

Contract Awards

under Copernicus Delegation Agreement

1 January 2016 to 31 December 2016¹

¹ One or more Service Contracts may be awarded under a Framework Agreement. This list covers Service Contracts awarded in the period mentioned above. The relevant Framework Agreement may have been awarded in a previous period.

ITT Ref.	Title	Date of award of Framework Agreement (FA) and of Service Contract (SC)	Name of recipient	Address of recipient	Amount of Framework Agreement, Euro	End date of Framework Agreement	Amount of Service Contract Awarded, Euro
C3S_23a	Software Infrastructure for the Climate Data Store (CDS)	FA: 26 May 2016 SC1: 26 May 2016	Telespazio Vega UK Ltd	350 Capability Green Luton LU1 3LU United Kingdom	1,997,000.00	7 Jun 2019	981,281.00

Description:
This contract is for development of software infrastructure for a Climate Data Store (CDS) that will provide access to climate data and tools needed for climate services development and delivery. The software infrastructure will support:

- A web portal providing a central and holistic view of all information available to the C3S;
- Consistent and seamless access to data repositories distributed over multiple data suppliers;
- A catalogue of all data and products available;
- Provision of quality information on all data and products;
- Implementation of toolboxes to allow users to perform computations on the data and develop information products;
- Performance monitoring in terms of usage, system availability of the CDS, response time(s).

C3S_25	Software Development for the Climate Data Store (CDS) Toolbox	FA: 12 Aug 2016 SC1: 12 Aug 2016	B-Open Solutions Srl	Via Principe Eugenio 15 00185 Rome Italy	973,292.31	31 Aug 2019	469,934.00
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Description:
This contract is for development of software for the Climate Data Store (CDS) Toolbox. The CDS is composed of a set of distributed data repositories containing all types of climate data and products ranging from very large datasets such as observation, reanalysis, climate projection, multi-model seasonal forecast products, to smaller and more elaborated value added products such as climate indicator maps, time series, tables, etc.

One of the aims of the C3S is to provide an authoritative set of software (the CDS Toolbox) that will allow the users to develop applications that will make use of the content of the CDS. The Toolbox will be composed of:

- Tools that perform basic operations on data, such as computation of statistics, sub-setting, averaging, value at points, etc.;
- Workflows that combine tools by chaining them so that the output of some feeds as input to others;
- Applications that make use of workflows and selected data and products of the CDS to build interactive webpages.

These applications will be made available to users of the CDS via the C3S web portal, allowing them to perform data manipulation on the data and products of the CDS, and visualise their results. Users will also be able to share with other users of the CDS useful and quality controlled applications they have developed.

The data available in the CDS will vary greatly in volume (kilobytes to petabytes), in format (GRIB, NetCDF) and in nature (observations, fields, time series).

The contractor will:

- Establish the minimum set of tools required (differences or re-gridding, as well as statistical computations such as means or standard deviations);
- Review the existing software that could be used to implement this set of tools;
- Design a common data model that can be used to combine data and products of different types;
- Establish a method by which workflows using data and products that are held in various distributed data repositories can be orchestrated, allowing computation to be performed close to the data and data transfers to be minimised;
- Implement a series of reference applications that will demonstrate all functions offered by the Toolbox and will be used as examples.

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<p>The contractor will work closely with ECMWF and developments will follow an agile methodology. Technological choices will be based on existing open source software. Ownership of all rights in the resulting software will be assigned, through ECMWF, to the European Commission and ECMWF will release the resulting software, on behalf of the European Commission, under an open source licence. The architecture of the system will be open and extendible, and scale both in terms of the number of concurrent users and volume of available data.</p>							
C3S_34a Lot 1	Global climate projections: data access, product generation and impact of front line developments	FA: 30 Sep 2016 SC1: 30 Sep 2016	Science and Technology Facilities Council	Polaris House North Star Avenue Swindon SN2 1SZ United Kingdom	1,329,965.33	14 Dec 2019	439,495.31
<p>Lot 1 Title: Provision of support to one Earth System Grid Federation (ESGF) node in Europe Description: The contractor for Lot 1 will facilitate access and manipulation of global climate projections from the CMIP5 archive. On the technical side, requirements will be set in terms of response time, availability of a user friendly interface with the C3S Climate Data Store and web portal, documentation standards, implementation of appropriate protocols (e.g. OPeNDAP) to allow computations from stored data on local servers. Scientific requirements on available data will also be specified in terms of number of supported models, number of available scenarios, availability of historical (e.g. 20th century to current date) simulations, minimum ensemble size. The focus of this particular contract is on non-initialized scenario simulations running up to 2100.</p>							
C3S_34a Lot 2	Global climate projections: data access, product generation and impact of front line developments	FA: 3 Nov 2016 SC1: 3 Nov 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	1,139,741.72	31 Mar 2019	572,204.94
<p>Lot 2 Title: Multi-model product generation Description: The contractor for Lot 2 will define the metrics aimed at quantifying the fidelity of available models in simulating historical climate condition, and the application of these metrics to most historical model datasets served by C3S. These metrics will make use of observations and reanalyses from the C3S Climate Data Store, and will be translated into quality flags to be used for the selection of the appropriate input to specific applications. This contract will also provide a suite of interactive tools for the generation of both generic products (for example, maps of intra-ensemble variability for different models and scenarios, etc.), and tailored products for at least four economic sectors (including energy and water).</p>							
C3S_34a Lot 3	Global climate projections: data access, product generation and impact of front line developments	FA: 12 Aug 2016 SC1: 12 Aug 2016	Met Office	FitzRoy Road Exeter EX1 3PB United Kingdom	567,493.70	30 Nov 2018	224,919.61
<p>Lot 3 Title: Roadmap toward a reference set of climate projections for Europe (EUCP) Description: The contractor for Lot 3 will perform impact studies to assess the benefit of additional resources for front-line global simulations, in order to guide requirements and resource allocations for the operational phase of C3S. These studies will respond to sectoral (and associated ECV) requirements, by analysing how CMIP6/MIPs address these best. The contractor will investigate the comparative benefit of increased ensemble size versus resolution for global models, using for example simulations contributing to the CMIP6 HighResMIP as a reference, and linking the results to the specific needs of different economic sectors. The contractor will assess the benefit of initialised projections for the 1st 1/2 of the 21st Century, with a focus on advantages and disadvantages of estimating multi-decadal signals in the presence of a drifting model climate, and their consequences in terms of climate information to be used by sectoral applications. The work to be undertaken is closely linked to outcomes of relevant FP7/H2020 projects and CMIP5/CMIP6 simulations.</p>							

