



**Assembly of Western European Union
The interim European Security and Defence Assembly**

DOCUMENT A/1738

20 June 2001

FORTY-SEVENTH SESSION

A joint European space strategy: security and defence aspects

REPORT

submitted on behalf of the Technological and Aerospace Committee
by Mr Maass, Rapporteur

ASSEMBLY OF WESTERN EUROPEAN UNION
THE INTERIM EUROPEAN SECURITY AND DEFENCE ASSEMBLY
43, avenue du Président-Wilson, 75775 Paris Cedex 16
Tel. 01.53.67.22.00 – Fax: 01.53.67.22.01
E-mail: assembly@weu.int
Internet: <http://www.weu.int/assembly>

A joint European space strategy: security and defence aspects

REPORT¹

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by Mr Maass, Rapporteur*

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¹Adopted unanimously by the Committee on 17 May 2001.

²*Members of the Committee* : Mr Atkinson (Alternate: *Meale*) (Chairman); MM Cunliffe, Kolb (Vice-Chairmen); Mrs Aguiar, MM Arnau Navarro (Alternate: *Puche Rodríguez*), Ceder, Cherribi, Diana, Díaz de Mera (Alternate: *Yañez Barnuevo*), Dimas, Dolazza (Alternate: *Provera*), Etherington, Hauptert, Jung, Le Guen, Luís, Maass, Marshall, *Martínez Casañ*, Monfils, Neuwirth, *Olivo*, Mrs Onur, MM Rigo, Valk, Valleix, Wodarg, Mrs Zissi.

Associate members: MM Bergvinsson, *Cerrahoglu*, Eörsi, Kalkan, Macé, Malat, Marthinsen, Pokol, Saglam, Zemke, Zielinski, Zlotowski.

N.B. *The names of those taking part in the vote are printed in italics.*

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RECOMMENDATION 691¹***on a joint European space strategy: security and defence aspects***

The Assembly,

- (i) Considering that the European space sector today has technical expertise, a large scientific community and an efficient space industry but that there is no common political will to make the most of these assets;
- (ii) Stressing that it is imperative for Europe to have a space component and to consolidate its status as a world power by acquiring an autonomous capability in this area;
- (iii) Noting that the European space endeavour is based on a series of different choices and national programmes rather than on any European policy as such;
- (iv) Recalling the huge amount of productive work done over many years by the European Space Agency and also by the European Commission's Joint Research Centre more recently;
- (v) Recalling also WEU's endeavours in the form of studies on the development of a European space-based observation system;
- (vi) Commending the WEU Satellite Centre on the sterling work it has done not only in terms of its operational efficiency but also as regards the constant improvements it has made in its techniques and procedures notwithstanding budget constraints;
- (vii) Considering that the European Union's resolve to deploy a rapid reaction force able to carry out Petersberg missions under the command of a joint Military Staff requires, among other things, a thorough overhaul of Europe's intelligence assets;
- (viii) Recalling that in this new framework the WEU Satellite Centre, which is to be transferred to the European Union on 1 January 2002, will have to carry out new tasks;
- (ix) Stressing that the Centre's current status as a service provider is compatible with the future missions it may be assigned and that it would be eminently sensible for it also to acquire communications, navigation, real-time data transmission and, in the longer term, early warning and electronic surveillance capabilities;
- (x) Considering nonetheless that it is imperative for the Centre to maintain the dual nature of its missions and preserve its capacity to provide services for the civilian sector;
- (xi) Welcoming the document on a European strategy for space drawn up jointly by the European Commission and the European Space Agency;
- (xii) Noting with satisfaction that ESA intends to share the EU's growing interest in a Common European Security and Defence Policy;
- (xiii) Observing that, with the sole exception of Helios I, European military satellite programmes have so far been confined to the national framework;
- (xiv) Recalling the studies carried out by the WEU Space Group on the development of a European space-based observation system and the possibility of WEU's participation in such a system at a multilateral European level;
- (xv) Welcoming the decision of the EU Council of transport ministers to go ahead with the Galileo navigation satellite programme,

RECOMMENDS THAT THE COUNCIL

1. Request the WEU member and observer countries, in their capacity as EU member states, to ensure that the European Union acts as coordinator for Europe's space activities (in terms of

¹ Adopted without amendment by the Assembly on 20 June 2001 (sixth sitting).

observation, communications, navigation and early warning satellite systems) including the military component, taking into account the following factors:

- (a) in the modern world the use of space in economic, industrial, political and military terms has become an indispensable strategic necessity;
- (b) in the context of the Common European Security and Defence Policy a proven space capability is of crucial importance;
- (c) the EU must lose no time in defining Europe's operational requirements;
- (d) the EU must have independent decision-making procedures;
- (e) the EU must decide whether to participate in a multilateral European space-based observation system under development;
- (f) the European countries have so far been unable to reach agreement on a joint military satellite communications system;
- (g) Europe must achieve interoperability with its transatlantic allies;
- (h) the need to study Russia's offer of cooperation on satellite programmes and more specifically the proposal it submitted to NATO regarding a joint space centre initially for the purpose of identifying and monitoring ballistic launches and, in the longer term, intercepting non-strategic launches;
- (i) the need for a study of European requirements with a view to the possible creation of a body able to manage information provided by satellites, including the acquisition, management and retransmission of data;
- (j) the creation of a space group should be envisaged, similar to the group which used to exist in WEU; it would be answerable to the Political and Security Committee and responsible for coordinating those aspects of European security and defence that concern the use of space;
- (k) care must be taken to avoid an excessive time lag between a declaration of intent to carry out a space programme and its actual completion, as this does nothing to promote industrial competitiveness and also makes it difficult to match projects to actual needs;
- (l) greater coordination should be sought with the defence aerospace industry which should be more involved in analysing the environment;

2. Further request the WEU member and observer countries, in their capacity as EU member states, to ensure that once the Satellite Centre has been transferred to the European Union, it is given a status enabling it to adjust its work to the requirements of the Common European Security and Defence Policy by pursuing the following objectives:

- (a) a redefinition of the Satellite Centre's mission that both confirms the dual nature of its tasks and the importance of the civilian market in European space strategy, and also makes provision for the establishment of a military unit within the Centre's organisational structure given that intelligence and battlefield management missions require special equipment and appropriately trained staff;
- (b) giving the Centre with the resources it needs to provide both commercial services and markets for satellite operators and European space companies, and to optimise the use of commercial systems;
- (c) greater independence for the Centre so that it can take autonomous decisions regarding certain missions and priorities;
- (d) widening the range of the Centre's tasks so that it can begin to develop a battlefield management capability which requires:

- the use of remote-sensing, meteorological and communications tools, as well as electronic surveillance and, in the longer term, early-warning capabilities;
 - the creation of an intelligence capability with a long-term view to setting up a European intelligence service;
 - authorisation to programme a satellite observation system, recourse to all commercial satellites available on the market and occasional access to designated military satellites;
 - a substantial increase in funding and both civil and military staff;
 - institutionalising cooperation between the Centre, the Joint Research Centre, ESA and the space industry;
- (e) guaranteed access to the Centre for WEU's associate members and associate partners subject to conditions to be decided jointly;
- (f) strengthening cooperation with NATO, in particular at the level of the information transmission chain, the command chain, and utilisation and equipment standards, and also with other organisations such as the United Nations, OSCE, etc;
- (g) ensuring that the Centre comes under the direct command of the High Representative for the Common Foreign and Security Policy, in close cooperation with the Political and Security Committee and the European Union Military Staff;
- (h) safeguarding the rights of Satellite Centre staff.

EXPLANATORY MEMORANDUM*submitted by Mr Maass, Rapporteur****I. Introduction***

1. There is nothing new about mankind's fascination with space. In ancient times wise men sought to explore it using their own methods, poets sang its praises and philosophers pondered on it. The conquest of space in the 1960s and man's presence there put an end to what had previously been a figment of the imagination. The subsequent series of attempts at space travel and exploration against a background of science fiction resulted in our perception of space standing somewhere between reality and fiction, with no real indication of what might or might not happen in the future. Today, space is viewed more pragmatically and is gradually acquiring strategic importance.

2. The term "information society" may be hackneyed but it nevertheless reflects the undisputed reality of the importance of the media in modern-day society. More generally, there is no doubt that control over the dissemination of information is vital at all levels of society: being fully informed at all times and before everyone else gives people the edge when it comes to being the first to decide and act. Space has a major role to play in this race to control the environment through information superiority. Its natural attributes (the fact that it is boundless, empty, etc.) and the laws which apply to it (non-appropriation under the 1967 treaty on outer space) make it the ideal place from which to observe, gather and transmit information.

3. Information superiority therefore depends to a large extent on controlling space and this is something which the United States apparently understood and took into account in many areas of activity a long time ago. Its interest in space is reflected in the policies the new Bush administration is pursuing as can be seen from the recent report issued by Defense Secretary Donald Rumsfeld (published on 11 January 2001). The United States continues to play the leading role in space activities. If Europe intends to become a major economic and political player on the international stage, then it too must concentrate more on the space component and build up its assets with a view to acquiring an autonomous capability in this as in other areas. Today it has both technical expertise and a large space science community as well as an efficient space industry. But there is no common political will to make the most of the expertise available to it. The budgets of the various European countries reflect wide variations in the priority they give to space activities. France, for example, alone spends as much on space as Germany, Italy and the United Kingdom put together! Furthermore, cooperation on space activities is the exception and is invariably complicated. The European space endeavour is based on a series of different choices and national programmes rather than on any European policy as such.

4. Society's dependence on space is, however, growing all the time and this applies to all sectors. Thus security and defence policy in the 21st century is inconceivable without reliable space assets. Satellites have become valuable instruments essential for political decision-making in the fields of military or civilian security, in a theatre of operations or for dealing with natural disasters.

5. For some time now the European Union has been taking an increasing interest in space, which can be explained by the many uses it can serve in EU policies (agriculture, urban planning, transport, the environment, etc.), by the development of its commercial applications and by a concern to strengthen the European space industry. Moving into this new area of activity requires a formal structure, which is why the Council charged the European Commission and the European Space Agency to frame a "joint European space strategy" which the EU Council and the ESA Council of Ministers adopted in November 2000. The purpose of the strategy is summed up succinctly by Philippe Busquin²: "In addition to strengthening the basis for our space activities and scientific know-how, the challenge facing Europe is how to put its technological expertise and space assets to the best possible use in order to serve society and the competitive marketplace". The purpose of the present

² Philippe Busquin, a member of the European Commission with responsibility for research, speaking in Brussels on 25 April 2001.

report is to study the security and defence aspects of this strategy, together with the future role and place of the European Union Satellite Centre.

II. Towards the Helsinki headline goal: space requirements

1. CFSP progress

6. Since the Franco-British summit in Saint Malo (4 December 1998), the European Union's Common Foreign and Security Policy (CFSP) has made rapid progress as a result of a series of developments. The setting of a number of objectives and the creation of new structures in the EU have made it necessary to reflect on the resources they require.

(a) Petersberg missions

7. At the Cologne European Council (3-4 June 1999) it was decided to strengthen the CFSP by giving the European Union a Common European Security and Defence Policy (CESDP) and to transfer to the EU "those functions of the WEU which will be necessary for the EU to fulfil its new responsibilities in the area of the Petersberg tasks". Members of the European Council declared their resolve that "the European Union shall play its full role on the international stage" and to that end said they intended to give the European Union "the necessary means and capabilities to assume its responsibilities regarding a common European policy on security and defence".

8. The Presidency Progress Report to the Helsinki European Council (11-12 December 1999) stated the following: "(...) Member States have set themselves the headline goal: by the year 2003, cooperating together voluntarily, they will be able to deploy rapidly and then sustain forces capable of the full range of Petersberg tasks (...)"³.

