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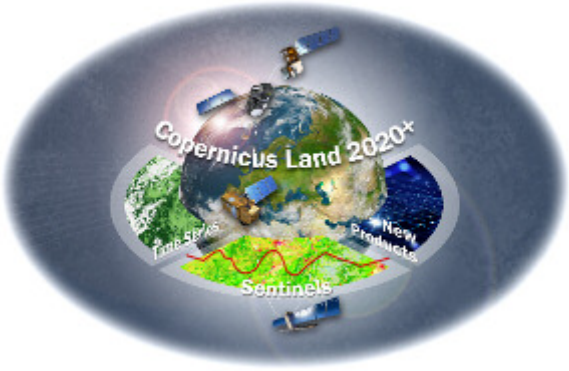
Grant Agreement No. 730008

ECoLaSS

Evolution of Copernicus Land Services based on Sentinel data



D19.2

"D61.2 - Communication, Dissemination and Exploitation Plan"

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submitted by:

DLR

in collaboration with the consortium partners:

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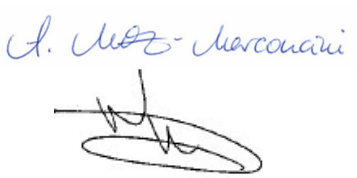
Author(s):	Annekatrin Metz-Marconcini (DLR) Inés Ruiz Gomez (GAF)	28.09.2017	
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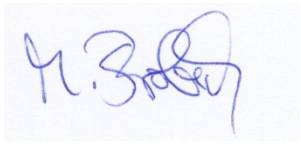
Approval:	Markus Probeck (GAF)	29.09.2017	
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APPLICABLE DOCUMENTS

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AD01	Horizon 2020 Work Programme 2016 – 2017, 5 iii. Leadership in Enabling and Industrial Technologies – Space. Call: EO-3-2016: Evolution of Copernicus services. Issued: 13.10.2015
AD02	Guidance Document: Research Needs Of Copernicus Operational Services. Final Version issued: 30.10.2015
AD03	Proposal: Evolution of Copernicus Land Services based on Sentinel data. Proposal acronym: ECoLaSS, Proposal number: 730008. Submitted: 03.03.2016

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AD04	Grant Agreement – ECoLaSS. Grant Agreement number: 730008 – ECoLaSS – H2020-EO-2016/H2020-EO-2016, Issued: 18.10.2016
AD05	European IPR Helpdesk: Fact Sheet - The Plan for the Exploitation and Dissemination of Results in Horizon 2020, Issued: July 2015
AD06	D21.1a - Service Evolution Requirements Report, Issue 1.0, Issued: 09.08.2017
AD07	D19.1_D61.1 - Project Website, Issue 1.0, Issued: 03.07.2017

EXECUTIVE SUMMARY

The Horizon 2020 (H2020) project, “Evolution of Copernicus Land Services based on Sentinel data” (ECoLaSS) addresses the H2020 Work Programme 5 iii. Leadership in Enabling and Industrial technologies - Space, specifically the Topic EO-3-2016: Evolution of Copernicus services. ECoLaSS will be implemented from 2017–2019 and aims at developing innovative methods, algorithms and prototypes to improve and invent future next-generation operational Copernicus Land services from 2020 onwards, for the pan-European and Global Land Components. ECoLaSS will make full use of dense time series of Sentinel-2 and Sentinel-3 optical data as well as Sentinel-1 Synthetic Aperture Radar (SAR) data. Rapidly evolving scientific as well as user requirements will be analysed in support of a future pan-European roll-out of new/improved Copernicus Land Monitoring services, and the transfer to global applications.

Several activities are envisaged for dissemination and exploitation of the project results via different channels in the future, which aim at providing the project results to the users as soon as possible, during the projects lifetime as well as in the follow-up of the project.

The deliverable D19.2: “D61.2 - Communication, Dissemination and Exploitation Plan” (PEDR) is the second Deliverable of Work Package (WP) 19: “WP61 - Communication, Dissemination & Exploitation” as part of the ECoLaSS Task 6: “Measures to maximise impact”. The main objective of this task is i) to prepare and perform all activities and issues related to dissemination, communication and exploitation of the projects results in order to maximise the impact on the “Copernicus Economy” by promoting the project’s technical and operational advancements and ii) to prepare the grounds for the transfer of the accepted pre-operational product(s) to EC, EEA and JRC for future operational procurement, under consideration of a balanced IPR strategy. This task is fundamental to both, the dissemination to different target user groups, and the transfer of innovations to future operational products, using appropriate strategies for exploitation and means of communication.

The PEDR of the ECoLaSS project describes the strategies for the dissemination of the knowledge to be gained during the project and the exploitation plan of the information arising from the project in terms of scientific advances and knowledge, as well as data products. The goal of the PEDR is to develop a roadmap for implementing various dissemination and promotional activities in the project and to increase the awareness of the ECoLaSS project. It defines dissemination and exploitation activities as well as material for both project phases. It will be used by the consortium as a benchmark against which dissemination progress will be measured over time. The PEDR is a strategic document supporting to establish the bases for the intellectual property strategy, dissemination and exploitation activities (AD05).

The dissemination strategy gives an orientation as to the organisation of the planned project activities and therefore addresses i) the needs the project responds to, ii) the problem that the proposed solution will solve, iii) the new knowledge (results) the project will generate (assessment of the state of the art), iv) the user of these results, v) the benefits being delivered and vi) methods applied to inform the end users about the generated results. The main objectives of the dissemination and exploitation activities are to increase the awareness of the ECoLaSS project, to provide up-to-date information about ongoing activities, such as events or meetings, and print media (publications, presentations, official documents, etc.), to regularly inform relevant Copernicus Land stakeholders and decision makers on the status of ongoing research and development activities in the project in the best suitable way, to improve the interaction with existing and potential stakeholders and users, to get access to new potential users and to generate a market demand for the prototypes developed.

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Abbreviations

AFIGEO	Association Française pour l'Information Géographique) French Association for Geographical Information)
AGU	American Geophysical Union
CLC	CORINE Land Cover
CLC+	CORINE Land Cover plus (with improved specifications)
CLMS	Copernicus Land Monitoring Service
CNES	Centre National d'Études Spatiales (French Space Agency)
CNIG	Conseil National de l'Information Géographique (French National Council for Geographic Information)
DG(s)	Directorate-General(s)
DG AGRI	Directorate-General for Agriculture and Rural Development
DG CONNECT	Directorate-General for Communications Networks, Content and Technology
DG DEVCO	Directorate-General for International Cooperation and Development
DG GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
DG ENV	Directorate-General for Environment
DG MOVE	Directorate-General for Mobility and Transport
DG REGIO	Directorate-General for Regional Policy
EAGLE	EIONET Action Group on Land Monitoring in Europe
EARSC	European Association of Remote Sensing Companies
EARSeL	European Association of Remote Sensing Laboratories
ECoLaSS	Evolution of Copernicus Land Services based on Sentinel data project
EC	European Commission
EEA	European Environment Agency
EEEs	European Entrusted Entities
EGU	European Geosciences Union
EIONET	European Environment Information and Observation Network
EO	Earth Observation
ESA	European Space Agency
EU	European Union
EUROGI	European Umbrella Organisation for Geographic Information
FAO	Food and Agriculture Organization (of the UN)
H2020	Horizon 2020 Programme
HR	High Resolution
HRL(s)	High Resolution Layer(s)
IACS	Integrated Agricultural Control System

