

RESOLUTION ON
ON THE EUMETSAT POLAR SYSTEM SECOND GENERATION PROGRAMME
(EPS-SG PROGRAMME)

presented for adoption at the 80th Meeting of the EUMETSAT Council
on 1 July 2014, adopted on 22 May 2015 with entry into force on 1 January 2016

The EUMETSAT Member States,

HAVING REGARD to the EUMETSAT Convention, which provides that the primary objective of EUMETSAT is to establish, maintain and exploit European systems of operational meteorological satellites 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 the EUMETSAT Convention, which establishes that mandatory Programmes are the basic Programmes required to continue the provision of observations from geostationary and polar orbits,

BEARING IN MIND that for the accomplishment of the EUMETSAT objectives in the polar orbit, the first satellite of a second generation the EUMETSAT Polar System (EPS-SG) should be available for launch in 2021,

BEARING IN MIND the approach to implementation of Sentinel 4 and 5 on MTG and Post-EPS adopted by Council at its 64th meeting (EUM/C/64/08/DOC/08),

TAKING INTO ACCOUNT the Council Resolution EUM/C/70/10/Res. I on the Preparation of the EPS Second Generation in which Council inter alia agreed that the satellite configuration to be targeted in the Phase A activities of EPS-SG should be a two satellites configuration,

NOTING the Resolution EUM/C/73/11/Res. I on the EPS-SG Preparatory Programme, by which EUMETSAT Member States decided to establish a Preparatory Programme commencing in May 2012 and lasting until the completion of all Phase B activities, and tasked the Director-General with elaborating a Programme Proposal and related Resolution for the full EPS-SG Programme expected to start no later than end 2014,

TAKING INTO ACCOUNT the Council Resolution EUM/C/75/12/Res. I on the Scope of the EPS-SG Space Segment, in which the EUMETSAT Member States approved the baseline payload complement for the preparation of the EPS-SG (Infrared Atmospheric Sounding Instrument – New Generation, Visible-infrared Imaging Instrument, European Microwave Sounding Instrument, Scatterometer, Radio Occultation Instruments, Microwave Imaging for Precipitation Instrument, Multi-viewing, multi-channel, multi-polarisation Imager, the Advanced Data Collection System, and the Copernicus Sentinel-5 instrument), and that Council further agreed to add the Ice Cloud Imager to this baseline payload at its 76th meeting on 5-6 July 2012, on the understanding that the final decision on the EPS-SG payload complement will only be formalised when approving the EPS-SG Programme,

TAKING INTO ACCOUNT EUM/C/76/12/Res. II on a savings target for the preparation of the EPS-SG Programme, the corresponding measures agreed by Council in documents EUM/C/78/13/DOC/06 and EUM/C/79/13/DOC/09 and the resulting achievements reported to Council in EUM/C/80/14/DOC/10.

NOTING that only an EPS-SG programme including two series of three consecutive satellites can ensure 21 years of operations at annualised cost lower than that of the EPS programme,

NOTING the draft agreement with ESA concerning cooperation on the Metop-SG series of satellites,

AWARE that, as a result of the ESA Council at Ministerial level in November 2012 (ESA C-Min-12), the ESA Participating States approved the ESA Declaration on the ESA Metop-SG Programme,

NOTING Regulation (EU)No 377/2014 of 3 April 2014 of the European Parliament and the Council establishing the Copernicus Programme (“Copernicus Regulation”), which aims to develop a portfolio of European operational services relevant to environment and security, and which foresees to entrust delegated activities to EUMETSAT and ESA,

NOTING that the Commission Delegated Regulation (EU) No 1159/2013 of 12 July 2013 establishes that the GMES data and information policy should strongly contribute to the open data policy promoted by the Union, that access to Sentinel data should be free, full and open and that third countries or international organisations contributing to the operations of GMES should have access to GMES data under the same conditions which apply to Member States,

NOTING that the Framework Agreement between EUMETSAT and ESA on GMES approved by Council at its 67th meeting was signed on 20 July 2009,

NOTING the draft Implementing Arrangement with ESA concerning the provision of Sentinel-5 instruments, their accommodation in and their flight on the Metop-SG satellites, which is one of the implementing arrangements established under the GMES Framework Agreement with ESA,

NOTING that the operations of Sentinel-5 will be funded by the EU under the Delegation Agreement between EU and EUMETSAT covering EUMETSAT’s activities in support of Copernicus in the 2014-2020 period and by subsequent agreements under successive EU Multiannual Financial Frameworks.

NOTING the draft agreement with CNES concerning the supply of a new generation of Infrared Atmospheric Sounding Interferometer (IASI-NG),

NOTING the draft agreement with CNES governing the cooperation relative to the implementation of the advanced ARGOS Data Collection System through EPS-SG,

NOTING the draft agreement with DLR concerning the supply of the Visible-infrared-Imaging Instruments (METimage) for the EPS-SG programme,

NOTING the agreement with NOAA on Long Term Cooperation, approved at the 78th Council meeting and signed in August 2013, which foresees continued cooperation on polar-orbiting operational satellite systems through establishment and exploitation of a shared Joint Polar System to provide long-term continuity of observations from polar-orbits,

NOTING the draft cooperation agreement with NOAA on the Joint Polar System (JPS), establishing the EPS-SG Programme as the European contribution to the JPS,

FOLLOWING the roadmap for the approval of the EPS-SG Programme as agreed the 78th Council meeting (EUM/C/78/13/DOC/05),

TAKING INTO ACCOUNT the Programme Proposal on the EPS-SG Programme contained in document EUM/C/80/14/DOC/09,

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

AGREE:

- I** To establish the EPS-SG Programme with a first satellite planned to be available for launch in 2021, in time to secure the continuity of the observations from the EPS Programme and with operations expected to last for at least 21 years, which can only be assured with a 3 + 3 satellite programme including two parallel series of three successive Metop-SG A and Metop-SG B satellites.
- II** That the mission objectives, system description and Programme content shall be as described in the EUMETSAT EPS-SG Programme Definition attached to this Resolution.
- III** That the financial envelope of the EPS-SG Programme shall amount to MEUR 3,323 at 2012 economic conditions (MEUR 3,495 at 2015 e.c.), with an indicative expenditure profile as described in the Programme Definition.
- IV** That, in order to improve value for money of the EPS-SG Programme, every effort will be made to ensure that the lifetime of the satellites is maximised, whilst complying with applicable space debris mitigation regulations and that overall flexibility regarding the schedule of launches is preserved with a view to a possible extension of the operation period of the programme.

EUMETSAT POLAR SYSTEM SECOND GENERATION PROGRAMME DEFINITION

1. INTRODUCTION

The establishment of the EPS-SG Programme derives from the EUMETSAT Convention, where the primary objective of EUMETSAT to establish, maintain and exploit European systems of operational meteorological satellites is stated, together with the further objective to contribute to the operational monitoring of the climate and the detection of global climatic changes. EPS-SG is the basic Programme required to continue the provision of observations from polar orbit following EUMETSAT Polar System (EPS) and as such is a mandatory Programme.

2. MISSION OBJECTIVES AND EPS-SG MISSION

As the successor of the EPS Programme, the EPS-SG Programme will continue to support and enhance the core services of operational meteorology and climate monitoring from the mid morning polar orbit and will implement the End User Requirements Document approved by Council.

In the frame of the Joint Polar System (JPS) shared with the US National Ocean and Atmosphere Administration (NOAA), it will provide observations from the mid morning orbit supporting a large spectrum of applications at the National Meteorological Services and other operational entities of EUMETSAT Member and Cooperating States, as well as WMO users in general.

In particular, Numerical Weather Prediction at regional and global scales will benefit from the EPS-SG enhanced infra-red, micro-wave, and radio-occultation soundings of temperature and humidity, polar atmospheric motion vectors extracted from optical imagery, novel precipitation and cloud measurements of imagers in the optical, sub-millimetre and micro-wave spectra, and high-resolution ocean surface wind-vector and soil moisture measurements extracted from scatterometer observations.

The imaging and scatterometry missions will also support nowcasting applications at high latitudes where geostationary measurements are not available, as well as operational oceanography through the delivery of ocean surface wind vectors, sea surface temperature, sea ice cover, and other marine products.

Atmospheric composition applications, particularly monitoring and forecasting of air quality, ozone, aerosols and volcanic ash, and surface ultra-violet radiation, will be served with high spectral and spatial resolution soundings and imagery in the spectrum ranging from ultra-violet to the thermal infrared.

Operational hydrology and water management will be served with precipitation, soil moisture and snow measurements.

A number of measurements from the optical imaging mission will be relevant for land surface analysis at large scale in support of land-atmosphere interactions and biosphere applications.

All EPS-SG observation missions will support climate monitoring, based on the production of relevant Climate Data Records involving also heritage observations from the EPS Programme.

2.1. Observation Missions

The nominal EPS-SG system will include a configuration of two satellites (Satellite A and satellite B) carrying different sets of instruments to maximise synergy among the observations.

Satellite A will carry six instruments to fulfil the sounding and optical imaging missions:

- The Infrared Atmospheric Sounding mission (**IAS**), provides hyper-spectral infrared soundings of temperature, water vapour, and trace gases with a spectral resolution of 0.25 cm^{-1} within the spectral range from 645 to 2760 cm^{-1} at an average spatial sampling distance of 25 km;
- The Visible/Infrared Imaging mission (**VII**), provides moderate-resolution optical imaging of clouds, aerosols, and surface variables in 20 spectral channels ranging from 0.443 to $13.345 \text{ }\mu\text{m}$ with a spatial sampling of 250 to 500 m;
- The MicroWave Sounding mission (**MWS**), provides all-weather microwave sounding of atmospheric temperature and humidity in the frequency range from 23.4 to 229 GHz, at a spatial resolution of 17 to 40 km;
- The Radio Occultation sounding mission (**RO**), provides high vertical resolution, all-weather soundings of atmospheric temperature and water vapour by tracking GPS (Global Positioning System), Galileo and optionally GLONASS, and Compass-Beidou satellites;
- The Multi-viewing Multi-channel Multi-polarisation Imaging mission (**3MI**), provides moderate resolution aerosol imaging in 12 spectral channels of the spectral region ranging from the visible ($0.41 \text{ }\mu\text{m}$) to the short-wave infrared ($2.13 \text{ }\mu\text{m}$), at a spatial resolution of 4 km;
- The nadir-viewing Ultra-violet Visible Near-infrared Shortwave infrared sounding mission (**UVNS**), implemented by the Copernicus Sentinel-5 instrument, provides hyper-spectral sounding of trace gases with a spectral resolution from 0.05 to 1 nm within the spectral range from 0.27 to $2.385 \text{ }\mu\text{m}$ at a spatial resolution of 7 km.

Satellite B will carry four instruments to fulfil the passive micro-wave and sub-millimetre-wave imaging, scatterometry, and radio occultation sounding missions:

- The Scatterometry mission (**SCA**), provides back-scattered signals in the 5.3 GHz band to measure ocean-surface vector winds and soil moisture of land surfaces at a spatial resolution of 25 km;
- The Micro-Wave Imaging mission (**MWI**), provides precipitation and cloud imaging in 18 channels (8 of which being dual-polarisation) in the frequency range from 18.7 to 183 GHz at a spatial resolution from 10 km (highest frequency) to 50 km (lowest frequency);
- The Ice Cloud Imaging mission (**ICI**) provides ice cloud and snowfall imaging in 11 channels (2 of which being dual-polarisation) in the frequency range from 183 to 664 GHz at a spatial resolution of 15 km;
- A second RO sounding instrument to complement that on Metop-SG A to provide a higher number of all-weather RO soundings of temperature and water vapour by tracking GPS, Galileo and optionally GLONASS, and Compass-Beidou satellites.

