

# TRACTATENBLAD

VAN HET

KONINKRIJK DER NEDERLANDEN

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JAARGANG 1985 Nr. 134

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A. TITEL

*Verdrag tot oprichting van een Europees Ruimte Agentschap, met  
Bijlagen;  
Parijs, 30 mei 1975*

B. TEKST

De Nederlandse, de Engelse en de Franse tekst van het Verdrag, met Bijlagen, zijn geplaatst in *Trb.* 1975, 123. Voor de ondertekeningen zie ook *Trb.* 1980, 198.

D. PARLEMENT

Zie *Trb.* 1980, 198 en rubriek J van *Trb.* 1981, 126, van *Trb.* 1982, 42 en 110, van *Trb.* 1983, 30 en 160 en van *Trb.* 1984, 13.

Artikel 1 van de Wet van 26 oktober 1984 (*Stb.* 557) luidt:

„Voor Nederland worden goedgekeurd de volgende te Parijs tot stand gekomen Verklaringen, waarvan de Engelse tekst en de vertaling in het Nederlands zijn geplaatst in *Tractatenblad* 1981, 126, respectievelijk 1982, 42 en 1982, 110 en 1983, 30:

1. Verklaring van de deelnemers aan het programma voor het gebruik van het Ruimtelaboratorium; 12 december 1977;
2. Aanvullende Verklaring van de deelnemers aan het programma voor het gebruik van het Ruimtelaboratorium; 25 juli 1979;
3. Verklaring betreffende het financiële plafond van het project inzake de eerste nuttige lading voor het Ruimtelaboratorium; 23 oktober 1980;
4. Resolutie betreffende de vlucht van de ruimteslede; 16 december 1980;
5. Resolutie inzake de voortzetting van het Ruimtelaboratoriumprogramma boven de 120% van het oorspronkelijke financiële plafond; 12 maart 1980;

6. Verklaring van de deelnemers aan de uitbreiding van het programma voor maritieme satellieten; 1 maart 1978;
7. Verklaring inzake de aankoop van onderdelen en materialen met lange leveringstijden ten behoeve van een verdere uitbreiding van het MARECS-programma; 24 oktober 1978;
8. Aanvullende Verklaring inzake de aankoop van onderdelen en materialen met lange leveringstijden ten behoeve van een verdere uitbreiding van het MARECS-programma; 2 februari 1979;
9. Verklaring inzake de voltooiing van het MARECS-programma; 26 juli 1979;
10. Aanvullende Verklaring inzake de voltooiing van het MARECS-programma; 8 januari 1980;
11. Verklaring inzake een programma voor geavanceerde systemen en technologie; 7 april 1978;
12. Aanvullende Verklaring inzake een programma voor geavanceerde systemen en technologie; 24 maart 1982 (herzien op 8 juli 1982);
13. Verklaring inzake een voorbereidend programma voor een Europees satellietstelsel voor teledetectie; 13 maart 1979; als gewijzigd bij Resolutie van 7 februari 1980;
14. Aanvullende Verklaring inzake een voorbereidend programma voor een Europese satelliet voor observatie van de aarde met behulp van teledetectie; 3 maart 1981;
15. Verklaring inzake het programma voor een Europees satellietstelsel voor teledetectie; 24 maart 1982 (laatstelijk herzien op 16 juni 1982);
16. Verklaring inzake de financiering van de lanceringen van de Ariane ten behoeve van Fase 3bis van het programma voor communicatiesatellieten; 13 december 1978;
17. Verklaring inzake Fase 3bis van het programma voor communicatiesatellieten; 4 april 1979;
18. Verklaring inzake een programma voor de ontwikkeling van een groot universeel platform ten behoeve van telecommunicatiesatellieten; 26 juli 1979;
19. Aanvullende Verklaring inzake een programma voor de ontwikkeling van een groot universeel platform ten behoeve van telecommunicatiesatellieten; 6 december 1979;
20. Aanvullende Verklaring inzake een overbruggingsfase van het L-SAT-programma; 5 mei 1981;
21. Verklaring inzake de ontwikkelingsfase van het L-SAT-programma en de grondslagen voor de latere commerciële exploitatie; 28 oktober 1981;
22. Verklaring inzake een voortgezet ontwikkelingsprogramma voor de draagraket Ariane; 26 juni 1980;
23. Verklaring inzake Fase 3 (berging van de eerste trap) van het voortgezette ontwikkelingsprogramma voor de draagraket Ariane; 17 oktober 1980;

24. Verklaring inzake een programma voor de ontwikkeling van een krachtiger versie van de draagraket Ariane (het Ariane 4 programma); 26 januari 1982 (laatstelijk herzien op 22 april 1982);

25. Verklaring inzake een programma voor microzwaartekrachtonderzoek; 10 december 1981 (herzien op 15 januari 1982);

26. Verklaring inzake een voorbereidend programma voor lange-termijnruimtetransportsystemen; 6 oktober 1982 (laatstelijk herziening op 14 januari 1983).”.

Deze Wet is gecontrasigneerd door de Minister van Economische Zaken G. M. V. VAN AARDENNE, de Minister van Onderwijs en Wetenschappen W. J. DEETMAN en de Staatssecretaris van Buitenlandse Zaken W. F. VAN EEKELLEN.

Voor de behandeling in de Staten-Generaal zie: Kamerstukken II 1982/83, 17 306, Hand. II 1983/84, blz. 5745-5749; Kamerstukken I 1983/84, nr. 238, 1984/85, nr. 38; Hand. I 1984/85, blz. 57-58.

#### E. BEKRACHTIGING

Zie *Trb.* 1980, 198.

Op 1 februari 1985 heeft de Regering van het Koninkrijk der Nederlanden de Directeur-Generaal van het Europees Ruimte Agentschap (ESA) te Parijs medegedeeld dat de door het Koninkrijk der Nederlanden in de loop der tijd ten aanzien van ESA-Verklaringen gemaakte voorbehouden met betrekking tot parlementaire goedkeuring (vgl. rubriek D hierboven) zijn ingetrokken.

#### G. INWERKINGTREDING

Zie *Trb.* 1980, 198.

#### J. GEGEVENS

Zie *Trb.* 1975, 123, *Trb.* 1980, 198, *Trb.* 1981, 126, *Trb.* 1982, 42 en 110, *Trb.* 1983, 30 en 160, en *Trb.* 1984, 13.

#### *Wijzigingen van eerdere Verklaringen*

Zie rubriek J van *Trb.* 1984, 13, blz. 1 t/m 3.

1. Op 29 maart 1984 hebben de aan het Programma voor Maritieme Satellieten Deelnemende Staten eenstemmig de volgende wijzigingen met betrekking tot de Bijlagen bij de Verklaring inzake de uitbreiding van het Programma voor Maritieme Satellieten goedgekeurd:

- in Bijlage A (vgl. blz. 17 van *Trb.* 1981, 126) dient:
- „1. Extension of the Marots Programme” met het volgende te worden aangevuld:

“a replacement flight unit of the Marecs B satellite (Marecs B2), its

launch and operations (ESA/JCB/LV/Res. 1 (final)) dated 28 January 1983.”.

en

– “2. Timetable” met

“In order to meet the operational requirements of Inmarsat it is intended to launch Marecs B2 before 31 August 1984.”.

– in Bijlage B (vgl. blz. 18 van *Trb.* 1981, 126) dient:

– “1. Firm financial envelope” met het volgende te worden aangevuld:

“(c) The extension of the Marots programme in relation to the Marecs B2 satellite will be executed within an additional firm financial envelope of 50 MAU at mid-1982 prices and 1983 conversion rates.

This amount of 50 Mau is broken down as an indication as follows:

– Completion of Marecs B2 satellite	16.12
– Launching of Satellite (including performance, incentives and insurance)	30.10
– Financing costs	3.78”.

– “2. Scale of contributions” met

“(c) In conformity with ESA/JCB/LV/Res I (final) the expenditure related to the completion, launch and operation of Marecs B2 will be covered as follows:

1. The remainder of the 20% margin of the financial envelope of MARECS B referred to in paragraph 1(a) and 1(b) of this Annex (8.80 MAU at 1983 exchange rates);

2. Income from the insurance payment for the MARECS B loss (11.2 MAU at 1983 exchange rates);

3. Income from the lease of the MARECS B2 satellite to INMARSAT (30 MAU at 1983 exchange rates).

The contribution scale related to the remainder of the 20% margin of the financial envelope derived from the industrial return of the MARECS B2 completion contract, without applying the 92% rule and remains fixed as follows:

Belgium	0,51
France	14,37
Germany	23,81
Italy	1,11
Netherlands	3,19
Spain	0,34
Sweden	4,79
United Kingdom	51,88”

– “4. Financial rules to be observed” met:

“(c) The indicative payment schedule for the execution of the additional Marecs B2 activities is as follows:

Years	1983	1984	1985	1986
MAU	14.5	33.0	2.0	0.5

– Op blz. 21 van *Trb.* 1981, 126 dient de vertaling van Bijlage A als volgt te worden aangevuld:

– onder „1. Uitbreiding van het MAROTS-programma” met „een reservevluchtmodel van de Marecs B-satelliet (Marecs B2), de lancering en de exploitatie ervan (ESA/JCB/LV/Res. I (definitief) dd. 28 januari 1983.”.

– onder „2. Tijdschema” met „Ten einde te kunnen voldoen aan de operationele behoeften van Inmarsat, wordt ernaar gestreefd de Marecs B2-satelliet vóór 31 augustus 1984 te lanceren.”.

– Op blz. 22 van *Trb.* 1981, 126 dient de vertaling van Bijlage B als volgt te worden aangevuld:

– onder „1. Het financiële plafond” met „(c) De uitbreiding van het Marots-programma met betrekking tot de Marecs B2-satelliet vindt plaats in het kader van een aanvullend definitief financieel raam van 50 miljoen r.e. tegen het prijspeil van medio 1982 en de wisselkoersen van 1983.

Dit bedrag van 50 miljoen r.e. wordt als volgt voorlopig gespecificeerd:

– voltooiing van de MARECS B2-satelliet	16.12
– lancering van de satelliet (met inbegrip van aanzet tot prestatie en verzekering)	30.10
– financieringskosten	3.78.”.

