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Contents

[1] Text with EEA relevance.

EN

Acts whose titles are printed in light type are those relating to day-to-day management of agricultural matters, and are generally valid for a limited period.

The titles of all other acts are printed in bold type and preceded by an asterisk.

Corrigenda

[1] Text with EEA relevance.

II

(Non-legislative acts)

REGULATIONS

COMMISSION IMPLEMENTING REGULATION (EU) 2018/613

of 20 April 2018

approving PHMB (1415; 4.7) as an existing active substance for use in biocidal products of product-types 2 and 4

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products ([1]), and in particular the third subparagraph of Article 89(1) thereof,

Whereas:

(1) Commission Delegated Regulation (EU) No 1062/2014 ([2]) establishes a list of existing active substances to be evaluated for their possible approval for use in biocidal products. That list includes PHMB (1415; 4.7).

(2) PHMB (1415; 4.7) has been evaluated for use in products of product-type 2, disinfectants and algaecides not intended for direct application to humans or animals, and product-type 4, food and feed area, as described in Annex V to Regulation (EU) No 528/2012.

(3) France was designated as evaluating competent authority and submitted the assessment reports together with its recommendations on 13 December 2016.

(4) In accordance with Article 7(2) of Delegated Regulation (EU) No 1062/2014, the opinions of the European Chemicals Agency were formulated on 4 October 2017 by the Biocidal Products Committee, having regard to the conclusions of the evaluating competent authority.

(5) According to those opinions, biocidal products of product-types 2 and 4 containing PHMB (1415; 4.7) may be expected to satisfy the criteria of Article 19(1)(b) of Regulation (EU) No 528/2012, provided that certain specifications and conditions concerning their use are complied with.

(6) It is therefore appropriate to approve PHMB (1415; 4.7) for use in biocidal products of product-types 2 and 4, subject to compliance with certain specifications and conditions.

(7) The opinions conclude that PHMB (1415; 4.7) meets the criteria for being a very persistent (vP) and toxic (T) substance in accordance with Annex XIII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council ([3]). PHMB (1415; 4.7) therefore meets the conditions set out in point (d) of Article 10(1) of Regulation (EU) No 528/2012 and should be considered a candidate for substitution.

([1]) OJ L 167, 27.6.2012, p. 1.

([2]) Commission Delegated Regulation (EU) No 1062/2014 of 4 August 2014 on the work programme for the systematic examination of all existing active substances contained in biocidal products referred to in Regulation (EU) No 528/2012 of the European Parliament and of the Council (OJ L 294, 10.10.2014, p. 1).

([3]) Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

(8) Pursuant to Article 10(4) of that Regulation, the approval of an active substance that is considered as a candidate for substitution should be for a period not exceeding 7 years.

(9) For the use in product-type 4, the evaluation did not address the incorporation of biocidal products containing PHMB (1415; 4.7) in materials and articles intended to come into contact directly or indirectly with food within the meaning of Article 1(1) of Regulation (EC) No 1935/2004 of the European Parliament and of the Council ([1]). Such materials may require the establishment of specific limits on the migration into food, as referred to in Article 5(1)(e) of Regulation (EC) No 1935/2004. The approval should therefore not cover such use unless the Commission has established such limits or it has been established pursuant to that Regulation that such limits are not necessary.

(10) Since PHMB (1415; 4.7) meets the criteria for being very persistent (vP) according to Annex XIII to Regulation (EC) No 1907/2006, treated articles treated with or incorporating PHMB (1415; 4.7) should be appropriately labelled when placed on the market.

(11) A reasonable period should be allowed to elapse before an active substance is approved, in order to permit interested parties to take the preparatory measures necessary to meet the new requirements.

(12) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Biocidal Products,

HAS ADOPTED THIS REGULATION:

Article 1

PHMB (1415; 4.7) is approved as an active substance for use in biocidal products of product-types 2 and 4, subject to the specifications and conditions set out in the Annex.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 20 April 2018.

For the Commission
The President
Jean-Claude JUNCKER

([1]) Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC (OJ L 338, 13.11.2004, p. 4).

ANNEX

Common Name	IUPAC Name Identification Numbers	Minimum degree of purity of the active substance (1)	Date of approval	Expiry date of approval	Product type	Specific conditions
PHMB (1415; 4.7) (polyhexamethylene biguanide hydrochloride with a mean number-average molecular weight (Mn) of 1415 and a mean polydispersity (PDI) of 4.7)	IUPAC Name: CoPoly(bisiminoimidocarbonyl, hexamethylene hydrochloride),(iminoimidocarbonyl, hexamethylene hydrochloride) EC No: not available CAS No: 32289-58-0 and 1802181-67-4	943g/kg (calculated dry weight specification). The active substance as manufactured is an aqueous solution of 20 % w/w of PHMB (1415; 4.7)	1 November 2019	31 October 2026	2	PHMB (1415; 4.7) is considered a candidate for substitution in accordance with point (d) of Article 10(1) Regulation (EU) No 528/2012. The authorisations of biocidal products are subject to the following conditions: (1) the product assessment shall pay particular attention to the exposures, the risks and the efficacy linked to any uses covered by an application for authorisation, but not addressed in the Union level risk assessment of the active substance; (2) in view of the risks identified for the uses assessed, the product assessment shall pay particular attention to: (a) professional users; (b) non-professional users; (c) secondary exposure of the general public and toddlers; (d) environment: surface water, sediment and soil. The placing on the market of treated articles is subject to the following condition: The person responsible for the placing on the market of a treated article treated with or incorporating PHMB (1415; 4.7) shall ensure that the label of that treated article provides the information listed in the second subparagraph of Article 58(3) of Regulation (EU) No 528/2012.
					4	PHMB (1415; 4.7) is considered a candidate for substitution in accordance with point (d) of Article 10(1) Regulation (EU) No 528/2012. The authorisations of biocidal products are subject to the following conditions: (1) the product assessment shall pay particular attention to the exposures, the risks and the efficacy linked to any uses covered by an application for authorisation, but not addressed in the Union level risk assessment of the active substance;

Common Name	IUPAC Name Identification Numbers	Minimum degree of purity of the active substance (1)	Date of approval	Expiry date of approval	Product type	Specific conditions
						(2) in view of the risks identified for the uses assessed, the product assessment shall pay particular attention to: (a) professional users; (b) non-professional users; (c) secondary exposure of the general public; (d) environment: surface water, sediment and soil; (3) for products that may lead to residues in food or feed, the need to set new or to amend existing maximum residue levels (MRLs) in accordance with Regulation (EC) No 470/2009 of the European Parliament and of the Council (2) or Regulation (EC) No 396/2005 of the European Parliament and of the Council (3) shall be verified, and any appropriate risk mitigation measures shall be taken to ensure that the applicable MRLs are not exceeded; (4) products shall not be incorporated in materials and articles intended to come into contact with food within the meaning of Article 1(1) of Regulation (EC) No 1935/2004, unless the Commission has established specific limits on the migration of PHMB (1415; 4.7) into food or it has been established pursuant to that Regulation that such limits are not necessary. The placing on the market of treated articles is subject to the following condition: the person responsible for the placing on the market of a treated article treated with or incorporating PHMB (1415; 4.7) shall ensure that the label of that treated article provides the information listed in the second subparagraph of Article 58(3) of Regulation (EU) No 528/2012.

(1) The purity indicated in this column was the minimum degree of purity of the active substance evaluated. The active substance in the product placed on the market can be of equal or different purity if it has been proven to be technically equivalent to the evaluated active substance.

(2) Regulation (EC) No 470/2009 of the European Parliament and of the Council of 6 May 2009 laying down Community procedures for the establishment of residue limits of pharmacologically active substances in foodstuffs of animal origin, repealing Council Regulation (EEC) No 2377/90 and amending Directive 2001/82/EC of the European Parliament and of the Council and Regulation (EC) No 726/2004 of the European Parliament and of the Council (OJ L 152, 16.6.2009, p. 11).

(3) Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC (OJ L 70, 16.3.2005, p. 1).

COMMISSION IMPLEMENTING REGULATION (EU) 2018/614

of 20 April 2018

approving azoxystrobin as an active substance for use in biocidal products of product-types 7, 9 and 10

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products ([1]), and in particular Article 9(1)(a) thereof,

Whereas:

(1) The United Kingdom received on 13 April 2014 an application for the approval of the active substance azoxystrobin for use in biocidal products of product-type 7, film preservatives, product-type 9, fibre, leather, rubber and polymerised materials preservatives, and product-type 10, construction material preservatives, as described in Annex V to Regulation (EU) No 528/2012.

(2) The United Kingdom submitted the assessment reports together with its recommendations on 1 December 2016 in accordance with Article 8(1) of Regulation (EU) No 528/2012.

(3) The opinions of the European Chemicals Agency were formulated on 3 October 2017 by the Biocidal Products Committee, having regard to the conclusions of the evaluating competent authority.

(4) According to those opinions, biocidal products of product-types 7, 9 and 10 containing azoxystrobin may be expected to satisfy the criteria of Article 19(1)(b) of Regulation (EU) No 528/2012, provided that certain specifications and conditions concerning their use are complied with.

(5) It is therefore appropriate to approve azoxystrobin for use in biocidal products of product-types 7, 9 and 10, subject to compliance with certain specifications and conditions.

(6) The opinions conclude that azoxystrobin meets the criteria for being a very persistent (vP) and toxic (T) substance according to Annex XIII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council ([2]). Azoxystrobin therefore meets the conditions set out in point (d) of Article 10(1) of Regulation (EU) No 528/2012 and should be considered a candidate for substitution.

(7) Pursuant to Article 10(4) of that Regulation, the approval of an active substance that is considered as a candidate for substitution should be for a period not exceeding 7 years.

(8) Since azoxystrobin meets the criteria for being very persistent (vP) according to Annex XIII to Regulation (EC) No 1907/2006, treated articles treated with or incorporating azoxystrobin should be appropriately labelled when placed on the market.

(9) A reasonable period should be allowed to elapse before an active substance is approved in order to permit interested parties to take the preparatory measures necessary to meet the new requirements.

(10) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Biocidal Products,

([1]) OJ L 167, 27.6.2012, p. 1.

([2]) Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

HAS ADOPTED THIS REGULATION:

Article 1

Azoxystrobin is approved as an active substance for use in biocidal products of product-types 7, 9 and 10, subject to the specifications and conditions set out in the Annex.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 20 April 2018.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX

Common Name	IUPAC Name Identification Numbers	Minimum degree of purity of the active substance [1]	Date of approval	Expiry date of approval	Product type	Specific conditions
Azoxystrobin	IUPAC Name: Methyl(E)-2-{2[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate EC No: not available CAS No: 131860-33-8	965 g/kg	1 November 2018	31 October 2025	7	Azoxystrobin is considered a candidate for substitution in accordance with point (d) of Article 10(1) of Regulation (EU) No 528/2012. The authorisations of biocidal products are subject to the following condition: The product assessment shall pay particular attention to the exposures, the risks and the efficacy linked to any uses covered by an application for authorisation, but not addressed in the Union level risk assessment of the active substance. The placing on the market of treated articles is subject to the following condition: The person responsible for the placing on the market of a treated article treated with or incorporating azoxystrobin shall ensure that the label of that treated article provides the information listed in the second subparagraph of Article 58(3) of Regulation (EU) No 528/2012.
					9	Azoxystrobin is considered a candidate for substitution in accordance with point (d) of Article 10(1) of Regulation (EU) No 528/2012. The authorisations of biocidal products are subject to the following condition: The product assessment shall pay particular attention to the exposures, the risks and the efficacy linked to any uses covered by an application for authorisation, but not addressed in the Union level risk assessment of the active substance. The placing on the market of treated articles is subject to the following condition: The person responsible for the placing on the market of a treated article treated with or incorporating azoxystrobin shall ensure that the label of that treated article provides the information listed in the second subparagraph of Article 58(3) of Regulation (EU) No 528/2012.

Common Name	IUPAC Name Identification Numbers	Minimum degree of purity of the active substance (1)	Date of approval	Expiry date of approval	Product type	Specific conditions
					10	Azoxystrobin is considered a candidate for substitution in accordance with Article 10(1)(d) of Regulation (EU) No 528/2012. The authorisations of biocidal products are subject to the following condition: The product assessment shall pay particular attention to the exposures, the risks and the efficacy linked to any uses covered by an application for authorisation, but not addressed in the Union level risk assessment of the active substance. The placing on the market of treated articles is subject to the following condition: The person responsible for the placing on the market of a treated article treated with or incorporating azoxystrobin shall ensure that the label of that treated article provides the information listed in the second subparagraph of Article 58(3) of Regulation (EU) No 528/2012.

(1) The purity indicated in this column was the minimum degree of purity of the active substance evaluated. The active substance in the product placed on the market can be of equal or different purity if it has been proven to be technically equivalent to the evaluated active substance.

DECISIONS

COUNCIL DECISION (EU) 2018/615

of 16 April 2018

amending Decision 1999/70/EC concerning the external auditors of the national central banks, as regards the external auditors of the Banque de France

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to Protocol No 4 on the Statute of the European System of Central Banks and of the European Central Bank, annexed to the Treaty on European Union and the Treaty on the Functioning of the European Union, and in particular Article 27.1 thereof,

Having regard to the Recommendation of the European Central Bank of 9 March 2018 to the Council of the European Union on the external auditors of the Banque de France (ECB/2018/9) [1],

Whereas:

(1) The accounts of the European Central Bank (ECB) and national central banks of the Member States whose currency is the euro are to be audited by independent external auditors recommended by the Governing Council of the ECB and approved by the Council of the European Union.

(2) Pursuant to Article L.142-2 of the Monetary and Financial Code, the General Council of the Banque de France is to appoint two statutory auditors to audit the accounts of the Banque de France.

(3) The mandate of the Banque de France's external auditors expired following the audit for the financial year 2017. It is therefore necessary to appoint external auditors as from the financial year 2018.

(4) The Banque de France has selected Mazars and KPMG S.A. as its external auditors for the financial years 2018 to 2023.

(5) The Governing Council of the ECB recommended that Mazars and KPMG S.A. be jointly appointed as the external auditors of the Banque de France for the financial years 2018 to 2023.

(6) Following the recommendation of the Governing Council of the ECB, Council Decision 1999/70/EC [2] should be amended accordingly,

HAS ADOPTED THIS DECISION:

Article 1

In Article 1 of Decision 1999/70/EC, paragraph 4 is replaced by the following:

'4. Mazars and KPMG S.A. are hereby approved as the external auditors of the Banque de France for the financial years 2018 to 2023.'.

Article 2

This Decision shall take effect on the day of its notification.

[1] OJ C 107, 22.3.2018, p. 1.
[2] Council Decision 1999/70/EC of 25 January 1999 concerning the external auditors of the national central banks (OJ L 22, 29.1.1999, p. 69).

Article 3

This Decision is addressed to the ECB.

Done at Luxembourg, 16 April 2018.

For the Council
The President
F. MOGHERINI

COUNCIL DECISION (EU) 2018/616

of 17 April 2018

on the position to be adopted, on behalf of the European Union, within the EEA Joint Committee concerning an amendment to Annex XIII (Transport) to the EEA Agreement

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Articles 91 and 172 in conjunction with Article 218(9) thereof,

Having regard to Council Regulation (EC) No 2894/94 of 28 November 1994 concerning arrangements for implementing the Agreement on the European Economic Area ([1]), and in particular Article 1(3) thereof,

Having regard to the proposal from the European Commission,

Whereas:

(1) The Agreement on the European Economic Area ([2]) ('the EEA Agreement') entered into force on 1 January 1994.

(2) Pursuant to Article 98 of the EEA Agreement, the EEA Joint Committee may decie to amend, inter alia, Annex XIII (Transport) to the EEA Agreement.

(3) Commission Regulation (EU) No 1305/2014 ([3]) is to be incorporated into the EEA Agreement.

(4) Annex XIII (Transport) to the EEA Agreement should therefore be amended accordingly.

(5) The position of the Union within the EEA Joint Committee should therefore be based on the attached draft decision,

HAS ADOPTED THIS DECISION:

Article 1

The position to be adopted, on behalf of the Union, within the EEA Joint Committee on the proposed amendment to Annex XIII (Transport) to the EEA Agreement, shall be based on the draft decision of the EEA Joint Committee attached to this Decision.

Article 2

This Decision shall enter into force on the date of its adoption.

Done at Luxembourg, 17 April 2018.

For the Council
The President
E. ZAHARIEVA

([1]) OJ L 305, 30.11.1994, p. 6.
([2]) OJ L 1, 3.1.1994, p. 3.
([3]) Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/2006 (OJ L 356, 12.12.2014, p. 438).

DRAFT

DECISION OF THE EEA JOINT COMMITTEE No …/2018

of …

amending Annex XIII (Transport) to the EEA Agreement

THE EEA JOINT COMMITTEE,

Having regard to the Agreement on the European Economic Area ('the EEA Agreement'), and in particular Article 98 thereof,

Whereas:

(1) Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EC) No 62/2006 ([1]) is to be incorporated into the EEA Agreement.

(2) Regulation (EU) No 1305/2014 repeals Commission Regulation (EC) No 62/2006 ([2]), which is incorporated into the EEA Agreement and which is consequently to be repealed under the EEA Agreement.

(3) Annex XIII to the EEA Agreement should therefore be amended accordingly,

HAS ADOPTED THIS DECISION:

Article 1

The text of point 37h (Commission Regulation (EC) No 62/2006) of Annex XIII to the EEA Agreement is replaced by the following:

'**32014 R 1305**: Commission Regulation (EU) No 1305/2014 of 11 December 2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union and repealing the Regulation (EU) No 62/2006 (OJ L 356, 12.12.2014, p. 438).

The Regulation shall, for the purposes of this Agreement, be read with the following adaptation:

The following paragraph shall be added after section 7.1.4.(3) of the Annex:

4. The EFTA Surveillance Authority shall have observer status in the Steering Committee.'

Article 2

The texts of Regulation (EU) No 1305/2014 in the Icelandic and Norwegian languages, to be published in the EEA Supplement to the *Official Journal of the European Union*, shall be authentic.

Article 3

This Decision shall enter into force on […], provided that all the notifications under Article 103(1) of the EEA Agreement have been made (*), or on the day of the entry into force of Decision of the EEA Joint Committee No xx/xxxx of x.xx.xxxx ([3]) [incorporating Directive 2012/34/EU], whichever is the later.

([1]) OJ L 356, 12.12.2014, p. 438.
([2]) OJ L 13, 18.1.2006, p. 1.
(*) [No constitutional requirements indicated.] [Constitutional requirements indicated.]
([3]) OJ L …

Article 4

This Decision shall be published in the EEA Section of, and in the EEA Supplement to, the *Official Journal of the European Union*.

Done at Brussels, …

For the EEA Joint Committee

The President *The Secretaries to the EEA Joint Committee*

COMMISSION IMPLEMENTING DECISION (EU) 2018/617

of 19 April 2018

authorising Portugal to grant an approval to derogate from point OPS 1.1100(1.1)(b) of Annex III to Council Regulation (EEC) No 3922/91

(notified under document C(2018) 2183)

(Only the Portuguese text is authentic)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Regulation (EEC) No 3922/91 of 16 December 1991 on the harmonisation of technical requirements and administrative procedures in the field of civil aviation ([1]), and in particular Article 8(3) thereof,

Whereas:

(1) By letter dated 21 February 2017, Portugal notified the Commission, pursuant to Article 8(3) of Regulation (EEC) No 3922/91, of its intention to grant NETJETS – Transportes Aéreos, S.A. (hereafter: 'NETJETS') an approval to derogate from point OPS 1.1100(1.1)(b) of Annex III to Regulation (EEC) No 3922/91.

(2) In its notification, Portugal explained that NETJETS is unable to comply with the requirements of point OPS 1.1100(1.1)(b) because, in order to carry out air taxi operations, in cases where a crew member of NETJETS is scheduled to operate on the seventh consecutive day, the cumulative limit of 60 hours laid down in that provision is reached and is already exceeded while that crew member is on positioning or other duty. The intended derogation would therefore extend the maximum total duty period in any seven consecutive days to 70 hours.

(3) Portugal further explained that, after analysing the safety risk assessment presented by NETJETS, as well as the proposed mitigation actions, in this case a level of safety equivalent to that attained by the application of point OPS 1.1100(1.1)(b) can be achieved by other means. It also explained that the intended approval to derogate is conditional on NETJETS taking certain mitigating measures, which NETJETS already implemented in accordance with point ORO.FTL.120 of Annex III to Commission Regulation (EU) No 965/2012 ([2]).

(4) The Commission assessed, with the assistance of the European Aviation Safety Agency, the level of safety emerging from the intended derogation. The Commission found that the measure would achieve a level of safety equivalent to that attained by application of point OPS 1.1100(1.1)(b), provided certain conditions are met, for the following reasons.

(5) NETJETS is an air taxi operator. The patterns of work of its pilots therefore differ from those of pilots involved in other types of commercial air transport operations. On average, air taxi pilots are subject to lower workload levels in terms of cumulative flying hours and consecutive days of duty. Conversely, positioning air taxi pilots before and after duties is much more common than in other types of commercial air transport operations, with typically a larger amount of time required for hotel standby away from home base and a relatively large number of hours required for commuting and positioning. However, the level of cumulative fatigue is higher following a duty period including a flight than during the time between flights. The intended derogation would only be used for the positioning duty of the pilots for the start of the extended recovery rest period and not for positioning between two flight duty periods.

(6) In respect of an air taxi operator, it should be permitted to derogate from the requirements of point OPS 1.1100(1.1)(b) by extending the maximum total duty period in any seven consecutive days.

([1]) OJ L 373, 31.12.1991, p. 4.

([2]) Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1).

(7) However, in order to ensure an equivalent level of safety, such derogation should only be permitted subject to certain limitations and conditions. In particular, the maximum total duty period in any seven consecutive days should remain limited to 70 hours, the additional hours should only be used for the positioning duty of the pilots concerned for the start of the extended recovery rest period and the air taxi operator concerned should take certain mitigating measures, in particular with a view to preventing, monitoring and addressing any risks which might emerge in connection to the extension.

(8) In addition, the assessment indicated that the intended derogation would not entail discrimination on the grounds of nationality of the applicants and that it duly takes into account the need not to distort competition, considering in particular that the derogation would be granted irrespective of the place of establishment or principal place of business of the air taxi operator concerned, that the extension is limited and that the same derogation could be granted under the same conditions to other air taxi operators registered in the Union for the same operations.

(9) Therefore, Portugal should be allowed to grant NETJETS approval for the intended derogation notified to the Commission, provided that NETJETS takes the necessary mitigating measures.

(10) In accordance with Article 8(3) of Regulation (EEC) No 3922/91, a decision by the Commission that a Member State may grant an approval to derogate is to be notified to all Member States and all Member States are subsequently entitled to apply the measure in question. Therefore, this Decision should be addressed to all Member States and the description of the derogation, as well as the conditions attached to it, should be such as to enable other Member States to also apply that measure when they are in the same situation, without requiring a further decision by the Commission.

(11) The measures provided for in this Decision are in accordance with the opinion of the Air Safety Committee,

HAS ADOPTED THIS DECISION:

Article 1

Portugal may, by derogation from point OPS 1.1100(1.1)(b) of Annex III to Regulation (EEC) No 3922/91, allow the air taxi operator NETJETS – Transportes Aéreos, S.A. to extend the maximum total duty period in any seven consecutive days to 70 hours for the positioning duty of the pilots concerned for the start of the extended recovery rest period, provided that it takes the measures specified in the Annex.

Article 2

This Decision is addressed to the Portuguese Republic.

Done at Brussels, 19 April 2018.

For the Commission
Violeta BULC
Member of the Commission

ANNEX

The operator concerned shall take all of the following measures in respect of its operations carried out on the basis of the derogation:

1. Integrate the bio-mathematical System for Aircrew Fatigue Evaluation (SAFE) or an equivalent fatigue risk model into its flight planning and flight and duty limitations of its pilots, in order to predict and prevent high levels of fatigue.

2. Establish appropriate schedule metrics and threshold values for the purpose of analysing flight crew rostering and submit those schedule metrics and threshold values to the competent authority for validation.

3. Provide fatigue management-related training to its pilots as referred to in point ORO.FTL.250 of Commission Regulation (EU) No 83/2014 ([1]).

4. Extend the weekly rest period to a 72-hour rest period, including two local nights.

5. Continuously monitor the increase of the total duty period of its pilots as part of its management system.

6. Continuously monitor the time for commuting, positioning and travelling by its pilots before and during the block of seven consecutive duty days, as a potential source of cumulative fatigue.

7. Continuously monitor and control its pilots' accommodation away from base, in particular the likelihood for them to obtain sleep in sufficient quality and quantity during the block of seven consecutive duty days, by collecting the necessary data from its pilots in the form of sleep diaries and subjective alertness surveys.

8. Continuously analyse collected data stemming from data collection tools such as flight data monitoring (FDM), by correlating the events' rate to fatigue-related surveillance performance and interoperability requirements (SPI).

9. Continuously analyse its pilots' rostering against the schedule metrics and threshold values validated by the competent authority in accordance with point 2, by using the System for Aircrew Fatigue Evaluation (SAFE) or an equivalent fatigue risk model.

10. Continuously monitor all other aspects of the operations by way of a risk assessment with a view to identifying any risks to the safety of operations that may result from the implementation of the derogation. Such risk assessment must be acceptable to the competent authority.

11. Take all necessary measures to mitigate any risks to the safety of operations identified through the measures referred to in points 5 to 10, including the integration of those necessary measures in the planning and flight and duty limitations of its pilots.

12. Provide the outcomes of the measures referred to in points 5 to 10 to the competent authority on a regular basis and immediately inform that authority about any necessary measure it has taken in accordance with point 11.

([1]) Commission Regulation (EU) No 83/2014 of 29 January 2014 amending Regulation (EU) No 965/2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 28, 31.1.2014, p. 17).