The Metop-SG B satellite also carries an Advanced Data Collection System (A-DCS4) for the collection and transmission of observations and data from surface, buoy, ship, balloon or airborne data collection platforms.

3. EPS-SG SYSTEM DESCRIPTION

3.1 System Architecture

The EPS-SG system consists of the following main elements:

- Space Segment;
- Ground Segment;
- Launch services;
- LEOP services.

3.2 Space Segment

The EPS-SG Space Segment consists of three Metop-SG A satellites and three Metop-SG B satellites equipped with different instrument payload fulfilling the observation missions in synergy. Both Metop-SG A and Metop-SG B types of satellite have large commonalities to facilitate efficient operations.

The space segment also includes all necessary Ground Support Equipment (GSE) for satellite AIV, such as mechanical, electrical and optical GSE's test facilities to support test and qualification of the satellites and specific tools used for system verification and validation, such as the satellite simulators or Radio Frequency (RF) suitcases.

The payloads carried by each type of satellite will be different, with the exception of the Radio Occultation (RO) instrument to be embarked on both A and B satellites.

The mapping between the EPS-SG observation missions and the corresponding instruments to be carried on the Metop-SG satellites is as follows:

Metop-SG A Missions	Instrument (and Provider)
Infrared Atmospheric Sounding (IAS)	IASI-NG (CNES)
Visible-Infrared Imaging (VII)	METimage (DLR)
Microwave Sounding (MWS)	MWS (ESA)
Radio Occultation (RO)	RO (ESA)
Multi-viewing, -channel, -polarisation Imaging (3MI)	3MI (ESA)
UV/VIS/NIR/SWIR Sounding (UVNS)	Sentinel-5 (Copernicus/ ESA)

Metop-SG B Missions	Instrument (and Provider)
Scatterometry (SCA)	SCA (ESA)
Microwave Imaging for Precipitation (MWI)	MWI (ESA)
Ice Cloud Imaging (ICI)	ICI (ESA)
Radio Occultation (RO)	RO (ESA)
Advanced Data Collection (ADCS)	A-DCS4 (CNES)

All instruments will nominally be on and taking measurements continuously, although day/night observations will be different for some instruments, i.e. METimage, Sentinel-5 and 3MI will generate reduced amounts of data at night.

3.3 EPS-SG Ground Segment

The EPS-SG Overall Ground Segment will support all the ground functions required to meet the mission objectives and comprises a set of core functions, supplemented by functions provided by services and partners:

- Mission Control and Operations ;
- Payload Data Acquisition and Processing;
- Multi Mission Elements (MMEs).

SAFs are part of EUMETSAT's multi-mission infrastructure, and contribute to the implementation of the Payload Data Acquisition and Processing function for agreed level-2 products.

The EPS-SG Ground Segment functions will be implemented by physical elements located at the EUMETSAT Headquarters and other sites.

The full complement of sites contributing to the EPS-SG Ground Segment is:

- The Mission Control Centre (MCC) at EUMETSAT Headquarters;
- The Remote Mission Control Centre (RMCC) is located at a remote location and provides capability to command and control the Space Segment in the case of partial or total loss of the MCC;
- The Ground Stations sites for Tracking, Telemetry and Command/Control (TT&C);
- The Ground Station sites for payload data reception, both polar stations for global data, and regional stations. The polar global data reception sites are expected to include NOAA antennas in the McMurdo station in the Antarctic as part of the JPS support;
- The EUMETCast uplink station for data dissemination;
- The Satellite Application Facilities (SAFs) distributed across EUMETSAT Member States;
- The Scatterometer transponders sites.

In addition to these sites, there are also the sites of partners and service providers.

4. EPS-SG IN-ORBIT DEPLOYMENT PLAN

Because the EPS-SG Programme is the follow-on to the EPS Programme and the EUMETSAT contribution to the JPS shared with NOAA, the Metop-SG satellites will be operated in the same mid morning orbit as the Metop satellites.

The baseline in-orbit configuration for the EPS-SG space segment is a dual spacecraft configuration (Metop-SG A and Metop-SG B).

Although the baseline assumption is that each spacecraft in the programme will be launched independently, both satellites of the dual configuration will be operated simultaneously in the same mid morning orbit, at defined relative phases in the orbit. Considering that both types of satellites are required to ensure continuity of EPS observations, the prototype satellites are planned to be launched 18 months apart

The programme foresees a series of three spacecraft of each type, with a 7.5-year design lifetime.

The deployment of the EPS-SG system and the successive Metop-SG satellites is driven by availability and readiness of the prototype satellites and the required duration of the operational services and by the need to ensure the continuity of the services provided by the last Metop satellites of the EPS system.

The foreseen EPS-SG satellite deployment scenario is as follows:

- Nominal launch of Metop-SG A1:	2021
- Nominal launch of Metop-SG B1:	2022
- Nominal launch of Metop-SG A2:	2028
- Nominal launch of Metop-SG B2:	2029
- Nominal launch of Metop-SG A3:	2035
- Nominal launch of Metop-SG B3:	2036

One difference between the EPS and EPS-SG Programmes is the need to comply with space debris mitigation regulations which have evolved considerably over the past 10 years. Therefore, in accordance with applicable debris mitigation regulations, the baseline is to de-orbit the Metop-SG satellites at their end of life, performing a controlled re-entry targeting the open ocean. The choice of the end of life date will be a balance between the maximisation of the scientific data from an in-orbit asset and the need to secure a defined minimum amount of fuel to successfully perform a controlled re-entry.

5. SCOPE OF EUMETSAT PROGRAMME

The scope of the EPS-SG Programme encompasses the following main elements:

- Two series of three successive satellites, termed “Satellite A” and “Satellite B”;
- A fixed financial contribution to the ESA Metop-SG Space Segment Development Programme covering the development of both prototype satellites;
- Procurement of the four recurrent satellites and related activities;
- A fixed contribution to the development by DLR of the METimage instrument and the procurement of two recurrent METimage instruments;
- A fixed contribution to the development by CNES of the IASI-NG instruments and procurement of two recurrent IASI-NG instruments;
- Procurement of six Launch and LEOP services;
- Establishment of a ground segment system to support the operation of the EPS-SG system;
- At least 21 years of operations of each series of satellites, which can only be assured with a 3 + 3 satellite programme including two parallel series of three successive Metop-SG A and Metop-SG B satellites;
- 10 years of continuous development and operations (CDOP) activities of the EUMETSAT SAFs;
- The management of the developments and procurements, and the conditioning of the infrastructure to host components of the system, including back-up services and related systems.

6. IMPLEMENTATION ARRANGEMENTS

6.1 Interaction with Users and Experts

The process for involvement of users and experts established during the initial phases of the EPS-SG activities will continue during the development and operations phases. The EPS-SG Mission Team which has been instrumental to integrate and consolidate the information base and help EUMETSAT.

The EPS-SG End User Requirements Document (EURD), owned by Council, is at the highest level in the EPS-SG specification tree and is the applicable users' reference for the design and the development of EPS-SG at system level and segment levels (space and ground segments). Accordingly, a downward traceability from the EURD to the System requirements Document (SRD) and further down to the segment system requirements documents has been established and is maintained for the Phase B and following Phases.

An initial version of the EURD (EUM/C/78/13/DOC/07) was approved by Council as baseline for EPS-SG Preparatory Programme. The EURD will be updated in the light of results from the Phase B activities and will be presented to EUMETSAT Council for approval.

6.2 Cooperation with ESA

The roles of EUMETSAT and ESA are detailed in a dedicated Agreement with ESA on Metop-SG approved by the EUMETSAT Council, specifying, amongst others, the roles of EUMETSAT and ESA within the EPS-SG, financial liabilities, procurement policy, implementation mechanisms, and ownerships of data.

6.3 Other partner agencies

In addition to cooperation with ESA, EUMETSAT will also cooperate with DLR and CNES for the acquisition of the METimage (DLR), IASI-NG (CNES) and the implementation of the ARGOS (CNES) mission. Dedicated agreements are approved by Council.

EPS-SG will be implemented as the European contributions to the Joint Polar System established in cooperation with NOAA, subject to a dedicated Agreement addressing development and coordinated operations also approved by Council.

6.4 Sentinel-5 Implementation

The implementation of the Sentinel-5 on the Metop-SG satellites will be formalised through the “Draft Implementing Arrangement with ESA on GMES Sentinel-5”, to be signed upon entry into force of the EPS-SG Programme. This Implementing Arrangement is based on the Framework Agreement between EUMETSAT and ESA on the cooperation on GMES signed on 20 July 2009. ESA will develop the Sentinel-5 mission and deliver three instruments, two of which are expected to be funded by the EU Copernicus Programme in compliance with the EPS-SG interfaces and within the capabilities allocated to the satellites to fulfil the Sentinel-5 mission.

The Copernicus Regulation approved by the EU Council and the European Parliament foresees that operations of the Sentinel-5 instruments as part of the EPS-SG system will be funded by the EU under Delegation Agreements between EUMETSAT and the EU covering EUMETSAT’s activities in support of Copernicus in the 2014-2020 period and by subsequent agreements under successive EU Multiannual Financial Frameworks.

7 PROGRAMME ENVELOPE & INDICATIVE EXPENDITURE PROFILE

The proposed EUMETSAT EPS-SG Programme envelope amounts to MEUR 3,323 at 2012 economic conditions. It is equivalent to MEUR 3,495 at 2015 economic conditions.

The following table shows the indicative expenditure profile of the EPS-SG Programme:

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MEUR (‘12 e.c.)	26.1	118.3	187.6	246.6	299.8	267.2	236.1	201.5	151.7	97.9	90.6

Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036 to 2044
MEUR (‘12 e.c.)	124.1	167.5	145.4	109.3	68.1	65.9	100.0	76.7	134.6	127.5	280.1

RESOLUTION ON
THE EUMETSAT POLAR SYSTEM SECOND GENERATION PROGRAMME
APPROVAL

adopted at the 80th Meeting of the EUMETSAT Council on 1 July 2014

The EUMETSAT Member States,

HAVING REGARD to the EUMETSAT Convention, which provides that the primary objective of EUMETSAT is to establish, maintain and exploit European systems of operational meteorological satellites 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 the EUMETSAT Convention, which establishes that mandatory Programmes are the basic Programmes required to continue the provision of observations from geostationary and polar orbits,

CONSIDERING that the adoption of mandatory Programmes requires a unanimous vote of all the Member States,

BEARING IN MIND that for the accomplishment of the EUMETSAT objectives in the polar orbit, the first satellite of a second generation the EUMETSAT Polar System (EPS-SG) should be available for launch in 2021,

HAVING REGARD to the roadmap for the approval of the EPS-SG Programme as agreed at the 78th meeting of the Council (EUM/C/78/13/DOC/05),

AWARE of the criticality for all EUMETSAT Member States of providing continuity to observations from polar orbit and the urgency in adopting the EPS-SG Programme to avoid cost increases due to delays,

BEARING IN MIND that any delay in adopting the EPS-SG Programme directly impacts users and EUMETSAT's international partners, and in this respect recalling that the Sentinel-5 instrument of the European Union's Copernicus Programme is part of the payload,

CONSIDERING that the EUMETSAT Council, at its 80th meeting, was invited to take the first step towards the approval of the mandatory EPS-SG Programme by approving the EPS-SG Programme Proposal and Programme Resolution, thus freezing the contents of said Programme Proposal and Programme Resolution without committing individual Member States to fund the mandatory EPS-SG Programme ("Vote 1"),

NOTING that Vote 1 must be secured in order to open the second vote on the actual EPS-SG Programme approval, which will allow the individual Member States to commit to fund the mandatory EPS-SG Programme (“Vote 2”),

CONSIDERING that all Member States except Poland have expressed positive votes on Vote 1 at the 80th meeting of the Council and that Poland’s positive vote on Vote 1 is required to enable Vote 2 to be opened to all Member States,

URGE Poland to give its positive vote on Vote 1 as soon as possible, thus enabling all Member States to proceed with Vote 2.

