Treaty Series No. 44 (1979)

Protocol

concerning the Exploitation of a Pre-Operational Meteorological Satellite (Meteosat)

Neuilly-sur-Seine, 17 December 1975

[The Protocol entered into force on 29 April 1977]

Presented to Parliament
by the Secretary of State for Foreign and Commonwealth Affairs
by Command of Her Majesty
June 1979

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PROTOCOL
CONCERNING THE EXPLOITATION OF A PRE-OPERATIONAL METEOROLOGICAL SATELLITE

The Governments parties to this Protocol (hereinafter referred to as " the Governments "),

and

The European Space Research Organisation conducting as from 31st May 1975 its activities under the name of the European Space Agency (hereinafter referred to as " the Agency "),

Recalling the terms of " the Arrangement between certain Member States of the European Space Research Organisation and the European Space Research Organisation concerning the execution of a meteorological satellite programme ", which was opened for signature at Neuilly-sur-Seine on 12th July 1972 and entered into force on 29th September 1972(1) and was amended by the Programme Board on 29th March 1973 (hereinafter referred to as " the Arrangement "),

Recalling that the objective of the Arrangement is the execution by the Agency of a programme covering the design, development, construction, placing in orbit, management and control of a pre-operational meteorological satellite (hereinafter referred to as " Meteosat "),

Recalling that the Agency has, inter alia, been entrusted with the task of checking out in orbit Meteosat during the first six months of its life,

Considering the aim to entrust the management of an operational meteorological system composed of a space segment and an associated ground segment to a body representing European meteorological authorities,

Desiring nevertheless to make the necessary provisions to avoid an interruption in the management and control of Meteosat during its exploitation phase, as suggested by the Conference of Directors of Meteorological services,

Having regard to the decision of the Council of the Agency agreeing that the Agency will continue to be responsible for the management and control of Meteosat beyond the six-month period after its entry into orbit (ESRO/C/MIN/73),

Having regard to article VIII of the Convention for the establishment of a European Space Research Organisation opened for signature in Paris on 14th June 1962(2),

Having regard to the Convention for the establishment of a European Space Agency signed on 30th May 1975(3).

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(1) Treaty Series No. 45 (1973), Cmnd. 5304.
(2) Treaty Series No. 56 (1964), Cmnd. 2489
(3) Miscellaneous No. 24 (1975), Cmnd. 6272

ARTICLE 1

Have agreed to the following provisions:

1. The Governments shall undertake the exploitation phase of Meteosat, which shall begin six months after its first successful entry into orbit.

2. On behalf of the Governments and in close contact with their meteorological authorities, the Agency shall carry out the exploitation phase in accordance with the decisions of the Programme Board. The tasks to be undertaken during this phase and the products expected are described in Annex A.

ARTICLE 2

The Agency shall be responsible for the management and control of Meteosat for a period of up to two and a half years starting after the six-month period referred to in Article 1.1.

ARTICLE 3

For the execution of certain parts of its tasks, the Agency may seek the cooperation of institutions and bodies of its Member States.

ARTICLE 4

Governments should ensure that the composition of their national delegations to the Programme Board reflects the meteorological character of the exploitation phase.

ARTICLE 5

1. The costs, arising from the execution of the exploitation phase by the Agency, shall be borne by the Governments within the limits of a financial envelope of 14.15 million accounting units (at mid-1975 prices).

2. The annual budgets relating to the exploitation phase shall be subject to approval by the Programme Board by a two-thirds majority.

3. Annex B sets out the cost of executing the exploitation phase and the scale of contributions.

ARTICLE 6

In providing services to users, the Agency and the Governments shall ensure that no responsibility devolves upon the Agency or the Governments in the event of a Meteosat system malfunction or failure.

ARTICLE 7

The Agency shall be responsible for seeing that the Meteosat system is coordinated as far as possible with other meteorological satellite systems. For this purpose the Agency shall do its best to ensure that an appropriate representation of the meteorological services interested is provided in international coordination meetings.

ARTICLE 8

1. This Protocol shall be open for signature by the Participants to the Arrangement and the Agency from 1st January 1976 to 30th September 1976.

2. States shall become parties to this Protocol in accordance with the procedures set out in Article 13.2 of the Arrangement.

3. The Protocol shall come into force upon signature not subject to ratification or approval, or after the deposit of the instruments of ratification or approval by the Agency and by States the aggregate of whose contribution amounts to two-thirds of the total contributions set out in Annex B(4).

4. A Member State of the Agency which is party to the Arrangement, but which has not signed this Protocol during the period of time mentioned in paragraph 1, may accede to it after its entry into force in accordance with the relevant provisions of Article 13.5 of the Arrangement.

