The Mars Society's Flashline Mars Arctic Research Station Project
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The Mars Society is a private international society dedicated to furthering the human exploration and settlement of the planet Mars. In July 2000, the Mars Society established a research facility at the Mars-like Haughton impact crater site on Devon Island, Nunavut, called the Flashline Mars Arctic Research Station (FMARS). Designed to simulate a landed spacecraft on Mars, the FMARS project serves three goals:

1) To provide a testbed for studying the many aspects of field exploration operations on a human mission to Mars.
2) To provide a capable field research laboratory to help further our understanding of the Arctic, the Earth, Mars, and the possibilities and limits of life on our planet and beyond.
3) To inform and inspire people around the world to greater interest in space and science by bringing before them in a tangible form the vision of human exploration of Mars.

The research program carried out at the FMARS is unique. For six weeks, a six person crew of scientists and engineers attempts to conduct a sustained program of field exploration in Devon Island's polar desert, while working under the same operational constraints as a human expedition exploring Mars. The crew lives in a combination habitat/laboratory module that is an architectural duplicate of a Mars mission unit. Anyone leaving the station to do field research needs to wear a simulated spacesuit, that limits the mobility, agility, dexterity, and sensory abilities of the wearer much as a real spacesuit would, and communication between EVA team members separated by more than a few feet has to be done by suit radio. While in the station, crewmembers also perform laboratory analysis of samples brought in from the field, repair equipment, write reports (which are exchanged with Mars Society's Mission Support group via a satellite link that imposes a Mars-like delay on communications), and engage in the chores of daily life living together as a team. The purpose of conducting such simulated operations is to gain essential knowledge of Mars exploration tactics, human factors issues, and engineering requirements – in short, to start learning how to explore Mars.

We have conducted highly successful field programs from the station during the 2001, 2002, 2003, and 2004 field seasons. These have added a great deal to our understanding of the requirements for human Mars exploration. In addition, press coverage of this activity has served to inspire many young people with the adventure of science, thereby encouraging them to consider a career path that will be of great benefit to both them and society at large.

We wish to continue this work (begun under Scientific Research Licence 0201202R). We are therefore applying for a new Scientific Research Licence to allow operations for another two years.