AGREE to task the Director-General and the Council Chairman to write a letter to the Polish Prime Minister addressing the urgency of a positive vote on Vote 1 from Poland and the need to discuss the way forward for the full approval of the mandatory EPS-SG Programme by Poland.

RESOLUTION ON
THE UPDATE OF THE ANNUAL FEES APPLICABLE TO NMSs
OF NON-MEMBER STATES

adopted at the 80th Meeting of the EUMETSAT Council
on 1 July 2014

The EUMETSAT Member States,

RECALLING that the current EUMETSAT fees for Official Duty Use of Half-Hourly Data and Quarter-Hourly Meteosat Data by NMSs of Non-Member States were adopted in Resolution EUM/C/76/12/Res. V at the 76th Meeting of the EUMETSAT Council on 5-6 July 2012,

RECALLING that the said Resolution also provides that the threshold is established at the “Upper Middle Income Mean Value” defined by the World Bank,

RECALLING that the threshold and the fee tables shall be revised by EUMETSAT Council every 2 years on the basis of the latest available World Bank statistics,

WISHING to update the threshold and the tables in accordance with the above-mentioned statistics,

AGREE to abolish Council Resolution EUM/C/76/10/Res. V and to replace it as follows:

- I** EUMETSAT fees for Official Duty Use of Half-Hourly Data and Quarter-Hourly Meteosat Data by NMSs of Non-Member States – Period 2013/2014 – shall be replaced by the version attached to this Resolution which includes the updated threshold and the table of Fees Applicable to NMSs of non-Member States for Official Duty Use – Period 2015/2016.
- II** This Resolution shall take effect on 1 January 2015.

EUMETSAT FEES FOR OFFICIAL DUTY USE OF HALF-HOURLY AND QUARTER-HOURLY METEOSAT DATA BY NMSs OF NON-MEMBER STATES

The attached Tables contain the annual fees applicable to NMSs of non-Member States for Half-hourly HRI Data and Half-hourly and Quarter-hourly High Rate SEVIRI Data for the period 2015-2016.

The fees for Official Duty use of Half-hourly Low Rate SEVIRI Data by NMSs of non-Member States shall be 75% of the corresponding fees for Official Duty use of High Rate SEVIRI Data.

The following applies:

- 1) Official Duty use by NMSs of countries with a GNI per capita below or equal to USD 6,977, derived from World Bank statistics: Without Charge.
- 2) Official Duty use by NMSs of countries with a GNI per capita above USD 6,977: the fees for Half-hourly and Quarter-hourly Meteosat Data are given in the tables attached.
- 3) Review Mechanisms:
 - The tables attached shall be reviewed by Council every 2 years on the basis of the latest available World Bank statistics.
 - Should the figures in the tables attached prove to be erroneous or incomplete, the Director-General shall make appropriate recommendations on a case by case basis.
 - The “Upper Middle Income” value as defined in the World Bank statistics shall establish the threshold for free access to Half-hourly and Quarter-hourly Meteosat Data. This threshold shall be revised by Council every 2 years on the basis of the World Bank statistics.

Country	GNI/C	1/2 hourly Meteosat Data	1/4 hourly Meteosat Data
		Annual Fee KEUR	Annual Fee KEUR
Afghanistan	680	0	0
Albania	4,030	0	0
Algeria	5,020	0	0
Angola	4,580	0	0
Antigua and Barbuda	12,480	80	100
Argentina	i	80	100
Armenia	3,720	0	0
Australia	59,360	80	100
Azerbaijan	6,220	0	0
Bahamas, The	20,600	80	100
Bahrain	14820 a	80	100
Bangladesh	840	0	0
Barbados	15,080	80	100
Belarus	6,530	0	0
Belize	4,490 a	0	0
Benin	750	0	0
Bhutan	2,420	0	0
Bolivia (Plurinational State of)	2,220	0	0
Bosnia and Herzegovina	4,750	0	0
Botswana	7,650	80	100
Brazil	11,630	80	100
Brunei Darussalam	j	80	100
Burkina Faso	670	0	0
Burundi	240	0	0
Cambodia	880	0	0
Cameroon	1,170	0	0
Canada	50,970	80	100
Cape Verde	3,830	0	0
Cayman Islands	... a	80	100
Central African Republic	510	0	0
Chad	770	0	0
Chile	14,310	80	100
China	5,720	0	0
Colombia	7,020	80	100
Comoros	840	0	0
Congo	2,550	0	0
Costa Rica	8,820	80	100
Cuba	5,890 a	0	0
Curaçao and Sint Marteen	j	80	100
Cyprus	26,110 c	80	100
Democratic Republic of Korea	k	0	0
Democratic Republic of Congo	230	0	0
Djibouti	l	0	0
Dominica	6,440	0	0
Dominican Republic	5,470	0	0

Council Resolution EUM/C/80/14/Res. III
Annex I

Country	GNI/C	1/2 hourly Meteosat Data	1/4 hourly Meteosat Data
		Annual Fee KEUR	Annual Fee KEUR
Ecuador	5,170	0	0
Egypt, Arab Rep.	2,980	0	0
El Salvador	3,590	0	0
Eritrea	450	0	0
Ethiopia	380	0	0
Fiji	4,110	0	0
Gabon	10,040	80	100
Gambia, The	510	0	0
Georgia	3,270 d	0	0
Ghana	1,550	0	0
Guatemala	3,120	0	0
Guinea	440	0	0
Guinea-Bissau	510	0	0
Guyana	3,410	0	0
Haiti	760	0	0
Honduras	2,120	0	0
Hong Kong SAR, China	36,560	80	100
India	1,580	0	0
Indonesia	3,420	0	0
Iran, Islamic Rep.	i	0	0
Iraq	5,870	0	0
Israel	28,380 a	80	100
Ivory Cost	1,220	0	0
Jamaica	5,120	0	0
Japan	47,880	80	100
Jordan	4,670	0	0
Kazakhstan	9,780	80	100
Kenya	860	0	0
Kiribati	2,520	0	0
Kuwait	44,100 a	80	100
Kyrgyzstan	990	0	0
Lao PDR	1,270	0	0
Lebanon	9,190	80	100
Lesotho	1,380	0	0
Liberia	370	0	0
Libya	i	80	100
Macao SAR, China	55,720 a	80	100
Madagascar	430	0	0
Malawi	320	0	0
Malaysia	9,820	80	100
Maldives	5,750	0	0
Mali	660	0	0
Malta	19,760	80	100
Mauritania	1,110	0	0
Mauritius	8,570	80	100
Mexico	9,640	80	100
Micronesia, Fed. Sts.	3,230	0	0
Monaco	.. a	80	100

Country	GNI/C	1/2 hourly Meteosat Data	1/4 hourly Meteosat Data
		Annual Fee KEUR	Annual Fee KEUR
Mongolia	3,160	0	0
Montenegro	7,220	80	100
Morocco	2,960 e	0	0
Mozambique	510	0	0
Myanmar	k	0	0
Namibia	5,610	0	0
Nepal	700	0	0
New Zealand	30,640 a	80	100
Nicaragua	1,650	0	0
Niger	390	0	0
Nigeria	1,440	0	0
Oman	19,110 a	80	100
Pakistan	1,260	0	0
Panama	8,510	80	100
Papua New Guinea	1,790	0	0
Paraguay	3,400	0	0
Peru	6,060	0	0
Philippines	2,500	0	0
Qatar	76,010 a	80	100
Republic of Korea	22,670	80	100
Republic of Moldova	2,070 f	0	0
Russian Federation	12,700	80	100
Rwanda	600	0	0
Saint Lucia	6,890	0	0
Samoa	3,260	0	0
São Tomé and Príncipe	1,310	0	0
Saudi Arabia	21,210 a	80	100
Senegal	1,030	0	0
Seychelles	12,260	80	100
Sierra Leone	580	0	0
Singapore	47,210	80	100
Solomon Islands	1,130	0	0
Somalia	k	0	0
South Africa	7,610	80	100
South Sudan	790	0	0
Sri Lanka	2,920	0	0
Sudan	1,500 g	0	0
Suriname	8,680	80	100
Swaziland	2,860	0	0
Syrian Arab Republic	2,610 a	0	0
Tajikistan	860	0	0
Thailand	5,210	0	0
Macedonia, FYR	4,620	0	0
Timor-Leste	3,620	0	0
Togo	500	0	0
Tonga	4,220	0	0
Trinidad and Tobago	14,710	80	100
Tunisia	4,150	0	0
Turkmenistan	5,410	0	0

**Council Resolution EUM/C/80/14/Res. III
Annex I**

Country	GNI/C	1/2 hourly Meteosat Data	1/4 hourly Meteosat Data
		Annual Fee KEUR	Annual Fee KEUR
Tuvalu	5,650	0	0
Uganda	440	0	0
Ukraine	3,500	0	0
United Arab Emirates	35,770 a	80	100
United Republic of Tanzania	570 h	0	0
United States of America	52,340	80	100
Uruguay	13,580	80	100
Uzbekistan	1,720	0	0
Vanuatu	3,000	0	0
Venezuela, Bolivarian Republic of	12,460	80	100
Viet Nam	1,550	0	0
Yemen	1,270	0	0
Zambia	1,350	0	0
Zimbabwe	650	0	0

Footnotes:

... Not available.

a. 2012 data not available; ranking is approximate.

c. Data are for the area controlled by the government of the Republic of Cyprus.

d. Excludes Abkhazia and South Ossetia.

e. Includes Former Spanish Sahara.

f. Excludes Transnistria.

g. Excludes South Sudan.

h. Covers mainland Tanzania only.

i. Estimated to be upper middle income (\$4,086 to \$12,615).

j. Estimated to be high income (\$12,616 or more).

k. Estimated to be low income (\$1,035 or less).

l. Estimated to be lower middle income (\$1,036 to \$4,085).

RESOLUTION ON
AMENDMENTS TO THE METEOSAT IMPLEMENTING RULES

adopted at the 80th Meeting of the EUMETSAT Council
on 1 July 2014

The EUMETSAT Member States,

RECALLING that the current consolidated Meteosat Implementing Rules were adopted by Council at its 70th meeting in June 2010 through Council Resolution EUM/C/70/10/Res. III and at its 76th meeting in July 2012 through Council Resolution EUM/C/76/12/Res. V,

RECALLING the recommendations on harmonisation of the ECMWF, EUMETSAT and ECOMET data policy provisions issued by the Joint Harmonisation Group (JHG) to the EUMETSAT Council at its 38th meeting on 1-3 July 1998,

RECALLING that the "harmonised" definitions proposed by the JHG were initially adopted by the EUMETSAT Council at its 38th meeting through Council Resolution EUM/C/98/Res. IV as part of the Implementing Rules to the EUMETSAT Principles on Data Policy,

TAKING INTO ACCOUNT that the ECMWF Council and the ECOMET General Assembly also adopted the recommendations of the JHG into their data policy provisions;

BEARING IN MIND the recommendation of the JHG that the Councils and General Assembly commit themselves to the principle that decisions regarding data policy should always be taken with knowledge of the impact on the other two organisations, and with the principle that decisions should always aim to increase rather than decrease harmonisation;

CONSIDERING the result of the joint review of the current definitions contained in the data policy provisions in the three organisations which took place in June 2013 and which were then presented to the EUMETSAT Council in document EUM/C/80/14/DOC/39,

WISHING to continue the close cooperation between EUMETSAT, ECMWF and ECOMET and in particular to maintain the long standing harmonisation on data policy provisions,

AGREE:

I to amend Annex I of Council Resolution EUM/C/70/10/Res. III by replacing the Implementing Rules for Meteosat Data and Products with the updated version attached as Annex I to this Resolution.