COMMISSION IMPLEMENTING DECISION (EU) 2018/618

of 19 April 2018

amending Implementing Decision 2012/535/EU as regards measures to prevent the spread within the Union of *Bursaphelenchus xylophilus* (Steiner et Buhrer) Nickle et al. (the pine wood nematode)

(notified under document C(2018) 2227)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Directive 2000/29/EC of 8 May 2000 on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community ([1]), and in particular the fourth sentence of Article 16(3) thereof,

Whereas:

(1) The number of susceptible plants affected by extensive fires in the buffer zone of continental Portugal in 2017 reached exceptional proportions. As a result, the number of declining trees that need to be felled, removed and disposed has abruptly increased in a sudden and unexpected manner to approximately 1,5 million trees. Despite the fact that Portuguese authorities have gradually increased their capacity to deal with up to 300 000 trees per year and are expected to continue to increase their capacities in accordance with the growing needs, it would be impossible for them to proceed with the felling, removal and disposal of all those newly declined trees within the legal deadlines, as required by Commission Implementing Decision 2012/535/EU ([2]).

(2) Therefore and on request of Portugal, a temporary derogation from the legal provisions laid down under point 3(b) of Annex II to that Decision should be introduced, to provide Portugal with the possibility to complete those felling activities in the buffer zone concerned within a longer period, but no later than 31 March 2020. This would provide the appropriate additional time to the Portuguese authorities to proceed with the necessary felling activities, the volume of which significantly increased due to the scale of those fires.

(3) That derogation should be subject to the submission of an annual action plan by Portugal, to ensure a well prepared and co-ordinated action. The action plan should detail the susceptible plants at higher risk of infection by pine wood nematode ('PWN') which require quicker actions, the necessary resources to be allocated and other relevant details, such as the measures to be implemented to mitigate the risk of PWN infestation while waiting for the felling, removal and disposal of those plants, including intensified survey activities of susceptible plants and the vectors for the early detection of the presence of PWN and the deadlines for their implementation. The level of risk posed by those plants should be assessed on an annual basis and the action plan should be updated accordingly, in order to treat with priority the plants presenting the highest risk of causing spread of PWN.

(4) Implementing Decision 2012/535/EU should therefore be amended accordingly.

(5) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS DECISION:

Article 1

Annex II to Implementing Decision 2012/535/EU is amended as set out in the Annex to this Decision.

([1]) OJ L 169, 10.7.2000, p. 1.
([2]) Commission Implementing Decision 2012/535/EU of 26 September 2012 on emergency measures to prevent the spread within the Union of *Bursaphelenchus xylophilus* (Steiner et Buhrer) Nickle et al. (the pine wood nematode) (OJ L 266, 2.10.2012, p. 42).

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 19 April 2018.

For the Commission
Vytenis ANDRIUKAITIS
Member of the Commission

ANNEX

Point 3(b) of Annex II to Implementing Decision 2012/535/EU is replaced by the following:

'(b) Member States shall, throughout the buffer zones concerned, identify and fell all susceptible plants which are dead, in poor health or affected by fire or storm. They shall remove and dispose of plants felled and logging remains, taking all necessary precautions to avoid spreading of PWN and its vector before, during felling and until disposal of plants felled and logging remains, under the following conditions.

(i) Susceptible plants identified outside the flight season of the vector shall, before the next flight season, be felled and destroyed on site, moved under official control into the infested zone or removed. In the last case the wood and bark of those plants shall either be treated, as set out in point 2(a) of Section 1 of Annex III, or processed, as set out in point 2(b) of Section 2 of Annex III.

(ii) Susceptible plants identified during the flight season of the vector shall, immediately, be felled and destroyed on site, moved under official control into the infested zone or removed. In the last case the wood and bark of those plants shall either be treated, as set out in point 2(a) of Section 1 of Annex III, or processed, as set out in point 2(b) of Section 2 of Annex III.

Where a Member State concludes that the felling, removal and disposal of susceptible plants identified during the flight season and affected by fire or storm is inappropriate, the Member State concerned may decide to proceed with the felling, removal and disposal of those plants before the start of the next flight season. During such felling and removal, the susceptible plants concerned shall be either destroyed on site or removed and their wood and bark treated, in accordance with point 2(a) of Section 1 of Annex III, or processed, in accordance with point 2(b) of Section 2 of Annex III. Where this derogation applies, and without prejudice to point (a), the Member State concerned shall, within the flight season, perform intensive surveys in the area affected by fire or storm by sampling and testing those vectors for the presence of PWN and, if confirmed, perform intensified surveys of the susceptible plants located in the surrounding area, by inspecting, sampling and testing those plants which show signs or symptoms of the presence of PWN.

By way of derogation from points (i) and (ii), Portugal may decide to proceed with the felling, removal and disposal of the susceptible plants, which are officially designated by the responsible official body as being affected by fire in 2017, within a longer period, and at the latest by 31 March 2020. For the purpose of that felling, removal and disposal within that period, priority shall be given to the susceptible plants located in the following areas:

— areas adjacent to the infested zone;

— areas where there are signs of activity of insect vectors;

— areas with an increased rate of declining trees indicating possible presence of PWN;

— any other areas presenting the highest risk of PWN infestation.

Those susceptible plants shall be felled and destroyed on site, moved under official control into the infested zone or removed. In that case, the wood and bark of those plants shall be either treated as set out in point 2(a) of Section 1 of Annex III, or processed as set out in point 2(b) of Section 2 of Annex III. The susceptible plants which cannot be used by the insect vector for the completion of its life cycle may be retained on the site without being destroyed.

Portugal shall submit, by 31 May 2018, an annual action plan to the Commission and the Member States containing the maps indicating the location of the fire affected plants in the buffer zone, the location of the areas referred to in the second subparagraph and the justification for that selection, the measures to be implemented to mitigate the risk of PWN infestation while waiting for the felling, removal and disposal of those plants, including intensified survey activities of susceptible plants and the vectors for the early detection of the presence of PWN, the resources needed and the relevant deadlines to complete those measures. Portugal shall submit, by 31 May 2019, one more annual action plan with the same content.

The level of risk posed by those plants shall be assessed on an annual basis and the action plan shall be updated as appropriate. The activities foreseen within that action plan shall be taken into account when preparing the general action plan referred to in Article 9.

Portugal shall submit to the Commission and the Member States a report on the annual results, including the outcome of the intensified surveys on vectors, and any update of that action plan by 30 April of the year following the year concerned.

Felled susceptible plants, other than plants completely destroyed by forest fires, shall be sampled and tested for the presence of PWN, according to a sampling scheme able to confirm with 99 % reliability that the level of presence of PWN in those susceptible plants is below 0,02 %.'

COMMISSION IMPLEMENTING DECISION (EU) 2018/619

of 20 April 2018

not approving PHMB (1415; 4.7) as an existing active substance for use in biocidal products of product-types 1, 5 and 6

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products ([1]), and in particular Article 89(1) thereof,

Whereas:

(1) Commission Delegated Regulation (EU) No 1062/2014 ([2]) establishes a list of existing active substances to be evaluated for their possible approval for use in biocidal products. That list includes PHMB (1415; 4.7) (EC No: n.a., CAS No: 32289-58-0 and 1802181-67-4).

(2) PHMB (1415; 4.7) has been evaluated for use in products of product-type 1, human hygiene, 5, drinking water, and 6, preservatives for products during storage, as described in Annex V to Regulation (EU) No 528/2012.

(3) France was designated as evaluating competent authority and submitted the assessment reports together with its recommendations on 13 December 2016.

(4) In accordance with Article 7(2) of Delegated Regulation (EU) No 1062/2014, the opinions of the European Chemicals Agency were formulated on 4 October 2017 by the Biocidal Products Committee, having regard to the conclusions of the evaluating competent authority.

(5) According to those opinions, biocidal products used for product-types 1, 5 and 6 containing PHMB (1415; 4.7) may not be expected to satisfy the requirements laid down in Article 19(1)(b) of Regulation (EU) No 528/2012. For those product-types, the scenarios evaluated in the human health and environmental risk assessments identified unacceptable risks.

(6) It is therefore not appropriate to approve PHMB (1415; 4.7) for use in biocidal products of product-types 1, 5 and 6.

(7) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Biocidal Products,

HAS ADOPTED THIS DECISION:

Article 1

PHMB (1415; 4.7) (EC No: n.a., CAS No: 32289-58-0 and 1802181-67-4) is not approved as an active substance for use in biocidal products of product-types 1, 5 and 6.

([1]) OJ L 167, 27.6.2012, p. 1.

([2]) Commission Delegated Regulation (EU) No 1062/2014 of 4 August 2014 on the work programme for the systematic examination of all existing active substances contained in biocidal products referred to in Regulation (EU) No 528/2012 of the European Parliament and of the Council (OJ L 294, 10.10.2014, p. 1).

Article 2

This Decision shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels, 20 April 2018.

For the Commission
The President
Jean-Claude JUNCKER

COMMISSION IMPLEMENTING DECISION (EU) 2018/620

of 20 April 2018

on the technical specifications for the Copernicus service component pursuant to Regulation (EU) No 377/2014 of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010 ([1]), and in particular Article 9(8)(a) thereof,

Whereas:

(1) The Copernicus Programme, which was established by Regulation (EU) No 377/2014, is a civil, user driven programme, building on the existing national and European capacities, with the overarching operational objective to provide accurate and reliable information in the field of the environment and security, tailored to the needs of users and supporting other Union policies, more specifically relating to the internal market, transport, environment, energy, civil protection and civil security, cooperation with third countries and humanitarian aid.

(2) Pursuant to Regulation (EU) No 377/2014, Copernicus consists of three components, including a service component the purpose of which is to ensure delivery of information in the following areas: atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security. The Commission has the overall responsibility for Copernicus and coordinates its different components.

(3) The technical specifications for the Copernicus service component are necessary to establish a baseline for the implementation of the service component as part of the governance of Copernicus.

(4) The technical specifications for the Copernicus service component should address aspects such as scope, architecture, technical service portfolios, monitoring and evaluation, space and in situ data service needs, evolution, archiving and dissemination of data and are required to guarantee the correct operation of the Copernicus service component.

(5) The technical specifications for the Copernicus service component should cover the entire service component, with a specific focus on the activities funded under Regulation (EU) No 377/2014.

(6) The measures provided for in this Decision are in accordance with the opinion of the Copernicus Committee,

HAS ADOPTED THIS DECISION:

Article 1

Technical specifications for the Copernicus service component

The following technical specifications for the Copernicus service component referred to in Article 5(1) of Regulation (EU) No 377/2014, regarding its implementation, are hereby adopted:

(1) General characteristics of the Copernicus service component, as set out in Annex I to this Decision;

(2) Technical specifications for the Copernicus atmosphere monitoring service referred to in Article 5(1)(a) of Regulation (EU) No 377/2014, as set out in Annex II to this Decision;

(3) Technical specifications for the Copernicus marine environment monitoring service referred to in Article 5(1)(b) of Regulation (EU) No 377/2014, as set out in Annex III to this Decision;

([1]) OJ L 122, 24.4.2014, p. 44.

(4) Technical specifications for the Copernicus land monitoring service referred to in Article 5(1)(c) of Regulation (EU) No 377/2014, as set out in Annex IV to this Decision;

(5) Technical specifications for the Copernicus climate change service referred to in Article 5(1)(d) of Regulation (EU) No 377/2014, as set out in Annex V to this Decision;

(6) Technical specifications for the Copernicus emergency management service referred to in Article 5(1)(e) of Regulation (EU) No 377/2014, as set out in Annex VI to this Decision;

(7) Technical specifications for the Copernicus security service referred to in Article 5(1)(f) of Regulation (EU) No 377/2014, as set out in Annex VII to this Decision.

Article 2

Entry into force

This decision shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels, 20 April 2018.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX I

GENERAL CHARACTERISTICS OF THE COPERNICUS SERVICE COMPONENT

1. SCOPE

The exact scope and the objectives of each specific Copernicus service are provided in the following thematic Annexes II to VII.

2. GENERAL SERVICE SPECIFICATION

2.1. **Architecture**

The entrusted entities shall develop the architecture of the different services adapted to their specific characteristics. The following general functions shall be applicable to all services:

(a) integrated operations, to provide a timely and reliable service products and information;

(b) product and service quality management, to provide a verified and state-of-the-art information;

(c) continuous service improvement and evolution, to be responsive to user requirements;

(d) user uptake and communication, to maximise the awareness, use and exploitation of the service;

(e) products dissemination and archiving, to keep a record of the information provided and to keep older and historic data sets available for users.

For the purposes of this Annex the 'entrusted entities' shall mean entities entrusted by the Commission with service component implementation tasks, including the following entities:

(a) the European Environment Agency (EEA) for the Copernicus in-situ component and the pan-European and local components of the land monitoring service;

(b) the European Centre for Medium Range Weather Forecasts (ECMWF) for the Atmosphere Monitoring Service and Climate Change Service;

(c) Mercator Océan for the Marine Environment Monitoring Service;

(d) the European Border and Coast Guard Agency (FRONTEX) for the border surveillance within the Copernicus security service;

(e) the European Maritime Safety Agency (EMSA) for the maritime surveillance within the Copernicus security service;

(f) the European Union Satellite centre (SATCEN) for the support to the Union's External Action of the Copernicus security service.

2.2. **Integrated operations**

The services shall be designed to operate in a robust, efficient and sustainable manner. The services shall provide their products with the technical properties and the timeliness specified for each of their products in the Copernicus portfolio.

The service design and their operations shall take appropriate precautions to minimise the unavailability of the service and its products, and the occurrences of late delivery with respect to the timeliness specified in the portfolio. Appropriate (automated) technical monitoring processes shall be put in place to detect anomalies as soon as possible.

The services shall provide a user support function, which shall provide at least full technical information on the service products and the processing leading into the meta-data associated to and delivered with each service product. A user help desk shall be available according to a schedule which is consistent with the timeliness of the service products themselves.

The entrusted entities shall support the coordination of their activities with the Commission, as well as amongst each other.

2.3. **Product and service quality management**

The entrusted entities shall put in place appropriate internal processes to ensure the high level quality of the services. This shall address at least the verification of the technical properties of (all or a sampled subset of) the service products, including quantitative evaluation where appropriate, as well as gathering feedback on the satisfaction of users with the service products.

Beyond the internal process, the services shall provide a set of performance level indicators to support monitoring at programme level [in accordance with section 4].

2.4. **Continuous service improvements**

Based on the findings of the quality assurance function and on the user feedback, the services shall develop, validate and periodically implement process improvements to ameliorate the quality of their products and/or the satisfaction of their core users. The entrusted entities shall notify in advance the Commission before introducing changes to the operational products service production.

Changes which go beyond the routine process of product maintenance and the evolution already provided for in the respective delegation agreements between the Commission and entrusted entities will have to be agreed upon beforehand between the service operator and the Commission. This procedure shall involve the Member States.

2.5. **User uptake and communication**

The services shall perform activities to develop and to expand the communities of users for their services. These activities may cover areas, such as the organisation of thematic workshops, training activities, contributions for printed and electronic media, contributions to user domain specific conferences and events.

In a limited number of justified cases, pilot activities and/or specific use cases may be supported to stimulate and foster certain application areas and to demonstrate the potential usefulness of these downstream activities.

The activities at service level shall be coordinated with the Commission's activities and planning at programme level.

2.6. **Products dissemination and archiving**

The service product dissemination strategy shall be based on a single entry point (one stop-shop) for each service to allow user access to products and information. The entry point for each service shall be a web portal providing a harmonised interface to any service component, independent from the physical locations of the data sources.

The important requirements shall include an unrestrictive user registration, effective product search and quick view, easy access to metadata including product descriptions, ability to visualize datasets, regional sub-setting, and data downloading in various formats.

The user access to Copernicus data and information shall be done through a heterogeneous collection of interfaces that shall be put in place by the various entrusted entities.

An efficient Copernicus data and information portal shall be developed with a view to make the different existing Copernicus dissemination platforms interoperable and to strengthen the overall Copernicus dissemination system. That objective will be fulfilled with the setting by the Commission of the 'Data and Information Access Service' (DIAS), making Copernicus data and information available to users through a cloud type of computing architecture.

All the products shall be archived and a fast access shall be guaranteed for the latest products.

The strategy for archiving shall be guided by user needs and requirements. All data products generated by the services shall be available permanently to allow traceability and reproducibility of results and findings. Observational datasets in particular, as well as reanalyses, shall be archived permanently. Appropriate measures shall be implemented to mitigate the risk of data loss or destruction.

User questions, complaints and suggestions shall be handled by a traceable system. A user support function shall deal with user queries interactively. This function shall be discharged through help desks at the premises of the entrusted entities for the services, complemented by user support at the data provider.

The entrusted entities shall ensure the interoperability of the service portals with the 'copernicus.eu' and the overall harmonization of dissemination services in coordination with the Commission.

3. TECHNICAL SERVICE PORTFOLIO

3.1. **Service products general standards – INSPIRE compliance**

The spatial data products and information generated within the Copernicus service component activities shall be compatible and interoperable with the data and spatial information systems provided by Member States in accordance with Directive 2007/2/EC of the European Parliament and of the Council [1] and Commission Regulations (EC) No 1205/2008 [2], (EU) No 1089/2010 [3], and (EC) No 976/2009 [4].

4. MONITORING AND EVALUATION OF THE SERVICES

Key Performance Indicators (KPIs) shall be used to monitor the quality and the progress of the Copernicus services.

These KPIs shall significantly contribute to demonstrate that the programme is on track and is making progress as planned.

Services providing routine products (land, climate change, maritime monitoring, atmosphere monitoring)

ID	KPI	Proposed evaluation method
1	Quality and products completeness	Quality and completeness of the products
2	Product Timeliness (where applicable)	Percentage of products available on time on the Copernicus Service dissemination portal, in line with pre-defined benchmarks for each product
3	Service availability	Percentage of time the Copernicus Service dissemination portal is available for the users (per month)
4	User satisfaction (for assistance and services)	Result of the question 'Overall, how satisfied are you with the Copernicus Service X? (1 = not satisfied, 4 = very satisfied)', to be included in the annual user satisfaction survey of each Copernicus Service.
5	User uptake	A/number of registered users
		B/number of active users (downloading or invoking products in the last 3 months)

Services providing on-demand products (e.g. security, emergency)

ID	KPI	Proposed evaluation method
1	Quality and products completeness	Quality and completeness of the products

[1] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) (OJ L 108, 25.4.2007, p. 1).
[2] Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (OJ L 326, 4.12.2008, p. 12).
[3] Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services (OJ L 323, 8.12.2010, p. 11).
[4] Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services (OJ L 274, 20.10.2009, p. 9).

ID	KPI	Proposed evaluation method
2	Product Timeliness (where applicable)	Percentage of products available on time on the Copernicus Service dissemination portal, in line with pre-defined benchmarks for each product
3	Service availability	Percentage of time the Copernicus Service dissemination portal is available for the users (per month)
4	User satisfaction (for assistance and services)	Result of the question 'Overall, how satisfied are you with the Copernicus Service X? (1 = not satisfied, 4 = very satisfied)', to be asked after each activation or to be included in an annual user satisfaction survey.
5	User Uptake	Number of activations

The results of the KPIs measurements shall be reported to the Commission. The entrusted entities may use any other relevant KPIs according to their specific situation.

5. DATA NEEDS FOR COPERNICUS

The user requirements and services specifications shall serve as a basis for the constant adjustment of the Copernicus programme data needs. The data inputs for the Copernicus services shall fall in two broad categories:

(a) satellite based observations;

(b) in situ data.

5.1. **Satellite based observation**

The provision of space data for the Copernicus services shall be managed by:

(a) The Commission through the Copernicus Data Access Specifications of the space-based Earth Observation needs for the period 2014-2020;

(b) ESA for the technical coordination of the Copernicus Space Component, the definition of its architecture, the development and procurement of space assets, data access and the operation of Copernicus dedicated missions;

(c) EUMETSAT for the operation of Copernicus dedicated missions.

The Copernicus Data Access Specifications of the space-based Earth Observation needs for the period 2014-2020 shall be met through the Data Warehouse mechanism, established on the basis of the Copernicus ESA delegation agreement.

5.2. **In situ observations**

The access to in situ data licensed or provided for use in Copernicus shall be coordinated primarily for the needs of the Copernicus services.

The provision of in-situ data shall draw on different data sources, including Member States' data sources. The Copernicus in situ component shall rely mainly on existing data sources and capacities. It shall include different categories of data (regular and frequent in-situ measurements and observation data, periodically compiled data, or one time action data). The Copernicus in situ component shall integrate at European level existing in situ and reference data. In some cases the services may have, in addition, their own specific arrangement with in-situ data providers in their specific thematic domain.

6. EVOLUTION OF THE COPERNICUS SERVICE COMPONENT UNTIL 2020

The Copernicus operational services, programmed in the context of the current Multiannual Financial Framework (MFF), will evolve in line with recognised and emerging user requirements and state of the art methodologies.

The entrusted entities shall be continuously evolving their portfolio based on user feedback, advances in the state-of-the-art, as well as findings from validation processes in order to maintain the various products relevant. Immediate service maintenance and enhancement in response to the Copernicus work programme shall be part of operational tasks. Where appropriate, the long-term evolutions shall take into account input resulting from performed activities in the framework of H2020 and other research programmes.

In this MFF three main evolving situations may be envisaged:

(a) evolution of existing products is aimed at product enhancement;

(b) during the programme period new products and service groups may be introduced;

(c) emerging and new needs stemming from policy implementation may lead to the possible addition of new product groups currently not foreseen in these technical specifications of the service.

In cases referred to in point (c) the entrusted entity shall analyse the expected benefits, costs and impact on operations. On this basis, a discussion in the Copernicus User Forum and the Copernicus Committee shall be held to decide on the implementation of such a new product group.

The situations referred to in points (a), (b) and (c) above shall take into account the following inputs:

(a) Union policy evolution;

(b) user evolving requirements;

(c) user feedback on the current service;

(d) availability of new observation data;

(e) recommendations from experts;

(f) new methods stemming from research projects, such as Horizon 2020.

ANNEX II

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS ATMOSPHERE MONITORING SERVICE

1. SCOPE

The Copernicus Atmosphere Monitoring Service (CAMS) shall provide information based on satellite data to facilitate the monitoring of the composition of the Earth's atmosphere. In addition, it shall develop its own capacity to continuously monitor the chemical composition of the Earth's atmosphere at global and regional scales with satellite-enhanced means. This capacity shall encompass the description of the current situation of the atmosphere (analysis), the prediction of the situation a few days ahead (forecast), and the provision of consistent retrospective data records for recent years (re-analysis). The service shall generate geophysical products which can be input to further technical processing, as well as high level information in various forms for further expert assessment to support decision makers. The products shall be subjected to rigorous quality check to ensure the highest level of quality.

CAMS shall support many applications developed by stakeholders in a variety of domains including health, environmental monitoring, renewables energies, meteorology, and climatology. It shall provide daily information on the global atmospheric composition based on processed satellite data, and by monitoring and forecasting constituents such as greenhouse gases (carbon dioxide and methane), reactive gases and aerosols, including pollens over Europe.

CAMS shall be developed to meet the needs for data and processed information related to environmental concerns. CAMS shall offer emission inventories and estimates net fluxes of CO_2, CH_4 and N_2O at the Earth's surface. CAMS aims at promoting the participation in the FAIRMODE community to contribute to the harmonization of regional modelling.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

CAMS shall provide services, categorised into the following five topical domains, grouping data and/or information products according to their main application area:

(a) air quality and atmospheric composition: these products shall characterise the chemical composition of the atmosphere and provide information on greenhouse gases, reactive gases and aerosols; the products shall be provided at global scale for the entire atmosphere and at refined horizontal resolution over a regional domain covering the Union and neighbouring areas, including the EEA Member States; the products shall include in particular the species relevant for the Union and national legislation as well as international treaties;

(b) climate forcing: Specialized products shall be provided to quantify the forcing on the Earth System due to atmospheric composition changes induced by human activities;

(c) ozone layer and UV: information on constituents of particular importance for the stratospheric ozone layer shall be provided, as well as on ultraviolet radiation;

(d) solar radiation: the domain shall cover radiation products of relevance in the context of solar energy;

(e) emissions and surface fluxes: CAMS shall also provide information on surface sources and sinks of the main greenhouse gases.

The domains shall not be mutually exclusive and some products may appear in different domains.

3. SERVICE ARCHITECTURE

The design of the service architecture shall ensure consistency with the overall vision and development strategy of Copernicus.

There shall be four main service elements:

(a) acquisition and pre-processing of input data, primarily observations (from both satellite and in-situ instruments) and ancillary data that are needed to estimate emissions of pollutants and to assess concentrations of pollutants in the atmosphere;

(b) global processing: shall be operated in three modes to deliver the products required by the users:

(1) daily production for near-real-time analyses and forecast;

(2) daily production for delayed-mode analyses and forecast;

(3) re-analyses production stream providing multi-annual consistent datasets with a frozen model/assimilation system;

(c) regional processing: shall be covered with a higher spatial resolution and shall support in particular further downstream modelling activities for sub-regions at even finer scale as well as air quality and pollen monitoring and forecasting national activities;

(d) supplementary services: shall be relative to applications processing, services and products that are built on top of or integrated into the main global and Union regional processing outputs.

The four cross-cutting functions shall deal with the following:

(a) quality control and assurance;

(b) archiving;

(c) product dissemination;

(d) user interaction, training and outreach.

4. TECHNICAL SERVICE PORTFOLIO

CAMS products shall be provided free of charge to registered users through an Interactive Catalogue available on the CAMS web portal.

The CAMS Product Portfolio shall be organised in four main categories and thirteen products lines.

(1) *Regional products*

The regional products shall be provided by an ensemble of air quality models (up to 10 members) for the European domain and for several species, such as: episodes and background concentrations of O_3, NO_2, NO, CO, SO_2, NH_3, PANs, VOCs, PM2,5, PM10, pollens (main allergens).

