

## SPACE MEDICINE BRANCH REPORT

# The International Space University: An Emerging Forum for Space Medical Education

by Patrick J. McGinnis, M.D.

The International Space University (ISU) conducted its fourth summer program from June 22nd through August 31st, 1991 in Toulouse, France. The design project of the ISU '91 session was the development of an International Mars Mission (IMM). The design team, composed of 137 young professionals from around the world, created an encompassing and visionary proposal. Space Medicine played a formative and guiding role in the IMM evolution. The IMM Report, a 600+ page document, was the product of ISU '91.

In order to plan the IMM, the ISU students were divided into 12 Task Groups. The Crew Health Task Group was composed of 3 physicians, 3 medical students, 2 architects, 1 psychologist, 1 behavioral scientist, 1 immunologist, and 1 thermal design engineer. Six topics were addressed by the Crew Health Task Group. These were 1) Crew Selection and Training, 2) Gravity, 3) Radiation, 4) Medical Care, 5) Mental Health and Performance, and 6) Vehicle Interior Configuration. The IMM issues of crew composition, artificial gravity, and mission duration were heavily influenced by the recommendations from the Crew Health Task Group.

What is the ISU? Its mission statement profoundly asserts what ISU is and what it endeavors to be:

The mission of the International Space University is to be an innovative, permanent world organization for training and academic instruction in all areas relating to space. It is intended that the alumni of ISU will in time form a cadre of dedicated space professionals that will provide the leadership to launch humankind permanently into space.

ISU has been conducting 10-week summer sessions since 1988. These have been held at campuses in Boston, MA, Strasbourg, France, Toronto, Canada, and Toulouse, France. The 1992 session will be in Kitakyushu, Japan. The international faculty teach a core curriculum, an advanced curriculum, and may advise on issues relating to the design project. The ISU academic departments are: Architecture, Business and Management, Engineering, Life Sciences, Physical Sciences, Policy and Law, Resources and Manufacturing, and Satellite Applications. These are complemented by a Humanities Lecture Series.

The future plans of this 4-year-old institution are equally ambitious. George van Reeth, current Director of Administration at ESA, will assume the position of first president of ISU in January, 1992. In August, 1992, ISU will announce the site of the permanent central campus. ISU plans to de-

velop an in-depth curriculum which will lead to a Master in Space Studies degree. Later, advanced and affiliate campuses, interconnected with the central campus by a global information network, will afford the ISU students tremendous learning opportunities.

The Space Life Sciences Department is co-chaired by Suzanne Churchill, Ph.D. and Oleg Atkov, M.D. Dr. Churchill, of the Institute for Circadian Physiology in Boston, teaches physiology at the Harvard Medical School and is director of a course at MIT entitled "Fundamentals of Space Life Sciences." Dr. Atkov is the Chief of the Department of Advanced Diagnostic Methods at the All-Union Cardiology Research Center in Moscow. In 1984, he spent 237 days aboard the Soyuz-Salut 7-Progress complex. The list of visiting lecturers is equally impressive. Essentially a gathering of international experts, they came from NASA, ESA, NASDA, NPO Energia, NPO Zvezda, and various universities and corporations. The faculties of the other ISU departments are similarly endowed.

Imagine yourself in the following scenario: one day you meet Dr. Gerald Soffen and over the course of a few days, you listen as he gives lectures about the Viking Program. During dinner, he eloquently reminisces about the search for life on Mars. He shares his theories and opinions about exobiology and his optimistic outlook for space exploration and Mankind. On another day, Dr. Guy Severin talks about the use of the "Penguin Suit" and the "Chibis Suit." Similarly, you can informally talk with him about his many years of biomedical research in support of the Soviet Space Program. Later, Dr. Jeff Davis lectures about operational space medicine and about concepts for medical care on Space Station Freedom. Over another dinner, you and your fellow students can "pick his brain" about his experience and his opinion on a variety of space medical issues. On another occasion, it's Dr. Valery Aksementov describing the technical problems and potential solutions for regenerable life support systems. Then, he and Dr. Bill Crump discuss their joint research at Marshall Space Center. On yet another day, Dr. Pat Santy reviews psychosocial issues for astronaut selection, training, or for long-duration space missions. And so it goes for 10 weeks.

In summary, the ISU, although a fledgling, is a serious, innovative, and committed organization. It represents another avenue for the advancement of space life sciences and space medicine. Information about ISU and the IMM Report are available by contacting ISU Headquarters, 955 Massachusetts Ave., 7th Floor, Cambridge, MA 02139; telephone: (617) 354-1987, telefax: (617) 354-7666.

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## NASA chooses two new centers for space life sciences

NASA has selected two new institutions to serve as NASA Specialized Centers of Research and Training (NSCORT), continuing a program dedicated to the space life sciences begun in 1990. The centers will be located at the University of California, San Diego, and Lawrence Berkeley Laboratories, Berkeley, CA. The University of Giesen in the Federal Republic of Germany, was tentatively selected as an NSCORT, pending funding and endorsement by the German government.

Dr. Arnauld Nicogossian, an AsMA Past President, and Director of NASA's Life Sciences Division, made the selections based on peer reviews conducted with the support of the American Institute of Biological Sciences, and including site visits, and documentation reviews.

The program will be an integral part of the division's research and analysis activities to advance basic knowledge and create effective ways for solving specific problems in space life sciences.

## NASA plans SpaceLink for ISY

NASA's Educational Affairs Division is developing a communications network for the International Space Year (ISY) that will help teachers and students from around the world share information and work together on international science projects. An interactive computer database called SpaceLink is the main element of this plan. With desktop computer modems, teachers can call SpaceLink and access current space agency news, reports on space history and recent space science research projects, listings of NASA education programs, and classroom teaching materials.

NASA will broaden its educational satellite videoconferences to include teachers and students from schools around the globe. The videoconferences include lectures from astronauts and engineers and tours of space agency facilities.