guardtime

DECEMBER 2025

Disruptive Technologies for EO Data Provenance Community Development Report

ID: GT-TRACE4EO-CDR-0001
Version: 1.0
Status: Released
Date of Issue: 05/12/2025
Classification: ESA UNCLASSIFIED – For Official Use Only

Contents

Document versioning

Date (MM.YYYY)	Version	Author	Changes
11.2025	0.1	Patryk Grzybowski (Cloudferro)	Initial draft.
12.2025	1.0	Patryk Grzybowski (Cloudferro)	First release.

1. Introduction

1.1. Purpose and scope

The purpose of this document is to present an overview of the community outreach and engagement activities carried out so far within the project. It outlines how the project team has been ensuring continuous interaction with key user groups, increasing the visibility of ongoing results, and disseminating knowledge across relevant communities. The report describes the progress made toward the objectives related to publicity, communication, and user engagement, including promotion through digital channels, participation in scientific events, preparation of publications, and the organisation of community-focused activities. It also provides insight into how these efforts are contributing to building awareness, gathering user feedback, and supporting the progressive validation and uptake of the traceability solution.

The scope of this document covers the set of activities planned and implemented to date under the community development and engagement task, with further actions continuing throughout the remaining project lifecycle. It includes the strategy and measures adopted to reach current users of the traceability feature, policy makers, EO practitioners, and the broader scientific and technological community. The report summarises the communication channels used to date, the events and conferences attended, the publications in preparation, and the collaborative activities organised to involve stakeholders. It reflects the ongoing nature of outreach efforts, showing how engagement activities continue to support the definition of use cases, refinement of software functionality, and dissemination of project outcomes as the project progresses.

1.2. Structure of the document

The document consists of the following chapters:

1. Introduction
2. Background

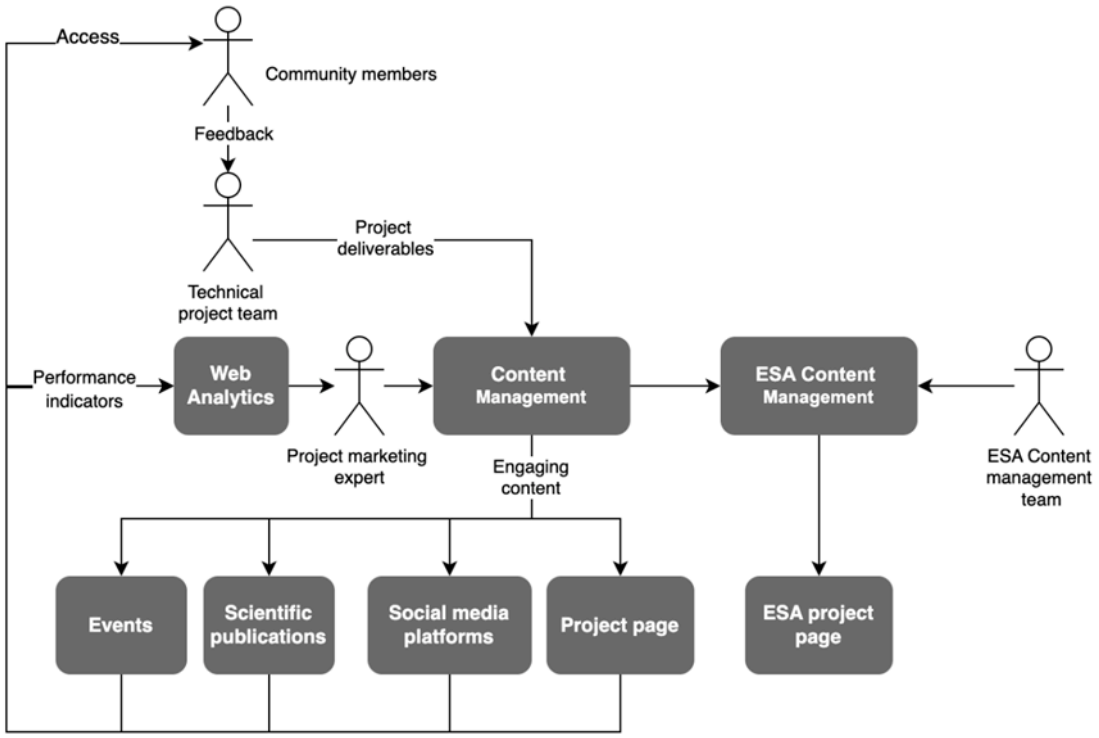
3. Project Webpage
4. Social Media Activities
5. Conferences and Events
6. Research Community Engagement
7. Other Activities
8. Summary