IGARSS	International Geoscience and Remote Sensing Symposium
IGN	Institut National de l'Information Géographique et Forestière (National Institute of Geographic and Forest Information)
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
IPR	Intellectual Property Rights
ISPRS	International Society for Photogrammetry and Remote Sensing
ISRSE	International Symposium on Remote Sensing of Environment
JRC	Joint Research Centre
LC/LU	Land Cover / Land Use
MARS	Monitoring Agricultural ResourceS
NEREUS	Network of European Regions Using Space Technology
NRC	National Reference Centre
PEDR	Plan for the Exploitation and Dissemination of Results
REA	Research Executive Agency
R&D	Research & Development
S-1 / S1	Sentinel-1
S-2 / S2	Sentinel-2
S-3 / S3	Sentinel-3
SAR	Synthetic Aperture Radar
SEIS	Shared Environmental Information System
SMEs	Small and Medium Enterprises
UNEP-GRID	United Nations Environment Programme – Global Resource Information Database
VHR	Very High Resolution
WBS	Work Breakdown Structure
WP	Work Package
WPD	Work Package Description

1 Introduction

The Horizon 2020 (H2020) project, "Evolution of Copernicus Land Services based on Sentinel data" (ECoLaSS) addresses the H2020 Work Programme 5 iii. Leadership in Enabling and Industrial technologies - Space, specifically the Topic EO-3-2016: Evolution of Copernicus services. ECoLaSS will be conducted from 2017–2019 and aims at developing and prototypically demonstrating selected innovative products and methods for future next-generation operational Copernicus Land Monitoring Service (CLMS) products of the pan-European and Global Land Components. This will contribute to demonstrating operational readiness of the finally selected products, and shall allow the key CLMS stakeholders (i.e. mainly the Entrusted European Entities (EEE) EEA and JRC) to take informed decisions on potential procurement of the next generation of Copernicus Land services from 2020 onwards.

ECoLaSS will make full use of dense time series of Sentinel-2 and Sentinel-3 optical data as well as Sentinel-1 Synthetic Aperture Radar (SAR) data. Rapidly evolving scientific as well as user requirements will be analysed in support of a future pan-European roll-out of new/improved Copernicus Land Monitoring Service products, and the transfer to global applications.

The deliverable D19.2: "D61.2 - Communication, Dissemination and Exploitation Plan" (PEDR) is the second Deliverable of Work Package (WP) 19: "WP61 - Communication, Dissemination & Exploitation" as part of the ECoLaSS Task 6: "Measures to maximise impact". The main objective of this task is i) to prepare and perform all activities and issues related to dissemination, communication and exploitation of the projects results in order to maximise the impact on the "Copernicus Economy" by promoting the project's technical and operational advancements and ii) to prepare the grounds for the transfer of the accepted pre-operational product(s) to EC, EEA and JRC for future operational procurement, under consideration of a balanced IPR strategy. This task is fundamental to both, the dissemination to different target user groups, and the transfer of innovations to future operational products, using appropriate strategies for exploitation and means of communication.

1.1 Purpose and Scope

The PEDR of the ECoLaSS project describes the strategies for the dissemination of the knowledge to be gained during the project and the exploitation plan of the information arising from the project in terms of scientific advances and knowledge, as well as data products. The goal of the PEDR is to develop a roadmap for implementing various dissemination and promotional activities in the project and to increase the awareness of the ECoLaSS project. It defines dissemination and exploitation activities as well as material for both project phases. It will be used by the consortium as a benchmark against which dissemination progress will be measured over time. The PEDR is a strategic document supporting to establish the bases for the intellectual property strategy, dissemination and exploitation activities (AD05).

The dissemination strategy gives an orientation as to the organisation of the planned project activities and therefore addresses:

i) the **needs** the project responds to,

ii) the **problem** that the proposed solution will solve,

iii) the **new knowledge (results)** the project will generate (assessment of the state of the art),

iv) the **user** of these results,

v) the **benefits** being delivered and

vi) **methods** applied to inform the end users about the generated results.

1.2 Dissemination and Exploitation Objectives

Dissemination and communication activities are foreseen during the lifetime of the project, preparing the exploitation of ECoLaSS products and developed methodologies. Activities such as the establishment of a network community, the use of social networks (Twitter and ResearchGate), the provision of publishable deliverables and the setting up of workshops will support the interaction with existing and potential stakeholders and users.

The dissemination plan will consider the different knowledge levels of the targeted stakeholders and users relevant for the subsequent dissemination: e.g., disseminating product related information will be of special interest for the Entrusted European Entities (EEEs) for the Copernicus Land Monitoring Service and the EC's thematic directorates general (DGs), while the scientific community will be targeted with the scientific and methodological innovations generated.

The main objectives of the dissemination and exploitation activities are:

- to increase the awareness of the ECoLaSS project,
- to provide up-to-date information about ongoing activities, such as events or meetings, and print media (publications, presentations, official documents, etc.),
- to regularly inform relevant Copernicus Land stakeholders and decision makers on the status of ongoing research and development activities in the project in the best suitable way,
- to improve the interaction with existing and potential stakeholders and users,
- to get access to new potential users, and
- to generate a market demand for the prototypes developed.

The ECoLaSS project follows a two-phased approach of two 18 months periods. This deliverable comprises the first Issue compiled at month 9 of the first 18-month project cycle. In the second 18-month project cycle, a second issue of this deliverable will be published, containing all relevant updates of dissemination activities as known by then.

1.3 Document structure

This section describes the structure of the document.

- Section 1 is this introduction.
- Section 2 gives an overview of the project and highlights the needs that the project responds to, the problem that the proposed solution will solve and the new knowledge that the project will generate.
- Section 3 describes the Dissemination and Exploitation Strategy including the definition of the target groups, a description of the dissemination and communication media and the actual plan how project results will be disseminated depending on the target group.
- Section 4 provides the exploitation plan.
- Section 5 is the ANNEX and includes examples of existing Dissemination Material.

2 Project overview

2.1 Project background

The European Earth Observation (EO) programme Copernicus, headed by the European Commission (EC) in partnership with the European Space Agency (ESA), provides a wealth of environmental information for better understanding the state and changes of our planet. Since entering its operational stage in 2014 (EU-EEA Agreement – Annex 1), Copernicus provides six operational services on the earth's main sub-systems (i.e. Land, Atmosphere, Oceans) and on cross-cutting processes (i.e., Climate Change, Emergency and Security). These services are largely based on EO satellite data, increasingly being provided by the fleet of European Sentinel satellites launched since 2014. All Copernicus products and Sentinel data are made available free-of-charge via a free and open data policy.

The Copernicus Land Monitoring Service makes use of these and other EO data to operationally derive spatially explicit information on various spatial scales related to bio-geophysical variables and land cover/land use (LC/LU) characteristics as well as their changes over time. It distinguishes services related to

(i) the Global Land component – addressing global bio-geophysical variables with a typical spatial resolution of several 100m, and a global Hot Spot Mapping of protected areas;

(ii) the Continental (pan-European) Land component – providing maps of LC/LU, related characteristics and their changes on European level with 10-20m spatial resolution; and

(iii) the Local Land component – addressing selected European hot spots of biodiversity and human activity at very high spatial resolution (1-2.5m). A dedicated In-situ component is implemented alongside the thematic services, providing access to a range of regional-scale physical measurements, station data and other very-high resolution (VHR) reference data sets.

Implementation of the Land service component has been delegated by the EC to European Entrusted Entities (EEEs), of which the European Environment Agency (EEA) has taken responsibility for the Local and the Continental (pan-European) component, and the EC's Joint Research Centre (JRC) for the Global component. Whereas the Global component has been able to make use of a reasonable precursor EO data situation (e.g. SPOT-VGT, MODIS) since several years, the current status of implementation of the pan-European component still suffers from the delayed start of Sentinel-2A in June 2015, and an implementation level of products/services which are currently (still) predominantly geared towards being static snapshots in time, mostly derived from a mono-temporal image coverage rather than as dynamically evolving products derived from time series of satellite data. This comprises mainly the set of five High Resolution Layers (HRLs) on specific land cover characteristics (Imperviousness, Forest, Grassland, Water and Wetland/Wetness) and the well-established CORINE Land Cover (CLC).

