RESOLUTION ON

THE METEOSAT SECOND GENERATION PROGRAMME EXTENSION

Presented for adoption at the 52nd Meeting of the EUMETSAT Council on 4 March 2003
Adopted at the 55th Meeting of the EUMETSAT Council on 22-23 June 2004

The EUMETSAT Member States,

HAVING REGARD to the EUMETSAT Convention which states that the primary objective of EUMETSAT is to establish, maintain and exploit European systems of operational meteorological satellites, taking into account as far as possible the recommendations of the World Meteorological Organization, and that a further objective of EUMETSAT is to contribute to the operational monitoring of the climate and the detection of global climatic changes,

HAVING REGARD to Resolution EUM/C/92/Res. VI establishing the Meteosat Second Generation (MSG) Programme, formally adopted at the 24th meeting of the EUMETSAT Council on 23-25 November 1993,

HAVING REGARD to Article 2 of the EUMETSAT Convention, which defines mandatory programmes as the basic programmes required to continue the provision of observations from geostationary and polar orbits,

TAKING INTO ACCOUNT that MSG is a mandatory EUMETSAT programme to which all Member States contribute on the basis of a GNI based scale of contributions,

TAKING INTO ACCOUNT that the MSG Programme includes the procurement, launch and operations of three MSG satellites, and that MSG operations are expected to last until 2014,

TAKING INTO ACCOUNT the essential need to preserve continuity of the EUMETSAT Geostationary service beyond the third MSG satellite,

TAKING INTO ACCOUNT EUMETSAT's basic policy to maintain a back-up satellite in orbit at all times,

AWARE that, in order to preserve continuity and the concept of in-orbit back-up, there will be a need to have a fourth MSG satellite ready for launch in 2010,

BEARING IN MIND the procurement of critical long lead items and obsolescent parts already agreed under Resolutions EUM/C/99/Res. IV, EUM/C/00/Res. I, EUM/C/01/Res. VI, EUM/C/02/Res. II,

NOTING that the EUMETSAT Council, at its 50th meeting, agreed that, as a goal, the planning of MSG launches should maintain the availability of the MSG system above the threshold of 90%, and that Council at the same meeting agreed indicative launch

dates for MSG-3 and MSG-4 with the understanding that it would decide actual launch dates in due time having considered the in-orbit status of MSG satellites,

CONSCIOUS that the schedule constraints do not allow for sufficient time to specify, design and build a new generation satellite system, in a timeframe compatible with the required availability and continuity of the operational geostationary service,

WISHING to ensure a cost-effective procurement of the MSG follow-on satellite by ensuring the maximum possible synergy with the procurement of the MSG-1, -2 and –3 satellites,

CONVINCED that an extension of the MSG Programme by a fourth MSG satellite is the optimum approach for the continuity of a reliable EUMETSAT operational geostationary service and for the transition towards a new generation system,

PLANNING to take the necessary steps to replace the MSG satellites beyond the fourth MSG satellite by a new generation system in due course,

TAKING INTO ACCOUNT the Programme Proposal for the Extension of the MSG Programme contained in document EUM/C/52/03/DOC/4,

IN CONFORMITY with Articles 3, 5 and 10 of the EUMETSAT Convention,

AGREE:

I To extend the MSG Programme to cover the following additional elements:

a) The procurement of an MSG-4 satellite with the same capability as MSG-1, -2 and –3, including a geostationary Search and Rescue Transponder (GEOSAR),

b) the procurement of a fourth GERB instrument and related data services through the British Council for the Central Laboratory of the Research Councils (CLRC/RAL),

c) the procurement of the associated launch and LEOP services,

d) satellite procurement support from ESA, to be covered by an Agreement,

e) EUMETSAT internal management and support activities,

f) the necessary maintenance and upgrades of the MSG Ground Segment,

g) extended MSG system operations and maintenance, including GERB operations, lasting until at least 2018.

