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**The WEU Satellite Centre – the way ahead**

**REPORT**

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

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*The WEU Satellite Centre – the way ahead*

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by Mr Valleix, Rapporteur*

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<sup>1</sup> Adopted unanimously by the Committee.

<sup>2</sup> *Members of the Committee:* Mr Marshall (Chairman) (Alternate: *Brand*); MM *Atkinson*, *Maass* (Vice-Chairmen); Mrs *Aguiar*, MM *Arnau Navarro*, *Ceder*, *Cherribi*, *Cunliffe* (Alternate: *O'Hara*), MM *Diana*, *Dolazza*, *Etherington*, *Glesener*, *Jung*, *Kolb*, *Le Guen*, *López Henares*, *Luis*, *Martelli* (Alternate: *Brunetti*), MM *Monfils*, *Neuwirth*, *Olivo* (Alternate: *Lauricella*), MM *Polydoros*, *Ramírez Pery*, *Thönnès*, *Valk*, *Valleix*, *Wodarg*, N...

*Associate members:* MM *Ziemiński*, *Malat*, *Saglam*, *Yürür*, *Kalkan*.

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

*Draft Recommendation**on the WEU Satellite Centre – the way ahead*

The Assembly,

- (i) Noting that during the recent crisis in Kosovo, intelligence gathered by space-based means again proved to be essential for managing crises of this nature and military operations more effectively;
- (ii) Drawing attention to the fact that Europe's shortcomings in this respect have once again been laid bare;
- (iii) Welcoming, however, the very useful results obtained by the General Security Surveillance Mission in Kosovo undertaken by the Satellite Centre and, in particular, the development of a Geographic Information System (GIS) for Kosovo;
- (iv) Commending the Centre's endeavours to develop techniques and procedures to optimise its output, and the setting up of a Quality Team to monitor process quality;
- (v) Regretting, on the other hand, that no follow-up action has been taken in WEU with regard to the task set by the Council of Ministers, meeting in Madrid in 1995, of defining the basic conditions for possible WEU participation in a developing multilateral European space observation programme;
- (vi) Regretting that no decision has yet been taken regarding the acquisition of a system enabling the Satellite Centre to receive images directly;
- (vii) Believing, moreover, that Europe should have an institution similar to the United States National Imagery and Mapping Agency (NIMA) whose purpose is to manage information obtained via satellite;
- (viii) Considering that the Satellite Centre, given its present state of development, seems tailor-made to be the future European satellite information management agency, in view of its expertise in management, analysis and training in all areas connected with observation via satellite;
- (ix) Welcoming the contacts and meetings that have taken place between the Satellite Centre and the European Union's Joint Research Centre at Ispra, which have served to illustrate that the functions of each are complementary and to highlight the prospects for cooperation between them, in particular, as regards the future European agency for the management of satellite data;
- (x) Welcoming also the contacts that have been cultivated between the Satellite Centre and the European Space Agency and in particular with ESRIN, the institute whose task it is to gather and disseminate satellite data, in relation to which various possibilities for cooperation have been identified;
- (xi) Noting from information contained in the first part of the annual report of the Council to the Assembly that the observer countries do not as yet participate in WEU's space activities;
- (xii) Welcoming likewise the ties formed between WEU on the one hand and the European Union, NATO and the OSCE on the other, so as to better ascertain the needs of those organisations with regard to the General Security Surveillance Mission in Kosovo;
- (xiii) Stressing the vital importance to Europe's space activities of the recent agreements between the space industries of European nations with a view to strengthening cooperation between them;
- (xiv) Endorsing the Cologne Declaration in respect of the need to strengthen European intelligence, force projection and command and control capabilities;
- (xv) Taking the view that whatever the institutional formula or framework selected, these should not prevent nations that today are involved in WEU's work on space from pursuing their involvement in the future;
- (xvi) Recalling Recommendation 646 and the Council's wholly inadequate reply to it,

## RECOMMENDS THAT THE COUNCIL

1. Make a proper reply to and act, as a matter of priority, upon paragraphs 1, 2 and 3 of Recommendation 646 and inform the Assembly, as necessary, of any difficulty in implementing the proposals contained therein to:

“1. Consider the central, coordinating role of WEU in the European military space sector (observation, communications and navigation), taking into account the following factors:

- the need for an autonomous European capacity for decision-making;
- industrial mergers in Europe;
- the importance the space sector has acquired in Europe;
- the importance of having Europe’s operational needs defined by WEU, a political entity;
- the involvement of WEU in European satellite programmes;
- the quest for interoperability;
- the need to take due account of Russian expertise;
- the need in Europe for an institution to manage satellite data;

2. Assist the Satellite Centre, bearing those requirements in mind, in its development and its efforts to reduce satellite data acquisition times, taking due account of the following factors:

- participation of WEU in a developing European observation satellite programme which gives the Satellite Centre access to the programming of a satellite, in accordance with its requirements;
- procurement of a system for the direct reception of images, which is a necessary factor in reducing acquisition times;

3. Enable the Satellite Centre to become a body responsible for centralising European skills and know-how in the field of space-based earth observation, by virtue of the experience it has acquired in the following fields:

- European cooperation;
- meetings with representatives of industry for the presentation of their programmes;
- collection of images;
- analysis of satellite data;
- training of analysts;
- development of analytical software, databases and geographic information systems (GIS)”;

2. Encourage the observer countries to play a full part in WEU’s space activities, including those falling within the Satellite Centre’s mandate;

