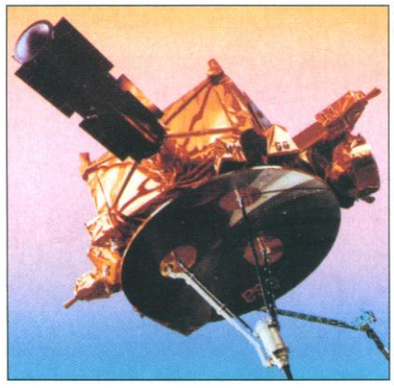
SPACE SCIENCE

A Focal Point for Diverse Disciplines

Thanks to the persistence of a Swiss physicist and his political allies, space scientists are about to get their own institute devoted to stitching together the field's scattered disciplines. The new International Space Science Institute, located in Bern, the Swiss capital, will be inaugurated on 6 November, when it plays host to its first event: a workshop on the outer reaches of the solar system, where particles streaming from the sun meet the interstellar medium.



ESA

Data factory. Institute will analyze data from missions like Ulysses.

The institute offers "a place to compare notes among disciplines," says its founder and co-director, Johannes Geiss. It also provides a much-needed venue for scientists of different nationalities to meet, space scientists say. And for the European Space Agency (ESA)—which is funding half the organization's $1.5 million annual costs—it provides an opportunity to say thank you to Switzerland, which lacks any ESA facility but has been consistently supportive of its space projects, according to ESA officials.

The new institute will concentrate on data gathered by international missions studying the physics of the sun, the solar wind, and other space plasmas, interactions between the sun and Earth, and comets, says Geiss. ESA scientists have focused on such research rather than the planetary science that is the mainstay of the U.S. and Russian programs.

The institute will have fewer than a dozen scientists and support staff, but by bringing in visiting researchers, Geiss and his colleagues intend to organize study groups and workshops of up to 40 theoreticians and experimentalists. The emphasis will be on sifting through the huge amounts of data from these missions that remain largely unexplored. "There are so many open questions left; the challenge is to organize them and find the time to explore them," says Geiss, who teaches at the University of Bern and participated in the Ulysses mission.

The institute will not duplicate work now done by ESA, says Martin Huber, who directs ESA's space science department. "It will do pure research based on satellite data and will not be involved with operations and planning," he says. Bringing together the different disciplines will provide great synergy, Huber adds.

The 5-day November workshop will bring together astronomers familiar with the heliosphere, a region dominated by the solar wind that extends 100 astronomical units from the sun, and physicists who have been gathering data on the effects of the sun around Earth. Western European, American, Russian, Polish, and Japanese scientists will participate in the effort. The response to the workshop has been enthusiastic, says Geiss, who will co-direct the institute with Bengt Hulqvest, former director of the Swedish Institute of Space Research in Kiruna: "Only one person didn't accept who was invited, and he has health problems."

The enthusiasm is no surprise to Geiss: He received lots of encouragement for his idea from a diverse group of scientists, ranging from Roald Sagdeev, former chief of the Soviet Union's space science program, to Reimar Luest, former ESA director general. Finding the money, however, was not so easy.

ESA science managers at first balked at participating, given the tight squeeze on funding. But, thanks to lobbying from Swiss politicians such as Peter Criolla, who heads that country's ESA delegation, the Paris-based ESA agreed in December to support the proposed institute. The governments of Switzerland and the canton of Bern will kick in half the required funding. The Swiss aerospace company Contraves, which helps build part of the European Ariane rocket, also stepped in to provide some endowment money.

In addition to supporting the small staff, the money will finance visits to the facility primarily from European space scientists. "We feel at this point that financing Europeans is our priority," says Geiss, although he adds that others are welcome. The institute is unlikely to cover travel costs for non-Europeans, but the Swiss National Science Foundation has an international account that they could turn to for support.

If the upcoming workshop proves a success, Geiss says he hopes it will set the pattern for future efforts. "We are trying to play the role of an institute of advanced studies—but, of course, Princeton already is using that name."

–Andrew Lawler

NATIONAL LABORATORIES

Los Alamos Wins One in Tritium Race

Adopting what Energy Secretary Hazel O'Leary calls "the old belt-and-suspenders approach," the Department of Energy (DOE) has settled on a two-track strategy for making tritium for the United States' nuclear arsenal. DOE will recommend that Congress allocate $45 million in fiscal year 1996 for a multiyear study of the feasibility of making the radioactive isotope in an advanced proton accelerator. It will also call for another $5 million to be spent on a parallel track: a study of tritium production in a commercial nuclear power reactor, either leased from a utility or purchased outright.

The announcement, which at press time was scheduled for 10 October, will please officials at Los Alamos National Laboratory, where the bulk of the research and development for a tritium-producing accelerator will be pursued. But it represents a loss for proponents of an alternative approach: building an all-new reactor specifically for making tritium. It will also disappoint scientists who hoped that the accelerator could be explicitly dedicated to making both tritium and beams of neutrons for basic science (*Science*, 18 August, p. 914). "I've got one obligation, and that's to produce tritium" for defense purposes, says O'Leary.

Even though the U.S. nuclear stockpile is shrinking, the supply of tritium—the thermonuclear explosive in a hydrogen bomb—is shrinking even faster. This radioactive isotope of hydrogen, which decays at 5.5% a year, hasn't been produced by the United States in significant quantities since 1988. Even if the government makes the stockpile cuts specified by the still-unratified START-II treaty, new tritium would be needed by 2011. The dual-track approach, says O'Leary, should ensure that DOE won't "get halfway down the path and stop" because of technical or political obstacles.

The accelerator approach poses the chal-

SAM KITTNER

Keeping options open. DOE's Hazel O'Leary.