The ECoLaSS project will focus on the pan-European and Global component aspects, as these are partially closely related, and take into account the respective needs of the key user and stakeholder community.

2.2 Research needs of Copernicus Operational Services

The key challenges of the present Copernicus Land Services component are:

(i) the variable probability for obtaining sufficiently cloud-free optical satellite image coverages across Europe from current precursor (third-party) satellite missions – deemed to improve significantly since Sentinel-2A and its twin satellite Sentinel-2B are now in full-operations mode;

(ii) the resulting long time lapse between original acquisition of satellite imagery and the delivery of final information products for pan-European scale;

(iii) long product update cycles of currently 3-6 years for the pan-European component;

(iv) the (still) significant regional heterogeneity residing in the products (mainly: the HRL).

With the era of full Sentinel constellation deployment ahead, the challenges will be extended by

(v) the upcoming tremendous volumes of EO data being acquired by the Sentinel satellites (currently Sentinel 1A, -2A, -3A), and the related massive data handling, data integration, processing and storage issues;

(vi) the resulting necessity for the services to evolve towards processing of dense time series of both optical and SAR-based Sentinel data.

At the same time, also the users' requirements for future Land Services are rapidly evolving (see AD06). As one result, the AD06 report states that, in terms of future service specifications, a general need for shorter update frequencies and change products (e.g. through incremental updates) was mentioned throughout. Concerning new services, a particular need for a pan-European Agricultural Service as well as for a Phenology Layer were the most frequently recorded responses. A certain trend is further recognised towards more generic products being requested.

For example, the pan-European component's thematic services using HR data are presently focusing only on Europe, whereas – considering enhanced data availability through the Sentinels – they have huge potential for emerging also towards Global applications, e.g. for mapping of global-scale high-resolution LC/LU systems through integrated use of Sentinel-2 and Sentinel-3 observations.

In view of these new EO data possibilities, in combination with increased technical challenges and evolving user requirements, there is a strong need for targeted Research & Development (R&D) to support the evolution of the Copernicus Land Monitoring Service, with a view to a sustainable long-term perspective. Only through such dedicated action in the frame of the Horizon 2020 programme – going significantly beyond the 'regular' service improvement and maintenance efforts of the operational services – it will be possible for the services to fully evolve towards exploiting the entire potential of high volume data processing for benefitting multiple thematic Land applications. Specifically the possibilities of exploring, developing and systematically benchmarking also commercially not yet fully mature (i.e. more 'risky') but technically promising concepts in the well-defined research framework of Horizon 2020 are expected to support closing the gap between the excellent EO data situation offered by the Sentinels and the CLMS component's capabilities.

From the identified needs for an operational Copernicus service evolution in the EO-03-2016 Guidance Document: Research needs of Copernicus Operational Services, Final Version 30/10/2015 (Guidance Document), ECoLaSS addresses seven of the ten requirements from the pan-European and Local component Land Monitoring Services as well as the Global component Land Monitoring Services.

These are for the pan-European component:

- 5.2.2 LC/LU mapping and change mapping based on integrated radar and multi-spectral data,
- 5.2.3 Automated change monitoring based on Sentinel data time series,
- 5.2.4 Improved permanent grassland identification methods,
- 5.2.5 Crop area and crop status monitoring, and
- 5.2.6 Methodology to provide yearly incremental updates in HRL layers,

and for the Global component:

- 5.3.1 High volume data processing lines, and
- 5.3.2 Automated change detection.

2.3 Solutions and new knowledge

The project's key objectives are the development of several prototypes of new or enhanced Copernicus Land services of the Continental and the Global component, which will make full use of high data volume processing of dense time series of SAR and optical Sentinel (and other) EO data, and shall be suggested to EC and the relevant decision-makers for qualifying as candidates for operational integration into the future Copernicus Land Monitoring Service from 2020 onwards. The project bases all its developments on regularly updated high-priority user requirements, and assesses/benchmarks all operational product candidates in view of their innovation potential and technical excellence, automation level, potential for roll-out to pan-European level and/or global scale, timeliness for operational implementation, costs versus benefits, etc.

Faced to the state of the art presented in the previous section, ECoLaSS will address specific challenges for operationalisation of land monitoring services by developing innovative solutions on the following aspects: Integration of multi-source data: Exploiting optical and SAR satellite time series from S-1, -2 and -3 with unprecedented spatio-temporal resolution for large area LC/LU mapping and change monitoring systems.

- Improving pre-processing methods, especially in the field of gap-filling and noise reduction of dense time series, where methods will be implemented for fully automatic generation of continuous time series. Special emphasis will be drawn on retaining the high spatial resolution which is required for monitoring LC/LU changes. As opposed to current approaches which are often based on mosaicking of imagery within defined time-intervals, the gap-filling and noise reduction procedures will result in complete, continuous temporal trajectories of the derived features.
- Fully utilizing the information content of dense time series with innovative classification and monitoring methods which are based on the temporal trajectory of the signal and not limited to selected metrics derived from the time series data. Advanced methods will be developed to handle the important S-1 & -2 data streams based on the consortium partners' expertise gained in the frame of the previous and ongoing Copernicus HRL Production and the current Copernicus Land Validation projects. This will provide robust classification methods for improved permanent grassland identification, continuous crop status monitoring and new LC/LU products for filling 2020+ Copernicus user needs.
- Providing advanced tools for harmonizing the Copernicus Land services with coherent temporal change updates. The developed approach will be suitable to ensure logical consistency of time series HRL products and provide meaningful incremental updates with ideal update frequency.
- Defining and deriving new time series-derived indicators and variables to procure metrics based on spectro-temporal information that provides complementary information of land surfaces relying on S-1/2/3 time series.
- Continuous monitoring in near real time will be achieved by processing of satellite images over the full time series until the most recent satellite acquisition by fusing anomaly detection results from optical and SAR time series. Instead of generating yearly mosaics and/or derivation of metrics such as maximum reflectance over one year, the developed approach will compare the temporal trajectory of derived features at a continuous basis (e.g. in case of monitoring disturbances, confidence intervals of the temporal trajectories are used to determine outliers).
- Developing multi-sensor services for reliable and timeliness delivery of agriculture-related products (including crop discrimination and status) at pan-European scale and adapting key components at global scale exploiting the synergy of S-1, -2 and -3 data streams.

3 Dissemination and Communication

Dissemination activities have the aim to provide the important project results to current and potential users as soon as they are mature enough to be published, during the projects lifetime as well as in the follow-up of the project. A strong focus on the participation in relevant workshops and conferences is planned, targeting different user groups and enabling dissemination as well as communication activities.

3.1 Dissemination and Communication of the project results

To successfully disseminate the results of ECoLaSS, the diverse stakeholders and potential users have to be addressed with the right distribution channels. Here, the PEDR accounts for such a diversity of potential users in structure, interests and in knowledge by classifying them in distinct user groups. The PEDR focuses on the following points:

Who – will be the target groups that will be informed about the ECoLaSS activities and products?

- Responsible **Entrusted European Entities (EEEs)** for the Copernicus Land Monitoring Service,
- The **EC's thematic** directorates general **(DGs)**,
- Local, Regional, and/or National Authorities and decision makers (current users and potentially new ones),
- Other public entities,
- Scientific community,
- Private sector, and
- The general public.

What - are the outcomes to be disseminated?

- Evolution of the project: Status on how the development of the prototypes is advancing as well as related meetings and workshops where the project is involved
- Prototypes of new or enhanced Copernicus Land Services of the Continental and the Global component, which will make full use of high data volume processing of dense time series of SAR and optical Sentinel (and other) EO data Processed products (maps) suitable to be used by the non-scientific community qualified as candidates for operational integration into the future Copernicus Land Monitoring Service from 2020 onwards.
- Proof-of-concept for the following innovative **prototypes**:
    - Indicators and variables from high spatial and temporal resolution data, for both the Continental and Global component products;
    - Incremental update strategies for the main pan-European products (i.e. the HRLs);
    - Improved permanent grassland identification;
    - Crop area and crop status/parameters monitoring;
    - Further novel LC/LU products.

