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CONCEPT FOR A SPACE ELEVATOR EARTH PORT

Abstract

The Earth terminus of the space elevator has been discussed in general terms since the beginning of the concept. In fact, Professor Tsiolkovsky started with a very tall tower on the Earth and went upward with his ideas. Dr. Brad Edwards defined the Earth Port as on the Equator and referred to it as a Marine Node. Since then, there have been many discussions and assertions. As such, a definitive look at the lower terminus of the space elevator seems timely. This led the International Space Elevator Consortium (ISEC) to the selection of the Earth Port description as the 2015 yearly topic. This ISEC focus enabled the community to contribute towards a designated goal of describing the requirements for building and operating the marine node. This paper provides the International Space Elevator Consortium's (ISEC) view of an Earth Port: serves as a mechanical and dynamical termination of the space elevator tether; serves as a port for receiving and sending Ocean-Going Vessels (OGVs); provides landing pads for helicopters and other aircraft; serves as a facility for attaching and detaching payloads to and from tether climbers; provides tether climber power for the 40 km above the Floating Operations Platform (FOP); and, provides food and accommodation for crew members as well as power, desalinization, waste management and other support activities.