Multimission Short Range Space Relay

Relay links between local elements of distant space missions can enable large reductions in probe complexity, mass, power and cost by eliminating the need to communicate directly with terrestrial ground stations.]n most cases, the local elements (such as Mars landers and rovers) are relatively c1osc to a relay node (such as a Mars orbiter) and can communicate with the relay node using omnidirectional antennas.

. JPL is developing a multimission short range space relay to support both communications and radiometries. This relay wi I I be used by several Mars landers and rovers, by nanoro - vers on asteroids, and on a space interferometry mission. It could also be used on other space missions.

This paper reviews the space relay requirements of a number of missions. It then' presents several relay designs considered by JPL and the criterion used to compare them. The paper demonstrates that the space relay requirements of most missions can be met with standard relay hardware and protocols. It concludes by (inscribing the multimission space relay hardware and protocol under development by JPL.