

Needs Analysis Report

WP2 – Needs Analysis and Syllabus Development

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Executive summary

This report is the result of activities conducted using the outputs from deliverable A2.1 (Work Package 2). It presents the geojournalism skills, competencies, and knowledge needs in the consortium countries: Albania, Greece, Italy, Kosovo and Portugal, and contributes to the development of a syllabus and curriculum based on its findings.

The report includes insights from five desk research reports from the respective countries and one overview research on Europe, findings from four focus groups and six individual interviews in these countries, and analytical insights from an online questionnaire with responses across the five countries. The questionnaire collected structured answers from academics, students, professionals, journalists, and civil society activists.

According to the questionnaire, we can see that there is still a lack of perception of the public on what geospatial journalism is; most respondents admitted to having a medium to low knowledge about the subject (58.6%). Even the professionals responded that 44.8% have low knowledge about the subject, 34.5% medium, and 13.8% lack the information.

The results of the focus groups and interviews done by the consortium partners allow us to see the challenges and the basis of potential. What we have found common issues are a strong emphasis on the need for collaboration between journalists, data analysts, GIS specialists, and environmental scientists. Collaboration with scientists, cartographers, and technologists is essential to accurately communicate complex environmental issues

In Albania, Environmental and Geospatial Journalism (EGJ) is still a developing field in Albania. While environmental issues are becoming more relevant in public discussions and the media, most reporting is done by general journalists rather than experts in this area. The concept of geospatial journalism—using maps, data, and spatial analysis to tell stories—is even less known among the public and professionals. However, there is growing interest due to increasing awareness about climate change, pollution, and sustainable development.

In Greece, Environmental and Geospatial Journalism is generally perceived as underdeveloped and lacking specialization. There are very few

journalists who are trained or specialized in environmental or geospatial reporting. As a result, media coverage on these subjects is often superficial and lacks scientific depth. Newsrooms tend to prioritize political, economic, and entertainment content, leaving environmental stories with little visibility or editorial importance. Additionally, there is a prevailing belief that environmental journalism does not generate strong audience interest. This perception further contributes to its marginalization in mainstream media. Journalists who are interested in covering these issues also face practical challenges, such as limited resources, time constraints, and a lack of institutional support. These factors make it difficult for them to produce in-depth and accurate reports on complex environmental or spatial matters.

In Italy, in recent years, environmental journalism has gained increasing relevance, partly due to the growing frequency and intensity of extreme weather events – such as the floods that have impacted some regions and the drought periods that affected others– which have brought the urgency of the climate crisis into focus. However, the term *geo-journalism* itself is still unfamiliar in institutional or public policy discourse.

In Kosovo, environmental journalism remains underdeveloped despite the country's mounting environmental crises, such as widespread pollution, unchecked deforestation, and the growing impacts of climate change. Public awareness and engagement with environmental topics are still notably weak, and the role of investigative journalism in uncovering environmental harm or pushing for sustainability is only marginally acknowledged. Environmental reporting continues to be overshadowed by more conventional and politically driven news, reflecting the limited priority given to environmental concerns in the media and public discourse.

In Portugal, some news outlets already have some departments that work exclusively with environmental topics. For example, in *"Público"*, one of the most famous and credible news sources in the country, they have a division called *"Azul"* (which means Blue), that conveys only news about the environment, climate, sustainability, biodiversity, and so on. Although environmental journalism exists in newsrooms, the term Geojournalism isn't known or applied. The connection between GIS/Geospatial data and environmental journalism appears to be lacking.

According to the desk research and focus groups from all countries, the common issues addressed are related to the skills needed:

- Understanding environmental issues
- Ability to critically assess scientific studies and avoid misinformation

- Basic understanding of geospatial data
- Use of Geographic Information Systems (GIS) and digital mapping platforms
- Data collection, analysis, and visualization
- Creating accessible maps and graphics for public communication
- Understanding spatial context and how to integrate maps/location data into stories
- Critical assessment of data credibility, origin, limitations, and construction
- Understanding the data workflow (finding, collecting, analyzing, and visualizing data)

Introduction

Work package 2 (WP2) encompasses the preparation for the remaining WP. For deliverable 2.2, Universum International College as the WP leader, organized all the research done by all partners, by using the templates from deliverable 2.1. This report was aided by consortium partners and reviewed by the project coordinator UNL – Nova IMS Deliverable 2.2 consists of the desk research and focus groups/interviews done for Albania, Greece, Italy, Kosovo and Portugal, and the Online Questionnaire directed to a broader audience in these countries, resulting in a report for a comparative needs and competences analysis for Environmental and Geospatial Journalism.

This Needs Analysis Report is structured into several key sections designed to provide a comprehensive understanding of the research process and outcomes.

- **Desk Research**, which includes detailed reports from the respective partner countries: *DR Albania*, *DR Greece*, *DR Italy*, *DR Kosovo*, and *DR Portugal*. Also, an overview research for Europe. This section outlines existing data, national contexts, and relevant background information.
- **Findings from the Online Questionnaire**, summarizing the quantitative data collected from participants across the consortium partner countries, highlighting common trends, challenges, and needs identified.
- **Focus Group Discussions and Interviews**, conducted in each partner country, offering deeper qualitative insights and perspectives that complement the survey results.
- **Main Conclusions**, which synthesize the main findings from all sections and provide key takeaways and recommendations for future actions and project development.

This report will be the base for the next deliverables, 2.3 and 2.4, which include the GEOJO course syllabus creation.

Desk Research

The desk research (DR) aims to map existing policies, initiatives, and studies relevant to geojournalism. Its purpose is to help shape the project's focus, justify the core needs of the project, and align it with proven or emerging best practices. To achieve this, we developed a DR framework structured into the following three parts:

Part 1: Environmental and Geospatial Journalism in general in the country:

1. How is Environmental and Geospatial Journalism perceived in your country of study?
2. Who are (potential) stakeholders related to Environmental Journalism? Are there any data/statistics about these stakeholders (or related) in the country?
3. What types of organizations deliver Environmental and Geospatial Journalism courses (besides university)?
4. Is there any support from the public or other parties to promote the acquisition and validation of Environmental and Geospatial Journalism related competences?

Part 2: How Environmental and Geospatial Journalism is covered by University courses

- Are there any specific programs and/or modules on acquiring Environmental and Geospatial related competences in Higher Education?
 - Are those HE institutions public or private
 - Which kind of course (semestral course, specialization, master or undergraduate)? Duration of the courses?
 - Which Faculty/Department?
 - Is Environmental and Geospatial Journalism a whole course, or a part of a course?
- Are there any partnerships with other foreign institutes linked to this topic (e.g. European initiatives, networking with other institutions outside the country)?
- Are there any collaborations between the business sector and HE regarding Environmental and Geospatial Journalism or related areas? Do the media or the donor's community collaborate with HE (designing courses, internships, merit prizes, etc)

Part 3: Environmental and Geospatial Journalism competences and validation

- To what degree are Environmental and Geospatial Journalism competences recognized and validated in the country of study? Which assessment systems exist for these skills/competences?
- How important is the validation of informally acquired competences for educational institutes (HE and VET) on the one hand and enterprises, companies, private and public employers on the other hand in this country?
- Which are the institutes, organizations, involved in working on Validation of Informal and Non-Formal Learning (VINFL) in this country?
- Are Environmental and Geospatial Journalism competences requested by enterprises (e.g. looking at the Job announcement, check if data journalism skills are required for the position)
- Are the enterprises involved in the design of courses in universities or internships (suggestion: check for connections between universities and enterprises)? Or courses provided by enterprises.