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C3S_51 Lot 2	Evaluation and Quality Control Function for the Climate Data Store	FA: 12 Oct 2016 SC1: 12 Oct 2016	NPL Management Limited	Hampton Hill Teddington TW11 0LW United Kingdom	2,040,765.20	31 Dec 2018	956,000.00
<p>Lot 2 Title: Quality Assurance for ECV Products from Observations</p> <p>Description:</p> <p>Activities in Lot 2 will address ECV products derived directly from observations without use of an assimilating model. Data used will include in situ observations and satellite measurements and will cover global and/or regional scales. An inventory of observational ECV products will be produced and include a description of the input observations and processing methods used as well as spatial coverage and resolution of the data, length of record and where relevant, product update frequency and timeliness. EQC activities in this Lot will expose strengths and limitations of each product based on information content and processing methods. Traceability of ECV products to the original observation sources is an essential requirement for assessment of uncertainties. Scientific assessment and gap analysis for observational ECV products will include a literature survey as a starting point. System maturity aspects will be considered for possible use in operational services provision. An optional work package includes additional development activities, tools and services, which will facilitate the engagement of user communities which use observational data via the C3S Climate Data Store.</p>							
C3S_51 Lot 3	Evaluation and Quality Control Function for the Climate Data Store	FA: 26 May 2016 SC1: 26 May 2016	Barcelona Supercomputing Center (Centro Nacional de Supercomputación)	Calle Jordi Girona 29, Edificio Nexus II, 2 pl 08034 Barcelona Spain	1,681,759.97	30 Sep 2018	1,263,460.06
<p>Lot 3 Title: Quality Assurance for Multi-model Seasonal Forecast Products</p> <p>Description:</p> <p>Activities in Lot 3 will address multi-model seasonal forecast products. A C3S multi-model seasonal forecast product capability is currently being developed at ECMWF. It will rely on contributions from several providers who maintain their own seasonal forecast systems; the providers selected will adapt aspects of their production systems to the scientific and operational needs of C3S. The contractor for Lot 3 is expected to work closely with ECMWF as well as the selected providers on the development of an EQC framework. Identification of user requirements must take account of experience gained in a number of existing European initiatives (e.g. EUROSIP) and research projects (e.g. ECLISE, EUPORIAS). Areas of focus in assessment shall include: the use of probabilistic measures of skill, verification of information on uncertainties, technical aspects including timeliness of production and fitness for purpose of multi-model products for serving sectoral applications. The contractor will also provide an assessment of benefits of downscaling activities to address regional applications at seasonal time-scales.</p>							
C3S_51 Lot 4	Evaluation and Quality Control Function for the Climate Data Store	FA: 10 Aug 2016 SC1: 10 Aug 2016	Finnish Meteorological Institute	Erik Palmenin aukio 1 FI-00101 Helsinki Finland	1,642,817.67	31 Oct 2018	1,203,588.26
<p>Lot 4 Title: Quality Assurance for Multi-model Climate Projections (at Global and Regional Scales)</p> <p>Description:</p> <p>Activities in Lot 4 will address products based on multi-model climate projections, both global and regional. C3S_34a contracts have been awarded to develop a C3S capability for delivering multi-model products based on climate projections. For global projections C3S will rely initially on CMIP5 (Coupled Model Intercomparison Project Phase 5) output via the Earth System Grid Federation (ESGF). For higher resolution projections restricted to the European domain C3S will rely primarily on CORDEX (Coordinated Regional Climate Downscaling Experiment) activities under the auspices of WCRP. Identification of user requirements for multi-model projection products will take account of experience gained in a number of existing European networks and research projects (IS-ENES, SPECS, CORDEX). The contractor is expected to work closely with ECMWF as well as the C3S_34a contractors (especially Lot 2) on the development of an EQC framework for these products.</p>							