II that subject to the above, Resolution EUM/C/70/10/Res. III remains unchanged.

1 THE METEOSAT CATALOGUE

For the purpose of distribution, dissemination and commercial application, a list of data, products and services is contained in the Meteosat Catalogue as displayed in the Product Navigator.

2 DEFINITIONS

"Archived Data and Products": image data, older than 24 hours, generated by a Meteosat satellite, hardcopy image prints and other meteorological products stored and/or supplied by EUMETSAT's Archive and Retrieval Facility, as listed in the Meteosat Catalogue.

"Broadcasters": those users who disseminate an item from the Meteosat Catalogue or images based on Meteosat Data through electronic public information systems including, but not limited to, Internet, terrestrial and satellite transmissions.

"Educational Use": any use of an item from the Meteosat Catalogue solely for educational non-commercial purposes, without transmission or redistribution of these data, products and services to any further third party, or use of them to generate a Value Added Service.

"End Users" those users who use an item from the Meteosat Catalogue for their own commercial or industrial purposes and do not pass on such item to any further user or use it to generate a Value Added Service.

"Essential Meteosat Data and Products": Meteosat Data and Products which are declared "Essential" in accordance with WMO Resolution 40 (Cg-XII), as agreed by Council.

"Exclusive Licensing Agent": a NMS of a Member State exclusively representing EUMETSAT within that State for the purpose of licensing Meteosat Data.

"Half-hourly Meteosat Data": those Meteosat Data referenced by EUMETSAT in time to each clock hour and 30 minutes after each clock hour (UTC).

"Hourly Meteosat Data": those Meteosat Data referenced by EUMETSAT in time to each clock hour (UTC).

"High Rate SEVIRI Data ": high rate image data from the SEVIRI instrument of a Meteosat Second Generation satellite, processed to level 1.5 by the EUMETSAT Ground Segment.

"HRI Data": high resolution image data generated by a Meteosat First Generation satellite.

"Low Rate SEVIRI Data ": low rate image data from the SEVIRI instrument of a Meteosat Second Generation satellite, processed to level 1.5 by the EUMETSAT Ground Segment.

"Member States": the States which are parties to the Convention for the Establishment of a European Organisation for the Exploitation of Meteorological Satellites.

"Meteosat Catalogue": the list of Meteosat Data and Products and Services attached hereto as Annex II.

"Meteosat Data": all HRI Data and High Rate/Low Rate SEVIRI Data generated by the Meteosat First and Second Generation satellites.

"Meteosat Derived Products": products generated by the EUMETSAT ground segment from Meteosat Data and transmitted to users within 24 hours, as listed in the Meteosat Catalogue.

"Meteosat Internet Service": Certain Meteosat Data and Meteosat Derived Products as defined in the Meteosat Catalogue, retransmitted by EUMETSAT via the Internet.

"National Territory": the national territory of a state, including its internal waters, its archipelagic waters, its territorial sea and its exclusive economic zone, as defined in the United Nations Convention on the Law of the Sea (UNCLOS) signed in Montego Bay on 10 December 1982 and having entered into force on 16 November 1994.

"NMS" (National Meteorological Service): service responsible at national level, in conformity with its legal status, for the gathering, classification and production of meteorological information in the national interest, and responsible at international level for participating in WMO programmes.

"Official Duty": all activities which take place within the organisation of a NMS and external activities of a NMS resulting from legal, governmental or intergovernmental requirements relating to defence, civil aviation and the safety of life and property.

"Personal use": any use of an item from the Meteosat Catalogue solely for personal non-commercial purposes, without transmission or redistribution of these data, products and services to any further third party, or use of them to generate a Value Added Service

"Quarter-hourly Meteosat Data": those Meteosat Data referenced by EUMETSAT in time to each clock hour and 15 minutes, 30 minutes and 45 minutes after each clock hour (UTC).

"Rapid Scanning Data": those Meteosat Data acquired by scanning of a certain geographical area within the footprint of a Meteosat satellite in more frequent time intervals than the nominal full disk repeat cycles. For the purposes of access conditions, Rapid Scanning Data shall be provided only in conjunction with the full set of Meteosat Data.

"Research Project": any project organised for non-commercial research purposes only. A necessary condition for the recognition of non-commercial purposes is that all the results obtained are openly available at delivery costs only, without any delay linked to commercial objectives, and that the research itself is submitted for open publication.

"Service Providers": those users who acquire an item from the Meteosat Catalogue in order to supply Value Added Services under specific licence conditions to a third party clearly identified and known to the Service Provider.

"Six-hourly Meteosat Data": those Meteosat Data referenced by EUMETSAT in time to the main synoptic hours of 00, 06, 12 and 18 UTC.

"Standard Licence Agreement": the standard terms and conditions pursuant to which items in the Meteosat Catalogue must be licensed to users.

"Subsidiary": any subsidiary of the Licensee which is controlled by the Licensee by means of the Licensee holding the majority of the voting rights (50% plus one vote).

"Third Party": any party external to a licence agreement between EUMETSAT or one of its Exclusive Licensing Agents and a user.

"Three-hourly Meteosat Data": those Meteosat Data referenced by EUMETSAT in time to the synoptic hours of 00, 03, 06, 09, 12, 15, 18 and 21 UTC.

"Value Added Services (VAS)": all meteorological services specifically conceived for the needs of users and made available under specific licence conditions.

"Without Charge": at no more than the cost of reproduction and delivery (including the cost of distribution media, documentation, software licences, transmission, direct labour cost and cost of any decryption key units), but without charge for the data and products themselves.

3 OWNERSHIP AND INTELLECTUAL PROPERTY RIGHTS

- 1 EUMETSAT holds the full ownership and Intellectual Property Rights to the Meteosat Data and Products.
- 2 The Intellectual Property Rights to images based on Meteosat Data are shared between EUMETSAT and the Service Provider generating the images.
- 3 The Intellectual Property Rights to Value Added Services other than images based on Meteosat Data are considered to be owned by the Service Provider generating the Value Added Service.

4 "ESSENTIAL" METEOSAT DATA AND PRODUCTS

EUMETSAT shall make its Three-hourly and Six-hourly Meteosat Data, the Meteosat Derived Products and the data offered through its Meteosat Internet Service available to all users world-wide on a free and unrestricted basis as "Essential" Data and Products in accordance with WMO Resolution 40 (Cg-XII).

5 LICENSING FOR NON-ESSENTIAL METEOSAT DATA AND ARCHIVED DATA AND PRODUCTS

- 1 The NMSs of Member States, acting as Exclusive Licensing Agents on behalf and for the account of EUMETSAT, shall have the responsibility for licensing non-Essential Meteosat Data to users receiving the data within their respective National Territories.
- 2 Acting as EUMETSAT's Exclusive Licensing Agents, the NMSs shall apply the EUMETSAT fees and conditions defined in Rules 8 and 10 below and shall sign licences applying the EUMETSAT standard licensing conditions with their users. The NMSs shall inform EUMETSAT of the signing of such licences.
- 3 The NMSs shall retain 25% of the fees received and allocate the remaining 75% to EUMETSAT.
- 4 Licensing for access to non-Essential Meteosat Data received outside Member States shall always be through a Standard Licence Agreement between the User and EUMETSAT according to the guidelines detailed in Rules 7, 8, 9 and 10 below.
- 5 EUMETSAT shall be responsible for the licensing of Archived Data and Products.

6 CONDITIONS OF ACCESS TO NON-ESSENTIAL METEOSAT DATA BY NMSs OF MEMBER STATES

- 1 The NMSs of Member States will receive non-Essential Meteosat Data for Official Duty use at no cost except for the cost of decryption key units.
- 2 Insofar as required for Official Duty use, the NMSs may grant access to other Departments within their respective National Administrations, subject to arrangements in accordance with national legislation, but all conditions defined in these Rules remain attached to the use of the data. Further distribution and all commercial applications of the Meteosat Data are subject to Rules 8, 10 and 11 below.

7 CONDITIONS OF ACCESS TO NON-ESSENTIAL METEOSAT DATA BY NMSs OF NON-MEMBER STATES

- 1 The NMSs of non-Member States will have access Without Charge to Hourly Meteosat Data for Official Duty use.
- 2 NMSs of non-Member States will have access to Half-hourly and Quarter-hourly Meteosat Data for Official Duty use in accordance with the conditions specified in Annex III.
- 3 NMSs of non-Member States which provide EUMETSAT with equivalent satellite data will be provided data under conditions to be agreed by the EUMETSAT Council on a case by case basis.
- 4 For limited periods, to support the monitoring of disasters or emergencies and in accordance with relevant UN resolutions, the full set of Meteosat Data will be made available Without Charge.
- 5 For Official Duty use by NMSs of non-Member States subject to tropical cyclones, the full set of Meteosat Data will be made available Without Charge.
- 6 Regarding their commercial activities, the NMSs of non-Member States shall be treated in the same way as Service Providers, in accordance with the fees and conditions listed in Annex IV.
- 7 EUMETSAT will inform the NMSs of non-Member States of licences signed with other users receiving non-Essential Meteosat Data within their respective territories.

8 CONDITIONS OF ACCESS TO NON-ESSENTIAL METEOSAT DATA BY RESEARCH PROJECTS AND FOR EDUCATIONAL USE

Research Projects and Educational Users are given access Without Charge to non-Essential Meteosat Data, in accordance with standard EUMETSAT licensing conditions.

9 CONDITIONS OF ACCESS TO NON-ESSENTIAL METEOSAT DATA BY ECMWF

ECMWF is given access Without Charge to non-Essential Meteosat Data for its own use in support of its mission, as defined in the ECMWF Convention. This use shall only cover activities carried out within the ECMWF Secretariat and shall not include retransmission of Meteosat Data to other users, including its Member States.

10 CONDITIONS OF ACCESS TO NON-ESSENTIAL METEOSAT DATA BY COMMERCIAL USERS AND OTHER USERS

Commercial and other users shall be given access to non-Essential Meteosat Data against fees and under the conditions laid down in Annex IV.

11 COMMERCIAL ACTIVITIES OF NMSs OF MEMBER STATES

- 1 The fees and conditions laid down in Annex IV shall apply in the relationship between the commercial activities of the NMSs of Member States and the NMSs when acting as EUMETSAT's Exclusive Licensing Agents.
- 2 In these cases, the NMSs acting as EUMETSAT's Exclusive Licensing Agents, shall be entitled to retain 25% of the fees due and shall allocate the balance to EUMETSAT.
- 3 The originating NMSs of Member States in their commercial activities shall be free to establish the prices to their users when supplying Value Added Services.
- 4 The NMSs of Member States shall in their commercial activities have the right to make their Value Added Services available to users within and outside Member States.

12 CONDITIONS OF ACCESS TO ARCHIVED DATA AND PRODUCTS

- 1 All categories of users will receive Archived Meteosat Data and Products in accordance with this Rule at no cost to such users.
- 2 The volume of Archived Data and Products that may be ordered from the EUMETSAT Archive and Retrieval Facility through a single order or through successive orders is limited to avoid an unmanageable load and a consequential degraded level of service.

13 FINANCIAL MATTERS

- 1 All income arising from the implementation of these Implementing Rules shall be included under a separate budget line into the annual EUMETSAT Budget on the basis of an estimate and shall be treated in accordance with the EUMETSAT Financial Rules.
- 2 EUMETSAT shall not be liable for the cost of procuring the necessary receiving equipment of any user. All users shall be required to reimburse EUMETSAT for the cost of providing them with decryption key units for the reception of non-Essential Meteosat Data.