How - are the outcomes disseminated?

The media or the communication systems to be used for the dissemination of ECoLaSS (what) to the specific target groups (who). The plan specifies which media (scientific papers, presentations in conferences, user reports, online/social media, etc.) should be used for each group in order to facilitate dissemination.

When - are the outcomes disseminated?

According to the dissemination plan of each media taking into account the target groups every time.

3.2 Definition of target groups of users

To accomplish the project objectives and effectively disseminate the project results, users need to be identified and categorised according to their specific needs taking into account different aspects as e.g., which degree of connection they have to the project; which degree of knowledge they have about the topic; how will they use the results or what geographical level they have Therefore, they have been classified into distinct groups. Instead of widely distributing general information to an unspecified audience, without knowing whether this information is of added value or not, users are approached by means of a directed approach. Target groups are divided according to their knowledge related to ECoLaSS as well as their particular interest in the project and its outcomes and must be approached in an appropriate way.

There are four main target audiences that have been identified likely to be interested in the project outcomes and thus, are addressed for the dissemination of the results.

- **Group 1, Public Sector Entities**: this group comprises several entities:
    - The responsible **Entrusted European Entities (EEEs)** for the Copernicus Land Monitoring Service: The most important stakeholders are representatives of ***EEA*** (being the EEE for the Continental and Local Copernicus Land components and the in-situ component (several thematic units)) and ***JRC*** (as research organisation of the EC and being the EEE for the global Copernicus Land component) who have been entrusted by the EC as EEEs to be responsible for implementing the Copernicus Land Monitoring Service as well as defining the main needs for its evolution.
    - **EC – DG GROW**, being responsible both for the overall programmatic coordination of Copernicus and for the management of this H2020 project (via REA);
    - The **EC's thematic DGs** such as ***ENV, AGRI, REGIO, MOVE, DEVCO, CONNECT***: These DGs have the responsibility for coordinating specific environmental, agricultural, regional, infrastructural and policy issues in Europe (and partially beyond) which are not necessarily connected to Copernicus yet, but could support in formulating future requirements and could become users themselves later on.
    - **Copernicus Committee and User Forum**, being composed of EU member states' representatives, assisting the EC on user requirements, policy definitions, implementation measures and coordination of the Copernicus programme with its public-sector users.
    - **National Copernicus User Forums,** being held by each EU member state on a regular basis, collecting country specific requirements, policy definitions, implementation

measures, etc. from regional and local administrations to be submitted to the European Copernicus Committee and User Forum.

- Further **Public Sector Entities** in Europe: In supplement to strong communication with the EEEs, exchange with the ***EIONET-EAGLE Group***, which is working on a relevant new data model on Land Cover and Land Use is foreseen (see WP 51, section 1.3.2.5.1). Other important partners in terms of Land services development, mainly in an agricultural context, are ***FAO*** and the ***UNEP-GRID***.
- **Regional Networks** in Europe: In order to promote new prototypes and new products from ECoLaSS also on regional levels, regional networks such as the ***NEREUS network*** (Network of European Regions Using Space Technology (NEREUS, 2015)) and ***EUROGI*** (European Umbrella Organisation for Geographic Information) will be targeted, by which typically several Copernicus events are organised before. Two consortium partners, GAF and DLR, are located in the German region of Bavaria which is member of NEREUS (organised by bavAIRia e.V. (bavAIRia 2016)). Also the French region of Midi-Pyrenees (with one ECoLaSS demonstration site there) is represented as full member.

- **Group 2, Scientific Community**: Since the ECoLaSS project contains a significant R&D component, the exchange of scientific ideas or product innovations with the scientific community, e. g. from university institutes or research institutes, is foreseen via participation in scientific conferences and workshops and publication of scientific results in international journals (Table 2.2.a). A wider dissemination of project results could be facilitated via the ***EARSeL (European Association of Remote Sensing Laboratories)*** that contains ***Special Interest Groups*** regarding, e.g., Forestry, Land Use / Land Cover, Urban Remote Sensing, or Temporal Analysis of Satellite Images, and frequently offers workshops in this field.
- **Group 3, the Private Sector** in Europe: It is intended to address also the private Earth Observation sector in Europe via federating organisations like ***EARSC*** (European Association of Remote Sensing Companies), which is recognised as the representative of the European remote sensing value-adding industry. Many of its members represent Small and Medium Enterprises (SMEs) which are not yet actively involved in Copernicus.
- **Group 4, General Public** in Europe: addressing the general public in Europe that will access the basic level of information. We expect that information about the ongoing project activities and demonstrating the unique potential of international collaboration and innovative high-capacity Land services for supporting responsible environmental policies and sustainable land management in the Sentinel era will be the most interesting for the public.

Known representatives, which have been identified and interviewed for AD06 and which will also be addressed during the progress of the project, are listed in the Table 3-1.

Table 3-1: Addressed European stakeholders and key national users (source: AD06, table 1 and table 2)

ORGANISATION	CONTACT POINT	ROLE OF ORGANISATION IN COPERNICUS	COUNTRY
European Environment Agency (EEA)	Tobias Langanke	European Entrusted Entity (EEE) for Copernicus implementation	European
Joint Research Centre (JRC)	Michael Cherlet	European Entrusted Entity (EEE) for Copernicus implementation	European

Joint Research Centre (JRC)	Guido Lemoine, Olivier Léo	European Entrusted Entity (EEE) for Copernicus implementation	European
DG Environment (DG ENV)	Frank Vassen	Key European stakeholder and user	European
DG Environment (DG ENV)	Peter Löffler	Key European stakeholder and user	European
UBA Germany	Christian Schweitzer	key national coordinating Copernicus entity and user	Germany
BKG Germany	Ralf Gehrke	key national coordinating Copernicus entity and user	Germany
DLR Raumfahrtmanagement	Michael Bock	key national coordinating Copernicus entity and user	Germany
EEA Austria	Andreas Littkopf	key national coordinating Copernicus entity and user	Austria
CGDD (DRI+SOES)	Vincent Pircher, Benoit David, Frédérique Janvier	Representatives of national user	France
CNIG, AFIGEO (workshop)	Pascal Lory	Group of national users	France

3.3 Dissemination and Communication Activities

Several communication activities are proposed for the duration (and at the end of) the project to discuss and promote the results and products developed in the project, and communicate them to diverse audiences. ECoLaSS communication activities will be oriented towards the guidelines stated in the H2020 Annotated Model Grant Agreement Article 38, as well as the H2020 Online Manual. The ECoLaSS Communication Plan contains one way-exchange as well as two-way exchange communication means. Communication and promotion activities can be categorised into passive promotional efforts to achieve general awareness. The more proactive promotion/dissemination efforts aim at direct contact with the users including feedback, to engage with relevant programmes/activities, as well as the financing and scientific community. Communication activities will be carried out within this WP 61, inter-linked with dissemination activities. However, there is a strong link to WP 51 “Stakeholder Consultation”.

A public policy perspective of EU research and innovation funding is specifically addressed by ECoLaSS. Through transnational cooperation in a European consortium consisting of five partners from four EU member states, the quality and quantity of achievements can be significantly raised. Through collaboration of partners with strong background and legacy in the Copernicus Land domain (see chapter 3.3), the consortium covers a wide range of scientific excellence and knows from its long-time involvement in the Copernicus Land process history the societal challenges and policy makers’ requirements to be covered by future Land services.

After having available first products, detailed strategies for service evolution should be discussed in a dedicated workshop with stakeholders from, e.g., agriculture (e.g. with key participants of the MARS conference on a side event).