3. Ensure that any institutional change involving the place the Satellite Centre is to occupy in the project of European construction does not affect its work or efficiency, but rather enables it to pursue its development;

4. Ensure also that, irrespective of how matters develop in the institutional sphere, the countries that are today involved in the Satellite Centre’s work can continue to be so in future;

5. Envisage conferring responsibilities similar to those discharged by the United States National Imagery and Mapping Agency (NIMA) on the Satellite Centre such that it can take on the management of all satellite information;

6. Take decisions in Luxembourg, on the basis of the recommendations of its Space Group, regarding:

- improved access to satellite imagery;
- procurement of a direct image-receiving station;
- WEU's participation in a developing European multilateral system;

7. Keep the Assembly informed about:

- the solutions it envisages for making good the shortcomings the Satellite Centre has experienced in its General Security Surveillance Mission in Kosovo;
- proposed arrangements to allow the European Union to make use of the Satellite Centre's resources;
- the measures it envisages taking to improve the flow of intelligence to the Satellite Centre and the use made of such intelligence by the Centre.

## *Explanatory Memorandum*

*(submitted by Mr Valleix, Rapporteur)*

### *I. Introduction*

1. During the Gulf war, Europeans had already seen for themselves the extent to which intelligence had become the nerve centre of modern warfare and were able to observe that unlike Europe, which has no European space-based observation system, the United States had a virtual monopoly of information concerning the war, a situation which brought little benefit to its allies.
2. It was on the basis of these observations and on the proposal of the Technological and Aerospace Committee<sup>1</sup> that the WEU Council of Ministers took the decision at their meeting in Vianden (Luxembourg) in June 1991 to create the WEU Satellite Centre at Torrejón (Madrid). The Centre started its experimental phase in 1992.
3. In 1995, the WEU Council of Ministers declared the Centre to be a permanent subsidiary body and in 1997 it was declared operational.
4. The crisis in Kosovo which has only very recently abated revealed, first, the admirable operational capability the Satellite Centre has achieved – a point we shall return to later – and secondly, a series of deficiencies to which attention is drawn in a report to the French Senate Committee on Foreign Affairs, Defence and the Armed Forces entitled “First lessons to be drawn from Operation Allied Force in Yugoslavia”.
5. This called for further impetus to be given to European cooperation in the field of intelligence and in particular space observation which

<sup>1</sup> See in particular the report by Mr Fourré on “Verification: a future European satellite agency” (Assembly Document 1159, 3 November 1988); the report by Mr Malfatti on “Scientific and technical aspects of arms control verification by satellite – reply to the annual report of the Council” (Assembly Document 1160, 7 November 1988); the report by Mr Lenzer on “Observation satellites – a European means of verifying disarmament – guidelines drawn from the symposium” (Assembly Document 1230, 25 May 1990); the report by Mrs Blunck and Mr Valleix on “The development of a European space-based observation system” (Assembly Document 1304, 30 April 1992) and the report by Mr López Henares on “The future of the WEU Satellite Centre” (Assembly Document 1437, 9 November 1994).

now, more than ever, is crucial if European countries are to achieve greater autonomy in decision making.

6. Following various summit meetings: the Franco-British Summit in Saint Malo, then the Franco-German Summit at Toulouse and, finally, the European Council meeting in Cologne on 3-4 June 1999, it was felt that the time has now come for the Union to “have the capacity for autonomous action backed up by credible military forces” and within that autonomous capacity the Satellite Centre must necessarily have a place, in conjunction with the other agencies necessary for the achievement of such an objective and working in close complementarity with them.

7. The present report, which is no more than a continuation of the on-going work being carried out with rigour and commitment by our Committee and the WEU Assembly, seeks to make an eminently realistic and substantive contribution to the discussion so as to secure for Defence Europe space assets that measure up to its political, economic, technological and industrial capability and responsibilities.

### *II. WEU's space activities*

#### *(i) The Space Group*

8. In November 1995, the WEU Council of Ministers, meeting in Madrid, decided to carry out a study to assess the possibilities of WEU taking part in a multilateral space-observation development programme.

9. At the WEU ministerial meeting in Rhodes, the Space Group submitted an interim report on this subject in which it stated that before it was possible to submit recommendations to the ministers, the merits of more direct access for WEU to satellite imagery had to be measured against other considerations such as the Organisation's operational requirements and the cost of such access.

10. On 18 November 1998 in Erfurt, the WEU Council of Ministers asked the Permanent Council actively to pursue the remit it had been given. The Space Group is currently working on a feasibility study concerning a direct image-receiving system.

11. The Space Group has also prepared a report evaluating the possibility of WEU taking part in a European multilateral programme which is being developed. The Council of Ministers in Rome tasked the Permanent Council with defining the needs of the Organisation as regards its involvement in such a programme and with undertaking further work with a view to submitting a detailed report in Bremen in May 1999.

12. The Space Group has also continued to develop its relations with the EU and with NATO, organising visits to the Satellite Centre for experts from those organisations. The Group has also done work on procedures to allow the EU, NATO and the OSCE access to dossiers produced by the Satellite Centre from satellite images.

13. More recently, the annual report of the Council to the Assembly covering its activities for the first half of 1999 states that at its meeting in Bremen the Council of Ministers approved the recommendations put forward by the Space Group on possible WEU participation in a developing multilateral European programme.

14. These recommendations were:

(i) to undertake an analysis of current capabilities and shortfalls;

(ii) to make proposals to improve access to satellite imagery;

(iii) to further investigate the role WEU could play in developing multilateral European programmes.

