US meteorology

NOAA faces rough passage

Washington

THE first launch from Cape Canaveral since the Challenger disaster on 28 January is scheduled for 1 May, when a Delta rocket will place a National Oceanic and Atmospheric Administration (NOAA) weather satellite into geosynchronous Earth orbit. The new satellite will restore NOAA's ability to monitor weather data from the east and west coasts of the United States simultaneously. But even as the Geostationary Operational Environmental Satellite-7 (GOES-7) goes into service, NOAA will be facing an uncertain future as Congress and the Reagan administration once again lock horns over the agency's budget.

In the past two weeks, NOAA administrator Anthony Calio has made three trips to Capitol Hill to testify before congressional committees looking into NOAA's budget proposal for the coming fiscal year. For the past five years, NOAA has been on a budgetary roller-coaster. Each year, the President's budget proposal has contained significant reductions in the NOAA appropriation, and each year Congress has restored a large portion of the cuts. For the next fiscal year, NOAA's proposed operating budget is $836.5 million, down 26 per cent from 1986. Support for ocean and coastal programmes is cut in half, for fisheries programmes by 40 per cent and for satellite programmes by 20 per cent. Gone entirely are funds for the National Sea Grant College Program, the National Undersea Research Program and the Earth Observation Satellite Company (EOSAT).

EOSAT was established by Congress to commercialize the Landsat system, and is a partnership between RCA Corporation and the Hughes Aircraft Company. Last September, EOSAT received a $250 million subsidy for the construction of two new Land Remote Sensing Satellites (Landsats), with the understanding that additional subsidies would be provided until the new Landsats were launched. Cutting the money would be a "death knell" for EOSAT, says company president C.P. Williams.

It likely that funds for some of these programmes will be restored. At a Senate appropriations subcommittee hearing last week, Senator Lowell Weicker (Republican, Connecticut) vowed that programmes mandated by Congress but cut by the administration "will be funded again". But the self-imposed budget constraints of the Gramm–Rudman deficit reduction act may make it harder than in the past for Congress to restore those funds.

A NOAA administrator, Calio is in a very difficult position. A political appointee, Calio is obliged to support the budget handed to him by the White House Office of Management and Budget (OMB). But he must also seek to meet the concerns of Congress, which is clearly not satisfied with NOAA's budget. And unlike the National Aeronautics and Space Administration (NASA), NOAA is not an independent agency; Calio's actions must be approved by Secretary of Commerce Malcolm Baldrige. Shortly after President Reagan took office, a plan was proposed to merge the Department of Commerce with the Office of the US Trade Representative, splitting NOAA off as an independent agency, but that did not happen.

Calio became NOAA administrator in 1985, after serving as deputy to his predecessor John Byrne. While Calio's scientific credentials do not match Byrne's, his administrative skills are superior. Calio spent 18 years at NASA in a variety of administrative capacities, and learned how to cope with Washington's political climate. Byrne, although favourably regarded by the academic community, did not promote NOAA's cause effectively. Tension between Byrne, Calio and associate administrator James Winchester over authority made matters worse. Now Byrne and Winchester are gone, and Calio plans to replace the position of associate administrator with a chief scientist who will be third from the top in the NOAA hierarchy.

The creation of a chief scientist post is one of the ways in which Calio has sought to enhance the scientific reputation of his agency. He has requested the National Academy of Science boards of atmospheric science and ocean studies to review NOAA's activities and suggest agendas for the future. The need for some federal agency to take the lead in collecting world climate data will be underscored by two reports soon to be released.

One, *Earth Science Research in the Civil Space Program*, prepared by the White House Office of Science and Technology Policy (OSTP) and awaiting approval by the Senior Interagency Group on Space, calls for the establishment of long-term global databases of environmental parameters to allow study of the Earth's evolution and civilization's impact on the environment. The report suggests that NOAA be given primary responsibility in collecting and managing those data.

Similarly, a report by the Earth System Science Committee of the NASA advisory committee sees NOAA as a key agency in keeping track of the enormous flow of data from Earth observing systems, a flow that will increase dramatically in the next decade. The OSTP report estimates that in the next decade, 10^{15} bits of data will be generated daily from space-based systems alone.

But Francis Brotherton, chairman of the Earth System Science Committee, has "very strong doubts" about NOAA's ability to perform the role. Because long-term measurements are crucial for forming an integrated picture of worldwide environmental processes, Brotherton believes entrusting so crucial a role to an agency so often buffeted around by strong budgetary winds could be disastrous.

Calio is aware of these difficulties, but nonetheless believes that NOAA can and should take on added responsibilities. He has worked hard to find ways of "doing more with less". He points proudly to TOGA as an example of NOAA's ability to involve other countries in US programmes. But Calio faces an uphill struggle in convincing the current administration of NOAA's importance.

Joseph Palca

Omnistar to rescue?

Washington

FUNDS for a second polar orbiting weather satellite and a $97 million subsidy for the Earth Observation Satellite Company (EOSAT) were eliminated from the proposed budget for the National Oceanic and Atmospheric Administration (NOAA). But a novel plan is now under consideration that would allow NOAA to restore both programmes by flying them on the same spacecraft. The key to the plan is an engineering change proposed by EOSAT and approved by NOAA and the Department of Commerce last month. Under the new plan, the next generation of Landsat satellites will be flown on the Omnistar platform developed by RCA Corporation. Omnistar consists of an orbital platform to which modules are attached and has a design life of 20 years, significantly longer than the 5-year design life of the originally proposed satellites.

Omnistar would be launched by the shuttle, and its modules serviced by shuttle astronauts. Depending on precisely how Omnistar is configured, it could carry more instruments than just those needed by Landsat, which is why NOAA thought of combining Landsat with the polar weather satellites NOAA K-L-M, money for which has already been allocated, although no contracts have been let.

But critics of the plan fear crucial climate instruments will be left off the hybrid satellite. Francis Brotherton, chairman of the Earth System Science Committee, says that two instruments, the High Resolution Infrared Sounder and a sensor for measuring atmospheric ozone, are unlikely to be included in the new configuration, "a serious blow to long-range science". The proposed plan is now being considered by the White House Office of Management and Budget (OMB). Joseph Palca