

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems Technologies (5)

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STRATOBASE: AN AIRSHIP BASED SPACE LAUNCHING FACILITY

Abstract

systems, thereby providing transport to VLEO, docking, transfer and fuelling platform and a maintained orbital access point, within standardized and long term VLEO placements. VLEO launch potentials for Earth to space based missions will support an expedient outlook at many levels for effective and integrated space transportation dynamics, such technologies with some advancement can profitably support and improve the structure and capacity of space launch systems. A comprehensive space launch eco-system may be fully developed through the early provision of a cruiser-feeder system whose goals lie within several forward looking areas of scope. These totally energy self-sufficient vehicles will operate through a connected system of launch, relay, fuel production, transferal and return. The cruiser is a stationary airship platform at VLEO with function to process and produce LOX from the atmosphere. The stationary StratoBase airship and fuel production platform is powered by Solar PV cells during the daylight hours and by Hydrogen fuel cells at night. The station is maintained by a manned crew and overhaul is provided through the inter-connected feeder system. An alternative method for obtaining VLEO airship power source would be through beamed microwave power within space based solar power plant utilities. In this case the airship would act as a rectenna, such configurations also have the potential to actuate through laser based originations with VLEO acting as additional instrument of transferal from laser to microwave bandwidths with reference to further relay into terrestrial power source supply. The model components will achieve a stable VLEO platform, comprising the StratoBase cruiser which is an airship of approximately 500 meters in diameter, flying 24/7 at 18 km altitude together with the associated feeder craft. Such possibility will be discussed in this paper as well as other potential utilizations of the VLEO location.