CoCO2

Prototype system for a Copernicus CO_2 service

Engagement and implementation plan V1

Richard Engelen

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Co-ordinated by ECMWF

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D8.7 Engagement and implementation plan V1

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CoCO2: Prototype system for a Copernicus CO_2 service

Coordination and Support Action (CSA)
H2020-IBA-SPACE-CHE2-2019 Copernicus evolution – Research activities in support of a European operational monitoring support capacity for fossil CO2 emissions

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Contact:
ECMWF, Shinfield Park, Reading, RG2 9AX,
richard.engelen@ecmwf.int

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1 Introduction

1.1 Background

To support EU countries in assessing their progress for reaching their targets agreed in the Paris Agreement, the European Commission has clearly stated that a way to monitor anthropogenic CO2 emissions is needed. Such a capacity would deliver consistent and reliable information to support policy- and decision-making processes.

To maintain Europe's independence in this domain, it is imperative that the EU establishes an observation-based operational anthropogenic CO2 emissions Monitoring and Verification Support (CO2MVS) capacity as part of its Copernicus programme.

The CoCO2 Coordination and Support Action is intended as a continuation of the CO2 Human Emissions (CHE) project, led by ECMWF. In the Work Programme, ECMWF is identified as the predefined beneficiary tasked to further develop the prototype system for the foreseen CO2MVS capacity together with partners principally based on the CHE consortium. In addition, ECMWF will continue some of the work initiated in the VERIFY project as well.

The main objective of CoCO2 is to perform R&D activities identified as a need in the CHE project and strongly recommended by the European Commission's CO2 monitoring Task Force. The activities shall sustain the development of a European capacity for monitoring anthropogenic CO2 emissions. The activities will address all components of the system, such as atmospheric transport models, re-analysis, data assimilation techniques, bottom-up estimation, in-situ networks and ancillary measurements needed to address the attribution of CO2 emissions. The aim is to have prototype systems at the required spatial scales ready by the end of the project as input for the foreseen Copernicus CO2 service element.

1.2 Scope of this deliverable

1.2.1 Objectives of this deliverable

The main purpose of work package 8 is to develop a mechanism and the tools to provide diverse, but targeted, information to the relevant stakeholders and user communities. Examples of stakeholders are the relevant Directorate-Generals of the European Commission (e.g., DG-CLIMA) and the EU member states. Examples of user communities are local and regional policy makers, scientists, companies, and investment banks. This will be achieved by several user consultation meetings and workshops, but also by using existing international communication and planning mechanisms.

D8.7 provides the engagement plan, which identifies instruments and targets for engagement with the various foreseen user communities and stakeholders. Engagement entails the provision of information about the project goals and outcomes, but also, more importantly, discussions with the stakeholders and user communities to collaboratively define added-value products in support of their existing activities in the context of emission monitoring,

The Engagement Plan initiates the engagement work within the CoCO2 project by elaborating on the initial ideas of the proposal.

1.2.2 Work performed in this deliverable

As per the Description of the Action, D8.7 should provide the user engagement plan for the project.

The work to create the plan included collection of input from the partners and including the new opportunities that come from international developments that took place after the signature of the Grant Agreement.

1.2.3 Deviations and counter measures

For the final year CoCO2 had planned to organize a workshop aimed at a wider range of policy makers, such as European and national MPs, civil servants active in the climate negotiations, local and regional stakeholders, and the wider public. In our current planning we will deviate from these original ideas by having more focused engagement meetings as outlined in this document (see also section 2.3.1).

2 Engagement Plan

2.1 Background

To deliver the prototype systems of the new anthropogenic CO2 emissions Monitoring & Verification Support capacity (CO2MVS), CoCO2 is strongly collaborating with the European Commission and its CO_2 Task Force, ESA and its CO2M Mission Advisory Group, EUMETSAT, the CO_2 science community, and the Copernicus Services. For the latter, a very close relationship exists with the Copernicus Atmosphere Monitoring Service, which is implemented by ECMWF on behalf the European Commission. CoCO2 is also aligning as much as possible with development plans that have been defined within the WMO/IG3IS, CEOS, GCOS and GEO frameworks.

To ensure the prototype systems are fit-for-purpose and therefore can maximise the impact, CoCO2 is engaging with the relevant user communities. The European Commission, EU member states, UNFCCC, cities and regions, science, industry and finance are among these user communities. This interaction is especially important to support the European Commission with the definition of an adequate service portfolio that not only addresses the needs for the 5-year Global Stocktake process but tries to support as many climate mitigation and adaptation efforts as possible.

