



Centre Français sur les Etats-Unis (CFE)

EUROPEANS IN SPACE
THE INTERACTIONS BETWEEN THE CONDUCT OF SPACE PROGRAMMES
AND THE EUROPEAN PROCESS
SEPTEMBRE 2005

Executive Summary

Decisive choices for the future of European space exploration programmes will be made during the next meetings of the ESA ministerial council, in December 2005 and in 2008.

The continuation of the Aurora programme, as well as cooperation ventures with the U.S. and Russia will be decided on, setting the stage for the next 5 to 25 years. The Automated Transfer Vehicle, human space flight, robotic missions to Mars and niche technologies are amongst the elements of the overall programme that will be defined.

Budgets constraints, however, will be a limiting factor in the decision process.

They point to the lack of political support for space exploration in Europe.

Contrary to the U.S., manned exploration does not enjoy strong historical and cultural references in Europe. Moreover, past partnerships with NASA do not encourage new cooperative ventures.

The two main drivers for space exploration in Europe are rather the preservation of high-tech industry and jobs, as well as the continuation of a successful European scientific presence.

If an ambitious European space exploration programme is to be funded, a lobbying campaign targeting European decision-makers should be undertaken on the basis of these drivers.

Space exploration remains a responsibility of ESA. The involvement of the EU would be a political and budgetary bonus for space exploration. This poses in fine the question of the evolving relationship between the two entities.

Introduction

During its next Ministerial Meetings, in December 05 and in 2008, the European Space Agency (ESA) is expected to adopt its programme for the next seven years. In order to prepare for it, the Directorate of Human Spaceflight conducted a wide-ranging consultation. The idea was to develop a strategy for European space exploration. Areas to consult included the aerospace industry, the scientific community and decision-makers at the European level. Comparison and interaction with other space-faring countries were included.

The role of the French Center on the U.S. (CFE/Ifri) as a partner in the consultation process was to approach European institutions stakeholders and explore cross-fertilisation possibilities that exist between space exploration and the European process.

Europe (defined as the European Union, the European Space Agency and their Member States) holds particular responsibilities and conducts policies that have a crucial impact on space exploration programmes. Support of space exploration by the EU, for instance, ensures a higher degree of political visibility in Europe and the rest of the world. It also opens possibilities of funding research through the Seventh Framework programme for Research and Development. ESA, as the main space authority in Europe, should therefore devote important efforts to sustaining general interest for space exploration in Europe.

If Europe is an empowering framework for space exploration, the reverse also holds true: Space endeavours can play a beneficial role in the process of European construction. Exploration missions such as Cassini-Huygens (that landed a probe on Titan in January, 2005) reinforce feelings of European citizenship and pride. This may be particularly significant in the aftermath of the negative votes on the European Constitution in France and the Netherlands.

Taking stock of this two-way relationship, the objective of CFE was to assess the current connection between the European institutional and political framework and the European space effort. Specific issues were particularly addressed :

- How does space exploration foster the European Union building process? What can we learn from other, non-space, European programmes?
- What are the main drivers of space exploration in Europe today? Which are particularly relevant to the European policy-maker?
- What do European policy-makers know about space issues? Do they care? How can this situation be improved?
- Bearing in mind the necessity of keeping the policy-makers community involved, which space exploration missions should be prominent on ESA's future agenda?

A major and troubling finding of CFE's research has been that the average European decision-maker and politician has little interest in space-related activities. Proof of this was their repeated unavailability when invited to attend brainstorming sessions and workshops. Taking stock of that reality, interaction efforts focused on lobbyists, experts and journalists - people who routinely work with European politicians.

The present paper stems from CFE participation in the ESA consultation process, including a Workshop held at Ifri on May 19, 2005 (see details in the appendix).

