



SPACE NEWS PHOTO BY STEVE ELPERS

John Baras, co-director of NASA's

Center for Satellite & Hybrid Communication Networks, said using both terrestrial and satellite lines to send different amounts of information will be more efficient than just relying on one or the other.

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Center To Test Link Theory

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COLLEGE PARK, Md. — A NASA-funded Center for the Commercial Development of Space is picking up momentum and corporate investors in its quest for new ways to combine satellite and terrestrial communications.

The Center for Satellite & Hybrid Communication Networks, founded in 1992, is dedicated to using satellite technologies to increase public access to information. While many other NASA commercial space centers concentrate on performing experiments and manufacturing products in space, this center does most of its work on the ground, building computer software and hardware and components for receiving dishes.

"In all other cases, the technology is very futuristic," said John Baras, co-director for the center. "In our case, the technology is already there. We are truly pushing the state of the art."

Technologies fostered by the center include a proposal to use satellites and terrestrial links to send information back and forth. For example, a user requesting a large amount of information to be delivered through a computer network would send his request — a small amount of data — over telephone lines. The recipient would send the requested data — a larger amount of data — over satellite. According to Baras, this makes more efficient use of both terrestrial and satellite lines than relying on one or the other to send different amounts of information. Using a satellite exclusively, for example, would underutilize its capacity during periods where short messages are being sent.

This summer, the center, Comsat Laboratories of Clarksburg, Md., and the University of Colorado plan to test this theory on NASA's Advanced Communications Technology Satellite. The experiments will evaluate the feasibility of using receive-only antenna dishes in combination with a terrestrial link to send requests for information.

The Center for Satellite & Hybrid Communication Networks is one of 17 NASA-funded Centers for the Commercial Development of Space, university-based programs designed to pool industry, academic and government interest in promising space ideas.

Because the University of Maryland-College Park center is relatively new, it escaped a rigorous review

last fall that led to a NASA decision to halt funding for six of the 17 centers. The Center for Satellite & Hybrid Communication Networks will be evaluated in June.

In the past, NASA officials have criticized the center for not attracting enough industry support. Today, corporate sponsors provide substantial funding. Besides \$900,000 a year from NASA and more than \$1 million in matching funds from industry, the center receives several hundred thousand dollars a year

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in state grants. Many companies also have employees working on center projects, but the center does not track in-kind contributions.

An advisory board, comprised of corporate executives, meets twice a year to determine whether center projects should be continued or terminated. Board member Leonard Golding, vice president of Hughes Network Systems of Germantown, Md., said he has been impressed with the center's work.

"They seem to be making pretty good progress," Golding said, noting that the center has attracted a broad range of space and communication companies.

Hughes Network Systems and the center have worked together to develop a new hardware and software system for managing satellite and terrestrial communications. Hughes will begin selling the system later this year and expects tens of millions of dollars in revenue. The center also will receive some royalties from sales.

Timothy Kirkwood, assistant director for the center, said the university serves as a neutral meeting place for companies and industries that normally do not cooperate with each other.

"These are partnerships they don't normally think about," he said April 25.

The center competed unsuccessfully for \$12 million from the Technology Reinvestment Project, a multiagency effort managed by the Advanced Research Projects Agency. In the proposal, Comsat, GTE Spacenet, IBM and Hughes Network Systems

See CENTER, Page 2f

Center Proposes Link Technology

CENTER, From Page 4

had offered to invest \$12 million in matching funds. The team plans to resubmit the proposal this year.

The center also has proposed to develop a flat, electronically steerable antenna for use with direct-to-home satel-

lite television services. The antenna would lower costs for the service because such an antenna can be installed by the homeowner instead of service technicians.

Anthony Ephremides, co-director of the center, said the center is helping to solve a manpower shortage in the in-

dustry. The center involves dozens of undergraduate and graduate students, several of whom have been recruited by industry partners.

"This eliminates the painful learning curve a company would have to go through to learn these technologies and use them," Ephremides said.