

## *Caltech-JPL Collaboration*

Ever since it was launched by GALCIT's experiments with rocketry in the late 1930s, the Jet Propulsion Laboratory has been closely tied to Caltech. Officially managed by Caltech—first for the Army, and since 1959 for NASA—JPL is the only one of NASA's nine centers to be operated by a university. Both in the fifties and again in the eighties, the Lab's relationship to defense has made some Caltech faculty nervous, and questions about the common ground between the two institutions have occasionally surfaced on both sides. But the connection has endured and, especially of late, prospered.

Separated by only a few miles of freeway, the populations share a significant amount of overlap. JPL has always recruited intensively from its neighbor and employs the largest number of Caltech alumni of any company or university. Several JPL staffers hold joint appointments on campus: grad students are increasingly discovering research opportunities "up the hill"; and SURF (Summer Undergraduate Research Fellowship) students are pursuing more and more projects there. One JPL staff member, who is also a visiting associate at Caltech (and whose husband works at JPL), notes that the Caltech-JPL connection is also cemented in what is probably an unusually large number of marriages.

The incompatibilities that do arise between the two institutions are more of a "cultural" nature. Caltech is a private educational and

research institution, and JPL is an engineering organization funded by the government. Carver Mead once called it "the big gray machine that builds things." Building things that scientists need is what JPL does well, and most often those are big things that demand more organization and more layers of management than Caltech scientists are used to. But when interests converge, the different strengths of the two institutions are complementary.

"It is not surprising that when matching the interests of JPL and campus, there's not a complete match," says Lew Allen, JPL's director since 1982, who will retire in December. "There are areas where the interests overlap and areas where they do not." But he believes that the former are much more numerous and intensive than they have been in the past. Allen points to the increased emphasis at JPL on particular areas of basic technology that have relevance to the Lab's primary mission of space exploration, but are also complementary to basic research in science. In particular he mentions that "microelectronics, neural networks, and parallel computing have resulted in developing some strengths at the Laboratory and a number of very productive interactions with campus research." Some of these interactions, many of which began with seed money from the JPL director's discretionary fund, are described in the articles in this issue of *E&S*.