Table of Content

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 2 |
| INTRODUCTION | 3 |
| TABLE OF CONTENT | 4 |
| 1. HOW SPACE AND EUROPE INTERACT : A VIRTUOUS CIRCLE | 5 |
| THE ITER PROGRAMME | 5 |
| CULTURE-RELATED AND OTHER PROJECTS | 6 |
| SPACE AS THE BIGGEST BUILDING BLOCK | 6 |
| THE PROCESS OF “EUROPEANISING” SPACE | 6 |
| 2. WHY SHOULD EUROPE EXPLORE THE UNIVERSE? | 6 |
| SPACE FOR JOBS | 7 |
| EUROPE AS A BEACON OF KNOWLEDGE | 7 |
| THE IMPETUS TO EXPLORE AND THE NATURE OF EUROPEAN MINDSETS | 7 |
| THE U.S. FACTOR | 8 |
| 3. CAMPAIGNING POLICY-MAKERS | 9 |
| LOBBYING MEMBERS OF PARLIAMENT | 9 |
| EDUCATION | 10 |
| BRUSSELS AND STRASBOURG | 10 |
| WHICH DRIVERS APPEAL TO WHOM? | 11 |
| 4. DEFINING THE RIGHT PROGRAMME | 11 |
| HUMAN FLIGHT | 11 |
| THE ATV | 11 |
| EUROPEAN MISSIONS TO MARS | 12 |
| THE NICHE CONCEPT | 12 |
| CONCLUSION | 13 |
| ANNEX | 14 |

1. How Space and Europe Interact : a Virtuous Circle

Strong European institutions are likely to foster strong space programmes through enhanced political visibility and budgets. Successful European space programmes can in turn reinforce feelings of pride in the accomplishments of a European political entity. The conduct of space programmes and the European integration process interact in a potentially virtuous circle.

In the difficult context of the European Constitution project being rejected by France and the Netherlands, improving the image of Europe in the eyes of its citizens and fostering positive feelings of belonging may be a good thing.

Feelings of a shared identity between European countries stem from 50 years of cooperation, and the necessity to unite against the rest of the world. By a slow process that is by no means over, cooperation and competition have brought European countries together.

It is important to recognise that competition against other space powers has been beneficial. It allowed the duplication of critical means, such as access to space (Ariane), navigation (Galileo) and transportation to the space station (ATV).

Numerous cooperation programmes have created feelings of identity between European countries. Most of these programmes are outside the realm of space : Erasmus, ITER, the Euro or Arte, to name a few. The European space community can learn from these experiences.

The ITER Programme

European countries that are involved in the *International Thermonuclear Experimental Reactor* programme (ITER) are members of the EFDA (*European Fusion Development Agreement*). EFDA countries participate as a single actor in the world-wide ITER programme. As such, they are already bound by a sense of European identity.

ITER is a relevant example for the space community. The high level of technology and research involved resembles that of space programmes. Whereas European research remains for the most part a national competence, EFDA integrates researchers from different European countries in a single R&D body. This can have far-reaching implications in terms of future European research organisation given the number of potential collaborations between universities and industries, further down the line.

ITER is also a “trans-generation” scientific project. It is planned to involve successive generations of researchers before it is completed. Comparable time frames will be a main characteristic of any space exploration project.

ITER has also come up with innovative management solutions. The competition that took place between Spain and France to choose the place of the future ITER reactor (now Cadarache, in France) has been solved adequately. It led to the creation of *ad hoc* management tools to help make political choices between members of the EFDA programme. These tools enable them to agree at the operational level without having to report the decision to the highest political level.

Culture-Related and Other Projects

Culture is the strongest link that exists between Europeans. Programmes in that area are extremely conducive to a feeling of European identity. The TV channel Arte is a window into high-level cultural programming in Europe. The student exchange programme Erasmus has brought together young people of all European countries since 1987.

Other common endeavours, of a more concrete nature, also create feelings of European belonging. The Euro is a momentous step toward a common language to convey this feeling of identity. Airbus and Ariane are competitive industrial and commercial endeavours from which Europeans can derive a feeling of pride.

Space as the Biggest Building Block

All these programmes can be seen as bricks in the process of European construction.

In that light, space exploration can be seen as a particularly important brick. Whereas most other activities in Europe can be conducted on a national level, cost considerations mean that this cannot easily be the case for space. Seventy percent of European space budgets are spent at the European level. Space therefore appears as a primarily European activity.

Moreover, space exploration is not politically divisive. The pride in mission successes is easy to share by all those involved. Space activities create feelings of "Europeanity".