15. The Space Group will therefore submit a detailed and comprehensive report in reply to those recommendations to the WEU Council of Ministers when it next meets in Luxembourg on 22 and 23 November 1999. According to the annual report of the Council to the Assembly, the Space Group's report will reach concrete conclusions based on further information to be collected by the Satellite Centre on improved/ priority access to satellite imagery, a direct image-receiving facility and possibilities of participating in a developing multilateral European system.

16. The Group has also worked out practical arrangements for the EU to draw on the resources of the Satellite Centre and has started discussions on possible cooperation with the EU in space matters, including a European satellite

navigation system called "Galileo". Lastly, the Space Group agreed to invite representatives from the European Union to attend its meetings and accepted the invitation to WEU to attend European Commission meetings dealing with space matters.

17. Moreover, the Space Group, noting that the observer countries – Austria, Denmark, Finland, Ireland and Sweden – were not yet in a position to take a decision on their participation in WEU space activities, decided to invite those countries to attend meetings in which it discussed relations with the European Union.

#### (ii) *The Satellite Centre*

18. The Satellite Centre started its experimental phase in 1992. Three years later, in Lisbon, the Ministers declared the Centre to be a permanent subsidiary body and in 1997 it was declared operational.

19. As far as the Satellite Centre is concerned, space-based observation clearly has a strategic dimension since observation from space means that all parts of the globe are freely accessible and can be visited regularly and, from the perspective of strict compliance with international law, legally. This type of observation makes it possible, first, to assess risks before they develop into threats, secondly, for decision-makers to be forewarned so that diplomacy or forms of economic or humanitarian intervention can be brought into play before resorting to military action and lastly, to manage crises and also any military action taken.

20. The Satellite Centre carries out the following tasks:

- in response to task requests, it provides WEU, its member and associate member states, with information derived from space imagery interpretation, along with aerial images and other collateral data;
- it trains specialists in digital image interpretation;
- it develops new techniques and procedures for improving the Centre's operational performance;
- it supplies interpretation products to observer and associate partner coun-



tries and to international organisations (e.g. EU, NATO, OSCE).

21. Its job is to provide:

- general security surveillance which can include the general surveillance of zones of interest to WEU, assistance with treaty verification and application, assistance with arms control and proliferation;
- support for Petersberg missions, including:
  - peacekeeping and peacemaking;
  - humanitarian tasks;
  - rescue of nationals;
- monitoring in more specific areas, for example marine or environmental monitoring.

22. Task requests are dealt with by compiling a dossier containing space-derived images and maps used for a mission, but above all plans that have been researched and annotated by an image analyst together with his or her interpretation report.

23. In terms of research, the Centre's Research Division develops *inter alia* data integration systems, complementarity and merge systems for optical and radar images etc., support tools for automatic analysis and Geographic Information Systems (GIS)<sup>2</sup>.

24. At the request of NATO, the Satellite Centre developed a Geographic Information System for Kosovo, which earned praise from both NATO and the EU and which has already proved its worth in terms of its usefulness as well as its excellent quality. GIS are therefore not a potential but a very real capability.

25. Lastly, the Centre develops techniques and procedures for optimising the extraction of information from remotely-sensed data in order to improve output and enhance the Centre's role as a centre of excellence in the service of WEU. No less than 10% of the Centre's budget is devoted

to various projects aimed at developing techniques and procedures to optimise its output.

26. The 1999 Satellite Centre budget is €8.7 million, accounting for roughly 30% of WEU's total budget. The Centre is therefore limited by budget constraints, leading it to seek out and acquire images that offer the best value for money.

27. The Satellite Centre's current suppliers of space imagery are, on the commercial side, SPOT-1, 2 and 4 (France), Landsat-4 and 5 (United States), IRS-1C and D (India) and Russian satellites. Its military supplier is the Helios-1 military satellite (France, Italy and Spain).

28. The drawback with the system of purchasing images is that the Centre cannot participate in satellite programming.

29. The commercial high-resolution image systems of US origin that are now coming on stream are financially attractive. However, the quality of those images must be fully reliable if Europe is to retain its autonomous capacity for analysis.

30. Lastly, shortening access times to satellite imagery is one of the Centre's abiding concerns and studies are being carried out on WEU participation in a developing multilateral European system; a mobile data-receiving station is in the experimental phase and a study is also under way into the possibility of acquiring a direct image-receiving facility.

31. On 1 July 1999 the Centre set up a Quality Team to monitor process rather than product quality. The next stages, to be introduced shortly, will involve the purchase of high-resolution images for complementarity purposes (national and NATO sources, optical and radar, aerial and satellite, high and medium resolution, black and white and colour, and two- and three-dimensional).

32. Finally, according to information supplied by the Centre, subsequent stages will involve reducing access times, improving tools (database access, photo-interpretation support – SAR and merge facilities) and giving more nations access to the Centre.

33. The annual report of the Council to the Assembly makes specific reference to the activities of the Satellite Centre during the first half of 1999. Throughout that period, the Centre con-

<sup>2</sup> GIS: a computerised system for capturing, storing, checking, manipulating analysing and displaying data which are spatially referenced to produce cartography and derived information.

centrated its resources on the General Security Surveillance Mission in Kosovo. About 80% of the Centre's resources were dedicated to this task. A total of 63 reports were produced (22 of which were based on Helios imagery).

34. According to the information your Rapporteur has to hand, the Helios images were supplied to the Satellite Centre free of charge throughout the Kosovo conflict.

35. As part of its mission, the Centre has also developed a Geographic Information System (GIS) providing coverage of the entire region of Kosovo.

