NASA Breaks Ground on New Deep Space Network Antennas

February 25 2010

NASA's Deep Space Network is building new antennas to improve communications and the first phase will take place at the Canberra Deep Space Communication Complex in Australia. This image of the Canberra complex shows four Deep Space Network antennas. The Deep Space Network is managed by NASA's Jet Propulsion Laboratory in Pasadena, Calif. Image credit: NASA/JPL/CDSCC

(PhysOrg.com) -- NASA officials broke ground near Canberra, Australia on Wednesday, Feb. 24, beginning a new antenna-building campaign to improve Deep Space Network communications.

Following the recommendations of an independent study, NASA embarked on an ambitious project to replace its aging fleet of 70-meter-wide (230-foot-wide) dishes with a new generation of 34-meter (112-foot) antennas by 2025.

The three 70-meter antennas, located at the NASA Deep Space Network complexes at Goldstone, Calif., Madrid, Spain, and Canberra, are more than 40 years old and show wear and tear from constant use.

The new antennas, known as "beam wave guide" antennas, can be used more flexibly, allowing the network to operate on several different frequency bands within the same antenna. Their electronic equipment is more accessible, making maintenance easier and less costly. The new antennas also can receive higher-frequency, wider-bandwidth signals known as the "Ka band." This band, required for new NASA missions approved after 2009, allows the newer antennas to carry more data than the older ones.

In the first phase of the project near Canberra, NASA expects to complete the building of up to three 34-meter antennas by 2018. The decision to begin construction came on the 50th anniversary of U.S. and Australian cooperation in space tracking operations.

"There is no better way to celebrate our 50 years of collaboration and partnership in exploring the heavens with the government of Australia than our renewed commitment and investment in new capabilities required for the next five decades," said Badri Younes, deputy associate administrator for Space Communications and Navigation at NASA Headquarters in Washington.

Space Communications and Navigation is responsible for managing all NASA space communications and navigation resources and their operations. NASA's Jet Propulsion Laboratory manages the agency's Deep Space Network, an important component of the agency's space communications resources.

NASA's goal is to integrate all NASA communications resources into a unified, far more capable network. Australia's Commonwealth Scientific

and Industrial Research Organization manages the communication complex near Canberra for NASA.

Provided by JPL/NASA