- Petersberg tasks, as defined in the Petersberg Declaration⁴ and also in the Amsterdam Treaty, consist of humanitarian and rescue tasks, peacekeeping tasks and tasks of combat forces in crisis management, including peacemaking.
- The forces envisaged in the Helsinki Declaration consist of between 50 000 to 660 000 troops deployable *out of area* and sustainable for at least a year.
- In order to meet these objectives it is necessary to establish specific capabilities in a number of areas.

(b) The European Union's new political and military structures

9. The creation and setting up of these new structures are a sign of the considerable progress made in the field of European defence: it has been decided to establish an EU Satellite Centre incorporating the relevant capabilities of parallel structures already existing in WEU and the Nice European Council (7-8 December 2000) confirmed that the EU Political and Security Committee (PSC), Military Committee and Military Staff, which had been established as interim bodies by the Helsinki European Council, were to become permanent. In the event of a military response to a crisis, the PSC, consisting of the member states' Permanent Representatives who hold the rank of ambassador, and acting under the authority of the Council, exercises "political control and strategic direction". It addresses guidelines to the EU Military Committee which itself submits recommendations to the PSC. The Military Committee is made up of the Chiefs of Defence Staff of the EU member states, represented by their military representatives. It also provides the EU Military Staff with military directives. The Military Staff, which is responsible for early warning, situation assessment and strategic planning for Petersberg missions, must be able to count on command, control and intelligence capabilities. The Nice European Council stressed the importance of continuing work in these areas. The new structures must therefore be able to play their role to the full, which means that they must have the necessary resources.

³ See Presidency Conclusions, Helsinki, 10-11 December 1999, Annex I to Annex IV (Presidency Progress Report to the Helsinki European Council on strengthening the Common European Policy on Security and Defence).

⁴ Meeting of the WEU Council of Ministers, 19 June 1992.

10. The Force Catalogue drawn up recently by the European Union was preceded in November 1999 by a WEU audit. This audit was the outcome of a decision taken the previous year, at the ministerial meeting in Rome (November 1998), to draw up an inventory of the assets and capabilities of WEU member, associate and observer countries for crisis-management operations. The report produced by the Luxembourg Presidency pointed to a number of shortcomings. The conclusions reached in the audit were subsequently followed up by the European Union since the audit had brought to light certain deficiencies relevant to the capabilities specified in the headline goal. At Feira (19-20 June 2000) the European Council accordingly decided to hold a Capabilities Commitment Conference, which took place in Brussels on 20 November 2000. Its purpose was to enable the EU member states to give effect in technical and military terms to the political objectives set in Helsinki. At the conference the member states entered into commitments to contribute to the rapid reaction force on a voluntary basis. These national commitments, which were set out in the Force Catalogue, were compared with the capabilities considered necessary and the areas in which further efforts were required (development, investment and coordination) were then identified. What are the requirements as far as space is concerned?

2. Space requirements

11. “Space assets will henceforth be used increasingly in military operations. Satellites enable each unit, ship and aircraft to pinpoint its position to within some tens of metres. They are also a means of deterrence since they supply precise data on the activities and movements of a potential aggressor. Finally, they save time by making it possible to intervene rapidly anywhere in the world. In a strategy consisting of deploying fewer forces to external theatres than in the past, the need for transmission capabilities increases tenfold. Space operations have now become a prerequisite for successful intervention on the ground, efficient communications and good coordination of precision strikes. Such strikes can be triggered by satellite systems, hence the importance of anti-satellite capabilities to control space. Space-based facilities dramatically improve surveillance and reconnaissance capabilities, which will make it possible to separate many adversaries in the 21st century”⁵.

12. Satellites, which have become essential for battlefield surveillance, are now able to carry out many tasks in military operations. They can, for example:

- indicate weather conditions;
- pinpoint targets and guide missiles;
- monitor civilian and troop movements;
- assess the results of action;
- provide intelligence about potential adversaries (electronic surveillance and observation).

(a) Observation satellites

13. Space capabilities are built around four types of satellite each of which has a separate function: observation, communications, navigation and positioning and early warning.

14. Observation satellite systems have many uses; in particular they can be used for “environmental monitoring, monitoring of potential crisis areas, anticipation of crises, planning of operations, monitoring the implementation of treaties”⁶. Space is ideal for observation and surveillance tasks. From their orbits satellites can cover a far bigger area of the earth’s surface than can be covered by aircraft or, in particular, by facilities on the ground. Of all the possible uses observation satellites can serve, crisis management is the one which deserves particular attention in the light of recent developments in the CFSP. It is important to remember that crisis-management operations are different from “conventional” conflicts in that their objective is to steer the warring parties towards a political and diplomatic solution of a crisis, adopting as neutral an attitude as possible and keeping the

⁵ “La guerre parfaite” by Thérèse Delpech, *Flammarion Essais*.

⁶ Report on “Space systems for Europe: observation, communications and navigation satellites – reply to the annual report of the Council” submitted on behalf of the Technological and Aerospace Committee by Mr Díaz de Mera, Rapporteur; Assembly Document 1643, 18 May 1999.

interests of the civilian population in mind at all times. To this end intelligence is vitally relevant and important. During military operations situation assessment has to depend on reliable human and technical resources but also on well established military and political structures. Intelligence activities fall into two categories: routine surveillance for real-time detection and identification of a threat and the acquisition of specific data which can be used for intelligence purposes⁷.

15. Airborne assets (aircraft and drones equipped with sensors) and space-based facilities are used to carry out these activities. There is a certain degree of competition between the two but satellites have the advantage of escaping the legal constraints with which airborne facilities have to comply as regards the sovereignty of states. This means that they operate in a legal framework and never violate air space (either in times of peace or crisis or during a conflict). Airborne facilities have their own qualities (in particular, they are more responsive) and so it is important to stress that the two types of system complement each other.

16. There are also a number of categories of satellite which complement each other as all satellites have their strong and weak points. While optical satellites offer a high resolution, they cannot “see” at night or through clouds. Radar satellites⁸, while offering a lower resolution, have an all-weather capability. Infrared sensors record the non-visible part of the optical spectrum towards longer wavelengths and can create images on the basis of temperature variations between the various objects observed.

