Agreement for Cooperation between the Government of Spain and NASA

Spanish space technology will touch Mars for the first time in history

- The agreement will permit the integration of a Spanish sensor station and antenna to NASA's Mars Science Laboratory (MSL) mission, whose launch is planned for fall of 2011
- The Spanish contribution will support the payload of the "rover," or exploratory vehicle, that the mission will place on Martian soil
- Carme Chacón emphasizes that this is a considerable success of our science and industry, and announces that Spanish technology will return to Mars in 2013 contributing a high-resolution spectrometer
- Cristina Garmendia highlights that this collaboration will open up new business activity in satellite telecommunication manufacturing and environmental surveillance system design

March 17 2011. Ministers of Defense and Science and Innovation, Carme Chacón and Cristina Garmendia, respectively, have today presided in the headquarters of the Center for Astrobiology, en Torrejón de Ardoz (Madrid), over the signing of an Agreement for Cooperation between the National Aerospace Technical Institute (INTA), the Center for Technological and Industrial Development (CDTI), and the National Aeronautics and Space Administration (NASA) for the development of a Mars mission that will, for the first time, utilize Spanish space technology.

The agreement, signed by the Director-General of INTA, Jaime Denis, the Director-General of CDTI, Arturo Azcorra, and the U.S. Ambassador to Spain, Alan D. Solomont, will permit the integration of Spanish technology to NASA's Mars Science Laboratory (MSL) mission, whose launch is planned for the fall of 2011 from Cape Canaveral, Florida. Along with the United States, project participants include Spain, Russia, Canada, France, and Germany.

The mission's objective is to lower a long-duration rover, or exploratory vehicle, and mobile scientific equipment to the surface of Mars to conduct scientific studies that determine the planet's previous and current capacity to support life. With the objective of analyzing biological potential within a targeted area of the red planet, with the specific site still to be determined, the rover will take soil and dust samples—in order to characterize the planet's geology and geochemistry—for the mission's duration of a full Martian year, roughly the equivalent of two Earth years.

The Spanish contribution to the project involves a high-gain antenna and the sensor suite REMS (Rover Environmental Monitoring Station), for taking measurements of the Martian environment, that the rover will carry as part of its scientific payload. The antenna, supplied by the Casa Espacio contractor, will improve the communications architecture of the rover, permitting its direct communication with Earth. For its part, the REMS station, supplied by the Crisa contractor, includes a series of sensors that will study the environment of Mars by measuring wind, pressure, humidity, and atmospheric temperature, as well as ultraviolet radiation levels and the temperature of the Martian soil.

The progress of the Spanish space sector

Minister of Defense Carme Chacón has emphasized that this will mark the first time that Spanish technology will land on another planet, a fact which confirms the extraordinary advancement of the technological capacity of the Spanish space industry.

As such, Chacón underlined that this act demonstrates "a considerable success of our science and industry," and indicated that "if a few decades ago someone had claimed that Spain would bring to Mars the best of its talent and its industrial capacity, we would have believed that statement was more science-fiction than science."

Further, Carme Chacón pointed out that this environmental measurement station is just the beginning, as Spanish technology will return to Mars in 2013 with the contribution of a high-resolution spectrometer to analyze soil composition.

Minister of Science and Innovation Cristina Garmendia stressed that Spanish participation in this NASA mission will demonstrate once more that "Spain today is a country of science," capable of designing advanced technologies and incorporating them into a space mission to Mars. In addition, Garmendia indicated that this project forms just one example of the results Spain is obtaining from the solid public investment in research and development of recent years—indeed, public investment in research and development and innovation (R&D&I) has doubled since 2004.

Similarly, Garmendia has underlined that once successfully used on Mars, the Spanish technology developed for this mission will open new doors of business opportunity for Spanish industry in telecommunications satellite production and environmental surveillance system design, which will in turn contribute new services to citizens.

For his part, U.S. Ambassador to Spain Alan D. Solomont has affirmed that "the Mars Science Laboratory mission, while important, is just the latest step in the collective journey of the United States and Spain to explore the heavens."

Solomont recalled that "cooperation between NASA and Spain has been maintained to the present, as Spain participated in the Deep Space Network in Madrid through the Deep Space Communications Complex, which permits communication with more than 40 probes and spacecraft dedicated to solar system exploration, and which is executed through cooperation between NASA and the National Aerospace Technical Institute (INTA)."

Investment of 23.5 million Euros

Spanish participation in the project relied on a total investment of 23.5 million Euros, of which CDTI contributed 14.8 million, the Center for Astrobiology (INTA-CSIC) 6.8 million, and the National R&D&I Plan 1.9 million.

CDTI financed the activities of the Spanish companies that participated in the project, initiated in 2006, while INTA contributed the human capital needed to conduct the corresponding scientific studies through the Center for Astrobiology, part of INTA itself and the Superior Council on Scientific Investigation (CSIC).

Benefits of investment in space technology

Various space industry case studies conducted by NASA and the European Space Agency (ESA) demonstrate that the space industry returns a high rate of institutional investment in terms of improving technological capacity and increasing encouraged economic activity. As such, the space industry clearly represents a

key element in fostering R&D, and consequently, in increasing productivity and job creation in any country.

Currently, there are many benefits to investing in space technology, which are manifested in various areas: from the use of satellites in everyday applications such as communications, weather information, and the prediction of natural disasters, to navigation systems such as GPS or in the future European system Galileo.

In the case of Spain's contribution to NASA's Mars Science Laboratory mission, the development of the technology needed to create the high-gain antenna will open new business opportunities for Spanish industry in the field of telecommunications satellite production, wherein applications range from the dissemination of television signals, to telemedicine, safety, emergencies caused by natural disasters, etc. This sector is worth more than 3 billion Euros annually.

For its part, the technology developed for the REMS sensors will have a direct application in environmental surveillance systems and in measurement systems for industrial processes, especially in the presence of extreme environments.

In both cases this type of investment creates a favorable atmosphere for the creation of a more competitive, highly-qualified, and international Spanish productive industry, in line with the State Strategy for Innovation (e2i) driven by the Government of Spain through the Ministry of Science and Innovation.