36. On 20 January a meeting took place between representatives of WEU, NATO and the OSCE and EU representatives. Its aim was to obtain a better understanding of the requirements of these organisations particularly as regards Kosovo and the General Security Surveillance Mission.

37. It is worth noting that the EU, NATO and the OSCE recognised the importance and the high standard of the work done by the Satellite Centre in creating the Kosovo GIS. In the wake of Kosovo, the Centre is continuing its work on areas of the globe of interest to the security of Europe as a whole or of individual European countries.

38. Lastly, following the decision taken by the WEU Council of Ministers in Bremen in May 1999, the Satellite Centre continues to study the possibilities of WEU participation in a European earth observation programme. According to the Council's annual report to the Assembly, a detailed report will be presented to the ministerial meeting in Luxembourg in November this year. In preparation, the Centre has organised meetings with the various national organisations involved in defence-related space activities and other European organisations active in the space field.

*(iii) Work of the Technological and Aerospace Committee*

39. The Technological and Aerospace Committee's recent report on "Space systems for Europe: observation, communications and navigation satellites – reply to the annual report of the Council"<sup>3</sup> can be regarded as the distillation of

<sup>3</sup> Assembly Document 1643, Rapporteur, Mr Díaz de Mera.

the in-depth work and research done systematically by the Assembly – and our own Committee in particular – with the aim of demonstrating that Europe needs its own independent earth observation system in the interests of its security and defence.

40. In this respect the creation of the Satellite Centre was a first and vitally important step. Moreover, the Centre has demonstrated an exceptional operating capability and proved the extremely high calibre of its staff and research output, all notwithstanding the shortcomings noted in the above paragraphs.

41. It should be noted further that the Centre is a unique tool, the only one of its kind in the world and the only such agency that is run cooperatively. There is therefore a need to make progress and solve the problems that can arise when 16 countries are involved, particularly in a field – security and space – that is not an easy one to manage.

42. Having said this, the Centre is admittedly only a first milestone in the process of providing Europe with an independent space-based observation system which is, at the same time, interoperable with other, similar systems operated by friendly and allied nations.

43. On 15 June 1999, the WEU Assembly adopted Recommendation 646 on "Space systems for Europe: observation, communications and navigation satellites – reply to the annual report of the Council". In it the Assembly first stresses WEU's central, coordinating role in the European military space sector, which should take account of a number of factors including Europe's need for its own independent means of decision-making, industrial mergers across Europe, the importance of Europe defining its own operational needs, the involvement of WEU in European satellite programmes and the need in Europe to manage satellite data.

44. As far as the Satellite Centre in particular is concerned, the recommendation again pressed the Council to consider participation by WEU in a developing European multilateral earth observation programme, which would give the Centre the requisite access to the programming of a satellite to meet its needs, and to procure a system for receiving images directly – an essential factor in reducing acquisition times.

45. Lastly, the Assembly recommended that the Council “enable the Satellite Centre to become a body responsible for centralising European skills and know-how in the field of space-based earth observation by virtue of the experience it has acquired in the following fields:

- European cooperation;
- meetings with representatives of industry for the presentation of their programmes;
- collection of images;
- analysis of satellite data;
- training of analysts;
- development of analytical software, databases and geographic information systems (GIS)”.

46. The reply of the Council to this recommendation, conveyed to the Assembly on 15 September, does not really provide an answer, although it does contain various pieces of information, most already available, and opinions on the work of the Centre.

47. At Bremen, the Council submitted a report to the ministers defining WEU’s operational needs, and a detailed and comprehensive report with concrete conclusions on the new space observation systems and the possibility of WEU’s involvement will be submitted at the forthcoming ministerial meeting in Luxembourg in November this year. The Satellite Centre is currently collecting the necessary information.

48. Moreover, the Council reports that the Satellite Centre is gradually developing standards and know-how in earth observation for security purposes and that the emergence of a European approach is being strengthened by the Council’s recent decision to authorise temporary secondments to the Centre for photo-analysts from WEU member and associate member nations. An initiative such as this can help fortify our countries’ defence outlook by making people aware of the continual two-way traffic between improvements in living conditions and technological development, especially advances in satellite technology.

49. Lastly, the Council noted the very great importance of the Kosovo Geographic Information System (GIS) developed by the Centre and

made available not only to the Council and member and associate member countries, but also to the EU, NATO and the OSCE as discussed earlier, making it possible for Europeans to share the same information tool/database on Kosovo. This, in your Rapporteur’s view, also represents a significant milestone in the history of European security.

### *III. European Union activities in the space sector*

#### *(i) The Joint Research Centre*

50. The Joint Research Centre is a civilian body and more specific and detailed information is therefore available about it than can be obtained about the work of Satellite Centre which, being of a defence and security-related nature, is cloaked in greater secrecy.

51. The annual report of the Council for the first half of 1999 informs us that a meeting took place on 28 April 1999 between representatives of the Satellite Centre and the EU Joint Research Centre. The object of the meeting was to study the possibilities for cooperation between the two organisations. The conclusion was that a number of joint actions were feasible, particularly in the context of GIS support to humanitarian missions, including demining in Kosovo.

52. The Joint Research Centre is the European Union’s scientific and technical research laboratory. The mission of the JRC is to provide scientific and technical support for the conception, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a science and technology reference centre for the Union. Being close to the policy-making process, it serves the common interest of the member states, while being independent of special interests, private or national.