17. Crises in recent years (ranging from the Gulf war to Kosovo) have not only demonstrated the advantage of using observation satellites but have also made Europe aware of the need for it to have its own observation capability and to show that it is not dependent on the United States. The Americans, who devote a large part of their defence budget to space activities⁹ and therefore possess a large number of extremely sophisticated facilities, have established an imagery intelligence capability which other nations cannot match. The creation of the National Imagery and Mapping Agency (NIMA) in 1996 increased their supremacy in this respect. NIMA, which centralises orders from its customers and supplies them with appropriate images using national, foreign public or private sources, in effect controls the space observation market. Even though the fact that it is cumbersome prevents it from working as efficiently as it might for the time being, it nevertheless has to be seen as a threat to Europe’s independence in the increasingly vital strategic field of intelligence.

18. What are Europe’s capabilities in this area in addition to those of the WEU Satellite Centre? With the exception of the Helios I programme involving France (78.9%), Italy (14.1%) and Spain (7%), European capabilities are spread over various national satellite programmes: SAR-Lupe (Germany), ISHTAR (Spain), Cosmo SkyMed (Italy) and Helios II (France). Although Cosmo SkyMed and Helios II are national programmes, they are covered by a cooperation agreement signed by France and Italy at their summit meeting in Turin on 29 January 2001. The agreement makes provision for a cluster of satellites to be placed in orbit between 2003 and 2006. They will be equipped with four radar sensors with a resolution of less than one metre and two high-resolution optical sensors. The radar component, which is being developed by an Italian prime contractor, will be used for the Cosmo SkyMed satellites. The French are working on Spot and Helios II which are visible, infrared optical observation satellites. The agreement also covers the ground segment, which is to be developed jointly by both parties. According to a French Defence Ministry press release, the Defence Minister, Alain Richard, supports the agreement “which, as a complement to the initiatives being taken with Germany, will make it possible to give practical effect to the decisions taken at the Helsinki and Nice summits concerning European defence (...)”. This then is a dual system which, according to the agreement, will both protect defence interests in terms of security and priorities for mission

⁷ “La connaissance du theatre d’opérations: rôle de l’avion, de l’UAV et du satellite” by Colonel Henri Schlienger, in *Défense Nationale*, June 1999.

⁸ Radar sensors send electromagnetic waves towards objects and record how the waves are reflected.

⁹ The overall US space budget (for civil and military activities) in 2000 is estimated at US\$ 27.5 billion according to an opinion on the French draft finance law for 2001 (No. 2585), submitted on behalf of the National Defence and Armed Forces Commission by Mr Bernard Grasset and entitled “Defence, Space, Communications and Intelligence”.

requests¹⁰ and will meet the needs of civil and commercial users. Cooperation is also open to all the EU member states and European multilateral organisations.

(b) Communications satellites

19. Communications satellites are used for the transmission of data, conversation and general information (long-distance telephone communications, international exchanges of television programmes, information technology data, radio contacts with mobile systems). They are therefore essential for military operations, in particular those involving a number of countries. The advantage of using satellites rather than a ground system is that they can reach areas which do not have any ground infrastructure and that territorial boundaries are no obstacle. So far there have been no cooperative programmes for communications satellites. The only programmes that exist are national ones:

- Italy launched the Sicral satellite on 7 February 2001;
- France will launch the first satellite in the Syracuse III programme (Alcatel Space) in 2003;
- Germany is planning to develop a D-Milsatcom satellite;
- the United Kingdom is due to further expand its Skynet programme by launching Skynet 5 in 2005;
- Spain is continuing work on the Hispasat system¹¹.

(c) Navigation satellites

20. Navigation satellites are extending their applications to a large number of areas such as transport, time signals, power supplies and telecommunications. They emit signals which users pick up via a receiver. This enables them to determine their position very accurately at any given time. Satellite navigation systems are extremely important for security purposes.

21. Furthermore, these systems carry out a number of tasks that are essential for the proper operation of certain satellites: orbital trajectory control, determining the launch position, system synchronisation, etc. These techniques seem set to develop further, particularly with the planned increase in clusters of small satellites requiring precise coordination. Navigation satellites have now become essential strategic instruments and have a bright future ahead of them.

22. Today there are only two navigation systems: America's GPS and Russia's GLONASS. Both are funded and controlled by the military authorities in each country. This poses problems of both security and quality: the fact that Russian or American authorities can interfere with or jam signals could have serious consequences in many areas of society given the extent to which dependence on these systems is growing. This explains why Europe wants to acquire its own navigation system.

23. In June 1999, an EU Council meeting of transport ministers gave the go-ahead for the Galileo programme. For a time it seemed that the programme's future was in some doubt because although it received support from the Nice European Council, it was not endorsed by the transport ministers at their meeting on 21 December 2000 in Brussels. Examination of the matter was deferred until April. The main uncertainty concerned funding for the programme as the companies involved feared they would not receive any return on their investments. On 5 April this year the EU Council of transport ministers, meeting in Luxembourg, finally decided to go ahead with the programme and defined the conditions for implementing it. The companies funding the project are in the process of forming a consortium whose statutes are to be drawn up over the coming months (study of proposals on 18 April, opinion of Parliament in July and planned adoption of the statutes on 16 October). In addition, there are to be further meetings of EU transport ministers on 27 June and 6 December. At the second of these the ministers will evaluate the calls for tender (due to be issued in June).

¹⁰ See the agreement concluded between the French and Italian governments on earth observation cooperation, Article II.3.

¹¹ See the report on "Space systems for Europe: observation, communications and navigation satellites – reply to the annual report of the Council" submitted on behalf of the Technological and Aerospace Committee by Mr Díaz de Mera, Rapporteur; Assembly Document 1643, 18 May 1999.

(d) Early warning satellites

24. The purpose of early warning or ballistic missile surveillance satellites is to detect a missile launch from the heat it gives off. Such detection is possible only while the engine is burning and giving off heat (propulsion phase).