The main purpose of WP8 (User engagement) is therefore indeed to engage with the various user communities to co-design a fit-for-purpose CO2MVS service portfolio and develop mechanisms and tools to provide diverse, but targeted information to these user communities. This will be achieved by several user consultation meetings and workshops, but also by using existing international communication and planning mechanisms. At local scale, city networks like C40 or Covenant of Mayors will help disseminating the results. CoCO2 has enlisted ICLEI (Local Governments for Sustainability) to help organising these contacts. Closer links with the IPCC working groups and inventory agencies and other data providers will be established as well as the relevant working groups of DG-CLIMA. In this process we will involve NGOs, and organisations like the United Nations Environment Programme (UNEP), WMO and the Group on Earth Observations (GEO). In addition, CoCO2 will continue the discussion framework between national reporting agencies and the CoCO2 scientific partners, as established in the VERIFY project, with the aim to align the development of the CO2MVS capacity with the diverse requirements from these national reporting agencies. Ultimately, the Copernicus CO2MVS should be embedded in the national processes providing information that is currently missing or difficult to generate at national scale. For this purpose, CoCO2 has included several of these national agencies as 3rd-party members to the Consortium to facilitate open discussions on how the future CO2MVS can support Member States' activities relevant for the Paris Agreement. As part of this user engagement process, and in response to the Call and in support of discussion within the CO_2 Task Force on this topic, WP8 will also develop a blueprint for a Decision Support System (DSS). The DSS is a general label for a set of tools that can make the large amounts of data that will be produced by the CO2MVS digestible for especially the policy sector. This can range from graphical material, such as developed within the Global Carbon Project

(https://www.globalcarbonproject.org/carbonbudget/21/files/GCP_CarbonBudget_2021.pdf) or the VERIFY project, to specific interactive tools, such as for instance exist on the Copernicus Climate Data Store (https://cds.climate.copernicus.eu/cdsapp#!/toolbox). The exact definition and content of the DSS will develop over time to address the user requirements coming out of the user engagement activities. While the development of such a final all-encompassing DSS will likely take many years, and requires extensive consultation and feedback from stakeholders, we aim to set the first steps here by developing a blueprint for a DSS that would be part of the Copernicus CO_2 service. To ensure the overall fitness-for-purpose of the CO2MVS, CoCO2 will interact with all the mentioned user communities. Especially, the 1st Global Stocktake will be used as an opportunity to provide specific services and results that can be assessed by the EC and EU Member States in terms of usefulness to support their activities related to the Global Stocktake process. This feedback is immensely valuable to adjust the prototype systems, where needed, to ensure the final prototype systems are capable of delivering the required services.

2.2 Progress so far

2.2.1 Inventory Agency Advisory Board

At the start of the project an Inventory Agency Advisory Board (IAAB) was established containing representatives from the following countries: Austria, France, Germany, Ireland, Italy, the Netherlands, and Poland. The main purpose of the IAAB is to inform inventory agencies from interested EU countries about the progress of the project and receive feedback from them on the various developments. While the main interaction with the IAAB will not start until the second year of the project to have a smooth hand-over from similar activities in the VERIFY project to CoCO2, the IAAB has been kept informed about the project through the Newsletter and through attendance of the 1st General Assembly. In the meantime, some other countries have also expressed interest in being involved and they will be included in the IAAB. To make the hand-over of this activity from VERIFY to CoCO2 as smoothly as possible, CoCO2 staff will participate in the final networking meeting that will be organised as part of VERIFY, back-to-back with their General Assembly.

2.2.2 User consultation meeting for cities

In collaboration with ICLEI, which is a sub-contractor from ECMWF within the project, a first user consultation workshop was organised on 6 October 2021, entitled “How can atmospheric observations support city-scale GHG inventories”. All presentations as well as a workshop report are available on the CoCO2 website: https://coco2-project.eu/events/how-can-atmospheric-observations-support-city-scale-ghg-inventories.

