A New Paradigm *for* Discovery

The **Brinson Exploration Hub** will serve as a proving ground for future space and Earth missions.

By Lori Oliwenstein

To test bold new ideas in space and on Earth, The Brinson Foundation has donated $100 million to Caltech to create The Brinson Exploration Hub. This incubator provides teams of scientists and engineers from Caltech's campus and JPL, which Caltech manages for NASA, with new opportunities to work together to develop novel scientific concepts and instrumentation and deploy them on faster timescales and at lower costs than is possible through conventional means. The overarching goal of the Brinson Hub is to expand our understanding of Earth, the solar system, and beyond.

Brinson Hub projects, formulated by the affiliated researchers, will be selected through a competitive process that seeks to identify new approaches, technologies, and instrumentation that could accelerate the pace of exploration and scientific discovery at a lower cost. Space-based projects might include small satellites and balloons that study the cosmos and the development of technologies to explore phenomena on the Moon and on planets other than Earth. Projects also may be focused closer to home, including efforts such as the robotic exploration of Arctic shelves and other programs to enhance Earth observations, particularly for the purpose of informing and directing response to natural disasters.

These new expeditions and missions will address unresolved scientific problems and may lead to new ways to probe the universe while closing the gap between university research, commercial interests, and national imperatives.

The Brinson Exploration Hub will also provide Caltech undergraduates, graduate students, and postdocs with unprecedented opportunities to participate in space exploration, technology demonstrations, and the engineering and development of instrumentation for small-scale missions. Caltech faculty are also considering ways to augment the undergraduate curriculum to enhance training and preparation of the next generation of space-savvy scientists and engineers.

"The Brinson Exploration Hub will enable a new paradigm that will bridge academia, industry, and government so projects can move expeditiously from ideation and maturation to implementation," says Gary Brinson, founder and chair of The Brinson Foundation.

"The Brinson Foundation's commitment to exploration and discovery will leverage the power of the Caltech campus and JPL in unparalleled ways, for the benefit of science and for all of us fascinated by the mysteries of the cosmos," says Caltech President Thomas F. Rosenbaum.

Through an emphasis on the incubation and implementation of developed concepts, the Brinson Exploration Hub will leverage existing think tanks on campus and at JPL that are focused on early concept development. In addition to working with established Caltech centers and facilities, the Brinson Hub will seek out new relationships with industry partners who could provide additional project ideas, funding, launch services, hardware and software, assembly and test facilities, outside experts, and other forms of support.

"We want to reimagine how we do missions in the future, and this means working with commercial partners to advance the pace and lower the cost of scientific discoveries," says Caltech's Mark Simons, the inaugural director of the Brinson Exploration Hub and the John W. and Herberta M. Miles Professor of Geophysics, who served as JPL chief scientist from 2017 to 2023.

The Brinson Foundation was an early supporter of Caltech's gravitational-wave research, which ultimately contributed to the 2015 observation of gravitational waves; more recently, the foundation has made repeated investments in research related to quantum computing technologies.

"When I imagine the opportunities for new discoveries, advancing innovation, and serving students that will be enabled by the Brinson Hub," says Laurie Leshin (PhD '95), JPL director and Caltech vice president, "I am so grateful for the support of The Brinson Foundation."