RESOLUTION

ESTABLISHING A THIRD PARTY PROGRAMME ON EUMETSAT ACTIVITIES IN SUPPORT OF THE IMPLEMENTATION OF THE COPERNICUS PROGRAMME IN THE PERIOD 2014-2021

adopted at the 81st Meeting of the EUMETSAT Council on 15 October 2014

The EUMETSAT Council,

RECALLING 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 (WMO), and that a further objective of EUMETSAT is to contribute to the operational monitoring of the climate and the detection of global climatic changes,

RECALLING that the strategy “EUMETSAT: A Global Satellite Operational Agency at the Heart of Europe” approved at the 72nd Council meeting in June 2011 foresees to use a proportionate use of EUMETSAT’s skills and capabilities in support of the definition of some GMES user requirements, the translation of these agreed user requirements into end-to-end system specifications for operational space missions and ground infrastructures needed by GMES and/or, as the operational agency of those GMES satellite missions that are compatible with the EUMETSAT Convention and are of interest to its Member States and that within GMES the objective of EUMETSAT shall be to develop direct relationships with the EC that result in agreements covering the role that EUMETSAT will play within GMES,

TAKING INTO ACCOUNT that the EUMETSAT Council approved in June 2004 Resolution EUM/C/04/Res. III, in which the EUMETSAT Member States defined the main aims of EUMETSAT’s involvement in GMES, the EUMETSAT contributions to the GMES objectives and to seek specifically for EUMETSAT the role of GMES operational agency,

TAKING INTO ACCOUNT Resolution EUM/C/57/05/Res. II adopted in July 2005, in which the EUMETSAT Member States tasked the Director-General to negotiate a framework agreement with the EC, in line with objectives and fields of cooperation defined by the EUMETSAT Council,

TAKING INTO ACCOUNT the decisions taken at the 64th and 67th EUMETSAT Council meetings in July 2008 and July 2009 to provide free access to all data, products and services from EUMETSAT satellites to the GMES Core Services, in the expectation that access to GMES data will be free of charge, on the understanding that each user within these services will sign a licence with EUMETSAT and subject to commitment from the European Union and national authorities to fund these Core services on a sustainable basis,

TAKING INTO ACCOUNT that EUMETSAT Member States agreed, at the 64th Council meeting in July 2008, on the approach for implementation of GMES Sentinels 4 and 5 on EUMETSAT satellites, including a contribution by EUMETSAT to accommodate these instruments on EUMETSAT satellites, and also to the EUMETSAT involvement in GMES Sentinel 3 activities,

TAKING INTO ACCOUNT Declaration EUM/C/67/09/Decl.I on the Optional EUMETSAT Jason-3 Altimetry Programme, adopted by Participating States at the 67th Council meeting in July 2009, which foresaw that the EU makes a financial contribution of MEUR 26,5 at 2009 e.c. during the operations phase of the Programme, and that this funding would be provided through the future GMES/Copernicus Programme,

TAKING INTO ACCOUNT Resolution EUM/C/70/10/Res. VIII, adopted in June 2010, in which the EUMETSAT Member States emphasized the potential benefits from establishing synergies with EUMETSAT in the operational phase of GMES and recalled the detailed list of activities that EUMETSAT could support,

RECALLING the establishment of the GMES Sentinel-3 Third Party Programme with ESA through Council Resolution EUM/C/67/09/Res. II, adopted by the EUMETSAT Council in July 2009,

RECALLING the approval by the 76th Council meeting in July 2012 of the PURE activity, in which EUMETSAT supports the EC in the consolidated of user requirements for the future GMES marine and atmosphere services, and the corresponding conclusion of a dedicated arrangement with the EC,

BEARING IN MIND that the EUMETSAT Council, at its 78th meeting in June 2013, unanimously adopted the Initiating Resolution EUM/C/78/13/Res. I for a Third Party Programme on EUMETSAT Activities in Support of Copernicus in the Period 2014-2020, thereby tasking the Director-General to draw up a full programme proposal and to prepare the necessary delegation agreement with the European Union, to be agreed by Council,

TAKING INTO ACCOUNT that the user communities for the Copernicus Services are coherent with the existing EUMETSAT user community and its objectives,

CONSIDERING that the current and planned EUMETSAT missions and facilities will support the implementation of the space component of Copernicus,

BEARING IN MIND that Article 2 of the EUMETSAT Convention foresees that EUMETSAT may carry out activities not in conflict with its objectives requested and funded by third parties,

RECALLING that Regulation (EU) No 377/2014 of the European Parliament and of the Council of the European Union of 3 April 2014 establishing the Copernicus Programme foresees that:

- The acronym “GMES” should be replaced by the name “Copernicus” in order to facilitate the communication with the public at large;
- The objective of Copernicus should be to provide accurate and reliable information in the field of environment and security tailored to the needs of users and supporting other Union’s policies, including cooperation with third countries and humanitarian aid;
- Copernicus includes a service component, ensuring delivery of information on atmosphere monitoring, marine environment monitoring, land monitoring and climate change, and a space component providing observations to these services, which are fully consistent with EUMETSAT’s objectives and activities;

- The data and information produced in the framework of the Copernicus programme should be made available to the users on a full, open and free-of-charge basis;
- EU has approved the budgetary framework for Copernicus activities in the period 2014-2020;
- The EC should have the overall responsibility for Copernicus;
- The EC may entrust operational tasks of the Copernicus space component to ESA and to EUMETSAT,

HAVING REGARD to the Programme Proposal for a Third Party Programme on EUMETSAT Activities in support of the implementation of the Copernicus Programme and related Resolution, contained in document EUM/C/81/14/DOC/02 REV3,

HAVING REGARD to the draft Agreement between the European Union and EUMETSAT on the Implementation of the Copernicus Programme Including the Transfer of Ownership of Certain Assets contained in document EUM/C/81/14/DOC/01 REV2,

IN CONFORMITY with Resolution EUM/C/66/08/Res. II on the Approval of Third Party Programmes and with the Third Party Programme Procedures approved by the EUMETSAT Council in December 2008,

IN CONFORMITY with the Policy Principles for the Involvement of EUMETSAT in GMES Activities as endorsed by the EUMETSAT Council in June 2011,

AGREES:

- I** To establish a Copernicus Third Party Programme within the framework of the EUMETSAT Convention as described in the Programme Proposal on a Third Party Programme for EUMETSAT activities in support of the implementation of the Copernicus programme referred to in the Preamble.
- II** That the Copernicus Third Party Programme shall be carried out in accordance with the Agreement between the European Union and EUMETSAT on the Implementation of the Copernicus Programme Including the Transfer of Ownership of Certain Assets referred to in the Preamble.
- III** That activities foreseen by the Copernicus Third Party Programme are split in five Building Blocks, as defined in the Programme Proposal and the Agreement referred to in the Preamble.
- IV** That the maximum financial envelope of the Copernicus Third Party Programme, covering activities under the five Building Blocks, is M€250 at current economic conditions.
- V** That the cost for the implementation of the activities entrusted to EUMETSAT under Building Blocks 1 to 3, as defined in the Programme Proposal and the Agreement referred to in the Preamble, amounts to a maximum of M€229 at current economic conditions, and shall be fully covered by the European Union.

- VI** That the possible implementation by EUMETSAT of activities under Building Blocks 4 and 5, as defined in the Agreement, is subject to a request from the European Commission in accordance with a formal change management process laid down in the Agreement and requires additional funding from the European Union.
- VII** That the Director-General shall be entrusted to conclude exchange of letters as required to cover activities under Building Blocks 4 and 5 within the overall programme envelope of M€250, with the understanding that the direct contribution to the Copernicus Climate Change Monitoring Service foreseen under Building Block 4, as agreed with both the Service Provider (ECMWF) and the European Commission, will be submitted to Council for prior approval.
- VIII** That the Copernicus Third Party Programme shall enter into force upon signature of the Agreement referred to in Agree II.

DECLARATION ON
THE OPTIONAL EUMETSAT JASON-CS PROGRAMME
adopted by the Potential Participating States on 26 November 2014
and entered into force on¹

The Potential Participating States,

RECALLING 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,

BEARING IN MIND that the Topex/Poseidon and Jason missions established by the Centre National d'Etudes Spatiales (CNES) and the United States National Aeronautics and Space Administration (NASA) have proven the value of altimetry observations in support of operational activities such as marine meteorology, seasonal forecasting, oceanographic services and the monitoring of the climate,

BEARING IN MIND that the requirement to continue these observations on a sustained operational basis and the recognition that EUMETSAT is the relevant European operational organisation led to the establishment of the Optional EUMETSAT Jason-2 and Jason-3 Altimetry Programmes through Declarations EUM/C/01/Decl.I and EUM/C/67/09/Decl.I,

RECALLING that, of the 30 EUMETSAT Member States, 25 participate in the Optional EUMETSAT Jason-2 Programme and 24 in the Optional EUMETSAT Jason-3 Programme,

CONSIDERING that the Declaration on the Optional EUMETSAT Jason-3 Altimetry Programme foresees that the Jason-3 Programme should be seen as a first intermediate step towards an operational high precision altimetry Jason-CS Programme to be agreed with ESA and that this Programme would consist of a series of Jason-class satellites based on the Cryosat mission heritage,

CONSIDERING further that the above Declaration tasked the Director-General to prepare with ESA and other international partners for a Jason-CS precise Altimetry Programme providing data continuity in a long term operational perspective on the basis of the EUMETSAT-ESA cooperation model successfully used for operational meteorology,

RECALLING that the EUMETSAT strategy "EUMETSAT: A global satellite operational agency at the heart of Europe" approved at the 72nd Council meeting foresees, as a strategic objective, to meet additional needs of EUMETSAT Member States for global space-based observations through International Cooperation and that, in this respect, in addition to their JPS Cooperation, EUMETSAT and NOAA shall also continue to work together to secure the continuation of precise ocean surface topography mapping, with the aim of building a sustainable operational satellite observation programme in this area, and that within Europe,

¹ Replaced by EUM/C/83/15/Dcl. I presented for adoption at the 83rd Council meeting on 23-24 June 2015.

appropriate relationships shall be constructed with the GMES initiative, which has now been renamed Copernicus.