Annual or bi-annual meetings are foreseen in the frame of the stakeholder consultation process with representatives of the Copernicus Land and SEIS (Shared Environmental Information System) group of EEA, supplemented by meetings with JRC and involved EC DGs. Participation in Copernicus Land workshops, as well as in annual meetings of the national EIONET representatives and the EAGLE group will support promoting the potential use of new service products on a European and national level. Further presentations at application-oriented workshops will provide further valuable means of dissemination and allow retrieving feedback on the products which can be taken into account for the further developments.

An overview of the communication media and measures of their success, as well as additional information on timing is given in Table 3-2.

Table 3-2: Communication Media and Measures of their Success

Communication Media	Purpose with respect to the project objectives	Measurement of success of communication activity	Date, timing	Pro-active/ passive	One-way/ two-way c.
Meetings with stakeholders	• Coordination and future planning • Review of work and deliverables	• Progress meeting minutes	Annual or bi-annual	A	2W
Face-to-face and Telephone calls with stakeholders	• Requirements definitions and understanding • Collecting specific needs	• Deliverable 21	One for each phase of the project	A	2W
Scientific Conferences	• Presentation and discussion of project methods, results and achievements • Exchange of knowledge and expertise • Feedback from scientific communities • Feedback from Financing communities	• Discussion about presented results • New or intensified contacts to possible users and communities	According to Table 3-5	P/A	1W /2W
Workshops and side events of specific conferences	• Discussion of project achievements • Discussion on new strategies & methods • Diffusion of lesson learned in ECoLaSS • Feedback from topical communities	• New or intensified contacts to possible users and communities		A	2W

3.4 Dissemination and Communication Media

In the following, the media that will be used to carry out a wide-ranging dissemination and communication are presented.

3.4.1 Webpage

This dissemination instrument aims at providing more into detail information about the ECoLaSS project including background, the members of the consortium, the test and prototype sites of the project, as well as up-to-date information about ongoing activities, e.g., the participation in relevant events. Furthermore, it provides contact details and links to other outreach instruments, such as social media channels or the blog. In the future, new information about prototype developments will be provided as soon as their progress is mature enough to be presented.

The webpage has been set up at www.ecolass.eu and will be maintained and regularly updated throughout the projects lifetime. To quantify the success of the webpage, the view statistics will be measured. For a detailed description of the projects webpage, see AD07.

3.4.2 Social Media

The main objective of social media is to increase publicity, to generate requests, to exchange information, to offer support, to strengthen the user loyalty, and to expand the user community. Social media has the great advantages of reaching users and potential new users faster than through traditional communication channels. Social media helps advertising new developments and/or products of the project and attracting new users, as these channels can reach outside the related community.

To measure the success of social media, the number of followers, likes, retweets, etc. will be recorded. The Twitter account @ECoLaSS2020 has been created 6 month after project start and will be maintained and regularly updated throughout the projects lifetime. Furthermore, discussions on ECoLaSS related issues and papers with the scientific community is foreseen using i.e., ResearchGate, Academia.edu or LinkedIn.

The use of other dissemination partners will be very useful mainly through these media.

3.4.3 Blog

The weblog is an important outreach instrument to inform users more into detail about new developments or important events of the ECoLaSS project. In general, it includes articles with additional detail compared to social media which are supplemented with graphics or videos.

The blog is included in the projects webpage and will be maintained and regularly updated throughout the projects lifetime. To quantify the success of the blog, the view statistics will be measured.

3.4.4 Project Flyer

This dissemination instrument aims at providing the essential information about the ECoLaSS project including contact information (project coordination, website, blog, etc.) to potential new users and thus making them aware of the ECoLaSS project, which can be send via Email or disseminated during conferences, workshops, etc. . The flyer includes a short description of the project's background, objectives, envisaged achievements/innovations, and partner as well as contact details (project coordination, website, blog, etc.) and graphics of as well as meaningful and impressive examples of outputs of the ECoLaSS project.

It will be created before the end of the first project year, to be available to be distributed within the 2nd year of the project and conference/workshop season 2018. Its success will be measured through direct communication and feedback, the number of flyers handed out, and by estimating the contact increase (website, twitter, emails, etc.) after events, where the flyer has been handed out.

3.4.5 Publications in Scientific Journals

This dissemination instrument includes publications in (peer-reviewed) journals to present the project's objectives, developed methods and results to the scientific community. This will further strengthen the scientific reliability of ECoLaSS and place it among the innovative and state-of-the-art approaches. Moreover, this will allow attracting new potential users, namely the readers of such journals.

The publication in scientific journals is foreseen in the second phase, towards end of the project, once prototypes and methods are finalised. The success of a publication in a scientific journal will be measured by means of the number of citations, downloads and view statistics from the scientific journals' websites, and discussions about the publication.

3.4.6 Other publications

Further press releases in other thematic newspapers and magazines (i.e., EOMAG, Horizon Magazine (https://horizon-magazine.eu/), research*eu results magazine (http://www.cordis.europa.eu/research-eu/home_en.html)) are foreseen during the project life. First publications have already been released.

Presentations from conferences may also be available to public.

3.4.7 Conferences and other relevant events

This outreach instrument mostly includes oral or poster presentations of the project's status and results at international conferences and workshops related to LU/LC from the remote sensing / IT perspective carried out by members of the consortium. The project's objectives, developed methods and results will be presented to the scientific community.

This will allow a direct contact with the user community and, hence, to get additional comments and feedback which can be taken into consideration for further improvements of the technical or methodological developments of ECoLaSS. The participation at conferences and publication of results in the conference proceedings or as a poster is foreseen according to the plan (see Table 3-4 for conference scheduling), once prototypes and methods are more mature. The success of a publication in a conference proceeding will be measured by means of discussion about the presentation and project results as well as new or intensified contacts to possible users and communities. The success of a poster contribution will be measured by means of the number of people discussing at poster and the number of handed out copies of the poster, as well as shared business cards or email addresses.

3.4.8 Meetings with stakeholders

Meetings with stakeholders will support promoting the potential use of new service products on a European and national level. These meetings aim at coordinating and plan future developments by:

- regularly informing relevant Copernicus Land stakeholders and decision makers on the status of ongoing research and development activities in the project
- gathering their feedback on the project's technical developments, thematic evaluations, service/product maturity assessments and the suggested candidate products for later operational implementation;
- receiving advise on current/evolving priorities and/or emerging adaptation needs for the continuation of work in the next project phase(s); and
- supporting the EC and other stakeholders in a sufficiently timely manner such as to allow leading informed discussions on the future implementation of Copernicus Land products.

Annual or bi-annual meetings are foreseen in the frame of the stakeholder consultation process, which will be organized within WP51 led by GAF.

Upfront the consultations, the relevant most recent results and outputs of both Task 3 (i.e. developed methods and related documentation, methods compendia, etc.) and of Task 4 (i.e. proof-of-concept/prototype data sets of new and improved products, including derived/estimated accuracy figures) and/or related dissemination material (organised and provided this WP 61) will be compiled and provided by the consortium to the addressed stakeholders, in order to realistically reflect the actual status of development, with all relevant advantages and limitations discovered by then.

3.4.9 Workshops and demonstration events

Workshops and demonstration events are a dissemination instrument that will be used especially to engage new users and communities and to strengthen the contact to known ones. Dedicated and focused half-to-full day workshops as well as presentations and discussion sessions (upon invitation) will

be organised by WP51 (led by GAF). Purpose of these workshops and demonstration events is to discuss about project achievements, new strategies and methods, to disseminate lessons learnt in ECoLaSS and the gather feedback from thematic communities.

These workshops and demonstration events will be organised in coordination with conferences or other events, where the participation of the project consortium is foreseen. They will provide additional valuable means of dissemination and allow retrieving feedback on the products which can be taken into account for the further developments.