– onder „2. Verdeelsleutel voor bijdragen” met „(c) In overeenstemming met het bepaalde in ESA/JCB/LV/Res. I (definitief) worden de kosten met betrekking tot de voltooiing, lancering en exploitatie van de Marecs B2-satelliet gedekt door:

1. het resterende bedrag van de marge van 20% van het in 1(a) en 1(b) van deze Bijlage vermelde financiële raam voor de Marecs B-satelliet (8,80 miljoen r.e. tegen de wisselkoersen van 1983);

2. de inkomsten uit de verzekeringsuitkering voor het verlies van de Marecs B-satelliet (11,2 miljoen r.e. tegen de wisselkoersen van 1983);

3. de inkomsten uit de verhuur van de Marecs B2-satelliet aan Inmarsat (30 miljoen r.e. tegen de wisselkoersen van 1983).

De verdeelsleutel met betrekking tot het resterende bedrag van de marge van 20% van het financiële raam, gebaseerd op het industriële rendement van het contract voor de voltooiing van de Marecs B2-satelliet blijft, zonder toepassing van het beginsel van de 92%, als volgt vastgesteld:

België	0,51
Bondsrepubliek Duitsland	23,81
Frankrijk	14,37
Italië	1,11
Nederland	3,19
Spanje	0,34
Verenigd Koninkrijk	51,88
Zweden	4,79 <sup>a</sup>

– Op blz. 23 van *Trb.* 1981, 126 dient de vertaling van Bijlage B als volgt te worden aangevuld:

– onder „4. Financiële voorschriften die in acht dienen te worden genomen” met

„(c) Het voorlopige betalingsschema voor de uitvoering van de aanvullende werkzaamheden met betrekking tot de Marecs B2-satelliet is als volgt:

Jaar	1983	1984	1985	1986
x miljoen reken-eenheden	14,5	33,0	2,0	0,5

2. De op blz. 46 en 49 van *Trb.* 1982, 110 afgedrukte financiële bijdrage van Frankrijk, Duitsland, Italië, Nederland, Noorwegen, Spanje, Zweden en het Verenigd Koninkrijk zijn gewijzigd in respectievelijk 2010, 16747, 20087, 1800, 840, 2210, 2570 en 8640. De bijdragen Totaal zijn gewijzigd in 60384. Het op blz. 47 en 50 van *Trb.* 1982, 110 afgedrukte voorlopige betalingsschema dient thans als volgt gelezen te worden:

(x miljoen r.e.)

1982	1983	1984	1985	1986	1987
1375	6531	10 638	14 944	18 203	8693

3. Op 23 februari 1984 hebben de aan het voorbereidend programma voor ruimtetransportsystemen op lange termijn Deelnemende Staten besloten het in paragraaf VI van de Verklaring inzake een voorbereidend programma voor ruimtetransportsystemen op lange termijn genoemde percentage inzake het bedrag van de toegezegde bijdragen te wijzigen in 73% (vgl. blz. 3 en 10 van *Trb.* 1983, 30).

De op blz. 8 en 16 van *Trb.* 1983, 30 afgedrukte financiële bijdrage van Spanje is gewijzigd in 3.00%. De financiële bijdrage van de andere Deelnemers is gewijzigd in 26.90%.

### *Nieuwe Verklaringen*

In overeenstemming met artikel I, tweede lid, van Bijlage III, behorende bij het onderhavige Verdrag, juncto artikel V, eerste lid, letter b, van het onderhavige Verdrag zijn nog de volgende Verklaringen betreffende een niet-verplicht programma opgesteld door de aan dat niet-verplichte programma deelnemende Staten (waaronder het Koninkrijk der Nederlanden):

- Verklaring tot wijziging van de Verklaring betreffende een programma inzake verbeteringen met betrekking tot Spacelab, alsmede inzake de ontwikkeling van en proefnemingen aan boord van ruimtesystemen die zich in een baan om de aarde bewegen en daaruit terug te verkrijgen zijn; 26 oktober 1984;
- Verklaring betreffende het APOLLO-programma; 20 juni 1984;
- Aanvullende Verklaring betreffende Fasen C/D/E van het programma voor een Europees satellietstelsel voor teledetectie; 11 juli 1984;
- Verklaring betreffende het voorbereidende ontwikkelingsprogramma inzake de grote cryogene motor (HM 60); 22 oktober 1984;
- Verklaring betreffende het voorbereidende Columbus-programma; 28 november 1984;
- Verklaring betreffende de voortzetting van het onderzoeksprogramma inzake micrograviteit; 9 januari 1985.

Deze verklaringen behoeven ingevolge additioneel artikel XXI, eerste lid, onderdeel b, van de Grondwet, juncto artikel 62, eerste lid, onderdeel b, van de Grondwet naar de tekst van 1972, niet de goedkeuring van de Staten-Generaal.

De tekst van de Verklaringen luidt als volgt:

**Declaration amending the declaration on a programme for Spacelab improvements and for development of, and experiments on, retrievable orbital systems**

(drawn up on 26 October 1984)

The participating States specified below (hereinafter referred to as "the participating States"),

Having regard to the Declaration on a programme for Spacelab improvements and for development of, and experiments on, retrievable orbital systems, drawn up on 10 December 1981 and updated on 15 April 1982 (ESA/PB-SL/XXXVII/Dec. (Final)) (hereinafter referred to as "the Declaration"),

Considering the progress of the work and the Agency's report on the current cost-to-completion estimate (ESA/PB-SL(84)28),

Considering the successful negotiations and agreement with NASA on preferential prices for the launch and retrieval of Eureka (section V of the original Declaration),

Considering their interest in the programme being satisfactorily completed,

Agree to amend the provisions of the Declaration as follows:

I.1. The first and second recitals of the preamble to the Declaration have been amended to read as follows:

First recital:

“Considering the completion of the Spacelab development programme and the interest shown by Europe in in-orbit infrastructures;”

Second recital:

“Convinced of the necessity of developing a European retrievable carrier (hereinafter referred to as “Eureca”);”

I.2. The third recital has been deleted.

I.3. A new recital has been inserted between the fifth and sixth recitals, reading as follows:

“Recalling also the Council Resolution of 28 June 1984 (ESA/C/XLIV/Res. 4 (Final));”

I.4. A new recital has been added between the sixth and seventh recitals, reading as follows:

“Considering the progress of work and the Agency’s report on the current cost-to-completion estimate (ESA/PB-SL(84)28) and the successful negotiations and agreement with NASA on preferential prices for the launch and retrieval of Eureca;”

II. Section II of the Declaration reads as follows:

“Agree to allocate to the execution of this programme a firm financial envelope of 206 million accounting units, at mid-1983 price levels and 1984 conversion rates and on the basis of the budget structure in force on 1 January 1984; the said amount shall be the basis for application of the provisions of Article III.4(b) of Annex III to the Convention;”

III. Section IV of the Declaration has been deleted and the following sections renumbered accordingly;

IV. The first paragraph of section V (old numbering) has been deleted, and a new paragraph added at the end, reading as follows:

“establish close cooperation with the national agencies of the participating States in respect of utilisation with a view to achieving maximum efficiency.”

Agree to replace Annexes A and B to the Declaration by the new Annexes A and B attached hereto.



Decide to fix 30 November 1984 as the final date for notification of the Agency by the participating States of their acceptance of this text.

Participating State	Date
Germany	30.11.1984
United Kingdom	27.11.1984
France	30.11.1984
Spain	19.11.1984
Italy	25.11.1984
Denmark	23.11.1984
Belgium	12.11.1984
Switzerland	28.11.1984
Netherlands	27. 3.1985

**Declaration on a programme for Spacelab improvements and for development of, and experiments on, retrievable orbital systems**

(drawn up on 10 December 1981)

(updated on 15 April 1982)

(amended on 26 October 1984)

Consolidated text of the Declaration as amended

The participating States specified below (hereinafter referred to as "the participating States"),

Considering the completion of the Spacelab development programme and the interest shown by Europe in in-orbit infrastructures,

Convinced of the necessity of preparing a European retrievable carrier (hereinafter referred to as "Eureca"),

Desirous of developing a European approach that is associated with NASA's development plans for the manned space transportation system,

Recalling the Council Resolution of 24 January 1980 (ESA/C/XXXIX/Res. 4), the Declaration of 18 September 1980 (ESA/PB-SL/XXXII/Dec. 1 (Final)) on a programme of preparatory studies for a Spacelab Follow-on Development programme, and the additional Declaration drawn up on 16 June 1981 (ESA/PB-SL/XXXV/Dec. (Final)),

– Recalling also the Council Resolution of 28 June 1984 (ESA/C/LXIV/Res. 4 (Final)),

Having regard to the Director General's proposal for a programme for

Spacelab improvements and for development of, and experiments on, retrievable orbital systems (ESA/PB-SL(81)12, rev. 2),

Considering the progress of work and the Agency's report on the current cost-to-completion estimate (ESA/PB-SL(84)28) and the successful negotiations and agreement with NASA on preferential prices for the launch and retrieval of Eureka,

Having regard to the Council Resolution of 28 October 1981 (ESA/C/L/Res. 6) agreeing to the execution of this programme within the framework of the Agency,

Having regard to Articles V.1(b) and XI.5(c)(i) of the Convention and to Annex III thereto,

I. Agree to carry out a programme for improvements to elements of Spacelab and for development of, and experiments on, retrievable orbital systems and approve the general objectives and the technical content thereof, as set out in Annex A to the present Declaration;

II. Agree to allocate to the execution of this programme a firm financial envelope(\*) of 206 million accounting units, at mid-1983 price levels and 1984 conversion rates and on the basis of the budget structure in force on 1 January 1984; the said amount shall be the basis for application of the provisions of Article III.4(b) of Annex III to the Convention;

III. Agree to contribute to the aforementioned financial envelope in accordance with the scale set out in Annex B to the present Declaration;

IV. Invite the Director General to:

- inform the various Programme Boards and subordinate bodies within the Agency of the possibilities offered by the present programme for demonstrating and carrying out experiments, and to request the interested Programme Boards to take into account, for the purposes of the execution of their respective programmes, the possibilities offered by the programme;

- inform the relevant Programme Boards and subordinate bodies within the Agency of the results of the studies on element no. 3 of the programme.

- establish close cooperation with the national agencies of the participating States in respect of utilisation with a view to achieving maximum efficiency.