53. The scientific and technical expertise of the JRC is made available to the Commission’s various Directorates-General. Furthermore the JRC is involved in the monitoring of regulatory and legal activities and it has a dynamic relationship with the EU’s policy agenda.

54. The JRC establishes links with the scientific community and industry, creating an added value in the validation, maintenance and improvement of know-how and expertise relevant to its activities.

55. The Work Programme of the JRC is mainly involved with European policies. Its contribution to the 5th Framework Programme on Research and Technical Development focuses on the following major themes:

- serving the citizen;
- enhancing sustainability;
- underpinning European competitiveness;
- safety and security of nuclear energy.

56. Institutional activities represented 80% of JRC achievements in 1998, 25% of which were devoted to political and environmental research.

57. The Directorate-General is located in Brussels, and serves as a link between the JRC's institutes and policy-makers. It also coordinates the different lines of research in the various institutes.

58. Five different countries (Belgium, Germany, Italy, the Netherlands and Spain) house the eight institutes of the JRC:

- IRMM: Institute for Reference Materials and Measurements – Geel
- ITU: Institute for Transuranium Elements – Karlsruhe
- IAM: Institute for Advanced Materials – Petten
- ISIS: Institute for Systems, Informatics and Safety – Ispra
- EI: Environment Institute – Ispra
- SAI: Space Applications Institute – Ispra
- IPTS: Institute for Prospective Technological Studies – Seville
- IHCP: Institute for Health and Consumer Protection – Ispra

*(ii) The Space Applications Institute*

59. Situated in Ispra, Italy, the Space Applications Institute is part of the European Commission's Joint Research Centre Directorate-General. It comprises a multidisciplinary team of over 230, principally from the 15 European Union member states.

60. The SAI's mission is to develop and promote the use of space-derived data in combination with geo-spatial information from other sources, particularly in disciplines that relate to agriculture, fisheries, transport and anti-fraud activity. The SAI also seeks to make the best use of information from space systems, to maximise the return on European space investments and to help the European Union strengthen its role in international action on the environment and sustainable development.

61. The European Commission pursues efforts to promote technological development through Research and Development (R&D) programmes. Under the 4th Framework Programme (1995-98) around 275 million ecu were dedicated to earth observation-related research. The Commission's proposal for the 5th Framework Programme (1998-2002) includes research activities on the development of generic earth observation technologies, notably satellite technologies for environmental monitoring and resources management.

62. The SAI's objective is to provide information services based on space applications for the benefit of Europe's policy-makers, scientists and citizens. The SAI's research focuses on information derived from timely and accurate earth observation in synergy with satellite navigation and telecommunications. Its work is geared mainly to the relevant European Commission services, in particular the various Directorates-General, as the prime users of the information and other services it provides. In addition, organisations both in and outside EU member states are using products, services, data and/or algorithms, most of which are developed in close collaboration with the Institute.

63. The SAI is made up of six units:

- TDP Unit – Technologies for Detection and Positioning; anti-personnel mines
- EGEO Unit – Environment and Geo-Information
- ARIS Unit – Agriculture and Regional Information Systems
- GVM Unit – Global Vegetation Monitoring
- ME Unit – Marine Environment

- SSSA Unit – Strategy and Systems for Space Applications

(a) *The TDP Unit*

64. In 1994, at the request of the European Parliament, the Technologies for Detection and Positioning Unit started experimental tests on the use of advanced radar remote-sensing techniques for detection and identification of anti-personnel landmines. The encouraging results this yielded led to a request from the European Parliament and the JRC Board of Governors to continue the work, which began in the course of the European Union's 4th Framework Programme.

*JRC Project 30 / SAI 02: Civilian demining*

65. This project addresses the development and application of demining technologies. The work includes investigation of techniques, such as sensor data fusion for minefield surveys and mine detection, development of improved sensors for detection, and the improvement of processes for clearance and quality assurance. Furthermore, DG VIII (Development) has run tendering processes to identify organisations able to develop a standard Geographic Information System for mine-plagued areas.

(b) *The EGEO Unit*

66. The Environmental EGO-Information Unit conducts R&D work on the use of remote sensing for environmental purposes. Research is largely directed towards developing advanced techniques for image and data processing.

*JRC Project 39 / SAI 04 Geo-information for development and environmental monitoring (EURO-LANDSCAPE)*

67. This project concentrates on the study of the spatial aspects of sustainable development and environmental management. It includes a series of activities aimed at further enhancing the use of earth observation technologies and geographic information systems for EU regional, environment, transport and agricultural policies.

(c) *The ARIS Unit*

68. Over the years the Agriculture and Regional Information Systems Unit has specialised in providing support to the European Commission in the fields of:

- agriculture;
- agri-environment;
- spatial information and analysis;
- natural hazards.

69. The main institutional activities of the ARIS Unit have traditionally been aimed at satisfying specific requests from DG VI (Agriculture) in relation to CAP implementation and monitoring. These activities include the application of remote sensing to vegetation monitoring, particularly crop monitoring, using low-resolution satellite data. Land-cover changes detected through the use of high-resolution satellite imagery are used for the production of agricultural statistics, for monitoring and forecasting crop yields at European and national level and for verification and control of certain CAP regulations.

70. Due to the CAP reform of 1992 and the Commission's changed requirements as set out in Agenda 2000, ARIS has set out to define new activities which concentrate on the problematic and complex relationship between agricultural activity and the environment, the need to redefine agriculture's role in general land use and regional development policies implemented in the Union, and the need to relate land-use issues to the mitigation of natural hazards.