II That the overall MSG Programme financial envelope shall be increased from MEUR 1282 at 2003 economic conditions to MEUR 1673 at 2003 economic conditions (equivalent to an increase from MEUR 1035 at 1992 economic conditions to MEUR 1330 at 1992 economic conditions).

III That the indicative MSG expenditure profile shall be amended as shown in the Programme Proposal for the Extension of the MSG Programme.

IV That the MSG System Description and Implementation Plan described in document EUM/C/92/49 Rev. 4 shall be amended and replaced by the Programme Definition as shown in the Annex to this Resolution.

V That the 10% cost overrun provision contained in Resolution EUM/C/92/Res. VI shall be replaced by the standard provision contained in Article 10.3 of the Convention.

VI That all other elements of the MSG Programme Resolution shall remain valid and in force.

METEOSAT SECOND GENERATION PROGRAMME INCLUDING EXTENSION FOR MSG-4

PROGRAMME DEFINITION

1 MISSIONS

The Meteosat Second Generation (MSG) Programme will provide for the development, demonstration and operation of a new system of geostationary meteorological satellites. This system will be designed for the continuation and upgrade of meteorological observations from the geostationary orbit over Europe and Africa and adjacent oceanic areas after the end of the Meteosat Transition Programme (MTP), from 2003 until 2018. Accordingly, the following missions have been defined.

a) The Multispectral Imaging Mission

The multispectral imaging mission will exploit atmospheric windows to provide images of clouds and land/sea surfaces. The use of a radiometer with channels having spectral characteristics similar to those of the AVHRR flown on the US polar orbiting satellites is required for consistency, with the advantage of more frequent observations.

b) The Air Mass Analysis Mission

The air mass analysis mission will be used to monitor the thermodynamic characteristics of the atmosphere. The additional spectral channels to be used will be responsive in the water vapour, carbon dioxide and ozone absorption bands. Their spectral characteristics have been selected based on experience gained in Meteosat and GOES-VAS operations.

c) The High Resolution Imaging Mission

The high resolution visible imaging mission will be used to monitor small scale features such as convective cloud evolution, with a resolution at nadir of approximately 1 km. It will use a channel in the same visible band as the existing Meteosat.

d) The Product Extraction Mission

The product extraction mission will derive meteorological and other products from the basic image data. Its outputs will provide information pertinent to products such as:

- winds,
- sea and land surface temperatures,
- air mass instability iny indices,
- cloud description,
- fog,
- albedo,
- vegetation indices,
- precipitable water,
- tropopause height and structure,
- climate data sets, etc...

It will rely on the existing expertise within EUMETSAT Member States.

e) The Data Collection Mission

The data collection mission will continue the collection of environmental data from data collection platform.

f) The Dissemination Mission

The dissemination mission will provide image data and meteorological data to the user community. A primary objective of the mission is to deliver selected image data for nowcasting within a few minutes of the end of acquisition of each image, because the timeliness of data delivery is of the utmost importance. Access to dissemination links will be controlled through the employment of encryption schemes by EUMETSAT.

The dissemination mission will operate in two distinct modes:

i) a High Rate Information Transmission (HRIT) mode, disseminating at least the full set of image data on the European area and a reduced set on the southern part of the Earth disk, together with other data, to major users and to product extraction centres having access to the appropriate receiving stations.

ii) a Low Rate Information Transmission (LRIT) mode, disseminating a reduced set of image and other data, to users operating lower cost receiving stations.

The Meteorological Data Distribution (MDD) Mission and the Data Collection Platform Relay Service (DCPRS) of the first generation Meteosat programmes will be integrated with the MSG dissemination mission.

g) The MSG system may support additional operational or research missions not affecting the performance of the main missions, provided they do not have a significant impact on overall system complexity and **they are not cost drivers and are affordable to EUMETSAT**. Such missions could include a Search and Rescue support capability and/or a dedicated instrument for monitoring components of the Earth Radiation Budget **(GERB)**.

