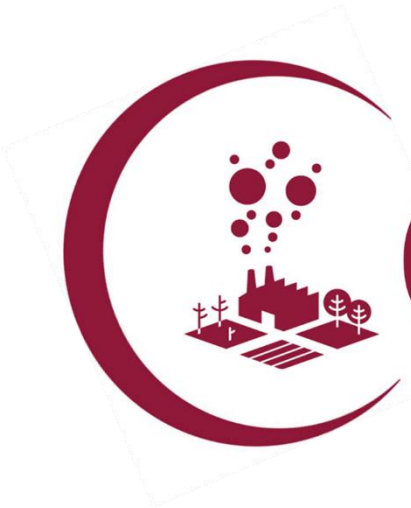

CONFESS

Consistent representation of temporal variations of boundary forcings in reanalyses and seasonal forecasts

Dissemination and Exploitation Plan

Daniel Thiemert

www.confess-h2020.eu

Co-ordinated by ECMWF

CONFESS

Consistent representation of temporal variations of boundary forcings in reanalyses and seasonal forecasts

D4.3 Dissemination and Exploitation Plan

Author(s): Daniel Thiemert (ECMWF)

Dissemination Level: Public

Date: 15/01/2021
Version: 1.0
Contractual Delivery Date: 31/01/2021
Work Package/ Task: WP4/ T4.4
Document Owner: ECMWF
Contributors: All Partners
Status: Final

ECMWF METEO FRANCE CNRM BSC Barcelona Supercomputing Center Centro Nacional de Supercomputación ISAC

CONFESS

Consistent representation of temporal variations of boundary forcings in reanalyses and seasonal forecasts

Research and Innovation Action (RIA)
H2020- LC-SPACE-18-EO-2020 Copernicus evolution: Research activities in support of the evolution of the Copernicus services - Copernicus Climate Change Service (C3S

Project Coordinator: Dr Magdalena Alonso Balmaseda (ECMWF)
Project Start Date: 01/11/2020
Project Duration: 36 months

Published by the CONFESS Consortium

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The CONFESS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004156.

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1 Executive Summary

Dissemination and exploitation activities present a crucial element in the success of the CONFESS project, as they ensure that results are taken up by the wider community and are sustainable beyond the initial funding period, thus providing value for money.

D4.3 provides the starting point for both dissemination and exploitation in the project.

The dissemination plan identifies instruments and targets. These include activities organised by CONFESS (including website, publications, etc.) as well as important events attended by CONFESS (C3S GAs, workshops, conferences, fairs, etc.), and an overview is given in the figure below:

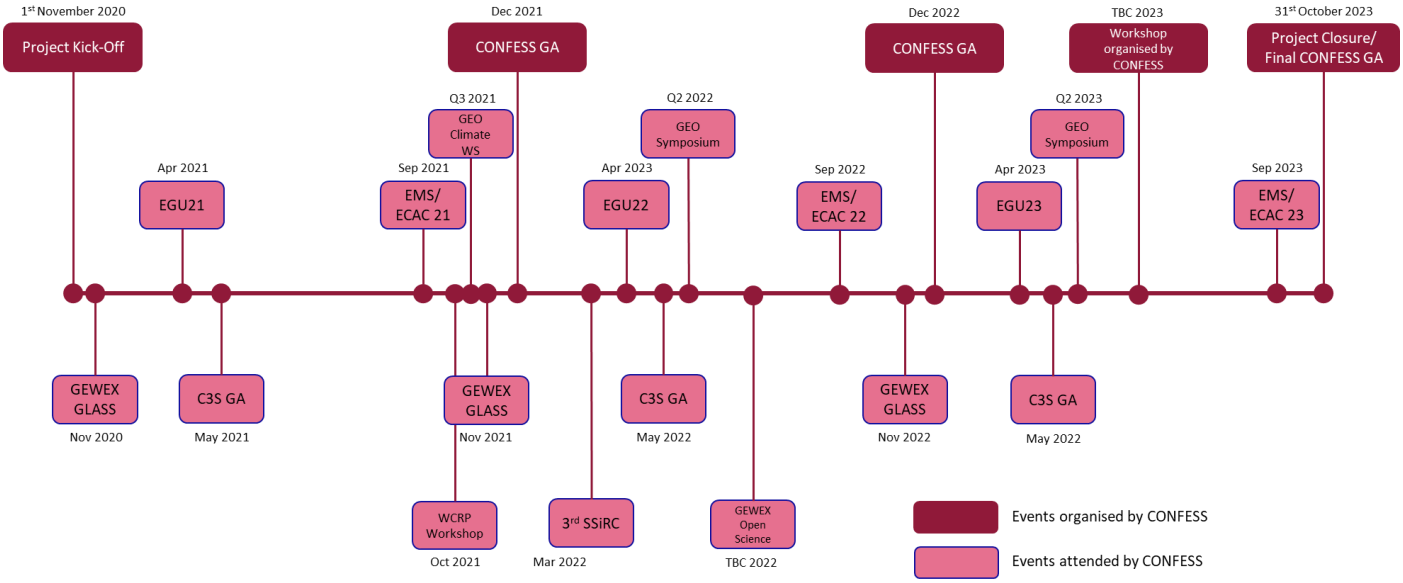

Figure 1: Dissemination Milestones for CONFESS

The present deliverable also provides the potential exploitation avenues in terms of products as well as respective exploitation activities during and after the end of the project, thus fulfilling the requirements of the DoA.

An overview of the exploitation aspects is given in the table below:

Exploitable Products	• new operational seasonal forecast system • seasonal forecast products • Improved operational decadal predictions with EC-Earth (www.decadal.bsc.es) • land reanalysis representing consistent temporal variations of land cover and vegetation for the period 1993-present • Proof-of-concept for treatment of temporal variations of land properties -land cover and vegetation- and improved radiative forcing from tropospheric aerosols in a full reanalysis. • Prototype of next generation of seasonal forecasts with treatment of temporal variations of land properties -land cover and vegetation- and improved radiative forcing from tropospheric aerosols.

	• Prototype of volcanic aerosols prediction module interfaced with 1 seasonal forecast. New capability for C3S. • Proof-of-concept module for biomass burning impact interfaced with seasonal forecasts. New capability for C3S.
Exploitation Activities during the Project	• Scientific exploitation (publication of articles, talks in international conferences) during the 3 years of the project • state-of-the-art/literature reviews, developments, competitive/ benchmark analysis • Determine the added value of the various products developed in CONFESS by quantifying the improvements in prediction skill. • liaison with stakeholders including C3S, continuous feedback
Exploitation Activities after the end of the Project	• further developments, integration into services, research to operations • integration in the EC-Earth operational decadal system • full development of an operational seasonal forecast system with a higher degree of complexity, related to additional processes taken into account, such as interactive vegetation. This should take place within the two years following the end of the project. • Integration of prototypes into C3S
Consortium-wide/Joint Exploitation	• The new vegetation and aerosol forcing datasets (anthropogenic and volcanic). • Improved ECMWF reanalyses and predictions making use of them

Both dissemination and exploitation plans are to be considered living documents as new avenues might become important to the project over its lifetime. Thus, both will be updated regularly as the need arises.

The Dissemination and Exploitation Report will be updated mid-term and towards the end of the project with detailed descriptions of dissemination activities, exploitable results and related activities.

2 Introduction

2.1 Background

A climate resilient society requires reliable monitoring and forecasting information of the climate trends, patterns and disturbances, both at global and regional scales. Through consistent representation of temporal variations of boundary forcings in reanalyses and Seasonal forecasts, CONFESS will contribute to the emerging societal need for an enhanced Copernicus Climate Change Service (C3S) that can support adaptation and mitigation strategies facing increased frequency and intensity of climate extremes.

The aim of CONFESS is to improve the reliability and usability of C3S information in the land-atmosphere coupled system by exploiting new and improved Earth Observations data records of land-use, vegetation states and surface-emitted aerosols delivered across different Copernicus Services. CONFESS developments will be integrated consistently for use in future C3S systems, enhancing the service's accuracy by representing annual changes of land use, and adding satellite-derived and prognostic vegetation states along with aerosols emissions due to hazardous/extreme events such as volcanic eruptions and large-scale biomass burning (e.g. wildfires).

The added capacity to represent temporal variations and trends of these variables and the occurrence of hazardous/ extreme events will be supported by a rapid uptake of new Earth Observations. The impact on the Earth system will be evaluated by assessing the quality of global reanalysis as well as seasonal forecasts using state-of-the-art modelling systems.

