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18 July 1980

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

(FOUO 8/80)

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WORLDWIDE REPORT

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WORLDWIDE AFFAIRS

DIRECT TV SATELLITE CONSTRUCTION BEING SHARED

Paris AIR & COSMOS in French 10 May 80 pp 40-41

[Article by Pierre Langereux]

[Text] The distribution of manufacturing participation in construction of the French TDF 1 and German TV-SAT pre-operational direct television satellites has just been made public by AEROSPATIALE [National Aerospace Manufacturing Company], the day after the signing of the French-German cooperation agreement by Andre Gerand, Minister of Industry, and Volker Hauff, Federal Minister of Research and Technology, at Paris on 29 April 1980 (see AIR & COSMOS, No 811). The French-German agreement, let us recall, contemplates construction and launching of two pre-operational satellites--TDF 1 for France and TV-SAT for Germany as well as construction of a third satellite to serve as a spare. Launching of both the TDF 1 and TV-SAT satellites is planned in 1984, with European Ariane [Aniadne] rockets. Both these satellites will be placed into geostationary orbit 19 degrees west with a useful life of seven years. These experimental satellites are not intended for direct television broadcasting of commercial nature for the benefit of the public. Entry into service of operational direct TV satellites in France is not contemplated before the 1985-1990 years, according to the French Television Network [TDF].

EUROSATELLITE Without Belgium

The manufacturing group selected for realization of the French-German TDF 1 and TV-SAT pre-operational direct TV satellites consists of four French and German firms which became associated in November 1979 (see AIR & COSMOS, No 789), and who already have a long tradition of cooperation [Symphonic and Intelsat 5 satellites).

They are AEROSPATIALE and THOMSON-CSF [THOMSON-GENERAL Radio Company] in France and MESSERSCHMITT-BOLKOW-BLOHM [MBB] and AEG-TELEFUNKEN in Germany. These firms, AEROSPATIALE states, "are associated in a jointly owned

"subsidiary, EUROSATELLITE, which is responsible for the program's development exploitation of derivates for export."

There will thus be noted the absence of the Belgian ETCA firm, cofounder along with AEROSPATIALE and MBB, of the jointly owned subsidiary EUROSATELLITE GmbH [limited liability corporation], established in 1978 with 14 percent Belgian participation (and 43 percent each for the French and German firms). ETCA has apparently withdrawn because of the essentially French-German character of the new activities of EUROSATELLITE, whose name is indeed being retained for the company now responsible for constructing the direct TV satellites.

Construction of the French and German direct TV satellites will be accomplished by the four companies associated in EUROSATELLITE in accordance with the following scheme: the German firm, MBB, is responsible for coordinating the construction of the satellites in conjunction with AEROSPATIALE, while the French firm, Thomson-CSF, is responsible for coordinating construction of the satellites' payloads in conjunction with AEG-Telefunker. Financing of the satellite construction work--estimated at 1.2 billion francs (1980 prices) exclusive of launching costs--will be equally shared by the French and German governments. On the other hand, the industrial return for construction of the pre-operational satellites will be higher for Germany (54 percent) than for France (46 percent) taking into consideration the major participation (65 percent) by France in production of the Ariane rockets which will launch the satellite.

Details of the participation of the French and German firms in the construction of the TDF 1 and TV-SAT satellites were also specified by AEROSPATIALE (see table).

Construction of the platform for the French satellite and assembly of the satellite (at Cannes) will be under the responsibility of AEROSPATIALE, construction and assembly of the payload being effected by Thomson-CSF. The CNES [National Center for Space Studies] and TDF will be joint general contractors for the French TDF 1 satellite. In addition, the TDF has assigned to TELSPACE the study of the ground control and transmission station for the French satellite.

The German satellite is to be constructed and assembled under the direction of MBB. It is also at MBB that the joint project group for construction of French-German satellites will be located.

EUROSATELLITE's detailed proposals for construction of the French and German satellites will be submitted to the responsible program officials between now and 1 August 1980.