5. A Member State of the Agency which is not party to the Arrangement may similarly accede to this Protocol after its entry into force in accordance with the relevant provisions of Article 13.5 of the Arrangement. The Programme Board may require, *inter alia*, as a condition of accession, that the Member State in question must pay a contribution to the capital investments made under the Arrangement and determine the amount thereof. This contribution shall be credited to the Participants of the Arrangement pro rata to their contributions under the Arrangement.

6. A State which is not a member of the Agency and not party to the Arrangement may become a party to this Protocol after its entry into force in accordance with the procedure set out in Article 14 of the Arrangement.

ARTICLE 9

1. The provisions of the Arrangement shall apply *mutatis mutandis* to this Protocol. However, in case of conflict between the provisions of the Arrangement and of this Protocol, the latter shall prevail.

2. The annexes to this Protocol shall form an integral part thereof.

3. This Protocol may be terminated before the expiration of the period mentioned in Article 2 by a decision of the Programme Board by a two-thirds majority of the Governments representing at least two-thirds of the contributions or when, by a decision of the Programme Board by a two-thirds majority of the Governments representing at least two-thirds of the contributions, the management of Meteosat has been entrusted to a body representing European meteorological authorities; this decision shall also concern the transfer of the facilities and equipment referred to in article 11.

4. Any Government shall have the right to withdraw from this Protocol by giving written notice to the Agency not later than 31st March 1977. A Government intending to avail itself of this right shall inform the Agency

(4) The Protocol entered into force on 29 April 1977.

accordingly not later than three months before sending its written notice. The denunciation shall take effect six months from the date of the above-mentioned notification.

Should one or more Governments announce before 1st January 1977 their intention to withdraw from the Protocol, the other Governments shall also have the right to withdraw, and to give notice of withdrawal not later than 31st March 1977 without being bound to give three months' warning.

ARTICLE 10

Any Government shall have the right to designate, either on or after signature of, or accession to, this Protocol, a national authority under its jurisdiction to implement the provisions of the present Protocol on its behalf. To that end, a cooperation agreement may be concluded between the authority in question and the Agency.

ARTICLE 11

The Agency, acting on behalf of the Governments, shall be the owner of the facilities and equipment acquired for the purposes of this Protocol.

In witness whereof the undersigned representatives, being duly authorised thereto, have signed this Protocol.

Done at Neuilly-sur-Seine, on the 17th of December 1975, in the German, English and French languages, each text being equally authoritative, in a single original which shall be deposited in the archives of the Government of the French Republic, which shall transmit certified copies to each of the Governments and to the Agency.

SIGNATURES

State	*Date of signature*
Belgium*	24 Sept. 1976
Denmark*	29 April 1977
European Space Agency	22 June 1976
France	29 April 1977
Germany, Federal Republic of	16 Feb. 1977
Italy	5 Aug. 1977
Switzerland*	22 June 1976
United Kingdom	22 June 1976

* Subject to ratification.

ANNEX A

1. DESCRIPTION OF TASKS OF THE AGENCY.

The essential tasks referred to in article 1.2 of the Protocol are as follows:

(*a*) Maintenance of the ground segment facilities defined in section 2.2 of Annex A to the Arrangement; this includes maintenance and refinement of the software;

(*b*) Operation of these facilities to monitor and control the satellite in orbit;

(*c*) Analysis of satellite telemetry data and study of satellite performance in orbit; optimisation of operating modes;

(*d*) Operation of the ground segment facilities to acquire, process and distribute data as set out in section 2 below;

(*e*) Storage and retrieval of data acquired by Meteosat as described in section 2.(*a*) below;

(*f*) Maintenance of liaison with the users.

2. DESCRIPTION OF PRODUCTS.

The expected products referred to in article 1.2 of the Protocol are described below:

The quality and quantity of data to be provided during the exploitation phase will depend on the performance of the overall Meteosat system. The following list gives the data to be supplied if the system performs fully according to specification. If the performance is less good, either initially or as a result of degradation after some time in orbit, then not all items on the list may be available but the Agency will do its best to provide all the items the state of the system allows:

(*a*) Images covering the whole disc visible from the satellite will be received every half hour. These will come from the infrared channel at all times, from the visible channel in daylight and from the water vapour channel when it is switched on. The images will be proccessed by computer to compensate, as far as possible, for imperfections in the radiometer system. These corrected (" preprocessed ") images will be stored in digital and photographic archives and will also provide the basic material for the other products listed below.

(*b*) The images will be used to find the apparent position of landmarks and hence, in conjunction with other telemetry data, to determine a deformation model for each image which will specify the differences between the actual location of points in the image and the location they would have if the position and orientation of the satellite were ideal. The deformation models will be stored in the archive and will also be available for use in further processing of the images.