3.5 Dissemination plan

In the following the dissemination plan will be presented. Table 3-3 gives a detailed overview on how the individual dissemination activities and media will be used to approach the different target groups, while Table 3-4 shows the intended dissemination schedule.

Table 3-3: Dissemination media with respect to the target groups of users and frequency of dissemination.

Dissemination and Communication Media	Who	How	When	Dissemination frequency	Measure of success	Responsible	Envisaged contributions
Webpage	All target groups	Internet	M6	Updated continuously	- Counting visitors - Registrations - Counting of downloads	DLR	All
Social Media	All target groups	Internet	M6	Updated continuously	- Direct feedback - Counting visitors - Counting likes in posts - Counting of sharing - Number of followers	DLR	All
Blog	All target groups	Internet	M6	Updated continuously	- Direct feedback. - Counting visitors - Counting likes in posts - Counting of sharing - Number of followers	DLR	All
Project Flyer	All target groups	Distributed during conferences, events, meetings, workshops	M12	Once	- Direct communication and feedback - Number of flyers handed out	DLR, GAF	All
Publication in Scientific	Group 2	Publications	After M12	Whenever important results are mature	- Number of citations - Downloads and view	All	All

Journals				enough to be published	statistics from scientific journals' websites; - Discussion about the articles		
Other publications	All target groups	Publications	Ongoing	Whenever important results are mature enough to be published	- Direct feedback - Discussion about the articles	All	All
Participation in conferences and other events	Group 2	Presentations, Publications, Demonstrations	According to Table 3-4	Whenever important results are mature enough to be published	- Direct feedback - Number of participants - New or intensified contacts to possible users and communities	All	All
Meetings with stakeholders	Group 1	Presentations, Demonstrations	M1	Annual or bi-annual	- Direct feedback - Number of participants	GAF	All
Workshops and demonstration events	Group 1, Group 2	Presentations, Demonstrations	After M12	Annual or bi-annual	- Direct feedback - Number of participants - New or intensified contacts to possible users and communities	GAF	All

Table 3-4: The dissemination schedule

Reporting Period				Phase 1																				Phase 2											
				2017												2018												2019									
Project Month				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Meetings				K O									PM 1									IR M								PM 2								FM
Dissemination Media	Status	Responsibility / Contribution	Date / Timing																																		
Website	online	DLR	M6						D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Blog	online	DLR	M6						D	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Flyer		DLR / GAF	M13													D																					
Social Media		DLR																																			
ECoLaSS Twitter account	online		M8								o																										
Twitter messages	online		M9									o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
ResearchGate			M10										o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Meetings with stakeholders		GAF	(Bi-)Annual			o							o					o						o						o					o		
Workshops and demonstration events		GAF	(Bi-)Annual			o							o					o						o						o					o		
Events / Conferences																																					
Copernicus Conference/ Workshops	*tbd*	*tbd*	Annual																																		
ESA Sentinel /Copernicus Workshops	*tbd*	*tbd*	Annual																																		
ESA Symposia and Topical Workshops	*tbd*	*tbd*	tbd																																		
2017																																					
WorldCover 2017	Poster	GAF	14-16 Mar 2017			o																															
German National Copernicus User Forum	Oral	GAF	14-16 Mar 2017			o																															
CNES COSPACE Workshop on Vegetation	Participation	SIRS	28-Mar-17			o																															
French national event with different stakeholders, such as National Council for Geographic Information (CNIG), French Mapping Agency (IGN) and French Association for Geographical Information (AFIGEO)	Participation	SIRS	30-Mar-17			o																															
French Ministry of Solidary Ecological Transition	Participation	SIRS	13-Apr-17					o																													
37th International Symposium on Remote Sensing of Environment (ISRSE)	Participation	SIRS	8-12 May 2017					o																													
French National Copernicus User Forum: workshop on the evolution of Copernicus Services	Participation	SIRS	14-Jun-17						o																												
MultiTemp 2017	*Participation*	*GAF, SIRS, UCL*	27-29 Jun 2017						o																												
Presentation at the University of Applied Sciences Munich	Oral	GAF	30-Jun-17						o																												
Annual General Meeting of the European Association of Remote Sensing Companies (EARSC)	Participation	GAF	04-05 Jul 2017							o																											
CCI+ Information Day	Participation	UCL, GAF	6-Jul-17							o																											
IUFRO 125th Anniversary Congress	Oral	JR	19-22 Sept 2017									o																									
Intergeo: Tradefair for geoinformation professionals	Oral + Booth (planned)	GAF	26-28 Sept 2017									o																									
EEA Land Monitoring & CLC+ Workshop (tbd)	*Oral (planned)*	*GAF + SIRS*	16-Nov-17											o																							
MARS Conference	*Poster*	*GAF*	28-29 Nov											o																							
Meeting at JRC to discuss future specifications for Global land and Agriculture Service	*Participation*	*UCL, SIRS*	2017							o																											

				Period 1	Period 2	Period 3
2018			Bi-annual			
EC/EARSC Global Land Workshop	*Participation planned*	*GAF, UCL*	Exp. 2018		o	
EIONET NRC Land Cover Annual Meeting 2018	*Oral (planned)*	*GAF*	Spring		o	
EGU 2018 in Vienna, Austria,	*tbd*	*tbd*	8–13 Apr		o	
Copernicus Event "20 years Baveno Manifesto"	*Participation (planned)*	*GAF*	May-18		o	
PROBA-V Symposium 2018	*Participation planned*	*SIRS*	29-31 May 2018		o	
IGARSS 2018	*Oral (planned)*	*GAF, DLR*	23-27 Jul 2018		o	
ForestSAT 2018	*Participation planned*	*GAF*	2-5 Oct 2018		o	
German National Copernicus User Forum	*Oral (planned)*	*GAF, DLR*	Autumn 2018		o	
EARSEL Conference	*tbd*	*tbd*	2018		o	
2019 / 2020						
EGU 2019	*tbd*	*tbd*	7-12 April			o
IGARSS 2019	*tbd*	*DLR*	28 July – 2 August			o
MultiTemp 2019	*Participation planned*	*GAF, SIRS, DLR*	2019			o
International Symposium on Remote Sensing of Environment (ISRSE) 2019	*Participation planned*	*SIRS, DLR*	2019			o
ESA Living Planet Symposium 2019	*Participation planned*	*GAF, SIRS, DLR*	2019			o
ISPRS 2020	*Participation planned*	*SIRS*	2020			o
Meeting with national stakeholders	*Participation planned*	*SIRS*	2018-19		o	o
Publications						
Technical Publication in one of the following						
IEEE Transactions on Geoscience and Remote Sensing					o	o
IEEE Geoscience & Remote Sensing Letters						
Applied Publication in one of the following	*Planned*	*tbd*	*tbd*			
Journal of Applied Remote Sensing						
Remote Sensing of Environment						
Landscape and Urban Planning					o	o
Remote Sensing						
International Journal of Remote Sensing						

Table 3-5 gives an overview of the Dissemination Plan at conferences and workshops. Presentations at conferences will typically allow publication of scientific papers in conference proceedings as well as in peer-reviewed journals. Copernicus conferences and workshops will be important venues to present the current project activities and results, as both the end user and financing institution communities are typically represented. ESA is organising dedicated Sentinel and Copernicus workshops in which the consortium will participate. Important scientific conferences include: the Living Planet and ISRSE Symposia with renowned sessions on land monitoring (e.g., LC/LU, agricultural and other applications); the IGARSS conference as largest remote sensing conference worldwide, covering a variety of topics; the MultiTemp workshop which is a high quality conference aiming specifically at methods and applications of time series analysis and change monitoring; the EARSeL conference targeting scientists from the European scientific community for a broad variety of remote sensing topics; the ISPRS congress where the most up-to-date scientific issues are identified and treated in special sessions, and the EGU General Assembly or AGU Fall Meeting that enable networking with communities in the full range of geosciences beyond the remote sensing community. Targeted topical or local events will further be addressed once they are announced.