RECALLING that the Agreement between the United States National Oceanic and Atmospheric Administration and EUMETSAT on long-term cooperation, signed on 28 August 2013, foresees continued cooperation on Operational Oceanography and preparation for the establishment and exploitation of the Jason Continuity of Services (Jason-CS) satellites (including, but not limited to, contribution to instrument payload, joint operations, sharing of ground infrastructures, common user services), in cooperation with other relevant international partners;

BEARING IN MIND that Regulation 377/2014 of the European Parliament and of the European Council of 3 April 2014 (“Copernicus Regulation”) establishes the European Union Earth observation and monitoring programme called “Copernicus”, thus ensuring continuity with the activities achieved under the Global Monitoring for Environment and Security (GMES) Programme;

TAKING INTO ACCOUNT that the Copernicus Regulation recognises that Copernicus services in the field of marine environment are important for the support of an integrated European capacity for ocean forecasting and monitoring and the future provision of Essential Climate Variables (ECVs) and further establishes that Copernicus marine monitoring service shall provide information on the state and dynamics of physical ocean and marine ecosystems for the global ocean and the European regional areas in support of marine safety, contribution to monitoring of waste flows, marine environmental, coastal and polar regions and of marine resources as well as meteorological forecasting and climate monitoring,

TAKING INTO ACCOUNT the requirement for sustained satellite ocean altimetry observations expressed by ECMWF, the WMO, the Global Ocean Data Assimilation Experiment (GODAE), the Global Ocean Observing System (GOOS), the Committee for Earth Observation Satellites (CEOS), the Intergovernmental Panel on Climate Change (IPCC),

BEARING IN MIND that the complete altimeter system requested by users consists of a Jason-class high precision ocean altimetry (HPOA) mission in non synchronous orbit as well as polar orbiting altimeter missions, forming altogether the Ocean Surface Topography Virtual Constellation of the Committee for Earth Observation Satellites (CEOS), and that the HPOA mission is required as a reference for cross-calibrating all other altimeter missions of the Constellation;

TAKING INTO ACCOUNT that, following the GMES Long Term Scenario, the European component of the complete altimeter system is to be realized in the context of Copernicus, through the combination of the Sentinel-3 marine mission and a Copernicus High Precision Ocean Altimetry (HPOA) activity comprising the operations of a Jason-3 and a Sentinel-6 mission, in cooperation with the US,

HAVING REGARD TO Resolution EUM/C/81/14/Res. I establishing a Third Party Programme on EUMETSAT Activities in Support of the Implementation of the Copernicus Programme in the Period 2014-2021 (“Copernicus Third Party Programme”),

HAVING REGARD TO the Agreement between the European Union and EUMETSAT on the Implementation of the Copernicus Programme Including the Transfer of Ownership of Certain Assets (“Copernicus Agreement”), signed on 7 November 2014 and entered into force on 1 January 2014, through which the EU entrusts to EUMETSAT the task of operating, *inter alia*, the Sentinel-3 marine mission, the Jason-3 mission and the Sentinel-6 mission implemented by two successive Jason-CS satellites

TAKING INTO ACCOUNT the successful launch of the Jason-2 satellite in June 2008 and the expected launch of the Jason-3 satellite in 2015, with operations planned until 2020,

CONSIDERING the requirements to ensure operational continuity to the reference high precision ocean altimetry mission beyond Jason-3,

AWARE that this continuity requires the availability of the first Jason-CS satellite ready for launch in 2020 to start implementing the Sentinel-6 mission, and anticipating that the combination of the Jason-3 and Sentinel-6 missions will provide data continuity until the 2030 timeframe, thus allowing the maximum synergy with the Sentinel-3 marine mission for the benefit of operational oceanography and other applications;

HAVING REGARD to the policy principles approved by the 74th EUMETSAT Council in November 2011, which define the boundaries of the EUMETSAT Jason-CS Programme as a contribution to the GMES HPOA activity,

BEARING IN MIND that Article 2 of the EUMETSAT Convention defines Optional Programmes as programmes within the objectives of EUMETSAT and agreed as such by Council,

HAVING REGARD to Resolution EUM/C/76/12/Res. III on the Preparation of a Jason Continuity of Service (Jason-CS) Optional Programme, in which Council agreed that the proposed programme is consistent with EUMETSAT’s objectives and should be established and implemented as an Optional Programme within the framework of the EUMETSAT Convention,

TAKING INTO ACCOUNT the Programme Proposal on the Optional EUMETSAT Jason-CS Programme contained in document EUM/C/82/14/DOC/53 REV1,

IN CONFORMITY with Articles 3, 5 and 10 of the EUMETSAT Convention, and with EUMETSAT Resolution EUM/C/01/Res. I on the Approval of Optional Programmes,

AGREE:

- I** To establish an Optional EUMETSAT Jason-CS Programme within the framework of the EUMETSAT Convention as described in the EUMETSAT Jason-CS Programme Proposal referred to in the Preamble.
- II** That the Optional EUMETSAT Jason-CS Programme constitutes EUMETSAT’s direct contribution to the development and implementation of the Sentinel-6 mission, which will be carried out in partnership with ESA through its GMES Segment 3 Programme (CSC-3), the EU through its Copernicus Programme, and NOAA through its planned own Jason-CS programme.

- III** That the objectives of the Sentinel-6 mission, the description of the Sentinel-6/Jason-CS system and the scope of the Optional EUMETSAT Jason-CS Programme shall be as described in the Programme Definition attached as Annex I to this Declaration.
- IV** That the financial envelope for the Optional EUMETSAT Jason-CS Programme amounts to a maximum of MEUR 131.3 at 2015 e.c. (MEUR 125 at 2012 e.c.) and that all efforts shall be made to keep actual expenditure below this figure.
- V** That the Copernicus Third Party Programme and the Copernicus Agreement between the EU and EUMETSAT define the EU's funding for operations build-up and initial operations of the Sentinel-6 mission and that operations are expected to continue through follow-up agreements.
- VI** That EUMETSAT's contribution to the Sentinel-6 mission shall be defined in detail in cooperation agreements with ESA and NOAA.
- VII** That the conclusion of any agreement with the aforementioned partners will require separate approval by the EUMETSAT Council.
- VIII** To participate in the Optional EUMETSAT Jason-CS Programme in accordance with an indicative expenditure profile and the scale of contributions as set out in Annex II to this Declaration.
- IX** To invite the EUMETSAT Member States wishing to participate in this Optional Jason-CS Programme to sign this Declaration as soon as possible and no later than 30 June 2015, thereby becoming Participating States.
- X** To invite EUMETSAT Cooperating States to contribute to the Optional EUMETSAT Jason-CS Programme under terms to be agreed by the EUMETSAT Participating States.

This Declaration has been signed by the following Participating States:

PARTICIPATING STATES	DATE

OPTIONAL EUMETSAT JASON-CS PROGRAMME DEFINITION

1 INTRODUCTION

Capitalising on the success of the Topex-Poseidon and Jason missions on the heritage from the Jason-3, Cryosat-2 and Sentinel 3 programme, the Sentinel 6 mission is expected to continue and enhance the Jason, Jason-2 and Jason-3 missions in providing critical high precision observations of ocean surface topography, until 2030⁺.

In addition, the Sentinel-6 mission will take advantage of the unique time sampling of its non synchronous orbit, to provide radio occultation observations that are complementary to those provided by sun-synchronous missions.

The Sentinel-6 mission will be implemented by two successive Jason-CS satellites and will be developed and exploited in cooperation between Europe and the United States, through a partnership between the EU, ESA, EUMETSAT and the National Ocean and Atmosphere Administration (NOAA).

The overall European contribution to the development and implementation of the mission will be implemented through the combination of the ESA Copernicus Segment 3 programme (CSC-3), this EUMETSAT Jason-CS optional programme and the EU Copernicus programme. The latter will be associated to Delegations Agreements with ESA and EUMETSAT and the Delegation Agreement with EUMETSAT will be implemented through EUMETSAT Third Party Programmes covering contributions of the organisation to the EU Copernicus Programme.

The EUMETSAT optional Jason-CS Programme is the direct EUMETSAT contribution to the development and implementation of the Sentinel-6 mission.

2 SHARING OF RESPONSIBILITIES AND COSTS FOR THE DEVELOPMENT AND IMPLEMENTATION OF THE SENTINEL-6 MISSION

2.1 Sharing of technical responsibilities

The EU, ESA, NOAA and EUMETSAT have agreed the following high level sharing of responsibilities for the development and implementation of the Sentinel-6 mission:

- EUMETSAT is the system authority and is responsible for the Sentinel-6 ground segment development and operations preparation. EUMETSAT will also carry out the operations build up and operations of the Sentinel-6 system including both satellites and delivery of data services to Copernicus Service Providers and users on behalf of the EU;
- ESA is responsible for the development of the first satellite and the instruments prototype processors, for the procurement of the recurrent satellite on behalf of EUMETSAT and the EU, for the delivery of both satellites to orbit, including the LEOP services, and for satellite commissioning and storage of the recurrent spacecraft;

- NOAA delivers US payload instruments for both satellites, ground segment development support, provides both launch services and contributes to operations;
- ESA, EUMETSAT and NOAA share the responsibility of science teams' coordination and Calibration/Validation activities, with EC being involved in the interactions with the science teams.

In recognition of the vast expertise available in NASA and CNES, the partners will seek support from these agencies for system and ground segment activities and in the preparation and release of relevant Research Announcements.

2.2 Detailed EUMETSAT responsibilities

The detailed EUMETSAT responsibilities in the development and implementation of the Sentinel-6 mission are the following:

- Lead the overall Sentinel-6 system engineering with the support of other partners.
- Perform mission management during the lifetime of each satellite with support of other partners.
- Provide the command and control centre for the satellites and the MDA and TT&C European ground station (for command and data acquisition).
- Provide NRT data processing for altimetry data acquired by EUMETSAT ground station.
- Provide offline data processing for Topography and Radio Occultation mission.
- Provide Radio Occultation raw data acquired by the European ground station and any necessary ancillary data to NOAA.
- At the end of the LEOP phase, take over the operational responsibility for the satellites.
- Conduct commissioning and routine operation activities with the support of the partners.
- Exchange with NOAA all necessary data and products to fulfil responsibilities of the partners.
- Develop the operational processor in accordance with specifications and test data (generated by the prototype processor) deliver by ESA
- Deliver to NOAA the operational processors to support NOAA provision of NRT topography products.
- Provide dissemination of all NRT data (NOAA and EUMETSAT) and offline products.
- Provide a long-term archive of all NRT and offline data including telemetry, orbital and auxiliary data sets;
- Contribute together with the other partners to:
 - Ensuring the mission performance and related Calibration and Validation activities;
 - Support interactions with the scientific community and coordination of the science support activities, e.g. in the context of the international OSTST and of the Science Advisory Group to be established on the European side by ESA and EUMETSAT in coordination with the EC;
 - Support the preparation and release of relevant Research Announcements and the selection and coordination of Investigators.

2.3 Sharing of costs

As regards funding, the following has been agreed:

- ESA funds the development of the first Jason-CS satellite (JCS-A) implementing the Sentinel-6 mission, the related In Orbit Commissioning, LEOP service and instrument prototype processors delivered to EUMETSAT;
- EUMETSAT funds a fixed financial contribution to the ESA development of the first Jason-CS satellite (JCS-A), the development of the European part of the Sentinel-6 overall ground segment and operations preparation, and co-funds the procurement of the recurrent spacecraft with the EU;
- The EU funds the build-up of operations and operations for both spacecraft, the LEOP service and the storage for the recurrent spacecraft, and co-funds the recurrent spacecraft with EUMETSAT;
- NOAA funds both launch services and all US payload instruments, ground segment support and the US contribution to operations preparation and operations.

3 SENTINEL-6 MISSION: OBJECTIVES AND BENEFITS

3.1 Sentinel-6 mission objectives and data services

The primary observation mission of Sentinel-6 is high precision ocean altimetry (HPOA) aimed at monitoring sea surface height (SSH), significant wave height (SWH) and wind speed at the ocean surface.

The Sentinel 6 HPOA products shall be of sufficient accuracy and quality for Sentinel-6 to serve as the reference altimeter mission against which all altimeter missions coordinated under the Ocean Surface Topography Virtual Constellation of the Committee for Earth Observation Satellites (CEOS), e.g. Sentinel 3, SARAL/AltiKa, HY-2) can be cross-calibrated, such that their observations can be combined for monitoring the broadest possible spectrum of ocean variability and to provide inputs to operational ocean prediction models.

Furthermore, the Sentinel-3 and Sentinel-6 altimeter missions altogether need to sample mesoscale and sub-mesoscale ocean circulation features through the use altimeter SAR² mode capabilities, to fulfil the requirements of important applications in operational oceanography.

The highest quality of products is also needed for monitoring sea level rise at global and regional scales in our changing climate. This requires flying the same non-synchronous orbit as the Jason missions and places demanding requirements for extensive calibration and validation activities involving support from the radar altimetry science community. This also calls for high quality off-line products including highly accurate corrections that cannot be generated in near real time.

