SESAR 3 ER 1 Green-GEAR – D6.3 – Communication, Dissemination and Exploitation Report

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Abstract

Green-GEAR aims at enabling and incentivising optimum green trajectories and airspace use through new ATM procedures; it develops three new SESAR Solutions to this end.

This document reports on the Dissemination and Communication activities of the Project. Events and activities performed during both technical and dissemination phases are summarised and evaluated against the goals of the Project's Communication and Dissemination strategy as laid down in the initial and final Dissemination and Communication Plans.

This includes a review of targeted activities (conferences, scientific publications) as well as transversal ones (webpages, social media, workshops). Exploitation opportunities in view of the Project's Solutions' confirmed maturity (TRL1 / TRL2) are also described, and lessons learned are extracted.

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02.04	30/01/2026	Final	DLR / Bauer, Schmidt	final formatting
03.00	30/01/2026	Release	DLR / Bauer	first submission of CDE Report

The participants/consortium confirm(s) the correct application of the Grant Agreement, which includes data protection provisions, and compliance with GDPR or the applicable legal framework with an equivalent level of protection, in the frame of the Action. In particular, the participants/consortium confirm(s) to be up to date with their consent management system.

Green-GEAR

GREEN OPERATIONS WITH GEOMETRIC ALTITUDE, ADVANCED SEPARATION & GREEN ROUTE CHARGING SOLUTIONS

Green-GEAR

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114789 under European Union's Horizon Europe research and innovation programme. UK participants in Green-GEAR receive funding from UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant numbers 10087714 (NATS) and 10091330 (University of Westminster)].

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1. Introduction

1.1. Background

The success and impact of a Project such as Green-GEAR strongly depends on the effectiveness of the communicative actions. Increasing the project's visibility and recognition serves to educate the general public, to inform experts in the field and to attract future research partners, academic and industrial, as well as policy makers for further development.

Consequently, in addition to the technical research works of the Green-GEAR project, activities were also planned to address the need to disseminate and exploit the project's results and to communicate about the project's ideas and its findings during the period of the Grant. A current six-month period after the closure of the technical work (M24 up to M30, September 2025 to February 2026) is exclusively dedicated to Dissemination activities in accordance with the call specification.

Consideration is also given to potential activities that could follow on after the closure of the project to maximise the impact of the research that is being funded. This includes the proposal of measures to advance the TRL of the developed Solution and the identification of the necessary technological and regulatory enablers, as given in the Project Summary Report [17]. As far as practicable at the Project's maturity level, the Dissemination activities support SESAR Solutions towards their deployment, raise awareness of industry and operators to the potential benefits providing comprehensive information about required enablers in addition to recommended methodologies to implement such operations.

1.2. Purpose and Structure of this Document

In order to align all Dissemination, Exploitation and Communication activities within the Project, all partners of the consortium engage(d) in a dedicatedTask 1.2 within the Work Breakdown Structure, resulted in initial and intermediate versions of the Dissemination and Communication Plan [12][13] based on the draft Dissemination and Communication strategy presented in Annex I to Green-GEAR's Grant Agreement [1].

The purpose of this document is to assemble the Project's key messages and keywords, to identify points of contact and stakeholders (chapter 2), to collect and review the activities performed according to the Dissemination and Communication plan (described in chapters 4 and 0, respectively) and to finalise the sketch of the Exploitation strategy. At the low TRL of the project, the strategy consists more of opportunities than concrete Exploitation measures (see chapter 5). Chapter 6 lists all CDE activities already performed or scheduled for the remainder of the Project and after the formal closure.

A short evaluation of the performed activities, including lessons learned, can be found in chapter 7.

The reference section comprises chapter 8 listing all Project publications up to the date of submission of the present report (30th Jan 2026) and the list of acronyms in chapter 9.

1.3. Definitions

Before getting started, it is important to note the difference between communications and dissemination - see Figure 1. It is important to note that the guidance in this document refers to external communications and not internal communications between project consortium members

(although internal communication inside the partner organisations, towards people not directly involved in the Project, are included).

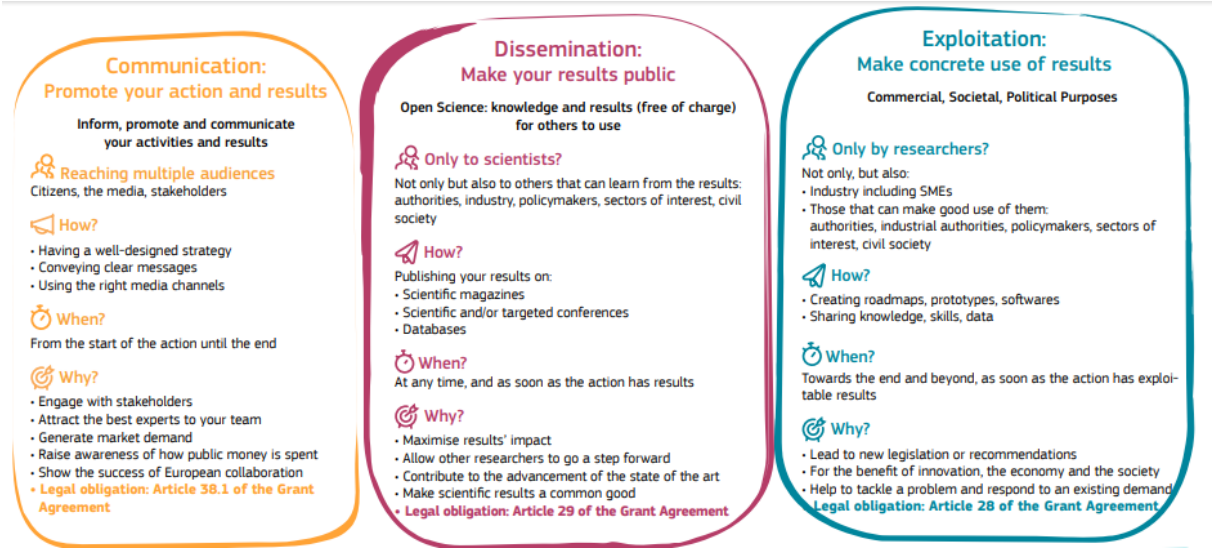

Figure 1: Definitions of communication, dissemination and exploitation in Horizon Europe

1.4. Applicable reference material

The SESAR 3 JU references are available in the SESAR 3 JU programme library. The latest versions are applicable at any time; the following list contains those current at the time of writing.

[1] Green-GEAR Grant Agreement No. 101114789, version 1, signed 11th May 2023.

[2] SESAR 3 Joint Undertaking Project Handbook – Programme Execution Framework. Ed. 01.00, 11th April 2022.

[3] SESAR 3 Joint Undertaking, "Multiannual Work Programme 2022-2031", v1.0, 2022.

[4] SESAR 3 Joint Undertaking, "Communications Guidelines 2022-2027", 23rd November 2022

[5] SESAR 3 Joint Undertaking, Visual Identity Charter, last update Nov 2022.

[6] Horizon Europe (HORIZON) Programme Guide, Version 3.0, 1st April 2023.

[7] Digital European Sky projects communication, dissemination & exploitation info session, webex, 12th October 2023.

[8] SESAR 3 Project communications Teaser video guidelines.

[9] Green-GEAR video intro and outro, V1.0, 24th July 2023.

[10] European Commission, "H2020 Programme – Guidance – Social media guide for EU funded R&I projects", v1.1, 7th January 2020.

[11] European Commission, "Open science / open access" strategy 2020-2024, https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science/open-access_en.

[12] SESAR 3 ER1 Green-GEAR, "D6.1 – Initial Communication, Dissemination and Exploitation Plan", ed. 01.00, 30th November 2023.

[13] SESAR 3 ER1 Green-GEAR, "D6.2 – Intermediate Communication, Dissemination and Exploitation Plan", ed. 02.00, 30th November 2024.

[14] SESAR 3 ER1 Green-GEAR, "D2.1 – Initial Data Management Plan", ed. 02.01, 30th November 2023.

[15] SESAR 3 ER1 Green-GEAR, "D2.2 – Updated Data Management Plan", ed. 02.00, 30th August 2024.

[16] SESAR 3 ER1 Green-GEAR, "D2.3 – Final Data Management Plan", submitted 28th January 2026.

[17] SESAR 3 ER1 Green-GEAR, "D1.4 – Project Summary Report", ed. 01.00, to be resubmitted 30th January 2026.

2. Project introduction

2.1. "About" project text

Since the early days of aviation, barometric pressure measurements have been a simple and robust method for altimetry. Two drawbacks exist though: there is no direct reference to terrain, and the constant variations in pressure caused by the weather lead to increased vertical profile variability restricting capacity and flight efficiency in today's high traffic density. One goal of Green-GEAR thus has been to investigate the environmental potential of geometric altimetry enabled by satellite navigation, increasing safety and eliminating waste of airspace by removal of the transition layer and supporting more environmentally friendly climb and descent operations.

