



Back to the future: the role of the ISS and future space stations in planetary exploration.

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Space stations as stepping stones to planets appear already in the 1954 Disney-von Braun anticipation TV show but the first study with a specific planetary scientific objective was the ANTEUS project of 1978. This station was an evolution of SPACELAB hardware and was designed to analyse Mars samples with better equipment than the laboratory of the VIKING landers. It would have played the role of the reception facility present in the current studies of Mars sample return, after analysis, the “safe” samples would have been returned to earth by the space shuttle.

This study was followed by the flights of SPACELAB and MIR. Finally after 35 years of development, the International Space Station reaches its final configuration in 2010. Recent developments of the international agreement between the space agencies indicate a life extending to 2025, it is already part of the exploration programme as its crews prepare the long cruise flights and missions to the exploration targets. It is now time to envisage also the use of this stable 350 tons spacecraft for planetary and space sciences. Planetary telescopes are an obvious application; the present SOLAR payload on COLUMBUS is an opportunity to use the target pointing capabilities from the ISS. The current exposure facilities are also preparing future planetary protection procedures. Other applications have already been previously considered as experimental collision and impact studies in both space vacuum and microgravity.

Future space stations at the Lagrange points could simultaneously combine unique observation platforms with an actual intermediate stepping stone to Mars.