2 THE MSG SYSTEM

2.1 Space Segment

The space segment of the Meteosat Second Generation system will be based on a series of **four** spin-stabilised satellites of an advanced design with the following payload:

a) The Spinning Enhanced Visible and Infra-Red Imaging radiometer (SEVIRI), supporting the multispectral imaging, air mass analysis and high resolution visible imaging missions. The SEVIRI will use 12 channels, as follows:

- seven imaging channels within the visible band and the infra-red windows,
- four channels to measure infra-red emissions within the water vapour, carbon dioxide and ozone bands,

- one broad band visible channel at finer spatial resolution.

The sampling distance of the SEVIRI will be 3 km at sub satellite point, except for the broad band visible channel, for which it will be 1 km. Full Earth images in all these spectral channels will be produced at 15-minute intervals.

b) The Geostationary Meteorological Communication Payload (GMCP), supporting the data dissemination and the data collection missions.

c) Additional payloads (to the extent that these can be accommodated without significant impact on satellite size or complexity and **that they are not cost drivers and are affordable** to EUMETSAT), such as a small Scientific Instrument and/or a Geostationary Search and Rescue (GEOSAR) transponder **and/or GERB**.

2.2 Ground Segment

The Meteosat Second Generation ground segment will consist of a network of ground based facilities, established with the need of long term continuity in mind, with a central node located at the EUMETSAT Headquarters.

2.2.1 EUMETSAT System Ground Segment

a) A Primary Ground Station (PGS), under the control of the satellite operator (EUMETSAT), for the acquisition of telemetry and raw instrument data and for the support of general system operations.

b) A Back-up Ground Station (BGS) for emergency command operations, which could be co-located with an SGS or located at a station with existing satellite control functions.

c) One or more Support Ground Stations (SGS) to be used for the acquisition and pre-processing of data from other meteorological satellites and their relay to the Central Facility.

d) A Central Facility at the EUMETSAT Headquarters, for satellite and mission control, as well as for processing the raw image data from the satellites into level 1.5 data to be made available to users, and including three main functional elements:

   i) Satellite Control Centre (SCC),

   ii) Mission Control Centre (MSS),

   iii) Data Processing Centre (DPC) in support of the imaging missions and data circulation.

e) A MSG Archive and Retrieval capability, part of the Unified Meteorological Archive and Retrieval Facility (U-MARF), for the long-term archive and retrieval of the image data, and some meteorological products. The configuration and location (which may be distributed) are to be determined.

2.2.2 EUMETSAT Applications Ground Segment

The applications ground segment will include all the ground infrastructure involved in product extraction from image data:

a) A Meteorological Products Extraction Facility (MPEF) shall be established in the EUMETSAT Headquarters and shall perform centralized control and management tasks to achieve control over the availability of agreed key products as well as those mature processing tasks which are not strongly dependent upon user interaction. Typically the tasks of the MPEF will consist of the operational production at synoptic scale (grid size around 100 km) of products such as wind vectors and (multipurpose) cluster analyses based upon multi-spectral processing of the complete image data, as a basis for products mentioned in paragraph 1 d).

b) A network of Satellite Application Facilities (SAF), located at national weather services of EUMETSAT Member States or other agreed entities linked to a user community, such as ECMWF, for the extraction of products outside the scope of the MPEF. The nature of these products will be agreed by Council following analysis of user requirements. The implementation of each SAF will be the subject of a competitive Announcement of Opportunity and subsequent **agreements** covering relevant research and development as well as agreed operations.

The further refinement of the list of the products to be extracted from MSG images is a key activity during the detailed system definition phase (phase B), as is the elaboration of the criteria and procedures for allocation to MPEF and SAFs.

2.2.3 User Ground Segment

Receive-only ground stations will be operated by the users to acquire the data disseminated through the MSG System:

a) High Rate User Stations (HRUS), for the acquisition of data through the High Rate Information Transmission (HRIT) scheme,

b) Low Rate User Stations (LRUS), for the acquisition of data through the Low Rate Information Transmission (LRIT) scheme.