25. “The United States has been involved since the early 1960s in developing missile launch detection satellites through the MIDAS programme (Missile Defence Alarm System). In the early 1970s it moved on to IMEWS (Integrated Missile Early Warning Satellites) and finally, in 1976, to the DSP (Defence Support Programme). The Soviet system in contrast took much longer to set up both for technical reasons to do with delays in infrared technology developments but certainly also as a result of political choices which did not give strategic priority to early-warning systems”¹². Europe does not possess any such systems.

3. Access to space

26. While satellites are essential, access to space is even more important because having an independent launch capability means being able to put satellites into orbit. When Europe built its first satellite, called Symphony, it did not have any launchers and had to turn to the United States, which agreed to launch it on condition that no commercial use was made of it. This shows how important it is for any space power or country aspiring to become a space power to be able to rely on an autonomous and sufficiently reliable launch capability. Since the disaster that befell the Space Shuttle Challenger in 1986, this capability has taken the form of rockets or launchers. There are several types: heavy-lift launchers which can place large satellites in orbit and smaller ones suited to small satellites.

27. “The arrival of new launchers on the world scene requires a continuous adaptation of European offers. Maintaining the competitiveness of Ariane-5 is therefore a priority, notably through improvements of the launcher aiming to decrease the specific launch cost. In the medium term, adding European-manufactured small- and medium-launch vehicles should complete the range of launch services”¹³.

28. Market competition between the heavy-lift launchers is tough: Arianespace (Ariane-5), ILS (Atlas-5) and Boeing (Delta-3 and 4) are developing bigger and more powerful launch vehicles able to launch the large satellites that will dominate the market in the years to come. There is also a risk that this competition will get tougher with the arrival of new competitors (in particular from Asia and the eastern European countries). Arianespace, the company responsible for the production, commercialisation and launch of the Ariane launchers, must continue to lead the market as it has done for over ten years thanks to the earlier versions and to Ariane-5 in particular¹⁴ which has demonstrated “Europe’s ability to produce a powerful launcher, thus proving that it has mastered the propulsion and architecture problems involved in developing a radically new launch vehicle subject to complex mechanical constraints. The precision rating Europe’s launcher has achieved on its missions bears witness to technological prowess that matches its ambitions. The main advantage of this more powerful version is that it can put satellites into orbit with greater precision, thus giving future telecommunications satellites – natural Ariane-5 “customers” – an increased lifetime of about two years compared with the lifetime they had with an Ariane-4 launch”¹⁵.

29. The decision to embark on the Ariane-5 programme was taken in 1985. In addition to conventional satellite launches, this vehicle was also supposed to launch the Hermes shuttle and

¹² ‘Le Système spatial russe d’alerte avancée’, a report by Isabelle Sourbès-Verger, with a contribution by François Morel, *FRS*, May 2000.

¹³ Joint European Commission and European Space Agency (ESA) document on a European strategy for space.

¹⁴ On 8 March 2001 Ariane-5 placed a payload of 5297 kg, consisting of the Eurobird and B-Sat-2a satellites, into geostationary orbit (Flight V140 / AR 509). Its next flight is scheduled for early June when it will launch the Intelsat 901 satellite, with Intelsat 902 and 903 due to follow in July and August. Envisat is due for launch in late July. Artemis and its co-passenger will be placed in orbit between June and August and Stentor and its co-passenger between September and October.

¹⁵ “Le lancement spatial: vers une redéfinition du marché?” by Xavier Pasco in *Espace et Puissance*; Anne-Marie Malavialle, Xavier Pasco, Isabelle Sourbès-Verger, *Ellipses, FRS, Collection Perspectives Stratégiques*, July 1999.

provide access to the future international space station. However, the Hermes programme was abandoned in 1992 and access to the space station will now rely on the Automatic Transfer Vehicle (ATV) for which the European Aeronautic, Defence and Space Company (EADS) is the prime contractor. The design of Ariane-5 is very different from that of its predecessors in that its first stage is a cryogenic stage flanked by two large solid boosters while its second is a re-ignitable liquid booster stage topped by a short or long fairing. Ariane-5 can launch several satellites into geostationary orbit by means of its triple launch external bearing structure (known as SPELTRA) which fits between the second stage and the fairing.

30. Ariane launchers take off from the Guiana Space Centre (CSG) near Kourou in French Guiana. This centre, which has been operational since 1968, has undergone substantial development work since 1977 so as to be able to accommodate the Ariane family under the terms of an agreement with the European Space Agency. Initially, the French Government decided to build the centre to compensate for the loss of the Hammaguir launch base as a result of Algerian independence. Responsibility for the centre was entrusted to CNES, the French national space agency. The Kourou site has the advantage of being close to the equator, thus facilitating launches into geostationary orbit.

31. Thanks to Ariane, Europe has become a leader in launch services. However, in order to maintain its status as a space power it also needs to secure a niche in the market for smaller launchers, reflecting the demand for smaller payloads and clusters of satellites. The Franco-Russian Starsem company was created in 1996 to commercialise the Soyuz launcher, intended for missions complementing those of Ariane¹⁶. This joint venture comprises the Samara space centre, the Russian Space Agency (RKA), EADS and Arianespace. The Eurockot company, a joint venture between Khrunichev and Astrium which was created in March 1995 to commercialise a small launcher with a lower lift capability than Soyuz, has also developed a small launcher (Rockot). It is worth noting that the relatively recent creation of these two companies is in line with the tendency for launch companies to become international concerns.

32. Besides the launchers already mentioned, there will also be a Vega launch vehicle for small satellites (payloads of less than 1500 kg). Belgium, Italy, the Netherlands, Spain, Sweden and Switzerland are currently taking part in this project, which is scheduled to be commissioned in 2005.

