

# Appendix D: Space Cooperation with the Soviet Union (Russia): D A French Point of View<sup>1</sup>

## INTRODUCTION

**S**pace cooperation between France and the Soviet Union (Russia after 1991) has been a very special venture for two countries belonging to opposing Cold War alliances. This relationship began during the very tense decade of the 1960s, when the space race between the United States and the Soviet Union was at its height. It was not a short-term involvement by the two nations, but an endeavor that lasted a quarter of a century (until the fall of the Soviet Union) and is still going on with Russia, though in a very different spirit. Tens of laboratories and hundreds of scientists and engineers of both countries participated, and France took part in some of the most important Soviet space missions, including interplanetary flights, space station activities, and advanced astrophysics missions (see table D-1).

This highly visible East-West technological collaboration was a unique phenomenon until the first half of the 1980s, when the Soviet space program began to open itself more broadly to Western countries. The only larger cooperative achievement has been the Apollo-Soyuz rendezvous of

1975, which was not followed by a sustained collaboration between the two superpowers.

The Cold War is over, and what has been a very special relationship is now part of an increasingly global space-cooperation environment. Russia is cooperating more and more with the multinational European Space Agency and has joined the partners of the International Space Station (ISS) project (Canada, Europe, Japan, and the United States). A very large Russian-American preparatory program to the ISS is under way and will include many rendezvous between the U.S. Space Shuttle and the Russian Mir Space Station.

In this new context, what can be learned from the long French-Soviet collaboration? Can the lessons learned during a quarter of a century of common activities be significant and useful for the future? Before these questions are addressed, it is useful to recognize that:

- the Russian political and economical system has changed, but the people in the space community and the technical culture of the Russian space industry have not really changed,

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<sup>1</sup> This appendix was written for this report by Alain Dupas of the University of Paris and the French Space Agency.

**TABLE D-1: Milestones of Space Cooperation Between France and the Soviet Union (Russia After 1991)<sup>1</sup>**

1968	Araks experiments (artificial aurora borealis created by sounding rockets)
1970	French laser reflector on the Moon rover Lunakhod-1
1971	Stereo-1 experiment on Mars-3 (solar radioastronomy)
1971	Aureol-1 satellite with Arcad-1 experiment (gamma astronomy)
1972	Sret-1 technology satellite (piggyback launched on a Soviet rocket)
1977	French satellite Signe-3 (gamma astronomy) launched by a Soviet rocket
1982	First French human flight—Jean- Loup Chretien (PVH mission) aboard Salyut-7
1984-5	Flights of Vega-1/2 space probes (with releases of balloons in Venus atmosphere and encounters with Halley's comet)
1988	Third French human flight (Jean- Loup Chretien, Aragatz mission), including an EVA (the second French spaceflight was conducted aboard NASA's Space Shuttle)
1988	Phobos flights toward Mars
1989	Launch of Granat satellite with French gamma telescope Sigma
1990	Launch of Gamma satellite
1992	Fourth French human flight (Michel Tognini, Antares mission)
1993	Fifth French human flight (Jean-Pierre Haignere, Altair mission)

<sup>1</sup>This list does not include numerous experiments conducted on Soviet (Russian) Scientific, meteorological, and recoverable satellites  
EVA = Extra Vehicular Activity; NASA = National Aeronautics and Space Administration

SOURCE: Alain Dupas, 1995.

- for a long time French-Soviet space cooperation was the main window of contact between the Russian space community and the Western world, and
- French scientists and engineers have played an important role in introducing their Russian colleagues to the international space community, particularly in the field of planetary exploration.

## THE RATIONALE FOR FRENCH-SOVIET SPACE COOPERATION

### ■ The Political Origin of the Cooperation

There is no doubt today that Russia's participation in the International Space Station (ISS) program had a political origin. That was also the case for the beginning of the space cooperation between France and the Soviet Union in 1966. The President of France, Charles de Gaulle, was very concerned about ensuring French strategic autonomy, although the fact that France was part of the Western alliance was very clear. He had engaged France in the development of nuclear weapons

and ballistic missiles (the "Force de Frappe") and had decided that his country would leave the NATO integrated military command. Space was a small, but nevertheless significant, part of this drive toward French strategic autonomy; President de Gaulle was instrumental in the creation of the French Space Agency (CNES) in 1962 and in the development of the subsequent French national space program. In 1965, France became the third country to launch an artificial satellite on its own vehicle.

It is in this context that Soviet Minister for Foreign Affairs Andrei Gromyko proposed to President de Gaulle in Moscow on April 27, 1965, that the two countries should examine the possibility of space cooperation between them. This opening was followed on July 1, 1965, by an official memorandum given to the French ambassador in Moscow. For the Soviets, this proposal was certainly a way to establish visible links with a Western power in a politically significant field and to reduce Soviet isolation in the Cold War context. For France, it was a way to demonstrate independence from the United States and to confirm its willing-

ness to take a special position in the East-West relationship. It was by no means a disengagement from French-American space cooperation, which was doing very well at that time—the first French scientific satellite was, in fact, orbited by an American rocket in 1965.

### ■ The Visit of General de Gaulle to Baikonur and the Agreement of June 30, 1966

Charles de Gaulle visited the Soviet Union again in June 1966 and was invited to travel to the then-secret Baikonur Space Center, where he attended, along with General Secretary of the Soviet Communist Party Leonid Brezhnev, on June 22, the launching of a rocket. He was the first foreigner invited to Baikonur and would be the only one for nearly a decade, until the preparation of the Apollo-Soyuz flight.