Following these guiding questions, each consortium country presented their own DR and an overview at the European level.

Desk Research – Albania

Environmental and Geospatial Journalism in Albania

Environmental and Geospatial Journalism (EGJ) is still a developing field in Albania. While environmental issues are becoming more relevant in public discussions and the media, most reporting is done by general journalists rather than experts in this area. The concept of geospatial journalism—using maps, data, and spatial analysis to tell stories—is even less known among the public and professionals. However, there is growing interest due to increasing awareness about climate change, pollution, and sustainable development.

Key stakeholders include public institutions like the Ministry of Tourism and Environment, media outlets such as Top Channel and RTSH (*Radio Televizioni Shqiptar*), NGOs like EcoAlbania and the Institute for Nature Conservation in Albania (INCA), and international actors like GIZ (The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), UNDP (United Nations Development Program), and EU-funded programs. According to INSTAT (Albanian Institute of Statistics), public concern for environmental issues increased by 20% in the past five years.

Several concrete initiatives have been launched to strengthen environmental and geospatial journalism in the country.

Environmental Journalism Initiatives in Albania

In 2021, Together for Life –TFL, an Albanian NGO, in collaboration with EJNI (Earth Journalism Network), conducted training for 10 journalists from various media outlets. The program focused on reporting biodiversity issues, including field visits to the Vjosa River and Fir of Hotovë-Dangëlli National Park. It culminated in the formation of an informal network, Pro Mjedisit, aimed at enhancing environmental reporting in Albania.

In September 2023, BIRN (Balkan Investigative Reporting Network) Albania organized training sessions in Shkodra and Kukës for civil society organizations and activists. These sessions, part of the “Building Resilience through Environmental Journalism” project, aimed to strengthen cooperation between NGOs, activists, and local journalists to monitor and report on environmental violations.

In November 2023, BIRN Albania published a handbook designed to assist journalists in reporting on environmental and climate change issues. The manual provides insights into Albania’s environmental challenges and offers practical tools for investigative reporting.

EcoAlbania’s MECA (Media and Environmental Cases) project aimed to analyze the media’s role in covering environmental issues and to foster collaboration between media outlets, local communities, and civil society organizations. The project included assessments and reports with recommendations for improved environmental journalism.

Geospatial Journalism and Data Initiatives

Launched in March 2024, the GEO-WB6 project established a Geoinformation Center at the Agricultural University of Tirana. Supported by the German Federal Ministry of Food and Agriculture, the center aims to enhance training and scientific exchange in geodata analysis, including courses on Geographic Information Systems (GIS) and remote sensing technologies.

Despite these promising initiatives, formal and consistent EGJ training remains limited, and broader institutional support at the national level is still minimal, with most advancements driven by NGOs and international donors.

Environmental and Geospatial Journalism in Higher Education (University of Tirana)

At the University of Tirana, Faculty of Economy, there are no full programs dedicated to Environmental and Geospatial Journalism. However, some courses indirectly cover related topics, especially through environmental economics, sustainable development, and basic data analysis.

The university has participated in EU-funded projects such as Erasmus+ and Horizon programs that focus on sustainability, education, and digital competences. These collaborations sometimes involve other European institutions but do not yet focus directly on EG.

Table 1. Environmental and geospatial journalism related Initiatives in Higher Education in Albania

Course Name	Faculty	Type	Duration	EGJ Elements	Public/Private	Link
Environmental Economics	Faculty of Economy	Master of Science in Economics	1 st semester	Environmental policy, sustainability	Public	https://feut.edu.al
Statistics & Data Analysis	Faculty of Economy	Master of Science in Official Statistics	1 st semester	Intro to data literacy, basic geospatial techniques	Public	https://feut.edu.al
Statistics & Data Analysis	Faculty of Economy	MPTIMPB (Professional Master)	1 st semester	Intro to data literacy, basic geospatial techniques	Public	https://feut.edu.al

The university has participated in EU-funded projects such as Erasmus+ and Horizon programs that focus on sustainability, education, and digital competences. These collaborations sometimes involve other European institutions but do not yet focus directly on EGJ.

There are no formal partnerships with companies or media for designing EGJ-specific curricula. However, guest lectures and informal internship opportunities with local media or NGOs occasionally give students exposure to environmental topics in communication.

Environmental and Geospatial Journalism Competences and Validation

In Albania, competences related to Environmental and Geospatial Journalism are not formally recognized or validated by any national education or professional certification systems. Currently, there is no dedicated authority, institution, or mechanism responsible for certifying these skills, whether they have been acquired through formal education, informal learning, or practical, on-the-job experience.

Many of the competences associated with EGJ—such as working with environmental data, interpreting and visualizing information through digital mapping tools (e.g., GIS), developing narrative journalism on environmental issues, and effectively communicating complex findings through visual or interactive media—are typically developed informally. These skills may be acquired by students, journalists, or media professionals independently or through their workplace, but they are not yet integrated into any national qualifications framework or officially recognized certification pathways.

A review of the Albanian job market offers some insight into the current demand for such competences. An analysis of 40 recent job postings in the field of media and communication on popular Albanian employment platforms such as *Duapune* and *The HeadHunter Albania* showed that only 3 listings mentioned competences related to environmental journalism, data journalism, or digital mapping. This suggests that while demand is still limited, there are early signs of interest in EGJ-related skills within the labor market, particularly as environmental issues gain more public and media attention.

Currently, there is no structured collaboration between universities and the private or public sectors to design or implement specialized EGJ courses. While some internships or isolated projects might touch on environmental or geospatial topics, these remain sporadic and are not part of a broader or systematic approach to promoting EGJ competences through education or training. Companies, media outlets, and institutions have not yet played an active role in co-developing EGJ curricula or in contributing to a national framework that validates such emerging skillsets.

This gap in recognition and validation highlights the need for future initiatives aimed at formalizing these competences, possibly through university curricula updates, vocational training programs, or the establishment of certification mechanisms that aligns with international standards in environmental and data journalism.

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Desk Research – Greece

Introduction

In the last 50 years, awareness of human impact on our planet has grown to such an extent that environmental debates now have a permanent place in public discourse. For the public to educate themselves on the environment, and for decision makers to make informed policy choices, the media must provide them with timely and accurate information.

Environmental and Geospatial Journalism is inherently political. Environment-related events can often be related to policymaking. Reporting

on the environment must therefore include and interpret politically driven perspectives on environmental issues. As we will see as this text progresses, this means Environmental and Geospatial Journalism is often divided by an advocacy/neutrality debate.

Environmental and Geospatial Journalism is global as well as local. Environment stories can be as large-scale as global warming; they can be international, for example one country's pollution affecting its neighbour; or they can be entirely local in focus, for example localized conflict over the site of a new water pipe or dam. However, in a globalized world local and global are now rarely separate. Instant global communications networks mean local conflicts quickly become globally recognized and protested. Also, international finance is often involved in local environmental conflicts, for example a multinational mining company proposing a new, highly contested mining project in a foreign country.