The transmission of raw instrument data from the satellite towards the Earth is not part of the MSG dissemination mission. However, if a Member State decides to procure a station capable of receiving the raw image data, then the Member State shall have timely access to the relevant image processing parameters derived at the central site, in accordance with the provisions of the EUMETSAT Data Policy.

3 PROGRAMME CONTENT

The MSG system will be implemented in co-operation with the European Space Agency. The EUMETSAT MSG programme will include the following tasks:

a) A fixed financial contribution to the ESA MSG Programme (with participation in the detailed definition, design, development and demonstration of the MSG prototype satellite MSG-1).

b) Procurement of the launcher for the MSG prototype satellite MSG-1, ready for a target launch date of mid-2000.

c) Detailed definition of the ground segment, for a final decision by Council on the ground facilities network configuration.

d) Development, procurement and test of the ground segment for the operations of the MSG system.

e) System commissioning following the launch of MSG-1.

f) Provision and launch of **three** additional flight models:

   i) MSG-2 to be ready for launch within 18 months of the launch of MSG-1,

   ii) MSG-3 and MSG-4 to be ready for launch **as required to keep predicted MSG system availability above the 90% threshold**.

g) System operations for a period of at least **15** years after the commissioning of MSG-1.

4 IMPLEMENTATION PLAN

The Programme will be implemented in two slices:

a) The first slice, or MSG demonstration slice, includes the fixed financial contribution to the ESA prototype development programme, the procurement of a launcher for the prototype, the development and procurement of the ground segment, and the system commissioning [items a) to e) under 3]. This slice will start in 1993 and end in **2003**.

b) The second slice, or MSG operational slice, includes the procurement and launch of **three** further satellites and systems operations for at least **15** years, from **2002 until 2018** [items f) and g) under 3].

RESOLUTION ON

THE PRELIMINARY START OF MSG-4 INDUSTRIAL ACTIVITIES

Adopted at the 52nd Meeting of the EUMETSAT Council on 4 March 2003

The EUMETSAT Member States,

HAVING REGARD to the EUMETSAT Convention which states that the primary objective of EUMETSAT is to establish, maintain and exploit European systems of operational meteorological satellites, taking into account as far as possible the recommendations of the World Meteorological Organization, and that a further objective of EUMETSAT is to contribute to the operational monitoring of the climate and the detection of global climatic changes,

HAVING REGARD to Resolution EUM/C/92/Res. VI establishing the Meteosat Second Generation (MSG) Programme, formally adopted at the 24th meeting of the EUMETSAT Council on 23-25 November 1993,

TAKING INTO ACCOUNT that the MSG Programme includes the procurement, launch and operation of three MSG satellites,

TAKING INTO ACCOUNT that MSG is a mandatory EUMETSAT programme to which all Member States contribute on the basis of a GNI based scale of contributions,

TAKING INTO ACCOUNT that the overall MSG Programme envelope currently amounts to MEUR 1,035 at 1992 economic conditions,

CONSIDERING that the EUMETSAT Council, at its 52nd meeting on 4 March 2003, unanimously agreed on the contents of the programme proposal for the extension of the MSG Programme as contained in document EUM/C/52/03/DOC/04,

CONSIDERING that the MSG Programme extension covers, i.a., the procurement of a fourth MSG satellite with the same capabilities as MSG-1, -2 and –3, and an extension of the MSG Programme envelope by MEUR 391 at 2003 economic conditions,

NOTING that the EUMETSAT Council, at its 52nd meeting, unanimously agreed to open the voting on Resolution EUM/C/03/Res. I on the Meteosat Second Generation Programme Extension,

NOTING that, although all Member States have voted in favour of the above Resolution, the votes of 9 Member States are conditional with regard to the finalisation of national approval procedures, and that the Resolution will only formally enter into force upon approval by all Member States,

FIRMLY EXPECTING that the formal entry into force of the Resolution on the MSG Programme Extension will take place, at the latest, by 30 November 2003,

NOTING that a draft agreement covering ESA's role as EUMETSAT procurement agent for MSG-4 has been finalised and is ready for signature,