The Process of "Europeanising" Space

Some segments of space activities are not yet perceived as fully European. Although the ESA Astronaut Corps was created in 1998, European astronauts continue to be presented as nationals by the media to the general public. The same can be said of some European companies. Arianespace is a European company, but often considered a French one. Inside EADS, finding the right balance between France and Germany is an everyday job.

At some point, national feelings will step back and the European flag will be put up. One of the challenges ahead will be to better implement the mix between national and European feelings and to benefit from it.

2. Why Should Europe Explore the Universe?

Geopolitical studies suggest that cultural and societal factors play an important role in the emergence of drivers for space exploration. For instance, the memory of the conquest of the Wild West in 19th Century America clearly constitutes a reference for today's exploration of Outer Space by the United States. Likewise, acquisition of national prestige is a powerful motivation for developing countries with a desire to prove their worth on the international scene, such as China.

Looking back, the will to demonstrate strategic independence and technological know-how certainly was at the core of European motivations to develop space projects in the 1960's. This particular driver was probably as strong for Europe at the time as it is for India or China today. However, Europe has repeatedly shown its value as a space actor since then and it seems probable that space for international prestige is a less important driver today.

Besides, however proud Europeans may be of their many high tech achievement, international prestige for Europe lies also in areas such as culture, art and history.

The different motivations for Europe to undertake space exploration today are deeply linked

to Europe's identity.

Space for Jobs

An obvious motivation for space exploration is the maintenance of a strong industrial base in the area of aerospace. Ambitious programmes in that field will ensure sustained aerospace know-how and high-qualification jobs in Europe. With unemployment at the core of social difficulties in most European countries, maintaining a strong space industry is indeed one of the real levers behind space exploration today. This is perhaps the strongest driver for European space exploration.

Practical benefits represent another driver of space exploration. However, they are for the most part difficult to ascertain from the outset. The pursuit of spin-off benefits was not a motivation but an a posteriori reading of America's Moon program.

Mining the moon is one of the practical benefits that is put forward with regard to the current Bush initiative, but it is not really measurable or even credible at this point.

It is true that some space programmes outside exploration have had excellent economic results. The beginnings of GPS in the 1970's never forecasted the millions of users of today. We can imagine that the industry will be able to develop unforeseen new technologies thanks to the work it does on space exploration programmes.

But it would be unwise to use this approach to legitimate space exploration endeavours as we have such a limited capacity to foresee the potential benefits.

Europe as a Beacon of Knowledge

The wish to better understand the Universe is a traditional motivation of space explorers. The search for extraterrestrial life might be the most intriguing question humanity faces today. Developing our understanding of the emergence of life on Earth is also a relevant and perhaps more verifiable result.

Europe has historically been the source of major findings about the structure of the Solar system and the Universe. The different stages of our knowledge about the universe are linked to such European thinkers as Aristotle, Copernicus, Newton, and Albert Einstein. This dynamic tradition lives on today with famous British astronomers Martin Rees and Stephen Hawking.

The European scientific community certainly wishes to be a regarded source of scientific findings in the future. It will therefore certainly push for significant space exploration programmes.

There are however two constraints to the scientific community's role as a driver for space exploration. It remains first to be seen what influence the scientific community has on policy-makers and budget decision-makers; second, it must be noted that most astronomers would recommend robotic missions, or even mathematical calculation on Earth, over manned missions. This may contradict the more prestige-driven agenda of policy-makers, especially in the United States.

The Impetus to Explore and the Nature of European Mindsets

A more subjective driver for space exploration is the indomitable need to explore that mankind is said to possess. People like Columbus or Magellan chose to cross the Oceans in a very hostile environment, knowing nothing about their destination. They had to be sustained by a strong drive to discover the unknown.

Such individuals are unusual. It is probable that most people would never choose to explore

if they were given the choice. Historically, humankind's urge to discover new territories was rather the result of the search for riches followed by massive demographic expansion. This is not in the scope of space exploration due to the hostility of the space environment.

Determining whether Europe still possesses the faith of Renaissance explorers may be critical in the up-coming decisions on European space exploration. Is today's Europe open to innovation, willing to take risks, or has Europe reached a more mature stage, one in which it proceeds in a more cautious manner? This question echoes the frequently used concept of "Old Europe" versus the "New World".