Using the example of the Northern London TMA, it was shown that airspace designers can use geometrically-defined vertical paths to create optimised procedures allowing greater flight efficiencies in the TMA, netting a benefit overall for fuel and emissions at 2035 traffic levels. No safety or human performance showstoppers were identified for the removal of the transition layer, improving environment and safety by removing variation due to atmospheric conditions and potential for human error. Aircraft design considerations found no technical showstopper for descent and approach using geometric altimetry for required navigation performance (RNP) arrivals down to the intersection with the final precision approach segment, where the vertical guidance is by geometrical reference already today, allowing simplification of the charting and cockpit procedures. On the other hand, the use of a prescribed vertical path for departures was found to have significant impacts on airborne systems and operations.

With the change of the vertical reference, not only integration of manned aviation with drones (that are already using geometric altimetry in current operations) is facilitated, but Green-GEAR has also looked at the potential for reduced vertical separations enabled by geometric altimetry. Exemplarily, the so-called RVSM 2 concept envisages reducing the minimum vertical separation from 1,000 ft to 500 ft in upwards extended reduced vertical separation minimum (RVSM) airspace, enabled by improved altitude-keeping performance with geometric altimetry (RVSM 2 concept).

The project work has focused on the assessment of safety, showing that the collision risk could possibly be met by a small margin, based on *observed* performance of GNSS altimetry system error and flight technical error. However, the *nominal* values are not sufficient so that the implementation of RVSM 2 would require adaptations to existing regulations and standards. A substantial increase is predicted for the wake vortex encounter risk, which would need operational or functional mitigations, and the Functional Hazard Analysis has identified further requirements. In sum, the operational safety is a substantial challenge but not obviously infeasible, provided the significant regulatory and legislative challenges of tightening performance specifications are overcome. On the plus side, initial capacity analysis shows no restrictions on using the additional flight levels from the collision risk point of view, and it was exemplarily indicated that their finer granularity might increase flight efficiency by allowing aircraft to fly closer to their preferred flight levels.

Last but not least the project has investigated the potential of environmentally driven route charging, with new mechanisms for charging airspace users for en-route air navigation services in a manner to incentivise minimum climate impact. The modulation of route charges is designed to reward those who avoid volumes of airspace with a high climate impact and disincentivise flight planning through high-demand sectors or flight altitudes except where it optimises environmental benefit overall, while

being cost neutral to airspace users and passengers on average and keeping air navigation service providers' revenues per service unit stable.

Given the complexity of the task, the Solution has been developed in two stages. The Initial Solution focuses on reducing horizontal inefficiencies caused by differences in unit rates and the mitigation of demand-capacity imbalances at the strategic level, i.e. without impact on processes at the tactical level. A reduction of CO_2 emissions by 0.25–1.36% was demonstrated for the ECAC airspace, and demand-capacity imbalances were significantly alleviated. The Full Solution targets the reduction of the total climate impact of aviation (both CO_2 and non-CO_2), through the incentivisation of avoidance of climate hotspots, at the (pre-)tactical level. Initial results tested the mechanism on a limited sample, where a 12.3% reduction of full emissions impact (measured in increase of temperature at the 20 years horizon) was demonstrated.

2.1.1. Project key messages

# Key message id	Communication	Dissemination
1	Green-GEAR tackles the inefficiencies of today's flight operations and airspace use due to the limited accuracy of barometric altimetry. Vertical guidance using geometric altimetry is the key to more efficient operations in the TMA by enabling seamless and more consistent climb and descent paths together with new optimised airspace design, which is expected to bring environmental benefits.	Green-GEAR's GeoAlt solution aims to mitigate inefficiencies in current flight operations and airspace use resulting from the limited accuracy of barometric altimetry. The project conducted fast-time flight simulations using geometric instead of barometric altimetry and vertical containment assumptions to assess potential operational benefits, as well as an aircraft-level feasibility assessment. The GeoAlt simulations for the Terminal Manoeuvring Area (TMA) showed that airspace design complexity could be significantly reduced under geometric altimetry conditions, leading to lower workload for both air traffic controllers and pilots. Within the Northern London TMA, flights demonstrated a substantial overall reduction in fuel consumption (positive in arrivals and slightly negative in departures); the aircraft performance disadvantages of a prescribed vertical path were outweighed by the more efficient procedures enabled by geometric altimetry. The aircraft-level feasibility assessment identified no technical showstoppers for arrivals but significant impacts on airborne systems and operation for departures when using a prescribed vertical path. A slight increase in fuel consumption was observed during the cruise phase, alongside operational limitations associated with the use of geometric altimetry. Geometric cruise therefore does not appear suitable as a standalone solution, but may offer benefits as an enabler for other operational improvements when considered within a holistic operational concept.

		GNSS jamming and spoofing threats as seen today challenge the concept. The deployment of geometric altimetry should thus await the (ongoing) implementation of the necessary mitigations so that barometric fallback should only be needed very infrequently.
2	Green-GEAR studies how to further reduce separation minima at various phases of flight, enabled by the use of geometric altimetry, safely including UAS and HAO aircraft. Specifically, the reduction of separation minima to 500 ft in RVSM airspace (RVSM 2) is investigated, delivering more capacity at economical cruise altitudes.	Green-GEAR assessed the feasibility of reducing the minimum vertical separation from 1,000 ft to 500 ft in upwards extended reduced vertical separation minimum (RVSM) airspace, enabled by improved altitude-keeping performance through the use of geometric altimetry (RVSM 2 concept). Project results indicate that, from a collision-risk perspective, a reduction of vertical separation to 500 ft appears feasible under nominal operating conditions. Both the observed altitude-keeping performance and accuracy of satellite-based systems were found to be sufficient, even if the nominal values are not. Hence, the implementation of such a reduction would require adaptations to existing regulations and standards. The finer granularity of available flight levels and the potential capacity increase both allow flights to operate closer to their optimum cruising altitude, improving flight efficiency and potentially outweighing the drawbacks of foregoing the barometric reference. Prior to the adoption of reduced vertical separation, several key challenges would need to be addressed: - Service providers would need to provide robust performance guarantees for geometric altimetry data. - Geometric altimetry would need to be adequately protected against jamming and spoofing. - The Aircraft Collision Avoidance System (ACAS) would require modification to prevent an excessive number of proximity alerts. - The reduction of vertical separation would significantly increase the risk of wake vortex encounters, which would need to be mitigated through new tools or adapted operational procedures.

3	Green-GEAR'S approach to green route charging will change the existing minimum cost only approach and reward eco-friendly choices in flight planning. Concentrating on en-route operations, the best trade-offs will be sought between the reduction of overall environmental impact and keeping the economic and capacity impacts stable.	Green-GEAR's Green Route Charging Solution assessed a two-step approach to rewarding more eco-friendly choices in flight planning through the modulation of en-route charges, which are collected from airspace users to cover the costs of provision of air navigation services. The best trade off was sought between the reduction of overall environmental impact and keeping the economic and capacity impacts stable. The initial step of the solution looked at reducing CO_2-emissions only and was able to demonstrate a reduction in en-route fuel consumption and delays caused by congestion over the entire European airspace. The full Green Route Charging solution additionally addressed non-CO_2 effects, which account for roughly two-thirds of aviation's environmental footprint. Tests on a part of the network showed that the full solution could reduce overall climate impact by around 12% (although fuel use increased slightly by around 1%). However, the application of Green Route Charging in every day operations faces several challenges: - Implementation would require consensus and buy-in by multiple stakeholders, which appears to be difficult due to conflicting interests. - To roll-out the full solution, weather nowcasting capabilities need to be improved to track climate hotspots better. - Airspace congestion may limit achievable reduction in climate impact.

2.2. Keywords

Aircraft energy management	control of the kinetic energy (in terms of speed) and potential energy (in terms of altitude) of an aircraft to achieve a safe and efficient flight. The flight crew should carefully manage the aircraft's energy condition especially during approach and landing, as either a deficit of energy (too low and/or slow) or an excess of energy (too high and/or fast) may result in an incident or an accident (hard landing, runway overrun, loss of control …).
Algorithmic climate change functions (aCCFs)	mathematical formulation for the temporal and spatial non-CO_2 climate effects of aviation emissions in the atmosphere, provided for contrail-cirrus, water vapour, NOx-induced changes of ozone and methane. aCCFs are based on meteorological parameters and can be calculated from e.g. numerical weather prediction data.
Climate hotspot	a volume of airspace where the atmospheric conditions are such that flying through it creates much higher climate impact than in the other areas

Geometric altitude	defining routes and procedures using geometric altitude. Aircraft navigation systems constructing vertical paths based on geometric altitude and navigating to geometric altitude.
Green route charges	refers to the project Solution, where the application of "green" charges incentives the users to fly more environmentally friendly routes
Modulation of charges	refers to the deliberate adjustment of air navigation service prices, typically in response to specific conditions or factors (e.g. traffic congestion, environmental aspects), in order to achieve desired outcomes or objectives (e.g. minimisation of environmental impact)
RVSM 2	the concept [studied in Green-GEAR's Separation Minima Solution,] where vertical separation minima are set to 500 ft in enroute airspace (FL290 – FL600 inclusive), where altitude is determined through geometric altimetry, and vertical separation is managed through geometric altitudes
Satellite navigation	system that uses earth-orbiting satellites to provide autonomous determination of the receiver's location (longitude, latitude, and altitude/elevation) to high precision, e.g. GPS or GALILEO
Target Level of Safety (TLS)	the level of risk considered to be the maximum tolerable value for a safe system
Transition Layer	refers to the airspace between the transition altitude and the transition level, where the Transition Altitude is the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes and the Transition Level is the lowest flight level available for use above the transition altitude.
Wake encounter resistance	ability of an aircraft, due to geometry, mass and moment of inertia on one hand and flight control capabilities on the other, to safely limit the effects of a wake encounter on aircraft accelerations, changes of attitude and flight state as well as flight path excursions

2.3. Focal point for communications, dissemination and exploitation

All dissemination, exploitation and communication activities of the project are bundled in a dedicated WP 6, in which all partners of the consortium engage. This work package is led by DLR. The communication manager (CDE Manager) is the focal point for all communication and dissemination activities, supported by the project manager.

