers flowing into the Bay of Bengal.

The University of Texas Center for Space Research has overall mission responsibility. German mission elements are the responsibility of GeoForschungsZentrum Potsdam. Science data processing, distribution, archival and product verification are managed under a cooperative arrangement between JPL, the University of Texas and GeoForschungsZentrum Potsdam.

For more information, visit http://www.cs.untexas.edu/grace.
The rear cab is configured to serve as an Incident Command Center for the field management of emergencies. In addition, the larger vehicle has greater capacity to carry essential equipment, tools and materials, which improves the frill and safety of our response team. The team is now able to provide comprehensive support to the disaster at the Lab or surrounding communities, said Emergency Preparedness Administrator Eric Paller. The new vehicle will be on display at the Oct. 5 Health Fair on the mall from 11 a.m. to 2 p.m.