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## ORBITAL CREW SHELTER SYSTEM (OCS)

**Abstract**

Companies and agencies all over the globe are currently laying the foundation for commercial infrastructure in Earth's orbit and cis-lunar space. In the course of this expansion the off-Earth population is expected to grow over the coming century. Eventually this will introduce less prepared civilian-groups into this unforgiving environment, increasing the risk of human error, accidents, acts of violence and natural disasters potentially leading to humans in distress. To encounter this uprising development the establishment of a space-based emergency-rescue-response service is vital.

In this publication the requirements for such a system are explored by investigating the needs of the target user audience through randomized surveys within the public in Germany. Furthermore, the local space environment and its potential hazards, as well as technological limitations and hazards, are summarized and discussed.

The results are the foundation for a 3D computer aided concept design, covering design suggestions for a sustainable, adaptable, and scalable Orbital Crew Shelter system (OCS) as a key chain-link of a future space-based emergency-rescue-response service. This will provide inhabitants of future orbital space stations with additional escape routes, making this environment safer to live and work in.