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Habitation Throughout the Solar System (1)

Author: Mr. Lynn Baroff

Computer Sciences Corporation, NASA Ames Research Center, United States, lynnbaroff@verizon.net

Prof. Olga Bannova

University of Houston, United States, obannova@central.uh.edu

A REALISTIC VISION OF THE MARS EXPEDITION: HOW MANY PEOPLE MUST GO?

Abstract

The explorers who first visited the "New World" from Europe didn't sail over in tiny teams of three or four; they came in multiple ships with dozens of skilled people, to ensure that most of them could get back home alive. Long duration human space exploration missions to Mars and beyond will need to share that approach, they will require a lot more than three or four crew members, if we care to get the crew back to Earth. This paper and presentation address the physical and social realities of human exploration of our solar system by using a Mars trip as a Design Reference, including: the number of people and skills truly required for the trip; requirements at the destination and what they demand of people and systems; the interpersonal dynamic and its effect on habitability; and the size of a spacecraft required to ensure the mission can actually work. NOTE: this is not conjecture, this is application of research knowledge that we already have, toward this new challenge.