Indeed, some current trends in Europe, especially in Germany, show caution toward technological progress per se, exemplified by the reservations toward science (new technologies, GMO, etc...). Moreover, health priorities, unemployment and homelessness constitute more pressing societal problems that make it difficult to legitimate space exploration.

Exploring uncharted territories is historically vested with high moral value in the United States. The reference to the pioneer also probably explains why the human element is such an important element in U.S. space exploration. Manned space exploration can be realistically proposed as an end in itself. It seems that subjective representations are not the same in Europe. Conducting manned exploration for the thrill of it may not be the strongest driver at play there.

The U.S. Factor

Competition between actors, as embodied by the U.S.-USSR Space Race during the Cold War, has constituted a key motivation for space exploration.

However, playing the national imperative side too hard did backfire. The anti-Soviet rationales behind the Apollo programme distorted public support for space exploration. It has made it difficult for the American public to endorse space exploration since the Soviet Union disappeared in 1991. Competition as a motivation for space exploration should therefore not be emphasised too openly.

Fortunately, Europe does not vie for world leadership, be it in space or in general, and it will not enter into open competition with other space actors. Furthermore, the U.S. space exploration programme constitutes a major external reference for Europeans. Even though the European exploration project "Aurora" was started more than three years before the 2004 Bush Initiative, the visibility and scope of the U.S. programme is such that it cannot be ignored. The U.S. is clearly committed to a long-term human space exploration project and this constitutes an important factor in the choices Europe is about to make.

In 1992, Europe chose not to develop independent means of human space exploration. If it wants to play a part in human exploration of the Moon and Mars, its only recourse is through partnership with Russia or the U.S. But Europe has been increasingly disappointed by NASA's management of the international Space Station programme.

If the choice is made to participate yet again in an international programme led by Nasa, Europe must negotiate a better deal.

Getting ESA members to agree on a policy is of course the first step. This time around, ESA must define a European contribution that constitutes a self-standing unit within an international "system of systems". In other words, it should represent a credible and useful part of the overall programme, while running no risk of being affected by NASA's mismanagement and ensuing unilateral choices.

European choices will have to be defended by a strong and motivated negotiating team.

European interaction with other space-faring nations will obviously be a powerful bargaining tool during talks with Nasa. While cooperation with China remains a remote possibility at this

point, discussions with Russia are far more advanced. European participation in the Russian Clipper vehicle project would constitute an important bargaining element in setting up the European participation in the Nasa exploration programme.

The most realistic driver for space exploration in Europe seems to be the will to maintain a strong aerospace industrial base. Advancing knowledge about the Universe and competing with the U.S. are also important motivations. The new space initiative announced by Bush in 2004 will likely shape the future European programme.

But none of these motivations seem to be of an immediate and imperative nature. The high-tech industrial base can be fostered via other aeronautic or indeed commercial space programmes; astronomy does not request manned missions; cooperation programmes with the U.S. are plentiful and cooperation with Nasa is therefore not a political necessity.

This is probably why, at the end of the day, one can but observe a lack of overall political support for space activities in Europe.

3. Campaigning Policy-Makers

One reason for sustaining a dialogue between the space community and the policy-making community, however, is that the latter decides on budgets for space programmes. In 1992, lack of political support made funding impossible to procure for the Hermes shuttle and the project was cancelled.

Lobbying Members of Parliament

Members of Parliaments (MPs) vote the budgets and have a degree of choice in the attribution of funds. Amongst policy-makers, MPs are considered an obvious target for lobbyists.

This is particularly true in the United States, where members of Congress have significant powers of decision regarding space budgets. Congressional committees there are official. They reflect a strong political interest in space at the highest level.

In European countries, lobbyists have to approach different entities, according to the political system in use. In France, the GPE (*Groupe Parlementaire Espace*) is set up on a volunteer basis. It is made of particularly involved MPs who try to influence an administration that does not show much interest in space. But their leverage possibilities within the French constitutional system are rather limited. Lobbying them remains a necessity, however. MPs may become more influential in the next step of their career. They also usually have a good network around them.

