NEW WORLD

Belt Tightening in the Office of Space Science

by our Washington Correspondent

A YEAR ago, NASA's Office of Space Science and Applications was divested of its responsibilities for communications and Earth observation programmes and renamed the Office of Space Science. But the reduction in responsibilities has not been matched by a reduction in problems. Far from it. During the past year, officials in the Office of Space Science (OSS) have been forced to take uncomfortable decisions, engage in difficult planning tasks and re-evaluate their priorities. The reason is simple: acute and chronic shortages of money.

Considering that the office got all the money it requested from Congress for the 1973 fiscal year (which started on July 1) and that none was withheld by the Office of Management and Budget, the complaint of financial starvation deserves some explanation. The first thing to be said is that the Office of Management and Budget, reflecting public apathy toward space technology, gave NASA a tough time when the budget estimates for 1973 were drawn up. The agency's overall budget was held at about the same level as last year, and it will not be allowed to grow much, if at all, in the future.

This constraint, coupled with the fact that NASA is pressing ahead with development of the Shuttle, forced a close re-examination of the timing of some projects, to try to damp down yearly oscillations in the agency's budget. For the OSS, it has meant that some projects have had to be terminated and others scaled down or delayed—most noticeable casualties in the 1973 budget were the Grand Tour of the outer planets, which was scrapped and replaced by more modest flybys of Jupiter and Saturn, and the Orbiting Solar Observatories programme, in which OSO-J and OSO-K were deferred. But the chief acute headache in OSS during the past year has been a cost overrun of some \$35 million in the launcher development and procurement programme.

The problem stems mostly from the failure of four launchers in 1970 and 1971—two Deltas and two Atlas-Centaur. The Delta failures resulted in the loss of a meteorological satellite developed by the National Oceanic and Atmospheric Administration and the placing into a wrong orbit of OSO-7, while the failures of the Atlas-Centaur rockets caused the loss of an astronomy satellite, OAO-B and Mariner-8. The failures prompted an exhaustive review of both launchers which led to improve-

ments designed to ensure that their instrumentation would survive the gravitational and other stresses to which they may be subjected in individual launches. This upgrading took place with 1973 funds.

Another problem was that the agency ran into technical difficulties in developing a computer for improved guidance for Delta and Atlas-Centaur launchers, which resulted in some unbudgeted costs. And, finally, NASA underestimated the

number of reimbursable launches that it will be performing in the 1973 fiscal year.

Mr Joseph B. Mahon, Director of the Launch Vehicle and Propulsion Program, said last week that he is optimistic that the problems have been solved, because there have so far been four successful Delta launches with the new computer guidance system and, although it will not be flight tested until the launch of an Intelsat satellite next

PLANETS

Second Thoughts on Venus

by our Washington Correspondent

OFFICIALS in NASA's Office of Space Science have been forced during the past few weeks to re-examine their plans for exploring Venus. Because of budgetary constraints, they have decided to drop one of the two launches that was due to send atmosphere probes to Venus in 1977. The other launch is still, however, planned to take place on schedule and it will probably be followed by an orbiter in 1978. Options are also being kept open for the next launch window in 1980. Previous plans would have sent two sets of probes to Venus in 1976/77, an orbiter in 1978 and probably another probe in 1980. NASA is also considering making the orbiter a joint mission with ESRO.

The reasons for the change are mostly financial — dropping one probe launch will cut the costs of the programme from some \$200 million to about \$150 million—and it is hoped that the reduced programme will be more palatable to the Office of Management and Budget. So far, the Venus-Pioneer programme has not received Executive or Congressional Approval, but NASA will be asking for funds for the next fiscal year. The change will, however, also add flexibility to the programme, for the idea now is to use the dropped probe launch as a backup for the 1980 launch window, to re-run either the other probe or the orbiter should they fail. Another possible alteration in the programme is that NASA is studying the possibility of launching the spacecraft on an Atlas-Centaur instead of a Delta rocket to see whether the removal of size and weight constraints on the spacecraft

would offset the extra costs of the more powerful launcher.

Planetary scientists contacted last week greeted the news of the changes with mixed feelings. Dr Carl Sagan, of Cornell University, said that in view of the other demands on money in the OSS budget he agrees with the decision to scale down the Venus-Pioneer programme. He pointed out that the Soviet Union already has an advanced study programme of Venus under way and suggested that within five years Soviet spacecraft would have sent buoyant probes into the Venusian atmosphere and perhaps even have television pictures of the surface. For the US to follow on the heels of the Soviet programme at the original level of expenditure would therefore be "a serious waste of funds".

But Dr Michael McElroy of Harvard University was more disturbed by the news. He pointed out that the dual launch was suggested for two chief reasons—first, there is a high risk of failure, and therefore to send two sets of probes would increase the chances of success, and second, if they are both successful, there would be increased planetary coverage and additional scientific return. He added that he is "totally opposed" to the argument that the US need not study Venus intensively because the Soviet Union already has an advanced programme. He said he is "impressed by the fact that the list of objectives for Venus remains essentially unsatisfied by the Soviet programme", and that in any case it does not make sense to "give away a field of scientific study to another country".