71. Most of ARIS's activities are funded by the 5th Framework Programme under the heading of "Institutional activities of the JRC"

*JRC Project 5 / SAI 01: SIGMO – Sampling for information on genetically modified organisms*

72. The aim of this project is a feasibility and/or cost assessment of geographic sampling and spatial interpolation techniques that will provide information on the location and total amounts of genetically-modified organisms, and especially genetically-modified crops.

*JRC Project 36 / SAI 03: Natural hazards*

73. The Natural Hazards Project aims to demonstrate the ways in which existing EU knowledge of remote sensing can be used by planners and civil protection bodies to help mitigate the effects of natural disasters.

*JRC Project 66 / SAI 08: MARS – Monitoring agriculture with remote sensing*

74. MARS is a long-term project that has provided technical support and expertise to the European Commission's Directorate-General for Agriculture for over 10 years. The project is divided into four main activities, all using remote sensing: the fight against fraud, crop and yield monitoring, new technological developments in precision-farming techniques and specific information needed for the definition or reform of agricultural policies.

*JRC Project 84 / SAI 11: GI and GIS harmonisation*

75. This project supports action to create a European Geographic Information Infrastructure focusing on technical aspects related to geographic information and Geographic Information Systems (GIS).

76. Environmental phenomena are not bound by national borders and hence there is a need for coherent databases describing fundamental geo-referenced information.

*(d) The GVM Unit*

77. The Global Vegetation Monitoring Unit uses satellite data to provide the European Commission with relevant, timely and accurate information on changes in the location and condition of global vegetation types. It is also dedicated to global environmental observation.

*JRC Project 49 / SAI 06 Global Environmental Information Systems (GEIS)*

78. The European Commission services have a growing demand for global environmental information, notably concerning the state of the world's forest and marine resources, needed for the implementation of environmental treaties and conventions.

79. The project analyses 16 years of global earth observation data (from 1982 to 1998) at medium to coarse resolution and determines broad changes in vegetation cover and seasonality, and in global fire activity.

*(e) The ME Unit*

80. The Marine Environment Unit aims to develop, demonstrate and validate methodologies for the use of earth observation in both opera-

tional applications and scientific investigations related to the marine environment.

*JRC Project 43 / SAI 05 Coastal Monitoring and Management*

81. This project provides relevant, high-quality products and integrated tools to support policies related to sustainable exploitation of marine resources, prevention and control of water quality, and decision for the management of coastal areas. Research work is conducted on data which have already been processed by the Space Applications Institute with a view to finding new applications. These can be used in combination with high-resolution data provided by new-generation satellites.

*(f) The SSSA Unit*

82. The activities of the Strategy and Systems for Space Applications Unit are focused on the development and operation of on-line information systems for space and spatial data, information and services, synergy between earth observation and communication and navigation data, the development of earth observation applications to support the EU's regional, transport, environment policies and the CFSP.

83. The unit runs an information exchange system called INFEO (Information on Earth Observation).

*JRC Project 45 / SAI 07: Support to air quality monitoring using space techniques*

84. The Commission is working on new European legislation on air quality. Preparing and implementing this legislation requires an important scientific and technical contribution. This research works on the emerging capabilities of space-borne earth observation to provide information on air quality in support of EU policies in this domain.

*JRC Project 78 / SAI 09 Centre for Earth Observation (CEO)*

85. Work is being done on developing an operational earth observation capability in Europe. This is based on the requirements identified to support the policies of the European Union, with particular reference to the environmental aspects of the Kyoto Protocol.

*JRC Project 78 / SAI 10 Applications on the synergy of satellite telecommunications, earth observation and navigation (ASTRON)*

86. The ASTRON project investigates the synergies between earth observation, satellite communications and satellite navigation in order to introduce innovative and sustainable services and applications based on the convergence of digital information from satellites. Integration of this information can lead to innovative and cost-effective applications for satellites in areas such as the environment, tracking, safety and engineering.

#### *IV. Washington and Cologne: a new scenario*

87. The change in the United Kingdom's long-standing position on European defence has triggered a process which began with the Franco-British Saint Malo Declaration on 4 December 1998.

88. The Declaration on strengthening the common European policy on security and defence issued by the European Council at its meeting in Cologne on 3 and 4 June 1999 was the logical consequence of the Saint Malo statement. In their Declaration, EU heads of state and government stated their intention "to give the European Union the necessary means and capabilities to assume its responsibilities regarding a common European policy on security and defence".

89. The Declaration stated that the Council "should have the ability to take decisions on the full range of conflict prevention and crisis-management tasks defined in the Treaty on European Union (TEU) the 'Petersberg tasks'. ... To this end the Union must have the capacity for autonomous action, backed up by credible military forces, the means to decide to use them and a readiness to do so ...".

90. Lastly the Council considered that "this requires the maintenance of a sustained defence effort, the implementation of the necessary adaptations and notably the reinforcement of our capabilities in the field of intelligence, strategic transport, command and control".

91. Furthermore, the Presidency report on strengthening the common European security and

defence policy states, with regard to decision making, that the "necessary arrangements must be made in order to ensure political control and strategic direction of EU-led Petersberg operations so that the EU can decide and conduct such operations effectively".

92. The Presidency report adds that "the EU will need a capacity for analysis of situations, powers of intelligence, and a capability for relevant strategic planning. This may require in particular:

- regular (or *ad hoc*) meetings of the General Affairs Council, as appropriate including defence ministers;
- a permanent body in Brussels (Political and Security Committee) consisting of representatives with pol/mil expertise;
- an EU Military Committee consisting of military representatives making recommendations to the Political and Security Committee;
- an EU Military Staff including a situation centre;
- other resources such as a Satellite Centre, Institute for Security Studies."