V. Agree that the work referred to in paragraph 2(\*\*) of Annex A may start as soon as the contributions subscribed amount to 80% of the financial envelope referred to in paragraph II; it is understood that the work will be committed only on the basis of the level of subscribed contributions;

(\*) NB: this firm financial envelope of 206 MAU corresponds to the updating to mid-1983 economic conditions of the firm financial envelope of 155.9 MAU (mid-1980 price levels and 1981 conversion rates) adopted by the participating States on 15 April 1982.

(\*\*) The work referred to in this paragraph corresponds to the work referred to in paragraph 2(b) of the text of the Declaration before its amendment.

VI. Fix at 15 April 1982 the end of the period referred to in Article 1.4 of Annex III to the Convention during which a participating State may notify the Director General that it is not in a position to subscribe to the provisions of the present Declaration and the implementing rules for the programme.

The present Declaration is subscribed by the following States:

State	Date
Switzerland	10 December 1981
France	10 February 1982
Germany	10 February 1982
Italy	13 April 1982
Belgium	14 April 1982
Denmark	14 April 1982
United Kingdom	14 April 1982
Spain	15 April 1982
Netherlands	27 March 1985

## Annex A

### 1. *General objectives of the programme*

(a) The general objectives of the programme are to serve Europe's interests by presenting a European approach in the matter of retrievable space systems. In particular, it will permit continuation of the cooperation with the United States in respect of further development of the Shuttle and Spacelab, and this will facilitate Europe's access to advanced missions, widen its experience in the area of manned space flight, and enable it to secure an offer of preferential prices for launch and retrieval. The programme will also make it possible to meet Europe's changing requirements in the microgravity field (fabrication of materials, and life sciences); other experiments not requiring a change of specifications may be carried accessorially.

Also, this programme comprises and demonstrates operational capabilities and technologies relating to the various elements making up

the in-orbit infrastructures concept, including the techniques required for deployment and retrieval.

Lastly, the market for Spacelab-derived products which will constitute the elements of space platforms will open up a new area of activity for European industry.

(b) The programme covered by the present Declaration has the following aims:

(i) Improvements of Spacelab elements required for the development of the retrievable carrier, incorporating instruments or equipment already flown on the FSLP and the German D1 missions (element no. 1);

(ii) Definition and development of a retrievable carrier and of a microgravity core payload, their placing in a near-Earth orbit, and their subsequent recovery by the Shuttle for a mission consisting mainly of microgravity experiments (element no. 2);

(iii) Study of elements of platforms in order to obtain data to be taken into account when preparing options for a European long-term programme of space transportation systems and a microgravity facility in preparation for future flights (element no. 3).

## 2. *Technical content of the programme*

(a) The initial work undertaken under the programme will be as follows:

### Element No. 1:

- Improvement of Spacelab-derived elements as an integral part of Phase C/D of element no. 2.

### Element no. 2:

- Concept and definition study of a retrievable carrier leading to concept selection.
- Definition of the payloads to be flown on the retrievable carrier and mission definition study.
- Detailed definition of a retrievable carrier in preparation for the start-up of a C/D development phase (Phases A and B).
- Definition to Phase A and B level of a microgravity core payload to be flown on the retrievable carrier.
- Phase C/D of the retrievable carrier;
- Payload accommodation, integration and flight of the retrievable carrier;
- Development of a microgravity core payload to be flown on the retrievable carrier (Table I in document ESA/PB-SL(84/28).

### Element no. 3:

- Study of the unmanned platform elements and their potential applications in the in-orbit infrastructures scenario;

- Definition of the modifications to be made to the investigated elements and detailed definition of the future generations of retrievable carriers.

- Evaluation of the European mission needs relating to utilisation of the platform elements, and study of the associated facilities needed in the medium-term.

### 3. *Timetable*

The indicative timetable for the programme is as follows:

– start of Phase C/D:	last quarter 1984
– launch:	first quarter 1988
– retrieval:	third quarter 1988

### 4. *Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

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## Annex B

### 1. *Cost of the Programme*

(a) The firm financial envelope of the programme of 206 MAU at mid-1983 prices and 1984 conversion rates, on the basis of the budget structure in force on 1 January 1984.

It corresponds to the initial firm financial envelope of 155.9 MAU of the mid-1980 price level and 1981 conversion rates adopted in the Declaration drawn up on 15 April 1982.

(in MAU)

Element	
Element no. 1	5 576
Element no. 2	197 781
Element no. 3	2 643
<b>TOTAL</b>	<b>206 000</b>

(b) The indicative breakdown of this amount is as follows:

KAU	
Staff expenditure	9 325
Running expenditure	2 505
Facilities	2 411
Investment	209
Development	166 593
Direct expenditure	181 043
Administrative and site costs	10 503
Variable support costs	6 892
Fixed support costs and investments	7 562
Indirect expenditure	24 957
<b>GRAND TOTAL</b>	<b>206 000</b>

### 2. Scale of contributions

The participating States shall contribute to the expenditure arising out of the execution of the programme in accordance with the following scale:

Participant	%
Germany	53.66
Belgium	3.68
Denmark	0.62
Spain	2.80
France	17.31
Italy	17.33
Netherlands	1.50
United Kingdom	2.10
Switzerland	1.00
	100.00

### 3. Indicative Payment Schedule

The indicative payment schedule is as follows:

(in MAU at mid-1983 prices and 1984 conversion rates for 1984 and subsequent years)

1982	1983	1984	1985	1986	1987	1988	TOTAL
1106	6818	41 304	68 651	55 770	23 993	8358	206

#### 4. *Revision Clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

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### **Declaration concerning the Apollo programme**

(Established on 20 June 1984)

(Updated on 13 March 1985)

(Article Procurement with On-Line Local Ordering)

The participating States mentioned below (hereinafter referred to as "the Participating States"),

Having regard to Council Resolution ESA/C/LXIII/Res. 1 (Final) dated 11 May 1984,

Having regard to the Director General's proposal relating to the APOLLO programme (ESA/JCB(84)2, rev. 1),

Considering that the Commission of the European Communities has decided to cooperate with the Agency in the execution of the APOLLO programme and that the Council agreed on the principle of this cooperation,

Considering the exchange of letters between the Agency and EUTELSAT concerning cooperation in APOLLO,

Having regard to the intended Agreement between the Commission and the Agency,

Having regard to the Convention and in particular to Article V.1 (b) as well as to Annex III,

I. Decide to undertake the execution of the APOLLO programme on the basis of the proposal referred to in the Preamble.

II. Approve the general objectives and the content of the APOLLO programme set out in Annex A to this Declaration.

III. Agree to allocate to the execution of this programme a financial envelope of 3735 KAU expressed at mid-1983 price levels and 1984 conversion rates and in conformity with the Budget structure applicable as at 1st January 1984.

IV. Agree to contribute to the aforementioned financial envelope in accordance with the provisions shown in Annex B to this Declaration.

V. Agree that the work can begin once the subscribed contributions amount to 80% of the financial envelope referred to in paragraph III

above; it is understood that the work will be initiated only on the basis of the level of subscribed contributions.

VI. Fix at 11 October 1984 the final date at which participating States shall in accordance with Article I.4 of Annex III of the Convention notify the Director General that they are not able to accept this Declaration.

It is understood that in the event the Agreement referred to in the Preamble is not concluded, the Participating States shall consult and decide on the measures to be taken.

The present Declaration is accepted by the following States:

State	Date
United Kingdom	17. 9.1984
Italy	2.10.1984
Ireland	2.10.1984
Sweden	2.10.1984
Germany	5.10.1984
Denmark	10.10.1984
Norway	10.10.1984
Belgium	4.12.1984
Netherlands	4.12.1984
Spain	13. 3.1985

## Annex A

### TECHNICAL CONTENT OF APOLLO

#### 1. Introduction

The APOLLO pilot project as a whole is a collaborative activity involving the Agency, the Commission of the European Communities and EUTELSAT. The technical proposal of the project has been elaborated by the APOLLO Working Group composed of members of the Agency, the Commission of the European Communities, EUTELSAT and Signatories of EUTELSAT.

The project is aimed at exploring advanced electronic delivery of documents using high speed digital satellite links provided by the ECS part of the Satellite Multiservice System (ECS/SMS) of EUTELSAT.

Users participating in the pilot project would request document records from document archives using ordinary public networks. The archives would respond to the requests by delivering, via ECS, digital



images of the requested documents. The users would receive pages addressed to them using satellite receive-only facilities. In general, the archives of the system would be connected to ECS/SMS Standard 1 earth stations while, when appropriate, small receive-only earth stations located at or near the users would be used to receive document records.

The APOLLO system is characterised as a pilot system which could, if successful, continue to be used for operational satellite services offered by PTT administrations.

## 2. Objectives

The objectives of APOLLO are summarised as follows:

- Provide experience in the design, cost and operation of an advanced electronic full text document retrieval and delivery system using high speed digital satellite links to small dish earth stations;
- Provide trial users with an opportunity to assess the value and the utility of the electronic full text document transmission system;
- Provide a framework for stimulating and accelerating the creation of a market for European made earth station and information technology products such as those required for high bandwidth peripherals - facsimile, displays, etc.;
- Stimulate the demand for electronic document delivery services in Europe using satellite communication.

## 3. Technical content

The Agency shall manage and monitor industrial activities in Participating States wishing such industrial activities to be undertaken within the framework of the Agency. In addition the Agency will coordinate activities in Participating States wishing to provide equipment and facilities from national resources outside the Agency but within the overall APOLLO programme.

### 3.1. Common and Internal Activities

3.1.1. Together with the Commission of the European Communities and EUTELSAT undertake systems definition studies;

3.1.2. Assembly of a comprehensive Document Terminal<sup>1)</sup>;

3.1.3. Procurement of prototype Satellite Access Controllers<sup>2)</sup> and Receive Access Controllers<sup>3)</sup>;

3.1.4. Commissioning of prototype units, system tests and equipment maintenance;

3.1.5. Research and development activities supporting the online ordering and retrieval of Full-Texts in APOLLO;

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<sup>1)</sup> To be used by the Agency for trials and demonstration of the system.

<sup>2)</sup> To be used by the Commission of the European Communities and as development systems.

<sup>3)</sup> To be used in conjunction with receive-only earth stations procured under APOLLO.