(*c*) It is foreseen that about 20% of the image data will be " rectified ", that is to say converted to a projection not dependent on the position or orientation of the satellite. These rectified data may be used in place of the unrectified data in preparing products of the system.

(*d*) A selection of image data, suitably edited and annotated, will be disseminated via the satellite. The arrangements for selecting and transmitting data will be flexible so that changes can be made in the light of experience, as directed by the Programme Board. It is expected that the initial selection will include full-disc digital images every three hours, digital and analogue images of the European-Atlantic area every half hour and analogue images covering other areas (in segments) at least once every three hours.

(*e*) In accordance with the agreement concluded between the Agency and the French authorities, data from the SMS/GOES satellites of the United States (if available) received and reformated at Lannion, will be disseminated by Meteosat. Schedule arrangements will be flexible, but it is expected that eight digital and fifteen analogue images will be sent each day.

(*f*) The dissemination schedule will also include about thirty-two analogue WEFAX documents each day based on processed data from Meteosat (e.g. cloud top heights) or on data received in chart form from meteorological centres.

(*g*) The Meteosat image data will be processed in the Meteorological Information Extraction Centre to obtain estimates of the following meteorological quantities, where possible in each of about 3,000 segments of the image covering the area within the useful field of view of the satellite (the numbers in brackets give the number of times each day each product will be generated):

—wind, from cloud movement, at as many heights as possible (2);

—sea-surface temperature (2);

—cloud-top height (4);

—cloud analysis [type and coverage] (4);

—radiation balance (1);

—water vapour content (2).

These products will be made available to the meteorological communications network (GTS) through the Meteorological Terminal or disseminated via the satellite, and will also be archived.

(*h*) Data transmitted from Data Collection Platforms (DCPs) to the satellite will be received by the GFM. They will be processed, edited, annotated and made available to the operators as agreed with the DCP operator.

(*i*) Command signals (interrogations) will be transmitted through the satellite to DCPs to meet the agreed requirements of the DCP operators.

3. REVISION CLAUSE.

The provisions of this Annex may be revised by a unanimous decision of the Programme Board.

ANNEX B

1. COST OF EXPLOITATION PHASE TASKS.

The overall financial envelope of 14.15 million accounting units laid down in Article 5 of this Protocol is based on the following estimates and on the Agency's responsibility throughout the whole of the exploitation phase:

	Millions A.U. at mid-1975 prices
(*a*) *Follow-up of Meteosat performance in orbit.*	
Expenditure under the space segment is estimated as follows in conformity with the tasks defined in Annex A, for:	
—analysis of satellite telemetry data;	
—technical assistance to operations personnel for optimisation of exploitation modes;	
—Agency administrative support;	
—internal Agency staff and staff of the consortium charged with the development of the satellite, representing an approximate total of twenty-three man-years	1
(*b*) *Meteosat operations in orbit.*	
The costs relating to the tasks to be carried out in accordance with the list in Annex A can be broken down as follows:	
—staff costs	7·8
—services for the maintenance of the processing centre	3·25
—operating costs including consumables, hire of telephone lines and telex, participation in the Redu and Odenwald stations exploitation costs	2·1
TOTAL COST OF EXPLOITATION	14·15

2. SCALE OF CONTRIBUTIONS.

Each Government shall contribute to the expenditure resulting from the execution of the exploitation phase by the Agency under this Protocol, in accordance with the following scale:

States	*Scale of contributions* %
Germany	25·66
Belgium	4·06
Denmark	2·41
France	23·70
Italy	15·07
United Kingdom	20·60
Sweden	5·02
Switzerland	3·48
TOTAL	100·00

3. SCHEDULE.

The Agency shall draw up, halfway through each year, a firm schedule of commitments and payments for the following year. The schedule reproduced below, based on a starting date of 1st January 1978 for the exploitation phase, is given as an indication.

	In millions A.U. at mid-1975 prices	
	Commitments	*Payments*
1977	2·3	0·3
1978	5·7	5·7
1979	4·45	5·45
1980	1·70	2·70
TOTAL	14·15	14·15

4. REPORTS BY THE AGENCY ON THE FINANCIAL AND CONTRACTS SITUATION.

The Director General of the Agency shall issue the necessary instructions for the presentation of reports on the progress and geographical distribution of the work, on the call-ups of contributions, the expenditure to date and the latest estimates of cost-to-completion of the programme in accordance with the relevant provisions of the Agency's financial rules dealing with the accounts (Chapter III, Section VI of the Financial Rules) and with the provisions adopted by the Council of the Agency concerning the periodic reports to be presented (ESRO/C/306, add. 2, rev. 1).

5. REVISION CLAUSE.

The provisions of paragraphs 1 and 2 of this Annex may be revised by a unanimous decision of the Programme Board. The provisions of paragraph 4 may be revised by a two-thirds majority decision of the Programme Board.

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