RECOGNISING the need for EUMETSAT to fund preliminary critical industrial activities relating to the procurement of MSG-4 in order to safeguard the schedule and cost established in the MSG Extension Programme Proposal,

NOTING that Resolution EUM/C/92/Res. VI on the MSG Programme allows, by a vote representing at least two-thirds of the Member States present and voting, representing also at least two-thirds of the total amount of contributions, to approve possible cost-overruns of up to 10 % of the overall programme envelope, and that the costs related to the activities proposed in this Resolution remains below such 10%,

NOTING that all Member States desire to retain the integrity of the industrial offers by an early start of the preliminary industrial activities and have voted in favour of this Resolution, but that 9 Member States (Austria, Germany, Greece, Luxembourg, Netherlands, Spain, Sweden, Turkey, United Kingdom) have qualified their positive votes by an ad referendum, the other Member States, however, being willing to let activities proceed as long as unconditional votes represent at least 70% of the amounts covered by this Resolution,

NOTING that the United Kingdom is expecting to be able to partially lift its ad referendum on this Resolution by 31 March 2003 for an amount corresponding to 6.5% of the total amounts covered by this Resolution,

AGREE:

I That preliminary industrial activities aiming at securing the possibility of ultimately procuring a fourth MSG Satellite and a fourth GERB instrument are undertaken within a ceiling of MEUR 102 at 2003 economic conditions.

II That the above ceiling will cover the cost of ESA, industrial and RAL activities from 1 April 2003 until 30 June 2004.

III That ESA will be requested to start the necessary MSG 4 activities through a Preliminary Authorisation to Proceed (PATP) to industry within an overall limit of liability of a maximum of MEUR 98 at 2003 economic conditions, it being understood that the draft Cooperation Agreement with ESA on MSG-4 shall apply mutatis mutandis to all initial activities.

IV That RAL will be requested to start the necessary GERB-4 activities through a PATP within an overall limit of liability of a maximum of MEUR 4 at 2003 economic conditions, it being understood that the draft Cooperation Agreement with RAL on GERB-4 shall apply mutatis mutandis to all initial activities.

V That a condition for the request to ESA and RAL to initiate the above preliminary activities shall be that the contributions corresponding to those Member States having agreed unconditionally to this Resolution amount to at least 70% of the total amount of the PATP by the end of March 2003.

VI That in the PATPs thus released to ESA and RAL those amounts corresponding to those Member States that will not have yet made their vote unconditional shall be blocked (CA and PA) and shall be successively released by EUMETSAT as and when the individual Member States lift their ad referendum.

VII To unblock MEUR 102 Commitment Appropriations and MEUR 20 Payment Appropriations foreseen for "MSG-4" in the EUMETSAT Budget 2003 and to transfer Payment Appropriations of MEUR 13.7 from the MSG budget for use for "MSG-4".

VIII As a result of the above "unblocking", to call up a total of MEUR 7.7 from Member States and KEUR 93 from Cooperating States. The call-up for these contributions shall be made on 1st July 2003 and the contributions will be payable as soon as possible, but not later than 31st December 2003. For contributions paid until 20 January 2004, no interest for late payment shall be charged.

IX That Austria, Germany, Greece, Luxembourg, Netherlands, Spain, Sweden, Turkey and the United Kingdom will be legally obliged to contribute financially to the preliminary start of MSG-4 activities only after finalisation of national approval procedures, and that their contributions would only become due 30 days after notification hereof, but not earlier than 31 December 2003.

X That the United Kingdom shall be free to lift its ad referendum on this Resolution in two steps, the first expected to occur by 31 March 2003 and corresponding to a contribution of 6.5% of the total amounts covered by this Resolution, the remainder (9.73%) expected to be released within 12 months.

XI That in the budget 2003 an amount corresponding to the CA and PA of Austria, Germany, Greece, Luxembourg, Netherlands, Spain, Sweden, Turkey and the United Kingdom remains blocked until the finalisation of national approval procedures has been notified to the EUMETSAT Secretariat.

