



Uncertainty about space

**Budget cuts and doubts
about European efforts
have the French program
in a tight situation**

by Noah Hardy

Since 1965 when her FR-1 satellite was sent aloft by a United States-built rocket, France's space effort has come a long way in technical and political sophistication. The French have now embarked upon a multinational cooperative program intended to produce significant space achievements as well as funds sufficient to underwrite the enormous costs of space projects.

However, fiscal restrictions imposed after the spring 1968 political-social upheaval (SN: 12/14/68, p. 590) have reduced the CNES (*Centre National des Etudes Spatiales*) operations and investments budget from \$138 million in 1968 to less than \$114 million this year. This is forcing significant reductions in operations and a reorientation of priorities and objectives. The 1971 budget very likely will be an even bigger disappointment to French space scientists, according to present indications.

The CNES has been instructed by the Pompidou Government to concentrate on the applications aspects of its program and to de-emphasize fundamental space research. This downgrading of pure science in favor of income-producing industrial applications has, more than any other theme, characterized French science in the past two years.

At the crux of the money question is the role of France's new launch center in South America. "Diapson," or D1-A, consisting of 20 kilograms of instruments, was the first French satellite to be sent up by a French launching vehicle, the Diamant A rocket.

The D1-A's somewhat larger successors in the Diadem series (D1-C and D1-D) were launched from Hammaguir, French Sahara, a site that was ceded to Algeria in 1967 by the accords that ended the Franco-Algerian conflict in 1964. Thus work on the *Centre spatial guyanais* at Kourou, French Guyana, was begun in 1967, and the base became operational in March 1970. It was from Kourou that France's Diamant B rocket thrust the German scientific satellite, DIAL, into orbit. The advantages of Kourou's location near the equator are good selling (or renting) points in France's efforts to solicit foreign participation and cost-sharing for the center. ELDO, the European Launcher Development Organization, is now installing a launch pad at Kourou for the Europa I three-stage system, and the Europa II, which will simply add a fourth, perigee motor stage, is set to go in about a year. Testing has already begun at Woomera, Australia, and all operations will soon be shifted to Kourou.

France would like to lease at least part of Kourou to the United States for the use of the National Aeronautics and Space Administration. The subject of recent meetings in Washington was what the French called the commercialization of Kourou. The attempt to rent Kourou to the United States portends further cutbacks in the CNES budget for coming years, cutbacks so severe that even contributions from ELDO and other cooperative projects could not cover the fund shortage.

In 1971, both the European Space Research Organization (ESRO) and effectively ELDO will have exhausted the credits made available to them by their respective members in 1963 and 1964. At the Fourth European Space Conference, held two weeks ago in Brussels, fundamental conflicts burst into evidence which threw the entire future of European space cooperation into serious doubt. Great Britain, allied with some of the smaller European countries, seems to hold views directly opposed to those of France, West Germany and Belgium in several important areas of European space policy. The United Kingdom holds that plans to develop big launching rockets for European satellites should be dropped; that the United States will doubtless be willing to sell satellite-launching rockets to Europe (even as soon as the end of this year) without prejudicing Europe's own space initiatives or exhorting the European space club's unwilling participation in the United States' post-Apollo space program.

Just what part, if any, Europe can and will play in the post-Apollo program very likely will be the determining factor in planning of all future space programs in Europe, and particularly in ESRO, which may itself be reorganized or replaced. ELDO might disappear entirely if the United States supplies launchers on terms acceptable to the European space partners. France and West Germany, fearing United States domination of European space efforts, are anxious to commit themselves and their somewhat unwilling sometime space partners to about \$1 billion in future development costs.

The Brussels conference has delegated the Belgian minister for science policy and programming, Théo Lefèvre, to meet and discuss possible European participation in the post-Apollo American space program with the United States State Department and report back by the end of the year. His report may provide the delicate impulses needed to tip the European space effort into harmonious orbit.