

# Brazil and Argentina Launch Space Mission

by Marsha Freeman

The two space powers of Ibero-America, Brazil and Argentina, successfully carried out their first joint space mission, of scientific experiments, on Dec. 16, 2007. A product of a 1998 bilateral agreement for space cooperation, the Angicos Operation consisted of the launch from Brazil of a sub-orbital sounding rocket, which carried microgravity experiments from both Brazil and Argentina. The program involves more than 100 scientists from both countries, and is estimated to have involved a contribution of about \$500,000 from Argentina, and more than \$800,000 from Brazil.

This success lays the basis not only for future cooperation in more ambitious space exploration projects, but also other collaborative initiatives in science and technology. Now, both Brazil and Argentina are moving to restart their civilian nuclear energy programs. The successful joint space experiment should be just the start of collaboration in this critical field of science and technology. There are political forces in both nations that realize that the future well-being of their people depends upon harnessing the most advanced work in science and its application through new technology.

Brazil and Argentina possess the most advanced scientific capabilities, including nuclear, in South America. Therefore, their cooperation has great implications for the development of the rest of the continent, and will not make the international Malthusian establishment, which has fought to enforce technological apartheid against the nations of the Southern Hemisphere, very happy.

Col. Luiz Fernando de Azeveda from the Brazilian Air Force, the Brazilian coordinator of the space project, said Brazil will launch another scientific rocket. "This is essential to keep our technology, and maintain the teams [that are] trained."

The rocket used in the experiment was the VS-30, the most advanced in a line of suborbital sounding rockets developed, built, and launched by Brazil. According to the Brazilian Space Agency, the flight, which had been delayed four times due to weather, lasted for 9 minutes and 25 seconds, and was above the atmosphere for about four minutes, in the near-absence of gravity needed for the experiments. It reached an altitude of 121 kilometers, then landed in the sea, about 122 km from the launch site. The payload was recovered by helicopters and divers from the Brazilian

Navy. The VS-30 was launched from the Barreira do Inferno center in the northern state of Rio Grande do Norte.

On board the rocket were two microgravity experiments from Argentina. Roberto Oscar Yasielski, the head of the Argentine team, explained that the module with his country's experiments will be taken to Buenos Aires to be examined. Also on board was a Global Positioning System (GPS) test by Brazil. The U.S.-deployed GPS satellite navigation system provides a precise location for objects on land, sea, and in the air. Brazil wants to integrate its GPS sensor software for use on its rockets and satellites. The sensors are under development at the Federal University of Rio Grande do Norte, which will examine the results of the recent microgravity experiment. This was the second attempt at the experiment, as a Brazilian GPS sensor test launched on a VS-30 sounding rocket in July, along with experiments prepared by German scientists, was lost at sea.

## A Proud History

Neither Argentina nor Brazil is a newcomer to space technology. Brazil's launch site at Alcantara, near the equator, is being developed as a major Southern Hemisphere rocket-launch facility. While technological setbacks have delayed the completion of the facility and the successful development of a Brazilian orbital rocket, made with help from Russian space experts, progress is being made for Brazil to become one of only about a dozen nations that can launch its own satellites.

The launch facility at Barreira do Inferno was built in 1965, to take advantage of its location, just 5 degrees from the Earth's magnetic equator. Suborbital scientific sounding rockets to study the Earth's ionosphere have been launched there since that time. In 1999, three Brazilian University experiments flew onboard a VS-30 rocket, in a mission named Operation São Marcos, which included a study of the effect of microgravity on worms, and on the formation of biomedically useful crystals for use in future antibiotics.

Brazil is also a world leader in the application of Earth remote-sensing data, and provides training in that field to people from many nations in Ibero-America. These programs study and monitor changes in agriculture, land use, water resources, and forestry, and even track the likely paths of tropical, insect-borne disease.

During the same time period, Argentina, with its advantageous location at the Earth's other extreme, began launching sounding rockets, near the South Pole, studying the atmosphere. Starting in the mid-1990s, Argentina embarked on a program to design and build its own satellites, through the state-run INVAP company, which also produces Argentina's small nuclear reactors. Scientific satellites have been developed and launched by Argentina with the U.S. space agency, NASA, focussing on Earth remote sensing.