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<p>Areas of focus in assessment will include the use of probabilistic measures of skill, verification of information uncertainties, recommendations on the future inclusion of initialised projections, technical aspects including timeliness of production and fitness for purpose of multi-model products for serving sectoral applications.</p>							
C3S_52 Lot 2	Evaluation and Quality Control Function for the Sectoral Information System	FA: 31 May 2016 SC1: 31 May 2016 SC2: 21 Dec 2016	University of Reading	PO Box 217 Whiteknights Reading RG6 6AH United Kingdom	2,479,316.06	31 Jul 2017	SC1: 1,412,384.46 SC2: 1,066,931.60
<p>Lot 2 Title: User requirements, gap analysis and market survey Description: The contract for Lot 2 is to deliver user requirements, gap and market analysis for Sectoral Information Systems (SIS) for the following sectors: agriculture and forestry, health, coastal areas, insurance, tourism and infrastructure, as well as multi-sectoral analyses. The contract will provide content for the User Requirement Data Base (URDB) and the User Requirements Analysis Document (URAD) maintained by ECMWF. The SIS are expected to deliver useful services that stimulate growth in the European economic area. Current SIS developments will demonstrate the value chain leading from Earth observations and model outputs to tailored information in support of sector-specific decision-making. A detailed analysis of user requirements and better understanding of the economic issues in individual sectors is needed to fully realize the potential value of the services. This contract will provide for each sector an establishment of user requirements, inventory of existing SIS relevant essential climate variables and sectoral impact indicators, a gap analysis and recommendations for SIS developments and sector specific performance evaluation. At least 2 multi-sectoral analyses will be included. User interactions will be conducted in the form of surveys, workshops, individual structured and unstructured interviews, etc.</p>							
C3S_312a	Production of Essential Climate Variable Datasets based on Earth Observations						
<p>General Description: ECMWF as the Entrusted Entity for the Copernicus Climate Change Service (C3S) issued a number of contracts to establish a service delivering a series of gridded long-term Climate Data Records (CDRs) of Essential Climate Variables (ECVs), along with the associated input data and user support functions. CDRs are defined here as a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change. The CDR production service aims to generate a portfolio of CDRs covering up to 30 ECVs by 2020 to support a variety of C3S services, ranging from the monitoring of climate change (and its impact) to long-term prediction and sectoral applications.</p>							
C3S_312a Lot 1	Lot Title: Sea Ice	FA: 12 Oct 2016 SC1: 12 Oct 2016	Danmarks Meteorologiske Institut (Danish Meteorological Institute)	Lyngbyvej 100 2100 Copenhagen Denmark	439,999.00	30 Sep 2018	439,999.00
<p>Description: The contractor for Lot 1 will address the generation and delivery of long term climate data records describing the global evolution of sea ice, including sea-ice concentration, edge and thickness products. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.</p>							

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C3S_312a Lot 2	Lot Title: Sea Level	FA: 12 Oct 2016 SC1: 12 Oct 2016	Collecte localisation satellites	11 rue Hermès Parc Technologique du Canal 31520 Ramonville Saint-Agne France	438,595.86	30 Sep 2018	438,595.86
Description: The contractor for Lot 2 will address the generation and delivery of long term climate data records describing the evolution of sea surface height. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.							
C3S_312a Lot 3	Lot Title: Sea-Surface Temperature	FA: 30 Sep 2016 SC1: 30 Sep 2016	Telespazio VEGA UK Ltd	350 Capability Green Luton LU1 3LU United Kingdom	439,950.22	30 Sep 2018	439,950.22
Description: The contractor for Lot 3 will address the generation and delivery of long term climate data records describing the global evolution of sea surface temperature. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.							
C3S_312a Lot 4	Lot Title: Ozone	FA: 21 Nov 2016 SC1: 21 Nov 2016	Koninklijk Belgisch Instituut voor Ruimte-Aeronomie — Institut royal d'aéronomie spatiale de Belgique (Royal Belgian Institute for Space Aeronomy)	Avenue Circulaire 3 1180 Brussels Belgium	439,979.69	31 Oct 2018	439,979.69
Description: The contractor for Lot 4 will address the generation and delivery of long term climate data records describing the global evolution of ozone, including column and profile products. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.							
C3S_312a Lot 5	Lot Title: Aerosol Properties	FA: 27 Sep 2016 SC1: 27 Sep 2016	Deutsches Zentrum für Luft- und Raumfahrt e. V. (German Aerospace Center)	Linder Höhe 51147 Köln Germany	439,695.25	30 Sep 2018	439,695.25
Description: The contractor for Lot 5 will address the generation and delivery of long term climate data records describing the global evolution of aerosols, including optical depth, single scattering albedo, layer height and extinction profiles. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.							

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C3S_312a Lot 6	Lot Title: Greenhouse Gases	FA: 12 Oct 2016 SC1: 12 Oct 2016	Universität Bremen (University of Bremen)	Bibliothekstr. 1 28359 Bremen Germany	651,734.45	31 Oct 2018	651,734.45
<p>Description:</p> <p>The contractor for Lot 6 will address the generation and delivery of long term climate data records describing the global evolution of CO2 and CH4. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.</p>							
C3S_312a Lot 7	Lot Title: Soil Moisture	FA: 10 Nov 2016 SC1: 10 Nov 2016	EODC Earth Observation Data Centre for Water Resources Monitoring GmbH, c/o Vienna University of Technology, Department of Geodesy and Geoinformation	Gusshausstrasse 27-29 CA 02 06 A-1040 Vienna Austria	439,986.65	31 Oct 2018	439,986.65
<p>Description:</p> <p>The contractor for Lot 7 will address the generation and delivery of long term climate data records describing the global evolution of surface soil moisture. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.</p>							
C3S_312a Lot 8	Lot Title: Glaciers	FA: 22 Dec 2016 SC1: 22 Dec 2016	Universität Zürich (University of Zurich)	Winterthurerstr. 190 CH-8057 Zurich Switzerland	439,978.00	31 Dec 2018	439,978.00
<p>Description:</p> <p>The contractor for Lot 8 will address the generation and delivery of long term climate data records describing the global evolution of glaciers and ice caps, including area and elevation. For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.</p>							
C3S_312a Lot 9	Lot Title: Leaf Area, Fraction of Photosynthetically Activity Radiation, Surface Albedo	FA: 11 Nov 2016 SC1: 11 Nov 2016	Vlaamse Instelling Voor Technologisch Onderzoek NV (Flemish Institute for Technological Research)	Boeretang 200 BE-2400 Mol Belgium	869,255.79	31 Oct 2018	869,255.79
<p>Description:</p> <p>The contractor for Lot 9 will address the generation and delivery of long term climate data records describing the global evolution of surface albedo, Fapar (fraction of absorbed photosynthetically Active Radiation) and LAI (leaf area index). For the purpose of climate monitoring, this service shall focus on the routine and sustained delivery and updates of CDRs derived primarily but not exclusively from satellite observations. The service will implement an agile and scalable data re-processing system, capitalizing on state-of-the-art retrieval algorithms and quality control procedures and best practices.</p>							