Export

The four member firms of EUROSATELLITE will also cooperate in construction of satellites for export, outside of France and Germany, upon an equal

basis, successively alternating AEROSPATIALE and MBB as general contractors. Among the countries potentially interested in direct TV by satellite AEROSPATIALE mentions China, with which MBB has already had contact (see AIR & COSMOS, No 754); Luxemburg, for which EUROSATELLITE has just effected a study of a direct TV satellite, Luxsat (see AIR & COSMOS, No 810); and the Scandinavian countries (Denmark, Sweden, Norway, Finland, and Iceland), associated in the NORDSAT direct TV satellite project, for which EUROSATELLITE initial offer had been rejected in favor of one from the American TRW firm. But that matter is probably not finally settled for, in the present context, the EUROSATELLITE members are now in position to present, to the responsible officials of Nordsat, a new proposal, serious and competitive, which is based upon the French-German developments. We shall indeed not be astonished to see the situation evolve in that direction.

The EUROSATELLITE member firms are also prepared to construct a wide range of telecommunications or direct TV satellites--light (300 kilograms), medium (500-600 kilograms), and heavy (1 ton).

Satellite Characteristics

The French and German direct TV satellites will weigh about 2-3 tons at launching, which will require use of the most powerful version of the European launcher--The Ariane 3--available at the time.

The satellites will consist of four modules: service devices with the propulsion module, telecommunications payload, solar generator, and antennas. Energy supply will be provided by a rigid solar generator with large deployable panels (35 meters span) constructed by AEROSPATIALE with high efficiency (black) silicon photopiles supplied by AEG-Telefunker. The installed capacity (for seven years) will be 4.2 kilowatts for the French satellite and 3.5 kilowatts for the German satellite, with total electrical demand 2.8 and 2.1 kilowatts respectively.

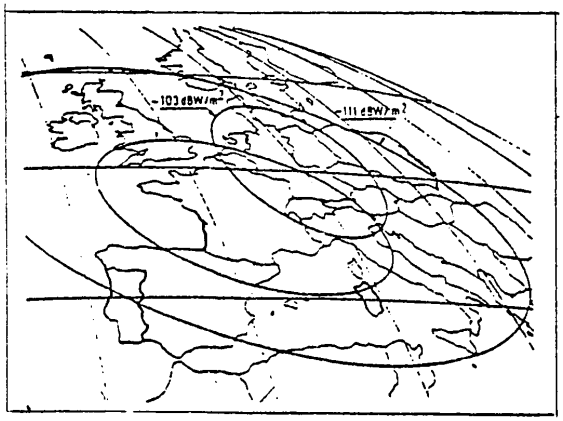
The satellites will be equipped with an integrated propulsion system fulfilling all the functions of apogee motor, orbit control motor, and attitude control motor by use of a system with two storeable liquid fuels (UDMH [unsymmetrical dimethylhydrozene] and N_2O_4 [nitrogen tetroxide]), built by MBB in accordance with the technology projected for the Symphonie satellites. The attitude control will use an advanced technology, perfected by AEROSPATIALE, with inertia wheels with magnetic bearings, and an arming system accurate within 0.05 degree utilizing the new SOFA system (see AIR & COSMOS, No 810). The attitude control system should maintain the satellite at 19$\pm$0.1 degrees west in latitude and longitude. The antennas will be directed to 2.6 degrees east and 45.9 degrees north (Aubusson) for the French satellite and to 9.6 degrees east and 49.9 degrees north for the German satellite. The parabolic antennas, 2.8 x 1.12 meters for the French satellite and 2.6 x 1.5 meters for the German satellite, will cover areas of 2.5 x 0.98 degrees and 1.62 x 0.72 degrees on the ground, respectively, with esotropic radiated power (PIRE) of 61 and 62.5 dBW [decibils referred to the 1-watt level].