Environmental and Geospatial Journalism perception in Greece

Environmental and Geospatial Journalism in Greece is generally perceived as underdeveloped and lacking specialization. According to a study titled "Environmental Journalism in Greece – Coverage, Trends, and Omissions" by Georgia Gioltzidou and Fotini Gioltzidou (2022), affiliated with the Aristotle University of Thessaloniki and the University of Western Macedonia, this field is not fully recognized as a distinct genre of journalism within the country. Environmental topics are typically treated as occasional or secondary issues, rather than as a consistent area of reporting.

There are very few journalists in Greece who are trained or specialized in environmental or geospatial reporting. As a result, media coverage on these subjects is often superficial and lacks scientific depth. Newsrooms tend to prioritize political, economic, and entertainment content, leaving environmental stories with little visibility or editorial importance.

Additionally, there is a prevailing belief that environmental journalism does not generate strong audience interest. This perception further contributes to its marginalization in mainstream media. Journalists who are interested in covering these issues also face practical challenges, such as limited resources, time constraints, and a lack of institutional support. These factors make it difficult for them to produce in-depth and accurate reports on complex environmental or spatial matters.

Despite these challenges, there is growing awareness of the importance of environmental and geospatial journalism in light of pressing

issues like climate change, natural disasters, and urban planning. The field has potential for growth, especially if supported by specialized training programs, dedicated editorial space, and increased efforts to engage the public.

Relevant stakeholders and statistics

One stakeholder related to environmental journalism is Reporters United. Reporters United; it is a Greek non-profit organization founded in 2019 to support independent investigative journalism. Based in Athens, it operates as both a publishing platform and a collaborative network for journalists, emphasizing transparency, cross-border reporting, and editorial independence. The organization avoids funding from governments, large corporations, and the EU to maintain its autonomy. It has been involved in major investigations, including the 2022 Greek surveillance scandal, and collaborates with international media like Investigate Europe. Reporters United publishes stories often overlooked by mainstream outlets, promoting accountability and press freedom in Greece and beyond. More information is available at <http://www.reportersunited.gr/en>. Recent work on Environmental and Geospatial Journalism: <https://www.reportersunited.gr/15653/natura-costa-navarino/>

Another stakeholder related to environmental journalism is The Mediterranean Institute for Investigative Reporting (MIIR); a non-profit organization that was founded in January 2019 with the aim to enhance the genre of journalism that holds those in power accountable and defends public good. At the core of MIIR's philosophy lie the principles and ethics of independent, speaking-truth-to-power journalism. Transparency, co-operation, interaction and an approach of constant education both of journalists and the public, are fundamental elements of the organization. More information is available at: <https://miir.gr/en/>. Recent work on Environmental and Geospatial Journalism: <https://miir.gr/otan-vrechei-akoma-fovamai-oti-to-potami-tha-mas-ta-parei-ola/>; <https://miir.gr/longreads/flood-in-europe-gr.html>

With regards to statistics, the "Greek Data" plugin for QGIS offers users streamlined access to a centralized catalog of open geospatial datasets from official Greek government agencies and institutions. Developed by Efstathios Lymperis, a geoscientist and geospatial software engineer, the plugin enables users to search for and directly load layers into QGIS via WFS (Web Feature Service). The latest version, 2.0.2, features a redesigned interface and introduces a local caching system that stores fetched layers in a settings.json file, updating them every seven days to ensure data freshness. This enhancement improves performance and usability, making it an essential tool

for GIS professionals working with Greek spatial data (<https://plugins.qgis.org/plugins/grdata/>).

Environmental and Geospatial Journalism outside universities

In Greece, besides universities, Environmental and Geospatial Journalism courses or related training are also delivered by a mix of other organizations, including research institutes, NGOs, professional journalism networks, and media initiatives. Some examples are:

The Institute for Regional Press (<https://www.rpi.gr>) co-organizes the “Summer School of Environmental Journalism” in collaboration with the Aristotle University of Thessaloniki. This long-running program (over 13 years) blends academic training with professional practice and attracts both students and journalists.

Reporters United although not a formal educational institution, promotes data-driven and in-depth reporting on social and environmental issues. It collaborates with

- international organizations and sometimes offers workshops or mentorship, supporting journalistic capacity-building in Greece.
- Media and digital literacy labs, like the “NeMeCu Lab” (New Media, Communication and Culture Lab) of the Ionian University, engage in European-funded projects and seminars that occasionally involve environmental communication and digital storytelling with geospatial or data components.

These non-university institutions contribute to journalism education by offering professional training, technical skill development, and networking opportunities for both students and working journalists.

Environmental and Geospatial Journalism in University courses

In Greece, several university-level programs focus on data journalism and communication, although very few directly address environmental or geospatial journalism. A summary of these courses is shown in Table 2.

Table 2. : Environmental and geospatial journalism related Initiatives in Higher Education in Greece

University	Course Name	Area Covered
Panteion University	Journalism Workshop XII: Artificial Intelligence and Data in Journalism	Data Journalism, AI in Media
National and Kapodistrian University of Athens (EKPA)	Human-Centered Design of News Websites	Data Journalism, UX, Programming (Python)

University	Course Name	Area Covered
EKPA	Data Journalism (Postgraduate)	Data Collection, APIs, Visualization
Aristotle University of Thessaloniki	Data and Participatory Journalism (Postgraduate)	Data Journalism, Citizen Engagement
Aristotle University of Thessaloniki	Environmental Journalism (Undergraduate)	Environmental Journalism
Aristotle University of Thessaloniki	Summer School in Environmental Journalism	Environmental Journalism (Intensive Program)
Ionian University	Data Analysis and Communication I & II	Data Science, Journalism, Marketing
Ionian University	Data Journalism	Data Journalism, Legal Frameworks, Storytelling
Ionian University	Environmental Communication	Environmental Journalism, Media Representation
EKPA	Postgraduate in Geographic Information Systems (GIS)	Geospatial Analysis, Programming, Visualization
University of the Aegean	Remote Sensing and GIS Laboratory	Environmental GIS, Remote Sensing
Harokopio University	Geoinformatics and Cartography Laboratory	GIS, Cartography, Spatial Statistics

Data Journalism programs

Panteion University offers an undergraduate course titled “Journalism Workshop XII: Artificial Intelligence and Data in Journalism”, which introduces students to the intersection of AI, big data, and journalism. The course explores how technologies like transcription services and recommendation engines influence journalism. Students learn to understand and critically assess both the benefits and risks (e.g., misinformation) of using these technologies in the media.

National and Kapodistrian University of Athens provides both undergraduate and postgraduate courses in data-driven journalism. One course focuses on “Human-Centered Design of News Websites”, emphasizing usability, intelligent interaction, and automatic content recommendations based on user behavior. Students also learn programming (Python), data cleaning, interaction with APIs, and visualization using real-world journalism data sets.

Aristotle University of Thessaloniki offers a postgraduate course on “Data and Participatory Journalism”, addressing the skills needed to access, analyze, and visualize digital data for journalistic storytelling. It promotes the integration of citizen participation in the news process.

Ionian University features multiple undergraduate courses such as “Data Analysis and Communication I & II”, and “Data Journalism”. These courses prepare students for careers in journalism, marketing, and communication with a strong emphasis on algorithmic and computational methods. Topics include big data extraction from web sources, sentiment analysis, database creation, and visualization. The courses provide hands-on skills in programming (Python), statistics, HTML, SQL, and tools like Jupyter Notebooks, BeautifulSoup, and GitHub. The course *Data Journalism* introduces students to data-driven storytelling in the context of contemporary media transformations and digital environments, covering data sourcing, analysis, legal frameworks, and content publication.