The infrastructure and knowledge developed within CONFESS will contribute to improve the C3S capabilities for reliable monitoring and forecasting with particular focus on extremes.

2.2 Scope of this deliverable

2.2.1 Objectives of this deliverable

D4.3 provides the outline dissemination and exploitation plan.

The Dissemination Plan complements the Media and Communication Plan (D4.4) and identifies instruments and targets for dissemination, including important conferences, journals, and events.

The Exploitation Plan initiates the exploitation work within the CONFESS project by identifying initial exploitation routes and innovation ideas. The deliverable collects, in a first version, the feedback from CONFESS partners on their exploitation intentions as well as ideas for joint exploitation, where possible.

2.2.2 Work performed in this deliverable

As per the DoA, D4.3 should "outline the dissemination activities as well as identify the potential for exploitation and their routes".

The work to create the plans included collection of feedback from the partners in form of questionnaires and the identification of the relevant aspects pertaining to both dissemination and exploitation.

2.2.3 Deviations and counter measures

No deviations have been encountered.

3 Dissemination Plan

Dissemination activities are designed around providing/disseminating information to the scientific communities and relevant stakeholders in three areas:

1. Scientific and technical results through
    a. Scientific Publications
    b. Conference Talks
    c. Reports to and feedback from Committees and Boards
2. Products through dissemination of
    a. Datasets and accompanying material (e.g. descriptions, meta data)
    b. Algorithms
    c. Graphics and animations
3. Progress information through provision of
    a. Presentation material
    b. Public Deliverables
    c. Dissemination Materials (brochures, posters, flyers)

The following table provides information on the CONFESS Dissemination (and Communication) Targets.

Table 1: Dissemination Targets

	Plan for Dissemination and Communication	Project Portal and Software Collaboration Platform	Exploitation Plan
Objective	Enable and facilitate implementation of CONFESS outputs for Copernicus Programme	Provide metrics, data and software to facilitate testing and integration	Enable long-term sustainability and uptake of CONFESS results
Target audiences	**Dissemination:** • CONFESS project partners • W&C prediction centres • Scientific Community • EC (as a multiplier) **Communication:** • General public • Scientific community	• CONFESS project partners • Copernicus Programme • EC (as a multiplier)	• CONFESS project partners • Scientific Community • Copernicus programme • Copernicus users • EC (as a multiplier)

	• Copernicus programme • Copernicus users • EC (as a multiplier)		
Instruments	• CONFESS website + partners websites • CONFESS reports • CONFESS Wiki • Scientific publications • Press releases, marketing documents and cooperate presentations • Public webinars	• CONFESS website • CONFESS software collaboration platform • CONFESS suites, data	• CONFESS website • CONFESS software collaboration platform
Access	Public	2-tier (project, public)	2-tier (project, public)
Responsibility	WP4	WP3/4	WP4

3.1 Dissemination Instruments

3.1.1 CONFESS Website

The CONFESS website (www.confess-h2020.eu) serves as the main dissemination instrument for the project. It contains various sections both for the general public as well as specifically targeted towards stakeholders including the scientific community.