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Table 1: Focal points of contact

2.4. Stakeholders identification

Stakeholder	Content
European Institutions (EC including DG MOVE, SESAR 3 JU, CINEA)	Information about the project outcomes and its impact towards the delivery of the Digital European Sky
Civil society	Information about the key role of technology innovation and funded research for improving civil aviation, making it more efficient and sustainable, through social media, website and general press. Civil society would benefit through the reduction of aviation climate impact.
ANSPs	Information and consultation about the impact of the project's new solutions on operations and ATM services, through dedicated stakeholder workshops and a final dissemination workshop. As service and thus capacity providers, ANSPs would benefit from better cost efficiency and lower workload and would enable AUs to execute green trajectories.
Network Manager (NM) / Central Route Charges Office (CRCO)	Information and consultation about the impact of the project's new solutions on operations, ATM services and charges mechanism, not only through dedicated stakeholder workshops and a final dissemination workshop but also internally at EUROCONTROL
Airspace Users (AUs) / Airlines	Information and consultation about the impact of the project's new solutions on flight operations and equipage considerations, through dedicated stakeholder workshops and a final dissemination workshop. As direct operators of flights, AUs would benefit from more efficient and environmentally friendly routes.
Policy makers, international organisations and regulators (e.g. ICAO, CANSO, IATA, national CAAs, EUROCAE, EUROCONTROL, Enlarged Committee for Route Charges)	Information about the results of the project activity impacting on their activities, through participation in the advisory board and a final dissemination workshop
ATM community	Information about the project's approach, progress and results through targeted communication and dissemination activities, such as SESAR e-news, participation to SESAR Innovation Days / World ATM Congress
Other SESAR projects, especially from same ER1 call (e.g. FlyATM4E, GEESE, CICONIA, …)	Information about the project's approach, progress and results through bi-or multilateral workshops to ensure coordination and uptake of each other's ideas
Research organisations and universities	Information about the project's (intermediate and final) results through classical academic dissemination means (conference presentations, journal papers)
Project partners	Information related to the project progress such as regular CDE status, internal meetings (kick off, workshops, …), technical review meetings showing the results of validation activities.

Table 2: Stakeholders

3. Communication

The aim of the Green-GEAR project communications was to raise the visibility of the project's activities among audiences beyond the project's own stakeholder community, e.g. policymakers, decision-makers and interested general public, including the media. Communications activities aimed to convey the benefits of research for European citizens and the economy and demonstrate how EU funding contributes to tackling societal challenges.

3.1. Communications activities and objectives

The communication activities aimed at informing and educating the general public, particularly European citizens; informing subject-matter experts; building collaborations for future research with academic and industrial partners; and liaising with policy makers and regulators on actions needed for further developments.

Effective communication is not a one-way effort – it is crucial in engaging operational stakeholders, which was achieved through workshops, active participation in the Advisory Board (a panel of external experts), and other communication initiatives. These efforts gather valuable inputs for the Green-GEAR work plan and propose measures, post-project, to advance the Technology Readiness Level (TRL) of the developed SESAR Solutions and identify the necessary technological and regulatory facilitators.

Communication activities used multiple communication channels and diversified messages according to the communication target group. The Green-GEAR communication strategy facilitated the information flow among stakeholders impacted by the development and the implementation of the project. Several communication channels together with respective target groups are presented in section 3.2 below. These include a website, dissemination material, conferences and publications (see section 3.4). Each communication channel had a specific purpose and responded to a certain communication need.

The communication objectives were:

- to develop a communication strategy and supports in collaboration with SESAR 3 JU with a view to reach a broader audience. Defining the key messages concerning the aim of the project and its expected results;
- to coordinate all the CDE activities within the Green-GEAR project and when appropriate with other SESAR 3 projects, especially within the Green Deal flagship;
- to provide a complete communication toolkit to the Green-GEAR partners for project or internal communication;
- to promote the project and inform publicly about Green-GEAR's developments, applicability and potential benefits for operations and the environment, targeting both experts in the field and the general public, at European and international level;
- to showcase results to the ATM industry stakeholders through open day type activities, and through professional fora like the World ATM Congress or SESAR Innovation Days.

3.2. Communication target audiences

Target	Channel	Message	Activities
general public, the funding body and all stakeholders	SESAR JU hosted website dedicated project website	information about the advantages of Green-GEAR for a more sustainable aviation	provision of up-to-date information on the project's objectives, status and outcomes. promotion of Project related events like workshops or conferences access to project reports and papers, promotional material
	support to SESAR 3 JU		support to • publishing of institutional brochures, newsletters especially SESAR e-news • posting news on the SESAR 3 JU website • preparation of dedicated meetings and events (and join them when deemed necessary to extend collaboration with other projects and or topics)
	news blogs and social media		regular updates on partners' news blogs / social media accounts on the project's achievements
	press releases		for key steps and achievements
ATM community including regulators, airlines, ASNPs, airports, controllers' and pilots' organisations	professional fora	technical information about the impact of the project's new Solutions on operations and regulations / standards	participation in Airspace World (ASW) SJU Walking Tours, SESAR Innovation Days and/or the European Commission's Aerodays
	stakeholder workshops		indirect multiplication of the knowledge on the Green-GEAR solutions through the considerable number of aviation professionals taking part in the stakeholder workshops
	Advisory Board (AB)		indirect multiplication of the knowledge towards the AB members' organisations
scientific community including potential partners for follow-up research and innovation	scientific conferences; professional fora with scientific focus (such as SIDs); direct approach	information about the project progress and maturity of the expected objectives, further research requirements	provision of information on the project's results and outcomes → links to Dissemination activities

Target	Channel	Message	Activities
other grants awarded under the same call	bi- or multidirectional exchange	information about the project progress and the results obtained	fostering cooperation between other SESAR 3 JU sponsored activities; development of common understanding and assumptions on future ATM innovations

Table 3: Communications target audiences

3.3. Branding and acknowledgements

3.3.1. Branding

As defined in the "Visual Identity Charter by SESAR JU 3" [5] the following logo will be used for all project related Communication, Dissemination and Exploitation activities:

Green-GEAR

Figure 2: Project logo

3.3.2. Acknowledgements

EU funding is acknowledged by displaying the EU emblem and SESAR 3 JU logo, in addition to the project logo:

- The EU emblem can be downloaded from https://ec.europa.eu/regional_policy/information-sources/logo-download-center_en

  Co-funded by the European Union

- the "Supported by SESAR 3 Joint Undertaking" logo can be downloaded from https://www.sesarju.eu/node/3406#sesar-logos7694

  SUPPORTED BY sesar JOINT UNDERTAKING

When displayed together with another logo, notably partners' logos, the SESAR 3 JU logo and the EU emblem will have appropriate prominence.

The following acknowledgement is to be included in all Communication, Dissemination and Exploitation material:

"This project has received funding from the SESAR 3 Joint Undertaking (JU) under grant agreement No 101114789. UK participants in Green-GEAR receive funding from UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant numbers 10087714 (NATS) and 10091330 (University of Westminster)]."

3.3.3. Disclaimer

In order to clarify that any Communication, Dissemination and Exploitation material, even if using the SESAR 3 JU and EU branding, is not an official statement from said organisations, the following disclaimer was/is added:

"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or SESAR 3 JU. Neither the European Union nor the SESAR 3 JU can be held responsible for them."

3.4. Communication channels

Where adequate and compatible with corporate identity, the project made use of the press release template, event template and web template and guidance provided by the SESAR 3 JU in the programme library.

All partners from Green-GEAR were encouraged to use the Communication materials produced by the project for their respective in-house communication.

3.4.1. Website

Green-GEAR maintains a presence on the web by using the dedicated SESAR 3 JU website. https://www.sesarju.eu/projects/greengear

This page will continue to contain the main facts about the project, objectives, consortium, and it has hosted news about the projects such as events, participations to conference and workshops.

The website has also been used as the landing page for social media channels.

During the evolution of the project, an additional stand-alone website was released, which introduces the project's objectives, shows explainer videos and enables visitors to download all public project results and materials (Deliverables, White Papers, scientific publications). It is hosted by DLR and can be reached under https://sesar-green-gear.eu/.

3.4.2. Press and media

The aim was to provide popularised messages on environmental performance evidence (CO_2 and non-CO_2 effects, noise reduction, etc.) from the analysis and fast-time simulation, showing especially the possible short- and medium-term benefits of Green-GEAR procedures, thus creating awareness and visibility of the project aims, and interest in the project activities. The ultimate objective was to inform / engage with society and show the impact and benefits of EU-funded R&I activities.

Media outreach was coordinated with the SESAR 3 JU, particularly in relation to any press launches/releases.