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C3S_433 Lot 2	Seasonal Forecasts						
<p>General Description:</p> <p>ECMWF as the Entrusted Entity for the Copernicus Climate Change Service (C3S) has awarded contracts for the production of seasonal forecast (SF) data for use as part of a multi-model seasonal forecast system. Contracts have been negotiated with several suppliers of seasonal forecast data, to cover the period 1.10.2015 to 31.12.2017. This period is separated into 2 phases: a Proof of Concept (POC) phase from 1.10.2015 to 31.12.2016, and a Pre-Operational phase from 1.1.2017 to 31.12.2017. Starting in January 2018, C3S should move to a fully operational phase, for which the procurement of seasonal forecast data will be the subject of a separate tender process for selecting up to 4 or 5 providers. ECMWF is contracting with 2 providers yet in a development phase (hereafter referred to as Additional Providers), who have the potential to contribute to the multi-model system at some stage during the pre-operational phase.</p>							
C3S_433 Lot 2	Lot Title: Additional Providers	FA: 14 Jan 2016 SC1: 14 Jan 2016	Centro Euro-Mediterraneo sui Cambiamenti Climatici S.C. A R.L.	Via Augusto Imperatore 16 73100 Lecce Italy	792,338.00	31 Mar 2018	407,886.00
<p>Description:</p> <p>The 2 Additional Providers will supply a Specified Data stream starting during the Pre-Operational phase (2017). These Additional Providers will demonstrate the potential to contribute to the multi-model system at some stage during the Pre-Operational phase. This data will feed into the C3S Seasonal Forecasts system as it becomes available. These additional Providers will be funded from the start of the POC phase and this funding is intended to support the introduction of a seasonal forecasting system with comprehensive re-forecast data.</p>							
C3S_433 Lot 2	Lot Title: Additional Providers	FA: 14 Jan 2016 SC1: 14 Jan 2016	Deutscher Wetterdienst	Frankfurter Str. 135 63067 Offenbach Germany	798,733.00	31 Mar 2018	414,158.00
<p>Description:</p> <p>The 2 Additional Providers will supply a Specified Data stream starting during the Pre-Operational phase (2017). These Additional Providers will demonstrate the potential to contribute to the multi-model system at some stage during the Pre-Operational phase. This data will feed into the C3S Seasonal Forecasts system as it becomes available. These additional Providers will be funded from the start of the POC phase and this funding is intended to support the introduction of a seasonal forecasting system with comprehensive re-forecast data.</p>							
C3S_441	Sectoral Information System – Proof of concept						
<p>General Description:</p> <p>ECMWF as the Entrusted Entity for the Copernicus Climate Change Service (C3S) has awarded contracts for a proof-of-concept aiming at demonstrating the value chain from earth observation and model outputs to actionable climate information in different Sectors. This Sectoral Information System (SIS) will translate and combine climate information from the Climate Data Store of the C3S and other sources to support users acting in specific sectors. Customized information products in the form of climate change indicators and ancillary information pertinent to the sectors and various EU sectoral policies will be disseminated via the Climate-ADAPT platform and the C3S data portal as it develops. The contractors will take full advantage of existing capabilities and products in European Member States and Commission Services. This proof-of-concept will require large sectoral user engagement, and demonstration of the value chain from earth observation and model simulations to tailored climate indicators addressing specific sectors, based on case studies. The focus will be over Europe. The contractors will bring together both providers and users to operate each component. The providers will be expected to deliver data products and information services and to engage with (and develop) the corresponding user communities across public and private sectors.</p>							

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C3S_441 Lot 1	Lot Title: Water	FA: 16 Nov 2015 SC2: 19 Dec 2016	Centre for Ecology & Hydrology, Natural Environment Research Council	Maclean Building Benson Lane Crowmarsh Gifford Wallingford Oxfordshire OX10 8BB United Kingdom	1,598,237.09	31 Dec 2017	670,729.09
Description: Water is essential for human life, nature and the economy. It is permanently renewed but it is also finite and cannot be made or replaced with other resources. Freshwater constitutes only about 2 % of the water on the planet and competing demands may lead to an estimated 40 % global water supply shortage by 2030. As climate change warms the atmosphere and alters the hydrological cycle, we will continue to witness changes to the amount, timing, form, and intensity of precipitation and the flow of water in watersheds, as well as the quality of aquatic environments. The sectoral information system in water will consider all aspects of water resource and risk management in general, but focus specifically on essential water related climate variables which are under particular pressure and important to sectoral users.							
C3S_441 Lot 1	Lot Title: Water	FA: 16 Nov 2015 SC2: 19 Dec 2016	Swedish Meteorological and Hydrological Institute	601 76 Norrköping, Sweden	1,599,996.00	31 Jan 2018	833,952.00
Description: Water is essential for human life, nature and the economy. It is permanently renewed but it is also finite and cannot be made or replaced with other resources. Freshwater constitutes only about 2 % of the water on the planet and competing demands may lead to an estimated 40 % global water supply shortage by 2030. As climate change warms the atmosphere and alters the hydrological cycle, we will continue to witness changes to the amount, timing, form, and intensity of precipitation and the flow of water in watersheds, as well as the quality of aquatic environments. The sectoral information system in water will consider all aspects of water resource and risk management in general, but focus specifically on essential water related climate variables which are under particular pressure and important to sectoral users.							
C3S_441 Lot 2	Lot Title: Energy	FA: 27 Nov 2015 SC2: 21 Dec 2016	University of East Anglia	Norwich Research Park Norwich NR4 7TJ United Kingdom	1,599,983.36	31 Jan 2018	559,461.36
Description: In the energy sector, on national or international levels, efforts have been put into addressing scientific and technological challenges in implementing efficient ways to produce and manage sources of energy. The resilience and efficiency of energy systems is strongly influenced by the weather and climate environment. Climate variables and ancillary information is key to address energy industry challenges in the most effective and innovative way. Changes in temperature, precipitation, sea level, and the frequency and severity of extreme weather events will likely affect how much energy is produced, delivered, and consumed. The sectoral information system in energy will consider climate change indicators and ancillary information important to the totality of all of the industries involved in the production and sale of energy, including fuel extraction, manufacturing, refining and distribution involving relevant users.							
C3S_441 Lot 3	Lot Title: Any other area	FA: 8 Dec 2015 SC2: 21 Dec 2016	Telespazio Vega UK Ltd	350 Capability Green Luton LU1 3LU United Kingdom	1,531,183.00	31 Dec 2017	707,635.13