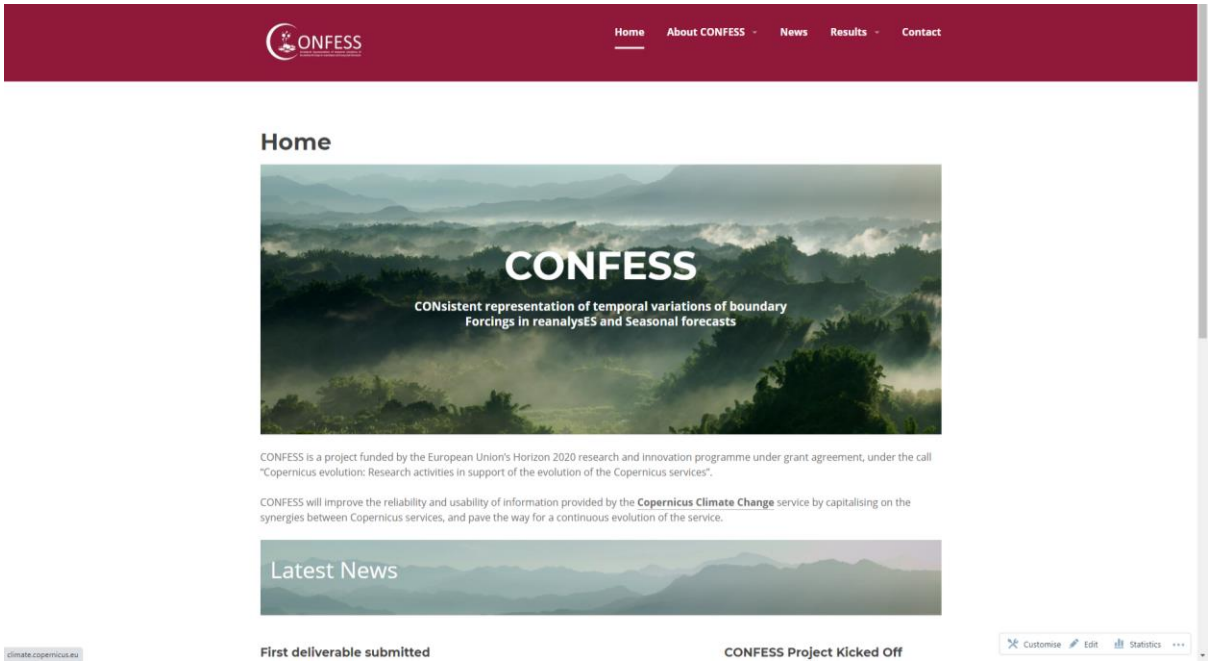

Figure 2: CONFESS Project Website

Resources including deliverables, publications as well as links to data sets will be published on the website together with regular news updates sets. Further details are provided in the CONFESS deliverable D4.2 Project Website.

3.1.2 Journals, Conferences and Workshops

Strong engagement with the academic sector will promote the work performed in CONFESS and at the same time follow the scientific developments taking place outside the consortium. This exchange of information and knowledge will be realised through attendance of scientific conferences, organisation of sessions devoted to CONFESS and related topics at the annual meeting of the European Geophysical Union, and by the general process of CONFESS scientists attending and presenting seminars and engaging in discussion at universities and research institutes.

Conferences and Workshops of interest for CONFESS include:

- C3S General Assembly
- EGU General Assembly
- European Meteorological Society Annual Meetings
- GEWEX The Global Land/Atmosphere System Study (GLASS) Panel meetings
- GEWEX Open Science Conference
- GEO Climate Workshop
- GEO Symposium
- WCRP Workshop on Extremes on Climate Prediction Ensembles
- 3rd International Workshop on Stratospheric Sulfur and its Role in Climate (SSiRC)

Publication in scientific journals will play a major role as this allows a rigorous peer-review to take place, ensuring that CONFESS results are relevant to the community. Relevant Journals include:

- Climate Dynamics
- Journal of Adv in Model Earth System
- GMD Geo. Model Dev.
- AMS Journal of Hydrometeorology
- Environmental Research Letter
- Geophysical Research Letters

It is envisaged that over the course of the project plus one year at least six peer-reviewed, co-authored (journal) publications will be produced covering the topics of the scientific-technical work packages of the CONFESS project (WPs 1 to 3). In addition, regular conference and workshop publications and attendance with talks on topics from CONFESS will complement these publications.

3.1.3 Scientific Committees

The representation of ECMWF and project partners in international committees will be used as a channel for disseminating CONFESS results and output in the weather and climate prediction communities. Scientific results from CONFESS will also be conveyed to international programmes and bodies such as the Global Climate Observing System (GCOS), the World Climate Research Programme (WCRP), specifically CLIVAR, WGSIP, WDAC, the Integrated Carbon Observation system (ICOS), among others. Results will also be multiplied through ECMWF's scientific and technical advisory committees which meet every year.

3.1.4 Other Instruments

Other instruments used by the CONFESS project to disseminate its results include:

- Tradeshows
- Exhibitions
- Web / wiki pages
- Press releases, Dissemination of information through print, TV and radio media,
- Overview of project results in partners' newsletter.
- Open house day and other Company dissemination tools
- C3S website

Other instruments also include ad-hoc and planned interactions and liaison with relevant international research activities as well as C3S with their annual General Assemblies.

3.2 Dissemination Milestones

The dissemination milestones are provided in Figure 3.

