

HEDS-UP Activity

1998 Activity

Human Exploration and Development of Space-University Program (HEDS-UP) is a mechanism for involving people (faculty and students) in one of civilization's grandest undertakings, the human exploration and development of the space frontier. By building strong linkages between the U.S. space program, administered by the National Aeronautics and Space Administration, and universities, the voices of imagination, innovation, and vision that reside in the university community can be combined with the engineering and technical skills of NASA to advance space exploration and development as well as the educational and research objectives of the universities. From NASA's point of view, the universities can be prime contributors of new ideas and effective partners in developing and implementing scientific, engineering, and technological innovations associated with human exploration and development of space. From the universities' perspective, mechanisms are needed that allow visibility into NASA programs and directions and access to communications channels that allow universities to identify and propose areas in which they can contribute to the enterprise.

Human Exploration and Development of Space is a movement rather than a program. It is multifaceted, involving technical, legal, business, humanitarian, philosophical, and practical issues in almost every area associated with everyday life on Earth. In its beginnings, most of the work has been and will be technical — figuring out the possible and optimal means of sending payloads and humans into space and conducting beneficial work in space, on the Moon, and on Mars. With developments now planned or anticipated, the cost of working in space will diminish and the breadth of activities in space will increase. Discussions of human exploration of Mars, space industrialization, and space tourism conducted now anticipate reduced cost, improved capability, and a much wider sphere of activity in space. If carried out to logical conclusions, these same thoughts move in the direction of self-sufficient human settlements outside Earth, which could be as complex as terrestrial society is now. Although settlement is not the objective of NASA's HEDS program, it is surely within the scope of consideration for the HEDS-UP program. Indeed, the timescale for HEDS activities is very long, and the universities, as institutions, should be prepared to participate with long-term objectives in mind.

In the short term, HEDS-UP will be represented by (1) an infrastructure that recognizes the importance of communications, and (2) projects that provide avenues for exchange of ideas and problem solutions. The infrastructure will provide services to the universities and to NASA through the mechanisms of communications channels and databases, utilization of which will promote understanding of HEDS objectives, problems, and needs to the university community on one hand and the resources, capabilities, and skills of the universities to the NASA side. Projects will be organized elements in which the universities can contribute to NASA thinking through the conduct of design studies, collaborative research, conferences, and other means. The projects developed under HEDS-UP have the objective of improving the interaction between NASA and the universities, not funding R&D. If opportunities for funded research are identified by university and NASA personnel and the communication linkages can be forged between the interested universities and NASA as a result of the HEDS-UP program, HEDS-UP will have done its job. HEDS-UP anticipates that opportunities to perform specific research and development to meet NASA needs will result from HEDS-UP projects; however, HEDS-UP is not a funding mechanism for university research and development.

Future of HEDS-UP

The HEDS-UP program will continue in the coming year, focusing on university work that can begin in the fall semester. The main topical focus in 1998-1999 will be the surface exploration of Mars and specific surface mission components. Universities that are interested in participating should keep track of announcements made on the HEDS-UP home page (<http://cass.jsc.nasa.gov/lpi/HEDS-UP/>).

HEDS-UP will continue to stress surface design as a focus, but will also be adding a Mars Field Site Simulation Project in 1998-1999 that may be of interest to geoscience departments. HEDS-UP is also open to other topics and approaches to integrating university students and faculty with the human exploration efforts at NASA.

References

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