

High altitude solar container system design

<div class="df_qntext">What are the main research goals for solar powered high altitude plat-forms?

With this project the DLR aims for the following four main research goals in terms of solar powered, unmanned high altitude plat-forms: 1) The development of novel system concepts and technologies for the realization of robust and cost-efficient high altitude solar platforms.

<div class="df_qntext">What is an unmanned high altitude plat-form?

The design and build of an unmanned high altitude plat-form, such aircrafts usually have a wing span of around 25 m up to 35 m and more, including a ground segment as well as two light-weight high-performance sensor systems is a challenging task.

<div class="df_qntext">Can high altitude plat-forms be certified?

To foster civil aviation certification for high altitude plat-forms, new as well as safer but light-weight system designs for avionic components such as flight control computers or electromechanic actuators could also be integrated and tested on the HAP-alpha.

Abstract The trajectory is a significant factor in the performance of energy systems, including energy production and consumption for solar-powered airships in cruise, especially in high ...

HA, high altitude; LA, low altitude; UV, ultraviolet. aTemperature not recorded. bContainer temperature was recorded in 6 out of 9 containers. cContainer temperature was recorded in 8 out of 9 containers.

tude offers some protection in terms of possible interception by hostile vehicles. Although a number of research and operational high-altitude aircraft have been developed (including the Lockheed U-2, ...

A fuel cell system consists of a sodium borohydride-based hydrogen generator, a 300 W scale proton-exchange membrane fuel-cell stack that is connected with a battery and a customized ...

Article highlights Innovative model design for complex meteorological conditions in high-altitude regions: An enhanced GVSAO-CNN-BiGRU-Attention model is proposed to effectively address the challenges ...

Aerial communications can be realized as Low-Altitude Platform Station (LAPS) or High-Altitude Platform Station (HAPS). LAPS are the preferred choice for quick deployment for emergency communications ...

Therefore, the main objective of this research was: To develop and validate a high-precision active power prediction metamodel for photovoltaic (PV) systems installed at extreme altitudes.

Abstract This paper presented a multidisciplinary optimization methodology of a high altitude solar-powered

hybrid airship. A multidisciplinary model of the hybrid airship is proposed ...

Abstract Solar-powered aircraft have attracted great attention owing to their potential for long-endurance flight and wide application prospects. Due to the particularity of energy system, ...

ABSTRACT In this paper, we performed some preliminary aerodynamic design and performance studies for a generic high altitude uninhabited and solar powered aerial vehicle.

G. Romeo et al. [10] designed a high altitude very-long endurance solar-powered UAV developing a computer program to design the main UAV platform taking into consideration the ...

Abstract: Stratospheric solar-powered high-altitude platform station (HAPS) can provide line-of-sight (LoS) communications to the ground users in its ultra-wide coverage area. This ...

The HAP-alpha with its wing span of 27 meters, its weight of 136 kilograms and a payload capacity of 5 kilograms is designed as a fully functional high altitude platform to potentially reach the lower ...

High Altitude Long Endurance (HALE) unmanned missions appear to be feasible using a lightweight, high efficiency, span-loaded, Solar Powered Aircraft (SPA) which includes a Regenerative Fuel Cell ...

The main reasons include that the original design did not fully consider the harsh conditions of local high altitude and low temperature, improper equipment selection, unreasonable construction ...

ABSTRACT High altitude, long endurance aircraft can serve as platform for scientists to make observations of the earth over a long period of time. Staying airborne only by solar electric energy is, ...

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