The satellite payloads will weigh about 250 kilograms, with six installed channels and three in service in both cases. But the French satellite will be equipped with 12 TOP [traveling wave tubes] of 230 watts by Thomson-CSF while the German satellite will be equipped with 5 TOP of 260 watts by AEG-Telefunken. Each channel of the French satellite will be fed by two TOP (with a third on stand-by), connected in parallel to deliver output power of 350 watts, but service can be maintained by a single TOP. The Thomson-CSF TOP are designed for high reliability and long life, thanks to their impregnated tungsten cathodes. These TOP have high efficiency (50 percent) by virtue of a four-stage direct radiation collector with brazed copper helixes, and are of low weight (3 kilograms) because of their utilization of a graphite electrode for the collector and samarium-cobalt magnets.

Therman control of the satellites will be entirely passive--by heat sinks (AEROSPATIALE)--and the satellite structure will make wide use of carbon fibre composites.

Manufacturing Distribution for Construction of the
French and German Direct TV Satellites
(F denotes for the French satellite and A for the German)

Platform:	
Structure (F and A)	AEROSPATIALE
Thermal regulator (F and A)	AEROSPATIALE
Solar generator (F and A)	AEROSPATIALE
Stabilization (F and A)	MBB
Combined propulsion system (F and A)	MBB
Wiring (F)	AEROSPATIALE
Wiring (A)	MBB
Telemetry-remote control (F and A)	Thomson-CSF
Electrical power supply (F and A)	AEG-Telefunken
Payload:	
Antennas (F)	Thomson-CSF
Antennas (A)	MBB
Repeaters (F and A)	Thomson-CSF & AEG-Telefunken
Traveling wave tubes (F)	Thomson-CSF
Traveling wave tubes (A)	AEG-Telefunken
Ground equipment:	
Mechanical	AEROSPATIALE
Electrical	MBB



Coverage of the French TDF 1 satellite and the German TV-SAT under normal reception conditions (-103 dBW/M^2) with individual antennas of 0.9 meter diameter (small ellipses) and under poorest reception conditions (large ellipse at -111 dBW/M^2). Let us remember that the French TDF 1 satellite will thus cover a opulation of about 100 million people in Europe, including the 55 million French in Metropolitan France and 6 million speakers of French outside of its borders. The TDF 1 satellite will in fact all of France, Belgium, Luxemburg, and Switzerland, as well, to be sure, of Andorra and Monaco, and also almost all of Great Britain and The Netherlands and a large portion of Germany (the southwest), of Italy (Piedmont and Tombardy), of Spain (Catalonia and the Basque country), of Austria (Vorarlberg), and of Ireland. On the otherhand the French would also be able to receive TV broadcasts from numerous other European countries if they in turn equip themselves with direct television satellites.

11,706
CSO: 5500

WORLDWIDE AFFAIRS

BRIEFS

'PRELA'-'SOFIA PRESS' AGREEMENT--Havana, 16 May (PL)--The Bulgarian SOFIA PRESS foreign language books publishing and printing agency and PRENSA LATINA, have signed a working agreement here for the 1980-81 period. The document covers various forms of cooperation between the two agencies and joint projects to disseminate the truth about Bulgaria, Cuba and Latin America. The agreement was signed by Ivan Boudinov, director general of SOFIA PRESS and Gustavo Robreno, director general of PRENSA LATINA. [Text] [Havana PRELA in Spanish 1502 GMT 16 May 80 PA]

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INTER-AMERICAN AFFAIRS

BRIEFS

'PRELA' NEW TRANSMISSION TO MEXICO--Havana, 11 Jun (PL)--The Latin American News Agency PRENSA LATINA has inaugurated a new system of transmissions from its central office in this capital to Mexico City. The mode of transmission utilizes coaxial cable and satellite as channels for two-way communication, and PRENSA LATINA services can be received more quickly and effectively by its Mexican consumers. Similar systems were implemented in recent months with Panama City, Managua and Montreal. Last week PRENSA LATINA announced the expansion to 8 hours of its transmissions to Africa and the Middle East in Spanish, English, French and Portuguese. [Text] [PA111828 Havana PRELA in Spanish 1640 GMT 11 Jun 80]