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<p>Description:</p> <p>Climate change and variability are important components in many sectors such as agriculture and forestry, health, coastal areas, insurance, tourism, and infrastructure. Climate information will be relevant to each of these sectors to a different degree and require specific indicators as well as ancillary information. In this lot, the contractor will develop a proof-of-concept SIS scheme addressing the agriculture sector.</p>							
C3S_441 Lot 3	Lot Title: Any other area	FA: 20 Nov 2015 SC2: 19 Dec 2016	Swedish Meteorological and Hydrological Institute	601 76 Norrköping, Sweden	1,599,949.00	31 Jan 2018	682,650.95
<p>Description:</p> <p>Climate change and variability are important components in many sectors such as agriculture and forestry, health, coastal areas, insurance, tourism, and infrastructure. Climate information will be relevant to each of these sectors to a different degree and require specific indicators as well as ancillary information. In this lot, the contractor will develop a proof-of-concept SIS scheme as an approach for multi-sectoral information at urban scale.</p>							
CAMS_41	Development of global greenhouse-gas aspects	FA: 27 Apr 2016 SC1: 27 Apr 2016	Commissariat à l'énergie atomique et aux énergies alternatives	CEA, Bâtiment Le ponant D 25 rue Leblanc 75015 Paris France	525,000.00	31 Mar 2019	126,664.58
<p>Description:</p> <p>This contract is for providing support for and further development of the global production modelling and data assimilation system of CAMS operated at ECMWF in the area of greenhouse gases representation in the troposphere and stratosphere. The contractor will provide:</p> <ul style="list-style-type: none"> — An improved representation of methane fluxes from natural wetlands for use in the CAMS global production system; — A full assessment of the use of satellite observations of solar-induced chlorophyll fluorescence (SIF) to further optimize the land surface model used in the CAMS global production system; — Retrieval products from the GOSAT satellite in a timely manner; — Memoranda and reports. <p>Besides, the contractor will provide advice and support for the team developing the global production system at ECMWF.</p>							
CAMS_42	Development of global reactive gases aspects	FA: 27 Sep 2016 SC1: 27 Sep 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	1,299,999.98	30 Sep 2019	623,340.88
<p>Description:</p> <p>This contract is for providing support for and further development of the global production system of CAMS operated by the Global Service Provider, which delivers 3-dimensional distributions of reactive gases in the troposphere and stratosphere through data assimilation and numerical modelling. The contractor will deliver numerical code representing Chemical Mechanisms and the related Removal Process Parameterizations, will develop and test the assimilation of satellite radiance observations in the wavelength range between 0.24 and 2.5 µm, as well as memoranda and reports. The contractor will also provide advice and support for the team developing the global production system at ECMWF.</p>							
CAMS_43	Development of global aerosol aspects	FA: 16 Mar 2016 SC1: 16 Mar 2016 SC2: 13 Dec 2016	Centre National de la Recherche Scientifique	1 place Aristide Briand 92195 Meudon France	1,048,200.25	31 Mar 2019	SC1: 261,718.94 SC2: 417,447.56