- 3.2. Industrial Development Activities
- 3.2.1. Development and production of prototype Receive Access Controllers;
- 3.2.2. Development and production of Demodulator Units for receive-only earth stations;
- 3.2.3. Procurement of (transportable) Receive-only Earth stations;
- 3.2.4. Development (hardware and software) of a prototype microprocessor based Document Terminal Controller including the interface (gateway) to the line connecting the document terminal to the Receive Access Controller of the receiving earth station;
- 3.2.5. Development of a Sequential Access system and production of prototype Satellite Access Controllers;
- 3.2.6. Development (procurement) of Archive (Host) Front-End-Processor and supporting software;
- 3.2.7. Studies supporting the technical development of the APOLLO communication system.

#### 4. *Indicative time schedule*

System definition studies will commence in the autumn of 1984. Industrial development activities will start in the beginning of 1985 and be completed early in 1986. The test and the operation of the pilot system will start early in 1986 and last until the end of 1987.

#### 5. *Revision clause*

This Annex may be revised by a unanimous decision of Participating States.

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### **Annex B**

#### **FINANCIAL PROVISIONS**

##### *1. Financial envelope and cost breakdown*

The financial envelope is fixed at 3395 KAU expressed in mid-83 prices at 1984 conversion rates broken down as follows:

a) Common and Internal Activities	970 KAU
b) Industrial Development Activities	2765 KAU
	<hr/>
	3735 KAU

## 2. Contributions

2.1. The Participating States agree to contribute to the execution of the programme within the financial envelope as follows:

Participants	Activities under 3.1 in annex A (1)	Activities under 3.2 in annex A (2)	(1)+(2)	%
United Kingdom	260 KAU	1180 KAU	1440 KAU	
Germany	150 KAU	—	150 KAU	
Ireland	30 KAU	225 KAU	255 KAU	
Italy	200 KAU	500 KAU	700 KAU	
Norway	40 KAU	40 KAU	80 KAU	
Sweden	40 KAU	—	40 KAU	
Denmark	70 KAU		70 KAU	
Belgium	110 KAU	550 KAU	660 KAU	
Netherlands	20 KAU	20 KAU	40 KAU	
Spain	50 KAU	250 KAU	300 KAU	
<b>TOTAL</b>	<b>970 KAU</b>	<b>2765 KAU</b>	<b>3735 KAU</b>	

2.2. The initial scale is provisional and will be replaced retroactively by a definitive scale to be computed after award of the contracts concerning the Industrial Development Activities described in 3.2 in Annex A. The contributions referring the Common and Internal Activities remain unchanged. The contributions referring to the Industrial Development Activities will be adjusted according to the geographical distribution of work resulting from the contracts awarded, with the aim of achieving an industrial return coefficient of unity. However the adjustment of contributions referring to the Industrial Development Activities may not be allowed to exceed 10% of the monetary value without the consent of the affected Participating State.

## 3. Modalities of participation

### 3.1. United Kingdom

The contribution of United Kingdom shall include activities by United Kingdom industry according to items described in 3.2.2, 3.2.3 and 3.2.5 in Annex A. The Agency will procure on behalf of United Kingdom from United Kingdom industry one Satellite Access Controller to be used by British Library Lending Division and four Receive-only Earth Stations including Demodulator Units; two to be provided for use by users of British Library Lending Division, one made available to the Commission of the European Communities and one made available to ESA for trials and demonstration of the APOLLO system.

### 3.2. Germany

The contribution of Germany shall refer, in particular, to the activities described in 3.1 in Annex A. The Access to the APOLLO pilot system by users (information sources and end-users) in Germany will be provided for by the Deutsche Bundespost according to conditions agreed between the Bundespost and the users.

### 3.3. Ireland

The contribution of Ireland shall include activities described in 3.2.4 in Annex A. Irish industry will deliver three complete Document Terminal Controllers; one to be used in Ireland, one to be made available to the Commission of the European Communities for use by them and one made available to ESA for trials and demonstration of the APOLLO system.

### 3.4. Italy

The contribution of Italy shall include activities by Italian industry according to items described in 3.2.2, 3.2.3, 3.2.4 and 3.2.6 in Annex A. Italian industry will deliver two Receive-only Earth Stations including Demodulator Units and the associated Document Terminals; one complete station to be used in Italy in conjunction with the Information Retrieval Service (IRS) of ESA and one to be made available to the Commission of the European Communities for use, in the first instance, by them in Rome. Under item 3.2.6 in Annex A Italian industry will develop the necessary Front-End-Processor including software to interface an Archive Host Computer to the satellite access control equipment. The results would then be used in implementing the connection to the Archives of the Commission of the European Communities and IRS.

### 3.5. Norway

The contribution of Norway shall refer, in particular, to the activities described in 3.1 and 3.2.7 in Annex A. Active participation in APOLLO and the connection to the APOLLO pilot system by users (information sources and end-users) in Norway will be provided for by the Norwegian Organisations concerned according to conditions agreed between them and the users.

### 3.6. Sweden

The Swedish contribution shall include activities described in 3.1 in Annex A. Active participation in APOLLO and the connection of users (information sources and end-users) will be provided for by the Swedish Organisations concerned according to conditions agreed between them and the users.

### 3.7. Denmark

The contribution of Denmark shall include activities described in 3.1 in Annex A. Active participation and connection of users (information sources and end-users) in Denmark will be provided for by the Danish

Organisations concerned according to conditions agreed between them and the users.

### 3.8. Belgium

The contribution of Belgium shall include activities by Belgian industry and universities according to activities described in 3.2.2, 3.2.3 and 3.2.7 in Annex A. Belgian industry will deliver two Receive-only Earth Stations including Demodulator Units; one to be made available to the Commission of the European Communities for use by them in Brussels, and one to be used as decided by Belgium. Under 3.2.7 in Annex A Belgian industry will study signal coding techniques applicable to the future development of the APOLLO system.

### 3.9. Netherlands

The contribution of the Netherlands shall refer in particular to the activities described in 3.1 and 3.2.7 of Annex A.

### 3.10. Spain

The contribution of Spain shall include activities of Spanish industry described in paragraphs 3.1.3, 3.2.4 and 3.2.6 of Annex A. Spanish industry will develop and deliver three interface units; to connect a Local Area Network to an Earth Station, a Document Terminal and an Archive Processor. The interface units will be used by the Commission of the European Communities to connect their equipment to the APOLLO transmission system.

## 4. *Indicative payment schedule*

The indicative payments schedule for the programme, expressed in KAU at mid-1983 economic conditions and 1984 conversion rates, is as follows:

1985	1986	1987
1820	1570	345

## 5. *Revision clause*

This Annex may be revised by a unanimous decision of Participating States.

### Additional Declaration Concerning Phases C/D/E of the European Remote Sensing Satellite Programme (drawn up on 11 July 1984)

The participating States listed below (hereinafter referred to as "the participating States"),

Recalling the Declaration on the European Remote Sensing Satellite Programme, drawn up on 24 March 1982 (ESA/PB-RS/XVIII/Dec. (Final)), and amended on 19 July 1983, as well as the Declaration relating to the extension of Phase B of the said programme, drawn up on 28 July 1983 (ESA/PB-RS/XXV/Dec. 1 (Final)), both of which they have subscribed,

Having regard to the Implementing Rules relating to the programme (ESA/PB-RS(81)23, rev. 5),

Having regard to the Resolution approved on 27 April 1984 (ESA/PB-RS/XXVIII/Res. 1 (Final) amending the Declaration on the extension of Phase B of the programme,

Having regard to the Agency's technical and financial proposal relating to Phases C/D/E of the programme and the opinion expressed by the Remote Sensing Programme Board,

Considering the interest of the participating States in carrying out programmes involving coastal, ocean, ice and other applications of remote sensing data,

Considering the Cooperation Agreement between Canada and the Agency, as well as the Agency's Association Agreements with Austria and with Norway,

Recalling the participation of Canada and Norway in Phase B of the programme and noting the interest expressed by Canada, Austria and Norway in taking part in Phases C/D/E,

I. Confirm their will to continue the ERS-1 programme undertaken on the basis of the Declaration of 24 March 1982 referred to in the preamble;

II. Agree to embark on the Phases C/D/E of the ERS-1 programme that are referred to in paragraph III of Annex A to the Declaration referred to in the preamble and which are detailed in the attached Annex A and to entrust their execution to the Agency;

III. Agree to:

- allocate to the execution of the work under Phases C/D/E an overall financial envelope amounting to 546.6 million accounting units at mid-1983 prices and 1984 conversion rates\*);
- contribute to it in accordance with the provisions set out in the attached Annex B;

IV. Approve the general principles set out in Annex C, relating to the

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\*) This amount excludes that for the Phase B extension (ESA/PB-RS/XXV/Dec. 1 (Final)).

policy governing access to, and distribution of, the data and products collected from the ERS-1 satellite;

V. Note that Italy has committed itself to bear the costs incurred by the management, installation and operation of LBR facilities at the Fucino station;

VI. Invite the participating States that intend to supplement the ground network funded under the programme to adopt jointly with the Agency appropriate coordinating arrangements so that maximum benefit may be derived from the efforts of all;

VII. Agree to examine in due course and in principle three years after the present Declaration takes effect and in any event prior to the launch of the first flight unit, the possibility of expanding the programme to include preparation, launch and exploitation of a second flight unit and to establish the relevant modalities, it being understood that no participating State shall be obliged under the present Declaration to contribute to the costs arising therefrom;

VIII. Invite the Director General to explore all possibilities of reducing costs, with particular reference to dual launches, while at the same time respecting the programme objectives;

IX. Fix at 31 August 1984 the date by which a participating State may, under the terms of Article 1.4 of Annex III to the Convention, notify the Director General that it is no longer able to continue with the programme;

X. Agree that, subject to examination by the participating States, work under Phases C/D/E may start once the amount of subscribed contributions reaches 90% of the financial envelope referred to in paragraph III above; it is understood that work will be committed only in proportion to the level of subscribed contributions and that it will be reserved to the industry of the States that have subscribed the Declaration;

XI. Note that this Declaration will enter into force with retroactive effect from 27 April 1984.

This Declaration has been subscribed by the following States:

State	Date
Germany	19 July 1984
Belgium	31 August 1984
Denmark	11 July 1984
Spain	19 July 1984
France	30 July 1984

State	Date
Italy	30 July 1984
Netherlands	31 August 1984
United Kingdom	11 July 1984
Sweden	30 August 1984
Switzerland	11 July 1984
Canada	20 July 1984
Norway	30 August 1984
Austria	31 August 1984

## Annex A

### Objectives and content of the programme

#### I. Programme objectives

The main objective of the European remote-sensing satellite programme covered by the Declaration drawn up on 24 March 1982 and by the present Declaration is to increase the capacity of the participating States to take part in both the management of the planet's resources and the monitoring of its environment. The programme should make it possible for the short-term cost-effectiveness of the remote-sensing techniques to be established while at the same time contributing to a better knowledge of terrestrial environment. The programme will aim to establish, develop and exploit coastal, ocean and ice applications of remote sensing data.