² Synthetic Aperture Radar

The Sentinel 6 altimeter mission shall also contribute to marine meteorology by providing significant wave height and wind speed products in near real-time.

These objectives of the Sentinel-6 altimeter mission will be fulfilled by three basic data services:

- Near Real Time service (NRT), with an end-to-end timeliness of 3 hours;
- Short Time Critical service (STC), with an end-to-end timeliness of 36 hours;
- Non-Time Critical service (NTC), with an end-to-end timeliness of 60 days.

As a secondary objective, the Sentinel 6 mission will support a radio occultation observation mission contributing to climate change monitoring and weather forecasting. This observation mission will provide unique coverage and sampling in space and time from the non-synchronous orbit that are not accessible from sun-synchronous orbits providing observations at fixed local solar times.

To maximise the number of occultations per day and thus contribute to the fulfilment of requirements expressed e.g. in the EGOS-IP³, the GNSS-RO instrument of Sentinel-6 needs to allow tracking of several GNSS constellations. Related products shall include bending angle, refractivity, and higher level profiles to infer information on atmospheric temperature and humidity.

For radio occultation, three services will be established:

- Near Real Time service (NRT), with an end-to-end timeliness of 3 hours.
- Two independent Non-Time Critical services (NTC), with an end-to-end timeliness of 60 days, for Climate applications and data quality monitoring (one US and one European NTC service).

The Sentinel 6 mission shall be operational, meaning that it shall meet the requirements of the operational Copernicus Marine Monitoring services and of other operational weather, marine and climate services. This leads to stringent requirements on availability, reliability, timely distribution of data products, support to the operational downstream information service providers, including reprocessing capabilities.

3.2 Expected benefits

The benefits of *operational oceanography* in the areas of marine safety, shipping, fisheries, off shore industry, marine renewable energy, management of marine environment and resources, represent a fraction of the “blue” economy which in the European Union represents a gross added value of around €500 billion per year and involves 5.4 million jobs.

With its Copernicus Programme, the European Union has taken the leadership in the development of operational oceanography in Europe, through the implementation of the Copernicus Marine Service via the MyOcean projects, and the implementation of Sentinel space missions required to feed these services with observations from space. In this regard, the contribution of the Sentinel 6 mission will be decisive, as the unique reference mission for

³ Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP), WMO Integrated Global Observing System, Technical Report No. 2013 – 4

the virtual constellation of altimeter missions: it will not only deliver invaluable observations but also provide the basis for unified products that are needed by operational ocean models, thus leveraging substantial benefits for EU and EUMETSAT Member States, far beyond those of its capabilities considered in isolation.

The simultaneous observations of surface wind speed, sea state and surface currents delivered by Sentinel 6 will also benefit the increasing integration of real time operational oceanography and *marine meteorology*. In addition, the high resolution of the pioneering interleaved radar altimeter mode of Sentinel-6 will give access to sub-mesoscale features (small eddies) associated with the most energetic ocean currents.

This will enhance the benefits of both the marine forecasts delivered by the National Meteorological Services of the “marine” Member States of EUMETSAT and the ocean forecasts delivered by Copernicus.

In the area of *climate services* taken in the broadest sense, socio-economic benefits will first accrue from the sea level monitoring service delivered by Sentinel 6, through the extension up to 2030+ of the unique Climate Data Record accumulated since 1992 by the Topex-Poseidon and Jason missions. Also from a climate monitoring perspective, the Sentinel 6 radio occultation measurements will contribute to the assessment of the rate of the expected warming in the troposphere and cooling in the stratosphere.

4 SENTINEL-6/JASON-CS SYSTEM DESCRIPTION

The Sentinel 6 system consists of the following main elements:

- Space Segment;
- Overall Ground Segment;
- Launch service;
- LEOP.

4.1 Space Segment

The Sentinel 6 Space Segment consists of two successive Jason-CS satellites (A and B), based on the CryoSat-2 heritage platform, with some tailoring to specific needs of the Sentinel 6 mission.

The platforms will include the following subsystems:

- The structure;
- The thermal control subsystem;
- The propulsion subsystem;
- The attitude and control system (AOCS);
- The power subsystem;
- The data handling subsystem;
- The communications subsystem.

The Telemetry, Tracking & Command (TT&C) part of the communication subsystem will use S-band for uplink of telecommands and downlink of telemetry, while the payload data downlink will be in X band, as required to accommodate the data rate generated by the instrument payload.

The Jason-CS satellites will embark the following payload instruments:

- For the altimeter observation mission:
 - o A Ku/C band altimeter (Poseidon-4) developed and procured by ESA;
 - o A microwave radiometer (AMR-C) provided by NOAA;
 - o A GNSS receiver (GNSS-POD) developed and procured by ESA;
 - o A DORIS instrument developed and procured by ESA;
 - o A Laser Retroreflector Array (LRA) provided by NOAA

- For the radio-occultation observation mission:
 - o a radio occultation instrument (GNSS-RO) provided by NOAA.

The Jason-CS satellites will be designed for launch on a Falcon 9-class launcher and to be technically compatible with three potential US launch vehicles (Falcon-9, Atlas-4 and Antares).

The Space Segment also includes all necessary Ground Support Equipment (GSE) for satellite AIV, such as mechanical and electrical GSE's test facilities to support test and qualification of the satellites and specific tools used for system verification and validation, such as Radio Frequency suitcase.

4.2 Overall Ground Segment

The Sentinel 6 Overall Ground Segment (OGS) shared between EUMETSAT and NOAA will support all the ground functions required to meet the mission objectives and will be capable of supporting two Jason-CS satellites (A and B) in orbit.

The OGS include the following main components:

- Mission Control and Operations (MCO);
- Payload Data Acquisition and Processing (PDAP);
- Multi Mission Elements (MMEs).

The Mission Control and Operations system implements the following main functions:

- Spacecraft M&C;
- Flight Dynamics;
- Mission Planning.

The MCO will be supported by TT&C Stations, operating in S-band providing visibility of the satellites on average twice per day for reception of telemetry and commanding.

For *data acquisition*, the PDAP will include two Mission Data Acquisition (MDA) Stations receiving in X-band on-board recorded payload data once per orbit and forwarding data to the EUMETSAT MCC for processing and distribution.

For *processing*, the PDAP system will implement eight main functions:

- Ingest and Distribute Data;
- Extract and Consolidate Payload Data;
- Generate Level 0 (L0) Products;
- Generate Level 1 (L1) Products;
- Generate Level 2 Products;
- Aggregate and Reformat Data;
- Manage Processing;
- Monitor Production.

The overall PDAP will be supported on the European side by Precise Orbit Determination and production of Level 2P and Global Level 3 Products delivered as services by CNES and by the ROM SAF for L2 NTC product processing of radio occultation data and on the US side by NASA provided services.

The Multi Mission Elements (MMEs) are EUMETSAT operational facilities and common infrastructure already used by existing programmes, split in four groups:

- The Infrastructure (MME-INF) comprises building infrastructure in the Technical Infrastructure Building, control rooms in the main building, networks and storage systems.
- The Ground Segment Monitoring and Control (MME-MON) system provides a set of tools for monitoring the Ground Segment hardware and services, including analysis, reporting and product quality monitoring;
- The EUMETSAT Data Centre (MME-DAC) receives and archives data and products and provides data retrieval services, including on-line access, and user support functions;
- The Dissemination (MME-DISS) system provides a secure file transfer service through external network interfaces, and includes EUMETCast as the prime EUMETSAT near real time delivery service to end users;

In most cases, the re-use of the MMEs will require little modification other than to increase bandwidth and storage capacity.

The Sentinel 6 OGS functions will be implemented by physical elements located at different sites:

- The Mission Control Centre (MCC) at EUMETSAT Headquarters will host:
 - all Mission Control and Operations systems;
 - the main PDAP processing system for all L0, L1 and L2 products, except the processing of Level-2 NTC products provided by the ROM SAF;
- The Remote Mission Control Centre (RMCC), collocated with the EPS/EPS-SG RMCC will host a back up instance all Mission Control and Operations systems;
- The NOAA SOCC will host the US contributions to the Mission Control and Operations, a system for the Near Real Time processing of US-acquired data dumps and multi-mission facilities and services for delivering data and products to users in the US;
- The US Fairbanks site will host the NOAA Mission Data Acquisition antenna, and one of two NOAA Tracking, Telemetry and Command/Control antennas;

- The US Wallops site will host the second NOAA Tracking, Telemetry and Command/Control antenna;
- One high latitude site in Europe will host both the European Mission Data Acquisition antenna and the European Tracking, Telemetry and Command/Control antenna;
- CNES will host the altimeter product quality monitoring service, the POD service and Level 2P/Level 3 processing services;
- NASA/JPL will host the Performance monitoring service for US instruments;
- One TBD site will host the altimeter transponder service;
- UCAR/NOAA will host the Radio Occultation NRT service and one of the two independent NTC processing service;
- The Radio Occultation Meteorology Satellite Application Facility (ROM SAF) will host the Level -2 processing service supporting the second radio-occultation NTC service. As part of the future CDOPs, ROM-SAF may also provide other possible contributions including Level 4 gridded products for Climate monitoring.

4.3 Launch Services

The launch services are under the responsibility of NOAA and are inclusive, i.e. cover also launch site facilities and logistic services.

4.4 Launch and Early Operations Phase (LEOP)

ESA performs Launch and Early Orbit Phase (LEOP) operations for each satellite, until the handover to EUMETSAT.

5 DEPLOYMENT

Assuming a design lifetime of 5.5 years for each Jason-CS satellite - with consumables for another 2 years - both Jason-CS satellites will be launched in sequence:

- Jason-CS A end of 2020;
- Jason-CS B early 2026.

This will ensure that the Jason-3 and Sentinel-6 HPOA missions, combined, will have the same lifespan as the Sentinel 3 marine mission, thus enabling the combined use of their data by the marine user community.

6 SCOPE OF THE EUMETSAT JASON-CS PROGRAMME

The EUMETSAT optional Jason-CS Programme covers all activities contributing to the development and implementation of the Sentinel-6 mission that are under the direct responsibility of EUMETSAT, and/or funded by EUMETSAT.

From a technical and managerial point of view this covers mainly:

- Overall coordination with technical partners and with the European Commission;
- The role of System authority;

- System level activities, including system AIT and preparation of operations;
- The development of the European part of the Sentinel-6 overall ground segment, including related procurements and upgrades of existing EUMETSAT facilities;
- Support to ESA for space segment development, LEOP services and in orbit commissioning;
- Contributions to interactions with the user communities and the altimeter science community during the design and development phase of the Sentinel-6/Jason-CS system.

This excludes the build-up of operations and routine operations activities that are outside of the scope of the Optional EUMETSAT Jason-CS Programme.

From a financial perspective the programme covers funding of:

- The aforementioned technical and managerial activities;
- A fixed financial contribution to the ESA space development programme;
- Funding of the recurrent European instrument and the associated Data Handling system procured by ESA;
- Contribution to the funding of ESA internal costs related to its role of procurement agent for these recurrent elements;
- A management margin covering the risks associated to all activities within the scope of the Optional Jason-CS Programme.

EUMETSAT's fixed contribution to the development of the first satellite is MEUR 18.8 at 2015 e.c (MEUR 18 at 2012 e.c.).

The EUMETSAT contribution to cost of the recurrent satellite is MEUR 59.6 at 2015 e.c (MEUR 57 at 2012 e.c.) and covers:

- o The full industrial procurement cost of the European payload instruments and the related Data Handling unit;
- o A proportionate contribution to the ESA internal costs associated to its role of procurement agent for recurrent space segment elements.