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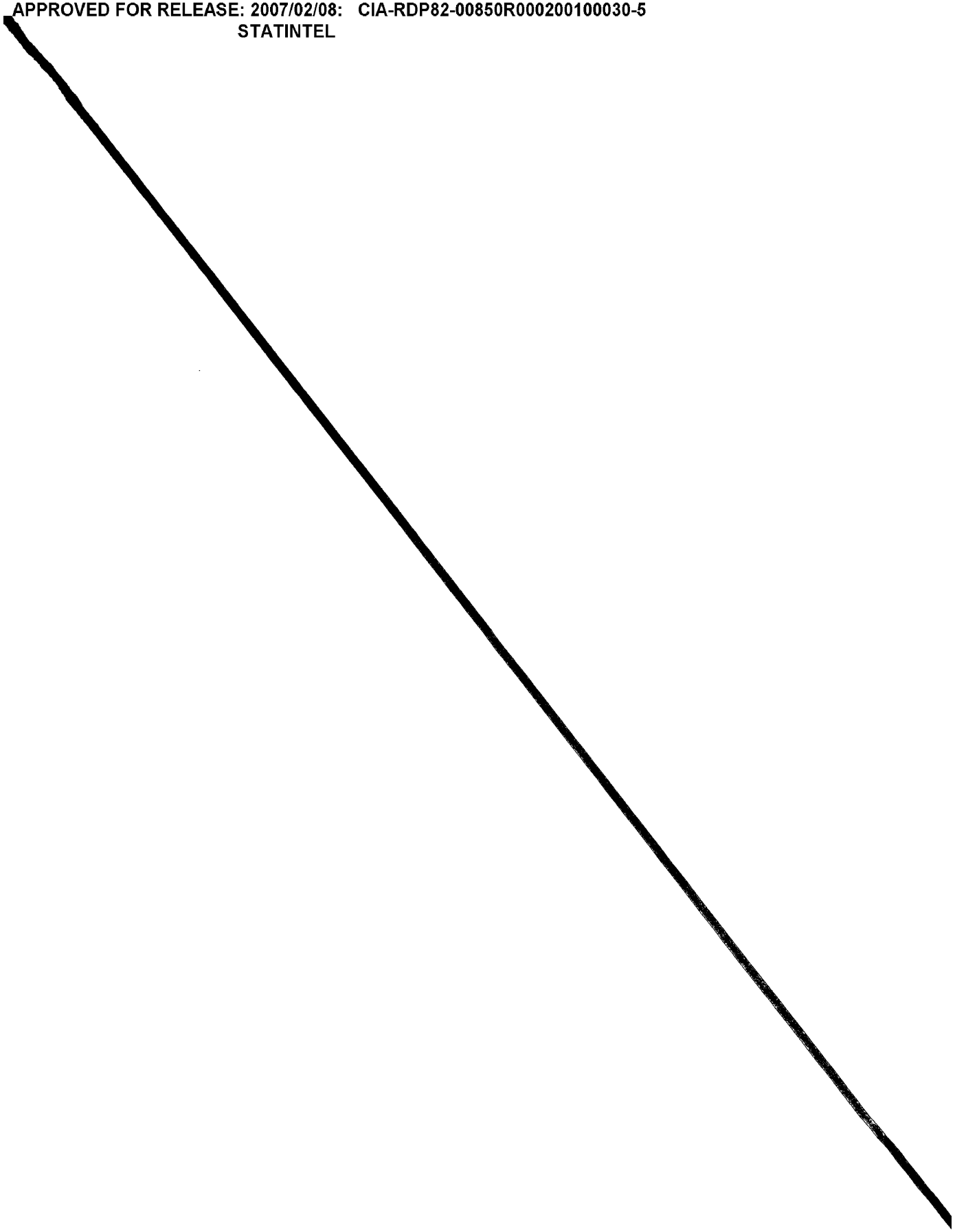