It must be noted that activities involving central corporate services of the project partners such as press releases could only be suggested but not ordered at the project management level; this applies to any kind of corporate communications and to all consortium members.

Media activity	Date	Link
	Published contribution	
contribution to CORDIS Projects Info Pack on "Air Traffic Management and the Green Deal“	4th Dec 2023	https://www.sesarju.eu/node/4634
CORDIS project factsheet	Dec 2023	https://cordis.europa.eu/project/id/101114789
e-News Article #1 “Aircraft Efficiency starts with having the right altitude”	3rd May 2024	https://www.sesarju.eu/news/aircraft-efficiency-starts-having-right-altitude
Green-GEAR Teaser Video	15th May 2024	https://youtu.be/0-I_U6BLH1E?feature=shared
LinkedIn repost of Teaser Video	28th May 2024	https://www.linkedin.com/posts/sesar-green-gear_a-quick-introduction-to-the-green-gear-project-activity-7203297730926886913-w6VT?utm_source=share&utm_medium=member_desktop
Twitter/X repost of Teaser Video	28th May 2024	https://x.com/SesarGreenGEAR/status/1795422521753239594
LinkedIn Teaser post for eNews #1	15th June 2024	https://www.linkedin.com/posts/sesar-green-gear_sesar-ju-green-gear-activity-7209464701892644866-D8bG?utm_source=share&utm_medium=member_desktop
Twitter/X Teaser post for eNews #1	27th June 2024	https://x.com/SesarGreenGEAR/status/1806292982737629402
eNews Article #2”Transforming altimetry for a safer, more efficient aviation future”	20th November 2024	SESAR Joint Undertaking | Transforming altimetry for a safer, more efficient aviation future
DLR Flight Systems internal magazine “flugBLATT“	29th November 2024	DLR internal document
Project Profile Page on DLR’s Institute of Flight Systems’ webpage	January 2025	https://www.dlr.de/en/ft/research-transfer/projects/green-gear
report on ASW in DLR Flight Systems internal magazine “flugBLATT“	28th May 2025	DLR internal document
eNews Article #3 “Spotlight on the full Green Route Charging solution – Interview with Tatjana Bolic”	24th September 2025	SESAR Joint Undertaking | Spotlight on the full green route charging solution – Interview with Tatjana Bolic

Media activity	Date	Link
eNews Article #4 "Exploring safer skies with reduced vertical separation"	22nd October 2025	SESAR Joint Undertaking | Exploring safer skies with reduced vertical separation
eNews contribution summarising project and inviting to Final Dissemination Workshop	28th January 2026	SESAR Joint Undertaking | Green-GEAR Final Dissemination Workshop
Contributions to be published before the end of the grant period		
Green-GEAR results video	February 2026	SJU page, YouTube, sesar-green-gear.eu
LinkedIn Post featuring new results video	February 2026	LinkedIn

Table 4: Contributions to external media.

3.4.3. Social media

Green-GEAR's activities were promoted on LinkedIn throughout the duration of the Grant and for a short period at the beginning of the Grant period on Twitter/X. Consortium members were encouraged to contribute to social media publications led by Green-GEAR's communications manager (DLR) to engage directly with multiple audiences via the project's designated social media channels and to show the benefit of their work. These media efforts permit more popularised communications to reach professional and policy actors, students, and the general public by using specific #hashtags.

LinkedIn :

- https://www.linkedin.com/company/sesar-green-gear
- Green-GEAR SESAR3 Project – EXPLORATORY RESEARCH PROJECT Green-GEAR – Green operations with Geometric altitude, Advanced separation and Green Route charging solutions

X / Twitter :

- @sesargreengear
- Green-GEAR SESAR3 Project
- EXPLORATORY RESEARCH PROJECT Green-GEAR – Green operations with Geometric altitude, Advanced separation and Green Route charging solutions
- After a short time promoting the project on Twitter/X it became clear that the project page was being followed almost exclusively by bots, so we discontinued our efforts to reach our audience through this social media platform.

All related content was adapted to LinkedIn including (animated) graphics, videos and picture carousels to grab viewers' attention and encourage interaction.

Posts addressed contents such as:

- Introduction of project Solutions and partners
- Project activities: events, workshops, conferences, exercises and results

- Reposts of newsletter articles
- Invitations to attend events and to mingle with project participants
- Research results and conclusions

All partners were encouraged to propose contributions and ideas for the social media channels to the Communication Leader.

All partners undertook to tag or reference the SESAR 3 JU and EU in all related posts [7]

- Social media channels:
  - @SESAR_JU (X / Twitter), @SESAR Joint Undertaking (LinkedIn), SESARJU (YouTube)
  - @HorizonEU (X / Twitter) and @European Commission (LinkedIn)
  - @cinea_eu (X / Twitter), cinea - European climate, infrastructure and environment executive agency (LinkedIn)
- Social media hashtags
  - #ATM #AirTrafficManagement #DigitalSky #innovation #SESAR3JU #
  - HorizonEU #MobilityStrategy #Uspace
  - #HorizonEurope #CEFTransport
  - #AviationResearch #SESARJU #AviationEfficiency #AviationGreenDeal
  - #GreenGEAR #Aviation #Sustainability #DigitalEuropeanSky #AviationInnovation Hashtag #AirTrafficManagement
  - #WalkingTours #GeometricAltimetry #RouteCharging #SustainableAviation #InnovationInFlight

3.4.4. Communication events

Due to the small size of the project, the Green-GEAR project team primarily participated in existing events but also organised a series of events to promote their work throughout the duration of the project, with a focus on Dissemination for latter activity (see section 4.2.2). This was done in coordination with the SESAR 3 JU in order to:

- ensure consistency of visual branding;
- maximise promotion;
- identify SESAR 3 JU and VIP attendance, where appropriate, e.g. through SESAR Walking Tours.

The following table contains a list of project-led and external events that took place throughout the grant period. All participation choices were made in view of known time and budget constraints, while selecting the most effective formats to ensure strong participation from relevant experts and stakeholder communities, thereby enabling the collection of comprehensive and substantive feedback.

Event	Date	Place	Information to be shared	Importance for the project
Green-GEAR Kick-off Meeting	September 2023	Brussels, Belgium	Project objectives Meet the project participants	promote the project and its participants

Event	Date	Place	Information to be shared	Importance for the project
WP3 Vertical Guidance using Geo Alt: ConOps Workshop #1 and #2	November 2023 February 2024	Whiteley, UK	WP3 objectives WP3 progress	promote the project and ongoing work
SESAR 3 JU Annual Conference	2025	Brussels, Belgium	Project progress and results	promote the project and ongoing work / results
SESAR 3 Innovation Days	2023 2025	Seville, Spain Bled, Slovenia	Project approach Final results(*)	promote the project and (ongoing) work, find collaboration partners for follow-up activities
Airspace World	2025	Lisbon, Portugal	Near-final results	promote the project and ongoing work
66th meeting of the Study Group of Enlarged Committee for Route Charges	April 2024	physical – Brussels, Belgium	GRC objectives and methodologies / research progress and intermediate results(*)	Ensure buy-in and collect feed-back on implementation issues at state level
Green-GEAR initial stakeholder workshop	2 days in May 2024	Virtual Meeting	Project approach, Explanation of each of the three solutions	ensure stakeholder buy-in and continued involvement, collect requirements
Presentation of Green Route Charging Solution to European Regional Aviation Association	Dec 2024	online	Project approach, initial and intermediate results(*)	Collect feedback on approach and eventual implementation issues
Green Deal Flagship	Jan 2024 June 2024 Oct 2024 May 2025	online Brussels, Belgium Brussels, Belgium Lisbon, Portugal(*)	Project approach Project status Project progress Near-final results	promote collaboration with and gather input from other projects
Green-GEAR Technical Review Meeting	November 2024	hybrid; Brussels, Belgium	Review of project work, preliminary results(*)	Communicating and disseminating project work and progress to SJU
Route Charging Workshop (WP5)	January 2025	hybrid; Belgrade, Serbia	research progress and intermediate results(*)	extended discussion also with SJU to improve mutual understanding

Event	Date	Place	Information to be shared	Importance for the project
Green-GEAR interim stakeholder workshop part 1 – WP3&4	March 2025	online	Project Solutions / research progress and intermediate results(*)	ensure stakeholder buy-in and continued involvement, collect quantitative and qualitative input
Green-GEAR interim stakeholder workshop part 2 – WP5	April 2025	online	Project Solutions / research progress and intermediate results(*)	ensure stakeholder buy-in and continued involvement, collect quantitative and qualitative input
Presentation of Initial GRC solution at conference of Optimization and Decision Science	September 2025	physical – Milan, Italy	Initial GRC solution's objectives and methodologies / research progress and intermediate results(*)	ensure stakeholder buy-in and continued involvement, collect quantitative and qualitative input
Green-GEAR Maturity Gate Meeting	September 2025	hybrid; Brussels, Belgium	Exit Maturity Gate of all three solutions(*)	assess project results regarding objectives and Solutions' final TRL levels
(*) also a Dissemination activity				