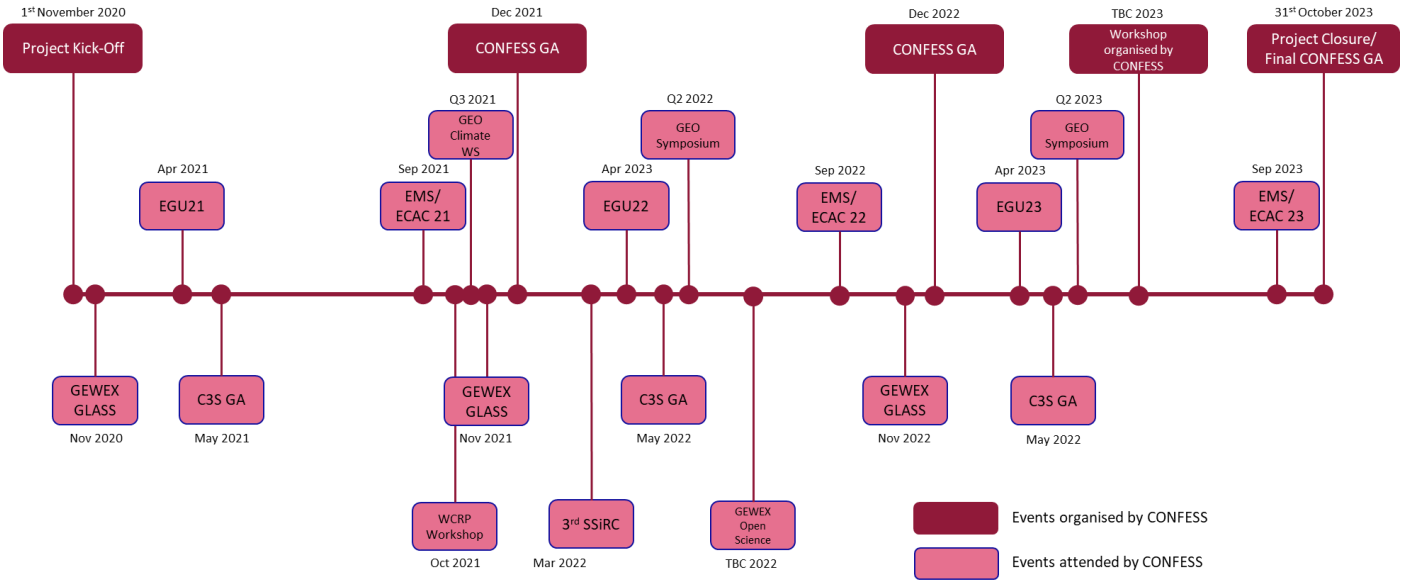

Figure 3: CONFESS Dissemination Milestones

4 Exploitation Plan

Exploitation has various aims:

- It should maximise the impact of the funding granted in the market;
- It should ensure sustainable growth, more and better jobs, as well as industry competitiveness, especially in the case of SMEs;
- Partners and stakeholders should get value or use from a project, where "Use" is defined as

> "direct or indirect utilisation of foreground in further research activities other than those covered by the project, or for developing, creating and marketing a product or process, or for creating and providing a service" .

4.1 Exploitation Targets

The CONFESS DoA states the following with respect to exploitation:

"The main route for exploitation is the direct uptake of the outcomes of the CONFESS project by the C3S - without the need for further developments following the completion of the project."

4.2 Exploitation Actions and Routes

In attempting to gather an overview of the exploitation intentions of the partners, and to identify potential exploitation actions, a questionnaire was circulated and responded to by each partner.

The following questions where included:

Exploitable Results

Which deliverables from CONFESS do you intend to exploit?
Which specific output(s) from the deliverable(s) do you intend to exploit?
Is this output owned by you/another Partner/joint?
At what TRL (Technology Readiness Level) do you expect this output to be at the end of the project (if applicable)?
What further work will be required (post-CONFESS) to take the CONFESS output from this TRL into a product?
What assessments/ evaluations do you plan within CONFESS to test whether outputs are exploitable?

Products resulting from Exploitation

What final product do you have in mind as the result of the exploitation?
What are the key functions of this product?
What is the Unique Selling Point (USP) for this product?
What proportion of this product will have been funded by CONFESS?
Who are the customers for this product?
What similar systems are already in the marketplace offered by other suppliers?
How do you think the market will change over the next 5 years?