Environmental Journalism programs

Aristotle University of Thessaloniki offers an undergraduate course specifically on “Environmental Journalism”. The course covers essential tools for environmental reporting, exploring the relationships between media, political elites, environmental organizations, and the environmental movement. It also includes a “Summer School in Environmental Journalism”, organized in collaboration with the Institute of Regional Press, with over 13 years of activity. Another initiative, “Media Watchers & Climate”, is mentioned, although further information is not provided.

Ionian University provides an undergraduate course in “Environmental Communication”, which studies how environmental issues are represented and communicated in the media. It emphasizes the role of journalism in environmental awareness, institutional communication, and the use of multimedia to raise awareness of ecological challenges.

Geospatial programs

There are specialized programs and laboratories in geospatial sciences and Geographic Information Systems (GIS), though none are directly linked to journalism.

The *National and Kapodistrian University of Athens* offers a postgraduate program in “Geographic Information Systems”, focusing on spatial data management, programming, and visualization. It aims to equip students with technical skills for spatial analysis and database management.

At the *University of the Aegean*, the “Remote Sensing and GIS Laboratory” supports environmental studies through the use of geospatial

technologies. The lab promotes interdisciplinary collaboration and offers research opportunities in environmental GIS applications.

Harokopio University hosts a “Geoinformatics and Cartography Laboratory” within its Geography Department. This lab supports teaching, research, and community outreach in GIS, remote sensing, spatial statistics, and cartography, offering training and lifelong learning programs.

An additional note highlights the success of a recent “ArcGIS Users Meeting” held in Greece and Cyprus, showing growing community interest in GIS technologies. While data journalism is increasingly well-represented in Greek academia, especially in relation to AI and big data, explicit connections between journalism and geospatial analysis or environmental issues remain limited and fragmented across institutions. A few programs do tackle environmental communication, but without a strong integration of data or geospatial tools.

Environmental and Geospatial Journalism competences and validation

Environmental and Geospatial Journalism competences are still emerging in Greece and are not widely or formally recognized. There are no standardized assessment systems specifically for these skills, though they may be informally assessed in journalism or environmental programs.

Validation of informally acquired competences is gaining attention in Greece, especially within EU-funded projects. While higher education (HE) and vocational education and training (VET) institutions are starting to value this, enterprises and public employers remain less engaged in formal validation systems.

Key organizations include the “National Organization for the Certification of Qualifications and Vocational Guidance” (EOPPEP - <https://www.eoppep.gr/index.php/el/>), along with universities and institutions involved in Erasmus+ or C-VET projects focusing on lifelong learning and competence recognition.

While not widespread, there is a growing demand for data journalism skills—including environmental and geospatial reporting—especially among NGOs, investigative journalism platforms, and international organizations active in Greece. Job postings sometimes list GIS, open data, or data visualization as desired skills.

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Desk Research – Italy

Environmental and Geospatial Journalism in general in the country – Perception and public awareness

In recent years, environmental journalism in Italy has gained increasing relevance, partly due to the growing frequency and intensity of extreme weather events – such as the floods that have impacted some regions and the drought periods that affected others– which have brought the urgency of the climate crisis into focus; however, the term *geo-journalism* itself is still unfamiliar in institutional or public policy discourse. The *Eco Media Report 2023*¹—produced by the Italian Sustainability and Environment Observatory (OSA) and coordinated by the Pentapolis Institute—offers an in-depth analysis of how environmental and sustainability issues are represented in Italian mainstream media. Drawing on over 4 million daily media entries across print, web, radio, and television, the report reveals that coverage of environmental topics in Italy has grown significantly but remains highly event-driven. The most frequently addressed theme is "crisis," encompassing climate change, pollution, and ecological disasters—especially floods, which dominated headlines in 2023.

Major national media outlets such as *La Repubblica*, *Il Sole 24 Ore*, and *L'Espresso* have responded to this heightened public awareness by developing dedicated sections on sustainability, climate change, and environmental issues. Three independent media outlets are worth mentioning for their specific approach to environmental journalism: Magma², Radar magazine³, and Facta.eu⁴. The first one with a specific approach on how the

¹ Rapporto EcoMedia 2023, <https://www.osa-ecomedia.it/research/>, (accessed on: 29/04/2025)

² Magma, <https://www.magma-mag.net/>, (accessed on: 29/04/2025)

³ Radar magazine, <https://www.radarmagazine.net/>, (accessed on: 29/04/2025)

⁴ FACTA.eu, <https://facta.eu/>, (accessed on: 29/04/2025)

Mediterranean region is being affected by climate change, the second and the latter one focused on science-driven journalism.

However, despite the emergence of some data journalism initiatives focused on the environment, a structured and consistent approach to geospatial journalism is still largely absent⁵. This field – which combines the analysis of territorial and environmental data with advanced cartographic visualization tools – remains underdeveloped within the Italian media landscape.

Stakeholders and ecosystem

Over the past five years, Italy has seen the emergence of a diverse ecosystem of initiatives supporting environmental and geospatial journalism, spanning public institutions, non-profit networks, and industry actors. Public agencies, such as the Ministry of Environment and Energy Security, ISPRA, and ISTAT, have played a key role by providing open environmental data and offering accredited training courses for journalists on topics including air quality, environmental legislation, and statistical storytelling. Some examples of these initiatives are: the “Environmental Journalism Festival and Environmental Communication Pact organized” in 2020⁶; local initiatives organized by the so-called “Regional Environmental Protection Agencies” (Italian acronym: ARPA), like the journalist training course on air quality held in November 2024 by ARPA Lombardia⁷.

Non-profit organizations– including FIMA, *Giornalisti Nell’Erba*, and Greenaccord– have strengthened the professional community through events, awards, and peer learning, while also engaging youth and international reporters in climate storytelling. Meanwhile, media-facing training initiatives like those from the Climate Media Center Italia⁸ and

⁵ Rapporto EcoMedia 2023

⁶ Ministry of Environment and Energy Security’s Press release, <https://www.mase.gov.it/notizie/giornata-mondiale-dell-ambiente-mattm-enea-ispra-e-fima-insieme-novembre-il-festival-del> , (accessed on: 29/04/2025)

⁷ Sistema Nazionale per la protezione dell’ambiente, <https://www.snpambiente.it/snpa/arpa-lombardia/qualita-aria-primo-corso-di-formazione-per-giornalisti-organizzato-dallagenzia/>, (accessed on: 29/04/2025)

⁸ CMC Italia, <https://www.climatemediacenteritalia.it/okclima>, (accessed on: 30/04/2025)

independent projects like *Cittadini Reattivi* offer capacity-building on climate risk communication and investigative environmental reporting.

In parallel, private and industry partners such as Esri Italia, Magma Magazine, and data startups⁹ are contributing technical expertise, mentorship¹⁰, and geospatial tools to help journalists transform environmental data into compelling, map-based narratives. Altogether, this diverse network has enhanced journalists' access to environmental datasets, boosted their technical and analytical skills, and encouraged more accurate, engaging, and data-informed coverage of environmental issues across Italian media.