Table 5: Events

3.4.5. Publications and newsletters

Publications/newsletters/printed material	Description	Date	Link
Green-GEAR roll-up # 1	Physical poster (200 x 80 cms) explaining Project approach	27/11/2023	https://sesar-green-gear.eu/images/Poster/Green-GEAR%20poster%20for%20SIDS%202023%20-%20v1.0.1%20202311120-1.pdf
Green-GEAR roll-up # 2	Physical poster (200 x 80 cms) visualising Project results	01/12/2025	https://sesar-green-gear.eu/images/Poster/posterSIDs25_GreenGEARv04.pdf

Publications/newsletters/printed material	Description	Date	Link
SESAR 3 JU publications (e.g. SESAR Solutions Catalogue, results brochures, annual highlights, e-news)	contribute by providing text and illustrative content, as needed	various	e.g. SESAR Joint Undertaking | Vertical guidance using geometric altimetry SESAR Joint Undertaking | Separation minima SESAR Joint Undertaking | Green route charging
Contribution to CORDIS Projects Info Pack on "Air Traffic Management and the Green Deal“	(contribution to) brochure conveying project approach to general public	04/12/2023	https://www.sesarju.eu/node/4634
SESAR 3 JU e-News Article #1	interview with Project Manager Tobias Bauer (DLR)	03/05/2024	https://www.sesarju.eu/news/aircraft-efficiency-starts-having-right-altitude
SESAR 3 JU e-News Article #2	“Transforming altimetry for a safer, more efficient aviation future” – Interview with John Godsell (NATS)	20/11/2024	SESAR Joint Undertaking | Transforming altimetry for a safer, more efficient aviation future
SESAR 3 JU e-News Article #3	“Spotlight on the full Green Route Charging Solution” Interview with Tatjana Bolic (UoW)	24/09/2025	SESAR Joint Undertaking | Spotlight on the full green route charging solution – Interview with Tatjana Bolic
SESAR 3 JU e-News Article #4	“Exploring safer skies with reduced vertical separation” Interview with Bart Klein Obbink (Royal NLR)	22/10/2025	SESAR Joint Undertaking | Exploring safer skies with reduced vertical separation
SESAR 2 JU e-News contribution	summary of project and invitation to Final Dissemination Workshop	28/01/2026	SESAR Joint Undertaking | Green-GEAR Final Dissemination Workshop

Table 6: Printed material

3.4.6. Videos

All project videos included logos of all participating partners, as well as the SESAR 3 JU and the EU logos, cf. section 3.3, and followed the SESAR 3 JU video guidelines [8][8]. The Green-GEAR video intro and outro available in the programme library were used where appropriate [9][9].

This is a list of all produced video materials:

Videos	Description	Planning	Link
Green-GEAR teaser	visualisation of project approach	for SIDs 2023	sesar-green-gear.eu/images/Videos/UoW_video_greenGear_explainer.mp4
Green-GEAR Teaser Video	Project Problem Statement, Objectives and Approach in video form	15/05/2024	https://youtu.be/0-I_U6BLH1E?feature=shared
Green-GEAR results video(s)	High level results video explaining technology or procedures developed in layman's terms, highlighting project results and conclusions;	February 2026	Will be available on sesar-green-gear.eu, the SESAR hosted project page and the SESAR YouTube channel

Table 7: Videos

3.5. Communication key performance indicators (KPIs) and success criteria

Action	KPIs	Success criteria		Currently achieved	Last update	Growth rates
Web presence(*)	1 Number of visits. 2 Bounce rate. 3 Number of page views. 4 Average time of visit.	120 page visits; 80 unique visitors		300 views 249 unique visitors	01/01/2024 to 09/01/2026	Average monthly growth: 2.2% - 2.9%
Press and media	# of press releases & articles (online & printed).	3		4	09/01/2026	-
Social media[3](*)	# of clicks, likes, shares, tags, video views, new followers, profile visits, engagement rates, uses of your hashtag. #Types of comments received, their tone, the number of people they reached, the types of followers, impressions.	LinkedIn 50 followers, 15 posts of ~250 words, 3 videos <20% of comments express lack of under-standing	X/Twitter 100 followers, 15 posts, 3 videos <40% of comments express lack of under-standing	LinkedIn 34 followers, 15 posts, 1 video X/Twitter 102 followers 1 teaser post, 1 video	09/01/2026 15/07/24 discontinued	Average monthly growth: 5.8%

[3] *Guidance Social media guide for EU funded R&I projects* [10]

Action	KPIs	Success criteria	Currently achieved	Last update	growth rates
Events(*)	# of organised workshops/events.	3	4 workshops	15/05/2024-16/05/2024; 05/03/2025; 29/04/2025; 12/02/2026	-
	# of attendees.	60	80+ attendees		
	# of participation in external events and seminars.	8	8		

(*) also Dissemination success criteria

Table 8: Communication KPIs and success criteria

4. Dissemination

Dissemination means sharing research results with potential users (e.g. peers in the research field, industry, other commercial players and policymakers). By sharing your research results with the rest of the scientific community, you are contributing to the progress of science in general. Some examples are peer-reviewed papers, books and book chapters, white papers, presentations at scientific conferences (both ATM and non-ATM), workshops, webinars, bilateral meetings, etc.

4.1. Dissemination objectives and strategy

The objectives of the dissemination activities were:

- to establish a common dissemination strategy for the consortium;
- to secure that Green-GEAR's results reach all interested stakeholders and target organisations, fostering their interest into the project and allowing their recommendations to be taken into account during the project. To this end, events, meetings and other activities were coordinated and organised throughout the project;
- to share the project results with potential users (e.g. peers in the research field, other SESAR projects especially from but not limited to the same ER 1 call. industry, other commercial players and policy makers) and maintain an ongoing dialogue with them. The Green-GEAR consortium exchanged knowledge, project progress, findings and insights with other SESAR and non-SESAR projects such as (but not limited to) STEPLESS, Engage 2 and DLR's In2Action project;
- to facilitate the transfer of the results into Industrial Research to further mature the developed approach. Project results were such that it has become clear that additional ER-level research is necessary to remove blockers on the technical and operational level and to advance the concepts to the IR level for the Separation Minima and the Full Green Route Charging Solutions, while Geometric Altimetry was found to be ready to advance to IR level;

specifically:

- to submit scientifically publishable results of the project to various relevant international conferences and leading journals, preferably peer-reviewed;
- to set up an Advisory Board (AB) with stakeholders that are regularly informed about Green-GEAR'S progress;
- to organise workshops to exchange on the project and obtain feedback about the results, the preferred incentives options and their estimated impact, the possible ways to accelerate implementations;
- to make available Green-GEAR deliverables to the SESAR community through STELLAR, and to the general public through both the EU's CORDIS and the dedicated project website.

4.2. Dissemination channels

Except for scientific journals, which are a clear Dissemination means, there is a certain overlap of channels between Communication and Dissemination, especially as the project progresses and results become available. While initial conference presentations and project workshops primarily served to inform about the project's approach and gather input from stakeholders, later activities focussed on disseminating the project results and facilitate the continuation of the activities toward further maturation.

Channel	Objective	Tools	Link/ Location	Information to be shared
Scientific Journals	promote the benefits of the results towards scientists' communities	scientific papers, technical notes	various	information about the results obtained
(Third-party) conferences and events	promote and discuss the project results	presentations, conference papers, posters	various	information about the project status and the results obtained
Project workshops	involve stakeholders, encourage uptake and further activities	presentations, demonstration videos, open discussions	various	information about the project status and the results obtained
Coordination workshops	foster collaboration with other ongoing SESAR activities	presentations, discussions, education	various	information about the project's results, Solutions, assumptions, techniques and methodologies
Website	disseminate the results of the project	videos, presentations, project documents incl. Deliverables, scientific publications	https://sesar-green-gear.eu/	information about the results obtained, project deliverables and publications
Social networks	maintain an active interest in project progress	Videos, presentations, infographics, links to scientific publications	https://www.linkedin.com/company/103237498	news, articles, events
CORDIS	provide access to public deliverables	technical reports	https://cordis.europa.eu/project/id/101114789	project deliverables

Table 9: Dissemination channels

4.2.1. Open access to scientific publications

Open access refers to the practice of providing online access to scientific information that is free of charge to the end-user and reusable. The consortium committed to following the guidelines of the Horizon Europe Open Access policy [11], especially to providing the open access to peer-reviewed scientific publications, as each Horizon Europe beneficiary must ensure open access (free of charge) to all peer reviewed scientific publications of its results. This meant that the authors had to retain sufficient intellectual property rights to comply with the open access requirements.

The preferable solution was **'gold' open access** where the publication's peer review and editing is funded by the publishing partner(s) to enable free on-line access to any interested party. Where not possible, possible future peer-reviewed papers of the projects' results will be made accessible through the partners' public servers, e.g. DLR elib https://elib.dlr.de/, and the project website at CORDIS (doi: 10.3030/101114789) (**'green' open access**).

A defined budget for open access publications was allocated within the partner budget shares for DLR and UNITS; DLR has already submitted one journal paper, and three or four more are under preparation (joint UNITS/UoW, UoW, DLR). In view of the long lead times for scientific journal papers, which may easily exceed the duration of the Dissemination phase of the project, the partners intend to publish these with open access also after the end of the project using different sources of funding.

