

CCSDS Standards Enable Successful Satellite Communication Between Europe and China

Reston, VA, December 13, 2007 - Space communications protocols developed by the international Consultative Committee for Space Data Systems (CCSDS) were recently employed to achieve a first-ever cooperation between the Chinese National Space Administration (CNSA) and the European Space Agency (ESA). Beginning November 1, ESA satellite tracking stations received telemetry signals from the CNSA spacecraft Chang'e 1 and transmitted telecommands back to the lunar-orbiting satellite.

Launched by CNSA on October 24, 2007, the Chang'e 1 satellite successfully achieved lunar orbit on November 5 and returned its first picture of the lunar surface on November 20. The spacecraft represents the first lunar exploration mission launched by CNSA. Orbiting 200 km above the lunar surface, Chang'e 1 is designed to obtain three-dimensional stereo images of the moon, to analyze the elemental make-up of the surface, and to survey the depth of the lunar soil. Additionally, the spacecraft is intended to explore the space environment between Earth and its moon, taking solar wind measurements during the Earth-moon transit phase of the mission.

The payload data management system aboard the Chang'e 1 satellite used to collect, process, store, and transmit the data of the multiple scientific payloads, utilizes CCSDS Advanced Orbiting Systems protocols to encapsulate stored and real-time scientific data for transmission to ground stations. The use of these internationally recognized and implemented standards allows the data to be processed by multiple ground networks around the world. The exercise between CNSA and ESA proves the value of international standards by enabling cross-support of one agency's mission by another.

Mike Kearney, CCSDS Management Council chair, remarked "This collaboration between CNSA and ESA really demonstrates the payoff of international space standardization." Kearney continued, "Most in the industry recognize that future missions and programs will require international cooperation, often as part of a long-range program plan, but sometimes to deal with unexpected operational contingencies. International interoperability and cross-support will be essential, and it will only happen if agencies develop the agreements well in advance, in forums like CCSDS."

The international space agency members of CCSDS continue to support and pursue standardization of space data and information transfer systems. The specifications used to enable this example of inter-agency cross-support were originally developed nearly twenty years ago. They have been continuously refined and updated to support state-of-the-art communication advances and will serve as the foundation of future international missions along with the many other protocols developed by CCSDS.

About CCSDS

Since its founding in 1982, CCSDS has provided a forum for discussion of common problems in the development and operation of space data systems. Through the cooperation of its 10 international space agency members, more than 90 international space data standards have been developed. These standards have been implemented on more than 300 missions to date. For more information, visit www.ccsds.org.