1.3. Acronyms

Term	Definition
AI	Artificial Intelligence
EO	Earth Observation
JRC	Joint Research Centre
POLSA	Polish Space Agency

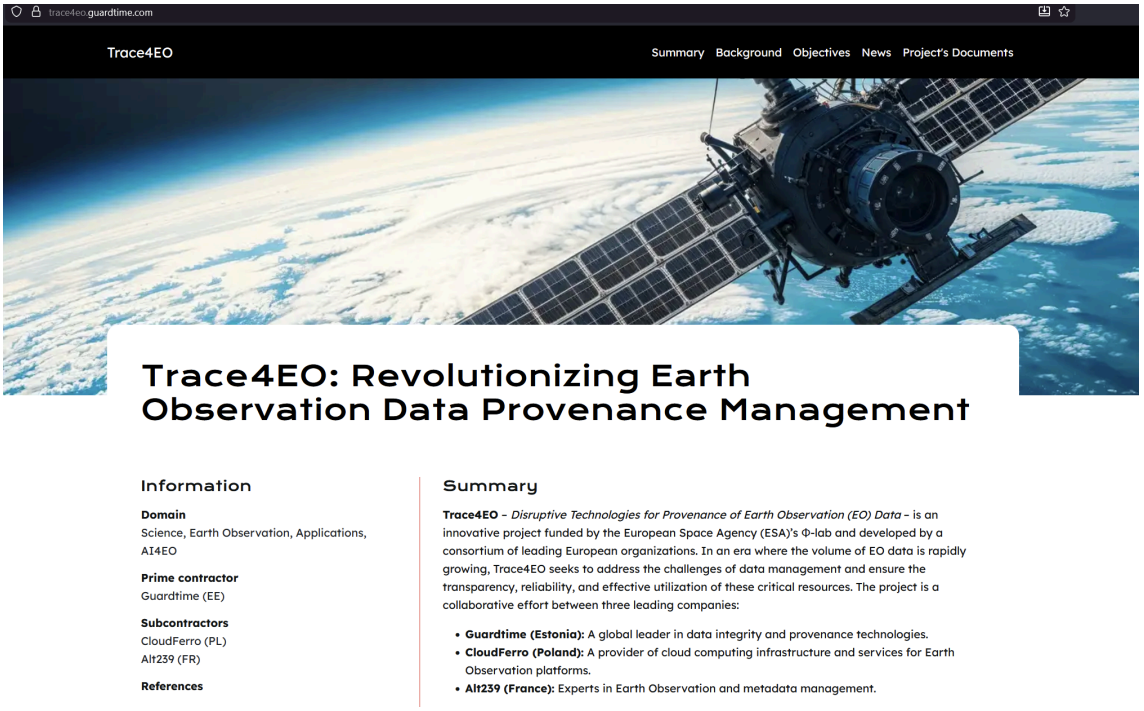
2. Background

Engaging the community is a critical component in the development and adoption of new technologies, as it enables direct interaction with users, strengthens trust, and accelerates the validation of innovative solutions. Meaningful engagement provides opportunities to promote project outcomes, gather practical feedback, and ensure that the proposed approaches address real operational needs. By leveraging social media channels, scientific conferences, industry events, and direct communication with stakeholders, the project can reach diverse audiences and create a continuous feedback loop. Personal interactions remain particularly important, as they foster deeper understanding, facilitate open discussion, and support long-term relationships that help shape the evolution and practical relevance of emerging technological solutions. The activities carried out in this project follow a high-level engagement and communication flow, illustrated in the project diagram, where community feedback, project deliverables, content creation, and dissemination channels are interconnected through a structured loop involving analytics, content management, and collaboration with ESA. This framework ensures that outreach efforts are coherent, coordinated, and consistently aligned with the needs of the target community.