The table below lists the current and foreseeable scientific publications of Green-GEAR'S results. **Presentations** were held at national and international scientific conferences such as CEAS Air & Space Conference, SESAR Innovation Days, International Conference on Optimization and Decision Science. **Peer-reviewed Publications** are foreseen in relevant scientific journals allowing open access such as AIAA Journal of Air Transportation, Journal of Aircraft, Royal Aeronautical Journal, CEAS Aeronautical Journal, AIAA Journal, Elsevier Journal of Air Transport Management.

Scientific papers/ presentations	Link	Information to be shared
poster from DLR, NATS, NLR, UoW for SIDs 2023, Nov 2023 [21]	https://sesarju.eu/SIDS2023 -> Posters	details on project approach for all three Solutions (WPs 3, 4, 5)
Conference paper from UoW for SIDs 2024, Nov 2024 [22]	https://sesar-green-gear.eu/images/deliverable_documents/SIDs_2024_paper_075%20final.pdf	intermediate results of route charging study (WP5)
Conference presentation from UNITS for Int. Conference on Optimisation and Decision Science, 2025 [23]	https://www.airoconference.it/ods2025/images/docs/ODS25_AbstractBook.pdf	final results from initial Solution for green route charging (WP5)
conference paper from DLR for 10th CEAS Aerospace Europe Conference, Dec 2025 [25]	preprint: https://elib.dlr.de/221525/	results of wake vortex risk analysis for reduced vertical separation (WP4)

Scientific papers/ presentations	Link	Information to be shared
conference paper from Royal NLR for SIDs 2025, Dec 2025 [26]	https://www.sesarju.eu/sites/default/files/documents/sid/2025/papers/SIDs_2025_paper_18-final.pdf	results of collision risk analysis for reduced vertical separation (WP4)
Project-level poster for SIDs 2025 (Dec 2025) [27]	https://sesar-green-gear.eu/images/Poster/posterSIDs25_GreenGEARv04.pdf	results of all three solutions (WPs 3, 4, 5)
Journal paper from DLR for CEAS Aeronautical Journal (GeoAlt in Cruise) [24]	submitted; if accepted eventually: Deliverables and Documents - Green-GEAR	results of flight mechanical study of geometric altimetry use in cruise (WP3)
Journal paper from DLR (GeoAlt in Climb and Descent)	under preparation; if accepted eventually: Deliverables and Documents - Green-GEAR	results of flight mechanical study of geometric altimetry use in climb and descent (WP3)
Journal paper from UNIT and UoW, Q I / 2026	TBA	consolidated results of Initial Solution from green route charging study (WP5)
Journal paper from UoW, Q II/Q III 2026	TBA	results of Full Solution from green route charging study (WP5)

Table 10: Scientific papers, publications and presentations

4.2.2. Dissemination events

Event	Date	Place	Information to be shared	Importance for the project
Green-GEAR initial stakeholder workshop	14th, 15th May 2024	online	Project initial Solutions / concepts of operation(*)	ensure stakeholder buy-in and continued involvement, collect quantitative and qualitative input
Engage 2 Winter School	27th - 31st Jan 2025	Belgrade, Serbia	Green Route Charging initial concepts	ensure the education of new generation of aviation professionals on the climate impact of aviation
Green-GEAR 2nd stakeholder workshop	WP3/WP4 - March 2025 WP5 – April 2025	online	Project interim Solutions / concepts of operation(*)	ensure stakeholder buy-in and continued involvement, collect quantitative and qualitative input

Event	Date	Place	Information to be shared	Importance for the project
Airspace World / SESAR Walking Tour	14th May 2025	Lisbon, Portugal	Solutions objectives and results	ensure stakeholder buy-in, find collaboration partners for follow-up activities
Green Deal Flagship	15th May 2025	hybrid – Lisbon, Portugal(*)	Project progress and results	promote collaboration with and gather input from other projects
SG66 of Enlarged Committee for Route Charges	16th Aril 2024	Brussels, Belgium	Project approach, initial Results(*)	Ensure buy-in and collect feed-back on implementation issues at state level
SESAR Innovation Days	1st to 4th December 2025	Bled, Slovenia	Final results(*)	promote the project and results, find collaboration partners for follow-up activities
Green-GEAR final Dissemination workshop	12th February 2026	online	Project outcomes	ensure stakeholder involvement in activities beyond the project, collect feedback on project results
AEROPLANE final Dissemination event	16th February 2016	Rome, Italy	Project outcomes, in particular the Green Route Charging solution	results sharing across SESAR 3 JU projects under the Green Deal Flagship

(*) also a Communication activity

Table 11: Dissemination conferences and workshops

4.3. Dissemination target audiences

Target	Channel	Benefits from the project	Expected feedback
civil society	social media & website; scientific papers	awareness of impact of research on daily life; specifically: reduced climate impact of flights navigating high-density and/or complexity airspace	

Target	Channel	Benefits from the project	Expected feedback
ATM community including airlines, ASNPs / CANSO, airports, controllers' and pilots' organisations	social media & website; events & workshops; articles in industry journals; Project dissemination workshop	awareness on potential of • increased airspace design efficiency, leading to reduction in delay and fuel burn; • optimised flight trajectories enhancing cost-efficiency and environmental KPIs; • facilitated integration of UAS and HAO aircraft in the aviation system, leading to new products and services in these domains to the market	recommendations for Solution development within the project; recommendations on actions needed for further development to enable exploitation
European institutions and project sponsors (EC, SESAR 3 JU)	social media & website; events & workshops scientific papers	awareness of project advancements outside the formal reviews thus increasing resonance and international visibility of the results; support in the development of a more environmentally friendly and safer SES ATM network	support to the developments of follow-up activities; networking opportunities and contacts
international organisations and regulators (e.g. ICAO, IATA, CANSO, EASA, UK CAA)	events & workshops; scientific papers	discuss/confirm the impact of the project's new Solutions on standards and regulation	feedback on developments and specifications
scientific community including potential partners for follow-up research and innovation	scientific conferences; professional fora with scientific focus (such as SIDs); direct approach	information about the Project's scientific advances in terms of new • ways of capitalising on GNSS capabilities; • ways of measuring or taking into account the full climate impact of aviation; • artificial intelligence approaches to simulate interactions among ANSPs and/or AUs	facilitation of the transfer of the results into Industrial Research to further mature the developed approach
consortium partners	corporate intranet and magazines; internal meetings Project workshops;	sharing the progress and results with all the partner, maximisation of buy-in within each partner	encouragement of further activities towards maturation and implementation

Table 12: Dissemination target audiences

4.4. Dissemination KPIs and success criteria

Action	KPIs	Success criteria	Currently achieved	Last update	Target Achieved? (Y/N)
Academic publications	# of peer-reviewed journal publications.	5	-	09/01/2026	-
	# of other scientific publications (e.g. conference papers).	5	5		Y
	# of downloads on website publications page.	3	No data		No data
	# of references in scientific publications.	3	TBA		TBA
Events	# of organised workshops/events, of attendees.	3 events	3	09/01/2026	Y
	# of participation in external events and seminars.	6	8		
Coordination workshops	# of (virtual) meetings with other SESAR projects, including of the same call	5	6	09/01/2026	Y
Print materials	# of graphic postcards, roll-ups, infographics, flyers/ brochures.	3	2	09/01/2026	Poster not selected for SIDs 24
Website	# of visitors to the website (per year), unique visitors, average session duration, interactions per visit.	120 page visits/month 80 unique visitors	300 page views 249 visitors	09/01/2026	Y
	# of posts in website 'News' section.		5		
Innovative video content	# of views.	>100/video/ platform	see below	09/01/2026	Y
	# of sessions in which the video was introduced.		at least 2		
	# of views (if uploaded to a social network).		169 views		
Social media	# of clicks, likes, shares, tags, video views, new followers, profile visits, engagement rates, uses of your hashtag.	3 posts	7 posts	09/01/2026	Y
	# of types of comments received, their tone, the number of people they reached, the types of followers, impressions.	<20% of comments express lack of understanding	achieved		
(*) also Communication success criteria					

Table 13: Dissemination KPIs and success criteria

5. Exploitation

Exploitation refers to the utilisation of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities. Exploitation is the use of results for commercial purposes or in public policymaking.

5.1. Project exploitable results

As an exploratory research project, the generation of transferable and shareable results depended on the completion and consolidation of extensive simulations and calculations. Exploitation and dissemination activities were therefore intentionally focused towards the later stages of the project, once results had reached a sufficient level of maturity and validation. This approach ensured that shared outputs were robust, interpretable and suitable for re-use by the research community.