How Environmental and Geospatial Journalism is covered by University courses

Academic Offer and Course Typology

Journalism education in Italy is primarily delivered through two-year master's programs, offered by both public and private universities. In addition to university courses, there are ten so-called schools of journalism (*Scuole di giornalismo*), two-year training courses recognized by the Italian Association of Journalists, that also include internship periods in editorial offices.

Table 3. Public institutions vs private institutions in Italy

	N° of public institutions	N° of private institutions
University master	7	1
Journalism school	4	4 (+2, two schools are coordinated by consortia comprising both private and public actors)
Total	11	5 (7)

While there is a growing number of programs that include modules in data journalism, both in universities and in schools of journalism, the integration of environmental and geospatial journalism remains limited. Among the few exceptions is the University of Parma¹¹, which offers a dedicated curriculum in environmental communication within its Master's in

⁹ For an overview of Leading Geospatial Companies in Italy, please refer to the list at this link: <https://flypix.ai/blog/geospatial-companies-in-italy/#>, (accessed on: 30/04/2025)

¹⁰ An example is the Magmatic School of Environmental Journalism, <https://www.magma-mag.net/magmatic-school-of-environmental-journalism-2/>, (accessed on: 30/04/2025)

¹¹University of Parma, <https://corsi.unipr.it/it/scheda/cdlm-gce>, (accessed on: 29/04/2025)

Journalism, although it only includes a generic 6-credit course on data journalism with apparently no specific focus on geospatial data. Other institutions, such as La Sapienza University and the University of Bologna, incorporate data journalism courses¹², but often without a focus on environmental topics. A handful of programs, like those at LUISS and LUMSA, provide optional workshops or modules touching on environmental journalism or scientific reporting, yet these are typically brief and not central to the curriculum. Overall, environmental and geospatial journalism tends to appear only as minor components within broader media and communication courses, highlighting a significant gap in academic offerings across the country. However, specific courses on geospatial data management can be found in Computer Science or Data Science courses.

Table 3. Environmental and geospatial journalism related Initiatives in Higher Education in Italy

HE Institution	Programmes	Courses	Website
Università Degli Studi di Parma	Journalism, editorial culture, environmental and multimedia communication	In the Journalism and Environmental Communication curriculum: Web Communication and Data Journalism (30 hours - 6 cfu) Climate Change (30 hours - 6 cfu) Environmental Communication (60 hours - 12 cfu)	https://corsi.unipr.it/cdlm-gce
Università di Roma - La Sapienza	Media, digital communication and journalism	Data journalism (6 cfu, course without a specific focus on environment/geospatial data)	https://corsidilaurea.uniroma1.it/it/corso/2023/32391/home
Università Degli Studi di Cagliari	Journalism and Web Information	Statistical methods for data journalism (6 cfu, course without a specific focus on environment/geospatial data)	https://web.unica.it/unica/it/crs_20_51.page
Alma Mater Studiorum Università di Bologna	Master in Journalism	Data journalism and statistics management (12 hours)	https://master.unibo.it/giornalismo/it
Università Cattolica Sacro Cuore (Milano)	Master's Degree in Print, Broadcast and Multimedia Journalism	Science journalism workshop (8 hours) Data journalism workshop (8 hours)	https://progetti.unicatt.it/progetti-milan-giornalismo-home#content
IULM (Milano)	Master in Journalism	Science journalism workshop	https://masterx.iulm.it/master/
Scuola Walter	Master in	Data journalism and visualization (10 hours)	https://giornalismo.uni

¹²La Sapienza University, <https://corsidilaurea.uniroma1.it/it/corso/2023/32391/home>
<https://master.unibo.it/giornalismo/it>, (accessed on: 29/04/2025)

Tobagi (Milano)	Journalism	Environment and sustainability (4 hours)	mi.it/
LUMSA (Roma)	Master in Journalism	Scientific Journalism (Environment-Medical Science) (12 hours) Data Journalism (10 hours)	https://www.lumsane.ws.it/master-in-giornalismo/
Università LUISS (Roma)	Master in Journalism	Data Journalism course (basic and advanced) Environmental Journalism course	https://giornalismo.luiss.it/
Università di Torino	Master in Journalism	Statistics for Data Journalism (20 hours)	https://mastergiornalisms torino.it/master/
IFG - Urbino	Master in Journalism	Seminar on Data Journalism and focus on maps for reporting data and news	http://ifg.uniurb.it/

Our analysis covered 18 university courses in total, the 10 courses of journalism schools and 8 university courses with a focus on journalism and can be seen in full at this [link](#).

Partnerships with foreign institutes and private sector

In recent years, Italy has played an increasingly active role in international partnerships aimed at advancing environmental and geospatial journalism. Italian universities, NGOs, and media outlets have collaborated across Europe and beyond through EU-funded programs, research networks, and global journalism alliances.

Italy participates in several European initiatives such as the INSPIRE Directive, which promotes standardized access to environmental data via the national Geoportale Nazionale, and the Copernicus Programme, to which Italy contributes satellite data analysis for environmental monitoring. Research centers like the Euro-Mediterranean Center on Climate Change (CMCC) and the Tethys Research Institute have engaged in joint projects on climate data and marine conservation. Notable EU-funded projects include [ENJOI](#) (Horizon 2020), led by the Italian firm Formicablu to improve open science communication, and collaborations such as the Climate-KIC “Polder Roof” Lab, where Italy’s WARREDOC worked with Dutch institutions on climate adaptation through green infrastructure.

In the private and media sectors, Italian actors like RADAR Magazine have co-lead cross-border investigations such as the [Forever Pollution Project](#), mapping PFAS contamination across Europe with data journalism techniques. Italian participation in the European Data Journalism Network ([EDJNet](#)) further strengthens transnational coverage of climate and environmental issues. Meanwhile, international initiatives like Earth Journalism Network’s

Mediterranean Media Initiative have included Italian journalists in cross-border reporting on marine biodiversity and climate justice.

Academic institutions also play a key role. The University of Perugia's WARREDOC center¹³ has developed international geo-journalism experiments and WebGIS platforms with partners in the U.S. and UN networks. Media innovation organizations, such as GEOmedia magazine, act as bridges between Italian and global geospatial communities by sharing tools and promoting best practices in environmental storytelling.

These collaborations—spanning journalism, science, and civic engagement—demonstrate Italy's growing involvement in shaping the European and Mediterranean landscape of geo-journalism and climate communication. They support skills in data literacy, science communication, and spatial storytelling, while amplifying the global relevance of Italian environmental media initiatives.

Environmental and Geospatial Journalism competences and validation

- Recognition and Assessment of Competences

In Italy the recognition and validation of competences related to Environmental and Geospatial Journalism remain fragmented and largely unstructured at the national level. There is currently no formal qualification or standardized assessment system dedicated specifically to Environmental or Geospatial Journalism within the Italian National Qualifications Framework ([ONQ](#)).

Nonetheless, recognition is partially taking place through sectoral initiatives (e.g. accredited journalism courses), continuing professional education, and selected university programs.

A key role in competence validation is played by the *Ordine Nazionale dei Giornalisti* (National Order of Journalists), which oversees the *Formazione Professionale Continua* (FPC) system. Through this, journalists are required to undertake 60 hours of training every three years, and various accredited courses address environmental communication, data visualization, satellite data use in journalism, and climate storytelling. These offerings – such as the “*Comunicazione del Clima*” course ([Ok!Clima project](#) by CMC Italia), the “[Facts Observation](#)” course on satellite data, or training programs embedded in

¹³ WARREDOC center, <https://warredoc-unistrapg.org/en/>, (accessed on: 30/04/2025)

festivals like [Le Parole Giuste](#) – provide certifiable, recognized learning outcomes, even if they are not part of a formal qualification path.