III. The "European Strategy for Space" drawn up by the European Commission and the European Space Agency (ESA)

1. Introduction

(a) The strategic dimension of space

33. The fact that space has a strategic dimension is borne out by modern-day society's growing dependence on space technologies. The response of the various European Union authorities to this crucial development has led to the definition of a space policy for Europe which, for the first time, is taking on a Community dimension.

(b) The task entrusted to the European Commission and ESA

34. In the light of the need to preserve and reinforce the European Union's space capabilities, the Council called upon the Commission "to prepare, together with the ESA, a comprehensive document on a European strategy for space"¹⁷. ESA is a European organisation created in 1975 by virtue of a convention which defines its purpose as "to provide for and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems". It is therefore perfectly natural for ESA to be involved in the definition of a European space strategy even though, strictly speaking, it is not part of the European Union.

¹⁶ Russia has officially requested France to allow it to launch Soyuz from Kourou. A decision is expected in June.

¹⁷ Council resolution on a European space strategy, see item 1.2.75 in the *Bulletin of the European Union*, No.12-1999.

(c) The threefold objective defined in the strategy paper

35. The communication from the Commission¹⁸ to the Council and the European Parliament, which is entitled “Europe and Space: Turning to a new chapter”, reaffirms the threefold objective set out in the joint Commission/ESA document. It states that the European Union must go about:

- “strengthening the foundation for space activities: preserving independent and affordable access to space, and ensuring a broad technology base with the industrial capability for designing, manufacturing and operating satellite systems and the associated ground infrastructure;
- enhancing scientific knowledge for a better understanding of our planet and its atmosphere, the solar system and the universe;
- reaping the benefits for markets and society through a demand-driven exploitation of the technical capabilities of the space community. This requires the involvement of end-users from the planning phase until operational deployment in a constructive dialogue between all parties concerned from the public and the private sector, at the national and at the European level”¹⁹.

2. Security and defence aspects of the strategy

36. In a recent interview with *Space News*²⁰ the European Space Agency’s Director for Strategy, Jean-Jacques Dordain, made the following comments: “Part of our closer dealings with the EU is to bring space closer to the concerns of society. (...) Security concerns should be a part of Europe’s space strategy. (...) Space will be a part of Europe’s common defence efforts. (...) A policy document adopted in November by the EU and by ESA includes military space as an area that both bodies should develop. (...) This is the first step. (...) A joint ESA/EU space policy task force to coordinate the two organisations’ space investment is expected to be created by mid-February”.

(a) Introduction

37. The Commission and ESA have defined the general objectives (see paragraph 23). In particular, they stress that markets and society should reap the benefits of space technologies and progress made in space applications. The security and defence aspects of space policy come under this heading. Although strictly speaking they fall within the framework of the Common European Security and Defence Policy, they are also being studied through the GMES²¹ project. The strategy paper also considers the Galileo navigation satellite system, which is also relevant to security and defence issues (see Chapter II, section 2 of this report on “Space requirements”).

(b) Security and defence aspects proper

38. Recalling the importance of the Helsinki European Council in the development of the Common European Security and Defence Policy, the strategy paper stresses the consequences that will flow from the formation of a rapid reaction force, which “calls for an optimisation of Europe’s intelligence assets”. The European Union faces the task of putting in place the means for achieving the objectives set for the Common European Security and Defence Policy. A number of proposals are made to that end:

- exploiting dual-use possibilities;
- consolidating member states’ plans for communications, intelligence gathering and observation satellites;
- coordinating global observation and monitoring capabilities under the GMES project.

¹⁸ Communication from the Commission adopted by common agreement with ESA on 27 September 2000 [COM (2000) 597 final].

¹⁹ *Idem*.

²⁰ “ESA increases communications budget”, *Space News*, 22 January 2001.

²¹ Global Monitoring for Environment and Security.

39. Regarding the forthcoming transfer of the WEU Satellite Centre to the EU, the Commission and ESA consider it to be an asset “provided the Centre maintains the dual nature of its tasks and its capacity for civilian services”. It may be called upon to perform new tasks “on the basis of arrangements, which remain to be defined”.

(c) Global Monitoring for Environment and Security (GMES)

40. The strategy paper makes the point that the concept of security has to be understood in the widest sense: “the growing importance of an EU Common Foreign and Security Policy has led to a focus on the interplay between the human dimension of environmental policy and the broad issues of European security, both in a geopolitical context and in terms of the well-being of individual citizens”.

41. Thus consideration of the security and defence aspects of a European Strategy for Space must also take account of effects on the environment, in particular global change, environmental stress and natural and man-made disasters, which are the three main themes of GMES. This initiative should make it possible to develop a coherent earth observation policy in that it provides a link between Europe’s political requirements and its satellite observation capabilities. The strategy paper also refers to the possibility of a policy for pooling and managing information.

3. Implementing the strategy: the joint task force

(a) Remit

42. Developing a European Strategy for Space has required the Commission and the European Space Agency to develop a closer relationship. To implement this strategy the Commission and ESA must now establish a proper operational relationship. To this end they have set up a joint task force²² whose remit is described in the following terms: “Amongst others the task force will stimulate the reflection on a possible unified setting for member states to review the strategy and its implementation on a regular basis, in order to propose permanent arrangements before the end of next year. Furthermore, it will elaborate proposals for framework arrangements for the management of joint projects and outline a coherent approach with respect to candidate countries”²³. The task force is therefore an interim body responsible for defining arrangements for implementing and managing space strategy and also the procedures that will apply to the structures that succeed it.

(b) Composition

43. The task force consists of thirteen permanent members, six from ESA and seven from the European Commission. The permanent secretariat in Brussels is made up of two Commission and two ESA staff members.

(c) Work

44. The task force has been set up for one year. It held its first meeting on 1 March 2001 when it decided to concentrate first and foremost on the Galileo project with an analysis of the present situation and more detailed work on the GMES initiative. Its final report is due to be submitted at the end of this year.