Exploitation Activities during the CONFESS project

What exploitation activities do you plan to perform in CONFESS and when?

Exploitation Activities after the CONFESS project

What exploitation activities do you plan to perform post-CONFESS and when?

Consortium-wide Exploitation

What would be a consortium-wide results and product to be exploited?
How might the Consortium work at a collective level to exploit the CONFESS proposition?
Can you describe a commercial model?
Would your organisation take a part in this, and in what role?
Which additional stakeholders be needed to operate the model?

Naturally, at this early stage in the project (month 3 of 36) not all questions can be answered by all partners. Therefore, the questionnaire also serves the purpose of reminding partners of the importance of exploitation in a project such as CONFESS, and to start thinking of potential routes and related exploitation activities.

Based on the above responses to the questionnaire, the following table summarises the findings (Table 2).

Table 2: Summary of Exploitation Findings

Exploitable Products	• new operational seasonal forecast system • seasonal forecast products • Improved operational decadal predictions with EC-Earth (www.decadal.bsc.es) • land reanalysis representing consistent temporal variations of land cover and vegetation for the period 1993-present • Proof-of-concept for treatment of temporal variations of land properties -land cover and vegetation- and improved radiative forcing from tropospheric aerosols in a full reanalysis. • Prototype of next generation of seasonal forecasts with treatment of temporal variations of land properties -land cover and vegetation- and improved radiative forcing from tropospheric aerosols. • Prototype of volcanic aerosols prediction module interfaced with 1 seasonal forecast. New capability for C3S. • Proof-of-concept module for biomass burning impact interfaced with seasonal forecasts. New capability for C3S.
Exploitation Activities during the Project	• Scientific exploitation (publication of articles, talks in international conferences) during the 3 years of the project • state-of-the-art/literature reviews, developments, competitive/ benchmark analysis • Determine the added value of the various products developed in CONFESS by quantifying the improvements in prediction skill. • liaison with stakeholders including C3S, continuous feedback

Exploitation Activities after the end of the Project	• further developments, integration into services, research to operations • integration in the EC-Earth operational decadal system • full development of an operational seasonal forecast system with a higher degree of complexity, related to additional processes taken into account, such as interactive vegetation. This should take place within the two years following the end of the project. • Integration of prototypes into C3S
Consortium-wide/Joint Exploitation	• The new vegetation and aerosol forcing datasets (anthropogenic and volcanic). • Improved ECMWF reanalyses and predictions making use of them

The activities during the project will now be taken up by the relevant work packages to ensure that exploitation is pursued and maximised. However, it is to be noted that a complete consortium-wide exploitation of results (e.g. through structures such as a Joint Venture or Association) after the end of the project are somewhat less likely, due to the nature of the project. Nevertheless, a number of items have been identified and will be further investigated as to the possibilities for direct joint exploitation.

The Exploitation Plan will be revisited regularly, and is thus to be understood as a living document, as developments during the course of the project may open up new avenues for exploitation.

5 Conclusion

In this deliverable, the CONFESS dissemination and exploitation has been defined.

For dissemination a set of instruments have been identified, namely a website, journals, numerous scientific conference and workshop involvements as well as scientific committees.

Initial exploitation ideas from all partners have been collected in this document, complemented by the identification of exploitation activities. Project Office and Work Package leader can now use this information to steer the activities towards innovation realisation within the various work packages and the project as a whole.

An updated Exploitation Plan, with more detailed exploitation routes and activities, as well as IPR register, will be developed during the remainder of the project, to be delivered at mid-term and the end of the lifetime. This will ensure that the results are sustainable and realised into innovations.

Document History

Version	Author(s)	Date	Changes
0.1	Daniel Thiemert (ECMWF)	11/01/2021	initial version
0.2	Daniel Thiemert (ECMWF)	14/01/2021	inclusion of section 3&4
0.3	Daniel Thiemert (ECMWF)	15/01/2021	version for internal review
1.0	Daniel Thiemert (ECMWF)	31/01/2021	Final version after review

Internal Review History

Internal Reviewers	Date	Comments
Andrea Alessandri (CNR-ISAC)	27/01/2021	Approved with comments
Gianpaolo Balsamo (ECMWF)	31/01/2021	Approved with comments

Estimated Effort Contribution per Partner

Partner	Effort
ECMWF	0.25
Total	**0.25**