In Germany, most political parties have organised space groups. Their members gather in committees and sub-committees in the Bundestag. Lobbyists have to go through the whole range of political representation.

Select Committees of the House of Commons are the place to go in the United Kingdom.

Professional lobbyists in Europe recommend three main ways of getting to MPs:

- Some MPs have a major interest for space within their constituency: space exploration is bound to induce business/jobs opportunities and other economic benefits there. Lobbying efforts should focus on them.

- Whenever possible, these MPs should be invited to share a concrete space experience. For example, inviting them to see an Ariane launch in Kourou is a great lobbying tool. Participants will be moved by the experience, remember it and talk about it.
- The argumentation “Europe against the rest of the World” is a powerful one with most European policy-makers. This logic is of less importance in the UK or in the Netherlands who have closer ties with the U.S.

Education

Other segments of society should also be shown the benefits of space exploration. Schoolchildren and students are prominent among them. Primary schools are already the target of space agencies’ communication programmes. Political science students of the highest level should also be targeted, in places such as the College of Europe in Bruges, ENA in France, military colleges in all countries. They are, after all, tomorrow’s decision-makers.

Brussels and Strasbourg

The EU does not have direct responsibility for space exploration. These programmes remain within the ESA portfolio. Only through the research framework programmes can EU funding for space exploration be procured. The role of the EU in space exploration must rather be seen in terms of political support vis-a-vis the rest of the world as well as vis-a-vis Member States, especially when the latter have different opinions on space choices. Lobbying decision-makers in Brussels and Strasbourg therefore makes sense.

Space policy is not a primary interest of EU commissioners and member states ministers. When the European Union is involved in a space decision, the highest political level is often not consulted. One exception was the Barcelona Summit of 2002, that made the decision to go ahead with the Galileo programme. But this happened because there was a strong market pull in favour of the programme, and because Transport Commissioner Neil Kinnock, succeeded by Loyola de Palacio, had taken a strong interest in it.

A significant momentum was initiated at the Commission in 2003-2004. After the ESA Wise Report of 2000 suggested that the two entities interact more, the EU defined its space policy orientation through a Green paper (January, 2003) followed by a White Paper (December, 2003). This culminated in a May 2004 Framework Agreement between ESA and the EU, whereby a joint Secretariat, joint Space Councils and a high-level policy group were created.

Organisation changes have endeavoured to make space management more coherent within the Commission. The Space Policy unit, the Global Monitoring for Environment and Security (GMES) unit and the Preparatory Action in the field of Security Research (PASR) unit now belong to the Enterprise General Directorate. The Galileo programme remains within the Transportation General Directorate while the Joint Research Centre and the Torrejon Satellite Imagery Interpretation centre are independent agencies of the EU.

Meanwhile, the Commission that came in in November of 2004 ponders whether the texts adopted by the former team should be retained. The former impetus seems to be lost as ongoing efforts such as the Space and Security Study Group (Spacek) receive less interest.

The European Constitutional Treaty was to make space a “shared competence” of the EU (i.e. a competence shared by the EU and its member states). The failure of the ratification process leaves more authority on space programming to ESA.

As long as the EU does not overtake ESA decision-making responsibilities, the EU direct interest in space exploration will remain limited, and all possibly applicable EU budget will be that of the research framework programs.

Which Drivers Appeal to Whom?

There seems to be a consensus on the idea that policy-makers are more receptive to down-to-earth arguments, whereas subjective drivers are more appealing to the general public.

Elected representatives must be able to prove the interest of programmes they put money into. The drivers that appeal to them are those with a measurable impact. For instance, the maintenance of an industrial base means a certain number of high-qualification jobs; practical spin-off benefits mean business and growth. They can be defended in front of the media or a parliamentary committee.

Subjective drivers, such as the need to explore, the vision of Europe as still on-the-go, etc..., are valid and powerful arguments. But they cannot be scientifically ascertained. They are deemed to be more directly appealing to the general public. People were fascinated by the Huygens probe landing on Titan. That was an inspiring achievement for Europe and mankind. But when the programme was launched years ago, scientific and industrial considerations had decided policy-makers to authorise the budget.

