

THE FLIGHT OF BRAZIL'S FIRST ASTRONAUT

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ABSTRACT

On November 12, 1906, at 4:45 pm, a crowd in the Champ Bagatelle, in Paris, witnessed the first motor-driven flight of history. Alberto Santos Dumont, a 33 year-old Brazilian, flew over the French capital moving through a distance of 220 meters (722 feet), 6 meters (20 feet) high, on board of his plane "14-Bis".¹ Nowadays, in the year Brazilians celebrate the centenary of the 14-Bis flight, the first Brazilian astronaut has reached the outer space. After 7 years of training at the NASA's plant, in Houston, Texas, USA, the Brazilian astronaut, Mr. Marcos Pontes, finally accomplished his first flight on board of the Russian spaceship Soyuz to the International Space Station on March 30, 2006. This event definitely has crowned the Brazilian Space Program. On board of the International Space Station, Mr. Pontes tested scientific experiments from Brazilian research institutions and high-schools in a microgravity environment. This paper presents the legal aspects of the binding agreement executed between the Brazilian Space Agency and the Russian Federation Space Agency (Roskosmos) regarding the flight of the Brazilian astronaut, such as insurance

premium and criteria for choosing companies. The political decision of contracting the Russian Federation Space Agency for the flight of the Brazilian astronaut and the Brazil's current position regarding its participation in the International Space Station Program are also being pointed out here.

INTRODUCTION

On October 14, 1997 the United States and Brazil established a cooperative program covering the detailed design, development, and operation of on-board equipments and payloads which the Brazilian Space Agency would develop and provide NASA with as part of a North-American contribution to the International Space Station (hereinafter referred to as ISS).

As a bonus for its participation in the ISS Program, NASA offered to Brazil the possibility of having a Brazilian astronaut in one of the North-American space shuttle flights to ISS.

Then, the Brazilian Space Agency selected Mr. Marcos Pontes, aeronautics engineer and jet pilot of the Brazilian Air Force, to be the Brazil's first astronaut. Mr. Pontes clocked up around 2,000 flight hours in twenty-five different aircraft, among them, the F-16 and MIG-29. He has a 16-year experience as well in the area of flight safety procedures. He also got a System Engineering master degree from Naval Postgraduate School,

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Monterey, California, USA. He was definitely the best choice.

THE BRAZILIAN PARTICIPATION IN THE ISS PROGRAM

According to the Implementing Arrangement established between the United States and Brazil, the Brazilian contribution to the ISS Program should include the following equipments:

- a) The Technology Experiment Facility (TEF), which should provide long-term exposure to the low Earth orbit space environment for active and passive experiments;
- b) The Window Observational Research Facility Block 2 (WORF-2), which should provide the ISS capability devoted to observational science and remote sensing development;
- c) The Express Pallet, which serves as an interface mechanism that may be utilized to attach small payloads to the U.S. truss segment P3 or S3;
- d) The Unpressurized Logistics Carrier (ULC), which is a platform for transportation of unpressurized cargo, and it may be attached to U.S. truss segment;
- e) The Cargo Handling Interface Assembly (CHIA), which is the flight support equipment that provides a method of attaching cargo to ULC and allows for orbit a handling of the cargo; and
- f) The Attach System Z1-ULC, which provides mounting accommodations for external passive payloads and experiments.²

The budget to cover all items Brazil would provide NASA with for its participation in the ISS Program was firstly estimated in US\$ 120 million. However, taking into account the projects

presented by Boeing Company and the Brazilian Aeronautics Company (Embraer), the Brazilian Space Agency figured out that just one of the items, the Express Pallet alone, would consume the whole estimated budget.

Therefore Brazil has not started the production of those items as previously foreseen, but, instead, a round of discussions was set up between the representatives of NASA and the Brazilian Space Agency. Actually, these discussions are still ongoing, but there is not yet a new official amount to be supported by Brazil for its participation in the ISS Program.

Currently, there are other important space activities to be carried out by Brazil, such as: the new satellites of the Chinese-Brazilian Earth-Observation Satellite Program (CBERS), whose launchings are scheduled for 2007, 2009, and 2011; the commercialization of CBERS data and the implementation of ground stations around the world; the establishment of a Brazilian-Ukrainian company which will commercialize satellite launchings from Alcantara³; the re-building of Alcantara Launch Center (CLA) after it suffered the 2004 disaster setback, when twenty-one technicians were killed⁴; and the new project for a Brazilian launch vehicle.

In this context, the ISS Program would become feasible for Brazil only in case of a reduction to its budget.

THE BRAZILIAN ASTRONAUT'S TRAINING

Despite the problems with the ISS Program, as pointed out in the previous item, the Brazilian Astronaut training at the NASA's plant in the Johnson Space Center (Houston, Texas, USA) started on January 12, 1998. The basic trainee program was successfully completed in

December 2000, when Mr. Pontes received the title of "astronaut". Upon conclusion of the first phase, the Brazilian astronaut started the advanced training period in operational maintenance. This phase involved operation revisions and technical qualifications.

Mr. Marcos Pontes trained in Houston by February 12, 2005 and Brazil invested the total amount of US\$ 2,631,026.00, according to the following schedule: 1998: US\$ 561,738.00 (two payments of US\$ 280,869.00); 1999: US\$ 290,724.00; 2000: US\$ 276,890.00; 2001: US\$ 276,890.00; 2002: US\$ 276,890.00; 2003: US\$ 305,584.00; 2004: US\$ 313,636.00; and 2005: US\$ 328,674.00.⁵

Since Brazil was not able to fulfill its obligations in the ISS Program as firstly foreseen, the flight of the Brazilian astronaut was postponed *sine die*. However, there was yet another disturbing factor: the Brazilian Astronaut was getting old and there was no reason for Brazil to keep on supporting his expensive training at NASA.

