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Highlights

Highlights of [GAO-06-445](#), a report to the Ranking Minority Member, Subcommittee on Space and Aeronautics, Committee on Science, House of Representatives

Why GAO Did This Study

The President's Vision for Space Exploration calls for human and robotic missions to the Moon, Mars, and beyond. In response, over the next two decades, NASA may spend \$100 billion on new technologies and facilities that will require reliable ground communications to achieve those missions. Presently, that communications capability is provided by NASA's Deep Space Network—a system of antennas located at three sites around the world. However, the Network faces challenges that may hinder its provision of current and future mission support.

This report discusses (1) the significant operational challenges faced by the Deep Space Network and (2) the extent to which NASA is integrating the Network into its future communications plans.

What GAO Recommends

GAO is making several recommendations to NASA that will assist the agency in better aligning resources for the Deep Space Network with overall agency requirements for future space exploration. NASA concurred with GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-06-445.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Allen Li at (202) 512-4841 or lia@gao.gov.

NASA'S DEEP SPACE NETWORK

Current Management Structure Is Not Conducive to Effectively Matching Resources with Future Requirements

What GAO Found

While NASA's Deep Space Network can meet most requirements of its current workload, it may not be able to meet near-term and future demand. The system—suffering from an aging, fragile infrastructure with some crucial components over 40 years old—has lost science data during routine operations and critical events. In addition, new customers find they must compete for this limited capacity, not just with each other, but also with legacy missions extended past their lifetimes, such as NASA's Voyager, that nonetheless return valuable science. Program officials doubt they can provide adequate coverage to an increasing set of new mission customers, especially if they increase dramatically under the President's Vision.

The Deep Space Network's future utility is also in question because NASA does not currently match funding for space communications capabilities with agency wide space communications requirements. While NASA created an agency level entity to review the technical requirements for integrating assets like the network into an agency wide space communications architecture for the future, that entity does not address program level requirements nor influence investment decisions. Control over such requirements and funding remains with the mission directorates and programs themselves. This disconnect allows programs to invest in capabilities that may undercut agency wide goals for space communications. After this review was initiated, NASA began to study how to better manage this gap between agency-level requirements and program-level funding, but no recommendations for action have yet been proposed.

Panoramic of Goldstone, Calif., facility antennas



Source: NASA.