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Inventing a shared Science Diplomacy for Europe

InsSciDE Work Package 8:

Space: European science diplomacy for cooperation in a global space competition

Case Study n°8.2b	Space Racks Diplomacy for Earth: Orbital laboratories producing European diplomacy for intercultural cooperation in the global Space competition
Author	Laurence Roche Nye
Consortium Partner n°9	Università degli Studi di Padova (UNIPD)
Author affiliation	Post-doctoral researcher in contemporary history, LABEX EHNE, Sorbonne-Université

Abstract

Our InsSciDE case study explores the political and techno-scientific organisation of the science programme of European human spaceflights, from its pioneering French-Soviet roots in the 1970s to its institutionalization today. Remarkable in its continuity, the science programme implemented by astronaut-scientists working in plurinational cooperation schemes helped to overcome various political tensions menacing its stability. We will analyse two French-Soviet science and technological missions realized aboard orbital laboratories in 1982 and 1988, which conducted experimental fieldwork in microgravity science and technology in parallel with those conducted by US NASA and the European Space Agency. While many historians and actors have documented the conduct of research in microgravity, the diplomatic issues related to the programme level have received less attention. We will discuss non-technical dimensions such as issues of crew compatibility and interaction in long-duration orbital flight which could possibly interfere with the conduct of experiments. With reference to the model of scientific diplomacy developed by the Royal Society and AAAS (2010), we will examine the influence exerted by political will in shaping and implementing the scientific object of the human space missions.

Introduction

As of 1979, an additional protocol to the 1966 French-Soviet general science and technology agreement integrated a new space activity: human spaceflight. From that time France began to develop diplomatic bonds with the Soviet Union in view of conducting research in microgravity.

The science programme of human spaceflight missions is understood here, on the one hand, as comprising experiments in physics, biology and space medicine conducted by French and European laboratories selected by the space agencies, and on the other hand, by the involvement of astronauts operating experiments in liaison with ground-based scientists (PI-Principal Investigators) and support personnel. We suggest that the structures put in place by the institutional actors to enable this programme were challenged by the initially established hierarchical relationship between the transporting nation (the USSR) and the transported nation (France). Actors promoted a *modus operandi* accepting adjustments to the military/secretcy regime of selection, training and support of payload scientist-astronauts.

Experiments aboard orbital stations are fieldwork of generative science diplomacy, at the interface of governmental wills and the internationalisation of sciences. Operational planning is a site of negotiations (Bonting, 1996). We will develop a historical chronology to lay out facts and identify institutions. However, a



holistic approach must be applied to reveal the process of achieving cooperation missions in situations of ideological adversity. Starting with the first international human spaceflight Apollo-Soyuz Test Project (ASTP, 1975), a world famous diplomatic success, little room was left for scientific experiments. ASTP cooperation reveals organizational and cultural aspects that contributed to shaping a specific approach to governance. Today, the scientific and technological archives of the Russian Federation (partially opened in 2010) allow us to understand not only the technical, but also the non-technical issues raised by ASTP during the space race: technological trust, intercultural management, relations with industry, tensions between Intercosmos vertical hierarchy and NASA horizontal management.

Building on the diplomatic achievement of ASTP, in 1976 the Soviet Council Intercosmos launched an international human spaceflight science programme within the Eastern bloc in reaction to the NASA recruitment of plurinational crews on Spacelab Shuttle flights. An opportunity to reassert political alliances within the socialist bloc, the Intercosmos agreement promoted scientific experiments operated *by and on* cosmonauts themselves onboard orbital stations as a shared action aiming at a common productive goal. A turning point was reached in 1976 with the decision to launch payload-specialists (USA, ESA) or *kosmonavt-experimentatel'* (USSR), implementing astronomy and bio-medical experiments on national orbital laboratories. Spacelab-1, built in Germany, operated by ESA astronauts (but without the French), gives the measure of the tensions between national interests at stake in the Spacelab programme and ESA representation in space.

However, bilateral negotiations between France's Centre national d'études spatiales (CNES) and Intercosmos reinforced space science diplomacy: the 1982 French-Soviet "Premier Vol Habité" (PVH, first manned flight) was labelled a "scientific mission. In order to transcend the political tensions of the 1980s, CNES and Intercosmos mission planners had decided to set up a strategy focused on science benefits. A thorough analysis of the selection of the PVH French astronauts, their training at Star City documented by their instructors, as well as the process of selecting scientific experiments and their conduct in orbit is expected to produce fresh insights on the diplomatic aspects of this East-West scientific cooperation.

Actors

One of the A consequence of the scientific manned flight mission PVH was to make CNES visible on the international stage. Since that time, governmental and intergovernmental space agencies (CNES, NASA, ESA) developing science programmes in cooperation depend not only on public funding, but also on the interests and needs of the society for science operated in orbit. Facing the disapproval by a fringe of distinguished scientists and politicians sceptical of the utility of such programmes, the promotion of science in orbit, and especially human spaceflight, had to be reevaluated and extended. Although science was the key element, unfortunately not many scientists gained in notoriety through space experiments. Overshadowing them, the figure of the astronaut transcends debates and intellectual conflicts as he or she stands in the light. A national citizen, humankind's envoy into outer space, or ambassador to the nations on Earth, the astronaut symbolizes the mass of fellow-citizens and triggers the motivation of the young generation. The astronauts' scientific tasks still indicate however that the construction of a science programme is an object of political concern at the core of the human spaceflight mission.

Beside the central figure of the astronaut, we plan to investigate the decision making underlying the selection and training of ESA-European astronauts. The selection process, producing a crew strongly identified nationally yet with a role of world representation, is a platform of negotiation placing the highest demands on diplomacy. The Archives of the preparatory works for selection and training in USA, Russia and ESA dedicated training centres will allow us to reveal the actors and practices of deliberation and decision.



Networks and communication

- > Study of the formal communication structures set up and implemented during the bilateral cooperation: minutes of annual meetings, work package meetings, etc.
- > Study of the informal means of communication through interviews with major actors and participants.

Politics and policies

- > ESA intergovernmental cooperation and competition on national space programmes of their member states (France, Italy, Germany, UK, etc.) should constitute one axis of observation of tensions where diplomatic practices are visible.
- > ESA Member states interacting independently with partners in association at different levels (Canada, Russia, India, Israel, China...) will be treated as a specific form of negotiation structuring science policy.
- > Interfering in the general landscape of cooperation is the emergence of continental European countries (PECS) showing willingness to participate in ESA science programmes. We refer to ESA exchanges with Ukraine, a former Interkosmos partner with USSR through their Academy of Sciences. In that respect, the real or imagined persistence in the actors' mind of former structures of the Soviet Union should not be forgotten when analysing the interfaces between current institutional scientific bodies (IMBP, IKI, TsPK) founded under the Soviet regime, and the occidental entities.

Disciplinary/methodological approach

This work roots in a thesis involving the history of space science and technology, international relations of the space faring nations during the Cold War, and to a lesser extent, the ethnology of orbital stations, focused on the study of capacity to collaborate in quasi-paradoxal situations. Dealing with very contemporary issues, the case study will draw mainly on political history and socio-historical tools.

The thesis provides a sub-corpus of material composed of selected archives from NASA, CNES, ESA and from Russian funds on the selection process and technical training of astronauts. Taking into account the formal process of protocoling, especially in the former Soviet Union, a series of interviews with institutional actors (active and retired diplomats, scientists-administrators, test- and pilot-astronauts, payload-scientists) and intermediate personnel (engineers, technicians, interpreters, instructors, security agents) will complement, enrich or challenge the official facts.

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