Table 3-5: Conferences and Workshops

Conferences	Date	Location	Status	Relevant Topics	Consortium Participant
2017					
WorldCover 2017	14-16 Mar 2017	ESA, Frascati, Italy	Poster	LC/LU, Global CLMS Products	GAF (Linda Moser)
German National Copernicus User Forum	14-16 Mar 2017	Berlin, Germany	Oral	Copernicus (national)	GAF (Markus Probeck)
CNES COSPACE Workshop on Vegetation	28 Mar 2017	Paris, France	Participation	Copernicus (national)	SIRS (Christophe Sannier)
French national event with different stakeholders, such as National Council for Geographic Information (CNIG), French Mapping Agency (IGN) and French Association for Geographical Information (AFIGEO)	30 Mar 2017	Marne la Vallée, France	Participation	Copernicus (national)	SIRS (Christophe Sannier)
French Ministry of Solidary Ecological Transition	13 Apr 2017	France	Participation	Copernicus (national)	SIRS (Christophe Sannier)
37th International Symposium on Remote Sensing of Environment (ISRSE)	8-12 May 2017	Tshwane, South Africa	Participation	LC/LU, including Global Land Service special session	SIRS (Christophe Sannier)
French National Copernicus User Forum: workshop on the evolution of Copernicus Services	14 Jun 2017	Paris, France	Participation	Copernicus (national)	SIRS (Christophe Sannier)
MultiTemp 2017	27-29 Jun 2017	Bruges, Belgium	Participation	LC/LU, time series methods and monitoring applications	GAF (Carolin Sommer), SIRS (Sophie Villerot, Baudouin Desclee), UCL (Xavier Blaes, Pierre Defourney)
Presentation at the University of Applied Sciences Munich	30 Jun 2017	Munich, Germany	Oral	ECoLaSS presentation	GAF (Linda Moser)

Annual General Meeting of the European Association of Remote Sensing Companies (EARSC)	04-05 Jul 2017	Brussels, Belgium	Participation	GEO and global Land products and evolution potential, ESA plans for Land services evolution	GAF (Markus Probeck)
CCI+ Information Day	6 Jul 2017	ESA, Frascati, Italy	Participation	R&D plans for further evolution of land services, amongst others on bridging the gap between global and pan-European CLMS component	UCL (Pierre Defourny), GAF (Markus Probeck)
IUFRO 125th Anniversary Congress	19-22 Sept 2017	Freiburg, Germany	Oral	Monitoring based on time series	JR (Heinz Gallaun)
Intergeo: Tradefair for geoinformation professionals	26-28 Sept 2017	Berlin, Germany	Oral + Booth (planned)	Status and Evolution of Copernicus Land Services	GAF (Markus Probeck)
EEA Land Monitoring & CLC+ Workshop (tbd)	16 Nov 2017	Brussels, Belgium	Oral (planned)	Future Copernicus Land Services, CLC 2018 and CLC+	GAF + SIRS
MARS Conference	28-29 Nov 2017	Dublin, Ireland	Poster (planned)	Integrated Administration and Control System (IACS), Future Agricultural Services	GAF
Meeting at JRC to discuss future specifications for Global land and Agriculture Service	2017	Ispra, Italy	Participation	Copernicus Global and Agriculture	UCL, SIRS
2018					
EC/EARSC Global Land Workshop	Exp. 2018	Brussels, Belgium	Participation planned	Future Copernicus Global Land Service	GAF, UCL
EIONET NRC Land Cover Annual Meeting 2018	Spring 2018	tbd.	Oral (planned)	Future of Copernicus Land, CLC 2018 and CLC+, Member State involvement in future Copernicus services	GAF

Copernicus Event "20 years Baveno Manifesto"	May 2018	tbd.	Participation open invitation (planned)	Future of the Copernicus Programme	GAF (Markus Probeck)
IGARSS 2018	23-27 Jul 2018	Valencia, Spain	Oral (planned-GAF)	Future Copernicus Land (LC/LU)	GAF (Linda Moser), DLR
EGU 2018 in Vienna, Austria,	8–13 Apr 2018	Vienna, Austria	tbd	Copernicus and Sentinel applications	tbd
PROBA-V Symposium 2018	29-31 May 2018	Brussels, Belgium	Participation planned	Copernicus Global	SIRS
ForestSAT 2018	2-5 Oct 2018	College Park, MD United States	Participation planned	Forest remote sensing	GAF
German National Copernicus User Forum	Autumn 2018	tbd.	Oral (planned)	Copernicus (national)	GAF (Markus Probeck), DLR
EARSEL Conference	2018	tbd.	tbd		tbd
2019 / 2020					
IGARSS 2019	28 Jul – 2 Aug2019	Yokohama, Japan	tbd	Future Copernicus Land (LC/LU)	DLR
EGU 2019	7-12 Apr 2018	Vienna, Austria	tbd	Copernicus and Sentinel applications	tbd
MultiTemp 2019	2019	tbd	Participation planned	LC/LU, time series methods and monitoring applications	GAF, SIRS, DLR
International Symposium on Remote Sensing of Environment (ISRSE) 2019	2019	tbd	Participation planned	LC/LU	SIRS, DLR
ESA Living Planet Symposium 2019	2019	tbd	Participation planned	broad variety of topics, including EO missions (e.g. Sentinels); renowned sessions on land monitoring	GAF, SIRS, DLR

				(e.g., LC/LU, agricultural & other applications)	
ISPRS 2020	2020	Nice, France	Participation planned		SIRS
Meeting with national stakeholders	2018-19	tbd, France	Participation planned	Service Evolution, EO data needs	SIRS
Copernicus/Sentinel Conferences and Workshops					
Copernicus Conf./ Workshops	Annually (2017-2020)	tdb.	tdb.	EU/ESA Organised Copernicus Workshops/Conferences	tbd.
ESA Sentinel /Copernicus Workshops	Annually (2017-2020)	tdb.	tdb.	Planned by the European Space Agency for scientific exploitation of Sentinel-1, -2, and -3 data	tbd.
ESA Symposia and Topical Workshops	To be defined according to topic	tdb.	tdb.	Mapping Water Bodies from Space (MWBS), Mapping Urban Areas from Space (MUAS), Intl. Workshop on Science & Applications of SAR Polarimetry & Polarimetric Interferometry (POLinSAR), Big Data from Space, etc	tbd.

3.6 Potential impact

The expected impact of these comprehensive dissemination and communication activities are:

- To promote the engagement between the ECoLaSS consortium and EEE's, EC's DGs, as well as local, regional, or national authorities and decision makers, thus facilitating the rapid dissemination of the results into action.;
- To facilitate knowledge, data and technology transfer between participating institutions, thus enhancing both the research capacities of the individual partners and the ECoLaSS consortium as a whole;
- To increase awareness about contribution to Europe's largest environmental monitoring programme from space, providing a more timely and more reliable assessment of the State of the Environment;
- To improve competitiveness of the European EO service provision industry through the successful development and realisation of the new/enhanced Copernicus Land services utilising large data volume processing and analysis techniques for various applications;
- To strengthen the competitiveness of the service provider community as well as the various user communities outside the consortium through open access publications.

4 Exploitation

Exploitation is the use of the results during and after the project's implementation. It can be for commercial purposes but also for improving policies, and for tackling economic and societal problems. For ECoLaSS, the exploitation of the project results will have commercial and industrial impacts. The main expected impacts from the Work Programme 5. Leadership in Enabling and Industrial technologies iii. Space, and the specific Topic EO-3-2016: Evolution of Copernicus Services include the need to:

- "enhance the European industry's potential to take advantage of emerging market opportunities and capacity to establish leadership in the field";
- "boost competitiveness of the industrial actors in EU and national procurements"; and
- "establish a proof-of-concept or a prototype, which can act as reference for the independent assessment of Copernicus service evolution, in light of product extensions and service improvements".