The services shall consist of the following:

(a) daily near real-time analyses and forecasts;

(b) daily delayed-mode interim re-analyses based on in-situ observations in an interim stage of validation;

(c) annual re-analyses based on fully validated in-situ observations.

(2) *Global products*

The global products shall be provided using ECMWF Integrated Forecasting System (IFS), which is also used for the Centre's numerical weather prediction activities. The services shall consist of daily near real-time and delayed-mode analyses and forecasts as well as reanalyses, covering the period since 2003. Species shall include aerosol, reactive gases (only a subset is directly constrained by observations), CO_2 and CH_4. The global products shall cover both the troposphere and stratosphere.

(3) *Supplementary products*

The supplementary products shall be built on the top of or integrated into the global and regional ones.

Policy support products shall consist of assessment reports commenting upon the regional reanalysis data for technical experts advising policy makers, daily scenario forecasts of pollution episodes to assess the effectiveness of short-term emissions abatement strategies, and source-receptor calculations providing information on the origin of air pollution episodes.

(a) interim assessment reports based on the interim European reanalyses;

(b) assessment reports based on the European reanalyses performed with validated data;

(c) daily 'green scenarios' forecasts with reduced level of anthropogenic emissions;

(d) on-demand country source-receptor calculations;

(e) daily regional source-receptor calculations (apportionment of local vs transported for a large number of European conurbations).

Solar radiation products shall include global forecasts of UV radiation supporting the health sector as well as data bases of clear-sky and all-sky solar irradiances to support the solar energy and other sectors

(a) global solar UV index forecast;

(b) global clear-sky surface solar irradiance;

(c) total-sky surface solar irradiance (over areas covered by geostationary satellites).

Greenhouse gases flux inversion products shall consist of estimates of surface fluxes for some of the key greenhouse gases obtained by inverse modelling.

(a) monthly fluxes of global methane (2000 to 2015);

(b) monthly fluxes of global nitrous oxide (1996 to 2015);

(c) monthly fluxes of global carbon dioxide (1979 to 2015).

Climate forcings service element shall provide estimates of the climate forcing of aerosol based on the latest global re-analysis.

(a) forcing due to aerosol-radiation interaction;

(b) forcing due to aerosol-cloud interaction;

(c) forcing due to CO_2;

(d) forcing due to CH_4;

(e) forcing due to stratospheric ozone;

(f) forcing due to tropospheric ozone.

(4) *Emission products*

The CAMS emission products shall serve as an important input for the global and regional assessment systems. In parallel, they shall be provided as end products for users. The emission products shall be the following:

(a) anthropogenic emissions:

  (1) european anthropogenic emissions;

  (2) global anthropogenic and natural emissions;

(b) fire emissions — biomass burning emissions based on Fire Radiative Power satellite observations.

5. DATA NEEDS

The data acquisition and pre-processing shall constitute the direct interface to the in situ and space observational components.

CAMS shall have two sets of requirements regarding the timeliness of the observational data feed.

(a) CAMS components that shall operate on a routine daily basis need data available in near-real time (NRT), that is within a few hours after observation, so the corresponding requirements on data quality control must be compatible with NRT and automated processing;

(b) CAMS components that shall operate in delayed mode (availability within some weeks or a few months).

5.1. **Satellites-Based Observation**

The core of the CAMS production shall consist of data assimilation and forecasting systems. The CAMS data assimilation system shall use the satellite observations to adjust the forecast model to stay as close as possible to the real atmospheric conditions. The models shall be initialised on a daily basis. To do so, forecasts from the day before shall be merged with observations to provide a best estimate of the atmospheric conditions at the start of the new forecast.

The CAMS global forecast services shall operate in real-time, delayed-mode and reanalysis configurations and shall use satellite observations data both for meteorological observations and atmospheric composition.

The categories of observations to be used shall include:

(a) the operational observations are the observations that are currently used in the CAMS data assimilation and forecasting systems;

(b) the pre-operational observations are the observations that are currently assessed to show readiness for operational use;

(c) planned observations are observations that are being considered to be implemented in the CAMS systems.

The CAM Service shall support 'ad hoc' near real time processing for some observations that are not routinely processed by the Copernicus space infrastructure or, more generally, by international space agencies concerning satellite data. The data coming from the atmospheric missions Sentinel 5p, 4 and 5 shall be taken into account in the development of the CAM service.

5.2. **In-situ Observation**

CAMS shall not operate in situ observing systems and shall collect observations from a wide range of data providers for data assimilation and validation purposes. It shall utilize existing European and international research infrastructures. CAMS shall not support financially the acquisition of data itself and shall fund dedicated activities for improving their processing in an operational context. Specific contracts shall be established for this purpose with European and international institutions and organizations.

ANNEX III

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS MARINE ENVIRONMENT MONITORING SERVICE

1. SCOPE

The Copernicus Marine Environment Monitoring Service (CMEMS) shall provide regular and systematic reference information on the physical and biogeochemical state, variability and dynamics of the ocean and marine ecosystems for the global ocean and the European regional sea. CMEMS shall provide products which can be used in various areas of application and encompasses the description of the current situation of the oceans (analysis), the prediction of the situation a few days ahead (forecast), and the provision of consistent retrospective data records for recent years (observations reprocessing and model re-analysis). The service shall generate products which can be input to further technical processing, as well as high level information in various forms for further expert assessment to support decision makers.

The marine service shall provide a sustainable response to European users' needs in particular in application areas of marine safety, marine resources, marine and coastal environment and weather, climate and seasonal forecasting. It shall deliver generic and reliable information, derived from space and in-situ observations and from models – including forecasts, analyses and reanalyses – on the physical state and the marine biogeochemical characteristics over the global ocean and European regional seas.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

CMEMS shall provide services categorised into the following four topical domains.

(1) *Marine Safety*

Products shall provide information in support of safe activities at sea, such as marine operations, marine weather forecasting, sea ice forecasting, combating oil spills, ship routing, search and rescue, offshore wind platforms and all activities requiring safe offshore operations.

(2) *Marine Resources*

Products shall focus on the sustainable management of living marine resources, through fisheries and mariculture and also in support to marine protected areas. The primary goals of fishery management shall be fishery sustainable ecosystem services, ensuring maximum sustainable yield while rebuilding overexploited stocks. Mariculture management bodies shall provide advice on the assessment of the multi-trophic productivity and on the environmental impact of marine farming.

(3) *Marine and coastal environment*

This service shall address the user needs of different domains: sustainable tourism and mariculture, protection of the coasts against erosion and land-based sources of pollution, human and ecosystem health. Products and information shall be required to sustain the development of effective Integrated Coastal Zone Management concepts and decision support systems.

(4) *Weather, climate and seasonal forecasting*

This service shall guarantee a robust and reliable supply of quality-controlled marine information on a daily or six-hourly basis. This shall comprise surface fields as boundary conditions as well as ocean observations at surface and ocean modelled information well below the surface.

3. SERVICE ARCHITECTURE

CMEMS shall comprise three main service elements.

(1) *Processing*

Processing centers shall process from various sets of input data the core products describing the ocean state, in near real time and delayed mode. Processing shall be provided by Thematic Assembly Centres and Monitoring and Forecasting Centres.

(a) Thematic Assembly Centres (TACs) shall be mainly focused on the direct processing of in-situ data i.e. for temperature, salinity and biogeochemistry variables and L2 satellite data for several ocean variables such as i.e. sea-surface temperature, ocean colour, sea ice parameters and sea level, dissolved oxygen, optical properties or other biogeochemical components. The outputs from this thematic processing shall be products serving as direct input to further processing by Monitoring and Forecasting centres as well as products for external usage.

(b) Monitoring and Forecasting Centres (MFCs) shall provide the three-dimensional description of the ocean state: analyses and forecasts of marine parameters (temperature, salinity, currents, sea ice, sea level, waves and biogeochemistry). There shall be seven MFCs covering the global ocean and the European regional Seas: Global, Arctic, Baltic, North West shelf, Iberic-Biscay-Irish area, Mediterranean Sea, Black Sea.

(2) *Product Management*

Product Management shall manage all marine data and products in real-time or delayed mode and shall manage their archives and provide the capacities required for a reliable discovery, viewing, access and download of these data and information at any time by the service operators and the external users; it shall be based on the continuation and update of the current data categories and variables in the catalogue, as well as the information in the service lines.

(3) *Outreach and training*

Outreach and training shall provide the users with an easy and efficient access to these data and products, and with opportunities to discover the service (either online of through dedicated training and events), improve their skills in using it and express their requirements and feedbacks. Outreach activities shall be an integrated part of the service in order to provide a direct link to the technical and scientific expertise inherent to the service. Two aspects can be considered: interaction with users and communication.

The entrusted entity shall have the dual responsibility for implementing these primary functions and the overall cross-cutting functions needed to ensure an efficient and reliable marine service.

Cross-cutting functionalities have three main requirements:

(a) integrated operations, to provide a timely and reliable service;

(b) product and service quality management, to provide scientifically verified and state-of-the-art information, and high level of quality and continuity of service;

(c) continuous service improvement, to be responsive to user requirements.

4. TECHNICAL SERVICE PORTFOLIO

CMEMS service shall provide the products free of charge to registered users through an Interactive Catalogue available on the CMEMS web portal. CMEMS shall provide regular and systematic core reference information on the state of the physical and biogeochemical oceans and regional seas. The observations and forecasts produced by the service support all marine applications. CMEMS shall be driven by quality and simplicity: quality of the ocean information provided to users, and simplicity of the access to information.

The interactive catalogue shall allow users to select products according to the following criteria:

(a) geographical areas: global ocean or regional areas: Arctic Ocean, Baltic Sea, Atlantic-European North West Shelf-Ocean, Atlantic-European South West Shelf-Ocean, Mediterranean Sea, Black Sea;

(b) parameters: Temperature, Salinity, Currents, Sea Ice parameters (concentration, edge, drift, thickness, type), Sea Level (SSH, SLA gH, SLA noise), Euphotic zone, mixed layer depth, Wind, Waves, optical water properties, Ocean Chemistry (N, P, Fe, O_2, Si, NH_4, RadFlux, PCO_2, pH), Ocean Biology (Chlorophyll-A, phyto, zoo, primary production);

(c) time coverage: forecast, near real time, multi-year, time-invariant products (either from observation or modelling);

(d) models or observations (products delivered from model simulation, satellite measurements, in situ observation, or combination of model and observation products);

(e) grid type;

(f) time span;

(g) vertical coverage;

(h) processing level;

(i) temporal resolution.

5. DATA NEEDS

CMEMS shall be based on ocean observations from a variety of sources, including satellite-based instruments (from Sentinels and also essential contributing missions such as Jason Series), in-situ platforms such as surface and sub-surface buoys and floats, and volunteer observing ships.

5.1. **Satellites-Based Observation**

CMEMS shall provide products based on operational satellite. Even more satellite observations shall be used by CMEMS for climatology, reanalysis and validation purposes, from past missions or from satellites that do not deliver data in real-time.

The most important types of data used in CMEMS shall be from spectroradiometers (to measure chlorophyll content, organic and mineral content, sea-surface temperature and sea-ice cover), infrared radiometers (to measure sea-surface temperature), microwave radiometers (to measure atmospheric water vapour content, atmospheric water liquid content (clouds), rain rates, sea-ice concentration, type, extent, sea-surface temperature, salinity), altimeters (sea-surface height, ocean surface wind speed, wave height, sea ice), scatterometers (to measure wind speed and heading, rain, sea-ice concentration) and synthetic aperture radars (to measure wind and the surface wave field and ensure sea-ice monitoring).

Sentinel-1, Sentinel-3 and Jason-3 space observations shall be fully integrated in CMEMS products and the portfolio shall be enriched with wave data and new biogeochemical products. Sentinel-2 shall be progressively integrated to improve the biogeochemical product portfolio.

5.2. **In-Situ Observation**

CMEMS shall not operate in-situ observing systems and shall collect observations from data providers, mainly from EuroGOOS, JCOMM networks, SeaDataNet and EMODnet.

ANNEX IV

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS LAND MONITORING SERVICE

1. SCOPE

The Copernicus Land Monitoring Service shall provide users in the field of environment and other terrestrial applications with high quality information based on space data combined with other sources of data.

The Service shall address a wide range of policies such as environment, agriculture, regional, development, transport, energy as well as climate change, at Union level and also at global level considering European Union commitments to international treaties and conventions.

The Land Monitoring Service shall focus on the priorities already defined by a broad consultation amongst key users: relevant Commission services, the Copernicus User Forum, the European Environment Information and Observation Network (EIONET) National Focal Points (NFPs), the Reference Centres (NRCs) and the International stakeholders including United Nations Agencies.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

The Copernicus Land Monitoring service shall comprise a global component including a systematic and a hot spot monitoring element, a pan-European component and a local component.

The Global Land monitoring component shall support the Commission in several application domains. The products shall be used, amongst others, for crop, rangeland and drought monitoring, to support livestock management, for climate studies, for water quality assessment, for in-land water and river navigation, in hydrological monitoring, for irrigation assessment, for locust early warning detection, in health studies, for biodiversity preservation, for transportation, for land degradation and soil erosion forecast. The products shall be made available to Member States, to third countries, to UN institutions (FAO, WFP) and to public, research and private institutions.

Under its systematic monitoring element, the global land component shall produce a wide range of biophysical variables worldwide, which describe the state of vegetation, the energy budget and the water cycle. Under its Hot Spot monitoring element, the global land component shall deliver, on request, detailed land information on specific areas of Union interest outside the Union territory to support Union environment or development or other policies. This information shall complement the systematic monitoring activity. The third element of the global land component shall be the production of Analysis Ready Data based on Sentinel satellite data.

The pan-European component shall produce 5 high resolution thematic layers (HRL) describing the main land cover type characteristics: artificial surfaces, forest areas, agricultural areas (grasslands), wetness and small water bodies. The HRLs shall provide complementary information other land cover/land use nomenclatures, such as Corine Land Cover (CLC). The HRLs will be updated in a 3-year cycle. A set of new HRL products shall foresee the development of a HRL Small Woody Features and Phenology.

The pan-European component shall maintain and update the Corine Land Cover (CLC) dataset in a 6 yearly cycle to the reference year 2012 and 2018. This shall include the production of land cover and land use change information. CLC shall be a key input dataset required for the calculation of the EEA Core Set of Indicators (CSI) and a baseline information source for ample thematic environmental reports.

From 2018 onwards, a new generation CLC product shall be introduced in parallel, building upon the object based concept as elaborated by the Eionet Action Group on Land cover in Europe (EAGLE). The new Land Cover product shall address evolving user requirements as set forward by the Land Use Land Use Change and Forestry (LULUCF) monitoring.

The local component shall provide specific and more detailed land cover and land use information that is complementary to the information obtained through the Pan-European component. Its focus shall be on specific areas of interest or 'hotspots' which are prone to specific environmental challenges. Urban Atlas (UA) product shall include third dimension information over downtown areas. The UA shall fulfil requirements in support of the Union regional and urban policies, as well as for the elaboration of the series of reports on economic, social and territorial cohesion in the Union.

The local component shall focus on the mapping and monitoring on a regular basis of environmental sensitive areas updating the riparian zones in view of action 5 of the Union Biodiversity Strategy to 2020.

Support to and assessment of the Natura 2000 Community policy instrument shall be at the heart of monitoring changes in LC/LU in selected Natura 2000 sites, including potential surrounding threats from a land use perspective.

Evolution of the local component shall provide for the development of coastal zone monitoring product (in collaboration with the Copernicus Marine Environment Monitoring Service). A snow and ice service shall explore economies of scale in cooperation with existing snow and ice services at Member State level.

3. SERVICE ARCHITECTURE

The Land service shall be organized in the following two main components: The Global Land Component and the European Land Component.

(1) The Global Land component shall include three elements.

(a) Systematic Monitoring shall deliver systematically and in near real time bio-geophysical terrestrial variables which are of high priority for ensuring the support to EU policies. The activity shall produce a set of biophysical variables relevant for crop monitoring, crop production forecast, carbon budget, biodiversity, water availability and quality, snow and climate change monitoring at worldwide level, as well as additional biophysical variables relevant for environmental monitoring purposes at the global and continental scale. The Global Land component shall deliver mainly mid-resolution (300 m) products with nevertheless specific products at higher resolution, such as the 100 m resolution dynamic land-cover taking advantage of satellite capacities and Sentinel data availability. The Global Land systematic monitoring activity shall offer a complete Earth coverage compared to the targeted and precise coverage of the Pan-EU and local activities. The quality of the variables shall be constantly monitored and a specific attention shall be paid to the constitution of a consistent time series which are of crucial importance for many monitoring and early warning applications.

(b) Hot Spot Monitoring shall provide detailed high and very high resolution land cover and thematic reference information on specific areas of interest for EU outside the European Union territory, particularly in the domain of the sustainable management of natural resources. The activity shall deal with the land cover and land cover change mapping of protected areas and key landscape areas in Africa, and for rural development in Asia. The activity shall support the forest monitoring including Reducing Emission from Deforestation and forest Degradation (REDD) process. The list of areas of interest to be monitored and mapped is defined in collaboration with EU Services and EU Delegations following field activities currently carried out in this context and in partnership with relevant programs/institutions. Tailored land cover and land cover change maps will be produced on protected areas and their surroundings, to support biodiversity strategy and development activities, and on areas of interest for REDD+ process.

(c) Analysis Ready Data (ARD): ARD will facilitate the uptake of Sentinel 2, supporting user communities such as Forest REDD+ and Agriculture, or environmental assessment with specific variables. The activity shall offer the whole archive of Sentinel 2 level 3 data. The provision of mosaic of Sentinel 1 data can be released on demand.

(2) The European Land monitoring shall include two components.

(a) Pan-European Land component: shall provide a portfolio of services, ranging from image mosaics, over land cover and land cover change mapping to mapping of complementary thematic land cover characteristics. A first set of tasks of the pan-European component shall address the post-processing of space data, and the production of pan-European mosaics of ortho-rectified images, and intermediate products such as biophysical variables. A second set of tasks shall update and improve the High Resolution Layers (HRLs) on LC characteristics. HRLs shall be updated in a 3-yearly cycle. As a third set of tasks, Corine Land Cover (CLC) time series will be further maintained and updated. CLC shall be a flagship product of the land monitoring service, and shall be updated every six years.

(b) The Local Land component shall provide more detailed land cover and land use information complementary to the pan-European component on specific areas of interest, so called 'hotspots'. The component shall cover and focus on the mapping and change analysis of larger urban areas following the Urban Atlas exercises of 2006 and 2012 (with now a 5 yearly update cycle). The local land component shall map and monitor environmental sensitive areas, updating the Riparian Zones work on a regular base. The Riparian Zones service shall provide crucial information for the monitoring and assessment of ecosystem functioning and biodiversity monitoring,

as defined by the MAES framework. Land cover change products shall be also provided in this context. Furthermore similar work shall be done to monitor changes in Natura 2000 sites and potential surrounding threats from a land use perspective. The Coastal Zone monitoring shall address, in cooperation with the Copernicus Marine Environment Monitoring Service the specifics of the coastal strip as a hotspot of extreme complexity, gradients, dynamics, pressures and societal risks.

4. TECHNICAL SERVICE PORTFOLIO

The Copernicus Global Land component, with the Systematic Monitoring element, shall provide a set of global biophysical variables describing systematically the state and the evolution of the vegetation and soils, the energy budget at the surface and the water cycle. The Vegetation product family shall include the following variables:

(a) Normalized Difference Vegetation Index (NDVI);

(b) Leaf Area Index (LAI);

(c) Fraction of absorbed photosynthetically active radiation (FaPar);

(d) Fraction of Vegetation Cover (Fcover);

(e) Vegetation Condition Index (VCI);

(f) Vegetation Productivity Index (VPI);

(g) Greenness Evolution Index (GEI);

(h) Dry Matter Productivity (DMP);

(i) Phenology metrics (PHENO);

(j) Evapotranspiration (ET);

(k) Radiation fluxes;

(l) Global Land Cover (GLC);

(m) Burnt areas (BA).

The Energy budget product family shall include:

(a) Top of Canopy Reflectance(ToC-R);

(b) Surface Albedo (SA);

(c) Land Surface Temperature (LST).

The Water product family shall include:

(a) Surface Soil Moisture (SSM);

(b) Soil water Index (SWI);

(c) Water bodies (WB).

The Cryosphere product family shall include:

(a) Snow extent (SE);

(b) Snow water equivalent (SWE).

The Lake related product family shall include:

(a) Lake ice coverage;

(b) Lake surface water temperature;

(c) Lake and river water level;

(d) Lake surface reflectance;

(e) Lake turbidity;

(f) Lake trophic state.

The Hot Spot related product family shall be based on high and very high resolution images, from approximately 1 to 30 meters spatial resolution, with a change assessment frequency between 1 to 20 years, acquired for areas of interest.

The pan-European component shall produce satellite image mosaics, land cover/land use (LC/LU) information in the Corine Land Cover data, and the High Resolution Layers.

(a) The High-Resolution and Very High Resolution Image Mosaics shall be seamless pan-European ortho-rectified raster mosaics based on satellite imagery covering 39 countries.

(b) The Corine Land Cover shall be provided on a regular basis. The time-series shall also include a change layer, highlighting changes in land cover and land-use.

(c) CLC+ shall provide the next generation CLC product, reducing the Minimum Mapping Unit to +/– 0,5 ha, and applying a data model built upon the EAGLE concept.

(d) The high-resolution layers (HRL) shall be raster-based datasets which provide information about different land cover characteristics that is complementary to land-cover mapping datasets. HRLs shall provide some of the main land cover characteristics: impervious (sealed) surfaces; forest areas (tree cover, crown closure density and leaf type); grasslands; wetness and water bodies; small woody features.

The local component shall provide specific and more detailed information that is complementary to the information obtained through the Pan-European component. The local component shall focus on different types of hotspots, i.e. areas that are prone to specific environmental challenges and problems. It shall be based on very high resolution imagery (2,5 × 2,5 m pixels) in combination with other available datasets (high and medium resolution images) covering the pan-European area.

Local component products shall comprise:

(a) Urban Atlas shall provide pan-European comparable land use and land cover data (including the third dimension) covering a number of Functional Urban Areas (FUA).

(b) Riparian Zones shall address land cover and land use in areas along rivers.

(c) The Natura 2000 (N2K) sites.

5. DATA NEEDS

5.1. **Satellites-Based Observation**

The satellite data necessary for product development shall be provided by the European Space Agency (ESA) in the context of the Copernicus satellite image Data Ware House (DWH). The following list of data sensors shall be considered: High resolution and very high resolution optical sensors in the Visible near infrared (VNIR) domain, complemented with High Resolution SAR sensors and Medium Resolution optical sensors in the Short wave infrared (SWIR) domain.

The Global Land systematic monitoring of the Earth shall be based on spectro-radiometer, microwave radiometer, altimeter and synthetic aperture radar satellite data spatial and temporal composites. Polar Orbiting and Geostationary satellites shall be used in the production and shall deliver their data in near real time in order to provide the variables to the users, less than three days after each 10 days period. To ensure the continuity of the observations and the availability of long time series, several sensors shall be combined Inter-calibrated data shall be requested.

The land cover and land use mapping elements of the Local, Pan-European and Global components shall be based on High Resolution and Very High Resolution spectro-radiometer and synthetic aperture radar satellite data. Historical data shall be also required for change analysis. The Pan-European mapping shall be based on a complete multi-temporal EU39 coverage. Sentinel 1 and 2 shall be operationally integrated in the process. They shall be complemented with VHR resolution satellite data for specific applications and for validation purposes.

5.2. **In-Situ Observations**

Copernicus land services shall use in situ data for calibration and validation activities.

ANNEX V

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS CLIMATE CHANGE SERVICE

1. SCOPE

The Copernicus Climate Change Service (C3S) shall combine observations and models of the climate system with the latest science to develop authoritative, quality-assured information about the past, current and future states of the climate in Europe and worldwide.

The C3S shall achieve the following objectives:

(a) to document the past and current state of climate (based on observations and re-analysis);

(b) to generate 6-months seasonal forecasts (using a multi-model ensemble approach);

(c) to deliver climate projections (based on various scenarios).

The service shall provide access to several climate indicators and climate indices for both the identified climate drivers and the expected climate impacts.

The service shall aim to provide information that will help societal and business sectors to improve decision-making and planning regarding climate mitigation and adaptation. The service shall take into account relevant actions in the European Union's Research and Innovation Framework Programme (Horizon 2020), of existing facilities at national level and –where possible- shall contribute to the priorities of the Global Framework for Climate Services (GFCS) of the World Meteorological Organization (WMO).

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATIONS

The C3 Service shall primarily serve European policy makers, national/regional climate service providers and intermediaries serving national governments. C3S shall provide climate change information at global and European scales complemented by locally tailored information provided by national and regional climate service providers. The C3 Service shall be a European hub for promoting consistency and best practices, and providing common baseline information and training capability to facilitate understanding across and within the Member States. Last but not least, C3S shall facilitate the use by national climate services of its infrastructure, including climate datasets, guidance, expertise and tools.

3. SERVICE ARCHITECTURE

The C3 service infrastructure shall be designed to serve all service elements by providing shared datasets, interoperable systems and tools, computing facilities, web and data services. The C3S infrastructure shall facilitate sharing of resources and best practices with other Copernicus services, shall be distributed over multiple data providers and shall reuse as much existing infrastructure and software as possible.

The proposed architecture for the C3S shall be articulated around four complementary pillars:

(a) Climate Data Store (CDS) shall contain essential climate information for fulfilling the downstream requirements. The CDS shall be designed and built to include series of geophysical climate variables, most being listed as Essential Climate Variables (ECVs) or Thematic Climate Data Records (TCDR), seasonal forecasts, climate projections as well climate indicators for various sectors.

(b) Sectoral Information System (SIS) shall deliver information and bespoke analysis tailored to the needs of end users and customers of the service for various EU sectoral policies. The SIS shall be supplied primarily by data and geophysical products available from the CDS and complemented, where appropriate, by ancillary datasets needed to address, for instance, sector specific climate impacts at European scales. The SIS shall be designed to support the main European sectoral policies concerned with climate change.