This visit was closely followed by the signing of an agreement on French-Soviet space cooperation. This was done on June 30, 1966 by French Minister for Foreign Affairs Maurice Couve de Murville and his Soviet counterpart Andrei Gromyko. The agreement stressed that:

The Governments of [France and the Soviet Union]:

- recognizing the importance of the study and exploration of outer space;
- considering that the cooperation between France and USSR in this field will enable the extension of the cooperation between the two countries and will be an expression of the traditional friendship between French and Soviet peoples [ . . . ];

have decided to prepare and implement a program of scientific and technical cooperation between France and USSR for the peaceful study and exploration of outer space.

### ■ The Converging Scientific and Technical Interest of the Two Countries

The political rationale and the very high level of support it created were essential to the beginning of the cooperation. It could not, however, have enabled, by itself, the establishment of a long-term,

fruitful relationship. Converging scientific and technical interests were fundamental for that.

From that point of view, the French-Soviet space cooperation:

- opened a lot of unique opportunities for French scientists and engineers (more experiments, large scientific spacecraft, lunar and planetary probes, recoverable payloads, manned spacecraft) complementary to national, European, and American opportunities;
- enabled the Soviet space community to improve the scientific value of its satellites and space probes by accommodating French experiments using advanced technologies; and
- enabled the Soviet scientific space community to have better contacts with the French and, through them, the Western space science community.

## THE WORKING OF FRENCH-SOVIET (RUSSIAN) SPACE COOPERATION

### ■ Reliance on Simple Procedures

The 1966 agreement was (and still is in many ways) the basis of a very long and successful working relationship that relied on very simple procedures:

- Projects were approved at a yearly meeting of the French-Soviet (Russian) space cooperation committee, alternatively in France and the Soviet Union (Russia); this process is still going on.
- The principle was (and still is, mainly) “no exchange of funds.” Each party pays for its own expenses and scientific results are shared; the only exceptions are the human spaceflights, where a participation fee is paid to the Soviet (Russian) partner.

### ■ The Learning Process

Some difficulties have been encountered in learning to work with the Soviets. The main issues were:

- meeting the right counterparts—at the beginning, contacts were organized by the Intercosmos Council (a body of the Academy of

Sciences) and did not involve the space industry, which was surrounded by secrecy,

- gaining access to industrial and launch facilities, and
- knowing the exact status of a project.

For the French specialists, working with the Soviets in the second half of the 1960s was really a “cultural shock,” as can be heard in a comment by Jean-Pierre Causse, former head of the CNES Technical Center, about a common satellite project at the end of the 1960s:

[Our experience] was based on the cooperation with NASA (FR-1 satellite and other projects), which was very open. [In the Soviet Union] everything was fuzzy. Our Soviet counterparts were extremely cautious, even if they showed a lot of good will. The academic-diplomatic procedures involved heavy, formal, and infrequent meetings, and the work progressed slowly.

With a lot of patience and good will, the situation has slowly improved. Major progress occurred during the 1980s with the involvement of a new organization representing the space industry, Glavkosmos; there was more direct access to Soviet space hardware, and much more access to Soviet space facilities. These improvements have continued with the transition from the Soviet Union to Russia and the creation of the Russian Space Agency (RSA), which works very much like NASA or CNES.

However, the collapse of the Soviet Union has created new problems that were totally unknown before: budgetary, programmatic, and procurement difficulties for the Russian partner, which no longer benefits from the high priority it had in the past and suffers from the general degradation of the economy; this is particularly true for scientific projects.

### ■ The Continuity of Political Involvement

The regularly renewed support of the political actors at the highest level has been an important factor in the continuation and progress of the space cooperation between the Soviet Union (Russia)

and France. The following events have been important:

- In April 1979, Brezhnev himself proposed to French President Giscard d’Estaing the conduct of a manned spaceflight aboard Salyut-7.
- In 1985, a Mitterrand-Brezhnev meeting gave the two leaders the opportunity to agree on a second joint spaceflight (Mitterrand attended the launching).
- In July 1989, the principle of a long-term (10-year) agreement on manned spaceflight was approved by Minister Paul Quilès and Soviet Vice President Lev Voronin; the agreement was signed by CNES, RSA, and NPO Energia in December 1989. Four flights were planned (in 1993, 1996, 1998, and 2000); the first one has already been completed.

The French-Soviet space cooperation has survived the many political crises of the Cold War, such as the invasion of Afghanistan in 1979, which happened while preparations for the first French-Soviet human spaceflight were under way. In that case, the French government decided to go on with the project but to put the focus on the technical side of the flight and to give it a very low political profile.

### ■ The Reliability of the Soviet (Russian) Partner

The Soviets (Russians) were extremely reliable partners until the end of the 1980s. No project that had been started within the cooperative framework had been canceled by the Soviet side (a few were canceled by France). The first failure was encountered in 1988 with the Phobos project (although French scientists still obtained very good results).

The situation has recently changed due to the very large difficulties encountered by the Russian Academy of Sciences in funding and supporting scientific space projects. The cancellation of the Mars ’94 flight and the difficult preparation of the Mars ’96 mission are consequences of this degradation.

Up to now, cooperative human spaceflights have always been conducted exactly according to the schedule fixed months before the launching. Some procurement problems have manifested themselves recently, but human missions seem to be relatively protected from the degradation of the general economical situation in Russia. The question is, however, how long can this last?

### CONCLUSION

The Soviets (Russians) have been very reliable partners in space cooperation with their main past partner, France. The main ingredients responsible for the continuous success of this relationship

over more than 25 years seem to be:

- strong and frequently renewed political support at the highest level,
- strong common scientific and technical interest,
- a long-term commitment able to survive political (and technical, if they arise) crises, and
- a lot of patience and good will to deal with the different social and technical cultures.

Could these recipes work for very large cooperative efforts such as the International Space Station program?