#### II. Programme content

The programme comprises the definition, development, launch by Ariane and exploitation of an ERS system comprising a space segment and an ground segment designed for coastal and global monitoring of the oceans.

1. The space segment comprises the nominal payload carried by the multission platform developed under the SPOT programme.

The satellite's nominal payload consists of:

- active microwave instrumentation (AMI) operating in C Band (and combining the functions of a synthetic aperture radar (SAR), a wave scatterometer and a wind scatterometer) with the aim of measuring wind fields and the wave spectrum, and of taking all-weather images of coastal zones, open oceans and ice areas, and on an experimental basis over land;



- a radar altimeter (RA) with the aim of measuring significant wave height and of providing measurements over ice and major ocean currents;

- additional instruments selected as a result of an announcement of opportunity, namely an Along-Track Scanning Radiometer with microwave nadir sounder, and a Precise Range and Range-Rate Equipment (PRARE).

2. The ground segment consists of:

(a) The reference ground segment which is funded within the limits of the financial envelope of the programme and which comprises:

- the Mission Management and Control Centre (MCC) at ESOC (Darmstadt);

- the S-band TTC station at Kiruna (Sweden);

- the TTC stations of the Agency's S-band network, supplemented, as necessary, by other stations for the purposes of the launch and initial orbits;

- the Kiruna station for the acquisition and processing of onboard data and real-time data which are distributed within three hours following their observation;

- the Fucino station for the acquisition and processing of SAR data and for their distribution within three hours following their observation;

- the Maspalomas and Prince Albert stations for the acquisition, processing and distribution, within three hours following their observation, of low bit rate data received in real time, and in playback from the onboard recorder.

(b) the facilities for the acquisition and processing of low bit rate data installed at the Fucino station (these facilities are not included in the study referred to in para. III below), wholly funded by a contribution by Italy;

(c) - the facilities for the acquisition and processing of SAR data installed in Canada, wholly financed directly by Canada (these facilities are not included in the study referred to in para. III below);

- other facilities for the acquisition and processing of ERS-1 data provided by participating States, wholly financed directly by them.

### III. Objectives and tasks of Phase C/D

- Detailed configuration and development of the satellite; procurement of launcher, placing in orbit and validation of the satellite;

- development and manufacture of equipment for:

- the Mission Management and Control Center (MMCC) at ESOC, Darmstadt,

- the S-band TTC station at Kiruna, Sweden,

- the acquisition and recording of data acquired in real-time (SAR + LBR) and the data from playback of the on-board recorder (LBR only), which are processed to give Fast Delivery (FD) products to be delivered within 3 hours of observation;

- development of technologies and models of critical elements required to fulfil the mission objectives and keep to the scheduled launch date;
- carrying-out and coordinating, in consultation with national bodies, of experimental campaigns making it possible to check the soundness of the concepts and the adopted performance objectives;
- supporting studies and preparation of pilot projects;
- the investigation of an alternative solution to achieve quasi global LBR data acquisition and processing to complement the corresponding facilities in Kiruna. If, by 31 October 1985, no better solution can be found, the reference ground segment described above will automatically be implemented to satisfy the mission objectives.

#### *IV. Objectives and tasks of Phase E*

- Procurement of SAR facilities at Fucino;
- procurement of complementary LBR facilities at Maspalomas and Prince Albert unless the study of the reference ground segment, as referred to in para. III above, identifies a better solution;
- mission management: planning the use of the satellite; synchronising the data processing with the use of the satellite; quality control of the products and services provided;
- control and monitoring of the satellite; onboard data handling and transmission to the ground;
- acquisition and processing of onboard recorded data from low bit rate (LBR) instruments;
- acquisition and processing of real time SAR and LBR instrument data;
- demonstration of the system performance, including the operation of scientific and application experiments aimed at demonstrating the operational capability of the ERS-1 system and preparing the follow-on operation systems.

#### *V. Timetable*

The outline timetable is as follows:

- Start of Phase C/D: October 1984
- Launch of satellite: April 1989
- Phase E:
  - investments starting January 1986;
  - operations: April 1989–April 1991.

#### *VI. Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

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## Annex B

## I. Overall financial envelope

The overall financial envelope amounts to 546.6 MAU at mid-1983 prices and 1984 conversions rates. It comprises one sub-envelope relating to Phase C/D and one sub-envelope relating to Phase E.

## 1. Phase C/D

The sub-envelope relating to Phase C/D amounts to 502.88 MAU. The indicative breakdown of this amount, based on the current budget structure, is as follows:

	MAU
Staff expenditure	19.50
Running expenditure	5.00
Facilities	13.50
Investments	3.88
Development	393.60
	<hr/>
Direct expenditure	435.48
Administrative and site costs	18.70
Variable support costs	16.00
Fixed support costs and Investments	15.20
	<hr/>
Allocated support costs	49.90
Contingency margin	17.50
	<hr/>
GRAND TOTAL	502.88

This amount includes the costs relating to the Kiruna station for the acquisition of real time and recorded data, the associated facilities for the generation and making available in near-real time of certain thematic products (6.90 MAU) and the MMCC costs (13.12 MAU).

## 2. Phase E

The financial sub-envelope relating to Phase E amounts to 43.72 MAU. The indicative breakdown of this amount, based on the current budget structure, is as follows:

(a) MMCC and Kiruna (Operations)	MAU
	<hr/>
Staff expenditure	1.4
Running expenditure	0.3
Facilities	7.9
Investments	—
Development	—
	<hr/>
Direct expenditure	9.6
Administrative and site costs	1.2
Variable support costs	9.27
Fixed support costs and Investments	8.8
	<hr/>
Allocated support costs	19.27
	<hr/>
TOTAL (A)	28.87
(b) Investments costs	
— at Fucino (SAR)	2.25
— at Maspalomas (LBR)	2.52
— at Prince Albert (LBR)	1.75
	<hr/>
TOTAL (B)	6.52
(c) Operation costs (over 2 years period) of the stations of	
Fucino (SAR):	2.88
Maspalomas (LBR):	2.90
Prince Albert (LBR):	2.55
	<hr/>
TOTAL (C)	8.33
GRAND TOTAL (A + B + C)	43.72

3. Investments and operation costs of LBR facilities at Fucino  
These costs are estimated at 4.64 MAU (Investments: 2.35 MAU, Operations: 2.29 MAU), entirely funded by Italian contributions.

#### 4. Additional instruments

The costs relating to the development and exploitation for scientific purposes of the additional instruments identified in Annex A and complementing the nominal satellite payload are borne by the national bodies that have developed and proposed them to the Agency.

## II. Scale of contributions

### 1. Phase C/D

The participating States shall contribute to the financial sub-envelope of phase C/D (502.88 MAU) with the following scale:

Participants	% Contribution
Germany	26.60
Belgium	3.00
Denmark	1.52
Spain	2.50
France	21.51
Italy	11.32
Netherlands	4.00
United Kingdom	13.88
Sweden	3.30
Switzerland	1.70
Canada	6.10
Norway	1.26
Austria	0.71
(Not yet covered)	(2.60)
<b>TOTAL</b>	<b>100.00</b>

The contribution scale may be modified in the light of decisions taken by the Council on the geographical compensation scheme.

## 2. Phase E

(i) The participating States shall contribute to the financial sub-envelope for phase E (43.72 MAU) with the following scale:

Participants	%
Germany	17.57
Belgium	2.74
Denmark	1.92
Spain	3.00*)
France	16.53
Italy	11.32
Netherlands	4.00
United Kingdom	16.83
Sweden	2.49
Switzerland	1.70
Canada	7.64*)
Norway	1.56
Austria	0.71
(Not yet covered)	(11.99)
<b>TOTAL</b>	<b>100.00</b>

\*) Provided that the respective use of Maspalomas and Prince Albert is not called in question as the LBR stations complementing that of Kiruna.

(ii) The investments and operation costs of the LBR facilities at the Fucino station will be funded as follows:

Participant	%
Italy	100.00

It is understood that this contribution is independent of any industrial return and will not be subject to compensation elsewhere.

### III. *Cumulative cost overruns*

Article III.4 of Annex III to the Convention applies separately to each of the three sub-envelopes given under paragraphs I.1, I.2 and I.3 above.

### IV. *Indicative schedule of payment appropriations*

The indicative schedule of payment appropriations (at mid-1983 prices and 1984 conversion rates) is as follows:

	1984	1985	1986	1987	1988	1989	1990	TOTAL
Phase C/D	77.5*)	48.2	120.0	115.3	74.2	60.28	7.4	502.88
Phase E	—	—	—	—	3.0	15.92	24.8	43.72

\*) Including pre-phase C/D.

### V. *Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

## Annex C

### Guiding principles for access to the ERS-1 system and the distribution of the data and products

#### I. *ERS-1 overall mission objectives*

The ERS-1 mission objectives are of both a scientific and economic nature, namely to:

- increase the scientific understanding of coastal zones and ocean processes and of the evolution of the world climate;
- develop and promote applications with the aim of furthering the knowledge of ocean parameters, sea state and ice conditions with a view to establishing their usefulness for operational purposes.

ERS-1 is conceived as an end-to-end data transmission system, providing data to the scientific and applications users's community on a global basis for the Low Bit Rate (LBR) instrument data, and on a regional basis for the Synthetic Aperture Radar (SAR) data.

These overall requirements represent assumptions for the mission and exploitation of the sensors and will be set out in a detailed Mission Operation Plan (MOP).

#### II. *Direct reception of ERS-1 data*

To fulfil the mission objectives described, direct reception of ERS-1 data will be achieved as follows:

##### 1. ERS-1 stations

These are the ground stations in the framework of the programme described in Annex A.II.2 to the present Declaration (hereinafter referred to as "the ERS-1 stations").

Any participating State may set up ground facilities to acquire and preprocess data, including their validation and archiving. Several participating States may collaborate for the purpose of this activity. The State(s) in question must inform the Agency beforehand of the characteristics and performances of the station. The station will acquire the data on a technical non-interference basis and, in addition to the fulfilment of national objectives, may serve to provide back-up to ERS-1 stations in the event of malfunction and to widen their geographical coverage.