(c) Evaluation and Quality Control (EQC) function shall be a multi-task Evaluation and Quality Control (EQC) function that will assess the technical and scientific quality of the service including the value to users. The EQC function shall be the natural vehicle that will trigger actions to improve the Service and interface with external reviews possibly conducted by the Commission.

(d) Outreach and Dissemination (O&D) platform shall be designed to ensure a timely and efficient dissemination of information to the European Institutions, public authorities and general public (as appropriate) using all modern communication tools. This component shall also interface with other institutions worldwide in charge of monitoring and reporting on climate change and related questions.

4. TECHNICAL SERVICE PORTFOLIO

The Climate Change Service shall combine observations and various categories of models of the climate system with the latest science to develop authoritative, quality-assured information about the past, current and future states of the climate in Europe and worldwide.

The Climate Data Store shall contain the geophysical information needed to analyse the climate change indicators in a consistent and harmonised way. The CDS shall provide consistent estimates of ECVs, climate indicators and other relevant information about the past, present and future evolution of the coupled climate system, on global, continental, and regional scales.

The core of the CDS shall comprise four categories.

(1) *Climate observations*

This service element shall contribute to building and providing access to comprehensive, long-term datasets providing information on a range of ECVs (Surface Air Temperature, Surface Precipitation, Water Vapour, Surface Radiation Budget, Earth Radiation Budget, Carbon Dioxide, Methane, Ozone, Aerosol, Cloud Properties, Wind speed and direction, Ocean Colour, sea Ice, Sea level, Sea Surface Temperature, Global Ocean Heat Content, Snow Cover, Glaciers and Ice Caps, Albedo, Fraction of Absorbed Photosynthetically Active Radiation, Fire Disturbance, Ice Sheets). It shall address in particular the multiple ECV datasets that are directly derived from Earth Observation historical data records and not generated by reanalyses and model simulations.

(2) *Climate reanalyses*

This component shall provide resources for technical development, production, monitoring, evaluation and delivery of the following:

(a) the following global climate reanalysis datasets and products:

  (1) an atmospheric reanalysis covering a minimum of 30 years designed for near real time (less than 5 days) monitoring of the climate system based on the comprehensive global observing system, including in-situ and satellite observations;

  (2) extended (> 100 year) reanalyses of the coupled climate system;

  (3) derived high-resolution global reanalyses of the ocean and land surface Meteorological information from atmospheric reanalyses shall be used to derive consistent estimates of terrestrial and ocean ECVs at high spatial resolution (initially 16 km);

(b) regional climate reanalysis datasets and products.

Reanalyses shall be produced by assimilating high-quality climate observations in a coupled atmosphere/land/ocean/sea-ice model compatible with the ECMWF Seasonal Prediction System. Regional reanalysis shall use of high-resolution observations and shall provide data products at higher resolution for the European region than global reanalyses. A refresh cycle of approximately five years shall be established to benefit from all inputs contributing to the generation of regional reanalyses.

(3) *Climate projections*

This component of the service element shall provide support for integration of European contributions to state-of-the-art climate projections at global and regional level. These data, which currently reside on the ESGF (Earth System Grid Federation), shall be accessible in an operational way. This service element shall also support the development of multi-model climate products and indicators, both generic and sector-specific. A similar support shall be provided to integrate the high resolution regional projection scenarios, with associated development of climate indicators.

(4) *Seasonal forecasts*

This component shall provide resources for producing high-quality well-calibrated multi-model ensemble products, and to ensure open access to seasonal forecast data. It shall achieve this by supporting regular re-forecasting activities at several European provider sites, at a resolution and frequency that would not be attainable without such support. It shall also provide, once a month, a set of multi-model products using these re-forecasts and the Centres' production forecasts.

5. DATA NEEDS

The Service shall build upon and complement capabilities existing at national level and being developed through a number of climate-change research initiatives.

The Service shall provide comprehensive climate information covering a wide range of components of the Earth-system (atmosphere, land, ocean, sea-ice and carbon) and timescales spanning decades to centuries. It shall maximise the use of past, current and future earth observations (from in-situ and satellite observing systems) in conjunction with modelling, supercomputing and networking capabilities. This conjunction shall produce a consistent, comprehensive and credible description of the past, current and future climate.

5.1. **Satellites-Based Observations**

C3S shall use operational and past satellite-based instruments to provide products for climatology, reanalysis and validation purposes.

The C3S shall use the following types of data:

(a) radiometer and spectrometer data acquired in the domain covering the infrared to the microwave wavelengths to measure brightness temperature and then derive several geophysical parameters (wind vector, ozone, surface temperature);

(b) GPS-radio occultation data to derive information on the atmosphere's temperature, pressure and water vapour content;

(c) scatterometer data to measure near-surface wind speed and direction;

(d) altimeter data to derive ocean wave height.

The service shall be also supported by data and products from the Sentinel satellites.

5.2. **In-situ Observations**

The C3S shall not operate in situ observing systems but shall collect observations from data providers. It shall utilize existing European and international infrastructures. C3S shall not support financially the acquisition of data itself, but only activities allowing their processing (quality control, format and dissemination aspects) to meet operational requirements.

Several observation types (surface pressure, temperature, wind, humidity, wind profiles) shall be collected from land stations, drifting buoys, radiosondes, ships and aircrafts.

ANNEX VI

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS EMERGENCY MANAGEMENT SERVICE

1. SCOPE

The Copernicus Emergency Management Service (CEMS) shall provide all authorised actors throughout the world involved in the management of natural disasters, man-made emergency situations, and humanitarian crises with timely and accurate geo-spatial information derived from satellite remote sensing and completed by available in situ or open data sources.

The service shall provide maps and analyses based on satellite imagery (before, during or after a crisis) as well as early warning services for drought, flood and fire risks. The service shall support crisis managers, civil protection authorities and humanitarian aid actors dealing with natural and man-made disasters, humanitarian crises, as well as those involved in recovery, disaster risk reduction and preparedness activities.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

The Copernicus Emergency Management Service (CEMS) shall offer a range of benefits to users in the fields of emergency response, crisis management, humanitarian aid, and disaster risk reduction, preparedness, and prevention and provides useful and timely information mainly to civil protection authorities and humanitarian aid agencies.

3. SERVICE ARCHITECTURE

CEMS shall be based on two components: the mapping service and the early warning systems.

(1) *The Mapping Component*

The Mapping Component shall support all phases of the emergency management cycle: preparedness, prevention, disaster risk reduction, emergency response and recovery. The CEMS Mapping service shall operate in rush mode for emergency management activities which require immediate response or non-rush mode, to support emergency management activities not related to immediate response.

The service shall be provided in two modules.

(a) Rapid mapping (RM) shall provide high-speed service delivery in the midst of or immediately after catastrophic events or humanitarian crises, and is available 24/7/365. This service shall deliver maps (and analyses) within hours or days, immediately following a catastrophic event. The service shall be based on the rapid acquisition, processing and analysis of satellite imagery and other geo-spatial data, and provides users with products in the form of maps and brief analyses.

(b) Risk & recovery mapping (RRM) shall be designed for pre- or post-crisis situations in support of recovery, disaster risk reduction, prevention, and preparedness activities. RRM shall deliver maps (and analyses) within weeks or months, in support of activities dealing with the recovery, disaster risk reduction, prevention, and preparedness phases. Information for different hazards on the exposure, vulnerability and resilience of people and buildings can be requested.

A dedicated validation component shall be used for the independent verification of a sample of service outputs produced by the RM and RRM modules, with the aim of continuously improving the quality of the service.

(2) *The early warning component shall deliver alerts and risk assessments of floods, forest fires and droughts.*

The service shall be based on three main modules.

(a) The European Flood Awareness System (EFAS) providing flood probability forecasts for all European rivers. EFAS shall provide added-value early flood forecasting products and unique overview products of ongoing and forecasted floods in Europe more than 3 days in advance.

(b) The European Forest Fire Information System (EFFIS) shall be a web-based geographic information system that provides fire danger forecasts up to 10 days in advance and near real-time and historical information on forest fires and their regimes in the European, Middle East and North Africa regions. Fire monitoring in EFFIS shall encompass the full fire cycle and the service shall provide information both on pre-fire conditions and post-fire damages. EFFIS shall be extended towards a Global Wildfire Information System (GWIS).

(c) The European Drought Observatory (EDO) shall be streamlined with other Copernicus EMS early warning modules. It shall use data from the meteorological data collection for EFAS and EFFIS and the outputs of the EFAS distributed hydrological model in terms of soil moisture and river flows. These products shall be then further processed into drought-relevant indicators and combined with satellite-based indicators on vegetation condition. The Global Drought Observatory (GDO) shall provide sector specific indicators of drought impact across the globe as well as targeted analysis reports for on-going droughts.

3.1. **Product Dissemination**

The information produced by the Copernicus Emergency Management Service shall be available to the public on a full, open and free of-charge basis via its dedicated public web portal. Under exceptional circumstances, dissemination restrictions may be imposed for security reasons or the protection of third party rights.

For mapping products, the ERCC shall perform a sensitivity check and, if cleared, the products will be made available on the CEMS portal. If the activation and the products are deemed sensitive however, the service provider shall notify the authorised user by email about the availability of the products on the secure file transfer (sftp) server (password restricted).

4. TECHNICAL SERVICE PORTFOLIO

(1) *CEMS — Rapid Mapping products*

The user shall have a choice between three different map types.

(a) Reference maps shall provide a quick updated knowledge on the territory and assets using data prior to the disaster. The content shall consist of selected topographic features on the affected area, in particular exposed assets and other available information that can assist the users in their specific crisis management tasks.

(b) Delineation maps shall provide an assessment of the event extent (and of its evolution if requested). Delineation maps shall be derived from satellite post-disaster images. They vary depending on the disaster type and the delineation of the areas impacted by the disaster.

(c) Grading maps shall provide an assessment of the damage grade (and of its evolution if requested). Grading maps shall be derived from post-event satellite images. Grading maps shall include the extent, magnitude or damage grades specific to each disaster type. They may also provide relevant and up-to-date information that is specific to affected population and assets.

(2) *CEMS – Risk and Recovering Mapping Products*

This service shall consist of the on-demand provision of geospatial information. This information shall support emergency management activities not related to the immediate response phase. The shall be able to request products in two ways: choosing from a pre-defined set of detailed topographic features (in particular regarding infrastructures) and disaster risk information (hazard, exposure, risk) or describing in free text the information needs specific to the given situation and type of product wanted.

The following product categories shall be available:

(a) reference maps providing a comprehensive and updated knowledge of the territory and relevant assets in a disaster risk reduction context;

(b) pre-disaster situation maps providing relevant and up-to-date thematic information that can help planning for contingencies on areas vulnerable to hazards, aiming to minimise loss of life and damage;

(c) post-disaster situation maps providing relevant and up-to-date thematic information for the needs of reconstruction planning and progress monitoring, mapping long-term impact.

Maps referred to in points a, b and c shall be updated frequently.

The maps shall contain the following information:

(a) topographic features on areas vulnerable to hazards, in particular regarding infrastructures;

(b) disaster risk information;

(c) other available information that can assist users in their specific crisis managements planning activities, such as providing protection from potential disasters, including engineering and other protective measures, taking legislative measures, awareness raising campaign.

(3) *CEMS – EFAS*

EFAS shall provide complementary, early warning flood information to National/Regional Hydrological Services and to the European Response and Coordination Centre (ERCC). EFAS shall include the following modules providing data up to 10 days in advance:

(a) Flood Forecasting: providing early warning information on a Pan-European and Global level;

(b) Flood Warning providing information including warnings such as Flash flood warnings;

(c) Flood Monitoring: monitoring ongoing floods.

(4) *CEMS – EFFIS*

EFFIS shall support the protection of forests against fires in the Union by providing four modules from pre-fire to post-fire phases.

(a) Fire Danger Assessment: Providing Pan-European and Global data supporting fire prevention and preparedness. Daily maps of 1 to 6 days projected fire danger level in EU using weather forecast data. The module shall be active from 1st of March to 31st of October;

(b) Active Fire Mapping: Providing Pan-European and Global data supporting firefighting. Daily maps of active fires providing a synoptic view of current fires in the world;

(c) Rapid Damage Assessment: Providing Pan-European post-fire evaluation data. Daily update of the perimeters of burnt areas in Europe for fires of about 40 ha or larger;

(d) Weekly Damage Assessment: Providing Pan-European post-fire evaluation data. Weekly update of the perimeters of burnt areas in Europe.

(5) *CEMS — European Drought Observatory (EDO)*

EDO shall provide four modules for communicating water scarcity and drought.

(a) Monitoring and mapping module: allowing the visualisation of the spatial and temporal evolution of droughts using different indicators for rainfall, snow pack, temperature, soil moisture, groundwater, river flow, and vegetation health. Indicators shall be calculated from in-situ measurements (meteorological data, groundwater), model outputs (soil moisture, river flow), and satellite data (vegetation stress, soil moisture, land surface temperatures). Selected indicators shall be combined into alert levels for agriculture and ecosystem impacts;

(b) Forecasting module: providing forecasts of selected drought indicators;

(c) Data analysis module: allowing analyses and comparisons of temporal profiles of available indicators, their spatial comparison, and their aggregation to administrative units;

(d) Analytical reports for significant drought events, analysing their extent and severity, as well as the potential impacts.

5. DATA NEEDS

5.1. **Satellite –Based and In-Situ Observation**

The majority of the geospatial information provided by the mapping component of the Copernicus Emergency Management Service (CEMS) shall be derived from satellite remote sensing data and completed by available in situ or open data sources. The satellite imagery shall be provided through the Copernicus Contributing missions (CCMs) as well as Sentinel 1 and 2 observations ensuring the whole range of observational requirements needed. In-situ data for the mapping component shall be provided through open source and/or data made available by the national mapping and cadaster agencies (NMCA) in line with a bilateral agreement between NMCA's and the EEA.

The early warning component of CEMS shall use of all the available imagery from the Sentinels satellites, currently Sentinel-1 and Sentinel -2 (forest fire) and Sentinel 3. Due to the need of high frequency data acquisition for its near-real time assessment of fire damages, use is also made of other sensors such as MODIS and VIIRS for medium spatial resolution and a suit of high-spatial resolution imagery from Landsat, SPOT and IRS satellites, among other. Variables such as snow water equivalent and soil moisture which are used in the floods early warning component shall be derived from sensors on board the Metop and DMSP satellites.

In situ data shall include airborne (such as aircraft and UAV) observations. For the early warning component the in situ component shall comprehend hydro-meteorological observations from the relevant national and regional authorities.

ANNEX VII

THE TECHNICAL SPECIFICATIONS FOR THE COPERNICUS SECURITY SERVICE

OBJECTIVES AND SCOPE OF THE COPERNICUS SECURITY SERVICE

The Copernicus security service are designed to ensure the provision of relevant and adequate data and information to enable the Union to respond to civil security challenges, and improve crisis prevention, preparedness and response capacities, in particular through enhanced border and maritime surveillance, and Copernicus support for the Union's external action. The Copernicus security service shall be structured in the following components:

(a) border surveillance component, operated under delegation by Frontex as an entrusted entity;

(b) maritime surveillance component, operated under delegation by EMSA as an entrusted entity;

(c) support to Union External Action component, operated under delegation by SATCEN as an entrusted entity.

The integration of the different observational capacities of the three Entrusted entities shall result in a synchronized range of products, developed at a minimum cost, as allowed by the operational synergies.

PART I

Border surveillance component of the Copernicus Security Service

1. SCOPE

The border surveillance element of the Copernicus security service shall be designed to provide increased situational awareness assisting response to security challenges at the Union external border through detection and monitoring of cross-border security threats, risk assessment and early warning systems, mapping and monitoring.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

In response to the collected user requirements, the Border surveillance component shall provide services in the following topical domains, grouping data and/or information products according to their main application area:

(a) Land services (S1, S2, S3) shall be based on satellite imagery and include analysis of ports, coasts, beaches and border crossing points, require human interpretation by specialists;

(b) Maritime services (S4, S5, S6, S7) shall be based on ship reporting systems and ship detection in satellite imagery and shall be semi-automated;

(c) Environmental service (S8) shall provide analysis of environmental variables, including terrain information and weather conditions.

3. SERVICE ARCHITECTURE

The Border Surveillance component shall be divided in the following activity areas:

(a) Overall management of the delegated activities, including procurement, contract management, and reporting;

(b) Service management, including definition of needs, acquisition, quality assurance, and delivery of border surveillance services;

(c) Service evolution based on the evolving service needs of the users (border control authorities and Frontex);

(d) User up-taking and training, including all the necessary activities to train users as well as assessment of the usage level of each of the delivered services.

The Copernicus border surveillance services shall be deployed within the framework of the Frontex fusion services already in place in the Agency.

The following activities shall be mostly handled by Frontex, with support from contractors when required and include:

(a) Day to day operations and relations with users;

(b) Planning, ordering, acquisition and billing of products (EO and non-EO products);

(c) IT operations management, including incident and problem management;

(d) Quality assurance of products delivered;

(e) Implementing corrections and upgrades to the services;

(f) Monitoring of service delivery.

In support to the activities above, Frontex shall have Service Level Agreements with EUSC and EMSA, partly funded by Copernicus, for analysis of land and maritime areas, respectively.

The implementation of proof of concept and pre-operational projects can be used to test and validate new user requirements.

4. TECHNICAL SERVICE PORTFOLIO

The specific activations of the Copernicus service for the purposes of the border surveillance shall be determined by Frontex on the basis of their own risk assessment of the current situation. Border surveillance shall consist of the following services:

(a) (S1) Coastal monitoring — The Copernicus products developed in the domain of coastal monitoring shall consist of punctual and ad-hoc imagery analysis reports, vectorised data and imagery of coastal strips (beaches and ports) identified through risk analysis to support the operational assessment of irregular migration and cross-border crime related activities;

(b) (S2) Pre-frontier monitoring — Punctual and ad-hoc imagery analysis reports, vectorised data and imagery of the pre-frontier area identified through risk analysis to support the operational assessment of irregular migration and cross-border crime related activities;

(c) (S3) Reference Imagery/Mapping — The Copernicus products developed in terms of Reference Imagery/Mapping are based on VHR satellite imagery and vectorised data covering specific third country areas identified through risk analysis;

(d) (S4) Maritime Surveillance of an Area of Interest — The Copernicus products developed in the domain of maritime surveillance of an area of interest shall comprise Identity and track of Vessels of Interest using Earth Observation data combined with In-Situ Data provided by open source, and by platforms and sensors;

(e) (S5) Vessel Detection Service — The Copernicus products developed within the framework of the Vessel Detection Service shall comprise satellite based vessel detection (SAR) and identification (optical) correlated with collaborative systems (AIS, LRIT);

(f) (S6) Vessel Tracking and Reporting Service — The Copernicus products developed within the framework of the Vessel Tracking and Reporting Service shall comprise combined terrestrial/satellite AIS, LRIT and VMS feed;

(g) (S7) Vessel Anomaly Detection Service — The Copernicus products developed within the framework of the Vessel Anomaly Detection Service shall comprise alerts generated automatically when suspicious behaviour is detected;

(h) (S8) Environmental Assessment for Risk Analysis — The Copernicus products in the domain of Environmental Assessment for Risk Analysis shall comprise environmental information (current and forecasted weather conditions and state of the sea) to support operational planning, decision making processes, and satellite acquisition planning;

(i) (S9) Large Area Environmental Assessment for Risk Analysis — The service shall be delivered ‘on demand’ and can be requested through the Eurosur Fusion Services; it shall be delivered through imagery analysis based on monitoring of specific areas using both archive and new imagery;

(j) (S10) Earth Observation (EO) Recon service — The service shall be delivered 'on demand' and can be requested by the NCCs through the Eurosur Fusion Services; the Earth Observation (EO) Recon service shall deliver an initial assessment and identification of specific areas and objectives of interest within large areas; the identified areas and objects shall be validated by the requestor and, if required, further analysed with regular monitoring services;

(k) (S11) Migratory and Cross-Border Crime networks Assessment — The service shall be delivered 'on demand' and can be requested by the NCCs through the Eurosur Fusion Services; this service shall provide a socioeconomic baseline and initial analysis on a specific area, activity and/or an organized criminal group associated with irregular migration or cross-border crime activities. It shall be based on multiple sources.

5. DATA NEEDS

To deliver border surveillance intelligence, Frontex shall collect data from a broad range of sources and shall generate added value through its data fusion service.

The service shall use the following data inputs:

(a) satellite imagery (both optical and radar imagery);

(b) data from specialized Vessel Detection Systems;

(c) meteorological information;

(d) intelligence information.

PART II

Maritime surveillance component of the Copernicus Security Service

1. SCOPE

The Maritime Surveillance component of the Copernicus security service shall be designed to improve the crisis prevention, preparedness and response capacities of the Union through enhanced maritime surveillance relying on the use of Copernicus data and information for better detection and monitoring of trans-regional security threats, risk assessment and early warning systems, mapping and monitoring of maritime areas.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

The Maritime Surveillance component shall respond to the monitoring requirements of the following user communities:

(a) fisheries control;

(b) maritime security and safety;

(c) customs and law enforcement;

(d) defence.

3. SERVICE ARCHITECTURE

The Copernicus Maritime Surveillance services shall rely on the architecture in place in EMSA, to combine different service elements, including Earth Observation, and shall deliver services tailored to different user communities. These services elements shall be divided in service inputs and service modules.

Service inputs shall consist of the following categories:

(a) earth observation;

(b) specific maritime domain awareness (MDA).

The service modules shall consist of the following modules:

(a) generic service modules;

(b) integration service modules.

The combination of service inputs with the appropriate capabilities (modules) shall allow the delivery of tailor-made, cost efficient, services to the full range of authorized user communities.

EMSA shall be intrusted with the following specific tasks:

(a) overall management of the delegated activities;

(b) management and administrative, which includes procurement, contract management and reporting and quality assurance;

(c) service development, which includes service design, testing and deployment;

(d) service operation, which include day to day operations, incident and problem management, and continual service improvement. Service operation includes all the activities linked with planning, ordering and validation of satellite products;

(e) user up-taking and training, which includes all the necessary activities to train users as well as assessment of the usage level of each of the delivered services.

Additionally to these activities, but linked with service delivery, shall be the implementation of proof of concept and pre-operational projects, that can be used to test and validate new user requirements in a specific field.

4. TECHNICAL SERVICE PORTFOLIO

The products delivered within the framework of the Maritime surveillance component of the Copernicus Security Service shall comprise the following services.

(1) *Fishery control services*

Illegal fishing activities can compromise the implementation of management plans and undermine the rational exploitation of the fishery resources. these services shall take into account the following types of requirements:

(a) monitoring of fishing grounds;

(b) monitoring of fishing ports to survey and control the departing or landing of fishing vessels.

(2) *Maritime safety and security services*

The maritime safety and security services shall respond to two main categories of user needs.

(a) Search and rescue. Search and Rescue (S&R) is the search for and provision of lifesaving assistance to people in distress and imminent danger of loss of life. S&R activities shall include remote area operations, rescues at sea, and the need for specialist S&R facilities not normally available to emergency services. A S&R service shall include rapid tasking of satellite resources, deployment of UAVs for wide area monitoring and visualization of the position, and respective search pattern, of S&R assets for better coordination of operations.

(b) Ship safety. The service shall consist of the search for and provision of enhanced maritime traffic picture using EO products. It shall have a global scope, with additional focus on remote areas and specifically in the Polar Regions.

(3) *Customs services*

Customs services shall ensure that cooperative data is used to track ships and correlate trajectories and port arrivals with already existing systems' information for a number of purposes.

Monitoring of criminal trafficking of goods shall focus on expanding the maritime domain awareness picture and cross checking information with base registries, vessel related information and reporting data. The service shall support specific operations/interventions where rapid tasking and monitoring are an important requirement. The implementation activities shall include monitoring of third country ports and beaches for departure of specific ships, as well as the detection of abnormal behaviour.

(4) *Law enforcement services*

Law enforcement services shall focus on expanding the maritime domain awareness picture based on the existing civilian resources and capabilities, and enacting further integration of information. It shall be based on the modalities of rapid tasking and monitoring of specific operations.

(5) *Marine environment services*

Marine environment services shall comprise the CleanSeaNet activities. They shall offer assistance to participating States for the following activities:

(a) identifying and tracing oil pollution on the sea surface;

(b) monitoring accidental pollution during emergencies;

(c) contributing to the identification of polluters.

5. DATA NEEDS

The Copernicus Maritime Surveillance services shall comprehend both Copernicus and non-Copernicus data, as input for providing the products.

(1) EO data and derived products, from:

(a) SAR imagery;

(b) optical imagery;

(c) satellite video.

(2) Non-EO data and value adding products

(a) remotely piloted aircraft systems (RPAS);

(b) satellite AIS (SAT-AIS);

(c) ship reporting systems in accordance with their respective legal bases;

(d) vessel related information (from vessel databases).

(3) In-situ data from other sources — Sensors mounted on any vehicle, vessel or other craft.

PART III

Support for the Union's External Action component of the Copernicus Security Service

1. SCOPE

The SEA service establishment shall be premised on the hypothesis for close cooperation with the Copernicus Emergency Management Service. The coordination between SEA and EMS shall be based to the following principles:

(a) the integration of the SEA and EMS portfolios needs to take into account the needs of both user communities;

(b) the services' coordination must not compromise the speediness, specificities or quality of the respective service portfolios and the sensitivity of the request;

(c) the coordination must aim at potential cost savings by sharing resources.

2. USER REQUIREMENTS AND MAIN DOMAINS OF APPLICATION

The service shall cover the following main domains:

(a) Crisis Information;

(b) Crisis Prevention and Preparedness;

(c) briefing notes and activity analysis.