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<p>Description:</p> <p>This contract is for providing support for and further development of the global production modelling and data assimilation system of CAMS operated at ECMWF in the area of aerosols representation in the troposphere and stratosphere. The contractor will provide:</p> <ul style="list-style-type: none"> — Aerosol processes representation schemes, including also removal parameterizations and dynamical source parameterizations for use in the CAMS global production system; — A tested prototype of a 1D-Var retrieval algorithm for aerosol optical depth; — Memoranda and reports. <p>Besides, the contractor will provide advice and support for the team developing the global production system at ECMWF.</p>							
CAMS_44	Development of the global fire assimilation system	FA: 26 Apr 2016 SC1: 26 Apr 2016 SC2: 13 Dec 2016	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V. vertreten durch Max-Planck-Institut für Chemie (Max Planck Society for the Advancement of Science represented by Max Planck Institute for Chemistry)	Hahn-Meitner-Weg 1 55128 Mainz Germany	949,882.54	31 Mar 2019	SC1: 232,154.01 SC2: 368,175.78
<p>Description:</p> <p>This contract is for providing support for and further development of the global fire data assimilation system (GFAS) of CAMS operated at ECMWF. GFAS delivers near-real-time emissions of gases and aerosols through data assimilation and numerical modelling, as both a product in its own right and a critical input to CAMS atmospheric composition forecasts. The contractor will provide:</p> <ul style="list-style-type: none"> — improvements for the current GFAS system in terms of diurnal cycle, of fire evolution forecast capabilities and of emission factors; — near-real-time Fire Radiative Power (FRP) observations from the GOES satellites; — an FRP monitoring system; — memoranda and reports. <p>Besides, the contractor will provide advice and support for the team developing the global production system at ECMWF.</p>							
CAMS_71	Products in support of policy users	FA: 26 Apr 2016 SC1: 26 Apr 2016	Institut national de l'environnement industriel et des risques	Parc technologique Alata, BP2 60550 Verneuil-en-Halatte France	1,299,998.05	31 Mar 2019	350,315.47
<p>Description:</p> <p>This contract will deliver a range of products of the CAMS portfolio that are especially targeted for (and continually developed with) Policy Users. These products are:</p> <ul style="list-style-type: none"> — Annual interim assessment reports based on the Interim Regional Re-analyses in support of national annual reporting duties about air quality and threshold exceedances; — Annual assessment reports based on the Regional Re-analyses performed with validated surface observations, to serve as a reference document on the status of air quality in Europe; — Daily 'green scenarios', which offer alternative forecasts of European air quality obtained with reduced level of anthropogenic emissions and allowing assessing and comparing the effectiveness of possible temporary mitigation measures or of candidate measures as part of future policies development; 							

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<p>— Daily and on-demand source-receptor calculations, which allow tracking the pollutants according to their sources and evaluating the different contributions to the local air quality. The contract also comprises the organisation of an annual workshop of the CAMS Policy Users for discussing evolution and usability of the CAMS policy products and, more generally, of the CAMS Regional and Global Products that are relevant for EU, national and local policies.</p>							
CAMS_72	Solar radiation products	FA: 15 Dec 2015 SC2: 21 Dec 2016	Deutsches Zentrum für Luft- und Raumfahrt e. V. (German Aerospace Center)	Linder Höhe 51147 Köln Germany	1,399,601.00	31 Dec 2018	474,718.01
<p>Description: This contract is to deliver the main CAMS products related to solar radiation: global (clear sky) and multicontinental (Europe, Africa, the Middle East and Asia as defined by the METEOSAT field of view to take into account clouds) solar irradiance information. Time series based on an on-request access to long-term data sets and several days' near real-time information are also made available to users, targeting particularly solar energy applications. Finally, this contract provides routinely an evaluation of the quality of the products delivered as well as of the global UV irradiance monitoring and forecasts produced by ECMWF.</p>							
CAMS_74	Radiative forcings	FA: 21 Jan 2016 SC1: 21 Jan 2016	University of Reading	PO Box 217 Whiteknights Reading RG6 6AH United Kingdom	524,605.76	31 Dec 2018	227,613.25
<p>Description: This contract is for providing quantitative estimates of the Radiative Forcings (RF) from atmospheric constituents considered in CAMS. RF are an essential element for evaluating and comparing the strength of the various mechanisms affecting the Earth's radiation balance and thus causing climate change. RF arising from changes in distributions of radiatively active atmospheric gases and particles are both short-lived and long-lived, depending on the atmospheric residence time of the corresponding species. Some of the RF are highly heterogeneous spatially and temporally and this contract is aiming at making the most of CAMS outputs to derive RF distributions in support of climate research and assessments, such as the ones of the IPCC. The contractor will estimate radiative forcings from CAMS outputs (greenhouse gases, reactive gases and aerosol) and will also assess feasibility of deriving Effective Radiative Forcings (ERF) as a potential service extension.</p>							
CAMS_84	Global & regional a posteriori validation	FA: 2 Nov 2015 SC2: 13 Dec 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	2,824,999.00	30 Sep 2018	901,214.62
<p>Description: This contract is for products validation activities in support of CAMS users. The main outputs of these activities will be 3-monthly validation reports for the near-real-time global products. Validation reports will also be delivered for candidate upgrade global production chains as well as for the CAMS reanalysis. This contract will also provide daily plots and quality monitoring statistics of the near-real-time global production, which will be integrated in the CAMS website and will be easily accessible together with the products from the CAMS catalogue. While the coverage will be global, specific efforts will be targeted at validation over the Arctic and the Mediterranean areas. Validation of the regional air quality products in the free troposphere and the interface between the global and regional systems will also be in scope of these activities.</p>							

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CAMS_94	User interaction activities	FA: 7 Dec 2015 SC2: 19 Dec 2016	Deutsches Zentrum für Luft- und Raumfahrt e. V. (German Aerospace Center)	Linder Höhe 51147 Köln Germany	699,962.86	31 Dec 2018	223,900.49
<p>Description:</p> <p>This contract supports the management of the relationship between CAMS and its users, with the overarching goal to ensure the best possible uptake of the products by the users and to their full satisfaction. More specifically, the activities include:</p> <ul style="list-style-type: none"> — developing, maintaining and populating the CAMS User Requirements Database (URDB) and supporting ECMWF in the maintenance of the Requirement Analysis Document (RAD); — organising user workshops and establishing additional user feedback mechanisms; — monitoring continually the Service Product Portfolio against the Requirement Analysis Document; — providing statistical analyses of CAMS users. 							
COP_001	Framework for Agencies to Supply Copernicus Communication Services	FA: 9 Aug 2016	Assimila Limited	Reading Enterprise Centre University of Reading Earley Gate Reading, RG6 6BU United Kingdom	9,500,000.00	14 Aug 2020	See separate table below
			CAP&CIME PR	8 rue Royale 75008 Paris France			
			Code Enigma Ltd	Smithfield Business Centre 5 St John's Lane London, EC1M 4BH United Kingdom			
			Design & Data GmbH	Hohenzollernring 56 50672 Cologne Germany			
			Dialogue Matters Ltd	55 Scotton Street Wye Ashford Kent, TN25 5BU United Kingdom			
			Dods Parliamentary Communications Ltd	21 Dartmouth Street Westminster London, SW1H 9BP United Kingdom			
			EJR-Quartz BV	3e Binnenvestgracht 23F 2312NR Leiden			