93. The fact should not be overlooked that without "Amsterdam" and "Washington", "Cologne" would not have been possible. The Amsterdam Treaty actually came into force on 1 May 1999, with all that it implies for the Common Foreign and Security Policy (CFSP).

94. As far as the subject of the present report is concerned, the Declaration relating to Western European Union annexed to the Amsterdam Treaty notes *inter alia* that a number of arrangements for enhanced cooperation between the EU and WEU can be taken forward, one such being the arrangements to allow the relevant bodies of the EU "including its Policy Planning and Early Warning Unit to draw on the resources of WEU's Planning Cell, Situation Centre and Satellite Centre".

95. The Policy Planning and Early Warning Unit set up within the General Secretariat of the EU Council under the responsibility of its Secretary-General (who is also Mr CFSP) has the following tasks:

- monitoring and analysing developments in areas relevant to the CFSP;
- providing assessments of the Union's foreign and security policy interests and identifying areas where the CFSP could focus in future;
- providing timely assessments and early warning of events or situations which may have significant repercussions for the Union's foreign and security policy, including potential political crises;
- producing, at the request of either the Council or the Presidency or on its own initiative, argued policy options papers to be submitted under the responsibility of the Presidency, as a contribution to policy formulation in the Council, and which may contain analyses, recommendations and strategies for the CFSP.

96. Last but not least, the NATO Summit in Washington this year, which was the occasion of the celebration of the organisation's 50th anniversary, welcomed the strengthening of the common European security and defence policy as provided under the Amsterdam Treaty. The NATO Summit adopted NATO's new Strategic Concept, but also confirmed that the development of the CFSP was compatible with the common security and defence policy envisaged in the Washington Treaty framework and that the process should lead to greater complementarity, co-operation and synergy.

#### *V. Conclusions*

97. The tasks of the Satellite Centre are to process imagery obtained from observation by satellite for security and defence purposes, train specialists in the interpretation of digital images, and develop new techniques and procedures to enhance the Centre's operational efficiency.

98. The Centre has already established itself as a centre of excellence, recognised many times over as such, not only by the WEU Council and the nations involved in its work, but also by such bodies as the EU, NATO and the OSCE. It should be added that the Centre is the only one of its kind in the world, in that it operates on the basis of cooperation between quite a number of partners in the field of space-based observation and intelligence, an area which is complex and

difficult to manage where different parties are involved.

99. Furthermore, the creation of a geographic information system (GIS) for Kosovo has served to highlight a new and vitally important operational capability of the Centre, leading on to an idea, already raised by the Technological and Aerospace Committee, that Europe should have an institution similar to the United States' National Imagery and Mapping Agency (NIMA)<sup>4</sup>.

100. NIMA, whose principal shareholder is the American Government, was set up to coordinate the needs of the various American bodies making use of satellite imagery. The purpose of the agency is to manage the procurement and archiving of images, thus avoiding duplication. It centralises requests from the various customers and the supply of images to them by drawing on all the different sources of imagery that are available.

101. It would seem reasonable to look into the possibility of acquiring a system similar to NIMA for Europe and also to take advantage of the experience and expertise available in the Satellite Centre to see whether it might take on this new type of responsibility.

102. In addition, it is worth pointing out once again that the Centre needs a system enabling it to receive images directly, and a decision is urgently required regarding WEU's participation in a European observation satellite development programme, thereby giving the Centre the access it needs to the programming of a satellite.

103. Lastly, the Cologne European Council recently initiated a process whereby certain functions which have until now been carried out by WEU, including the operation of the Satellite Centre, are to be transferred to the EU. It would be premature to be too specific about where the Centre might feature in any organisation plan or what its links with other bodies in the overall structure of the second pillar (CFSP) might be.

104. Nevertheless it would be sensible for the Satellite Centre to be directly under the authority of the High Representative for the CFSP and to

<sup>4</sup> See Assembly Document 1643, "Space Systems for Europe: observation, communications and navigation satellites - reply to the annual report of the Council", Rapporteur: Mr Díaz de Mera.



have links with agencies such as the Policy Planning and Early Warning Unit, the Political and Security Committee, the Military Committee and the Military Staff, and the Situation Centre.

105. Because of the dual nature of the services it provides, the Satellite Centre should be answerable solely to the High Representative for the CFSP, while maintaining links with the other agencies referred to. In point of fact a large number of the tasks carried out by the Centre relate to civil security (for example, the management of natural disasters such as those left in the wake of hurricane Mitch or which occurred in the Doñana wildlife park).

106. Consequently, if the Centre were subordinate to a purely military authority, the kinds of use that might be made of it would be far more restricted.

107. Our attention has been drawn to the fact that the space-related work being carried out by the WEU Satellite Centre and that undertaken by the European Union at the Space Applications Institute (SAI) at Ispra, Italy, are wholly com-

plementary. To put it at its simplest, it could be said that the EU carries out research proper, WEU tends to concentrate more on the operational side.

108. In this connection, there is a need to look at what opportunities there might be for cooperation between the Torrejón and Ispra centres, as this would doubtless be in the mutual interest of both.

109. The issue of the WEU observer countries (which are also EU member states) must be settled, since those countries are not involved in the Centre's work but will in all probability become so in future once the Centre becomes part of the European Union. It might be helpful to start drawing them into partnership from now on.