The SEA service products shall be available only to the following authorized users:

(a) the European External Action Service (EEAS crisis management structures; EU Delegations, EEAS Regional desks)

(b) the CSDP Missions and Operations

(c) the following Commission services

(1) DG-ECHO;

(2) DG-DEVCO;

(d) the Ministries of Defence, Ministries of Foreign Affairs and Intelligence Centres in Member States.

(e) United Nations

3. SERVICE ARCHITECTURE

The service shall consist of the on-demand provision of geospatial information in support of decision making and operations during a crisis. The service shall be based on the acquisition, processing and analysis of satellite imagery and collateral information.

The products shall be a combination of standardized layers of information that respond to user needs. These layers can be grouped in different output formats, such as Maps, Geospatial Datasets (Vector and Raster data), and/or services accessible via web (web maps). The Users can select products from the SEA portfolio, as well as expressing their specific needs.

The service shall target 24h/7days availability and shall include 'rapid response' service.

The operations of the service shall include:

(a) running the Service Focal Point (SFP) for all SEA activations;

(b) Copernicus help-desk;

(c) product design;

(d) CSCDA data request/handling;

(e) guide contractor in products generation;

(f) in-house analysis and added-value, whenever appropriate, for all activations compliant with SATCEN governance;

(g) products validation and distribution;

(h) coordination with the Copernicus EMS Service;

(i) coordination with other Copernicus services relevant to External Action and CFSP/CSDP users;

(j) dissemination and policy implementation – taking into account user profiles and data sensitivity.

The service operations activities shall implement and operate all the processes for the SEA Service in accordance with the framework defined at Management and Coordination level.

The SEA Service Coordinator (SSC) shall be in charge of the following actions for each activation:

(a) estimate cost for a cost-benefit trade-off or impact assessment;

(b) handling sensitivity issues;

(c) incident and problem management;

(d) monitoring of service delivery.

4. TECHNICAL SERVICE PORTFOLIO

The detailed portfolio of the Copernicus SEA Service shall be composed of the following products.

(1) *Reference Maps:*

Reference Maps shall be high quality cartographic products including a wide range of observable features. The different layers of information shall include basic types such as road network, boundaries, hydrography, terrain, etc. The information contained in the Reference Maps shall support orientation, local navigation, strategic decision making and logistic deployment. Depending on the circumstances, the information layers in the Reference Map may be enriched with specific layer required by the situation.

(2) *Road Network Status Assessment:*

Road Network Status Assessment shall provide users with a map containing different type of information on the status of the road network.

(3) *Conflict Damage Assessment:*

Conflict Damage Assessment shall use change detection in order to provide visual interpretation containing information on distribution of damage in a crisis area. In urban areas, the urban blocks shall be colour-coded to show the intensity of the damage. In dispersed areas, a heat map shall be used to represent the damage, with grading colours to highlight how different sections of each area have been affected.

(4) *Critical Infrastructure Analysis:*

Critical Infrastructure Analysis shall identify the most relevant components of an man made or natural infrastructure considered to be critical, and shall assess their operational status.

(5) *Support to Evacuation Plan:*

Support to Evacuation Plan shall provide geospatial information to support the evacuation of people from crisis areas. The products developed, based on a preliminary analysis performed in accordance with the types of risks associated with a particular location, shall include information such as potential rally points, helicopter landing areas, and evacuation points and routes.

(6) *Non-EU Border Map:*

Non-EU Border Map shall provide users with the possibility of acquiring information specific to support decisions about non-EU border issues.

(7) *Camp Analysis:*

Camp Analysis shall be a product oriented to support decision making regarding displaced population (either internally displaced or refugees). The products shall focus on characterizing the facilities of a camp, identifying dwellings and buildings with other functionalities and eventually providing estimated spans of population.

(8) *Crisis Situation Picture:*

Crisis Situation Picture shall be a product designed for the overall assessment of the severity of a conflict/crisis and its consequences. In order to fulfil this purpose, the product shall be composed of a collection of ancillary information regarding the crisis. The ancillary information found shall be collected, homogenized and prepared in a seamless picture (composed of situation maps and optionally a report).

(9) *Activity Report:*

Activity Report shall be a product focused in providing the user with an analysis of a given human activity. The product shall be very flexible.

5. DATA NEEDS

The service shall require the use of Very High Resolution data.

COMMISSION IMPLEMENTING DECISION (EU) 2018/621

of 20 April 2018

on the technical specifications for the Copernicus space component pursuant to Regulation (EU) No 377/2014 of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010 ([1]), and in particular Article 9(8)(b) thereof,

Whereas:

(1) The Copernicus Programme, which was established by Regulation (EU) No 377/2014, is a civil, user driven programme, building on the existing national and European capacities, with the overarching operational objective to provide accurate and reliable information in the field of the environment and security, tailored to the needs of users and supporting other Union policies, more specifically relating to the internal market, transport, environment, energy, civil protection and civil security, cooperation with third countries and humanitarian aid.

(2) Pursuant to Regulation (EU) No 377/2014, Copernicus consists of three components, including a space component the purpose of which is to ensure sustainable space-borne observations for the following service areas: atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security. The Commission has the overall responsibility for Copernicus and coordinates its different components.

(3) The Technical specifications for the Copernicus Space component are necessary to establish a baseline for the implementation and evolution of the space component as part of the governance of Copernicus.

(4) The Technical specifications for the Copernicus space component should address aspects such as completion and operation of dedicated missions, reception, processing, archiving and dissemination of data, provision, archiving and dissemination of contributing mission data complementing dedicated mission data, and the process to ensure the evolution of the system.

(5) The development of the Copernicus Space Component started under the Global Monitoring for Environment and Security (GMES) Space Component Programme which includes funding from European Space Agency (ESA) and the Commission. The technical specifications for the Copernicus space component should cover the entire Space Component, with a specific focus on the activities funded under Regulation (EU) No 377/2014.

(6) The Copernicus Space Component as a whole is funded through multiple agreements. These include the agreements concluded under the ESA GMES Space Component Programme, the Copernicus Agreement, the Jason-CS and Jason-3 Optional Programme of European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). Activities funded under the ESA GMES Space Component Programme include the development of the Sentinel-1, -2, and -3 satellite *A* and *B* units, Sentinel-5p, Sentinel-4 *A* and *B* units and the Sentinel-5, -6 A units. Sentinel-6 is co-funded by EUMETSAT under the EUMETSAT optional Jason-CS programme.

(7) The measures provided for in this Decision are in accordance with the opinion of the Copernicus Committee,

HAS ADOPTED THIS DECISION:

Article 1

Technical specifications for the Copernicus space component

The technical specifications for the Copernicus space component referred to in Article 6 of Regulation (EU) No 377/2014, regarding its implementation and evolution on the basis of user requirements, as set out in the Annex, are hereby adopted.

([1]) OJ L 122, 24.4.2014, p. 44.

Article 2

Entry into force

This decision shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels, 20 April 2018.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX

1. SCOPE OF THE SPACE COMPONENT TECHNICAL SPECIFICATIONS

The Copernicus Space Component shall include the following activities:

(a) Development, Launch and Operations of dedicated Copernicus Satellites (Sentinels);

(b) Processing and generation of Sentinel Data Products based on the acquired data;

(c) Data Dissemination;

(d) Procurement and delivery of data from Third Party Satellite missions (Copernicus Contributing Missions), in case data requested by the Copernicus Services cannot be provided by the Sentinels.

The Satellite Data products shall be used by the Copernicus services and other users who, in combination with data from multiple sources, convert the data into uniform geophysical variables or higher level information products.

The Copernicus Space Component shall be designed following data and observation requirements from the Copernicus Core Users (Union institutions and bodies, European, national, regional or local authorities active in the domain of atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security). They shall form the basis for the definition of the Copernicus Space Component System Requirements.

The Copernicus requirements for space-based Earth Observation data covering the 2014-2020 period shall be documented in the **'Data Warehouse Requirements document' (version 2.*x*)**. It shall contain the requirements collected from Copernicus Services and Copernicus users requesting Earth Observation data. The updates of the document shall be taken into account for the evolution of the Copernicus Space Component. The data requirements are set out in Table 1.

Table 1

Summary table of the Copernicus Services Dataset requirements

Main Data requirement [1]	Potential Copernicus Data Sources
Land	
Pan-European (EEA39) High Resolution (HR) cloud free image coverage	Dedicated missions Contributing Missions
Full European Very High Resolution (VHR) coverage over Europe (EEA39)	Contributing Missions
Optical worldwide High Resolution coverage	Dedicated missions
Optical Medium Resolution worldwide coverage	Dedicated missions Contributing Missions
SAR Medium Resolution Worldwide coverage	Dedicated missions
SAR Low Resolution coverage	Contributing Missions
SAR Altimetry Medium Resolution Worldwide coverage	Dedicated missions
Marine	
Sea Ice Monitoring Medium Resolution SAR	Dedicated missions Contributing Missions

Main Data requirement [1]	Potential Copernicus Data Sources
Global/Regional Systematic Ocean Colour data	Dedicated missions Contributing Missions
Systematic Global and Regional sea surface temperature data	Dedicated missions Contributing Missions
Systematic Global and Regional Altimeter/Sea Level data	Dedicated missions Contributing Missions
Atmosphere	
Data for aerosol monitoring and forecasting	Dedicated missions Contributing Missions
Data for sulphur dioxide (SO_2) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for formaldehyde (HCHO) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for Ozone (O_3) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for Carbon Monoxide (CO) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for Carbon Dioxide (CO_2) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for Methane (CH_4) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Data for Nitrogen Dioxide (NO_2) atmospheric composition monitoring and forecasting	Dedicated missions Contributing Missions
Climate	
Data for deriving Essential Climate Variables (ECVs)	Dedicated missions Contributing Missions
Emergency	
Datasets with flexible specifications (rush mode, standard mode, high/very high resolution, optical/SAR, archive/new acquisitions)	Dedicated missions Contributing Missions

[1] The spatial resolution of Very High (VHR), High (HR), Medium 5MR) and Low Resolution (LR) images is defined as follows: VHR: <= 4 m; HR: > 4 m and <= 30 m; MR > 30 m and <= 300 m; LR > 300 m.

2. COPERNICUS SPACE COMPONENT OVERVIEW

2.1. **General**

The Copernicus Space Component (CSC) shall ensure an autonomous capacity of space borne observations to meet the objectives of the Copernicus programme, serving primarily the Copernicus Service Component. The Space Component shall consist of a *Space Segment* of Satellite missions and a *Ground Segment* to support these missions.

The *Space Segment* shall comprise two types of satellite missions, namely:

(1) Dedicated Satellite Missions, called the Sentinels, organised into six different 'families', which are: Sentinel-1, -2 and -3 (each 4 units, Full Operation Capacity consisting of 2 units flying simultaneously, replaced by 2 units to ensure continuity of observations), Sentinel- 4 (2 units), Sentinel-5 (3 units), and Sentinel-6 (2 units). Additionally Jason-3 and Sentinel-5p are developed by third parties but operated by Copernicus;

(2) Third Party Missions, consisting of Earth Observation satellites of European, national or commercial organisations, i.e. the **Copernicus Contributing Missions** (CCM).

The *Ground Segment* shall operate the Sentinel missions, receive data from the satellites, process, archive and distribute them to the Copernicus services and user communities, and generate a coordinated data stream to satisfy Copernicus data needs.

The Copernicus Space Component shall include the following activities:

(a) provision of space-borne observations from the dedicated missions. This includes the completion, maintenance, operation, validation and calibration of the Sentinels and related ground segment and data products and the protection of necessary frequency spectra;

(b) provision, archiving and dissemination of Contributing Mission data;

(c) preparatory activities related to the evolution of the Space Component in response to evolving needs, including the specification of new dedicated missions;

(d) protection of satellites against the risk of collision;

(e) safe decommissioning of the satellites at the end of life.

2.2. **Copernicus space component financing**

Activities funded under Regulation (EU) No 377/2014 shall include the operations of all Sentinels and Jason-3, procurement of the Sentinel-1, -2, -3 C and D units, procurement of Sentinel-5 B and C units, procurement of the Sentinel-6B unit, Launch Services, Data dissemination and the procurement of Contributing Mission data.

Activities funded under the Copernicus Agreement shall be closely interlinked with the activities funded by the ESA GMES Space Component Programme and the EUMETSAT Jason-3, -CS Optional programmes.

2.3. **Governance and implementation**

The implementation of most Copernicus Space Component activities shall be delegated to ESA and EUMETSAT.

The activities delegated to ESA shall include the overall technical coordination of the space component and the definition of the overall architecture of the space component. ESA shall be entrusted with the following tasks:

(a) procurement and Development of the recurrent C and D units of Sentinel-1, -2, and -3 satellites;

(b) procurement of the B and C units of the Sentinel-5 instrument;

(c) procurement of the Sentinel-6B unit;

(d) procurement of launch services and launch preparation (including activities from Flight Acceptance Review to In Orbit Commissioning Review);

(e) operations of the Copernicus Space Component specified in section 3.5;

(f) data circulation and network services operations;

(g) dissemination of Sentinel-1, -2, -3 (partim land), and Sentinel-5p data, as well as Data and Information Access Services;

(h) data Access Procurement from Copernicus Contributing Missions;

(i) maintenance of relevant Copernicus Space Component elements;

(j) evolution of relevant Space Component Elements;

(k) support to the Commission in establishing user requirements, service specifications and service data requirements for the space infrastructure.

The activities delegated to EUMETSAT shall include the operation of dedicated missions and ensuring access to contributing mission data in line with its mandate and expertise. EUMETSAT shall be entrusted with the following tasks:

(a) operations and maintenance of the Sentinel-3 satellite series in coordination with ESA;

(b) operations and maintenance of the Sentinel-4 and Sentinel-5 instruments included on the MTG and METOP-SG satellites;

(c) operations and maintenance of the Jason-3 satellite based on the cooperation with partner organisations;

(d) operation and maintenance of the Sentinel-6 mission in coordination with ESA and other partner organisations;

(e) provision of the ground segment, data access operations and data dissemination for Jason-3, Sentinel-3 (partim marine), -4, -5, and -6, as well as Data and Information Access Services;

(f) maintenance and evolution of the ground segment and infrastructure;

(g) provision of relevant data from selected contributing missions related to marine, atmosphere and climate change services;

(h) support to ESA for the development, launch and early Orbit phase of the C and D units of Sentinel-3 and the B unit of Sentinel-6;

(i) support to ESA for the development of the B and C units of Sentinel-5;

(j) support to the Commission in establishing user requirements, service specifications and service data requirements (upon request and subject to additional funding by the Commission);

(k) support to the Copernicus climate change monitoring service, reprocessing of EUMETSAT and agreed Copernicus and third party data (upon request and subject to additional funding by the Commission).

The management of these activities shall include the day-to-day operational interactions with the relevant services providers and users, the management of risks, the communication activities and support to the Commission in its interactions with Copernicus Stakeholders.

Coordination between ESA and EUMETSAT shall be managed through a Joint Operations Management Plan (JOMP).

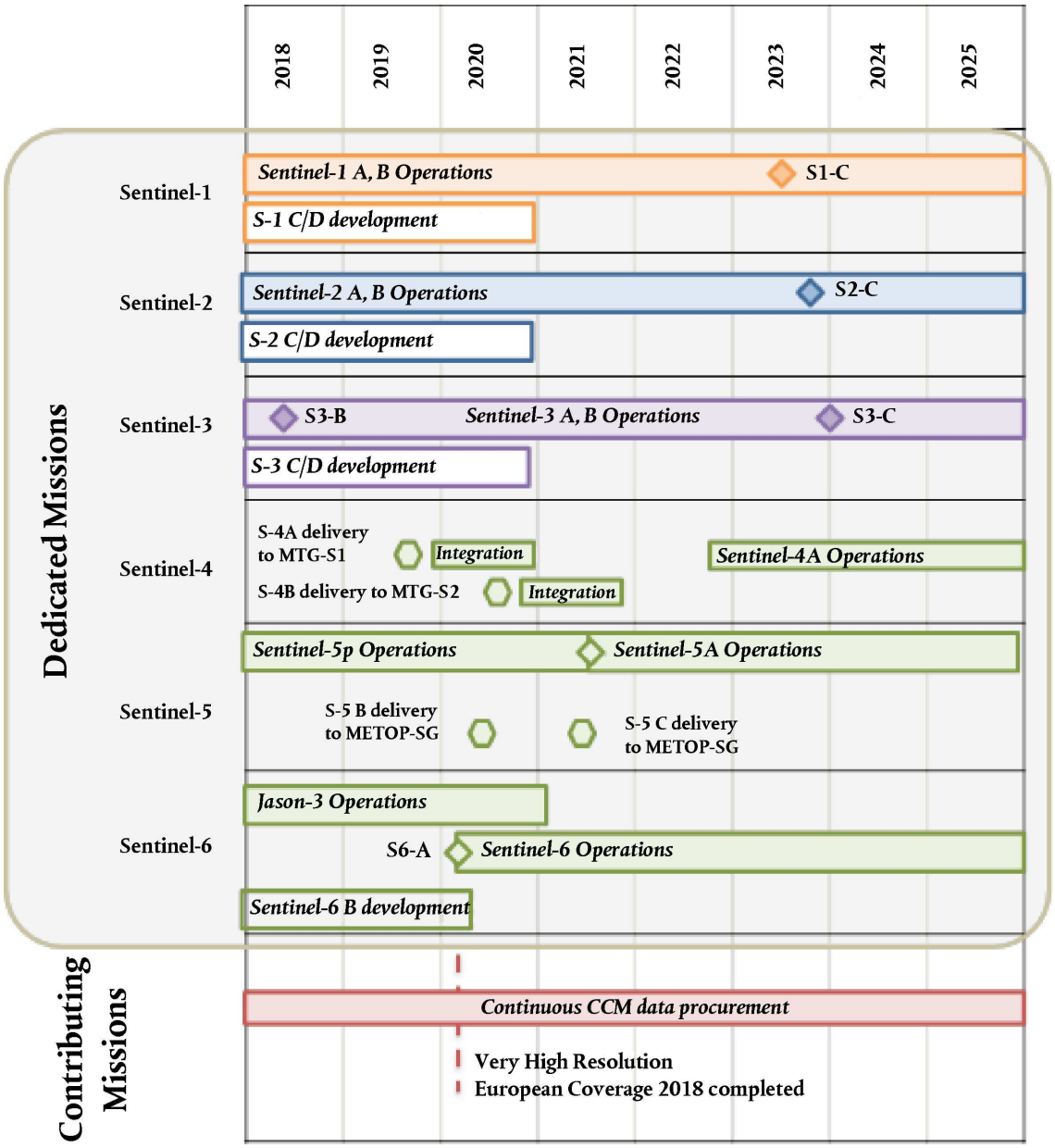
2.4. **Indicative Deployment Schedule**

The CSC Space segment activities and tasks with relevance to the MFF (2014-2020) funding shall be implemented in a multi-annual perspective, in particular the procurement programme of the recurrent units.

The major milestones for the CSC component shall include the milestones and accomplishments as depicted in the following figure.

Figure 1

Indicative schedule for the Copernicus Space component activities



The schedule shall be updated following the technical implementation of activities and evaluation of programmatic options.

2.5. **Copernicus Data and Information Policy**

The use of the data shall be subject to a legal notice which shall indicate that:

(a) users have a free, full and open access to Copernicus Sentinel Data and Service Information without any express or implied warranty, including as regards quality and suitability for any purpose;

(b) Union law grants free access to Copernicus Sentinel Data and Service Information for the purpose of the following use in so far as it is lawful:

(1) reproduction;

(2) distribution;

(3) communication to the public;

(4) adaptation, modification and combination with other data and information;

(5) any combination of points (1) to (4).

(c) by using Sentinel Data or Service Information the user shall acknowledge that these conditions are applicable to him/her and that the user renounces to any claims for damages against the Union and the providers of that data and information.

2.6. **Standards**

The spatial data products and information generated within the Copernicus space component activities shall be compatible and interoperable with the data and spatial information systems provided by Member States in accordance with Directive 2007/2/EC of the European Parliament and of the Council ([1]) and Commission Regulations (EC) No 1205/2008 ([2]), (EU) No 1089/2010 ([3]) and (EC) No 976/2009 ([4]).

2.7. **Monitoring and Evaluation**

Implementation of the CSC activities shall be monitored by the Commission. Both ESA and EUMETSAT shall report on the progress of the implementation of the activities entrusted to them on a quarterly basis. The Commission shall process the reports and shall request clarifications in case needed. The quarterly reports shall contain, amongst others, Key Performance Indicators (KPIs) which shall be used to monitor the implementation of the Copernicus Space Component. KPIs shall include:

(a) number of Sentinel Missions and number of flying Sentinel units;

(b) number of missions having reached full operational capacity (2 units flying simultaneously in the case of Sentinel1, -2, and -3);

(c) number of recurrent units under development;

(d) availability of Sentinel units and instruments;

(e) volume of data distributed to users;

(f) number of users;

(g) end-to-end availability and continuity of the Sentinel Data Access Service;

(h) end-to-end availability of Contributing Mission Data Access Service;

(i) data Access volume from Copernicus Contributing Missions;

(j) licenses signed regarding Copernicus Contributing Missions;

(k) timeliness of Data delivery;

(l) user support and help desk performance.

KPIs shall be reported by both EUMETSAT and ESA in accordance with their entrusted activities.

Apart from the operational monitoring of the performance of the Space Component, the achievement of the objectives of all the tasks financed by Copernicus at the level of their results and impacts, their European added value and on the efficiency of the use of resources shall be evaluated. This evaluation shall be conducted in close cooperation with the Copernicus operators (ESA and EUMETSAT for the Space Component) and the Copernicus users.

3. DEDICATED COPERNICUS MISSIONS (SENTINELS)

3.1. **General**

The dedicated missions shall consist of a space segment and a ground segment, each with its own functions and characteristics. The *space segment* shall include the satellite and/or instrument and the *ground segment* shall include all infrastructure located on the earth, including receiving stations, processing centres, flight operations segments and mission performance centres.

([1]) Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) (OJ L 108, 25.4.2007, p. 1).

([2]) Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (OJ L 326, 4.12.2008, p. 12).

([3]) Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services (OJ L 323, 8.12.2010, p. 11).

([4]) Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services (OJ L 274, 20.10.2009, p. 9).

The ground segment assets under control of ESA shall be provided as a service. Operations of both the space and ground segment shall be Copernicus funded.

A detailed description of all technical elements of the Copernicus Space component shall be made publicly available.

3.2. **Space Segment – Sentinel missions**

3.2.1. *Space Segment general description*

The dedicated Sentinel missions shall carry a range of technologies, including radar and multispectral imaging instruments for land, ocean and atmospheric monitoring. They shall be developed by ESA and organised into six different mission families.

Sentinel-1 mission: shall comprise a constellation of at least two polar-orbiting satellites to reach Full Operational Capacity (FOC), operating day and night performing C-band synthetic aperture radar imaging, enabling them to acquire imagery regardless of the weather;

Sentinel-2 mission: shall comprise a constellation of at least two two polar-orbiting satellites aiming to monitor variability in land surface conditions supporting the monitoring of changes to vegetation within the growing season;

Sentinel-3 mission: shall comprise a constellation of at least two polar-orbiting satellites with the objective to monitor oceans and land masses globally. Sentinel-3 *partim marine* shall measure sea surface topography, sea surface temperature, and ocean surface colour to support ocean forecasting systems, environmental monitoring and climate monitoring. Sentinel-3 *partim land* shall measure land and inland water surface height, land surface temperature and land surface colour;

Sentinel-4 mission: Sentinel-4 shall monitor key air quality trace gases and aerosols over Europe in support of the Copernicus Atmosphere Monitoring Service (CAMS) at high spatial resolution and with a fast revisit time. Sentinel-4 shall be implemented as part of the Geostationary EUMETSAT Meteosat Third Generation Satellite System. The Sentinel-4 instruments shall be hosted on the EUMETSAT satellites MTG-S-1 (Sentinel-4A) and MTG-S-2 (Sentinel-4B), with an expected 15,5 years of operations for both satellites combined;

Sentinel-5 mission: Sentinel-5 shall provide accurate measurements of key atmospheric constituents such as ozone, nitrogen dioxide, sulphur dioxide, carbon monoxide, methane, formaldehyde, and aerosol properties. Sentinel-5 shall be implemented as part of the EUMETSAT Polar System of Second Generation (EPS-SG). The Sentinel-5 instruments shall be hosted on the EUMETSAT satellites METOP-SG-A-1, METOP-SG-A-2, METOP-SG-A-3 (each with a design lifetime of 7,5 years and hosting Sentinel-5A, -5B, -5C respectively). Sentinel-5p ([1]) shall be the precursor mission to Sentinel-5;

Sentinel-6 mission: shall be a radar altimeter mission, with the objective of providing high-precision measurements of global sea-level as a reference altimetry mission. Sentinel-6 shall consist of 2 units (A and B, each with a design lifetime of 5 years) covering 10 years of observations.

Sentinel-1, Sentinel-2 and Sentinel-3 shall consist each of 4 satellites, whereby 2 units are needed to reach Full Operational Capacity (FOC) and 2 units shall ensure recurrent observation capacity after the end-of-life of the first 2 units.

The operations of **Jason-3** ([2]) shall be included in the Copernicus Space Component to provide continuity of observations between Jason-2 and Sentinel-6 as a reference altimetry mission.

The characteristics of the Copernicus dedicated missions shall be as specified in Table 2.

([1]) The Sentinel-5 Precursor (Sentinel-5p) mission is a joint initiative between ESA and the Kingdom of the Netherlands.
([2]) Jason-3 is the result from the long-standing cooperation between EUMETSAT, NOAA, CNES and NASA. It is a High Precision Ocean Altimetry Mission that provides continuity between Jason-2 and Sentinel-6 and is operational since 2016 with an envisaged lifetime of 5 years.