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				Netherlands			
			GOPA Com	Boulevard de la Woluwe, 2 1150 Brussels Belgium			
			ICF Mostra	Chaussee d'Alseberg, 1001 1180 Brussels Belgium			
			Inside Edge Media Training Limited	23 Island House Three Mill Lane London, E3 3AF United Kingdom			
			Madano Partnership Ltd	160 Blackfriars Road 7th Floor London, SE1 8EZ United Kingdom			
			McCann&Co	4 Brownlow Mews London, WC1N 2LD United Kingdom			
			Carol Byrne Creative Communications	Daidadi, 32 Platia Papagou, Ermopolis 84100 Syros Greece			
			Nomensa Ltd	King William House 13 Queen Square Bristol, BS1 4NT United Kingdom			
			Red Stone Design Limited	9-10 Charterhouse Buildings London, EC1M 7AN United Kingdom			
			Tomlinson Designs Limited (TDL London)	2 Lakeview Stables Lower St Clere Kemsing Sevenoaks Kent, TN15 6NL United Kingdom			

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<p>General Description:</p> <p>ECMWF has set up a roster of agencies to supply communication services and products for its Copernicus Climate Change Service (C3S) and Copernicus Atmosphere Monitoring Service (CAMS) activities.</p> <p>The areas of work that will be covered by the framework are broadly as follows:</p> <ul style="list-style-type: none"> — Event design and delivery; — Stakeholder engagement; — Media and public relations; — Content development, in both copy and graphic design; — Marketing and marketing research; — Specialist digital media solutions and services. <p>In total, 16 agencies have been accepted to the roster for different service areas as a result of this procurement exercise. It is anticipated that further invitations to tender will be launched for accepting additional agencies onto the framework.</p> <p>The total financial value of the contract stated above is the maximum budget available for the Framework to which the awarded entities are accepted.</p>							
C3S_311b	Multiannual Agreement for the Provision of Reprocessed Satellite Data	11 Jul 2016	European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)	EUMETSAT Allee 1 D-64295 Darmstadt Germany	6,462,704.30	30 Jun 2021	6,462,704.30
<p>Description:</p> <p>This contract aims at the provision of consistently processed multi-decadal Fundamental Climate Data Records (FCDR) and Thematic Climate Data Records (TCDR) from various operational satellite instruments important for the assimilation into reanalyses and the generation of Essential Climate Variable data records in scope of the Copernicus Climate Change Service (C3S). A major objective of the proposed service is to extend the FCDRs further back in time and to continue data records into the present, to provide so called FCDR-Interim and TCDR-Interim data records that could improve reanalyses delivered within improved time lines. In addition to extensions in temporal length, spatial coverage and speed of delivery, the proposed work will exploit the outcomes of several EU research projects to improve the characterisation of uncertainty of the measurements which is essential to inform the process of data assimilation. The data assimilation process itself also helps to evaluate the quality of the generated CDRs via the observation feedback archive generated by ECMWF. The proposed services will also support C3S with some international coordination work, e.g., on the scientific and technical stewardship of AVHRR data in the future.</p> <p>For this service, ECMWF relies on the unique experience and expert knowledge in all required fields needed to address the generation and evaluation of climate data records from the satellite instruments as offered by EUMETSAT. The procurement process was therefore conducted via a direct negotiation as stipulated by the Delegation Agreement between the European Commission and ECMWF on C3S. The maximum budget amounts to €6,462,704, including baseline and optional services. A multi-annual service contract has been signed for 60 months, with as starting date on 1 July 2016.</p>							

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COP_002	Copernicus research and evaluation	26 Jul 2016	Ipsos Mori	3 Thomas More Square London, E1W 1YW United Kingdom	149,500.00	31 Aug 2017
COP_003	Copernicus Web Usability Research Project	19 Jul 2016	CX Partners Ltd	First Floor 2 College Square Anchor Road Bristol, BS1 5UE United Kingdom	139,835.00	28 Feb 2017
COP_001_019	COP22 communication activity	20 Oct 2016	ICF Mostra	Chaussee d'Alseberg, 1001 1180 Brussels Belgium	79,250.00	31 Mar 2017
COP_001_019	COP22 communication activity	20 Oct 2016	GOPA Com	Boulevard de la Woluwe, 2 1150 Brussels Belgium	20,000.00	31 Mar 2017
COP_001_019	COP22 communication activity	30 Nov 2016	CAP&CIME PR	8 rue Royale 75008 Paris France	17,120.00	31 Mar 2017
COP_008	Science writing	1 Dec 2016	EJR-Quartz BV	3e Binnenvestgracht 23F 2312NR Leiden Netherlands	71,066.00	31 Dec 2017
RFP_241	Energy UK breakfast briefing	6 Jun 2016	Madano Partnership Ltd	160 Blackfriars Road 7th Floor London, SE1 8EZ United Kingdom	15,630.00	11 Nov 2017
COP_001_013	State of the climate report	22 Sep 2016	Assimila Limited	Reading Enterprise Centre University of Reading Earley Gate Reading, RG6 6BU United Kingdom	14,788.00	22 Mar 2017
COP_001_020	User infographic	22 Sep 2016	Tomlinson Designs Limited (TDL London)	2 Lakeview Stables Lower St Clere Kemsing Sevenoaks Kent, TN15 6NL United Kingdom	3,000.00	completed
COP_001_021	Media buying	14 Sep 2016	ICF Mostra	Chaussee d'Alseberg, 1001 1180 Brussels Belgium	10,047.00	completed

