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DURHAM, N.H.-- As summer waned and thousands of undergraduates readied themselves to descend upon the University of New Hampshire's Durham campus, Michael Hutson wrapped up a 10-week research project he'd undertaken at UNH's Institute for the Study of Earth, Oceans, and Space (EOS), presented his results to scientists at UNH and NASA's Goddard Space Flight Center in Maryland, and then headed back to Stanford University to begin his junior year.

Hutson is one of 15 undergraduate and graduate students from colleges around the country who participated this summer in the joint UNH-NASA Research & Discover program. The multi-year internship/fellowship program provides a "pipeline" of opportunities in a broad range of Earth science fields for students beginning in their junior year and continuing through two years of post-graduate work. Now in its seventh year, the program has had 30 interns and 15 fellows in the pipeline.

Selected students are given a rich and varying menu of tools and teachers through which they can transform themselves from undergraduates into independent scientific researchers - first with a summer internship at UNH-EOS, followed by one at Goddard.

This summer's crop included students from Mount Holyoke, Vassar, Bryn Mawr, Wellesley, Cornell, the University of Michigan, UNH, and others. Research projects ran the gamut from satellite analysis of Antarctic sea ice and forest ecosystem dynamics to the effects Hurricane Katrina had in reducing the long-term storage of carbon due to massive tree felling.

Hutson concentrated his research on forest growth in California's Sierra Nevada Mountains in an effort to bolster a state-of-the-art mathematical ecosystem model co-developed by his R&D advisor George Hurtt, an associate professor at EOS and the Department of Natural Resources & the Environment. Hutson spent a week in mountains between Yosemite and Sequoia National Parks making precise field measurements that will be plugged into the model, which can examine how climate and soil factors, natural disturbances, and human land-use practices affect ecosystem structure and fluxes. Such modeling capability is critical to scientists trying to ascertain global carbon cycle dynamics.

Hurtt, the principal investigator and director of the internship/fellowship program, explains that, unlike a summer school, R&D launches students on a solid career in science by providing them with a clear pathway during what is arguably one of the most uncertain periods in a young scientist's career - the transition from undergraduate to graduate.

"With a two-summer internship following their junior and senior years and the possibility of a

two-year, full-time, post-undergraduate fellowship, the program is truly a pipeline of opportunities," Hurtt says.

First-year UNH graduate student Mimi Szeto, who came to the program from Wellesley College, could well be its poster child.

Says Szeto, "This has been possibly the best academic program I've encountered and I believe the chance to work on projects guided with scientists before we dive into our own theses is the most influential aspect."

Szeto, whose research involved satellite data and modeling as part of a larger effort to estimate ocean primary productivity, says the R&D program has enabled her to avoid the stress of post-undergraduate life that many of her peers are experiencing and, she adds, "with all the work and time I've already spent in this field for this program I feel as if the research has chosen me, rather than the other way around."

Second-year R&D student Jordan Goodrich spent his summer working at NASA's Goddard facility on issues related to atmospheric methane - a potent greenhouse gas.

Says Goodrich, "At NASA, the safety net really was taken away for the first time in my academic career. It was refreshing to be put right in the midst of these extremely talented scientists and expected to get right into it."

That said, Goodrich notes, even without a "safety net," by design the R&D program ensures that experts are there for students to seek out, and he got all the help needed to conquer difficult first encounters with the computer operating system used by Goddard's Atmospheric Chemistry and Dynamics Branch.

As in years past, many of the R&D students will present their research findings this December at the American Geophysical Union meeting. The five-day AGU meeting, the largest of its kind with some 15,000 participants, occurs annually in San Francisco where scientists share the latest research in the Earth and space sciences.

For more information on the Research & Discover program, visit <http://www.eos.unh.edu/randd/index.shtml>.

A photograph is available to download here: http://www.eos.unh.edu/newsimage/treestu_lg.jpg

Photo caption: Research & Discover intern Michael Hutson of Stanford University stands next to a Giant Sequoia in California's Sierra Nevada Mountains where he did fieldwork as part of his summer research. Photo courtesy of Michael Hutson.

