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Space Architecture: Habitats, Habitability, and Bases (1B)

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RESULTS OF THE AIAA PHOBOS BASE STUDENT DESIGN COMPETITION

Abstract

The AIAA Life Science and Systems Technical Committee (LSSTC) and the AIAA Space Architecture Technical Committee (SATC) jointly organized and sponsored the 2017 Phobos Base Student Design Competition. The design brief conveyed a dual focus on the Environmental Control and Life Support Systems (ECLSS) engineering and the Space Architecture for design of the base and habitability for the space living and working environments. This paper presents the results of the winners in the undergraduate and graduate student categories. The purpose of the Phobos Base design competition was to develop an integrated solution for the next step in developing Mars exploration architecture: the Phobos surface base. Phobos base will support exploration of Phobos, the remote exploration of Mars, and the eventual staging of human expeditions to the Mars surface.*

*An earlier version of this paper was first submitted to the AIAA Space 2018 Forum and Exposition. However, because none of the authors could attend to present it, the AIAA automatically withdrew it from publication under the "No podium/no paper" rule. So the 70th IAC will be the first time it is presented in public.