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STATINTEL

TOGO

BRIEFS

CCCE TELECOMMUNICATIONS LOAN--The Central Fund for Economic Cooperation granted Togo a loan for 22 million French francs (1.1 billion francs CFA) to cover 50 percent of the financing related to the continuation of the development of Togolese telecommunications, which the Central Fund and the FAC [Aid and Cooperation Fund] had already facilitated. The present program covers the extension, modernization and maintenance of the Lome telephone network with technical assistance provided by the SOFRECOM [expansion unknown], and is aimed, moreover, at the establishment of a telex center. [Text] [Paris MARCHES TROPICAUX ET MEDITERRANEENS in French 30 May 80 p 1268]

CSO: 5500

INTERNATIONAL AFFAIRS

ITALIAN PARTICIPATION IN EUROPEAN SPACE AGENCY PROGRAMS DISCUSSED

Paris AIR & COSMOS in French 24 May 80 pp 41-42

[Interview with Vincent Balzamo, Italian minister for the coordination of scientific and technological research, by Jean de Galard on 9 May 1980, place not given]

[Biographical sketch of interviewee] Fifty-one years of age, a former professional journalist, a law graduate (jurisprudence), Vincent Balzamo was elected deputy of the Bergamo-Brescia district in 1972, 1976 and 1979. After having engaged in numerous union activities, in 1957 he was elected national secretary of the Italian Socialist Youth Federation. A member of the leadership of the Italian Socialist Party since 1961 after having served on the central committee, he was president of the socialist parliamentary group of the Chamber of Deputies during the seventh and part of the eighth legislature. He is the author of many plans involving the justice and court sectors.

[Text] In its number 789 dated 1 December 1979, AIR & COSMOS published an interview with Vito Scalia who at the time was completing his 4th month as minister for the coordination of scientific and technological research in the Italian government. The firm position taken on that occasion by the minister of the previous legislature on the insufficiency of the industrial compensations accorded Italy with respect to its participation in the European Space Agency had subsequently given rise to many comments within that organization.

On the occasion of the appointment in the new Italian government, which took office on 4 April 1980, of Vincent Balzamo to the position held previously by Scalia and following that, in particular, the signing by France and the Federal Republic of Germany of an agreement on direct television via satellites, it seemed to us of interest to have an interview with the new minister on the orientation he plans to give Italian space policy. In the following paragraphs, the reader will find the answers to five questions which were asked of him in the course of the interview he was kind enough to grant us.

One of the particularities of the Italian ministry for the coordination of scientific and technological research, which has just been entrusted to the honorable socialist deputy, Balzamo, is that it is "without portfolio"; i.e., it does not have a structure of its own. During the interview granted to AIR & COSMOS, the new minister informed us of his intention to give this ministry real structures, without, however, making it a "colossus." One of the key sectors of this ministry reportedly will be "space"; another is said to be "the environment"; and a third could be "general problems." On this point, as well as on those points which were brought up within the framework of our interview, it seemed to us that the new minister above all was concerned about concrete achievements.

[Question] You have just taken up your new duties and responsibilities. What will be the principal orientations of your policy in the space sector?

[Answer] I was in fact appointed minister for the coordination of scientific and technological research a little over a month ago. My job is to ensure the continuity of the activities undertaken, respecting the guidelines for programs mandated by the president of the council. However, it is quite obvious that the political orientation of my party will prompt me to give priority, among all the sectors covered by scientific research, to those which seem to me to be most susceptible of bringing concrete improvements to the quality of life.

Since the space sector is one of those principally of interest to AIR & COSMOS, I should like to emphasize in this regard that, while respecting pure research, I intend on a priority basis to initiate studies and projects which will have specific points of application.

In any event, the national space program which was approved last year clearly indicates that the principal route which will permit us to really take a step forward in the improvement of technology is that of telecommunications. Any progress in this sector brings about other advances, both in the industrial area and in that of exchanges between nations.