Policy-makers still need an overall strategy that encompasses manned and robotic missions, short and long term goals in a broad long-term vision. Concrete and subjective arguments must both their place in the definition of such a plan.

4. Defining the Right Programme

The Aurora project, endorsed by ESA in 2001 is a preliminary survey of what Europeans could do to sustain independent exploration and technology. Primary decisions on the next step of the strategy are expected at the ESA council of December, 2005.

Constraining parameters the Aurora programme has to face are budget limitations and lack of political motivation. Additionally, European space exploration will presumably have to fit within the next international exploration programme, probably led by Nasa. Europeans need to retain more control over it this time around, so that critical elements it builds (such as Columbus in the ISS programme) are not discarded.

There is room to devise a smart European mission that will have a real significance within the overall international programme. Several elements can be part of an ambitious European plan that some may want to call "a Vision":

Human Flight

After the failure of the Hermes project in 1992, ESA countries decided not to develop independent means of human space flight. If the policy is not altered, European astronauts will be keen to fly on NASA missions to the Moon.

Collaboration on the Russian programme Clipper is also being considered. Clipper is the successor shuttle to Soyouz. It will be ready in the next decade. Cooperation with Clipper would allow Europeans to fly to the station and to other places later on. It would also constitute a bargaining chip in ESA negotiations with ESA.

The ATV

The Automatic Transfer Vehicle (ATV) is a cargo transportation vehicle currently developed by ESA. The first of these cargo vehicles, the Jules Verne, is scheduled for launch in 2006. It

will service the ISS.

The ATV will be launched atop an Ariane 5 launcher, which makes it an independent means of access to orbital infrastructures. It could be a feature of the next exploration programme.

European Missions to Mars

Robotic missions to Mars, such as the ExoMars project or a "Sample Return Mission" are a visible and ambitious endeavour. They would be envisioned as a follow up on the current European MarsExpress mission.

They are very good in terms of public relations, since exploring Mars may be the most exciting thing space currently offers.

They can also fit nicely into the Aurora programme and into the U.S. Moon/Mars initiative. While not interfering with the first step of the U.S. programme that will be focused on going back to the moon, they will need some degree of U.S. participation, especially the Sample Return Mission.

Choosing to develop robotic missions to Mars as a main goal of European exploration may make it impossible to fund further missions by European astronauts. In the European context, renouncing human space flight may not be politically unacceptable. However, such a choice would need to be clearly stated. The robotic versus manned space debate is therefore an important part of the equation.

The Niche Concept

Another smart way to define a mission that answers the particular European drivers and constraints while fitting into an international programme is for Europe to focus on some technological areas where it can develop a leadership role : a few sustainable niches.

Weather forecasts and human-supporting robots are possible technology innovation areas that Europe could take the lead in.

The visibility of the mission is a necessity if public support is to be obtained. A reasonable time-frame, for instance within five to ten year, must therefore be chosen. The Cassini-Huygens mission is a perfect example. The mission was launched in 1997 and the Huygens probe landed on Titan in 2005.

A niche has to be a technology that other space-faring nations are less interested in developing. Canada, for instance, has built a robotic arm for the shuttle and an advanced version for the ISS. They were able to develop that particular expertise because the U.S. had no interest in it.

Technologies that are deemed to be of strategic interest do not offer good niche opportunity. For instance, the U.S. will never surrender leadership in some strategic fields such as access to orbit and propulsion. Likewise, Europe has chosen to duplicate launcher capacities and cargo transportation, in order to preserve its independence.

With the niche concept, Europe will aim to establish leadership on some space-related technologies. The necessity of leadership is of political or even psychological importance. It will be put forward to decision-makers and the general public.

However, one must note that being a follower on some technologies may actually be a smarter choice. The inventor of a new technology may not be the best developer. An example in the business world is that of Motorola, who invented the cell phone, when the market is now dominated by Nokia.

Conclusion

ESA and its Member States have difficult and far-reaching choices to make regarding the shape and scope of the future European exploration programme. Should we focus on robotic over manned missions? Can we possibly sustain policy-makers' interest? Can Europe handle Nasa leadership?