Table 2

Copernicus Dedicated missions characteristics

Sentinel Mission	Main Characteristic and purpose	Number of Units	Payloads	Satellite orbit	Approximate Period of operations (1)
Sentinel-1	RADAR Mission	4 units (A, B, C, D), two units are flying in parallel for full capacity	C-Band SAR Payload with centre frequency of 5,405 GHz (4 polarisations) and 4 modes: — Strip Map mode with 80 km Swath and 5 × 5 metre spatial resolution — Interferometric Wide Swath Mode with 250 km swath and 5 × 20 metre spatial resolution — Extra-wide Swath Mode with 400 km swath and 20 × 40 m spatial resolution — Wave mode with 5 × 5 metre spatial resolution at 100 km along the orbit	Sun-Synchronous orbit at approximately 693 km	A, B: 2014 – 2022 C, D: 2022-2030
Sentinel-2	High Resolution optical mission for land imaging	4 units (A, B, C, D), two units are flying in parallel for full capacity	— MSI — Multi Spectral Imager with 13 multispectral channels between 400 nm and 2 300 nm, spectral resolution between 1 nm and 180 nm and spatial resolutions of 10 m, 20 m and 60 m. Includes an Optical Communication Payload for mission data relay through EDRS.	Sun-Synchronous orbit at approximately 786 km	A, B: 2015 – 2023 C, D: 2023-2030
Sentinel-3	Global Ocean and Land Imaging	4 units (A, B, C, D), two units are flying in parallel for full capacity	— OLCI – Ocean and Land Colour Instrument with 21 bands and spatial resolution of 300 m — SLSTR – Sea and Land Surface Temperature Radiometer with 9 bands and spatial resolution of 500 m (VIS, SWIR) and 1 km (MWIR, TIR) (2) — SRAL – SAR Radar Altimeter with dual CX and Ku bands — MWR – Microwave Radiometer, with an operation frequency in dual 23,8 GHz and 36,5 GHz	Sun-Synchronous orbit at approximately 814,5 km	A, B: 2016 – 2023 C, D: 2023-2030

Sentinel Mission	Main Characteristic and purpose	Number of Units	Payloads	Satellite orbit	Approximate Period of operations (1)
Sentinel-4	Atmospheric monitoring	2 instruments (A, B), on board consecutive Meteosat Third Generation – Sounder satellites	The Sentinel-4 instrument is a high-resolution imaging spectrometer (spatial resolution of 8 × 8 km) covering three wavelength bands: — Ultraviolet (305-400 nm) — Visible (400-500 nm) — Near-Infrared (750-775 nm)	On board Meteosat Third Generation Satellites in geostationary orbit at approximately 35 786 km. Coverage of Europe and North Africa with a repeat cycle of about 60 minutes	2022 - 2040
Sentinel-5	Atmospheric monitoring	3 units (A, B, C), on board consecutive METOP Second Generation – A satellites	The Sentinel-5 UVNS instrument is a high resolution spectrometer (spatial resolution about 7 km), covering the following wavelength bands: — Ultraviolet (270-370 nm) — Visible (370-500 nm) — Near-infrared (685-773 nm) — Short-wave infrared (1 590-1 675; 2 305-2 385 nm)	Part of the EUMETSAT Polar System of Second Generation (EPS-SG) at approximately 817 km	2022-2040
Sentinel-5p	Atmospheric monitoring	Precursor satellite for Sentinel-5	— TROPOMI — TROPOspheric Monitoring Instrument with 4 channels in the following spectral ranges: 270-500 nm, 675-775 nm, 2 305-2 385 nm and spatial resolution of 7 × 7 km	Sun-Synchronous orbit at approximately 824 km	2017 - 2024
Sentinel-6	High Precision Ocean Altimetry	2 units (A, B)	— POSEIDON-4 – SAR Radar Altimeter — AMRC-C – Climate-quality microwave radiometer, a NOAA/JPL contribution	Non-Sun-synchronous at approximately 1 336 km	A: 2020 – 2025 B: 2025 - 2030

(1) The period of operations may change depending upon the actual life time of the individual satellite units and evaluation of programmatic options.
(2) Abbreviations: VIS = Visual Range Bands; SWIR = Short Wave Infrared; MWIR = Mid-Wave Infrared; TIR = Thermal Infrared.

3.2.2. *Space Segment activities*

ESA shall be responsible for the procurement and launch of the following satellites and instruments:

(a) development of the C and D units of Sentinel-1, -2, and -3;

(b) sentinel-5B and -5C instruments;

(c) sentinel-6B unit;

(d) launch Services.

Development and Procurement of the Sentinel-1, -2, -3 C/D units

ESA shall be responsible for the procurement, development and Flight Acceptance Review of the Sentinel-1, -2, -3 C and D units. In addition, the launch preparation activities of the –C units shall be covered by Copernicus, in case they occur before 31 December 2021.

The C and D units shall be procured with equivalent technical specifications as the A and B units to ensure technical and operational consistency. However, the development of the A, B and C, D units shall take into account hardware obsolescence due to the time difference with the development of the A and B units. The Sentinel-1 C and D units should be equipped with an Automatic Identification System (AIS) instrument to augment the SAR payload data for ship marine traffic applications and all C and D units shall be equipped with GNSS receivers. The Sentinel-1 and -2 C and D units shall include an Optical Communication Payload and the Sentinel-3 C and D units shall include a DORIS payload, all procured as part of the contract and financed within Copernicus.

Development and procurement of the Sentinel-5B and -5C instruments

ESA shall be responsible for the procurement, development and support of the integration onto METOP-SG of Sentinel-5B and -5C, including the verification of the end-to-end instrument performance.

Development and procurement of the Sentinel-6B unit

Sentinel-6B shall be a fully recurrent unit of Sentinel-6A. Sentinel-6B shall be included as an option in the development contract of Sentinel-6A.

Launch services

Launch services for the Sentinel-1, -2 and -3 A and B units that have started under the ESA GMES Space Component Agreement shall be continued under Copernicus. As part of Copernicus ESA shall assume full responsibility for the procurement of the launch services of Sentinel-1B, -2A and -3B. The procurement of launch services shall include the launcher manufacturing, spacecraft adaptor, launch campaign support, launcher/satellite interface engineering and all activities from Flight Acceptance Review up to the end of the In-Orbit Commissioning Review (including Launch and Early Orbit Phase).

3.3. **Ground Segment – Sentinel missions**

3.3.1. *General description*

The Sentinel Ground Segment shall provide the primary access to Sentinel missions. The primary components of the Sentinel ground segments shall be the following:

(a) sentinel Flight Operations Segment (FOS);

(b) sentinel Payload Data Ground Segment (PDGS).

The Sentinel PDGS operations shall rely on a Wide Area Network (WAN) and Data Access Services.

3.3.2. *Flight Operations Segment*

The Flight Operations Segment (FOS) shall provide the capability to schedule the mission operations and to monitor and control the spacecraft and payload during all mission phases. The FOS shall be responsible for spacecraft commanding activities and acquisition of S-band telemetry. It shall provide the functionality required for the generation and the uplink of the routine platform and instrument command schedules and the systematic archiving/analysis of the acquired housekeeping telemetry. The FOS shall include a Flight Dynamics System Facility, allowing orbit determination and prediction, as well as generation of attitude and orbit control information.

FOS functions and activities shall include the scheduling of S-band ground station visibility segments and access to archived housekeeping telemetry to authorised external users. Besides performing these routine tasks, the FOS Mission Control Team shall be responsible for monitoring the satellite's health status and implementing all necessary recovery actions in case of anomalies, and verification and uplink of on-board software patches.

The FOS debris collision avoidance service shall calculate the probability of a collision of any Sentinel satellites with other satellites and/or debris and provides corresponding collision avoidance forecast reports. These shall be analysed and translated in satellite collision avoidance manoeuvres when appropriate.

The FOS shall support safe and reliable spacecraft end-of life measures, including re-entry and disposal activities.

3.3.3. *Payload Data Ground Segment*

The Payload Data Ground Segment shall include the following components:

(a) sentinel Core Ground Stations (CGS);

(b) sentinel Processing and Archiving Centres (PACs);

(c) sentinel Mission Performance Centres (MPC);

(d) sentinel Payload Data Management Centres (PDMC);

(e) sentinel Precise Orbit Determination Service (POD).

Sentinel Core Ground Stations (CGS)

ESA shall manage the overall network of X-band Core Ground Stations. A dedicated infrastructure shall allow to do the following:

(a) acquire Sentinel Data Downlinks;

(b) demodulate and Store the Instrument Source Packets (ISP) data;

(c) provide ISP to the Level-0 processor and to EUMETSAT for Sentinel-3;

(d) send the L0 data to the Processing and Archiving Centres;

(e) perform Near Real Time L1/L2 production and make the data available to users and the PACs.

Sentinel Processing and Archiving Centres (PACs)

The Processing and Archiving Centres shall ensure the archiving of the Sentinel data, the systematic non-time critical and/or on-the-fly data processing, the online access to the products and the dissemination of the data to other CSC elements.

Sentinel Mission Performance Centres (MPC)

Calibration and validation activities for Sentinel-1, -2, -3 and -5p shall be performed by Mission Performance Centres. The activities shall include, amongst others, the maintenance and evolutions of algorithms, the operational quality control and the end-to-end system performance monitoring. The MPC shall rely on the provision of complementary quality services from the Expert Support Laboratories and from dedicated CAL/VAL groups to maintain the required mission quality performances.

Sentinel Payload Data Management Centres (PDMC)

The Sentinel Payload Data Management Centre (PDMC) shall provide the interface with the FOS for the satellite tasking and the downlink planning. The PDMCs are responsible for the Sentinel mission and systematic production planning, in line with the Data Access and Mission requirements and the PDGS configuration including production organisation, circulation and the dissemination setup.

Sentinel Precise Orbit Determination Service (POD)

The Sentinel POD service shall provide precise orbit data to support the PDGS non- real time processing. The POD centre shall be common to the Sentinel-1, -2 and -3 missions. It shall receive GPS Level-0 data from Core Ground Stations and generate precise orbit data to the PACs for off line processing purposes.

3.4. **EUMETSAT Ground Segment Operations**

The EUMETSAT Ground Segment shall rely on the services implemented and provided by ESA, including Core Ground Stations for the reception of Sentinel-3. The Copernicus ground segment implemented at EUMETSAT may include functions and infrastructure shared with the other, non-Copernicus missions as part of EUMETSAT programmes. The EUMETSAT Copernicus ground segment shall provide data from dedicated (Sentinel-3 *Marine*, -4, -5, -6 and Jason-3) and contributing missions, including access by the users. The datasets and services provided by EUMETSAT shall be documented in the Service Level Specifications (SLS).

3.5. **European Data Relay System (EDRS)**

The European Data Relay System (EDRS) service shall provide the capability for the acquisition of Sentinels data complementary to the X-band core ground stations, allowing to support in particular quasi-real time observation needs (QRT is defined as products having timeliness of less than 1 hour). In particular EDRS shall provide the following capabilities:

(a) introduce flexibility in the overall data acquisition scenario leading to an increased availability of Sentinel data;

(b) allow to downlink data to ground while the Sentinels are outside the visibility of the X-band core ground stations;

(c) in combination with the X-Band core station network, support and improve the end to end availability and reliability of data provision to the end user;

(d) provide additional flexibility to accommodate Copernicus security-related requirements by 'protecting' the mission data reception via the encrypted EDRS Ka-band downlink.

The use of the EDRS service in support of the Sentinel-1 and Sentinel-2 missions shall provide further opportunities for product timeliness improvements, including beyond the current formal Near-Real Time commitment, defined as product timeliness of three hours.

EDRS shall allow performing fast downlink of data acquired outside the X-Band core stations visibility. Data shall be downlinked in pass-through mode via EDRS when observing such areas. This should in turn enhance the achieved product timeliness associated to core products. In addition, this should allow collaborative partners to generate products in QRT/NRT.

EDRS should be used to downlink a high percentage of data recorded in memory, outside X-band core stations visibility. This will in turn increase the volume of data downlinked and thus the volume of NRT data generated by the CSC ground segment.

The main functional tasks performed by the EDRS service shall be:

(a) sentinel-1 and -2 satellites data transmission via Optical (Laser) link between the OCP on-board the LEO satellites and the equivalent unit on-board the GEO satellites (EDRS-A and EDRS-C);

(b) mission data relay between the GEO satellites and the Ka-band ground receiving terminals;

(c) mission Data reception, decommutation and provision to the service interface point, including data circulation network.

The service shall be relevant to Sentinel-1 and Sentinel-2 missions (other Sentinels shall not carry on-board the necessary Optical Communication Payload). The geographical coverage area for downloading the Sentinel data to the EDRS receiving stations shall cover Europe as a minimum.

The service provided by EDRS shall be procured via a dedicated Service level Agreement contract, managed according to a set of stringent performance indicators.

3.6. **Overall operations and data acquisition strategy for the Copernicus dedicated missions**

The operations strategy for all Sentinels shall have the following objectives:

(a) to provide data to Copernicus and other users according to the specified requirements;

(b) to ensure systematic and routine operational activities with a high level of automation and with pre-defined operation to the maximum extent possible.

The Sentinel operations strategy shall be documented in a High Level Operations Plan (HLOP) which shall be made publicly available. The HLOP shall include information on observation/planning, acquisition, processing and dissemination.

The High Level Operations Plan shall be defined based upon the observation requirements from primarily the Copernicus Services, national requirements from Copernicus Participating States, relevant Union Institutions and other users including based on international agreements, scientific use and commercial value-adding. Based upon the collected observation requirements, a series of simulations shall be performed to elaborate the observation scenarios taking into account the priority schemes and technical constraints. Consultation with the Copernicus Participating states on both the collection of observation requirements and observation plans shall be done typically once every year at the User Forum.

The acquisition strategy shall adhere to the following principles:

(a) sentinel-1 acquisitions shall be performed according to a mission background plan;

(b) sentinel-2 shall be acquired systematically between 56° S and 84° North over land, coastal areas as well as larger islands;

(c) sentinel-3, -5p, -5 and -6 shall systematically acquire data over the entire globe;

(d) sentinel-4 shall systematically acquire data over Europe from a geostationary orbit.

3.7. **Data Products List from Copernicus Dedicated Missions**

Data acquired by the Sentinels shall be automatically downlinked to the core ground stations and systematically processed by the Payload Data Ground Segment. The data shall be systematically processed to generate a set of pre-defined core products (called Level 0, Level 1 and Level 2). These core products shall be made available to the Copernicus users ('user products') according to well defined timeliness ranging from Near-Real Time (NRT) to Non-Time Critical (NTC), available typically within 3 to 24 or 48 hours after being sensed by the satellite.

Table 3 lists the Data products that shall be made available from the Copernicus Dedicated Missions. The user products for Sentinel-4, -5 and -6 shall be specified during the development phase. A detailed list of all products shall be made publicly available.

Table 3

Summary Copernicus Dedicated Missions Data Products list

	User Product Category	Product content/Description
Sentinel-1		
	SAR Level 0	Compressed unfocused SAR raw data
	SAR Level 1 Single Look Complex	Focused SAR Complex data, georeferenced, provided in slant-range geometry
	SAR Level 1 Ground Range Detected Full Resolution	Focussed SAR complex data, georeferenced, multi-looked and projected to ground range geometry
	SAR Level 2 Ocean Product	Geolocated geophysical parameters (e.g. Ocean Wind Field, Wave Spectra and Radial Velocity)
Sentinel-2		
	Multi-spectral instrument Level-1	Top of Atmosphere Reflectance's in Cartographic Geometry
	Multi-spectral instrument Level-2 ([1])	Bottom of Atmosphere Reflectance's in Cartographic Geometry
Sentinel-3 (common for Marine and Land)		
	Ocean and Land Colour Instrument (OLCI) Level 1	OLCI Top of Atmosphere Radiances, ortho-geolocated and re-sampled
	Sea and Land Surface Temperature Radiometer (SLSTR) Level 1	SLSTR Brightness temperatures and Top of Atmosphere Radiances ortho-geolocated and re-sampled

	User Product Category	Product content/Description
Sentinel-3 partim Marine		
	Surface Topography Mission (STM) Level 2	Geophysical parameters over ocean (e.g. surface backscatter, sea surface height, significant wave height, ocean depth, tide height, sea ice concentration, sea ice freeboard, sea surface wind speed, rain rate)
	OLCI Level 2	Geophysical parameters over ocean (e.g. sea surface reflectance, algal pigment concentration, suspended matter concentrations)
	SLSTR Level-2	Sea Surface Temperature
Sentinel-3 partim Land		
	Surface Topography Mission (STM) Level 2	Geophysical parameters over land (e.g. surface backscatter, altimetry range, surface height, snow density and depth)
	OLCI Level 2	Geophysical parameters over land (e.g. photosynthetically active radiation, global vegetation index)
	SLSTR Level-2	Land Surface Temperature
	OLCI and SLSTR Synergy products	Geophysical parameters over land (Land surface reflectance's and aerosol load over land)
Sentinel-5p		
	TROPOMI instrument level-2	Ozone, Nitrogen Dioxide, Sulphur Dioxide, Formaldehyde, Carbon Monoxide, Methane, Aerosols, Clouds
Jason-3 (Europe-US cooperation mission, operations are funded by Copernicus)		
	Geophysical Data Records Level 2	Geocoded products corresponding to altimetry parameters.

([1]) The generation of Sentinel-2 Level 2 data shall be made available through the Sentinels Core Ground Segment or shall be enabled through a toolbox running at the users' side.

Note: Level 0 (L0), Level 1(L1) and Level 2 (L2) nomenclature refers to the subsequent level of processing of a product whereby L0 indicates unprocessed instrument and payload data, L1 indicates georeferenced and calibrated computed data and L2 refers to derived geophysical variables. For the Surface Topography Mission (STM), Level 2P & 3 products are also generated based on L2 products with enhanced geophysical corrections, bias corrections and adjustment of orbit errors.

3.8. **Developments aiming at modernising the Copernicus Space Component**

Changes (excluding policy changes that are agreed on a political level) in response to new or evolving user requirements that could be addressed through an incremental evolution of the current Copernicus Space Component Infrastructure may include:

(a) upgrade processing and dissemination infrastructure to increase performance;

(b) production of new products based on existing capacities;

(c) procurement of new datasets based on existing third party missions.

Short-term updates of the Copernicus Space Component shall follow a *change management* process including the following generic steps:

(1) identification of needed changes;

(2) initiation of the Change Request by either the Commission, ESA or EUMETSAT;

(3) analysis of the Change Request, including an analysis of impact (technical, cost, schedule);

(4) agreement by the Commission on the implementation of the proposed changes;

(5) implementation of the changes.

3.9. **Development activities aimed at mitigating operational risks**

In ensuring the protection of Copernicus satellites against the risk of collision ESA and EUMETSAT shall take into account the Union Space Surveillance and Tracking (SST) support framework established under Decision No 541/2014/EU of the European Parliament and of the Council ([1]). The respective measures shall have their bearing on the Copernicus Space Component with the inclusion of a function to provide SST services to spacecraft operators and public authorities.

4. COPERNICUS CONTRIBUTING MISSIONS

4.1. **General**

'Copernicus Contributing Missions' (CCM) shall mean space-based Earth observation missions providing data to Copernicus complementing data from the dedicated missions.

Data from CCMs shall be obtained by Copernicus to fulfil the data requirements as described in section 1, whenever these cannot be met by the Sentinels.

Data from CCMs could be either free of charge or could be procured under specific licensing conditions.

For datasets under restrictive dissemination conditions by the CCMs, the following user categories shall be applied:

(a) Copernicus Services;

(b) Institutions and bodies of the Union;

(c) Participants to a research project financed under the Union research programmes;

(d) Public authorities of EU Member States and Copernicus Participating States;

(e) International Organisations and international NGOs;

(f) The general Public.

4.2. **Overall Process**

On the basis of the Data Warehouse Document (see section 1) ESA and EUMETSAT shall undertake a joint analysis to identify which datasets would need to be procured, and which datasets could be provided without procurement through third party missions. The results of this analysis shall be documented in the joint Data Warehouse Traceability Document. The datasets shall be further described in the Data Access Portfolio (DAP) document, for what concerns the datasets provided by ESA, and the Service Level Specification (SLS) document, for what concerns the datasets provided by EUMETSAT. The uptake of the datasets shall be reported by ESA and EUMETSAT on a quarterly basis. Depending upon the uptake of the data and an analysis of the needs, the procurement/pursuing of third party data shall be adapted, as appropriate.

4.3. **Procurement of data from Copernicus Contributing Missions**

Licensing conditions for data shall be negotiated with contributing mission data providers for data that needs to be procured. These licensing conditions could depart from the open data policy.

Data procurement activities shall be under the responsibility of ESA and shall focus on providing Earth Observation data from national or international missions, both private and institutional. CORE Datasets shall be procured on the basis of pre-defined specifications while ADDITIONAL datasets shall be procured through a quota mechanism and bulk agreements with data providers for the provision of data within a financial envelope.

Procurement activities shall include:

(a) analysis of the requirements, derivation of specifications for data procurement and the selection of the relevant providers;

(b) procurement of the actual data on the basis of licenses or resource buy;

([1]) Decision No 541/2014/EU of the European Parliament and of the Council of 16 April 2014 establishing a Framework for Space Surveillance and Tracking Support (OJ L 158, 27.5.2014, p. 227).

(c) integration/de-integration of Contributing Missions into the Copernicus Space Component ground infrastructure;

(d) harmonisation and homogenous provision of data even in cases of large collections of data from different missions.

Procured datasets may include data from the following contributing missions (non-exhaustive lists, full list available for http://spacedata.copernicus.eu): Pleiades 1 A/B, Deimos-2, Worldview-1/2, Radarsat-2, TerraSAR-X, COSMO-Skymed (1/2/3/4), RISAT-1, Proba-V, GeoEye-1, SPOT-5/6/7 etc.

4.4. **Access to Contributing Mission data not requiring procurement**

Data Access to third party missions not involving data procurement shall be provided by ESA, including data from the Earth Explorers, and EUMETSAT, including data from the EUMETSAT missions.

EUMETSAT should ensure access to data from its own missions, as well as from selected third party missions related to the marine, atmosphere and climate change services. In this context, third party missions shall refer to missions operated by satellite operators with whom EUMETSAT has formal cooperation and/or data exchange agreements.

The activity shall encompass the following:

(a) access and provision of Copernicus contributing Mission data to the Copernicus services and users;

(b) processing of such data into relevant products, when appropriate;

(c) dissemination of these data and products using the EUMETSAT multi-mission dissemination infrastructure and services.

Datasets under this header may include data from the following missions: Meteosat, Metop, Suomi-NPP, Landsat, Cryosat and others.

5. COPERNICUS SPACE COMPONENT DATA DISSEMINATION

Data dissemination shall cover all activities and functions implementing and supporting the provision of access ('pull' service) and/or delivery ('push' service) of dedicated mission and contributing mission data to the Copernicus users. The CSC data dissemination shall include:

(a) dedicated data access infrastructures;

(b) user Services.

The Copernicus data access infrastructure shall implement the Copernicus Data Policy and shall be tailored to the needs of a predefined set of user typologies, namely Copernicus Services, Member States, International partners and other/scientific use. Data access and dissemination infrastructure shall include the following components:

(a) Data Access Infrastructure (Sentinel 'hubs');

(b) Online Data Access (ODA);

(c) Copernicus Online Data Access (CODA);

(d) Coordinated Data Access System (CDS) for data from contributing Missions;

(e) European Data Relay Satellite System (EDRS);

(f) EUMETCast;

(g) EUMETSAT Data Centre;

(h) Data and Information Access Services Infrastructure.

The Copernicus Space Component Data Dissemination systems shall include the available data products as listed in Table 4.

Table 4

Summary overview of the Copernicus Space Component Data Dissemination Systems

Data Dissemination System	Description	Available Data Products (current status)
Sentinel Hubs	Data Access Infrastructure operated by ESA allowing to retrieve Copernicus data for: Copernicus Services ('Copernicus Services Data Hub') Copernicus Participating States ('Collaborative Data Hub') International Partners ('International Data Hub') Open Access ('COA Hub')	Sentinel-1, Sentinel-2, Sentinel-3 Land
Copernicus Online Data Access (CODA)	Data Access Infrastructure operated by EUMETSAT allowing user to retrieve Copernicus data	Near-real time Sentinel-3 Marine, Jason-3
Online Data Access (ODA)	Data Access Infrastructure operated by EUMETSAT allowing Copernicus services and validation team members to retrieve Copernicus data	Near-real time Sentinel-3 Marine, Jason-3
Coordinated Data Access System (CDS)	Data Access Infrastructure operated by ESA allowing user to download data from Contributing Missions.	Contributing Mission Data
EUMETCast	Satellite and terrestrial -based multicasting service to deliver Copernicus near real-time EO products operated by EUMETSAT	Near-real time Sentinel-3 Marine, Jason-3 and Contributing Mission data distributed by EUMETSAT
EUMETSAT Data Centre	Provision of Copernicus Datasets and Products for the complete mission lifetime, orderable by end users using a search, filter and order mechanism.	Archived Sentinel-3 Marine, Jason-3 and Contributing Mission data distributed by EUMETSAT
Data and Information Access Services Infrastructure	Infrastructure that allows users to access, process and analyse Copernicus data and information	Data and Information from the Copernicus Space and Services Component

The Data Dissemination Systems shall serve different Copernicus user communities; the data available on each of the systems shall be optimised following the needs of those communities.

The ESA Sentinel Hubs shall be tailored to different user typologies (Copernicus Services, Participating States, International Partners and Other). They may differ in their configuration in terms of guaranteed performance, product offer and allowed number of simultaneous downloads.

The Copernicus Services Data Hub shall provide access to all Sentinel products within a specified timeliness (depending upon the product) and availability of the end-to-end service (at least 94 % available for each Sentinel mission constellation). The Collaborative Data Hub and the International Data Hub shall provide access to a rolling archive of Sentinel products with target performances. The Copernicus Open Access Hub shall be configured to avoid resources saturation resulting from massive downloads by a limited number of users.

The Copernicus Data Dissemination Infrastructure shall be continuously updated and improved to cope with the increasing user downloads and expanding data volumes to be distributed.

The User Services shall include features like user registration and management, discovery, view and download services, helpdesk and hosted processing services.