I intend, moreover, with determination to encourage activities involving the teledetection sector, since I consider this a priority sector within the general framework of scientific research and protection of the environment, to which, I might add, all the scientific branches must contribute, including that of space research.

For Italy, in fact, control and improvement of the environment are of very great importance. Considering the fact that data-collection satellites will permit the gathering of automatic data emanating from peripheral stations (monitoring of the flow of waterways, of landslides, monitoring of pollution, of the tides, etc.) with retransmission in real time to regional or territorial monitoring centers, it will be my duty to be in continual contact with the appropriate ministries and regional authorities in this sector, so that in such circumstances the future national satellite, ITALSAT, can be called upon.

As you know, unfortunately for Italy, natural catastrophies--earthquakes, and floods--are not rare and their consequences are often tragic. In such circumstances, we will need mobile stations which, using the telecommunications satellite, will be able to assure immediate communications between the stricken areas and the disaster coordination centers.

The last point I fully intend to deal with, one which the columns of your magazine have covered, namely the firm position taken by my predecessor, is that of our relations with the European Space Agency.

Being a convinced European, I favor Italy's full collaboration with the ESA, which is the point of application of my own convictions. To this end, and with a view to vitalizing Italian collaboration within the Agency, I have confirmed the appointments of the entire official Italian delegation. Thus, having satisfactorily resolved the pending problems relating to financial compensations, the delegation will be able to work with increased authority in European collaboration, fortified by my full political support.

[Question] The national space program has been approved. Proposals for the management of this program have been presented. Do you plan to make any changes in this sector?

[Answer] As you know, we are now in a transitional phase which will end in December 1980. Until then, management has been entrusted to the National Research Council (CNR). At present, I am examining the problems which will be posed at the end of this transitional phase; and I will be in touch with my colleagues in the government to define the administrative and legal structure which beginning in January 1981 will be responsible for implementation of this program. I will then submit my proposals to the Interministerial Committee for Economic Planning (CIPE).

[Question] Your predecessor, during an interview with AIR & COSMOS, took a rather firm position with respect to the European Space Agency. Have there been any reactions to that position-taking?

[Answer] During the last few years, Italy's position in the ESA has progressively deteriorated. In particular, implementation of the SPACELAB program, the scientific laboratory which will be placed aboard the American space shuttle, resulted in a deficit for Italy of 35 million units of account*, that is about 40 billion lires.

What was really involved was a deficit, to the extent that a precise program for SPACELAB was in existence, which assessed each member country a work charge corresponding to its financial participation. For Italy, this represented 100 billion lires which was supposed to have been offset by industrial "fallout" of an equal amount. In practice, the program underwent important changes at the request of NASA. The new redistribution

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* One unit of account (UC) is worth approximately 5.7 French francs

of work which was necessary considerably disadvantaged Italy. In fact, it was principally the industries of other countries which obtained the greatest industrial compensations.

To the financial losses, which are quite considerable in themselves, we must add the damage caused by the absence, at the technological level, of all development in the specific sector of SPACELAB, since our industry has not been able to contribute to the development of anything except the mechanical side.

The financial rules of the Organization which make weak money countries responsible for the monetary adjustments of participating countries have also played against us.

Fortunately, however, after the actions taken recently by the Italian delegation during the latest meetings of the ESA Council, our country's position in the Agency has clearly improved. The dual problem of industrial compensations and exchange rates was resolved. On the one hand, for SPACELAB, we were able to recover 33 million units of account out of 35 million by means of procedures which take our position and that of the other countries into consideration. On the other hand, with respect to rates of exchange, it was agreed to apply the rules of the European monetary system to Italy, which are more favorable than those of the ESA. For several years, any depreciation of the lire not exceeding 6 percent would not cause us any harm in the financial sector.

The action taken was not based on rank mercenary considerations. We simply wanted to draw the attention of our partners to the need for respecting past agreements. Any violation of these agreements inevitably causes a chain reaction within the Organization which in turn leads to a deterioration of relations and eventually results in a crisis whose consequences cannot fail to once again call into question the finality of the collaboration in the name of which the Organization was established.