2.2.3 COP26

In order to showcase the project’s progress so far to a wide audience, CoCO2 was presented at the EU side event "EO for climate action: mitigation, REDD+, and the Global Stocktake", organised by the JRC, DG DEFIS, DG RTD, the European Space Agency (ESA) and ECMWF. This event focused on building awareness on the substantial, and increasing, potential of Earth observation (EO) for addressing climate mitigation – from both EU and international perspectives. This session looked at how EO provides a global, objective and transparent evidence base on which to develop, implement and assess mitigation policies. CoCO2 also teamed up with the VERIFY project presenting a combined poster at the poster session of the Earth Information Day.

2.2.4 European Commission’s DG-Clima

Through CoCO2 partner JRC and in collaboration with EEA, the project and its progress has been presented at the Climate Change Committee Working Group 1 from DG-CLIMA. This is an important mechanism to interact with stakeholders and users at EU national level. JRC is also involved in the annual GHG inventory exercise kick-off meeting, where they will promote the use of Earth Observation and inverse modelling, in particular for better AFOLU estimates.

2.2.5 International frameworks

CoCO2 has been actively involved in various user engagement activities through CEOS and WMO/IG3IS. CoCO2's Coordinator, ECMWF, has recently been accepted as an Associate Member of CEOS, which allows participation in the relevant working groups, teams, and virtual constellations (e.g., WGClimate, GHG Task Team, and AFOLU Task Team). Several members of the CoCO2 consortium are also member of the IG3IS Steering Committee, which supports alignment of the relevant activities.

2.3 Plans for coming years

For 2022 and 2023, CoCO2 plans to further engage with the various user communities through its own activities and through collaboration with other relevant efforts. With the start of the second phase of Copernicus in July 2021, CoCO2 will also increase its collaboration and alignment with activities within the Copernicus Atmosphere Monitoring Service (CAMS). The ramp-up phase of the CO2MVS, and more generally observation-based emission monitoring capabilities, within CAMS foresees strong interaction with stakeholders and user communities in the coming years and CoCO2 will support these activities, where meaningful. In the following subsections, the main foreseen activities and collaborations for the remaining two years of the project are outlined.

2.3.1 User consultation workshops

CoCO2, in collaboration with ICLEI, will organise a second user consultation workshop for city authorities in the 3rd year of the project. This workshop will take into account the outcomes of the 1st workshop and use more mature example products from the project to discuss the added value of observation-based emission estimates for local authorities. CoCO2 will also interact with the ICOS-Cities project to see if they can contribute to such a workshop, and more generally, to align the user consultation activities in both projects. The aim will be to engage with more city authorities, in Europe and the rest of the world, aiming for more specific feedback on the future portfolio of the CO2MVS. In the meantime, CoCO2 will continue to reach out to these user communities through for instance its Newsletter.

As a second activity, CoCO2 will ramp-up its interaction with the Inventory Agency Advisory Board (IAAB). Discussions have already taken place with the VERIFY project to organise a specific workshop together in 2022 to hand over the relevant activities in VERIFY to CoCO2. A further workshop will then be planned for 2023. Aim of these workshops is to further increase the mutual understanding of the official reporting requirements and the maturity level of observation-based products to collaboratively develop a plan for increased uptake of these observation-based products in the national reporting activities.

Thirdly, the CoCO2 proposal indicated that a workshop would be held in the first year to engage both UNFCCC, IPCC, GEIA, and city (or other local) stakeholders. In this process we would involve NGOs, and organisations like UNEP, WMO and GEO, and representatives from industry and the finance sector (e.g., European Union's Technical Expert Group for Sustainable Finance). For the final year we had planned to organize a workshop aimed at a wider range of policy makers such as European and national MPs, civil servants active in the climate negotiations, local and regional stakeholders, and the wider public. In our current planning we will deviate from these original ideas by having more focused engagement meetings as outlined in this document. The first user consultation meeting has focused on city stakeholders, as described above, and future workshops will address specific other user communities. However, the interaction with UNFCCC, IPCC, UNEP, GEIA, and GEO through a workshop will need some reconsideration. CoCO2 has been interacting with these bodies already through participation in relevant workshops and meetings, which might work better than a dedicated meeting. This assumption will be reassessed in the first half of 2022.

2.3.2 European Commission's DG-Clima

Through CoCO2 partner JRC, the project will continue to be represented at the Climate Change Committee Working Group 1 from DG-CLIMA. This is an important mechanism to interact with stakeholders and users at EU national level. While the representation is mostly through brief presentations about the progress, it is important to create more awareness of the potential of the future CO2MVS to support national activities in the EU.