The Copernicus distribution services catalogues shall be interoperable amongst each other and provide complete catalogue information.

Detailed technical descriptions on the Copernicus data dissemination infrastructure and activities shall be made publicly available.

6. EVOLUTION OF THE COPERNICUS SPACE COMPONENT ON THE BASIS OF USER REQUIREMENTS

6.1. **General context and process**

The Copernicus Space Component evolution concerns the adaptations of the Space component beyond 2020 and beyond the current MFF. This chapter details preparatory activities necessary to support a decision on the future evolution of the Copernicus Space Component, within the framework of the Space Strategy. It details user requirements activities which shall be carried out under the current MFF as preparatory actions for the Copernicus Space Component Evolution. These activities shall take into account, where appropriate, elements of the ESA Long-term Scenario. Adaptations could include:

(a) Changes to the current Space Component Infrastructure;

(b) Development of Dedicated Copernicus Missions;

(c) Arrangements to obtain data from Contributing Missions.

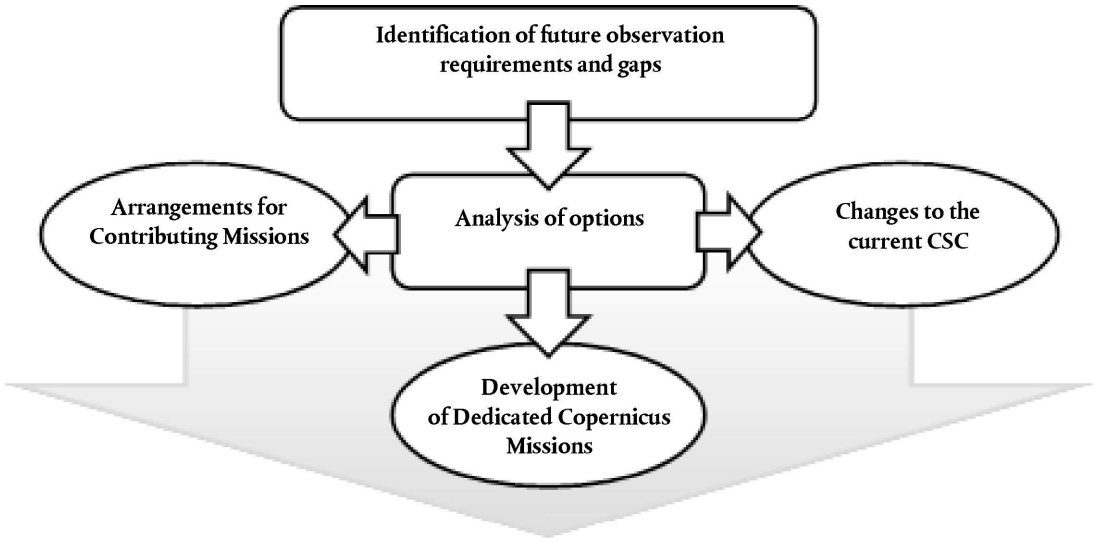
User requirement activities to be conducted to scope the evolution of the Copernicus Space Component (Figure 2) shall include:

(a) Identification of future observation requirements and gaps;

(b) Analysis of options to meet evolving observation needs, these options could include the adaptations listed above.

Figure 2

Copernicus Space Component Evolution Process



6.2. **Identification of future observation requirements and gaps**

The identification of future observation requirements and gaps shall be a Commission-led process which shall be supported by evolution-related activities conducted by the Copernicus Entrusted Entities.

The process shall consist of three major activities:

(a) Stakeholder consultation;

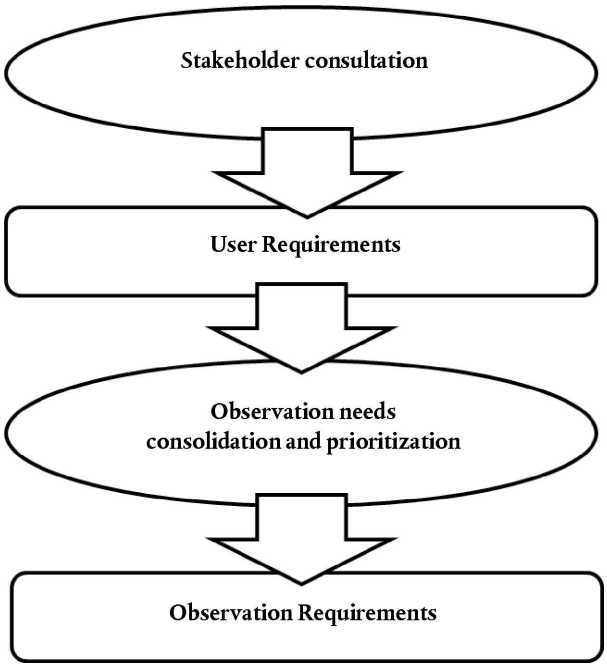
(b) User Requirements consolidation and prioritisation;

(c) Establishment of the observation requirements.

Figure 3 illustrates the overall process for establishing the Data Requirements and gaps.

Figure 3

Overall Process for Establishing the Data Requirements



Stakeholder consultation

The Commission shall conduct an extensive stakeholder consultation on user requirements. Observation and service requirements shall be collected through web-based surveys, workshops, user and market uptake activities, face-to-face meetings and existing processes and documentation. The consultation shall address the Copernicus community *at large*, specifically involving the Copernicus Services and Member States. The final documentation set shall cover **User Requirements** for all Copernicus thematic domains (marine, atmosphere, land, emergency, security and climate change). The User Requirements shall feed into the *Observation needs consolidation and prioritisation activity*.

User Requirements consolidation and prioritisation

The User requirements shall be consolidated and prioritised. This shall follow an iterative process, guided by the Commission, between the Space Agencies (ESA and EUMETSAT) and the Copernicus Core users (with a focus on the Copernicus Services, Union Institutions and Member States, represented by the User Forum). The stakeholder consultation documentation will require an in depth analysis in order to identify and organise user requirements according to underlying observation needs. This analysis shall include specifications on technical details with respect to timeliness, geographic area to be covered, update frequency in terms of temporal resolution, content in terms of observations and required accuracy.

As part of the process, the requirements shall be prioritised to allow an efficient assessment of various technological options. The prioritisation shall be conducted by the Commission and shall be assessed by ESA and EUMETSAT (evaluating technological aspects) and the Core Users expert group (to assess user aspects).

6.3. **Analysis of options to meet evolving data needs**

Analysis of options to meet evolving data needs should consider:

(a) Changes to the current Space Component infrastructure;

(b) Development of Dedicated Copernicus Missions and;

(c) Future arrangements to obtain data from Contributing Missions.

Changes to the current Space Component Infrastructure may include the addition of new products based upon on the existing Sentinels. Other potential adaptions may include the increase of a Sentinel constellation from 2 to 3 satellites post 2020 to address potential requirements for more frequent data.

Future arrangements to obtain data from Contributing Missions shall consider the Third Party data available and the identified observation needs.

Development of Dedicated Copernicus Missions shall consider:

(a) Definition of Next Generation Sentinels for continuity of observations beyond 2030;

(b) Definition of Expansion Sentinels to address Observation gaps starting from 2022-2025.

Analysis of options to meet the established observation requirements shall also take into account the following elements:

(a) Copernicus Technical Baseline and Space Component Technical Specifications;

(b) Outcome of the Mid-term evaluation of the Copernicus Programme;

(c) Impact Assessment of several evolution scenarios, including a cost benefit analysis.

Furthermore, the analysis shall take into account technical elements such as the availability of Third party missions and technology readiness levels.

6.4. **Establishment of Technical requirements for new dedicated missions**

Whenever the option for new dedicated missions is selected, a mission analysis shall be conducted which includes:

(a) Elaboration of the Mission statement based on the Data requirements, including expected performance;

(b) Technical requirements specification;

(c) Identification of possible mission concepts;

(d) Assessment of programmatic aspects;

(e) Risk Assessment.

The outcome of this analysis shall be detailed in a *Mission Requirements Document* and forms the basis for possible further satellite development and operations phases.

6.5. **Timing and progress of the Space Component evolution activities**

6.5.1. *General Timeline*

The general timeline for the evolution of the Space Component shall include the activities as shown in the table below.

Time	Activity
until 2018	— Stakeholder consultations
until 2018	— Technical Baseline of Copernicus — User and Observation requirements — Mid-term evaluation of Copernicus — Impact Assessment of Copernicus evolution scenario's
until 2018	— Legislative proposal for the Copernicus Regulation covering 2021-2027 — Establishment of Technical Requirements for new missions
2019 – 2020	— Preparatory activities for potential CSC evolutions

6.5.2. *Progress of the Space Component Evolution activities*

The Copernicus Space Component evolution preparatory activities shall respond to the general orientations as provided in the 2016 Space strategy, in particular the preparatory activities shall consider the user requirements for:

(a) 'continuous improvement of current services and infrastructure' and;

(b) 'additional services to meet emerging needs in specific priority areas':

(1) climate change and sustainable development, to monitor CO_2 and other greenhouse gas emissions, land use and forestry, and changes in the Arctic;

(2) security and defence to improve the Union's capacity to respond to evolving challenges related to border controls and maritime surveillance.

The following generic observation needs shall be considered when defining future evolution scenarios:

(a) **Continuity of observations**: As a key priority, users indicated the need to ensure continuity of observations, beyond what is currently planned, with on the long-term potential improvements in terms of spatial resolution, update frequency, timeliness

(b) **New observations in response to emerging needs**:

(1) Monitoring of anthropogenic CO_2 emissions;

(2) Monitoring of polar areas to support operational (ice) monitoring and/or climate change applications in the context of the EU Arctic Policy;

(3) Enhanced monitoring for agriculture and forestry, in particular to support water and biodiversity applications;

(4) Enabling of novel applications for mining, drought monitoring, cultural heritage, hydrology, biodiversity, soil moisture and other parameters, requiring observations, currently not available;

(5) Enhanced security applications;

(6) Monitoring of environmental implementation compliance and crime applications.

Preparatory activities to support future Copernicus space component scenarios may include:

(a) **Groups of domain experts**, to analyse the high-level programmatic context, state-of-the-art and concept feasibility to support the definition of Task Forces. Groups of domain experts shall be established to assess monitoring needs related to Security and Anthropogenic CO_2 emissions;

(b) **Task Forces**, to elaborate and further fine-tune the observation requirements, as well as to analyse potential technical solutions with the objective to specify initial mission requirements. These analyses shall take into account current observation capacities and the renewal/upgrade of the existing infrastructure, technological maturity and the potential for international cooperation. In particular the following Task Forces shall be established:

(1) Anthropogenic CO_2 emission Monitoring;

(2) Polar Observations;

(3) High spatio-temporal resolution Land Surface Temperature Monitoring, to address applications for agriculture, hydrology, forestry and the environment at large;

(4) Hyperspectral Imaging to enable innovative applications in biodiversity, mining, agriculture and forestry.

(c) **Preparatory Studies**, as an input to the work of the Task Forces;

(d) **Consultation** with EU Member States, Copernicus Participating States, ESA and EUMETSAT Member States, to ensure alignment of priorities and ensure consistency with the content of the ESA Long Term Scenario.

Based upon these activities, scenarios for the evolution of the Copernicus Space Component shall be examined including a thorough cost-benefit assessment.

The Copernicus Space Component evolution shall be tailored to the available budget of the next Multiannual Financial Framework and to the funds mobilised by EU, ESA, participating Member States and potential additional funding sources. With these constraints in mind, evolution scenarios could be:

(a) baseline evolution scenario: a sustainable Copernicus, that foresees the programme at its current level of performance, including continued operations of services, necessary renewal/upgrade of the existing infrastructure, actions in support of improved data access and distribution and support to user uptake beyond 2020;

(b) evolution and expansion scenario: a sustainable and expanded Copernicus considering two priority areas to address emerging needs:

(1) new observation capacities in support of environmental needs focussed on Climate change (e.g. monitoring of CO_2 and other greenhouse gas emissions for which no satellite observations are currently available), observations of the polar regions (focussed on the monitoring of sea ice and weather in the Arctic) and support to Agriculture including the monitoring of water related parameters which could be addressed through thermal infrared observations;

(2) new observation capacities in support of security and/or defence needs to address the new challenges the Union faces in terms of security, migration or border control.

The outcomes of the User Requirements process, cost-benefit analysis, technical feasibility, maturity of the technological solution, and overall affordability shall define the technical boundary conditions for the Copernicus Space Component evolution beyond 2020.

COMMISSION IMPLEMENTING DECISION (EU) 2018/622

of 20 April 2018

not approving chlorophene as an existing active substance for use in biocidal products of product-type 3

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products ([1]), and in particular Article 89(1) thereof,

Whereas:

(1) Commission Delegated Regulation (EU) No 1062/2014 ([2]) establishes a list of existing active substances to be evaluated for their possible approval for use in biocidal products. That list includes chlorophene (EC No: 204-385-8, CAS No: 120-32-1).

(2) Chlorophene has been evaluated for use in products of product-type 3, veterinary hygiene, as described in Annex V to Regulation (EU) No 528/2012.

(3) Norway was designated as evaluating competent authority and submitted the assessment report together with its recommendations on 22 December 2016.

(4) In accordance with Article 7(2) of Delegated Regulation (EU) No 1062/2014, the opinion of the European Chemicals Agency was formulated on 3 October 2017 by the Biocidal Products Committee, having regard to the conclusions of the evaluating competent authority.

(5) According to that opinion, biocidal products used for product-type 3 containing chlorophene may not be expected to satisfy the requirements laid down in Article 19(1)(b) of Regulation (EU) No 528/2012. For that product-type, the scenarios evaluated in the human health risk assessment identified unacceptable risks.

(6) It is therefore not appropriate to approve chlorophene for use in biocidal products of product-type 3.

(7) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Biocidal Products,

HAS ADOPTED THIS DECISION:

Article 1

Chlorophene (EC No: 204-385-8, CAS No: 120-32-1) is not approved as an active substance for use in biocidal products of product-type 3.

Article 2

This Decision shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels, 20 April 2018.

For the Commission

The President

Jean-Claude JUNCKER

([1]) OJ L 167, 27.6.2012, p. 1.

([2]) Commission Delegated Regulation (EU) No 1062/2014 of 4 August 2014 on the work programme for the systematic examination of all existing active substances contained in biocidal products referred to in Regulation (EU) No 528/2012 of the European Parliament and of the Council (OJ L 294, 10.10.2014, p. 1).

COMMISSION IMPLEMENTING DECISION (EU) 2018/623

of 20 April 2018

amending the Annex to Implementing Decision (EU) 2017/247 on protective measures in relation to outbreaks of highly pathogenic avian influenza in certain Member States

(notified under document C(2018) 2481)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Directive 89/662/EEC of 11 December 1989 concerning veterinary checks in intra-Community trade with a view to the completion of the internal market ([1]), and in particular Article 9(4) thereof,

Having regard to Council Directive 90/425/EEC of 26 June 1990 concerning veterinary and zootechnical checks applicable in intra-Community trade in certain live animals and products with a view to the completion of the internal market ([2]), and in particular Article 10(4) thereof,

Whereas:

(1) Commission Implementing Decision (EU) 2017/247 ([3]) was adopted following outbreaks of highly pathogenic avian influenza of subtype H5 in a number of Member States ('the concerned Member States'), and the establishment of protection and surveillance zones by the competent authority of the concerned Member States in accordance with Article 16(1) of Council Directive 2005/94/EC ([4]).

(2) Implementing Decision (EU) 2017/247 provides that the protection and surveillance zones established by the competent authorities of the concerned Member States in accordance with Directive 2005/94/EC are to comprise at least the areas listed as protection and surveillance zones in the Annex to that Implementing Decision. Implementing Decision (EU) 2017/247 also lays down that the measures to be applied in the protection and surveillance zones, as provided for in Article 29(1) and Article 31 of Directive 2005/94/EC, are to be maintained until at least the dates for those zones set out in the Annex to that Implementing Decision.

(3) Since the date of its adoption, Implementing Decision (EU) 2017/247 has been amended several times to take account of developments in the epidemiological situation in the Union as regards avian influenza. In particular, Implementing Decision (EU) 2017/247 was amended by Commission Implementing Decision (EU) 2017/696 ([5]) in order to lay down rules regarding the dispatch of consignments of day-old chicks from the areas listed in the Annex to Implementing Decision (EU) 2017/247. That amendment took into account the fact that day-old chicks pose a very low risk for the spread of highly pathogenic avian influenza compared to other poultry commodities.

(4) Implementing Decision (EU) 2017/247 was also subsequently amended by Commission Implementing Decision (EU) 2017/1841 ([6]) in order to strengthen the disease control measures applicable where there is an increased risk for the spread of highly pathogenic avian influenza. Consequently, Implementing Decision (EU) 2017/247 now provides for the establishment at Union level of further restricted zones in the concerned Member States, as referred to in Article 16(4) of Directive 2005/94/EC, following an outbreak or outbreaks of highly pathogenic avian influenza, and the duration of the measures to be applied therein. Implementing Decision (EU) 2017/247 now also lays down rules for the dispatch of live poultry, day-old chicks and hatching eggs from the further restricted zones to other Member States, subject to certain conditions.

([1]) OJ L 395, 30.12.1989, p. 13.
([2]) OJ L 224, 18.8.1990, p. 29.
([3]) Commission Implementing Decision (EU) 2017/247 of 9 February 2017 on protective measures in relation to outbreaks of the highly pathogenic avian influenza in certain Member States (OJ L 36, 11.2.2017, p. 62).
([4]) Council Directive 2005/94/EC of 20 December 2005 on Community measures for the control of avian influenza and repealing Directive 92/40/EEC (OJ L 10, 14.1.2006, p. 16).
([5]) Commission Implementing Decision (EU) 2017/696 of 11 April 2017 amending Implementing Decision (EU) 2017/247 on protective measures in relation to outbreaks of the highly pathogenic avian influenza in certain Member States (OJ L 101, 13.4.2017, p. 80).
([6]) Commission Implementing Decision (EU) 2017/1841 of 10 October 2017 amending Implementing Decision (EU) 2017/247 on protective measures in relation to outbreaks of the highly pathogenic avian influenza in certain Member States (OJ L 261, 11.10.2017, p. 26).

(5) In addition, the Annex to Implementing Decision (EU) 2017/247 has been amended numerous times, mainly to take account of changes in the boundaries of the protection and surveillance zones established by the concerned Member States in accordance with Directive 2005/94/EC.

(6) The Annex to Implementing Decision (EU) 2017/247 was last amended by Commission Implementing Decision (EU) 2018/560 [1], following the notification by Bulgaria of a new outbreak of highly pathogenic avian influenza of subtype H5N8 in a poultry holding in the Yambol region of that Member State. Bulgaria also notified the Commission that it had duly taken the necessary measures required in accordance with Directive 2005/94/EC following that outbreak, including the establishment of protection and surveillance zones around the infected poultry holding.

(7) Since the date of the last amendment made to Implementing Decision (EU) 2017/247 by Implementing Decision (EU) 2018/560, Bulgaria has notified the Commission of recent outbreaks of highly pathogenic avian influenza of subtype H5 in poultry holdings in the Plovdiv region of that Member State.

(8) Bulgaria has also notified the Commission that it has taken the necessary measures required in accordance with Directive 2005/94/EC following those recent outbreaks, including the establishment of protection and surveillance zones around the infected poultry holdings in that Member State.

(9) The Commission has examined those measures in collaboration with Bulgaria, and the Commission is satisfied that the boundaries of the protection and surveillance zones, established by the competent authority of Bulgaria, are at a sufficient distance to the poultry holdings where the new outbreaks were confirmed.

(10) In order to prevent any unnecessary disturbance to trade within the Union, and to avoid unjustified barriers to trade being imposed by third countries, it is necessary to rapidly describe at Union level, in collaboration with Bulgaria, the protection and surveillance zones established in Bulgaria, in accordance with Directive 2005/94/EC, following the recent outbreaks of highly pathogenic avian influenza in that Member State.

(11) Implementing Decision (EU) 2017/247 should therefore be updated to take account of the up-to-date epidemiological situation in Bulgaria, as regards highly pathogenic avian influenza. In particular, the newly established protection and surveillance zones in Bulgaria, now subject to restrictions in accordance with Directive 2005/94/EC, should be listed in the Annex to Implementing Decision (EU) 2017/247.

(12) The Annex to Implementing Decision (EU) 2017/247 should therefore be amended to update regionalisation at Union level in order to include the protection and surveillance zones established in Bulgaria, in accordance with Directive 2005/94/EC, following the recent outbreaks of highly pathogenic avian influenza in that Member State, and the duration of the restrictions applicable therein.

(13) Implementing Decision (EU) 2017/247 should therefore be amended accordingly.

(14) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS DECISION:

Article 1

The Annex to Implementing Decision (EU) 2017/247 is amended in accordance with the Annex to this Decision.

[1] Commission Implementing Decision (EU) 2018/560 of 10 April 2018 amending the Annex to Implementing Decision (EU) 2017/247 on protective measures in relation to outbreaks of highly pathogenic avian influenza in certain Member States (OJ L 93, 11.4.2018, p. 11).

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 20 April 2018.

For the Commission
Vytenis ANDRIUKAITIS
Member of the Commission

ANNEX

The Annex to Implementing Decision (EU) 2017/247 is amended as follows:

(1) In Part A, the entry for Bulgaria is replaced by the following:

'**Member State: Bulgaria**

Area comprising:	Date until applicable in accordance with Article 29(1) of Directive 2005/94/EC
Yambol region:	
Municipality of Straldzha — Zimnitsa	26.4.2018
Plovdiv region:	
Municipality of Rodopi — Krumovo — Yagodovo	9.5.2018
Municipality of Maritsa — Kalekovets — Trilistnik Municipality of Rakovski — Stryama	10.5.2018'

(2) In Part B, the entry for Bulgaria is replaced by the following:

'**Member State: Bulgaria**

Area comprising:	Date until applicable in accordance with Article 31 of Directive 2005/94/EC
Yambol region:	
Municipality of Straldzha — Zimnitsa	From 27.4.2018 to 6.5.2018
Municipality of Yambol — Yambol	6.5.2018
Municipality of Straldzha — Straldzha — Vodenichene — Dzhinot	
Municipality of Tundzha — Mogila — Veselinovo — Kabile	

Area comprising:	Date until applicable in accordance with Article 31 of Directive 2005/94/EC
Sliven region:	
Municipality of Sliven — Zhelyu Voivoda — Blatets — Dragodanovo — Gorno Aleksandrovo	
Plovdiv region:	
Municipality of Rodopi: — Krumovo — Yagodovo	From 10.5.2018 to 18.5.2018
Municipality of Rodopi — Brestnik — Belashtica — Markovo — Branipole Municipality of Sadovo — Katunica — Karadzhovo — Kochevo — Mominsko Municipality of Kuklen — Kuklen — Ruen Municipality of Maritsa — Skutare — Rogosh Municipality of Asenovgrad — Asenovgrad Municipality of Plovdiv — Plovdiv	18.5.2018
Municipality of Maritsa — Kalekovets — Trilistnik Municipality of Rakovski — Stryama	From 11.5.2018 to 19.5.2018
Municipality of Maritsa — Yasno pole — Dink — Maritsa — Kalekovets — Trud	19.5.2018’

Area comprising:	Date until applicable in accordance with Article 31 of Directive 2005/94/EC
— Zhelyazno — Voivodino — Skutare — Rogosh — Manole — Manolsko konare Municipality of Rakovski — Rakovski — Momino selo	

RECOMMENDATIONS

COMMISSION RECOMMENDATION (EU) 2018/624

of 20 April 2018

on cross-border market access for sub-suppliers and SMEs in the defence sector

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 thereof,

Whereas:

(1) The European Council, in December 2013, set the objective of achieving a better integrated and more sustainable, innovative and competitive defence technological and industrial base (EDTIB), which is needed to develop and sustain defence capabilities and strengthen Europe's strategic autonomy and its ability to take action in cooperation with partners. In this context, it underlined the importance of cross-border market access for small and medium-sized enterprises (SMEs), called on the Commission to investigate the possibility of additional measures to open up supply chains to SMEs from all Member States, and noted that SMEs are a major component of the defence supply chain, a source of innovation and key enablers of competitiveness ([1]).

(2) The European Defence Action Plan (EDAP) of 30 November 2016 announced that the Commission would make recommendations to facilitate cross-border market access for SMEs and intermediate companies in the defence sector. This was also confirmed in the Commission Communication 'Launching the European Defence Fund' ([2]), adopted on 7 June 2017.

(3) The Commission considers competitive cross-border supply chains to be a crucial component of a better integrated and more competitive EDTIB, and believes that the European defence equipment market should provide opportunities for European companies irrespective of their size and location.

(4) This Recommendation has been developed with input from the Commission's advisory group on cross-border access for SMEs to defence and security contracts, which completed its work and published its final report in November 2016 ([3]), and from Member State experts. It is part of a broad range of Commission initiatives and activities designed to support SMEs active in the field of defence.

(5) The work done by the European Defence Agency (EDA) ([4]) in the areas of defence procurement, skills, funding and SME capacity has been taken into account in developing this Recommendation ([5]).

(6) Since industry players, especially prime contractors, play a key role in defence, the Commission, in addition to developing this Recommendation, also started a dialogue with industry stakeholders with a view to identifying and finding common agreement on possible further actions aimed at creating the conditions for competitive cross-border defence supply chains.

([1]) This recommendation tackles issues directly related with the cross-border participation of SMEs and intermediate companies in defence procurement contracts, but does not tackle issues that might have a significant but indirect influence on them, in particular the intra-EU transfers of defence-related products, standardisation and certification.

([2]) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Launching the European Defence Fund (COM(2017) 295 final).

([3]) http://ec.europa.eu/DocsRoom/documents/20354/

([4]) https://www.eda.europa.eu/

([5]) For an overview of EDA's activities in this domain: https://www.eda.europa.eu/procurement-biz/information/eda-market-industry-policies; https://www.eda.europa.eu/what-we-do/activities/activities-search/small-and-medium-sized-enterprises-(smes).