5.2. Internal and external exploitation of results

Project outputs	Area impacted	Action	Outcomes	When
GeoAlt concept using geometric instead of barometric altitude for airspace design and flight operations to improve safety and efficiency	TMA	inclusion in further research proposals	contribution to development of quieter and more fuel-efficient flying	submission in 2025, results from 2027 onwards
RVSM 2 concept for further reduction of vertical separation minima in en-route airspace	En-route airspace	further evolution of wake and encounter prediction	contribution to improved physical understanding of safety-related phenomena	from 2026
Green RC mechanisms that incentivise AUs to reduce the environmental impact of en-route operations	En-route airspace	inclusion in the coursework in the ATM short-course (UoW), inclusion in further research proposals. Attracting a PhD candidate for further research.	formation of new generation of aviation professionals on climate impact of aviation. Further research into the understanding of effect	started in 2024, continuing

Table 14: Project internal exploitation of results

Project outputs	Area impacted	Action	Outcomes	When
GeoAlt concept using geometric instead of barometric altitude for airspace design and flight operation, enabling route separation based on vertical path performance limits	TMA	further research		SESAR JU WAVE 2 will be addressing Jamming and Spoofing; results are likely to impact further research into GeoAlt
(single) aircraft simulation environment for approach and departure under geometric altimetry	TMA operations	further research	contribution to development of quieter and more fuel-efficient flying	proposed transfer to industrial research (SESAR JU DYN-MAX, from mid-2026);
RVSM 2 concept for further reduction of vertical separation minima in en-route airspace	En-route airspace	further research		
Integration of wake encounter prediction and severity assessment	en-route airspace	further research	contribution to increased safety and more efficient flying	proposed transfer to industrial research (SESAR JU NATICA, from mid-2026) and internal research (planned from 2027)
Green RC mechanisms that incentivise AUs to reduce the environmental impact of en-route operations	En-route airspace	further research		
		further research	contribution to further understanding of intricacies of climate impact of aviation and the tools and functionalities needed to address it	

Table 15: Project external exploitation of results

5.3. Data protection strategy

A Data Management Plan (DMP) was maintained as part of WP2 activities, outlining how data will be processed or generated within the project, what methodology and standards will be adopted, whether, which and how this data will be shared and (some) made open, how this data will be curated and preserved during and after the project. The FAIR principles (Findable, Accessible, Interoperable, Reusable data) were followed.

An finalised version of the DMP was submitted on August 30th 2025 as Deliverable D2.3[16], updating the intermediate version[15][14]. During the lifetime of the project, the DMP was continuously adapted, updated and improved. All partners were responsible for implementing the DMP within their companies.

5.4. IPR management

For IPR Management, a Consortium Agreement based on the DESCA model was drafted and agreed between the consortium partners. Background knowledge of the individual partners was clearly identified and recorded when the agreement was concluded. The coordinator set up a list to manage foreground and background knowledge and documented the use of the background IPR by the partners.

The Consortium Agreement envisions fair conditions for the uses of foreground and background knowledge and IPR even beyond the duration of the Green-GEAR project so as to facilitate their further use in internal and external follow-up activities including commercial exploitation.

6. Overview list of communication and dissemination activities

The following table lists all activities that are entered into STELLAR as "COM" activities at the time of submission of the present report (30th January 2026).

Activity	Channel	Tool	Objective	Target audience	Frequency / date
COM.001 CORDIS Info Pack: ATM and the Green Deal	CORDIS	Website	Introduction to project approach	General Public	20/03/2024
COM.002 SESAR Innovation Days 2023	SESAR Innovation Days 2023	Event	Introduction to project	General Public, Aviation Experts and potential partners	30/11/2023
COM.003 LinkedIn Post - Teaser Video #1	Green-GEAR LinkedIn Channel	Social media	Video Introduction to project	General Public	15/04/2014
COM.004 Green-GEAR teaser video	YouTube, LinkedIn, Twitter	Video	Video Introduction to project	General Public	07/05/2024
COM.005 Green Deal flagship - presentation at coordination meeting	SESAR 3 JU	Event	Project Overview	SEAR JU and other SESAR Green Deal Flagship Project Representatives	22/01/2024
COM.006 Twitter/X Post - Teaser Video #1	Green-GEAR Twitter/X Channel	Social media	Video Introduction to project	General Public	01/04/2024
COM.007 Twitter/X Post Teaser for eNews #1	Green-GEAR Twitter/X Channel	Social media	High Level Explanation of Project's Solutions	General Public	01/05/2024
COM.008 CORDIS Project factsheet	CORDIS	Website Content	Project fact sheet	General Public	01/03/2024
COM.009 Advisory Board Workshop (2 Days)	Virtual Workshop	Event	Presentation of Solutions to Advisory Board Members and Stakeholders	Advisory Board Members and Stakeholders	14/05/2024-15/05/2024
COM.010 eNews #1 - Aircraft efficiency starts with having the right altitude	SESAR JU Website/ Newsletter	eNews article	High Level Explanation of Project's Solutions	General Public	01/04/2024
COM.011 LinkedIn Post - Teaser for eNews #1	Green-GEAR LinkedIn Channel	Social media	High Level Explanation of Project's Solutions	General Public	01/05/2024

Activity	Channel	Tool	Objective	Target audience	Frequency / date
COM.012 Green-GEAR Roll-Up Poster #2	Visual Aid for conferences	Poster/Roll-Up	Infographic about the 3 solutions	General Public, AB members, Stakeholders and potential Partners	01/12/2025
COM.013 eNews #2	SESAR JU Website/ Newsletter	eNews article	Interview with a consortium member	General Public	20/11/2024
COM.014 eNews #3 – Interview with Tatjana Bolic (UoW)	SESAR JU Website/ Newsletter	eNews article	Interview with a WP5 lead – GRC Full Solution	General Public	24/09/2025
COM.015 LinkedIn Post featuring eNews #3 – Interview with Tatjana Bolic	LinkedIn	Social media	Teaser post linking to eNews article on SESAR website	General Public	12/10/2025
COM.016 Green-GEAR Results Video	YouTube, SJU Site, Green-GEAR Website	Video	Final Dissemination Video presenting the results of each of the three solutions	General Public	Planned for 28/02/2026
COM.017 Green-GEAR Profile on DLR Institute of Flight System's Website	Website	Web-Profile	Overview of Project Scope, objectives and DLR's role	General Public, Aviation and Research Community	25/03/2025
COM.018 LinkedIn post Announcement of Walking Tour participation	LinkedIn	Social media	Post inviting people to join GG on walking tour during Airspace World 2025	General Public	07/05/2025
COM.019 LinkedIn Post – GG Recap of Airspace World Walking Tour	LinkedIn	Social media	Post recapping Walking Tour, thanking participants and SESAR	General Public, Airspace World Visitors	19/05/2025
COM.020 Green-GEAR at Airspace World 2025	Airspace World 2025	Event	Presentation of intermediate results during SESAR Walking Tour	Airspace World Visitors	15/05/2025
COM.021 Green Deal Flagship F2F Workshop	Presentation	Event	Presentation of intermediate project results to industry experts and stakeholders	Aviation and Research Community	15/05/2025

Activity	Channel	Tool	Objective	Target audience	Frequency / date
COM.022 Green-GEAR Advisory Board Workshop WP3&4	Advisory Board & Stakeholder Workshop	Hybrid Event	Present Intermediate project results, collect feedback from AB and stakeholders	Industry experts, researchers and stakeholders	05/05/2025
COM.023 WP5 (GRC) Presentation at 66th meeting to the study group	66th meeting to the study group	Presentation	Present Intermediate project results, collect feedback from experts and stakeholders	Industry experts, researchers and stakeholders	15/04/2025
COM.024 Green-GEAR Advisory Board Workshop WP5	Advisory Board & Stakeholder Workshop	Hybrid Event	Present advanced project results, collect feedback from AB and stakeholders	Industry experts, researchers and stakeholders	29/04/2025
COM.025 Presentation Initial GRC @Int. Conference on Optimization and Decision Science	Int. Conference on Optimization and Decision Science, Milan Italy	Presentation	Present Results of the Initial GRC Solution to decision science experts and potential future collaborators	Experts in the field of optimization and Decision Science	01/09/2026
COM.026 eNews Article #4 – Interview with Bart Klein Obbink – Separation Minima	SESAR JU Website/ Newsletter	eNews Article	Interview presenting results of NLR's work in WP4	General Public with aviation/scientific background	27/10/2025
COM.027 – Scientific Paper and presentation at CEAS Turin	Scientific Paper and Presentation	Paper, Presentation, Event	Presentation of scientific results of WP4 – wake vortex risk analysis	Industry experts, researchers and stakeholders	02/12/2026
COM.028 – Green-GEAR Poster presentation at SIDs	Visual Aid for conferences	Poster/Roll-Up	Roll-Up Poster giving an overview of results of each of the three solutions	General Public, AB members, Stakeholders and potential Partners	02/12/2025
COM.029 – Paper on Collision Risk SIDs 2025	Scientific Paper and Presentation	Paper, Presentation, Event	Presentation of scientific results of WP4 – collision risk analysis	Industry experts, researchers and stakeholders	04/12/2025
COM.030 – LinkedIn Post – End of Year 2025	LinkedIn	Social media	Post celebrating 2025 and thanking audiences for support	General Public, AB members, Stakeholders	21/12/2025

Activity	Channel	Tool	Objective	Target audience	Frequency / date
COM.031 – eNews contribution announcing Final Dissemination Workshop	SESAR JU Website/ Newsletter	eNews Article	Short project overview; Announcement and invitation to final dissemination workshop	General Public, AB members, Stakeholders	28/01/2026
COM.032 – Final Dissemination AB Workshop	Advisory Board & Stakeholder Workshop	Virtual Event	Workshop detailing all three solutions' results to Advisory Board and stakeholders	Industry experts, researchers and stakeholders	12/02/2026

Table 16: Overview of communication and dissemination activities

7. Evaluation and lessons learned

The communication and dissemination activities of Green-GEAR supported the project's objectives by providing visibility for the research work and facilitating engagement with relevant stakeholders, including research organisations, industry partners, and aviation authorities. Activities covered all three technical solutions and combined digital channels, targeted events, and selective audiovisual material to present project progress in an accessible manner. Regular contributions to the SESAR newsletter proved particularly effective in reaching a relevant, engaged audience and in maintaining consistent visibility within the European aviation research community.