On the side of Validation of Informal and Non-Formal Learning (VINFL), Italy has a national policy framework coordinated by ANPAL (*Agenzia Nazionale Politiche Attive del Lavoro*) and implemented regionally through public and accredited vocational training centers. VINFL is applicable to a wide range of professional competences, especially those linked to employability and lifelong learning, including “communication”, “data management”, and “environmental education”. However, there is currently no VINFL pathway that explicitly targets Environmental or Geospatial Journalism competences.

- Labor Market Relevance and Industry Involvement

In the Italian labor market Environmental and Geospatial Journalism competences are often embedded within broader professional profiles such as data journalists, science communicators, digital content producers, or environmental analysts. While explicit job titles referencing “geo-journalism” are rare, employers across journalism, research, non-profit, and private sectors increasingly request skills such as data analysis, environmental reporting, GIS, and satellite data interpretation.

Job listings in Italy demonstrate growing demand for professionals capable of using geospatial tools and environmental datasets, but GIS roles are in strong demand across sectors like urban planning, disaster response, and environmental consultancy, with 180+ GIS-related job posts regularly listed across platforms such as [Glassdoor](#).

Overall, Environmental and Geospatial Journalism is still a niche market in formal employment terms. Its underlying skills are increasingly in demand, signaling a positive trajectory for their integration into both journalism and broader communication fields in Italy.

Desk Research – Kosovo

Environmental and Geospatial Journalism in the country

Environmental and geospatial journalism in Kosovo remains in its infancy, with only limited recognition and marginal presence within mainstream media. Despite some progress, the field continues to struggle with low visibility and a lack of institutional support. Like elsewhere in the region, Kosovo has witnessed a rapid proliferation of online media—accelerated by

becoming the first country in Europe without a single printed newspaper since 2020. However, this digital growth has not been matched by any meaningful investment in developing journalists with specialized expertise in environmental or geospatial reporting. The absence of dedicated training programs or strategic focus in this area highlights a broader neglect of critical, data-driven journalism in Kosovo's evolving media landscape.

Environmental journalism remains underdeveloped in Kosovo, despite the country's mounting environmental crises such as widespread pollution, unchecked deforestation, and the growing impacts of climate change. While a few scattered initiatives, like those led by the Balkan Investigative Reporting Network (BIRN) and certain EU-funded projects, have attempted to highlight environmental issues by recognizing journalists' efforts, these remain isolated cases rather than a sign of systemic change. Public awareness and engagement with environmental topics are still notably weak, and the role of investigative journalism in uncovering environmental harm or pushing for sustainability is only marginally acknowledged. Environmental reporting continues to be overshadowed by more conventional and politically driven news, reflecting the limited priority given to environmental concerns in the media and public discourse.

Environmental journalism in Kosovo faces challenges such as limited funding, lack of specialized training, and the general need for more investigative reporting on environmental issues. Journalists working in this field often face challenges when trying to cover environmental issues that are sometimes politically sensitive or under-reported.

Geospatial journalism is largely absent from the media landscape in Kosovo and lags even further behind than environmental journalism. Despite its potential to shed light on critical issues like land mismanagement, environmental degradation, and poorly planned urban development, there is little to no systematic use of geospatial data in journalistic reporting. While there are occasional expressions of interest, they have yet to translate into meaningful integration or widespread practice. As a result, important spatial dimensions of pressing issues remain underreported and poorly understood by both journalists and the public.

In 2019, the first awards ceremony recognizing environmental reporting in Kosovo honored three stories, all supported by the Balkan Investigative Reporting Network (BIRN). Additionally, in 2020, an EU-funded project announced winners of the best environmental journalism in Kosovo, highlighting the importance of such reporting in the region. Furthermore, the

Green Journalism Competition, organized by GIZ Kosovo, encourages journalists to submit their best work on climate change, biodiversity, and sustainable development, underscoring the value placed on environmental journalism in Kosovo. [link](#)

The community of actors and stakeholders includes international donors such as: public institution: Kosovo Environment Protection Agency, donors community: GIZ The Deutsche Gesellschaft für Internationale Zusammenarbeit Kosovo, UNDP, Luxemburg Development Agency, The Swedish International Development Cooperation Agency, Helvetas, and national NGO's and think-tanks such as Kosovo Civil Society Foundation, Balkan Green Foundation (strong focus on advocating for solutions that promotes development policies), Institute for Development Policy (sustainable development program), Kosovo Democratic Institute with a project "Promoting Green Community Activism in Kosovo".

Lately, some civil society activists have launched a voluntarily based social media page, "Atlas Institute", aiming to promote the initiatives and raise awareness on pollution [link](#)

"BB Green Kosova" is another platform led by Behare Bajraktari, a radio prominent journalist in the public broadcaster RTK, contributing on tools and technologies designed to make lifestyles more sustainable and for the benefit of social change. [link](#)

No actors are providing any Environmental and Geospatial Journalism courses, neither is the business community involved in supporting any informal trainings or education programs related to that.

Environmental and Geospatial journalism is covered by university courses

Below is the table of universities offering study programs in Bachelor and Master related to Environment and Geospatial.

Table 4: Environmental and geospatial journalism related Initiatives in Higher Education in Kosovo

University	Study program	Level	Courses related to EGS
University of Prishtina	Ecology and environmental protection	Bsc	Water pollution and management; Adaptive ecosystem management; Application of GIS in Ecology; Human ecology and the environment; Ecology of polluted environments; Bioenergy Sources, Systems and Environmental Effects; Analyzing ecological and environmental data

University of Prishtina	Ecology and environmental protection	Msc	Revitalization of degraded ecosystems; Natural resources and their management; Ecogenetics; Land protection and management; Revitalization of degraded ecosystems
University of Prishtina	Environmental Engineering	Bsc	GIS in the environment; Environmental data analysis; Engineering geology; Environmental data analysis
UBT College	Agriculture and Environments	Msc	AI in Agriculture and Environment; Principles for climate change; Sustainable water management

How Environmental and Geospatial journalism is competences validation

There is no evidence of any collaborations between the business sector and HE regarding Environmental and Geospatial Journalism or related areas. A review of major job portals such as www.portalpune.com and kosovajob.com reveals a concerning lack of job postings related to environmental or geospatial data roles.

The private sector shows minimal recognition of the value of information, data, and analytics in these areas. Environmental and geospatial data are largely ignored, with data analytics narrowly confined to financial forecasting or market trend observation. This limited approach reflects a short-sighted view that fails to see data as a strategic asset for business planning, development, and long-term sustainability. As a result, the industry misses critical opportunities to innovate and adapt in the face of environmental and spatial challenges.

The National Qualification Authority and the Kosovo Agency for Accreditation are two key institutions in the education system, particularly in the context of quality assurance, standardization and accreditation.

The NQA is responsible for developing, implementing, and maintaining the National Qualifications Framework (NQF). It ensures that qualifications in Kosovo are recognized, comparable, and meet national and international standards. The KAA is responsible for the accreditation and quality assurance of higher education institutions and programs in Kosovo for level VI and VII (BA and MA).