IV. The WEU Satellite Centre

45. Addressing the plenary session in December 2000, Javier Solana commended the Assembly on the work it had done on space as follows: “Let me refer briefly to a third area of innovation – one in which this Assembly can claim credit for being a prime mover – namely WEU’s cooperation in the space sector and in setting up the Satellite Centre. This is an increasingly important field for European cooperation. The European Union has identified the provision of intelligence as one of the key strategic capabilities which require strengthening. WEU has made efforts to improve access to satellite imagery and this is work which it will be important to continue in the European Union”²⁴.

²² See “A European strategy for Space” (Chapter 5.1 – “Working together”).

²³ *Idem*.

²⁴ Address by Javier Solana, 46th session, 10th sitting, 5 December 2000.

1. Past and present

46. In 1988 the WEU Assembly recommended that the Council “define all the conditions necessary for creating, in the framework of WEU, a European satellite monitoring agency whose main task would be to help to verify future agreements on the control of conventional armaments”²⁵. The WEU Council of Ministers decided to create the Satellite Centre at its meeting in Vianden (Luxembourg) on 27 June 1991. The Centre was built on the Torrejón air base near Madrid (Spain) and became a permanent body following the Lisbon ministerial meeting (15 May 1995). The Centre’s primary mission is to provide information based on the interpretation of satellite imagery, supported by collateral data (imagery intelligence or IMINT). Thus the WEU Satellite Centre is the European Imagery Intelligence Centre. It constitutes the only European institution actually collecting intelligence, using open source information bases (commercial imagery). The tasks it carries out fall into the following three categories:

- general security surveillance which can include the general surveillance of zones of interest to WEU²⁶, assistance with treaty verification and application, assistance with arms control and proliferation;
- support for Petersberg missions;
- monitoring in more specific areas (such as marine or environmental monitoring).

47. The Satellite Centre also has the mandate and the capability to train imagery analysts (an area in which Europe is developing its own expertise) but its current resources permit it to train only its own staff. It constantly seeks to improve its performance by developing new techniques and procedures.

48. The Centre responds to task requests by providing customers with dossiers containing not only space-derived images but also an interpretation report. The images it provides are supplied by operators of commercial satellites – Spot-1, 2, 4, 5 and 6 (France), Landsat-4, 5 and 6 (United States), IRS-1C and D (India), Russian satellite operators and, more especially, the American high-resolution IKONOS satellite. It also has access to images taken by the Helios I military satellite (France, Italy, Spain) under a Memorandum of Understanding signed by the Helios participant countries and WEU on 27 April 1993 (Madrid). The Centre does not have its own observation facilities²⁷.

49. The Satellite Centre lost no time in demonstrating its effectiveness, thereby prompting the WEU Council of Ministers to declare it “fully operational” at its meeting in Paris on 13 May 1997. Its qualities have been acknowledged on numerous occasions not only by the Council and the countries participating in its work but also by the EU, NATO and the OSCE, which it can supply with interpretation products. The crisis in Kosovo served to highlight the Satellite Centre’s potential and the expertise of its staff, but at the same time it also showed that more funding would help it improve its efficiency.

50. While there is still some room for improving the Centre in terms of its operational efficiency, its political status is in no doubt whatsoever as the French Prime Minister, Lionel Jospin, made clear in his address to the plenary session of the Assembly in December 2000 when he stated that: “The setting up of the Torrejón Satellite Centre, which provides the WEU Council with strategic intelligence, was a decisive factor in the affirmation of Europe’s autonomy”²⁸. As “a body that is unique in the world”²⁹ the Satellite Centre is therefore a valuable asset that should be maintained and enhanced. This is also the view of Javier Solana, High Representative for the EU’s Common Foreign and Security Policy and WEU Secretary-General: “(...) it is important to preserve what WEU has achieved in the field of space

²⁵ Assembly Document 1160 of 7 November 1988, submitted on behalf of the Technological and Aerospace Committee by Mr Malfatti, Rapporteur.

²⁶ By virtue of a Council mandate defining mission conditions.

²⁷ Which can be a handicap as it means that satellites can only be programmed by their operators.

²⁸ Address given by Mr Lionel Jospin at the 11th sitting of the Assembly’s 46th session, 6 December 2000.

²⁹ See the chapter entitled “Intelligence cooperation in Europe: the WEU Intelligence Section and Situation Centre” by Frédéric Oberson in *Chaillot Paper 34 – Towards a European intelligence policy*.

as we enter the transitional period and with the European Union preparing to set up its new structures. We cannot afford to lose the valuable expertise which had been acquired over the years”³⁰.

51. The decision taken by the Cologne European Council³¹ (3-4 June 1999) to transfer certain WEU functions to the European Union calls into question the future of the Satellite Centre. The Presidency Report submitted in Cologne stated that: “the EU will need a capacity for analysis of situations, sources of intelligence, and a capability for relevant strategic planning. This may require in particular (...) other resources such as a Satellite Centre (...)”. At its meeting in Marseilles on 13 November 2000, the WEU Council of Ministers “noted with satisfaction the European Union’s agreement in principle to the setting-up, in the form of agencies within the EU, of a Satellite Centre and an Institute for Security Studies which would incorporate the relevant features of the corresponding WEU subsidiary bodies. They tasked the Permanent Council to draw all the administrative and financial consequences of these decisions”. The Ministers also acknowledged that “due consideration was being given in the EU to the question of the appropriate involvement of non-EU WEU nations in the activities of the Institute for Security Studies and the Satellite Centre”. More recently, the Nice European Council endorsed the transfer of WEU’s crisis-management functions to the European Union³² and decided to set up an EU satellite centre as described in paragraph 9. The WEU Satellite Centre (like the Institute for Security Studies) will remain under WEU’s responsibility until it is transferred to the EU on 1 January 2002.

2. The Centre’s future

52. The three main questions raised by the ambiguous nature of the texts concerning the future of the Satellite Centre are as follows:

- who will its customers be?
- what tasks will it have?
- what will its products be?

53. Furthermore, there is also the question of the Centre’s future status, which is discussed in detail in the Technological and Aerospace Committee’s report on “New tasks for the WEU Satellite Centre – reply to the annual report of the Council”³³.