Development of mobile stations by participating States is encouraged by the Agency with a view to enhancing the value of the ERS-1 mission.

No access fee will be charged to as participating State setting up a station.

##### 2. National stations of non-participating States

Any non-participating State may also request direct access to ERS-1 via its national facilities. The request will be received by the Agency, which will examine the technical constraints and the expected

contribution of this facility of fulfilling the ERS-1 mission objectives. After positive examination by the Remote Sensing Programme Board, the Agency may conclude an Agreement with the State in question, defining the conditions for access to the ERS system, and the distribution policy for the data and products acquired by this facility, subject to the following specific provisions and to the common requirements given in paragraph 3 below:

- the State in question will in principle pay the Agency an access fee;
- it will provide the Agency with a reasonable amount of data, free of charge, the Agency having the right to use them for its own programmes and activities and the right to distribute them to third parties should the latter not be able to obtain them from the non-participating State in question;
- the State in question will pay the Agency fees proportional to the amount of SAR products sold to third parties.

### 3. Common requirements

Any ground station, whatever its status:

- (a) must be validated by the Agency to prevent loss of valuable data;
- (b) should be compatible in terms of recording systems where feasible;
- (c) shall agree, at ESA's requests and on conditions defined in the Agreement with the Agency, to acquire data within its coverage and to make them available to the Agency; and
- (d) shall maintain a catalogue of the data in its possession.

All ground station operators will ensure access by the Agency and by all users to raw data acquired and archived at the station and, if applicable, to pre-processed data, on a non-discriminatory basis and on conditions agreed with the Agency.

Where the data acquired by a station cannot be archived nationally, the Agency shall ensure that they are made available to it for archiving at its own facilities, if it deems it appropriate.

## III. Mission management

### 1. Mission Operation Plan (MOP)

(a) A Mission Operation Plan will be established by the Agency, aimed at satisfying the overall mission objectives and based on requests from the various users (Member States and non-member States, organizations under their jurisdiction and international Organizations). The Plan will take into account the various technical, operational and financial constraints and will be based on the following categories of requests:

- experiments at fixed times,
- requests from operational entities,
- joint experiments to which several participating States contribute,



- general coverage without time constraints,
- emergency situations.

(b) The Agency will submit the Plan for approval to the Remote Sensing Programme Board, as well as its periodical updates.

(c) The Agency may interrupt implementation of the Plan either for reasons related to the operation of the spacecraft and its instruments or in exceptional circumstances.

## 2. Data apportionment

### (a) Low bit rate data

The MOP will aim at ensuring a quasi global coverage of the oceans and ice areas for the LBR instruments. If there is a conflict of need between users for the SAR and LBR data, the MOP must ensure that the LBR data set collected over an appropriate period of time (some months) is meaningful and in conformity with the mission objectives.

### (b) SAR

The total SAR operation time will be shared according to the MOP between the requirements from participating States, the Agency and non-participating States.

All users requesting SAR allocation time will be invited to coordinate their requirements, at least at regional level, in order to optimise the use made of the SAR. It is expected that even with the limited time of operation of the SAR, there will be more data available than users can exploit.

However, if the requests approach the upper limit of SAR operating time, a procedure will be introduced in the MOP for resolving any conflicts. This will take into account the level of contributions to the programme of the relevant participating State, as well as the value of each experiment, its contribution to meeting the common objectives of the participating States, and the previous requests from the experimenter already satisfied. In such a case, the reception of SAR data by a national station will form part of the allocation made to the country concerned.

As an indication, it is envisaged that 15% of SAR operation time be allocated to users from non-participating States in order to provide opportunities for international cooperation.

## IV. Access to data and charging policy

1. ESA will set up and maintain a central catalogue for all ERS-1 data accessible to all users through remote terminals and containing references to all ERS-1 data available.

2. Global raw LBR data, regional raw SAR data and the auxiliary data will be archived in Precision Processing and Archiving Facility(ies) (PAF(s)). Such archived data and Agency standard products will be made available on a non-discriminatory basis, at a cost and terms based on a pricing policy agreed by the Participants.

3. LBR and SAR Fast Delivery (FD) products will be made available to nominated centres in participating States at a cost based on the pricing policy approved by the participants. LBR and SAR Fast Delivery products will be available to users from non-participating States under terms to be agreed but which would include useful contributions furthering the objectives of the ERS-1 programme.

4. The nominated centre(s) of each participating State will be responsible for the distribution of ERS-1 FD products to their national users.

5. The Agency will propose and submit in due time to the participating States for approval the elements for the establishment of a pricing policy for ERS-1 data and products applicable to all ERS-1 ground stations, whatever their status, and to ERS-1 archiving facilities.

6. Property rights, including intellectual property rights, concerning raw data received directly from the satellite will be held by the Agency on behalf of the participating States, irrespective of the status of the acquisition station.

#### *V. International aspects*

The Agency shall inform the Secretary General of the United Nations of the setting up of the ERS-1 system, its salient characteristics and the guiding principles for access to, and dissemination of, ERS-1 data and products.

These principles may be reviewed on the basis of those to be established under the auspices of the United Nations for remote sensing from satellites.

#### *VI. Revision*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

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**Declaration on the large cryogenic engine (HM60) preparatory  
development programme**  
(drawn up on 22 October 1984)

The participating States listed below (hereinafter referred to as "the participating States"),

Noting the availability in Europe thanks to the Ariane programmes of an independent and competitive launch capability meeting the short- and medium-term requirements of users,

Considering the studies under way related to the definition of the future version of the Ariane launcher,

*Finding that any future launcher concept requires a high-thrust large cryogenic engine;*

Having regard to the time needed to develop and qualify such an engine,

Having regard to the proposal by the French Delegation for Europeanisation of the HM60 cryogenic engine project carried out jointly with other Member States (ref. CNES/DLA/SDT. HM60 No. 108/83, rev. 1 of 14 November 1983 and the update CNES/DLA/SDT. HM60 No. 149/84 of 20 June 1984),

Having regard to the Council Resolution ESA/C/LXIV/Res. 3 dated 28 June 1984 agreeing that the large cryogenic engine (HM60) preparatory development programme be carried out within the framework of the Agency,

Considering that development of a high-thrust cryogenic engine is one of the elements of the long-term programme of the Agency which will be submitted to the Council meeting at Ministerial level early in 1985,

Having regard to Article V.1 (b) and to Annex III of the Convention,

I. Express their interest in carrying out within the framework of the Agency the programme for the development of the large cryogenic engine (HM60), on the basis of the proposal referred to in the preamble.

II. Take note of the general objectives of the programme as described in Annex A (section 1) of this Declaration.

III. Agree to undertake a preparatory development programme for this engine, and approve its objectives and technical content as described in Annex A (sections 2 and 3) of this Declaration.

IV. Agree

(a) to allocate for executing the preparatory programme work a financial envelope of 138.3 million accounting units at mid-1983 price levels and 1984 conversion rates,

(b) to contribute, within the limit of this envelope and in accordance with the scale of contributions shown in Annex B to this Declaration, to the costs of executing the preparatory programme, and

(c) that of the amount of this financial envelope, the Agency is authorised to commit expenditure to the extent of 32 MAU as from the entry into force of the present Declaration. The availability of the balance of the financial envelope shall be confirmed by each participating State in respect of its share no later than 1 March 1985.

V. Agree on the following arrangements for continuing the programme:

(a) the participating States will examine, in the second half of 1986 and taking account of the programme proposal on the future version of the Ariane launcher, the desirability of and procedure for continuing the programme on the basis of a detailed technical and financial proposal by the Agency;

(b) the interested participating States will, no later than the completion of the preparatory programme, draw up a Declaration on the basis of the Agency's proposal;

(c) the participating States which are not in a position to continue with the programme, shall notify the Director General of this in writing and cease to be participating States; these States shall, under their rules, take measures to facilitate the transfer of the results and work to the industries of the other participating States, and

(d) a State which has not participated in the preparatory programme may take part in the programme at a later date provided it contributes, pro rate to its participation, to the management costs and work done outside Member States under the preparatory programme; the scale of contributions shall be adjusted accordingly.

VI. Agree on the following arrangements for the execution of the preparatory programme:

1. The Agency, which shall have overall direction of the programme, shall rely on the Centre National d'Etudes Spatiales (CNES) on conditions analogous to those applying to the Ariane programmes. The Agency and CNES shall conclude an Agreement defining the arrangements for their cooperation and the means enabling the Agency to fulfil its mission, in particular the monitoring of the programme.

2. CNES shall set up and maintain throughout the execution of the programme, an appropriately sized team responsible for the technical direction and financial management of the programme. CNES shall bear the costs of this team with the exception of the mission costs which will be borne by the programme budget.

3. CNES shall make every effort to secure contracts for the participating States to an amount matching their percentage contribution to the sum total of the industrial work and leading to an industrial return coefficient close to one, and shall in any event guarantee them a coefficient of at least 0.85. CNES shall do its utmost to apply this provision also to contracts relating to any work funded under the contingency margin. If it appears that this minimum coefficient cannot be achieved ultimately, compensation shall be made under the programme comprising the development proper.

VII. Agree that the preparatory programme work can begin once the subscribed contributions amount to 70% of the financial envelope referred to in section IV (a) above; it is understood that the work shall be started only on the basis of the level of subscribed contributions.

VIII. Agree that this Declaration is open to subscription from 1 November 1984 until 10 February 1985.

This Declaration has been subscribed by the following participating States:

Participant	Date
France	27 October 1984
Belgium	26 November 1984
Sweden	7 December 1984
Italy	13 December 1984
Netherlands	8 February 1985
Germany	8 February 1985
Spain	8 February 1985

### Annex A

#### HM60 programme objective and content

##### 1. Background

(a) The foreseeable trend of user requirements for launch systems (the increase in satellite masses to be placed in geostationary orbit and in low orbit, and increased satellite dimensions) and the need for more reductions in launch costs call for the definition now of the future Ariane launcher that will be needed in the mid-1990s in order to maintain an independent and competitive European launch capability.

(b) Any future European launcher concept meeting this objective requires the use of a high-thrust cryogenic engine; the principal characteristics of this engine, called HM60, are given in section 2.