Getting everyone to agree on these issues seems difficult. But ESA's record shows that it can be done. In the 1970's, Member States were trying to define the agency's Earth observation programme. Every actor had a different approach and no progress was apparent. But proposals gradually converged and the ERS 1 satellite was set up. The current Aurora process helps to focus the attention and sort out the priorities. The delegations will converge again, in the end.

Annex

"Can Space Exploration Reinforce the European Union Building Process?"

CFE workshop, May 19th, 2005

Presentation

A CFE Workshop, with the support of the European Space Agency

In 2005, the European Space Agency (ESA) carried out a "Stakeholder Consultation" on the future of European space exploration. CFE's role in this innovative process was to explore the interactions between the European political framework and the conduct of space programs. A workshop was held on May 19th, addressing the following topic:

Can a European space exploration program help create feelings of European citizenship?

Session one looked at the motivations of space-faring nations in the launching of space exploration programs. Which drivers are particularly relevant to Europe? (with a presentation by **Jakub Ryzenko**, from the Polish Space Agency); Session 2 examined several European achievements outside the realm of space, and whether they have succeeded in building up a feeling of European citizenship (with an introduction by **G radline Naja**, from ESA, and a presentation on Iter by **Pr. Minh Quang Tran**, from EFDA); Session 3 reviewed different methods of lobbying European decisionmakers (with a presentation by **Astrid Bont **, from Eutelsat); Session 4 looked at current ESA exploration projects: can they be integrated in an overall U.S.-led exploration program while retaining a self-standing significance?

As a key-note luncheon speaker, **Elisabeth Sourgens**, from ESPI, advocated a strong and sustained European space exploration program.

List of Participants

| | |
|-----------------|--|
| Arl ne Ammar, | International Relations Department, CNES |
| J rgen Bitte, | VP Strategy & IRT, EADS Space Management & Services |
| Silke Boettger, | Director for Strategic Analysis, Europe Boeing France |
| G rard Brachet, | Vice-Pr sident, Acad mie Nationale de l'Air et de l'Espace, Chairman-elect, UN COPUOS (2006-2008) |

| | |
|-----------------------|--|
| Astrid Bonté, | Eutelsat |
| Isabelle Bouvet, | Strategy and Programmes Direction, CNES |
| Sylvano Casini, | ECSA |
| Andreas Diekmann | Exploration Programme, ESA |
| Alain Dupas, | Director, Strategy Studies department, Collège de Polytechnique |
| John Egan, | VP Development, ISU |
| Lars Fredén, | Head of the International Relations Department, ESA |
| Jun Gomi, | Director of the Paris Office, JAXA |
| Max Grimard, | VP Strategic Business Development Space, EADS |
| Richard Heydmann | President, Association Planète Mars |
| Alexandra Holden, | ESA |
| Bernhard Hufenbach, | Head of Human Spaceflight Programme Analysis and Reporting Section, ESA |
| Maité Jauréguy, | Visiting Fellow CFE & CSIS |
| Claire Jolly, | Advisory Unit to the Secretary General, International Futures Programme, OECD |
| Gregory Lamory, | Arianespace |
| Donald Miller, | NASA representative in Europe |
| Luc Mounier, | ESA |
| Géraldine Naja, | Acting head of the Director General's office for policy, and head of institutional matters in the DG's office for policy, ESA |
| Laurence Nardon, | Space Programme, CFE |
| Guillaume Parmentier, | Director, CFE |
| Sylvie Rouat, | Reporter, Sciences et Avenir |
| Jakub Ryzenko, | Director, Polish Space Office |
| Michael Simm, | Young Graduate Trainee, ESA |
| Elisabeth Sourgens, | Geopolitics and Security Affairs, ESPI |
| Jean-Pierre Swings, | Institut d'Astrophysique et de Geophysique and President of the ESA Exploration Programme Advisory Committee (EPAC) |
| Micheline Tabache, | International Relations Department, ESA |
| Minh Quang Tran, | Leader of the European Fusion Development Agreement (EFDA) and Director of CRPP-EPFL |
| Jacques Villain, | Snecma |
| Jorg Wehner | Director of the Paris Office, DLR |
| Valérie Zinck, | Exploration Programme, ESA |