2.3.3 International frameworks

CoCO2 will continue to be actively involved in various user engagement activities through CEOS and WMO/IG3IS. The project partners will be flexible to contribute to these activities when they arise. User engagement activities from the project itself will be aligned with CEOS and IG3IS, where possible. CoCO2 will also contribute to the outreach activities of CEOS, such as for the 1st Global Stocktake (https://ceos.org/gst/). In addition, CoCO2 partner ICOS, as an observer to UNFCCC, will support engagement within the context of future COP meetings.

2.3.4 Interaction with CAMS

As stated above, the ramp-up phase of the CO2MVS, and more generally observation-based emission monitoring capabilities, within CAMS foresees strong interaction with stakeholders and user communities in the coming years and CoCO2 will support these activities, where meaningful, with expertise and example products.

A first example is the new CAMS National Collaboration Programme (NCP), which is a dedicated scheme to support the Member States in achieving maximum benefit from CAMS products and services in the implementation of their mandate. The vision is that within a few years, all European Union and Copernicus associated countries would have Copernicus data underpinning their national air quality information systems and/or national activities related to GHG emissions. EU Member States are responsible for the implementation of the Air Quality Directives. This includes:

- air quality monitoring strategy (measurement and modelling).
- air quality objectives (limit and target values).
- analysis of main drivers of air pollution episodes, including transboundary and natural contributions.
- information to the general public.
- conception and implementation of short-term and long-term action plans to comply with Air Quality objectives.

For the reporting of Greenhouse Gas (GHG) emissions under the United Nations Framework Convention on Climate Change (UNFCCC), the Conference of the Parties (COP) has established a set of requirements for reporting national GHG inventories to be fulfilled in accordance with Intergovernmental Panel on Climate Change (IPCC) guidelines and guidance. In addition, the Paris Agreement has introduced an Enhanced Transparency Framework (ETF) applicable to all Parties to report their GHG balance and to track individual countries' progress towards achieving their targets (i.e., the nationally determined contributions, NDCs) and a Global Stocktake (GST) to assess the countries' collective progress towards the long-term goals of the Paris Agreement based on the best available science. Building on the already ongoing CAMS' collaboration with national authorities on user engagement, existing good practices at national level will be captured and fed back to the programme to inform service evolution and maximise the usefulness of the programme's outputs at a national, regional or even local level. The NCP will fund specific activities in all European Union and Copernicus associated countries to support the uptake of existing and new products. The prototype results coming out of CoCO2 will support the engagement with the countries and the assessment of the added value these products can provide at the national level.

A second example is the new MoU between ECMWF and the European Investment Bank. Under the agreement, the EIB and ECMWF will collaborate to enhance the use of owned or brokered data, information and tools from the Copernicus Climate Change Service (C3S) and the Copernicus Atmosphere Monitoring Service (CAMS) to inform the EIB's approaches, decisions and strategies relevant to climate change adaptation and mitigation. CoCO2 will support these discussions with relevant information and data from the project's activities.

3 Conclusion

This deliverable has developed the engagement plan for the CoCO2 project, reporting on activities during the first year and providing an outline of activities and collaborations for the remaining two years.

Whilst this provides a good starting point for the engagement activities of the CoCO2 project, it nevertheless needs careful reflection and updating when appropriate to ensure that new developments (technical as well as strategy) within the CoCO2 project and beyond are well reflected in the user engagement interactions. Specifically, user engagement activities within CAMS related to the implementation of the Copernicus CO2MVS will start in 2022 and the CoCO2 will have to be aligned with the CAMS plan, when it becomes available. In addition, CoCO2 will work with especially the ICOS-Cities project to align user engagement activities as well.

Document History

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1.0	Richard Engelen (ECMWF)	29/12/2021	Final version

Internal Review History

Internal Reviewers	Date	Comments
Jean-Christophe Calvet (Meteo-France)	07/12/2021	The progress made so far by ECMWF is impressive. The prospective part of the document is informative. Involvement of ICLEI, IAAB, UNFCCC, IPCC, GEIA, NGOs, UNEP, WMO, GEO, EIB, and JRC is scheduled
Evi-Carita Riikonen (ICOS)	15/12/2021	Various detailed comments available on request
Emmanuel Salmon (ICOS)	17/12/2021	Various detailed comments available on request
Thomas Kaminski (iLab)	15/12/2021	The document is in good shape. Some smaller corrections to the text have been incorporated.

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