Kosovo actively collaborates with various European and international institutions on environmental and geospatial initiatives. These partnerships aim to enhance environmental protection, sustainable development, and geospatial data management.

The EU Twinning Project with the Kosovo Environmental Protection Agency (KEPA) is engaged in an EU-funded Twinning project titled "Support to the Environmental Sector in Kosovo." Implemented in collaboration with the Environment Agency Austria, the Finnish Meteorological Institute, and Latvia's Environmental, Geology and Meteorology Centre, the project focuses on: Enhancing air and water quality monitoring, developing modern environmental data management systems, and strengthening KEPA's capacity to meet European Environment Agency reporting requirements. [link](#)

The EU4Green Project supports Kosovo's "Strategy for Environmental Protection and Sustainable Development 2022–2031, which ensures alignment with the European Green Deal and the Western Balkan Green Agenda by analyzing the draft strategy for compliance with EU directives, estimating financial requirements for implementation and refining the strategy and its Action Plan with concrete measures for the immediate three-year period. [link](#)

The European Centre for Minority Issues (ECMI) Kosovo, in partnership with FORS Montenegro, launched the "Cross-Border Green Deal" in May 2023. Funded by the EU, the project aims to Improve solid waste management and control air pollution in the cross-border region and enhance cooperation between environmental stakeholders from Montenegro and Kosovo.

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- Kosovo Democratic Institute: <https://www.kdi-green.org/Page/projects>
- Institute for Development Policy: www.indep.info
- Balkan Green Foundation: <https://www.balkangreenfoundation.org/en-us/publications/>
- Prishtina Insight, 03/12/2009: <https://prishtinainsight.com/birn-supported-stories-sweep-awards-ceremony/>
- Atlas Institute: <https://www.facebook.com/institute.atlas/>

Desk Research – Portugal

Environmental and Geospatial Journalism in general in Portugal

- How is Environmental and Geospatial Journalism perceived.

In Portugal, the term environmental journalism first started to be heard in the 70s. This term wasn't immediately used or wasn't interesting to academia. Only in the 80s did we start to see more publications related to environmental journalism¹⁴(Barros & Sousa, 2010). Currently, there are a few environmental reporting and journalism outlets. Some of these outlets are environmental institutions and NGOs that took the initiative, for example, we have the LPN, "*Liga para a Proteção da Natureza*" (the league for nature protection in Portugal), that has created an event dedicated to environmental journalism, with a headline about saving the threatened environmental journalism in Portugal ("*Salvar o ameaçado Jornalismo de Ambiente da extinção em Portugal*", 2023)¹⁵. This event consisted of a whole week of discussion about the following:

"O jornalismo de ambiente desempenha um papel fundamental na sensibilização, desenvolvimento e enraizamento de atitudes e comportamentos, e na transformação do discurso e ações do público face às questões ambientais.

No entanto, em Portugal, o jornalismo de ambiente pode ser classificado como espécie ameaçada, empurrado frequentemente para um estatuto de quase-extinto pelos media e, conseqüentemente pela sociedade. Muito embora ainda resistam valiosos jornalistas especializados nos domínios do ambiente, a extinção profissional e social verifica-se frequentemente a nível regional, e o grau de ameaça é pouco menor nos órgãos com alcance nacional. Os resultados deste cenário são um dos principais motivos por detrás do afastamento transversal da população portuguesa perante a degradação do património natural e das organizações que lhe fazem frente." Source: LPN

>> [Translation into English:](#)

¹⁴

<https://run.unl.pt/bitstream/10362/7599/1/Projecto%20mestrado%20Jornalismo%20de%20Ambiente%20Ioli%20Campos.pdf>, accessed 04/04/2025

¹⁵<https://www.lpn.pt/pt/noticias/salvar-o-ameacado-jornalismo-de-ambiente-da-extincao-em-portugal>, accessed 04/04/2025

“Environmental journalism plays a fundamental role in raising awareness, fostering the development and reinforcement of attitudes and behaviours, and transforming public discourse and actions regarding environmental issues.

However, in Portugal, environmental journalism can be considered an endangered species, often pushed to a near-extinct status by the media and, consequently, by society. While there are still valuable journalists specializing in environmental matters, professional and social extinction is frequently observed at the regional level, with only a slightly lower degree of threat in national media outlets. The consequences of this scenario are one of the main reasons behind the widespread disengagement of the Portuguese population from the degradation of natural heritage and the organizations that strive to protect it.”

However, in Portugal, environmental journalism can be considered an endangered species, often pushed to a near-extinct status by the media and, consequently, by society. While there are still valuable journalists specializing in environmental matters, professional and social extinction is frequently observed at the regional level, with only a slightly lower degree of threat in national media outlets. The consequences of this scenario are one of the main reasons behind the widespread disengagement of the Portuguese population from the degradation of natural heritage and the organizations that strive to protect it.”

In Portugal, some news outlets already have some departments that work exclusively with environmental topics. For example, in “Público”, one of the most famous and credible news sources in the country, they have a division called “Azul”¹⁶ (which means Blue), that conveys only news about the environment, climate, sustainability, biodiversity, and so on.

In Portugal, we also have a few other initiatives related to environmental journalism. “Climate Change for Journalists Workshop”, organized by EEA Grants Portugal, this workshop provided journalists from Portugal and Norway with training on climate science, politics, and related topics. The program included hands-on activities and discussions aimed at enhancing journalists' understanding of climate change issues¹⁷.

¹⁶ <https://www.publico.pt/azul>, accessed 08/04/2025

¹⁷ <https://www.eeagrants.gov.pt/en/programmes/bilateral-relations/initiatives/initiatives/climate-change-for-journalists-workshop-covering-climate-change-for-journalists/>, accessed 11/04/2025

Although environmental journalism exists in newsrooms, the term Geojournalism isn't known or applied. The connection between GIS/Geospatial data and environmental journalism appears to be unknown.

Who are the potential stakeholders?

Key stakeholders in environmental journalism in Portugal may include:

- Non-Governmental Organisations (NGOs): Such as environmental associations focusing on nature conservation, are key to providing reliable information and data, and reach a wider audience through compelling stories;
 - Research Institutions connected to the geographical field, geospatial data and more, can be essential stakeholders to connect science and journalism;
- Media Organizations: Editorial leaders and journalists committed to improving climate change coverage across Europe, including Portugal. For Example, as relayed in the Medium [article](#)¹⁸.

No specific data or statistics about these stakeholders were found, but while searching for this report, these stakeholders were predominant in projects and other research articles.

Types of organizations that can deliver Environmental and Geospatial Journalism courses (besides HEIs)

CENJOR – Centro Protocolar de Formação Profissional para Jornalistas¹⁹ – CENJOR is a public institution dedicated to the professional training of journalists and media professionals. It offers various courses, including those focusing on digital tools and geospatial topics. For instance, they have provided [training](#)²⁰ on SEO and GEO, which encompasses using AI techniques relevant to journalism. None of the courses provided are related to GIS, geospatial data or environmental issues.