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COP_016	User experience support for the CDS	20 Jul 2016	Nomensa Ltd	King William House 13 Queen Square Bristol, BS1 4NT United Kingdom	3,579.00	completed
16-8038	EuroScience Open Forum (ESOF)	1 Jun 2016	Marketing Manchester	Lee House 90 Bridgewater Street Manchester, M1 5JW United Kingdom	£52,172.00 (GBP)	completed
16-8043	ESOF stand design and build	24 Jun 2016	Maxim	Maxim House, Kingsmill Park London Road Loudwater Buckinghamshire, HP10 9UB United Kingdom	18,986.00	completed
16-8023	GEOBusiness stand design and build	16 May 2016	Maxim	Maxim House, Kingsmill Park London Road Loudwater Buckinghamshire, HP10 9UB United Kingdom	15,464.00	completed
16-8027	AGIT stand design and build	26 May 2016	Maxim	Maxim House, Kingsmill Park London Road Loudwater Buckinghamshire, HP10 9UB United Kingdom	17,712.00	completed
16-8017	CAMS General Assembly – Venue and logistics	23 Mar 2016	Electra Palace	Electra Hotel Athens 5 Ermou Str. GR-105 63 Athens Greece	28,343.00	completed
16-8083	Wissenswertes	12 Oct 2016	Messe Bremen	Finderffstasse 101 D-28215 Bremen Germany	23,000.00	completed
RFP_019	Intergeo stand design and build	25 Aug 2016	GOPA Com	Boulevard de la Woluwe, 2 1150 Brussels Belgium	25,686.00	completed
16-8084	Sectoral Information System meeting – venue and logistics	16 Sep 2016	De Vere Venues	Warbrook House, The Street, Eversley Hampshire, RG27 0PL United Kingdom	£20,704.00 (GBP)	completed

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MSX-3.02	SC.2 for the provision of radiation services	15 Jan 2016	ARMINES, Association pour la Recherche et le Développement des Méthodes et Processus Industriels (Association for Research and Development of Industrial Methods and Processes)	60 boulevard Saint Michel 75272 Paris Cedex 6 France	26,250.00	completed
MSX-7.03	SC.3 for the provision of GHG / AER	8 Feb 2016	Centre National de la Recherche Scientifique	1 place Aristide Briand 92195 Meudon France	26,504.00	completed
MSX-11.03	SC.3 for the provision of POL	15 Jan 2016	Institut national de l'environnement industriel et des risques	Parc technologique Alata, BP2 60550 Verneuil-en-Halatte France	15,000.00	completed
MSX-12.03	SC.3 for the provision of GHG	16 Feb 2016	Universität Bremen (University of Bremen)	Bibliothekstr. 1 28359 Bremen Germany	15,341.00	completed
MSX-14.03	SC.3 for the provision of GRG	15 Jan 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	12,522.00	completed
MSX-14.04	SC.4 for the provision of GRG	12 Apr 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	12,522.00	completed
MSX-14.05	SC.5 for the provision of GRG	1 Jul 2016	Koninklijk Nederlands Meteorologisch Instituut (Royal Netherlands Meteorological Institute)	PO Box 201 3730 AE De Bilt Netherlands	12,522.00	completed
MSX-20.03	SC.3 for the provision of GHG	15 Jan 2016	Ruimteonderzoeksinstituut SRON (Space Research Organization of the Netherlands)	Sorbonnelaan 2 3584 CA Utrecht Netherlands	15,936.00	completed
MSX-21.03	SC.3 for the provision of EMI	15 Jan 2016	TNO, Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek opgericht (Netherlands Organisation	Anna Van Buerenplein 1 2595 DA Den Haag Netherlands	12,000.00	completed

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			for Applied Scientific Research)			
MSX-21.04	SC.4 for the provision of EMI	18 Mar 2016	TNO, Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek opgericht (Netherlands Organisation for Applied Scientific Research)	Anna Van Buerenplein 1 2595 DA Den Haag Netherlands	8,000.00	completed
MSX-21.05	SC.5 for the provision of EMI	1 Aug 2016	TNO, Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek opgericht (Netherlands Organisation for Applied Scientific Research)	Anna Van Buerenplein 1 2595 DA Den Haag Netherlands	12,000.00	completed
MSX-21.06	SC.6 for the provision of EMI	1 Nov 2016	TNO, Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek opgericht (Netherlands Organisation for Applied Scientific Research)	Anna Van Buerenplein 1 2595 DA Den Haag Netherlands	12,000.00	completed
MSX-25.03	SC.3 for the provision of delivery and maintenance of the anthropogenic emissions dataset in support of CAMS global production	18 Mar 2016	Université Pierre et Marie Curie – Paris 6	Place Jussieu 4 75252 Paris France	22,000.00	completed
MSX-25.04	SC.4 for the provision of delivery and maintenance of the anthropogenic emissions dataset in support of CAMS global production	1 Aug 2016	Université Pierre et Marie Curie – Paris 6	Place Jussieu 4 75252 Paris France	22,000.00	completed
MSX-25.05	SC.5 for the provision of delivery and maintenance of the anthropogenic emissions dataset in support of CAMS global production	1 Nov 2016	Université Pierre et Marie Curie – Paris 6	Place Jussieu 4 75252 Paris France	22,000.00	completed