The principal stages for developing the engine are currently scheduled as follows:

– system concept review	late 1984
– preliminary design review	1st half of 1986
– availability of the critical-elements technology	1st half of 1987
– critical design review	1991
– pre-qualification	late 1993
– first test flight	1994
– qualification	1995

(c) From the time schedule viewpoint, the development of this engine is the most critical element in the programme leading to qualification of the future launcher; this consideration has led to the setting up of a preparatory programme which, pending the decision on the future launcher and on the engine development programme proper, makes it possible to start the most critical operations.

(d) The programme sequence will therefore be as follows:

- preparatory programme relating to technology activities in the area of high-thrust cryogenic propulsion, definition and fabrication of critical elements such as the turbopumps, setting up of the necessary teststands and preparation of the programme proposal for the development programme proper;
- the programme proper relating to the finalisation of the working drawings for the engine's fabrication, completion of all the test facilities, fabrication of the necessary models and execution of the development and qualification programme as a whole.

In order to keep to the timetable objectives of the development programme proper, the latter is assumed to start in the 2nd half of 1986.

## 2. *Principal characteristics of the HM60 engine*

### (a) Performance

- Engine thrust: 1000 kN in vacuo corresponding to about 800 kN on the ground
- Specific impulse in vacuo: 430 s
- Approximate operating duration in flight: 600 s

### (b) Major design criteria

- The engine will use a diverted-flux cycle.
- The turbopumps will be separate.
- Engine reliability will be compatible with the launcher objective which is set at 0.98 (confidence rating 60%).
- From the design stage onwards, technical choices are to be guided by a concern to reduce production costs while keeping within the performance objectives listed above.
- Maximum ease of maintenance of the engine will be sought.
- The pressure level in the combustion chamber is about 100 bar.

## 3. *Content of the preparatory programme*

### (a) Technological work

This will be carried out on the critical elements of the engine:

- turbopumps: bearings, moving joints, turbines, pumps,
- thrust chamber: materials used, fabrication method for injector and nozzle,
- gas generator,

the objective being to be able to start the first tests on the turbopumps, gas generators and thrust chambers early in 1987.

(b) Definition of hardware and fabrication

- Engine: choice of configuration, system concept review (late 1984), preliminary design review (1st half of 1986) and partial drawing up of the fabrication working drawings.
- Turbopumps: working drawings and fabrication (excluding assembly and acceptance) of the first two LH<sub>2</sub> turbopumps.
- Thrust chamber: working drawings and fabrication of the first thrust chamber (excluding assembly and acceptance).
- Sundry equipment: fabrication and acceptance of first test items.

(c) Teststands

- Turbopumps stand: full development at Vernon.
- Chamber stand: development of infrastructure and procurement of the stand subsystems at Hardthausen allowing availability of this stand six months after the start of the development programme proper.
- Engine stands: studies and choice of firms relating to the stands (1 at Vernon and 1 at Hardthausen) allowing availability of these stands two and a half years after the start of the development programme proper.

4. *Indicative time schedule of the preparatory programme*

The execution of the work described above is planned to take place between late 1984 and late 1986.

5. *Revision clause*

The provisions of this Annex may be revised by the participating States by a simple majority in the case of sections 1 and 4, and by a unanimous decision in the case of sections 2, 3 and 5.

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## Annex B

### Financial provisions

I. *Financial envelope of the preparatory programme*

The financial envelope of the preparatory programme amounts to 138.3 MAU at mid-1983 prices and 1984 conversion rates. The indicative breakdown of this sum on the basis of the present budget structure is as follows:

	MAU	
Staff expenditure	0.6	
Running expenditure	0.9(*)	
Facilities	—	
Investments	55.8	
Development	80.0(**)	
Direct expenditure		137.3
Administrative and site costs	0.6	
Variable support costs	0.2	
Fixed support costs and investments	0.2	
Allocated support costs		1.0
GRAND TOTAL		138.3

(\*) i.e. 0.7 MAU with ESA assuming CNES mission costs.

(\*\*) Including reimbursement of 250 KAU of pre-funding through the MBB general studies in 1984.

## II. Scale of contributions

The participating States shall contribute to the financial envelope of the preparatory programme in accordance with the following scale:

Participant	%
Germany	(25–30)
Belgium	5
France	53
Italy	15
Sweden	5
Netherlands	1

This scale shall be adjusted no later than 12 months following the date on which the Declaration enters into force, on the basis of the contracts concluded or planned for the preparatory programme.

If the allocation of work to a participating State leads to a variation higher than 5% of the rate shown in the scale, this work shall be allocated to the said State only subject to its prior agreement to bear the cost of such work; this agreement is not necessary within this limit – the scale of contributions is adjusted accordingly.



### III. *Indicative schedule of payment appropriations*

The indicative schedule of payment appropriations, in MAU at the same economic conditions, is as follows:

1984	1985	1986	1987
6	39	60	33.3

### IV. *Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

### **Declaration on the Columbus preparatory programme** (drawn up on 28 November 1984)

The participating States specified below (hereinafter referred to as "the participating States"),

Having regard to the undertaking of a space station programme announced in January 1984 by the President of the United States and the invitation to Europe to participate in this programme,

Having regard to the intention of preparing Europe for a significant cooperative participation in the US Space Station programme and to the need to acquire advanced technologies opening the way, as a long term objective, to autonomous capability in manned spaceflight and advanced in-orbit infrastructures,

Considering that, on the basis of previous programmes, Europe has gained valuable experience in the technology and use of manned space laboratories and has acquired the technical capability and know-how to embark on a space-station-related programme,

Having regard to the Phase A studies carried out jointly by Germany and Italy (entitled "the Columbus project") for the purpose of European space activities with regard to manned systems, platforms and operations in orbit,

Having regard to the joint proposal by the German and Italian Delegations for Europeanisation of the Columbus project (ref. ESA/C(84)64),

Having regard to the Council Resolution (ESA/C/LXIV/Res.4 (Final) of 28 June 1984) agreeing to execute within the framework of the Agency a space-station-related "Columbus" preparatory programme,

Considering that this programme constitutes one of the elements of the Agency's long-term programme that will be submitted to the Council meeting at ministerial level in early 1985,

Having regard to Article V.1 (b) and Annexes III and IV of the Convention,

I. Express their interest in the pursuit of activities relating to manned spaceflight and advanced in-orbit infrastructures;

II. Take note of the general objectives of the programme as set out in Annex A (para. 1) of the present Declaration;

III. Agree to undertake the "Columbus" preparatory programme, hereinafter also referred to as "Phase B",

IV. Approve the technical content of the preparatory programme as set out in Annex A (para. 2) of the present Declaration;

V. Agree:

(a) to allocate for the execution of this preparatory programme a financial envelope of 80 million accounting units at the mid-1983 price level and 1984 conversion rates, and

(b) to contribute, within the limit of this envelope and in accordance with the scale of contributions shown in Annex B to the present Declaration, to the cost of its execution;

(c) that, out of the amount of this financial envelope, the Agency is authorised to commit expenditure up to 10 MAU upon the entry into force of the present Declaration. The availability of the balance of the financial envelope shall be confirmed by each participating State as far as its share is concerned no later than 1 March 1985.

VI. Agree on the following arrangements for carrying out the programme:

(a) before the end of the preparatory programme, the participating States shall carry out a programme review to examine the desirability of moving on to a development and utilisation programme; this review shall be based on a detailed technical and financial evaluation of the results of the Columbus preparatory programme, on a development and utilisation programme proposal prepared by the Agency, and on the results of the negotiation on the terms and conditions for cooperation in the space station programme proposed by the United States (development, utilisation and exploitation). The participating States shall address a recommendation to the Council as regards the adoption of a Resolution on subsequent phases of the Columbus programme;

(b) in accordance with the provisions of Annex III of the Convention, the interested participating States shall then draw up a distinct Declaration for the subsequent phases of the Columbus programme;

(c) participating States that are not in a position to continue the programme shall so notify the Director General in writing and shall cease to be participating States.

VII. Agree on the following arrangements for carrying out this preparatory programme:

1. On the basis of the joint proposal by the German and Italian Delegations for Europeanisation of the Columbus project, the Agency shall use all the means available in Europe and the results obtained from activities financed by the Member States with their national funding, or from its own relevant programmes; the participating States shall accordingly agree to communicate to the Agency, for the purpose of being used by the present preparatory programme, all the technical results at their disposal which are of interest for this programme.

2. Taking into account the work already carried out by the German and Italian agencies and their intended high level of participation in the Columbus development, it is decided to keep DFVLR and MRST/PSN involved in the management and execution of Phase B under the Agency's responsibility.

In conformity with the provisions in force, a detailed Agreement in this respect will be established between ESA and DFVLR, MRST/PSN in order to decide on the modalities of this association.

This arrangement will be reviewed at the end of the first part of the preparatory programme at the end of 1985 in order to decide whether its revision for the second and final part of the preparatory programme is desirable.

VIII. Invite the Director General to cooperate with NASA with a view to conducting in parallel the definition studies carried out by the two Agencies, to negotiate the appropriate legal texts for the execution of the respective Phase B activities, to identify the conditions and modalities for continuing the cooperation during the subsequent phases, and to report back to them on the evolution and outcome of these negotiations and discussions.

IX. Agree that the work on the preparatory programme may start as soon as the amount of the subscribed contributions attains 70% of the financial envelope referred to in section IV above; it is understood that work will be started only on the basis of the level of subscribed contributions.

X. Agree that the present Declaration shall be open for subscription from 1 December 1984 to 31 January 1985.

The present Declaration has been subscribed by the following participating States:

Participant	Date
Germany	28.01.1985
Belgium	30.01.1985
Denmark	4.01.1985
Spain	8.02.1985
France	8.02.1985
Italy	13.12.1984
United Kingdom	30.01.1985
Netherlands	8.02.1985

### Annex A

#### Objectives and content of the preparatory programme

##### *1. General objectives and technical content of the Columbus programme*

(a) The objective of the space-station-related Columbus programme is to develop user-attractive elements which constitute an integral and substantial part of a cooperative space station system taking into account the option of European autonomy at a later stage.

This programme will comprise the development in Europe of the relevant space technologies and take account of the requirements stated by the community of European users with low operating and support costs as main drivers. It will take account of the know-how already acquired in Europe under programmes that exist or are in the course of development such as Spacelab, Eureca, SPAS, the Spacelab pallet, the preparatory programme for long-term space transportation systems and the Agency's technology programme.

This programme will also be carried out with a view to ensuring compatibility with the future European launch systems.