Access
Community members
Feedback
Technical project team
Project deliverables
Performance indicators
Web Analytics
Project marketing expert
Content Management
Engaging content
ESA Content Management
ESA Content management team
Events
Scientific publications
Social media platforms
Project page
ESA project page

3. Project webpage

The project webpage, available at *https://trace4eo.guardtime.com/*, serves as the central public access point for information related to the Trace4EO activity. It provides a clear and structured presentation of the project, its objectives, and its consortium, ensuring transparency and accessibility for all interested stakeholders. The page contains several key sections, including a summary describing the overall purpose of the project and the organisations involved, a background section outlining the context and motivation behind the work, and an objectives section presenting the main goals and expected outcomes. A dedicated news area is used to publish updates and announcements, allowing the community to follow progress throughout the project lifecycle. The webpage also hosts a documents section, where publicly accessible project materials and deliverables can be made available, supporting open dissemination of knowledge and ensuring that results can be reused by the EO community and other interested groups. Altogether, the webpage functions as an essential element of the communication and outreach strategy, providing authoritative and regularly updated information in a single, easily accessible location.



4. Social Media Activities

Social media presence plays an important role in illustrating the activity and continuity of the project, demonstrating ongoing progress, refinement of the solution, and regular engagement with the wider community. To ensure consistent visibility, posts are published on LinkedIn in accordance with the project's communication and editorial plan. So far, two posts have been published, shared both by the consortium partners and within the ESA Φ-lab Community LinkedIn group. These posts generated interest and further resharing, significantly extending their reach and increasing awareness of the project among Earth Observation professionals and related communities.

Additional posts are planned throughout the project lifecycle, aligned with upcoming technical achievements, events, and engagement activities. These continued updates will support project visibility, highlight key milestones, and help maintain an active connection with the audience.

5. Conferences and Events

Participation in conferences and public events is one of the most effective ways to promote the project, identify potential users, collect direct feedback, and progressively build an engaged community around the developed solution. Public events provide an excellent opportunity to interact with the community through one-to-one discussions with stakeholders, to present project achievements, and to communicate expected outcomes. These interactions support both the validation of the technical approach and the identification of user needs, contributing directly to the refinement and usability of the traceability solution.

Since the submission of the original proposal, new events of high relevance have appeared in the scientific calendar. One of them is the "ESA–ECMWF Workshop: Machine Learning for Earth System Observation and Prediction," for which an abstract has already been submitted. Given that one of the project's use cases relies on ESA Sentinel-3 data and ECMWF ERA-5 Land datasets, combined with machine-learning methods, this event aligns exceptionally well with the project's scope. The workshop offers a focused platform for presenting the prototype, discussing methodological innovations, and engaging with experts at the intersection of EO data, modelling, and AI.

Other conferences identified in the proposal remain within the project's core interests. FOSS4G Europe 2025 continues to be a highly suitable venue, as it gathers users and developers of open-source geospatial tools, which matches the open-source nature of the project's planned technical output. The event attracts a wide range of participants, from beginners in geospatial technologies to experts developing essential tools such as QGIS, GDAL, and STAC, making it an ideal environment to showcase practical, real-world use cases such as Trace4EO. Similarly, EGU26 in Vienna remains a key scientific event for engaging with the wider geoscience and remote-sensing community. Its broad scientific scope, diverse audience, and strong focus on methodological innovation make it an excellent platform for presenting research-oriented aspects of the project and fostering interdisciplinary collaboration.

Together, these conferences cover the full spectrum of the project: FOSS4G offers a technically oriented, open-source-focused environment, EGU provides a scientifically driven forum for high-level discussion, and the ESA–ECMWF

workshop bridges machine learning, EO data, and modelling. This combination ensures visibility across complementary communities and maximises opportunities for meaningful engagement and feedback.

In any case, the project team continues to monitor the evolving landscape of relevant scientific and technical events. New conferences and workshops may emerge that align closely with the project's objectives, and adjustments to the participation plan may be made accordingly. This flexible approach ensures that dissemination and community engagement activities remain timely, effective, and well-targeted beyond the already identified events.

6. Research Community Engagement

While communication activities, media presence, and participation in conferences serve as effective tools for increasing visibility and reaching potential users, their primary purpose is to support a broader strategic objective: building a community of users who will ultimately adopt and rely on the developed traceability solution. Establishing relationships with stakeholders and cultivating trust within the research and operational communities are essential for ensuring that the final system reflects real user needs and can be successfully integrated into existing workflows.