The operations build up and routine operations activities that are outside the scope of the Jason-CS Programme will be performed as tasks entrusted by the EU to EUMETSAT under relevant Third Party Programmes funded by the EU Copernicus Programme under successive Multi-annual Financial Frameworks.

7 IMPLEMENTATION ARRANGEMENTS

7.1 Interactions with users and experts

The international Ocean Surface Topography Science Team will continue to serve as an international user to requirements for altimeter missions in general and related science matters.

A European Science Advisory Group will be established by ESA and EUMETSAT to support the development and implementation of the Sentinel-6 HPOA mission and European participation in the OSTST.

For the radio-occultation secondary mission, mechanisms will be established with UCAR and the SAF-ROM for the provision of appropriate science support.

EUMETSAT will address Sentinel-6 - relevant interactions with its user community through its Delegate Bodies, and support interactions with the relevant Copernicus Service Providers and users through the appropriate fora and mechanisms established by the European Commission.

7.2 Further decisions by Council

The MOU and Agreements foreseen in section 7.3 hereafter will be submitted for approval to Council, as foreseen by the Convention.

Proposed changes to the EURD and later on to the Operational Service Specification will be processed in coordination with the partners and the EC and submitted for approval by EUMETSAT Delegate Bodies.

Council will also make any decision required for the implementation of the Jason-CS Optional Programme, in particular foreseen EUMETSAT procurements, in line with the Convention.

7.3 Cooperation Framework

7.3.1 Three-partner MOU

A three-partner Memorandum of Understanding (MoU) between EUMETSAT, ESA and NOAA will be established to capture the respective responsibilities.

This MOU will inter alia establish the Joint Steering Group and the Project Plan integrating all contributions into a joint, unified high level planning and management framework addressing inter alia the Sentinel-6/Jason-CS development logic, detailed planning, review milestones, deliverables across partners, coordinated baseline documentation and joint management mechanisms. The MOU will capture applicable rules and legal arrangements applicable across the partners, and confirm the free and open data policy.

The European Commission, representing the EU, will be associated to the deliberations of the Joint Steering Group during the development phase and will become a full member in the operations phase.

The parties will use reasonable efforts to carry out their respective responsibilities in accordance with Project Plan, and to avoid changes that will have a negative effect on the other party with regard to scientific return, implementation approach, cost, and/or schedule. Where changes cannot be avoided they will be planned to minimise any negative effects, and all changes to the Project Plan that may impact costs, mission performance and schedule will require the approval of the JSG.

The MOU will not foresee any exchange of funds between the partners. EUMETSAT will ensure that it does not assume any financial liability for elements provided by other partners.

7.3.2 Cooperation with ESA

Considering the major roles of ESA at space segment level and EUMETSAT at system and overall ground segment levels, and the foreseen exchange of funds with ESA, a dedicated Cooperation agreement will be established.

As regards EUMETSAT's financial contributions, the Agreement will be based on principles similar to those adopted for cooperation on mandatory programmes, but will limit the financial contributions and liability of EUMETSAT to the cost of procurement of European recurrent instruments and the related Data Handling Unit.

This Agreement will refer to a Programme Implementation Plan addressing all detailed implementation arrangements between both organisations.

7.3.3 Cooperation with other partners

An agreement will be concluded between EUMETSAT and CNES for the provision of system level expertise support, as appropriate during the development phase, and for the integration of the services in the Sentinel-6 system and related support to EUMETSAT IV&V activities.

The provision of these services during the operations phase will also be secured by this agreement.

The agreement will also cover CNES participation in science support activities, including the preparation, release and implementation of relevant Research Announcements in cooperation with NASA.

8 DATA POLICY

The data policy for the Sentinel-6 mission shall be free and open, with no restriction, as is the case for the Jason-2 and Jason-3 missions.

**OPTIONAL EUMETSAT JASON-CS PROGRAMME FINANCIAL ENVELOPE,
SCALE OF CONTRIBUTIONS AND VOTING COEFFICIENT**

1 FINANCIAL ENVELOPE & INDICATIVE EXPENDITURE PROFILE

The financial envelope of the EUMETSAT Jason-CS Programme is estimated at MEUR 131.3 at 2015 e.c. (or MEUR 125 at 2012 e.c.) with the following indicative expenditure profile (in KEUR at 2015 e.c.):

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
100	24,650	36,940	25,380	23,600	12,400	2,240	880	900	1,650	1,960	600

2 SCALE OF CONTRIBUTIONS AND VOTING COEFFICIENT

The Participating States shall contribute to the EUMETSAT Jason-CS Programme in accordance with the scale of contributions indicated in the table below. This table also lays down the voting coefficient of each Participating State, pursuant to the scale of contributions, and taking into account Article 5.3(b) of the EUMETSAT Convention.

PARTICIPATING STATE	CONTRIBUTION %	VOTING COEFFICIENT
AUSTRIA (AU)		
BELGIUM (BE)		
CROATIA (HR)		
DENMARK (DK)		
FINLAND (FI)		
FRANCE (FR)		
GERMANY (DE)		
ITALY (IT)		
LUXEMBOURG (LU)		
THE NETHERLANDS (NL)		
NORWAY (NO)		
PORTUGAL (PT)		
SLOVAKIA (SK)		
SLOVENIA (SI)		
SWEDEN (SE)		
TURKEY (TR)		
SWITZERLAND (CH)		
UNITED KINGDOM (UK)		
TOTAL	100	100

RESOLUTION ON
THE AUTHORISATION TO PROCEED WITH THE EPS-SG PROGRAMME

adopted at the 82nd Meeting of the EUMETSAT Council on 26 November 2014

The EUMETSAT Member States,

CONSIDERING that the EUMETSAT Council, at its 80th meeting on 1 July 2014, agreed on the contents of the programme proposal for the EUMETSAT Polar System Second Generation (EPS-SG) as contained in document EUM/C/80/14/DOC/09,

CONSIDERING that the EUMETSAT Council, at its 80th meeting, agreed to open the voting of Resolution EUM/C/80/14/Res.I on the EPS-SG Programme,

NOTING that, although 23 of the 30 Member States have voted in favour of the EPS-SG Programme Resolution unconditionally, thus achieving a programme funding level of 72.93%, the votes of Belgium, Lithuania, Portugal, Romania, Slovenia, Spain and the United Kingdom are still to be confirmed,

NOTING that, due to the mandatory nature of the programme, the EPS-SG Programme Resolution will only formally enter into force upon approval by all Member States,

ANTICIPATING that the above Delegations expect to be able to confirm their votes within a short period of time,

RECOGNISING the need to start the full EPS-SG Programme activities from beginning of 2015 to avoid additional costs and programme risks,

AGREE:

- I** That the activities under the EPS-SG Programme can start as soon as 95% of the programme funding has been reached.
- II** That Belgium, Lithuania, Portugal, Romania, Slovenia, Spain and the United Kingdom will be legally obliged to contribute financially to the EPS-SG Programme only after finalisation of national approval procedures, and that their contributions will only become due 30 days after notification thereof.
- III** That in the EPS-SG Programme Budget 2015 an amount corresponding to the contributions from Belgium, Lithuania, Portugal, Romania, Slovenia, Spain and the United Kingdom remains blocked until the finalisation of national procedures has been notified to the Director-General.

- IV** To urge Belgium, Lithuania, Portugal, Romania, Slovenia, Spain and the United Kingdom to complete their respective national approval process as soon as possible, and at the latest by 30 June 2015.
- V** That if, contrary to expectations, Belgium, Lithuania, Portugal, Romania, Slovenia, Spain and the United Kingdom would not be in a position to confirm finalisation of national approval procedures by 30 June 2015 at the latest, those Member States who have agreed unconditionally to contribute to the programme will decide on the action to be taken.
- VI** To authorise the Director-General to provisionally apply the provisions of the Cooperation Agreements related to EPS-SG with ESA, NOAA, CNES and DLR approved by Council at its 80th meeting, pending signature of these Agreements after the EPS-SG Programme formally enters into force.

ENABLING RESOLUTION

ON THE OPTIONAL EUMETSAT JASON-CS PROGRAMME

adopted at the 82nd Meeting of the EUMETSAT Council on 26 November 2014⁴

The EUMETSAT Council,

RECALLING 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,

BEARING IN MIND that the EUMETSAT Convention defines Optional Programmes as programmes within the objectives of EUMETSAT agreed as such by Council,

HAVING REGARD to Resolution EUM/C/76/12/Res. III on the Preparation of a Jason Continuity of Services (Jason-CS) Optional Programme, in which Council agreed that the proposed Programme is consistent with EUMETSAT's objectives and should be established and implemented as an Optional Programme within the framework of the EUMETSAT Convention,

HAVING REGARD to the Declaration EUM/C/82/14/Dcl. I and attached Programme Definition on the Optional EUMETSAT Jason-CS Programme adopted by interested Member States on 26 November 2014,

NOTING that any Member States shall have the opportunity to become a Participating State of the Optional EUMETSAT Jason-CS Programme through signature of the Declaration within the timeframe set out therein,

AWARE that the Optional EUMETSAT Jason-CS Programme will take effect once at least one third of all EUMETSAT Member States have declared their participation by signing the Declaration within the timeframe set out and the subscriptions of these Participating States have reached 90% of the total financial envelope,

IN CONFORMITY WITH Articles 3, 5 and 10 of the EUMETSAT Convention and with EUMETSAT Council Resolution EUM/C/01/Res. I on the Approval of Optional Programmes,

⁴ Replaced by EUM/C/83/15/Res. I adopted at the 83rd Council meeting on 23-24 June 2015.

AGREES:

- I** To approve the execution, within the framework of the EUMETSAT Convention, of the Optional EUMETSAT Jason-CS Programme on the basis of the Declaration and Programme Definition attached thereto referred to in paragraph four of the Preamble of this Resolution.
- II** To invite Participating States to sign the Declaration within the timeframe set out therein.
- III** To task the Director-General to prepare the necessary cooperation agreements with the international partners contributing to the overall Jason-CS/Sentinel-6 mission, to be submitted for Council approval.
- IV** To task the Director-General to execute the Optional EUMETSAT Jason-CS Programme in accordance with EUMETSAT's Rules and Procedures.

RESOLUTION ON

THE CEILING OF THE GENERAL BUDGET 2016-2020

adopted at the 82nd Meeting of the EUMETSAT Council on 26 November 2014

The EUMETSAT Member States,

HAVING REGARD to Article 2.3 of the EUMETSAT Convention, which establishes that the General Budget comprises activities not linked to a specific programme. They shall represent the basic technical and administrative infrastructure of EUMETSAT including core staff, buildings and equipment as well as preliminary activities authorised by the Council in preparation of future programmes, not yet approved,

RECALLING EUM/C/Res. XVIII establishing the first General Budget, a ceiling for the years 1990-1995 and contributions based on a GNP scale of contributions,

RECALLING EUM/C/95/Res. VI establishing the second General Budget, a ceiling for the years 1996-2000 and contributions based on a GNP scale of contributions,

RECALLING EUM/C/99/Res. V establishing the third General Budget, a ceiling for the years 2001-2005 and contributions based on a GNP scale of contributions,

RECALLING EUM/C/57/05/Res. I establishing the fourth General Budget, a ceiling for the years 2006-2010 and contributions based on a GNI scale of contributions,

RECALLING EUM/C/67/09/Res. III establishing the fifth General Budget, a ceiling for the years 2011-2015 and contributions based on a GNI scale of contributions,

EXPRESSING the need to establish a new ceiling

AGREE:

- I** To fix a new ceiling of the General Budget for the years 2016-2020,
- II** To link this ceiling to contributions from Member States on a GNI scale,
- III** To limit these contributions to M€85.4 at 2015 economic conditions, including a Copernicus Risk Margin of M€1.0.