If one day a member country finds itself in the same disadvantageous situation as that in which we found ourselves, we will support any action which it will take to obtain the reestablishment of a just balance because no Organization which aims to strengthen international collaboration can tolerate the continuation of apparent disadvantages to the prejudice of one of its member countries.

[Question] France and the Federal Republic of Germany will jointly develop their direct television satellite. ITALSAT seems instead to be leaning toward telephony and data transmission. What does Italy intend to do in the direct television sector?

[Answer] With respect to direct television via satellite, which Italy considers to also have social value since it permits the reaching of geographic areas which today still cannot be reached by the earth repeater stations, we are in the process of developing L-SAT in the European Space

Agency, which will place new television channels at the disposition of the RAI (Italian Radio). This will be done with the first prototype which involves one channel entirely earmarked for Italy.

Following that, we could have other units of this same satellite capable of meeting all our requirements.

[Question] What does Italy intend to do in the SPACELAB program?

[Answer] As I have already said, as far as the SPACELAB program is concerned, we have finally succeeded in bringing balance back to a situation which was disadvantageous to us. I can now say that the future seems full of promise, for the following reasons: NASA has already ordered a second unit from the Laboratory which will be entirely financed by the United States, while the financing of the first unit was taken care of by the ESA; what is more, interesting possibilities for cooperation with the United States have come into being for future developments of the SPACELAB laboratory, for the construction of future inhabited space stations.

Even if such possibilities seem to be in the science fiction domain, I must say that we are counting a lot upon these developments for the teledetection of earth resources, the collection of solar energy, the active monitoring of climates. This involves developments which are possible over the mid-term and which our children should contemplate with hope.

Over the short-term, we can count upon the use of SPACELAB for scientific experiments and research on advanced concept materials.

Italy has contributed to this program with its own most advanced industrial sector by developing the living-quarters module and its heat control system. These are two vital elements of all advanced space systems of the future.

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FEDERAL REPUBLIC OF GERMANY

BRIEFS

EXPERIMENTAL 20-30 GIGAHERTZ SATELLITE--On an exclusively national basis, Germany plans to build an experimental 20-30 Gigahertz telecommunications satellite making it possible to gain better knowledge about transmitting at high frequencies (less congested than current frequencies) that will be used by future satellite. The study of this experimental 20-30 Gigahertz experimental satellite has been entrusted to the German firm Erno of the VFW group, with the participation of the other major German builders, MBB and Dornier. The three firms had previously competed for the study of the experimental satellite's platform. Erno was chosen when it proposed a "bus" derived from that of the ECS satellites of the MESH consortium, of which Breme is a member. Dornier had proposed using an American platform--from Hughes Aircraft, General Electric or Ford Aerospace -- which had the advantage of being rapidly available (by the beginning of 1982). For its part, MBB proposed the development of a new and more sophisticated platform. At the present time, the development schedule for the new satellite has not been drawn up because it is necessary to take into consideration the time needed to develop the 20-30 Gigahertz telecommunications repeaters that will have a power of 20 watts. Such work will reportedly take from 2 to 3 years, according to German builders. But the future of the satellite is also linked to Germany's ability to finance the project inasmuch as for the time being, priority appears to have been given to the French-German project for direct television satellites. [Text] [PARIS AIR & COSMOS in French 3 May 80 p 40] 11,464

CSO: 5500

FRANCE

BRIEFS

RADIO MEDITERRANEAN DIRECTOR--Pierre Casalta, until now director of foreign operations for RMC [Radio Monte Carlo], will be appointed director of the new radio broadcast station being set up by the Sofirad [Radio Broadcast Financing Company] in Tangiers and known as Radio Mediterraneenne Internationale, making use of the facilities and antennas of the former Radio Tangiers and shared 50-50 with the Moroccan Government. [Text] [Paris LA LETTRE DE L'EXPANSION in French 19 May 80 p 6]

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END