

SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Architectures (2)

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GATEWAY EARTH: A PRAGMATIC MODULAR ARCHITECTURE FOR SPACE ACCESS AND
EXPLORATION**Abstract**

Gateway Earth is proposed as a modular space access architecture, operating a combined governmental space station and commercial space hotel located in the geostationary orbit (Webber, 2013; 2014). This location, close to the edge of the Earth's "gravity well", is ideal for robotic and crewed interplanetary spacecraft to dock as they depart for, or return from, any Solar System destinations.

Additionally, assembling interplanetary craft, possibly including in-situ (additive) manufactured components, at this location would avoid these vehicles having to withstand the rigors of launch and re-entry through Earth's atmosphere. Moreover, space tourism revenues will provide a significant part of the funding needed to both build the complex and supply the regular reusable tug service via low-earth orbit (Webber, 2015).

Various elements of the architecture are being developed independently by a whole range of different space engineering firms and national and international agencies; some large, and others small and entrepreneurial in nature. Our aim is to synthesize all these disparate activities, and have them focus on making the overall Gateway Earth concept possible and deliverable in the mid-term future (Vidmar and Luers, 2016).

This paper will provide a status update on Gateway Earth Development Group's progress to date and focus on the next steps required to progress the concept as an accepted architecture for space access and exploration. The aim is to establish the Gateway Earth approach as a preferred technically-feasible and politically and financially realistic concept, to be undertaken jointly by international governments and commercial entities, and thereby enable a new generation of affordable space exploration missions, backed by revenues generated from commercial space activities.