IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future: Developing the Space Workforce (5)

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LADAKH LAUNCHPAD: A DECADE OF TRAINING THE NEXT GENERATION OF EXPLORERS IN SCIENCE, ENGINEERING AND MISSION PLANNING IN A HIGH-VALUE TERRESTRIAL ANALOGUE REGION.

Abstract

This abstract gives an overview of field-training based professional and research development activities carried out for space researchers in Ladakh from 2015-2025. Ladakh is a cold, high altitude desert region in India with several niche environments presenting itself as a terrestrial analogue for Moon and Mars surface environments. This high-value site has been systematically explored and characterized over the years with focused and outcome-oriented programs conducted by the authors with support from academic host institutions.

The abstract will present the phases in which this work has been carried out, highlighting the main outcomes from 5 different field training programmes with over 100 participants (close to 50 international participating scientists) that led to 10+ peer-reviewed journal publications, several conference proceedings and most importantly over 10 students who contributed, trained and are currently enrolled in further studies as upcoming early career researchers/engineers in different parts of the world.

Through the project outcomes, the work emphasizes on the importance of a terrestrial analogue site to help train the next generation of explorers. Examples of these are brought out by showcasing how the program has trained students engaged in science (field science training), engineering (field testing of rovers and systems), systems engineering and project management (mission formulation, understanding scientific requirements) and operations (concept of operations building, remote communications, human-rover interactions). Most importantly, living and working in the field with an interdisciplinary group of professionals provides a unique environment for human conditioning towards the extremities of space exploration.

The paper will touch upon the planned work in July 2025, with Spaceward Bound India 2025, that aims to bring together key stakeholders within the Indian space ecosystem to converge to train students, research faculty in science, engineering and operations testing in support of India's upcoming space missions.