Brazil was taking a serious risk of wasting the whole investment in the traineeships of its astronaut.

Since the new terms for the Brazilian participation in the ISS Program were not defined, the representatives of the Brazilian Space Agency decided to set up discussions with the representatives of the Russian Federation Space Agency (Roskosmos) to become feasible the flight of the Brazilian astronaut on board of the Russian spaceship Soyuz.

It should be emphasized that the relationship between Brazil and the Russian Federation in space area started in 1988 and it is currently getting closer. A Memorandum of Understanding, whose object is the cooperation for developing satellite launching vehicles, was signed in 2004 between both Governments. Beyond that, Russians

have been serving as technical consultants for the development of the new project of the Brazilian Satellite Launching Vehicle.

THE AGREEMENT

On October 18, 2005, in Moscow, the President of the Brazilian Space Agency, Mr. Sergio Gaudenzi, and the President of the Russian Federation Space Agency (Roskosmos), Mr. Anatoly Perminov, signed the agreement regarding the flight of Brazil's first astronaut.⁶

The Brazilian Space Agency, in attention to a request from Roskosmos, has not disclosed the official amount paid for the flight. Notwithstanding, the Brazilian media has revealed that it ranges within US\$ 10 and US\$ 15 million. Both of these values are cheaper than the amount paid by space touring millionaires who have flown on board of the Soyuz, *i.e.*, US\$ 20 million.

Mr. Marcos Pontes started his trainee period at Star City, near Moscow, at the Yuri Gagarin Trainee Center, in October 2005, the same month the agreement was signed. Hence, he has become also a "cosmonaut".

At this time, the agreement's price covered the training period of the Brazilian astronaut.

THE INSURANCE PREMIUM

To comply with a requirement pursuant to the agreement, Brazil agreed to contract two insurances regarding the flight of the Brazilian astronaut: the first one to cover complaints from third parties; the second to cover injuries or even the death of the astronaut.

Brazil has contracted the Russian Insurance Center to cover eventual complaints from third parties. The company was indicated by Roskosmos

and Brazil paid US\$ 214,415.00, covering the amount of US\$ 5 million.

The astronaut personal insurance for covering injuries or even his death was provided by Aliança do Brasil, a Brazilian company. Brazil need not pay for this insurance, because the company was interested in joining its name to the flight; the company was sure that it will make a profit from the project. The insurance has covered the amount of US\$ 1 million.⁷

THE FLIGHT

On March 30, 2006, at 11:00 pm (Brasília time), from the Launch Center of Baikonur, in Kazakhstan, the Brazil's first astronaut, at age of 43, finally took his flight toward ISS. Beyond the Brazilian, there were two other astronauts on board of Soyuz, the Russian Pavel Vinogradov, and the North-American Jeffrey Williams. The flight was broadcasted by most important Brazilian TV companies, and a lot of Brazilians postponed their bed time in order to watch the flight. It was really a great event for Brazilians. Fortunately, the flight was undertaken as scheduled.

Meanwhile the astronaut was in space, the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space started its 45 Session, on April 03, 2006. Many delegations which were attending the Session congratulated Brazil for the successful flight of its astronaut.⁸

On board of Soyuz, Mr. Pontes tested eight scientific experiments: six from research institutions and two from high-schools.

Mr. Pontes stayed in space for ten days, eight of them on board of ISS. On April 8, 2006, at 8:48 pm (Brasília time), the Brazilian astronaut arrived safely near the city of Arkalyk, Kazakhstan, jointly

with the Russian cosmonaut Valeri Tokariov, and the North-American astronaut William McArthur.

After few days in Moscow, the Brazilian astronaut returned to Brazil, where he arrived on April 20, 2006. He was received as a hero by Brazilians and welcome by the Brazilian President.

AFTER THE FLIGHT

Since there is not any other space flight planned by Brazil, the question that remained was: what were the plans for the astronaut? He could simply return to its position in the Brazilian Air Force. It was also considered by the Brazilian authorities the possibility of keeping him in NASA to extend his training. However this alternative was discarded due to financial constraints. He could act as a representative of the Brazilian Space Program.

Notwithstanding, he has surprised many people when in May 2006, just one month after his space flight, he applied for his retirement from the Brazilian Air Force.

This attitude has caused a lot of criticism. Many people considered Mr. Pontes a selfish person, because in their opinion his own interest prevailed over the public interest. Since he is no longer a member of the Brazilian Air Force, he is free for making profits from his endeavor.

In his site on the Internet⁹, the Brazilian astronaut has stated that he fulfilled his mission; that there was not other flights scheduled for the coming years; that his health was not as good as it used to be; that he hopes to be the first of many others Brazilian astronauts...

Besides these points of view, the fact is that Mr. Pontes had the right of retiring. He fulfilled perfectly the mission for which he was trained. Furthermore,

the Brazilian Government has not obliged him to remain as a member of the Brazilian Air Force after the flight.

The most important thing is that Brazil keeps giving its space program the due value it really deserves.

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⁵ Data kindly provided by Ambassador Carlos José Prazeres Campello, Head of the Department of Space Cooperation of the Brazilian Space Agency.

⁶ Data from the site of the Brazilian Space Agency on the Internet: www.aeb.gov.br

⁷ Data kindly provided by Ambassador Carlos José Prazeres Campello, Head of the Department of Space Cooperation of the Brazilian Space Agency.

⁸ Especially the Russian Federation, Czech Republic, and the members of the Latin-America and Caribbean Group.

⁹ www.marcospontes.net