

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Commercial Human Spaceflight Programmes (2)

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VAST SPACE: NEAR-TERM DEVELOPMENT OF CREWED ARTIFICIAL GRAVITY STATIONS

Abstract

To facilitate the expansion of humans throughout the solar system, Vast is developing space stations that provide artificial gravity via large-radius rotation. Vast's objective artificial gravity space station will operate in LEO and is a baton structure that spins to create artificial gravity, providing 1G at the extremities and a range of lower gravity waypoints along the length of the station. The planned partial gravity environments would emulate Earth, Venus, Mars, Moon, and near-zero gravities. The station is composed of individually launched modules with a pressurized interior. Auxiliary modules serve as transfer modules between visiting vehicles and the station, as well as hosting and servicing for micro-gravity customers.

Developing this capability involves executing a variety of technological and operational efforts. Vast is therefore adopting an incremental approach to its development activities. This includes production of a Demo Module, a single-module crewed space station, that will be commercially available to government and non-government customers within the near term. The intent of this first step is to verify and validate the technologies and operations necessary to field a human-occupied orbital platform and create robust systems capable of executing safe, successful, and revenue-generating human spaceflight operations. It is capable of accommodating visiting vehicles with IDSS-compliant ports.