110. Lastly, your Rapporteur was surprised to discover that the Satellite Centre (which accounts for 30% of WEU's total budget) figures last in the audit of WEU's defence capabilities, even though it is the only truly operational capability which our Organisation can boast.

## APPENDIX

*The WEU Satellite Centre: missions and mode of operation**Missions*

*The Satellite Centre's mission is to analyse imagery derived from observation satellites for security and defence purposes.*

The imagery is acquired in response to task requests from the WEU Council, the WEU member states, its associate members and any other user designated by the Council.

*The areas of application include:*

- General security surveillance:
  - general security surveillance of areas of interest to WEU on the basis of a mandate of the Council defining the conditions of the surveillance mission;
  - support for treaty verification;
  - support of arms control and proliferation control;
- Support for “Petersberg” type missions<sup>1</sup>;
- Surveillance in more specific spheres:
  - maritime surveillance;
  - environmental monitoring.

The Centre has been given two other missions:

- to train specialists in the interpretation of digital imagery;
- to develop new techniques and procedures which will put the Centre on a more effective operational footing.

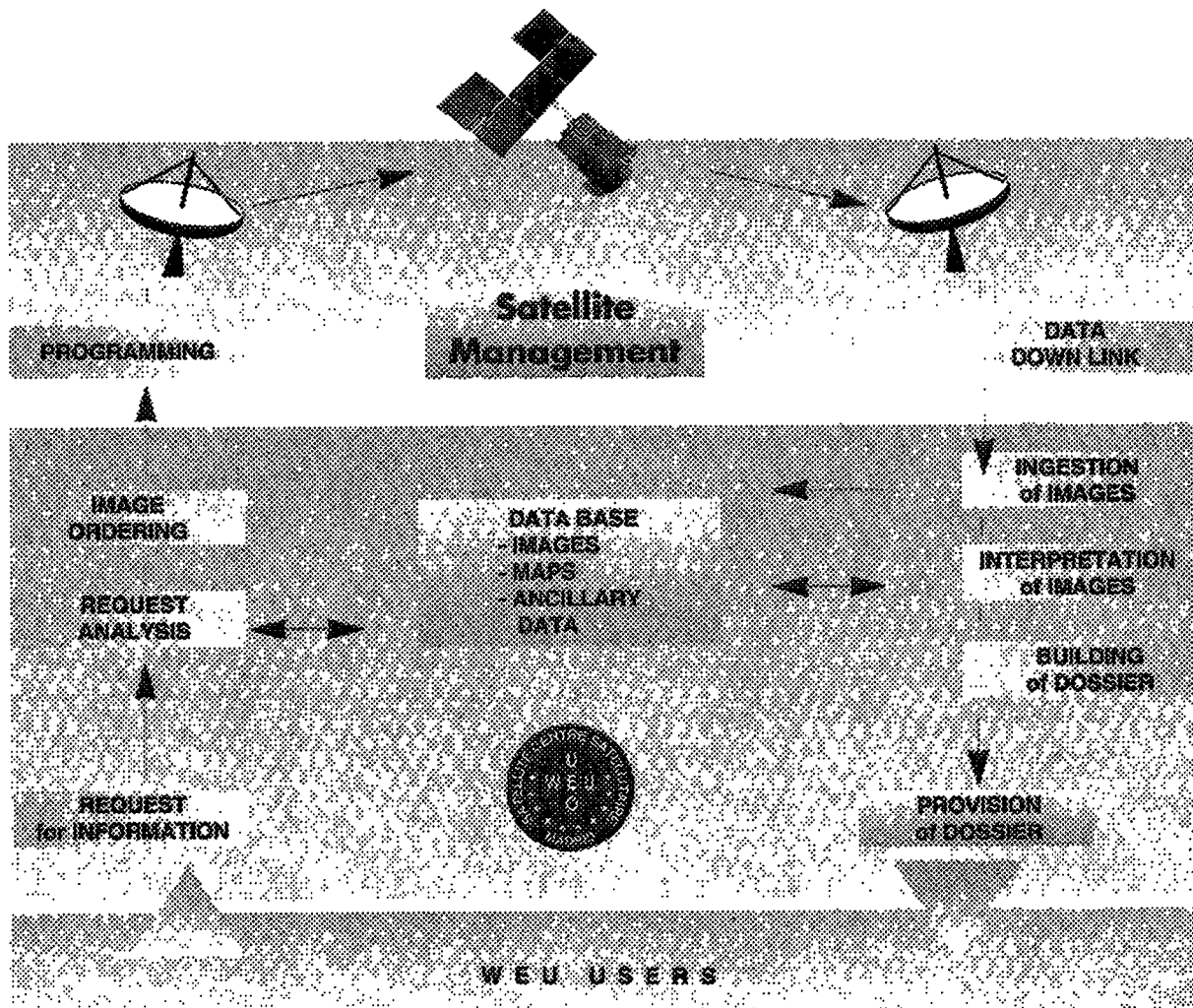
*Once a question has been raised, the reply takes the form of a “dossier”.*

*This document contains the space imagery and maps used for the mission and above all maps with information and notes provided by the image interpreter, together with his analytical report.*

The complete dossier is sent not only to the requesting body but also to WEU Headquarters and each of the 13 member and associate member states.


<sup>1</sup> In 1992, the WEU Council of Ministers meeting at Petersberg near Bonn, envisaged the use of military units, acting under the authority of WEU, for humanitarian and rescue tasks, peacekeeping and crisis-management tasks, including peacemaking operations.

*How does the Satellite Centre work?*





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