XII That the activities and financial commitments undertaken by EUMETSAT in the context of this Resolution will, in the end, be wholly subsumed within the extended overall MSG Programme envelope.

XIII That the PATPs covered by this Resolution will automatically terminate on 30 June 2004 if, at that time, the full approval of the Resolution on the MSG Programme Extension has not been achieved. In such a case, only termination and run down costs shall accrue in the period after 30 June 2004 and those Member States who have agreed unconditionally to contribute to the preliminary start of MSG-4 activities will decide on the action to be taken.

RESOLUTION ON

FURTHER SUBSCRIPTIONS TO THE OPTIONAL EUMETSAT JASON-2 ALTIMETRY PROGRAMME

Adopted by the Potential Participating States on 25 June 2003

The Potential Participating States,

TAKING INTO ACCOUNT that 16 Member States have indicated their interest in participating in the Optional Jason-2 Programme (Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom),

TAKING INTO ACCOUNT the Declaration EUM/C/01/Decl. I on the Optional EUMETSAT Jason-2 Altimetry Programme adopted by Potential Participating States on 4-5 December 2001,

TAKING INTO ACCOUNT that the Declaration was approved by the EUMETSAT Council at its 49th meeting on 4-5 December 2001 through Enabling Resolution EUM/C/01/Res. VII on the Optional EUMETSAT Jason-2 Altimetry Programme,

TAKING INTO ACCOUNT that, in accordance with Article 3.2 of the Convention the Optional EUMETSAT Jason-2 Altimetry Programme will only enter into force once 90% of the total financial envelope has been subscribed,

AWARE that 13 out of 16 Potential Participating States have subscribed the Declaration by 25 June 2003 (Belgium, Denmark (ad referendum), Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom (ad referendum), and that there are indications that the 90% of the funding required for an entry into force of the Programme is expected to be reached in the very near future,

AWARE that Greece during the 53rd Council, indicated its willingness to participate in the Programme (ad referendum), with a contribution up to 1.38%,

CONSCIOUS that the Optional EUMETSAT Jason-2 Altimetry Programme might enter into force without being fully subscribed,

HAVING DUE REGARD to Articles 3.2, 5.3(c), and 10.5 of the Convention,

UNANIMOUSLY AGREE:

I After entry into force of the Optional Jason-2 Programme, to continue to accept further subscriptions by Member States until the level of 100% of the total financial envelope is reached.

II To reconsider the funding situation of the programme at the latest one year after the date at which it has taken effect.

III To task the Director-General to continue his efforts in addressing the contribution to this Programme by those Member States which have not yet indicated their wish to participate.

RESOLUTION ON

THE PRE-FINANCING OF THE EXTENSION OF THE EUMETSAT HEADQUARTERS BUILDING

Adopted at the 54th Meeting of the EUMETSAT Council on 25-26 November 2003

The EUMETSAT Council,

RECALLING that Council at its 43rd meeting on 23-25 November 1999 approved a ceiling of the General Budget for the period 2001-2005 of M€ 64 at 2001 e.c.,

TAKING INTO ACCOUNT that Council approved at its 53rd meeting on 24-25 June 2003 in principle the requirement for an extension of the EUMETSAT Headquarters Building,

TAKING INTO ACCOUNT that Council approved, at its 54th meeting on 25-26 November 2003, the Procurement Proposal for the Extension of the Headquarters Building and to the canteen,

AWARE that the need for the extension of the Headquarters Building was not foreseen at the time when the calculations of the General Budget ceiling for the time period of 2001-2005 were undertaken,

WISHING therefore to pre-finance the expenditure for the extension of the EUMETSAT Headquarters Building,

AGREES:

I That the ceiling of the General Budget of M€ 64 for the time period 2001-2005 shall not be exceeded.

II That an amount not higher than M€ 9.4 at 2004 economic conditions, shall be pre-financed from the EUMETSAT treasury under the cover of the General Budget, until Council has identified further sources of revenue, or decided to reimburse it partially or entirely from future ceilings of the General Budget.