54. The collective capability goals set by the Helsinki European Council give rise to major requirements in the field of intelligence. There are grounds for taking the view that the Torrejón Satellite Centre should become a wholly military body as this would make it more available and therefore more effective for the purpose of managing military crises. However, such a decision would take no account of a certain number of criteria such as the budget constraints stemming from various economic and industrial choices made by the member states. There would be a risk in setting up a military structure without being able to finance it.

55. Conversely, a satellite centre focusing mainly on commercial activities would not meet military intelligence requirements. Certain capabilities are of predominantly military nature such as high-resolution observation (at decimetric levels)³⁴. How could a centre which does not have the necessary expertise make use of military satellites? A centre geared to commercial requirements on financial grounds would not be equipped with the secure systems essential for military activities.

³⁰ Address given by Mr Javier Solana, Secretary-General of WEU, at the meeting of the WEU Council of Ministers at 21 in Marseilles, 13 November 2000.

³¹ The European Council decided to “give the European Union the necessary means and capabilities to assume its responsibilities regarding a common European policy on security and defence”.

³² Articles 17.1 and 17.3 of the Amsterdam Treaty were therefore amended.

³³ See Assembly Document A/1692 of 10 May 2000, submitted on behalf of the Technological and Aerospace Committee by Mr Valleix, Rapporteur.

³⁴ In the United States, the 1994 Presidential Directive authorises the commercialisation of metric resolution imagery. The market trend is towards the supply of services produced by merging sensor data rather than merely commercialising images. This development requires authorisation for the commercialisation of images with a resolution of less than one metre (50 cm).

56. One solution accommodating these two contradictory arguments could be a dual-use centre meeting both civil and military requirements. This was the solution recommended in the Technological and Aerospace Committee's report referred to above: "(...) the Centre could be given a dual structure geared to the market but with military expertise. Using commercial systems it could carry out ordinary intelligence missions in the most cost-effective manner. Using the specifically military tools developed by EU member states, it could also conduct specific missions calling for short response times and perfectly secure data. If it were to broaden its activities to include communications, it could form the embryo of a battlefield management capability. Finally, if organised to respond to market supply and demand, it could serve as a catalyst for the European space industry, creating markets and offering its services to numerous players on those markets"³⁵.

57. This "economically viable option"³⁶ would also appear to be acceptable in military terms: "(...) judging by Europe's potential military requirements, the civilian sector can amply cover most of the services that the military require"³⁷. The various aspects of security could be addressed as necessary, one of them being secure access³⁸. Furthermore, since security is now seen increasingly as a global phenomenon, it is difficult to separate the civil sector from the military sector.

58. Nevertheless, this solution is not ideal and its shortcomings are immediately obvious. In the event of a crisis in particular, the Centre's capabilities may prove inadequate (the volume of communications, for instance, increases significantly). It is necessary to take these factors into account and find appropriate solutions.

59. To be as realistic as possible, the basis for defining the Satellite Centre's future status and tasks must be what already exists. Account has to be taken of what the Centre can already offer on the basis of the expertise it has acquired. Its work to date has concentrated on security aspects (in the broadest sense). In addition to the missions it already carries out, it could also focus on more specific tasks such as³⁹:

- production of early warning information on environmentally stressed areas/potential conflict areas (security surveillance);
- production of evacuation plans for high risk disaster areas (areas at risk of flooding, volcano eruptions, etc.) – this is already one of the Centre's main activities;
- monitoring events that are threats to security (i.e. illegal smuggling activities, migration, oil spills, toxic waste spills, etc.).

60. The European Union's potential also needs to be examined. In this respect account should be taken of the work of its Joint Research Centre (JRC) and the possibilities of it cooperating with the Satellite Centre, an aspect which the Assembly has already studied⁴⁰. The JRC consists of eight institutes divided into a number of units. Part of its job is to provide Europe's policy-makers, scientists and citizens with information about space-based applications. Its mission is to provide, as and when required, specific information derived from space-based earth observation facilities in combination with data supplied by navigation and telecommunications satellites. It would appear that the space-

³⁵ Paragraph 101 of Assembly Document A/1692 of 10 May 2000 submitted by Mr Valleix, Rapporteur.

³⁶ If this option were taken up, it would galvanise the industrial sector while reducing R&D costs for the military. If the commercial sector can achieve similar performance levels at a lesser cost, this solution would appear to be the best one.

³⁷ Paragraph 36 of Assembly Document A/1692 of 10 May 2000 submitted by Mr Valleix, Rapporteur.

³⁸ "The Centre could obtain secure access and offset the restrictions imposed by certain governments by means of arrangements with the different operators' governments. For example, the restrictions imposed by the United States on the observation of certain countries, or on the transfer of data to certain clients can easily be circumvented by calling on European, Israeli, Russian or Indian companies. The Centre has only to check that those companies are not operating under American licences, and that they are sufficiently independent for their services to continue to be available even during a crisis" (paragraph 39 of Assembly Document A/1692).

³⁹ This proposal has been made by the Satellite Centre itself.

⁴⁰ See paragraphs 50-86 of Assembly Document 1672 on "The WEU Satellite Centre – the way ahead" submitted on behalf of the Technological and Aerospace Committee by Mr Valleix, Rapporteur, 10 November 1999.

related work carried out by the Satellite Centre and the work done by the JRC are complementary⁴¹ with the WEU Centre concentrating more on the operational side and the JRC focusing on scientific research proper. Cooperation between these two centres could only be in their mutual interest.

61. As a result of the experience it has acquired in the field of security (environmental monitoring, support for Petersberg missions, general surveillance, assistance with treaty verification and with arms control) the Torrejón Satellite Centre could be an extremely valuable instrument for the European Union's space policy. It would be a mistake not to exploit it to the full in the context of the security and defence aspects of the European Strategy for Space drawn up by the European Commission and the European Space Agency. To that end the Centre needs political support for the purpose of acquiring the necessary human and financial resources. Its achievements must not only be preserved but further enhanced.

⁴¹ *Idem*, paragraph 107.

