

## SME satellite: A neighborhood project

The satellite was designed, built and tested in Boulder, Colo. So was its suite of instruments, an eminently practical step since 16 of the project's 17 scientists work for Boulder-based organizations. Once in orbit, it will be controlled and monitored by a flight team many of whose members are students at the Boulder campus of the University of Colorado, which also owns the laboratory housing the mission control center a few miles away.

Yet this is no privately financed, grass-roots space endeavor like the astronomy satellite being developed by a group at Rensselaer Polytechnic Institute in New York, or the solar sail project in the works at the University of Utah. The Solar Mesosphere Explorer instead is a regular National Aeronautics and Space Administration satellite, funded by the agency and managed by Jet Propulsion Laboratory, which is also in charge of such major efforts as the Voyager missions to Jupiter and Saturn.

The somewhat awkwardly named device will be studying the mesosphere not of the sun but of the earth, where much of the atmosphere's ozone is created and destroyed. The goal of SME is to provide data on ozone, water vapor and nitrogen dioxide in the upper stratosphere and mesosphere, as they respond to changes in the sun's ultraviolet radiation and proton emissions. Scheduled for a mid-September launching, the satellite is funded to operate for a year (officials hope that another year or two will be possible), with controllers sending commands to reconfigure its instruments orbit by orbit to accommodate changing conditions and new observing plans. Past probes have conducted ozone studies, but the organization of the SME project represents a distinct departure from usual NASA procedure, in ways that could turn out to be relevant to cost-constrained space missions of the future.

The idea was first proposed in 1974 by Charles Barth and colleagues from the University of Colorado's Laboratory for Atmospheric and Space Physics (LASP). Gathering nearly the whole of SME's scientific team from one city is anything but the constraint it might appear, when the city happens to be home not only for LASP but for the National Center for Atmospheric Research and the National Oceanic and Atmospheric Administration's Aeronomy Laboratory. The group's proximity facilitates the numerous meetings required by any spacecraft program, gives the researchers ready access to their data, and made it possible for the scientific payload to be assembled at one place — LASP — without the expensive and time-consuming extra step of integrating separately supplied instruments. Furthermore, the builder of the spacecraft itself, though not chosen for geographic convenience, ac-

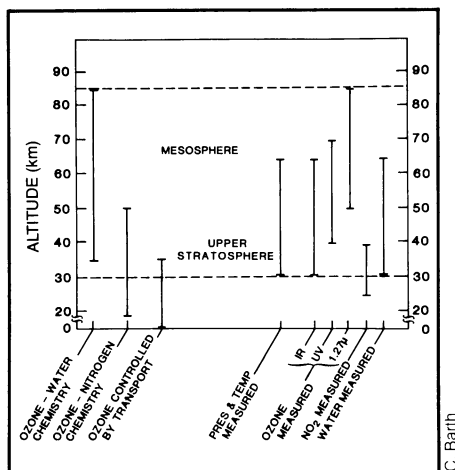


Chart shows altitude ranges covered by the SME satellite's ozone-chemistry sensors.

According to project scientist Barth, is Ball Aerospace and Systems Division — about two blocks away.

The control center, too, is at LASP, making UC apparently the first university to be in full and direct control of a spacecraft. Although SME's well-being is the responsibility of four full-time, professional controllers, the science commands and data are in the hands of 14 students — 13 of them undergraduates — who are paid by the university (under a NASA contract) just as if they were working at the campus library or bookstore. Bulletins from NOAA's Space Environment Services Center help plan the resetting of the instruments, such as to take advantage of a solar proton outburst (for which SME can be alerted in as little as 10 minutes). The students, who have been practicing their upcoming task for months, were part of the SME plan from the beginning and seem entirely capable of handling the responsibility, says Elaine Hansen, who is the project's Mission Operations Manager — or MOM. □

## Clean Air Act: Changes in the wind

Nine principles endorsed by President Ronald Reagan last week suggest a significant loosening of the 1970 Clean Air Act, although Environmental Protection Agency Administrator Anne M. Gorsuch pledged that the nationwide movement toward cleaner air will proceed, just at a "more reasoned pace." Congress will consider extension and revision of the controversial act when it returns from its August recess.

The principles support the concept of primary standards based on health — that is, on "sound scientific data demonstrating where air quality represents real health risks" — rather than on cost-benefit analysis. Secondary standards, which pro-

tect the environment, visibility, and other values not related to health, would continue to be set at the federal level, and research on acid rain would be accelerated. The Reagan administration also recommended that standards for automobile emissions be relaxed to 1977 levels for nitrogen oxides, and that the program to prevent significant deterioration of air quality be maintained for park and wilderness areas but relaxed in other areas where protection would be based on uniform technology requirements. Other principles adjust deadlines for achieving primary air quality standards in some areas from 1982 to, perhaps, 1987, expand the toxic air pollutant program, and simplify state compliance rules and ease enforcement. Pollution control standards for new coal-fired plants would be based on uniform emission standards, which might free many facilities from the need to use costly scrubbers. □

## New lobby for the defense of science

Billing itself as the first general public-interest lobby for science and technology, the Action Committee on Technology (ACT) amounted to little more than four ambitious University of Virginia students when it coalesced in January. By March it had registered as a lobby. Since May, it has written a space-policy bill, which Newton Gingrich (R-Ga.) introduced in the House on July 28, found Gingrich 15 co-sponsors for the bill, organized an informal congressional association of more than 50 staff members interested in space, and lobbied Republican congressmen — both on tax-cut legislation that would benefit technological entrepreneurs and on reinstating some of the funds cut from the National Science Foundation budget.

President, board chairman and dynamo of this shoestring operation is an enterprising man who seems born to the task. When not canvassing high-technology firms for seed money to finance ACT's pro-technology campaign, James Muncy is dropping by congressional offices or attending to the business side of lobbying. And while he lacks the experience and polish of many peers, this native Washingtonian exhibits what appears to be an almost intuitive political savvy. That will probably prove his most important asset, since the issues he's campaigning for most strenuously — space-science research, planetary exploration and science education — have all taken a fiscal beating in the first Reagan budget.

ACT was initiated in an effort to "defend science and technology on Capitol Hill," Muncy told SCIENCE NEWS, "and we've put a clear emphasis on the *defend*." He said there is a resurgence of public interest and support for science that has not been effectively represented in Washington. Cer-