From the very beginning of the project, the team has been actively engaged in consultations with key institutions, including the Joint Research Centre (JRC) and the Polish Space Agency (POLSA). These interactions have provided valuable early insights into the expectations and requirements of potential users. As summarised in the Use Case Definition document, JRC emphasised the importance of robust metadata traceability for maintaining reproducibility in the context of frequently changing EO processing baselines, while POLSA highlighted the need for practical tools enabling verification of product quality and input data credibility. These discussions helped validate the relevance of the selected use cases and ensured that the solution is aligned with the operational realities of the EO sector. High-level outcomes of these meetings include a clearer understanding of the most critical traceability elements for end users, confirmation of the transferability of the methodology beyond agriculture, and the identification of requirements related to auditing and reproducibility.

Following suggestions raised during discussions with JRC, the project team also plans to establish contact with representatives of national payment agencies, who may constitute a potential user group for the developed traceability solution. At the same time, it is important to acknowledge the structural challenges associated with this type of institution. Payment agencies typically operate within formal administrative procedures and rely on long-established tools and workflows, making the adoption of innovative solutions potentially slow and dependent on regulatory frameworks. Nevertheless, the project recognises the long-term relevance of this group and intends to explore opportunities for engagement while managing expectations related to the pace of uptake.

For the second use case, focusing on traceability in AI modelling, the project has succeeded in establishing direct connections within ESA with individuals and teams whose work naturally aligns with the proposed approach. With the increasing importance of AI in Earth Observation, this environment represents a highly relevant and dynamic community of potential adopters. The interest expressed during these exchanges confirms that the project's focus on tracking data lineage and model metadata addresses a real and growing need, particularly in the context of regulatory developments such as the AI Act. These engagements complement feedback collected during conferences and workshops, reinforcing the direction and scope of the use case.

Overall, the project's strategy for research community engagement combines structured outreach through events with targeted, domain-specific consultations. This approach ensures that the solution evolves based on real user feedback, supports operational relevance, and strengthens connections across the EO–AI ecosystem, increasing the likelihood of long-term adoption and impact.

7. Other Activities

In addition to the activities described above, the project foresees the preparation of two scientific publications. However, given the early stage of the project, these works have not yet commenced. The planned papers will play a crucial role in demonstrating both the credibility and the methodological innovation of the proposed traceability approach. Publishing in journals will strengthen the scientific validity of the solution and ensure its recognition within the research community. This academic reinforcement is expected to positively influence the perceived reliability of the method not only among scientists but also within administrative and operational institutions, where demonstrated robustness and transparency are essential for future adoption.

Furthermore, the project schedule includes the organisation of a workshop and a webinar, both planned for the final phase of the project. The workshop will present the full functionality of the system to an invited audience, offering an opportunity for discussion, validation, and the collection of final feedback. In parallel, the webinar will ensure that a wider community of interested users can familiarise themselves with the solution, as the recorded demonstration will be accessible beyond the live session. These activities form an important part of the concluding engagement efforts, providing visibility, supporting knowledge transfer, and preparing the ground for community uptake at the end of the project lifecycle.

8. Summary

This document provides an overview of the community engagement activities carried out within the project, including the development of the project webpage, social media outreach, participation in conferences, and targeted collaboration with the research community and potential end users. These activities collectively support the project's overarching goal of creating a credible, well-validated traceability solution informed by real stakeholder needs and aligned with evolving practices in Earth Observation and AI. Through continuous interaction with institutions such as JRC and POLSA, and through visibility in key technical and scientific environments, the project ensures that feedback is integrated early and consistently into the development process.

Looking ahead, future engagement efforts will focus on active participation in relevant conferences and workshops, combined with sustained direct communication with stakeholders to strengthen relationships and refine the solution. The planned scientific publications will play a critical role in establishing the methodological credibility of the approach and in reinforcing trust within the scientific and administrative communities. Alongside the final workshop and webinar, these activities will support the long-term adoption and impact of the developed system, ensuring that the project's outcomes remain visible, accessible, and grounded in real user needs.