



Flight aboard Super Galaxy impresses scientists

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9/10/2010 - **SCOTT AIR FORCE BASE, III.** -- It seemed like a normal flight. Bleary-eyed passengers sat slumped in blue seats, ignoring the emergency safety briefing and waiting for someone to bring them juice.

But anchored by chains to the cargo bay floor below sat a billion-dollar instrument designed to advance the human race's knowledge about the universe.

The C-5M's smooth ride ultimately impressed its 38 passengers, which consisted of MIT professors and scientists from Italy, Germany, Netherlands, Spain, and Switzerland.

It recently transported them, along with the Alpha Magnetic Spectrometer, from the European Organization for Nuclear Research (CERN) in Switzerland to Kennedy Space Center, Fla. The AMS will go on to fly aboard the last space shuttle mission early next year.

"For me, it was emotional to leave CERN," said Mr. Roberto Battiston, an Italian physics professor with the 16-year AMS project. "But when we were flying, it was easy to forget about that. The plane is so large, so self contained ... like a different world."

Mr. Battiston said he admired the aircrew's professionalism and how they remained so calm in a stressful environment.

Proving Reliable

Before the trip, pilot Capt. Matt Matis found a note taped to the C-5's dashboard. It was from his group commander wishing him luck on his checkride.

"Dear Matt, How are you? I am fine. We're pulling for you with the big mission. P.S. Don't (mess) it up. :)."

Captain Matis followed the orders. During a mission that many around the world were watching, he skillfully flew the C-5M, led the crew and overcame several obstacles as a qualifying aircraft commander.

Within a few hours after takeoff from Switzerland, he and Capt. Cory Damon deftly and enthusiastically answered the international passengers' questions as they streamed in and out of the cockpit.

The cockpit view was oceanic. A flat horizon of clouds formed below the translucent moon in the blue morning sky. A white 747 flying approximately 1,000 feet in front of the C-5M appeared like a fish diving in slow motion, emitting white fluff. The C-5 was like a whale lumbering serenely and effortlessly, void of turbulence.

The newly-remodeled C-5M Super Galaxy has a reputation for increased reliability. Since becoming operational early 2009, it has demonstrated a whole new concept of operations, to include the direct delivery concept, Captain Damon said.

Although it hasn't happened yet, the Super Galaxy is capable of flying from Dover Air Force Base, Del., to Iraq without aerial refueling - saving tankers for other missions.

"It's already proven its ability," Captain Damon said. "They've taken one of most uniquely capable airlifters and made it even more capable. You can't lose."

Last fall, a C-5M broke 41 world records in a single flight. The remodeled aircraft boasts an upgraded



Dubbed the C-5M Super Galaxy, the newest C-5 to join the Air Force fleet boasts upgraded engines and avionics, enhanced communications, navigation and safety systems, and improved reliability rates. (Photo courtesy of Lockheed Martin)

propulsion system along with 50 other subsystem reliability enhancements. It's more maintainable and cheaper to operate. And the new engines will reduce hydrocarbon emissions by more than one million tons by 2040.

Making Galactic History

During the flight, two loadmasters and a flight engineer relaxed behind the cockpit area.

A NASA engineer wearing mid-thigh shorts walked up to the crew's table carrying a box of snacks that was tied around his neck by a red satin ribbon. He smiled and asked if they'd like some refreshments. The crew members laughed and dug for their cell phones to snap photos.

The aircrew had airlifted cargo to Iraq and Afghanistan before stopping at Geneva to pick up the AMS. This mission gave them an extreme sense of being part of history, they said.

The AMS, once installed on the International Space Station next year, is expected to survey charged particles and unlock a new realm of secrets about the universe. These secrets are considered so important around the world that hundreds of physicists from 16 countries have worked on this project for more than a decade.

Although the project is officially sponsored by the U.S. Department of Energy, nations around the globe collectively invested more than \$1 billion to ensure its success.

"What really gets me is the AMS is going to be on the International Space Station for a long, long time," said Tech. Sgt. Frank Nieto, 9th Airlift Squadron flight engineer.

"We can own it as our own," said 9 AS loadmaster Staff Sgt. Bryan Muise. "We can literally look up in sky and say I assisted in putting that piece of equipment into space."

"I can tell my grandchildren I was part of that. It's something to be proud of," Sergeant Nieto said.

This mission supporting international scientists was yet another way to show the world what the remodeled C-5 can do, said Tech. Sgt. Troy Heller.

Sergeant Heller, a qualified flight engineer on the C-5M, is a Reservist assigned to the 709th Airlift Squadron at Dover AFB. Nearly all C-5M missions are flown by mixed crews of active duty and Reserve Airmen, said Captain Damon, who is assigned to the 9th AS.

"The relationship's been awesome. It's almost like it's been (one) squadron," Captain Damon said.

Having a Sense of Purpose

The 11-hour flight approached its final descent. Mild turbulence kicked in. Seat belts clicked, and what looked like stage smoke curled across the cabin ceiling.

"Florida humidity," remarked a NASA employee as the plane landed. The C-5 was like a giant ice cube, causing condensation.

As the passengers thanked the green flight-suited aircrew and climbed down stairs to a waiting crowd, astronauts in blue flight suits climbed up the stairs to meet the crew. The astronauts are slated to take the AMS to the International Space Station. News media documented the occasion as they shook hands with and talked to the Airmen.

It's a moment the Airmen aren't likely to forget.

But despite their pride in accomplishing the mission, some of the crew members said what motivates them most is flying the Super Galaxy to support fellow servicemembers.

"I like knowing every time we move cargo we're helping troops in the desert," Sergeant Nieto said. "It's a great feeling, knowing we're helping in a different way. We may not be there on the ground; but we're getting them what they need to get their job done safely."

"It's what helps me sleep at night," said Tech. Sgt. Jason Belcher, 9th AS loadmaster.