In that sense, the proposed activities in the project are expected to create positive impacts as follows:

- **Emerging market opportunities and enhanced capacities of European industries**

  The ECoLaSS project is primarily aiming to provide innovative services and products that will increase or improve the future Copernicus Land Monitoring Services. It is a project not oriented to obtain specific knowhow that could be sold independently from the Copernicus Services, but to improve its portfolio and its results. Thus, instead of a business plan to address market opportunities, the project will, after thorough assessment of all project findings, provide an "Integration Plan into the Copernicus Service Architecture (Deliverable D53.1 in WP 53)". This plan will address new potential uses and services but always focused on the CLMS users.

- **Improving competitiveness of industries in EU and national procurements**

  Through a successful development and realisation of the new/enhanced Copernicus Land services, which utilise big data processing and analysis techniques for various land applications, the competitiveness of European EO service provision industries will improve. Moreover, the emerging next-generation services will allow the European industry to take advantage from strengthening its know-how and leading market position in the international competition, and will thus also support creating company growth and new export opportunities. The research partners will also undertake to pursue own exploitation opportunities, targeting a return of their co-investments via an enhancement of their capabilities to act as technology transfer hubs.

- **Thematic Proof-of-concepts/Prototypes as a reference for Copernicus Land Service Evolution**

  Through the development of dedicated Sentinel-based processing methods (Task 3) and thematic prototypes (Task 4) for a future Copernicus Land Service Evolution, ECoLaSS will try to close gaps in the current Copernicus Land service in terms of technical, methodological as well as operational capabilities. With a view to a potential operational implementation period beyond ECoLaSS, in which the proposed methods and prototypes may be established, a clear strategy how to deal with Intellectual Property Rights (IPR) will be required.

- **Important Environmental, Societal and further Impact**

  Through the development of innovative, thematically and spatially more detailed and more consistent information products and services, a more timely and reliable assessment of the state of the environment will be provided. This will add more value to the existing Copernicus Land

services and help extend as far as possible the pan-European experiences to other regions/ continents.

- **Advancement of the Scientific State of the Art**

  Through open access publications the competitiveness of the service provider community as well as the various user communities outside the consortium will be strengthened.

The consortium will profit from the developed methods, processing chains and scientific enhancements for further research activities in- and outside Copernicus. Product and service development is a key aspect addressing the main project objectives to develop candidates for future implementation of operational Copernicus services. In order to maximise usability and uptake by users, standardisation according to the INSPIRE implementation rules and technical guidelines will be applied in ECoLaSS for all Prototypes and new products. All relevant data-related outcomes of the project will consider the General Multilingual Environmental Thesaurus (GEMET) and will be provided with INSPIRE-compliant metadata.

In terms of further Exploitation of the project results, ECoLaSS will go beyond to focus on the impact on further research activities, developments, services and standardisation activities, including also a section on IPR and knowledge management. Here, a dedicated deliverable within the WP62 “Market Opportunities & IPR Strategy” (Deliverable 62.1 - Market Opportunities and IPR Strategy) is focussing on the assessment of long-term market opportunities for European EO service provision industry in terms of Copernicus service provision, downstream applications, export opportunities, etc., and will elaborate on the management of IPR issues, including access rights, confidentiality levels and knowledge management.

Furthermore, it should be noted that the project does primarily aim to elaborate an Integration Plan into the Copernicus Service Architecture (Deliverable D53.1 in WP53) for operational Land service candidates instead of providing a business plan to address market opportunities, after thorough assessment of all project findings. This plan will address new potential uses and services but always focused on the CLMS users.

Annexe

In the following, examples of already existing dissemination media and a list of press releases/ publications is provided. It shall be noted that a full digital collection of all dissemination and communication media will be provided with Deliverable D61.3a - "Collection of Communication and Dissemination Material" by month 18 for the first phase of the project and by month 36 for the complete project period.

Figure 1: ECoLaSS website - main page

Figure 2: Website - Blog.

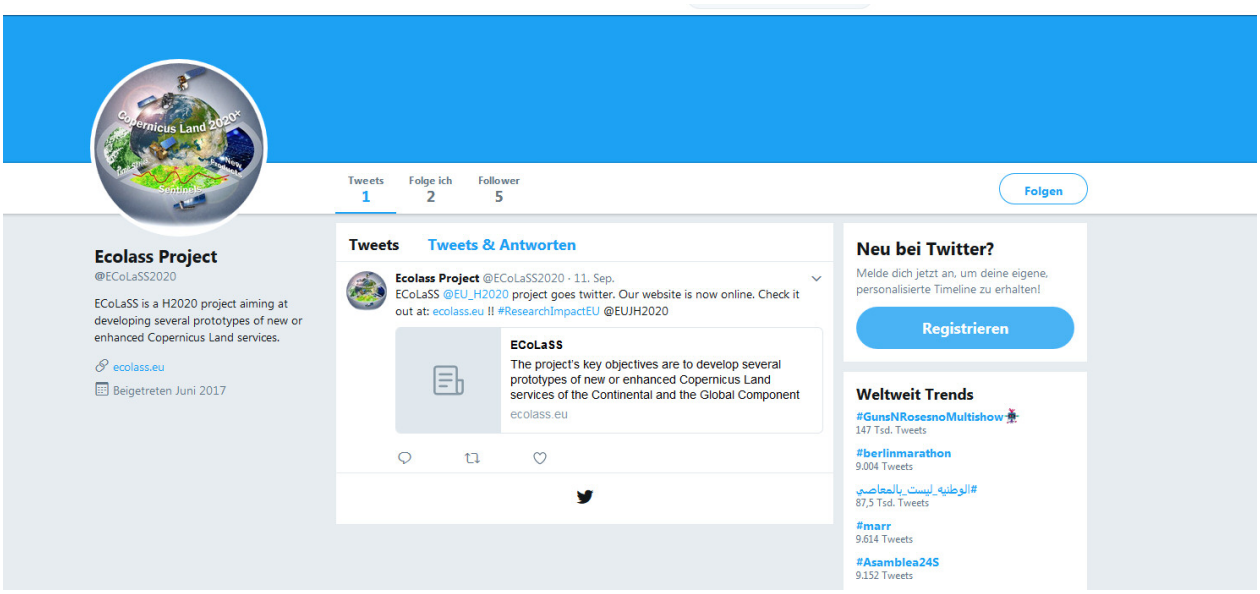

Figure 3: ECoLaSS twitter account

Press Releases:

- GAF (31. Jan 2017) https://www.gaf.de/content/gaf-ag-and-partners-will-investigate-future-evolution-copernicus-land-services-based
- EOMAG (in the text right above it says Munich, 31. Jan) http://eomag.eu/articles/3902/gaf-ag-and-partners-will-investigate-the-future-evolution-of-copernicus-land-services-based-on-sentinel-data-the-ecolass-project
- EARSC (6. Feb 2017) http://earsc.org/news/gaf-ag-and-partners-will-investigate-the-future-evolution-of-copernicus-land-services-based-on-sentinel-data-the-ecolass-project

Publications:

- WorldCover 2017 (14-16 March 2017 in Frascati (Rome), Italy)

  Moser, L.*, Probeck, M.*, Ramminger, G.*, Sannier, C.[2], Desclée B.[2], Schardt, M.[3], Gallaun, H.[3], Deutscher, J.[3], Defourny, P.°, Blaes X.°, Klein, I.**, Keil, M.**, Hirner, A.**, and Esch, T.** (2017): Sentinel-based Evolution of Copernicus Land Services on Continental and Global Scale.