(b) The Columbus programme will be based on the preliminary work done by Germany and Italy and made available to the Agency, and will make use of the work done by the Agency (long-term space transportation systems preparatory programme) and of the work done by other Member States. It will in principle comprise the following elements:

(i) One or more pressurised modules (PM), envisaged as derivatives of Spacelab, manned and/or man-tended and capable of becoming in the long term the core of a European orbital system that can be used, for example, as manned laboratory and habitation modules. The pressurised module(s) serviced by the US Space Station can also be (a) major element(s) of the initial operational capability of the station.

(ii) One or more payload carriers (PC), envisaged as derivatives of hardware already existing or being developed or studied in Europe. These elements will carry experiments and/or materials production facilities as well as observation or communications facilities and will have servicing and supplies support from the Space Station and/or Shuttle and/or future European launch systems.

(iii) One or more resource modules (RM) providing the PMs and, if appropriate, PCs with logistics such as power supply, communications, data management, heat rejection, attitude control, etc. This element could be envisaged as a further development of Eureka-type hardware.

(iv) A service vehicle (SV) with limited in-orbit transfer capability, to be operated with the elements already referred to above.

(v) The corresponding ground segment (in particular crew training and integration facilities and the Operations Control Centre for the European elements).

(vi) A users' support programme directed towards the payloads provided by the users and to be included in the space segment as defined above.

(vii) Initial demonstration missions for the various elements of the space system.

(viii) An advanced technology programme.

## 2. *The Columbus preparatory programme (Phase B)*

The preparatory programme shall cover the definition studies of the specific elements for preparing a European in-orbit infrastructure, having regard to the US invitation to participate in its Space Station programme. It also covers technological research work in the area of manned and unmanned systems.

### Technical content

(a) The studies will comprise definition of the content and cost of the elements and missions relating to the development programme. The items considered in this preparatory programme are as follows:

- the pressurised module, manned and/or man-tended that can be used as a manned laboratory module or a habitation module and whose adaptability to the common module concept of the space station and application to the other modules constituting the station will be studied,
- the payload carriers or PCs (in low orbit and polar orbit),
- the resource modules or RMs,
- the service vehicle or SV,
- the ground facilities for mission preparation and support,
- the data transmission system.

These studies will include a comprehensive system analysis with specific reference to questions of compatibility and commonality within the whole of the Space Station and with relation to existing and planned space transportation systems.

(b) Supporting technology

A supporting technology programme directly related to the items under study will be carried out.

(c) An outline of a space station utilisation programme including the support to be given to the payloads financed outside the development programme, and the initial demonstration missions for a first experimental period.

The preparatory programme shall be divided into two phases. The first one (1 April to 31 December 1985) called Phase B1, will be for the study of the various technical solutions and options with the aim of identifying among them the space station element or elements that the Agency will propose to NASA for development.

The second phase (January to November 1986) called Phase B2, will be for the completion of the definition studies of the space station element or elements retained in common with NASA for development, subject to satisfactory negotiation of the terms and conditions for the subsequent programme.

Management relationships will be set up to ensure technical liaison with NASA and coordination of studies, in accordance with the instructions of the participating States.

### 3. *Indicative timetable*

The preparatory programme activities should be started as soon as possible with a view to completion towards the end of 1986 in accordance with a time-table reflecting the one contained in the Memorandum of Understanding on the space station programme phase concluded with NASA.

At least three months before the end of this programme, the Agency will prepare the elements of the programme definition file in order that the participating States may take the appropriate decisions for starting the development programme if possible before the beginning of 1987.

### 4. *Revision clause*

The provisions of this Annex may be amended by a unanimous decision of the participating States.

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## **Annex B**

### Financial provisions

#### 1. *Financial envelope of the Columbus preparatory programme*

The financial envelope of the preparatory programme referred to in

section IV of the Declaration amounts to 80 MAU at mid-1983 prices and 1984 conversion rates. The indicative breakdown, on the basis of the present budget structure, is as follows:

General Headings	(KAU)
1. Personnel expenditure	3 900
2. Running expenditure	1 050
3. Facilities	110
4. Investment	
5. Development	68 000
Direct expenditure	73 060
6. Administrative costs to be debited	4 600
7. Variable costs	1 140
8. Fixed costs	1 200
Indirect expenditure	6 940
Total	80 000

## 2. Scale of contributions

The participating States will contribute to the aforementioned financial envelope in accordance with the following scale:

Participant	Scale of contributions %
Belgium	5
Denmark	0.5
France	15
Germany	38
Italy	25
Netherlands	4
Spain	8
United Kingdom	15
TOTAL	110.5

This scale shall be adjusted no later than 12 months from the date of entry into force of the Declaration on the basis of the contracts concluded or envisaged for the whole of the preparatory programme; the compensation scheme approved by the Council for the Agency's programme shall also be applied.

Where the allocation of work to a participating State would lead to an alteration of more than 5% in the rate shown in the scale, that work shall not be allocated to the said State save with its prior agreement to bear the cost of such work; such agreement shall not be necessary within the limit referred to. The scale of contributions shall be adjusted accordingly.

### 3. *Indicative schedule of payment appropriations*

The indicative schedule of payment appropriations is as follows:

	1985	1986	1987
MAU	15	45	20

### 4. *Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

## **Declaration on the continuation of the microgravity research programme (Phase 2)**

(drawn up on 9 January 1985)

The participating States mentioned below (hereinafter referred to as "the participating States"),

Recalling the Council Resolution on the microgravity research programme (ESA/C/XLVIII/Res. 1 (Final)), adopted on 21 May 1981,

Recalling the Declaration on a microgravity research programme drawn up on 10 December 1981 (ESA/C/LI/Dec. 1 (Final)) covering an initial period, and its paragraph V in particular,

Considering the results obtained during this initial period, the preliminary lessons drawn from the FSLP and the interest aroused among users by the success of the STS-9 mission (Spacelab),

Considering the development of other programmes that can offer opportunities for microgravity research,

Having regard to the implementing rules of the programme (ESA/PB-SL(81)13, rev. 3, Annex II, rev.),

Having regard to the Agency's technical and financial proposal for a second phase of the programme (ESA/PB-SL(84)16, rev. 5).



I. Confirm their resolve to continue the programme on the basis of the general objectives set out in the Declaration drawn up on 10 December 1981;

II. Agree to undertake a second phase of work covering the period early-1985 to mid-1989; approve the technical content of this work described in Annex A;

III. Agree to allocate for the execution of this work a financial envelope of 131 MAU at mid-1983 prices and 1984 conversion rates, and to contribute to it in accordance with the provisions of Annex B, § 2,

IV. Agree that the work on the programme may start as soon as the total of the subscribed contributions amounts to 80% of the financial envelope,

V. Fix at 12 February 1985 the final date by which a participating State may notify the Director General that it is unable to subscribe to the provisions of the present Declaration.

This Declaration is subscribed by the following States:

State	Date
Germany	12.02.1985
Belgium	11.02.1985
Denmark	12.02.1985
Spain	8.02.1985
France	11.02.1985
Italy	12.02.1985 (ad referendum)
United Kingdom	12.02.1985
Sweden	12.02.1985 (subject to governmental approval)
Switzerland	12.02.1985
Netherlands	19.03.1985

#### Annex A

##### *1. General objectives of Phase 2 of the microgravity research programme*

The objective of Phase 2 of the microgravity research programme is experimental research; it aims at promoting in all the ESA Member States the disciplines of the material sciences and life sciences in particular. It is planned to give appreciably equal weight to these two disciplines. International cooperation will be pursued and intensified.

The main guidelines of Phase 2 are as follows:

- making maximum use of the Spacelab module, the pallet and the existing multi-user facilities, developed or being developed by the Agency, such as the Sled, Biorack, and the Eureca core payload facilities, and of equipment developed nationally for the FSLP, the German D1 mission and the Sounding Rocket Programme;
- ensuring that this flight equipment is reflown several times within the framework of cooperative programmes;
- designing, developing and launching multi-purpose facilities;
- providing flight opportunities for existing or new individual experiments developed at national level;
- providing experimenters with technical advice and assistance;
- developing supporting technology.

### 2. *Technical content*

Phase 2 consists of nine specific activities:

- reflight of the Sled,
- reflight of Biorack,
- development of the fluid physics facilities to flight status (consisting of the AFPM, the Bubble, Drop and Particle Unit and Critical Point Facility), and a reflight of the existing FPM on the IML-1 mission,
- short duration flight opportunities,
- Anthrorack (human physiology),
- development of a new multi-user facility for Spacelab (Advanced Gradient Heating Facility (AGHF)),
- development of a Botany Facility,
- supporting technology programme,
- 20% utilisation of the German D2 facilities.

### 3. *Timetable*

Phase 2 of the microgravity research programme covers a period of 4 years starting in early 1985 and finishing in mid-1989.

### 4. *Revision clause*

The provisions of this Annex may be revised by a unanimous vote of the participating States.

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## Annex B

1, *Financial envelope*

(a) The work planned during the second phase of the programme will be carried out within a financial envelope of 131 MAU at mid-1983 prices and 1984 conversion rates.

(b) The forecast breakdown of this amount is as follows:

	MAU	
– Staff expenditure	5.330	
– Running expenditure	2.045	
– Facilities	0.300	
– Investment	0.300	
– Development	112.100	
Direct expenditure		120.075
– Administrative and site costs	6.015	
– Variable support costs	2.370	
– Fixed support costs	2.540	
Indirect expenditure		10.925
TOTAL		131.000

2. *Scale of contributions*

The participating States will contribute to the expenditure resulting from the execution of the work described in Annex A, within the financial envelope referred to above and in accordance with the following scale:

Participant	%
Germany	35.00
Belgium	4.50
Denmark	1.98
Spain	2.00
France	15.50
Italy	17.00
Netherlands	4.00
United Kingdom	2.00
Sweden	3.44
Switzerland	3.32
Not covered	15.26
TOTAL	100.00

### 3. *Indicative payments schedule*

The indicative payments schedule is as follows (in MAU):

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1985	1986	1987	1988	1989	TOTAL
10.8	34.6	38.8	37.8	9.0	131.0

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### 4. *Revision clause*

The provisions of this Annex may be revised by a unanimous decision of the participating States.

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Uitgegeven de *achtste* oktober 1985.

*De Minister van Buitenlandse Zaken,*

H. VAN DEN BROEK