A key insight concerns the structuring of content across the three solutions. While the overarching project narrative provided coherence, each solution generated sufficient technical depth and stakeholder relevance to justify stand-alone communication activities. In retrospect, separating content by solution would have allowed for more targeted messaging, clearer storytelling, and improved relevance for specific audiences. Future projects with multiple technical strands would benefit from designing solution-specific communication streams from the outset.

Digital channels played a central role in dissemination; however, their effectiveness varied. In particular, Twitter/X proved problematic as a communication tool. During the early stages of the project content was shared regularly on Twitter/X. During this phase the project's profile attracted predominantly automated accounts rather than engaged human audiences, making it difficult to meaningfully assess reach and interaction. This highlights the importance of evaluating both reach and audience quality when selecting digital platforms. The project's stand-alone website, while requiring significant resources, allowed for flexible content layouts and contributed to the project's visibility. Its main added value lies in its long-term availability beyond the Grant period and its function as a central platform for hosting publications and other downloadable materials, beyond formal Deliverables and beyond the Grant period (especially for scientific publications). Press releases were not pursued, as the project's limited scale and TRL2 status made it less suitable for high-profile announcements by organisations such as DLR or Airbus. These experiences highlight the importance of prioritising dissemination channels based on both resource investment and potential reach.

Another lesson relates to content format, particularly audiovisual material. Early video content, focussing on the project's objectives, was effective in introducing the project to a wider audience. As the project progressed and intermediate results emerged, it became clear that video content covering all three solutions' progress would be less suited to the average attention spans. Combining multiple solutions in single videos would have reduced clarity and diluted key messages. If communication activities were designed again, a more modular approach would be considered, producing concise videos for each solution separately. This would allow clearer storytelling and better alignment with audience expectations while improving reusability across channels.

Workshop planning presented additional challenges. Participants were often thinly stretched across multiple responsibilities, which limited availability and made scheduling and engagement difficult. This experience underlines the need for early coordination and realistic planning when organising collaborative project events.

The project also highlighted the importance of careful language and framing of results. Some stakeholders were critical of certain messages, partly due to concerns that implementing the solutions could involve significant operational or financial costs. This underscored the need to communicate the

maturity and potential of each solution accurately, without overstating Technology Readiness Levels (TRLs) or implying immediate applicability. Being precise and measured in wording helped maintain credibility and reduced unnecessary friction. For future projects, early alignment on terminology and careful framing of results will be essential to prevent misinterpretation or attempts to undermine the communication of research outcomes.

Internal coordination between technical partners and communication activities proved crucial. Timely sharing of results allowed for effective translation of technical content into accessible messages, though aligning three parallel solutions occasionally limited responsiveness. Monitoring and evaluation, combining quantitative metrics such as website traffic with qualitative feedback from stakeholders, provided valuable insights into the relevance and clarity of communications. Future activities would benefit from integrating both approaches more systematically to strengthen the assessment of impact.

Finally, Green-GEAR contributed to broader European policy and research visibility through its participation in the European Green Deal flagship activities, reinforcing its alignment with wider sustainability objectives in aviation. The project was also featured as part of a SESAR Walking Tour at Airspace World 2025, providing direct exposure to a specialised, international audience of ATM and aviation stakeholders. Academic dissemination activities were successfully carried out through participation in international conferences, publication of journal papers and inclusion of the techniques in the general coursework and summer schools. Dissemination activities are ongoing at the time of this report's release.

In summary, the Green-GEAR communication activities underscored the importance of solution-specific storytelling, careful platform selection, concise content formats, and measured language, and realistic planning for workshops and events. Regular contributions to targeted channels, such as the SESAR newsletter, further demonstrated the value of reaching established, engaged audiences. These lessons provide guidance for future research projects with multiple technical strands, particularly in balancing visibility, credibility, and stakeholder sensitivities.

8. Project publications

With the present report submitted one month before the end of the dissemination phase, many of the scientific publications are not yet completed (under preparation; submitted but not yet accepted; accepted but not yet published). The project website will be continuously updated with the links to all open-access publications [4].

[18] Green-GEAR project website at SJU: https://www.sesarju.eu/projects/GREEN-GEAR.

[19] Green-GEAR reference website at CORDIS: https://cordis.europa.eu/project/id/101114789.

[20] Green-GEAR dedicated project website: https://sesar-green-gear.eu/.

[21] Bauer, T.; Nelson, D.; Jonk, P. and Bolić, T.: "*Green-GEAR: Green Operations with Geometric altitude, Advanced separation and Route charging solutions*". 13th SESAR Innovation Days (SIDs 2023), Seville, Spain, 27th – 30th November 2023. Available: https://sesarju.eu/SIDS2023 → Posters.

[22] Bolić, T.; Gurtner, G.; Cook, A. J. and Soolaki, M.: et al: *Can route charging incentivise environmentally-friendly trajectories*?, 14th SESAR Innovation Days (SIDs 2024), Rome, Italy, 12th – 15th November 2024. https://doi.org/10.61009/SID.2024.1.38.

[23] Castelli, L.; Gasparin, A. and Vascotto, F.: *Strategic route pricing model for air traffic management for CO_2 emissions and congestion reduction,* International Conference on Optimization and Decision Science 2025 (ODS2025), Milan, Italy, 1st - 4th September 2025. Abstract: https://www.airoconference.it/ods2025/images/docs/ODS25_AbstractBook.pdf.

[24] Vechtel, D.: *About the Influence of the Use of Geometric Altimetry on Cruise Flight Efficiency*, submitted to CEAS Aeronautical Journal.

[25] Bauer, T. and Koloschin, A.: *Analysis of the wake vortex encounter risk under reduced vertical separation enabled by geometric altimetry*. 10th CEAS Aerospace Europe Conference, Torino, Italy, 1st - 4th December 2025. to be published.

[26] Boshuizen, I.; Klein Obbink, B.; Smeltink, J. and Jonk, P.: *Collision risk in extended 500 ft RVSM Airspace with geometric altimetry*. 15th SESAR Innovation Days (SIDs 2025), Bled, Slovenia, 1st – 4th December 2025. https://www.sesarju.eu/sites/default/files/documents/sid/2025/papers/SIDs_2025_paper_18-final.pdf.

[27] Bauer, T.; Schmidt, H.; Koloschin, A.; Vechtel, D.; Zapata-Arenas, D.; Hornby, M.; Godsell, J.; Nelson, D.; Jonk, P.; Klein Obbink, B.; Castelli, L.; Gasparin, A.; Vascotto, F.; Bolić, T.; Cook, A.J.; Gurtner, G.; Delgado, L. and Verbeek, R.: *Green-GEAR – Green operations with Geometric altitude, Advanced separation and Green Route charging Solutions*. 15th SESAR Innovation Days (SIDs 2025), Bled, Slovenia, 1st – 4th December 2025. Available via UoW: https://westminsterresearch.westminster.ac.uk/item/x46y3/green-gear-green-operations-with-geometric-altitude-advanced-separation-and-green-route-charging-solutions.

9. List of acronyms

Acronym	Description
AB	Advisory Board
AIAA	American Institute of Aeronautics and Astronautics
aCCF	Prototype algorithmic climate change functions
ANSP	Air Navigation Service Provider
ATM	Air Traffic Management
AU	airspace user
CDE	Communications, Dissemination, Exploitation
CEAS	Council of European Aerospace Societies
CINEA	European Climate, Infrastructure and Environment Executive Agency
CORDIS	Community Research and Development Information Service
DESCA	Development of a Simplified Consortium Agreement
DLR	German Aerospace Center
DLRK	German Aerospace Congress
EC	European Commission
ER	Exploratory Research
ERAA	European Regional Aviation Association
EU	European Union
GALILEO	European Satellite Positioning Constellation
GDPR	General Date Protection Regulation
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
Green-GEAR	Green operations with Geometric altitude, Advanced separation & Route charging Solutions
HAO	High Altitude Operations
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IPR	Intellectual Property Rights
KPI	Key Performance Indicators
N/A	Not applicable
NATS	National Air traffic Services
NLR	Royal Netherlands Aerospace Centre
PU	public
RSVM	Reduced Vertical Separation Minimum
SES	Single European Sky

Acronym	Description
SESAR	Single European Sky ATM Research
SIDs	SESAR Innovation Days
SG	study group
SJU	SESAR Joint Undertaking
TBA	to be announced
TBD	to be determined
TMA	Terminal Manoeuvring Area
TRL	Technology Readiness level
UAS	Unmanned Aircraft System
UK	United Kingdom [of Great Britain and Northern Ireland]
UK CAA	United Kingdom Civil Aviation Authority
UKRI	UK Research and Innovation
UoW	University of Westminster
WA	Working Area
WAC	World ATM Congress
WP*<no.>*	Work package *<no.>*
UNITS	Università degli Studi di Trieste

Table 17: List of acronyms

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