(7) Member State action could significantly improve cross-border market access for SMEs and intermediate companies in the defence sector. This Recommendation should therefore list types of action that could remedy some of the problems facing SMEs and intermediate companies or help integrate them into defence supply chains.

(8) Obtaining early information on future armament plans and projects could enable SMEs and intermediate companies to better anticipate market developments and possible participation in defence projects and contracts.

(9) Advertising contracts of a value below the threshold established by Articles 8 and 9 of Directive 2009/81/EC of the European Parliament and of the Council ([1]) would enhance competition. It would also encourage SMEs' participation in the defence sector. Contracting authorities should not limit such advertising to their own Member State.

(10) The complex nature of the information in procurement documents made available to tenderers or potential tenderers by the contracting authorities could deter new, smaller businesses from entering the public procurement market. Such information must therefore be relevant and well-structured.

(11) The scale of defence procurement tenders and the related requirements on suitability to provide services constitute further obstacles to SMEs and intermediate companies. Concluding separate smaller contracts grouped into lots within a single public procurement procedure could help address this issue.

(12) Allowing longer periods of time for submitting bids would benefit SMEs and intermediate companies by giving them more time to identify business opportunities and organise their participation.

(13) The possibility of relying on the capacities of other economic operators, including subcontractors or other participants in consortia or groups, facilitates access to the procurement market, especially where particularly large purchases are concerned. Economic operators interested in obtaining public procurement contracts should be aware of these opportunities from the outset.

(14) Extensive and complex tender documents as well as the need to provide evidence and certificates are aspects that could deter companies, especially SMEs and intermediate companies, from entering the defence procurement market. To facilitate access to that market, contracting authorities should, wherever possible, agree to evaluate the qualitative selection criteria at the tendering stage on the sole basis of the preliminary evidence provided by the tenderers. They should require the submission of supporting documents and certificates proving the fulfilment of those criteria just before the signature of the contract. Preliminary evidence concerning the fulfilment of qualitative selection criteria could take the form of a standardised self-declaration, the European Single Procurement Document (ESPD) ([2]).

(15) Regional cooperation across Member States and clustering of businesses are other options that could help boost smaller firms' market position.

(16) Innovativeness is the main asset that SMEs could bring to the defence industry. All initiatives supporting research and technology (R&T) should thus take particular account of SMEs and secure their effective participation as far as possible.

(17) Developing skills for which the defence industry has a particular need could enable new players to enter the European defence market,

([1]) Directive 2009/81/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of procedures for the award of certain works contracts, supply contracts and service contracts by contracting authorities or entities in the fields of defence and security, and amending Directives 2004/17/EC and 2004/18/EC (OJ L 216, 20.8.2009, p. 76).

([2]) European Single Procurement Document (ESPD) as defined by Commission Implementing Regulation (EU) 2016/7 of 5 January 2016 establishing the standard form for the European Single Procurement Document (OJ L 3, 6.1.2016, p. 16) by virtue of Article 59 of Directive 2014/24/EU.

HAS ADOPTED THIS RECOMMENDATION:

1. TERMINOLOGY

For the purposes of this Recommendation, 'SME' is to be understood as defined in Commission Recommendation 2003/361/EC ([1]), while 'intermediate company' means a firm larger than an SME, but which is not the main contractor in a contract for the supply of complex defence systems.

Throughout the text of this Recommendation, references to 'contracting authorities' are to be understood as encompassing both contracting authorities, as defined in Article 2(1) of Directive 2014/24/EU of the European Parliament and of the Council ([2]) and contracting entities, as defined in Article 4 of Directive 2014/25/EU of the European Parliament and of the Council ([3]). The recommendations addressed to contracting authorities or entities relate to the award of contracts in the fields of defence and security pursuant to Article 2 of Directive 2009/81/EC.

2. PUBLIC PROCUREMENT

2.1. Long-term plans and priorities

Member States should provide, whenever possible and appropriate, early information about their future long-term plans with regard to armaments (capability and research and technology (R&T) requirements and priorities). This can be done by: publishing planning documents; organising targeted events open to businesses (prime contractors, SMEs and intermediate companies) from different Member States; and providing information in a transparent and non-discriminatory way to the defence industry, including the AeroSpace and Defence Industries Association of Europe (ASD), National Defence Industry Associations (NDIAs), and other defence and security business organisations (e.g. clusters), to ensure that the relevant information is disseminated throughout the Union. Care should be taken to ensure that such action does not result in any distortion of competition or in a violation of the principles of non-discrimination and transparency.

2.2. Voluntary publication and transparency measures

Contracting authorities should use, to the greatest possible extent, pre-procurement advertising tools such as Prior Information Notices (PIN) ([4]) and organise targeted events on advance procurement plans and specific projects. Such events should target businesses (prime contractors, SMEs and intermediate companies) from different Member States. The relevant information could be disseminated across the defence industry, including the ASD, NDIAs and other defence and security business organisations (e.g. clusters). When using these tools, contracting authorities should take care to comply with the principles of transparency and non-discrimination, and clarify the provisional nature of the procurement plans at stake.

Contracting authorities should seek to advertise procurement opportunities as widely as possible, going beyond the applicable legal requirements. This implies, for instance, advertising the information in the contract notice as widely as possible once it has been sent for publication in the Supplement to the *Official Journal of the European Union* (Tender Electronic Daily (TED)), and providing a mechanism for economic operators interested in future calls to subscribe to mailings about published notices.

Contracting authorities should, whenever possible, advertise procurement opportunities for contracts below the threshold established by Articles 8 and 9 of Directive 2009/81/EC ([5]) through voluntary publications on relevant portals and websites (not necessarily in TED) and send requests for information or requests for quotation to potentially

([1]) See: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF
([2]) Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (OJ L 94, 28.3.2014, p. 65).
([3]) Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC (OJ L 94, 28.3.2014, p. 243).
([4]) Article 30(1) of Directive 2009/81/EC.
([5]) Estimated value of contracts and of framework agreements calculated in line with Article 9. Thresholds in Article 8 are biannually updated; overall information about current procurement thresholds is presented at: https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en

interested businesses across the Union. Care should be taken to ensure that such actions do not distort competition or violate the principles of non-discrimination and transparency. The contracting authorities should also hold simplified competitive procedures for low-value contracts, even if this is not formally required by national rules.

2.3. **Quality of information**

Contracting authorities should provide the market with meaningful and accurate short items of information (e.g. a description of the procurement in contract notices published in TED). This enables businesses to screen and identify opportunities, and to make informed decisions on whether they have an interest in submitting a bid.

Whenever possible, they should provide a courtesy translation of such information into English or one of the other languages commonly used in the defence trade, either on the website of the procurement authority or for publication in TED.

2.4. **Division into lots**

Contracting authorities should consider the possibility of sub-dividing contracts into lots. They could also consider tendering in separate lots, while requiring the companies that bid successfully for these lots to work with the economic operator which has been awarded the contract for coordination of the whole project (the general contractor).

2.5. **Preparation and conduct of procedures**

Article 33 of Directive 2009/81/EC obliges contracting authorities, when fixing the time limits for receipt of requests to participate and tenders, to take particular account of the complexity of the contract and the time required for drawing up tenders, without prejudice to the minimum time limits laid down in that Article. Contracting authorities should, whenever possible, allow more time than required by the rules of that Article to submit offers. This extended time period will give industry, especially SMEs, more time to decide whether to tender, to prepare and to submit the tender, and to make the necessary arrangements to form consortia or organise subcontracting.

Electronic procurement, especially the submission of bids by electronic means, helps streamline procedures and reduces red tape and administrative costs. This can reduce market access hurdles (bidding costs), especially for smaller firms with limited administrative resources. Wherever possible, bearing in mind the contract subject-matter and, in particular, the need to protect classified information, contracting authorities should use electronic procurement.

In the contract notice, contracting authorities should consistently draw potential tenderers' attention to the possibility of relying on the capacity of other parties, including subcontractors ([1]) or members of the same consortium or group ([2]), to fulfil the suitability criteria, in accordance with Article 41(2) and (3) and Article 42(2) and (3) of Directive 2009/81/EC.

Contracting authorities should seek to alleviate the administrative burden arising from the procurement procedure. For example, they should, as far as possible, avoid holding numerous negotiation meetings and request only the information or documentation necessary for the specific procedure in question.

2.6. **Qualitative selection**

Contracting authorities should keep selection criteria proportionate and avoid setting requirements that are not strictly necessary. In the case of technical and professional capacity, they should opt for selection criteria enabling them to ascertain whether a tenderer has the capacity required for the contract in question, not to assess its general capacity. As regards economic and financial standing, the minimum yearly turnover required should not exceed twice the estimated contract value.

([1]) See Article 1, point 22 and Article 21 of Directive 2009/81/EC.
([2]) See Article 1, point 13 and Article 5(2) of Directive 2009/81/EC.

Security of supply (SoS) and security of information (SoI) requirements, as non-mandatory exclusion grounds, selection criteria or contract performance conditions, should also be kept proportionate and in line with the needs of the individual procurement. Specifically, where such requirements are applied, care should be taken to limit them to what is necessary to achieve the particular aim pursued, and to ensure that they do not unduly restrict competition. Member States should make sure that, where security clearance is required and the contracting authorities are confronted with candidates whose security clearance was issued by another Member State, appropriate and timely steps are taken to assess, with due regard to Article 22 of Directive 2009/81/EC, whether such security clearance is equivalent to that issued under the national law of the contracting authority ([1]). Member States should make efforts to ensure that fulfilment of the SoS and SoI requirements of other Member States by their defence-oriented enterprises is possible and credible.

Article 38 of Directive 2009/81/EC requires verification of the suitability of candidates, in line with the criteria and by means of proof set by the contracting authorities in accordance with the Directive. Such proof may include certificates. However, the contracting authorities are not obliged to require certificates and other forms of documentary evidence to be submitted at the same time as the bids. To facilitate participation in the tendering procedures, the contracting authorities should consider accepting, as preliminary evidence at the time when bids are submitted, self-declarations on:

— the tenderer's personal situation (Article 39 of Directive 2009/81/EC),

— the tenderer's suitability to pursue the professional activity (Article 40 of Directive 2009/81/EC),

— the tenderer's fulfilment of the criteria regarding economic and financial standing and technical and professional ability (Articles 41-44 of Directive 2009/81/EC),

requiring submission of relevant evidence and certificates only at the award stage, i.e. before the signing of the contract, but after evaluation and choice of winner. In this context, Member States should consider allowing economic operators to submit or reuse a self-declaration through the standardised self-declarations (ESPD, known from general public procurement law, Article 59 of Directive 2014/24/EU), where necessary supplemented by information not covered by the ESPD.

There is nothing to prevent the contracting authorities from requesting further information, including some or all of the supporting documents, should they have any doubts at any point in the procedure, to ensure its proper conduct. There may be a particular need for this if a contracting authority decides to limit the number of candidates to be invited to tender or to conduct a dialogue (Article 38(3) of Directive 2009/81/EC). When making such requests for information or supporting documents, contracting authorities should always ensure compliance with the principle of non-discrimination.

Contracting authorities should not require tenderers to supply supporting documents which are already in their possession, or which they can easily obtain by directly accessing a national database, in any Member State, that is available free of charge.

Whenever possible, contracting authorities should use the option of granting candidates that do not yet hold security clearance (if such clearance is required) additional time to obtain it (third subparagraph of Article 42(1)(j) of Directive 2009/81/EC). As a general principle, contracting authorities should always avail themselves of the possibility of asking economic operators to provide missing documents and certificates relating to exclusion and selection criteria, or to clarify such documents and certificates if they are unclear (Article 45 of Directive 2009/81/EC).

Member States should facilitate cross-border use of documentation and certificates. In particular, they should ensure that information on certificates and other forms of documentary evidence for tendering under Directive 2009/81/EC are entered in e-Certis ([2]) and regularly updated. When carrying out procedures under Directive 2009/81/EC, contracting authorities should use the e-Certis online repository.

([1]) The last subparagraph of Article 22 of Directive 2009/81/EC provides that 'Member States shall recognise the security clearances which they consider equivalent to those issued in accordance with their national law, notwithstanding the possibility to conduct and take into account further investigations of their own, if considered necessary'. See also paragraph 12 of the Guidance Note on Security of Information: https://ec.europa.eu/docsroom/documents/15411/attachments/1/translations/en/renditions/native

([2]) See: https://ec.europa.eu/growth/tools-databases/ecertis

2.7. **Procurement training and capacity building**

Member States should organise training for procurement officers, provide opportunities to share experience, as well as guidance materials. They should provide dedicated training to highlight the specific characteristics of SMEs and their inherent operational constraints (financial flows, human resources, intellectual property rights management, etc.).

Member States should also organise training and prepare information materials for suppliers, service providers and contractors. Such materials should be generally accessible (or at least available to all businesses interested in defence procurement contracts). This would be particularly beneficial to SMEs and intermediate companies.

3. **INDUSTRIAL POLICY**

3.1. **Funding**

Member States' local and regional managing authorities should support SMEs and intermediate companies that are or could be active in defence supply chains. Member States can raise awareness among managing authorities and potential beneficiaries (such as SMEs, intermediate companies, research institutes or academia) about the use of European Structural and Investment Funds in the area of defence. They are encouraged to use the specific guidance which the European Commission is currently drawing up in this respect ([1]).

Member States should consider opening up existing national funding instruments to defence-related SMEs and intermediate companies, if that is not already the case.

Member States should consider other types of possible support for SMEs, e.g. targeted State guarantees for SMEs and intermediate companies joining in cross-border European defence projects of an innovative nature. Such guarantees could partially or fully cover the business risk of smaller companies participating in such endeavours or of banks financing such projects ([2]).

Member States should inform and advise SMEs about funding opportunities at national and European level by making use of fora, platforms and other tools in the defence sector or other economic sectors.

Member States are encouraged to propose smart investment projects for future Test & Evaluation (T&E) requirements. This should open up T&E facilities to SMEs and intermediate companies, helping them to certify their products and benefit from their contribution to European defence qualification and certification efforts.

3.2. **Databases**

Member States could endeavour to map or review their national defence industrial base and to support the dissemination of information on the capacity of their industry. This could be done by, for instance, establishing new databases or contributing to existing ones through entities such as National Defence Industry Associations (NDIAs).

Member States are encouraged to support action to improve existing databases and projects on defence-related companies, their capabilities and available funding schemes and opportunities. This should entail, in particular, linking up existing national databases, NDIAs directories and other existing relevant sources (e.g. lists of members of defence-related clusters). Such tools could also include information on companies' technological capabilities. At a further stage, such databases could enable SMEs and intermediate companies to link their descriptions with Member States' information on future programmes or published procurement notices. Thus, prime contractors could immediately associate a description of an SME with a particular type of project or business opportunity.

([1]) E.g. the 2017 Commission brochure 'Dual use technology in the EU'. See: http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=9255

([2]) The Member State establishing the guarantee scheme should make sure that it does not constitute State aid (in this regard, see the Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008XC0620%2802%29&from=EN) or notify the measure to the Commission.

3.3. **Clusters**

Member States should support the development of world-class competitive regional clusters of excellence in the area of defence and encourage them to cooperate across regions and Member States. Other specific forms of cooperation should be encouraged in clusters by boosting the proactive involvement of technology centres and science parks, 'living labs', finance providers or project-purpose groupings, to boost technology cooperation across sectorial boundaries and foster growth opportunities for defence-related SMEs.

Member States should encourage domestic clusters to seek engagement in European Strategic Cluster Partnerships ([1]) supported under the EU programme for the Competitiveness of Enterprises and Small and Medium-Sized Enterprises (COSME). The purpose of such partnerships is twofold: to enable firms to access non-EU markets, and to boost smart specialisation investments within the Union. Member States should also encourage clusters to try to engage in cooperation within the Union under the relevant Horizon 2020 calls ([2]).

Member States are encouraged to target the defence sector when developing and implementing policies and measures in support of (regional) clusters. To that end, they can make use of existing tools and networks at Union level, such as the European Network of Defence-Related Regions ([3]). They should also promote the European Cluster Collaboration Platform (ECCP) ([4]) widely, as a tool that can help connect their clusters with over 500 cluster organisations, thereby initiating cooperation within and beyond Europe, to the benefit of their SME members.

3.4. **Innovation, R&T**

Member States are asked to provide specific support to SMEs with innovative concepts and technologies that may have defence applications. In addition, dedicated networks of National Contact Points should supply information on the rules of participation in research projects and the award of research grants. They should also organise brokerage events and services.

Member States should seek to design research projects to be SME-friendly. In addition, their defence research institutes should examine to what extent it is possible to involve SMEs in their projects.

Member States should ensure that information on intellectual property rights management is available within defence procurement authorities (e.g. through the contact details of appropriate institutions or booklets available in the authorities' facilities).

Member States should support open reference architectures for modular defence systems, enabling SMEs to design and commercialise subsystems and components independently and competitively.

3.5. **Skills**

Member States should have an overview of the national situation as regards the skills needed by their defence industry.

Member States should take advantage of the recently adopted New Skills Agenda for Europe and the opportunities it is opening up at Union, national and regional levels to address their skills gaps ([5]).

Member States should encourage cooperation between their industry, education and training institutions and other relevant organisations, to pursue concerted action to match supply and demand more satisfactorily and encourage the use of EU tools and instruments to achieve these goals. Member States should consider using the European Structural and Investment Funds ([6]) (ESI Funds), in particular the European Social Fund (ESF) ([7]), to address skills gaps.

([1]) European Cluster Collaboration Platform: https://www.clustercollaboration.eu/eu-cluster-partnerships
([2]) For general information on Horizon 2020 see: https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020
([3]) See: https://www.endr.eu/
([4]) See: https://www.clustercollaboration.eu/
([5]) In particular the Blueprint for Sectoral Cooperation on Skills initiative under the New Skills Agenda for Europe, addressing the defence sector.
([6]) See: https://ec.europa.eu/info/funding-tenders-0/european-structural-and-investment-funds_en
([7]) See: http://ec.europa.eu/esf/home.jsp?langId=en

3.6. **SMEs capacity**

Member States should disseminate information about cross-border success stories to encourage SMEs and sub-suppliers to bid cross-border. They should also support the organisation of cross-border supplier conferences (B2B events and direct meetings with prime contractors) to improve SMEs' understanding of prime contractors' requirements, way of working and the industrial competences and capabilities sought; and provide platforms and opportunities for cross-border contacts between SMEs.

This can be done, for example, by awarding grants to event organisers in proportion to the level of participation by SMEs and start-ups. Such grants could cover various defence sectors in a balanced way. This could help SMEs take part in international B2B meetings, business missions abroad, and other international events.

Member States should also make more systematic use of existing tools at Union level to support SMEs' cross-border activities, notably through match-making services provided, for example, by the Enterprise Europe Network ([1]).

Done at Brussels, 20 April 2018.

For the Commission
Elżbieta BIEŃKOWSKA
Member of the Commission

([1]) See: http://een.ec.europa.eu/

CORRIGENDA

Corrigendum to Commission Implementing Regulation (EU) No 652/2012 of 13 July 2012 correcting Regulation (EC) No 543/2008 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 as regards the marketing standards for poultrymeat

(Official Journal of the European Union L 190 of 19 July 2012)

On page 3, in Annex I replacing Annex I to Regulation (EC) No 543/2008, the column in the first table with the Hungarian names of poultry carcases shall read as follows:

'hu
Csirke, brojlercsirke
Kakas, tyúk, sütésre vagy főzésre szánt szárnyas
Kappan
Csibe
Fiatal kakas
(Fiatal) pulyka
Pulyka
Fiatal kacsa, (fiatal) pézsmakacsa, (fiatal) Mulard-kacsa
Kacsa, pézsmakacsa, Mulard-kacsa
(Fiatal) liba
Liba
(Fiatal) gyöngytyúk
Gyöngytyúk'

On page 5, in Annex I replacing Annex I Regulation (EC) No 543/2008, the column in the second table with the Hungarian names of poultry cuts shall read as follows:

'hu
Fél
Negyed
Összefüggő combnegyedek
Mell
Comb
Csirkecomb a hát egy részével
Felsőcomb
Alsócomb
Szárny
Összefüggő szárnyak

hu
Mellfilé
Mellfilé villacsonttal
Bőrös kacsamellfilé vagy bőrös libamellfilé (magret, maigret)
Kicsontozott pulykacomb'

Corrigendum to Council Implementing Regulation (EU) 2018/286 of 26 February 2018 implementing Regulation (EU) 2017/1509 concerning restrictive measures against the Democratic People's Republic of Korea

(Official Journal of the European Union L 55 of 27 February 2018)

On page 16, in the Annex replacing Annex XIV to Regulation (EU) 2017/1509, in Part B (Vessels which are prohibited entry into ports), entry 6:

for: **'Name: UL JI BONG 6**

Additional information

IMO: 9114556',

read: **'Name: UL JI BONG 6**

Additional information

IMO: 9114555'.

Corrigendum to Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010 and repealing Directive 2007/64/EC

(Official Journal of the European Union L 337 of 23 December 2015)

On page 42, recital 47, third sentence:

for: '… Such an approach is in line with the rationale of Special Recommendation VI of the Financial Action Task Force on Money Laundering which provides for a mechanism whereby payment service providers who are unable to meet all of the conditions set out in that Recommendation may nevertheless be treated as payment institutions. …',

read: '… Such an approach is in line with the rationale of Recommendation 14 of the Financial Action Task Force on Money Laundering which provides for a mechanism whereby payment service providers who are unable to meet all of the conditions set out in that Recommendation may nevertheless be treated as payment institutions. …';

on page 62, Article 5(2):

for: '… liabilities as specified in Articles 73, 89, 90 and 92.',

read: '… liabilities as specified in Articles 73, 90 and 92.';

on page 86, Article 52, point (5)(f):

for: '… payment transactions in accordance with Article 89;',

read: '… payment transactions in accordance with Articles 89 and 90;';

on page 89, Article 61(1), first sentence:

for: '… payment service provider may agree that Article 62(1), Article 64(3), and Articles 72, 74, 76, 77, 80 and 89 …'

read: '… payment service provider may agree that Article 62(1), Article 64(3), and Articles 72, 74, 76, 77, 80, 89 and 90 …';

on page 89, Article 62(1), first sentence:

for: '… unless otherwise specified in Article 79(1), Article 80(5) and Article 88(2).',

read: '… unless otherwise specified in Article 79(1), Article 80(5) and Article 88(4).';

on page 97, Article 76(1), fourth subparagraph:

for: 'Without prejudice to paragraph 3, Member States shall ensure that, in addition to the right referred to in this paragraph, for direct debits as referred to in Article 1 of Regulation (EU) No 260/2012, the payer has an unconditional right to a refund within the time limits laid down in Article 77 of this Directive.',

read: 'Without prejudice to paragraph 3 of this Article, Member States shall ensure that, in addition to the right referred to in the first subparagraph of this paragraph, for direct debits as referred to in Article 1 of Regulation (EU) No 260/2012, the payer has an unconditional right to a refund within the time limits laid down in Article 77 of this Directive.'

on page 103, Article 89(2) fourth subparagraph, first sentence:

for: 'In the case of a non-executed or defectively executed payment transaction for which the payee's payment service provider is not liable under the first and second subparagraphs, the payer's payment service provider shall be liable to the payer. …',

read: 'In the case of a non-executed or defectively executed payment transaction for which the payee's payment service provider is not liable under the first and third subparagraphs, the payer's payment service provider shall be liable to the payer. …';

on page 103, Article 92(1), first sentence:

for: '1. Where the liability of a payment service provider under Articles 73 and 89 is attributable to another payment service provider or to an intermediary, that payment service provider or intermediary shall compensate the first payment service provider for any losses incurred or sums paid under Articles 73 and 89. …',

read: '1. Where the liability of a payment service provider under Articles 73, 89 and 90 is attributable to another payment service provider or to an intermediary, that payment service provider or intermediary shall compensate the first payment service provider for any losses incurred or sums paid under Articles 73, 89 and 90. …';

on page 107, Article 99(1):

for: '1. Member States shall ensure that procedures are set up which allow payment service users and other interested parties including consumer associations, to submit complaints to the competent authorities with regard to payment service providers' alleged infringements of this Directive.',

read: '1. Member States shall ensure that procedures are set up which allow payment service users and other interested parties including consumer associations, to submit complaints to the competent authorities with regard to payment service providers' alleged infringements of the provisions of national law implementing the provisions of this Directive.';

on page 109, Article 102(1), second sentence:

for: '… Member States shall ensure that ADR procedures are applicable to payment service providers and that they also cover the activities of appointed representatives.',

read: '… Member States shall ensure that ADR procedures are applicable to payment service providers.';

on page 110, Article 107(1):

for: '… the second subparagraph of Article 74(1) …',

read: '… the fourth subparagraph of Article 74(1) …'.

Corrigendum to Commission Regulation (EU) 2018/589 of 18 April 2018 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards methanol

(Official Journal of the European Union L 99 of 19 April 2018)

On page 9, in the Annex:

for:

'69. Methanol CAS No 67-56-1 EC No 200-659-6	Shall not be placed on the market to the general public after 9 May 2018 in windscreen washing or defrosting fluids, in a concentration equal to or greater than 0,6 % by weight.'

read:

'69. Methanol CAS No 67-56-1 EC No 200-659-6	Shall not be placed on the market to the general public after 9 May 2019 in windscreen washing or defrosting fluids, in a concentration equal to or greater than 0,6 % by weight.'

Corrigendum to Commission Decision 2010/270/EU of 6 May 2010 amending Parts 1 and 2 of Annex E to Council Directive 92/65/EEC as regards the model health certificates for animals from holdings and for bees and bumble bees (notified under document C(2010) 2624)

(Official Journal of the European Union L 118 of 12 May 2010)

On page 61, in the Annex, point 2, in the certificate, vertical title on the left:

for: '… ofconsinment …',

read: '… of consignment …'.

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