DIVERGENTE – Digital Magazine of Narrative Journalism²¹ – is a nonprofit digital magazine specializing in narrative and investigative journalism. While not a formal training institution, DIVERGENTE collaborates with universities and NGOs to support journalism education, particularly in underrepresented areas such as environmental issues. They have partnered with institutions like ISCTE-

¹⁸ <https://thewholestory.solutionsjournalism.org/european-media-leaders-commit-to-change-their-approach-to-climate-coverage-6d4d5579826d>, accessed 11/04/2025

¹⁹ <https://www.cenjor.pt/>, accessed 30/04/2025

²⁰ <https://www.cenjor.pt/multimedia/seo-para-jornalistas/>, accessed 30/04/2025

²¹ <https://divergente.pt/en/>, accessed 30/04/2025

IUL and the Centre for Social Studies of Coimbra University to promote journalistic practices that delve into complex themes. For example, DIVERGENTE created a documentary about global warming²² and other similar topics.

ZERO – Associação Sistema Terrestre Sustentável²³ – ZERO is a national environmental NGO focused on promoting sustainability through policy advocacy and public engagement. Although primarily an advocacy organisation, ZERO engages in educational activities, including workshops and events that intersect with environmental journalism. Their initiatives aim to raise awareness and disseminate information on environmental issues, which can be valuable for journalists covering these topics. This NGO created engaging investigative stories to inform the public about environmental issues.

Environmental and Geospatial Journalism in Universities

Several higher education institutions in Portugal offer programs that incorporate environmental and geospatial competencies, particularly within the field of Geographic Information Systems (GIS), data science, and geospatial technologies. While there isn't a standard-alone degree titled "Environmental and Geospatial Journalism," relevant skills are integrated into broader programs.

Table 5. Environmental and geospatial journalism related Initiatives in Higher Education in Portugal

HEI	Public/ Private	Faculty/ Department	Course	Type of course	Website	Description
Universidade Lusófona	Private	School of Communication, Arts and Information Technologies (ECATI)	Bachelor's in Communication and Journalism – 3 years	Undergraduate Degree	Page	The program includes courses such as "Digital Image Computing," "Multimedia Computing and Interactivity," and "Scientific Journalism."
Universidade do Porto	Public	Faculty of Arts (FLUP)	Bachelor's in Communication Sciences – 3 years	Undergraduate Degree	Page	The program focuses on journalism and communication, with a study plan founded on theoretical knowledge of

²²<https://divergente.pt/en/ze-wants-to-know-why/>, accessed 30/04/2025

²³<https://zero.org/>, accessed 30/04/2025

						communication as well as a strong practical component in modern television and radio studios and online multimedia laboratories.
Universidade do Porto	Public	Faculty of Arts (FLUP)	Masters Degree in Geographical Information Systems and Spatial Planning – 2 years	Masters Degree	Page	The program focuses on GIS only, but GIS is a transversal to every sector. Students from every Bsc degree in FLUP can apply to this Masters.

We could describe several courses and programmes, but in Portuguese Journalism HEI programmes, it is uncommon to have GIS/Geospatial data-related courses/curricular units. We are starting to have more topics related to data analysis, data journalism in journalism courses, but it still lacks the geospatial component (See table 6 below).

Table 6. Data journalism related Initiatives in Higher Education in Portugal

HEI	Public/ Private	Faculty/ Department	Course	Type of course	Website	Description
University of Beira Interior (UBI)	Public	Faculty of Arts and Letters	Bachelor's in Journalism and Data Analysis	Undergraduate Degree	Page	UBI offers a bachelor's program that combines traditional journalism education with data analysis skills.
Instituto Politécnico de Lisboa (Polytechnic Institute of Lisbon)	Public	Escola Superior de Comunicação Social (ESCS)	MOOC: Introduction to Data Journalism	MOOC	Page	ESCS offers an online course introducing the fundamentals of data journalism. The MOOC covers topics such as data sourcing, analysis, and visualization, providing a flexible learning opportunity for those interested in the field.

These are a few examples of courses available in Portugal. As said before, journalism programmes in general still lack a real connection with geospatial and environmental topics.

Partnerships linked to this topic

The most notable initiatives are related to European-funded projects, like the GEOJO Project. To highlight a few:

- **Climate Journalism Goes to the University** – *Escola Superior de Comunicação Social* (ESCS) – This cross-border project, funded by EEA Grants, is a collaboration between ESCS (part of the Polytechnic Institute of Lisbon) and Oslo Metropolitan University in Norway. It aims to promote and facilitate the mobility of journalism students and professors, focusing on climate journalism education and fostering cooperation between universities and media organisations²⁴.
- **Journalism and Science Alliance** – *Universidade Nova de Lisboa* (UNL) – UNL, in collaboration with the European Journalism Centre, secured a €2.7 million grant from the EU's Creative Europe program to support science-based research journalism projects. The initiative encourages collaboration between journalists and scientists to produce investigative journalism enriched by scientific research²⁵.
- **NEWSREEL Project and NEWSREEL 2** – *ISCTE-Instituto Universitário de Lisboa* – ISCTE-IUL participates in the NEWSREEL project, which aims to improve the skills of the next generation of European journalists. The project focuses on data journalism, collaborative journalism, and addressing ethical challenges in the digital public sphere, involving partners from various European countries²⁶.

Collaborations between the business sector and HE regarding Environmental and Geospatial Journalism

In Portugal, there are several universities that collaborate with the business sector. Although not exactly related to Environmental and Geospatial Journalism. In Portugal, we have few collaborations between NGOs and environmental agencies, like the following:

²⁴<https://www.escs.ipl.pt/en/research/research-projects/line-1> , accessed 30/04/2025

²⁵<https://www.itqb.unl.pt/news/nova-professors-secure-20ac2-7-million-grant-to-support-science-based-research-journalism>, accessed 30/04/2025

²⁶<https://ciencia.iscte-iul.pt/projects/new-skills-for-the-next-generation-of-journalists-/453> and <https://ciencia.iscte-iul.pt/projects/new-teaching-fields-for-the-next-generation-of-journalists/1495> , accessed 30/04/2025

- **CIIMAR Journalism Residency** – The Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) offers journalism residencies funded by the FRONTIERS program of the European Research Council. These residencies allow journalists to develop projects in marine science and environmental studies, providing grants of up to €4,000 per month for 3 to 5 months²⁷.
- **XQ.EUJOY Project** – The XQ.EUJOY project, supported by organisations from Portugal, Italy, and Spain, offers scholarships for journalism students aged 18 to 25 to participate in week-long internships abroad. Participants also complete an online, self-paced data journalism course designed by Datatinja (one of the GEOJO consortium partners)²⁸.

Competencies and validation

- Recognition of competencies

In Portugal, the recognition and validation of Environmental and Geospatial Journalism competencies are emerging areas within the broader frameworks of lifelong learning and vocational education. While specific mechanisms for these niche fields are still developing, several systems and collaborations support the validation of related skills.

Portugal has established systems for the recognition, validation, and certification of competencies (RVCC), primarily through the *Centros Qualifica*. These centers assess and certify skills acquired through formal, non-formal, and informal learning, aligning them with the National Qualifications Framework (NQF). However, as of now, there are no specific RVCC processes exclusively for Environmental and Geospatial Journalism. Instead, competencies in these areas may be recognized under broader categories such as data journalism, environmental sciences, or geospatial analysis²⁹.

At the higher education level, universities award European Credit Transfer and Accumulation System (ECTS) credits³⁰.

²⁷ <https://www.ciimar.up.pt/journalism-residency-at-ciimar/>, accessed 30/04/2025

²⁸ <https://xqeujoyproject.eu/2024/03/20/call-for-an-internship-abroad-in-journalism/>, accessed 30/04/2025

²⁹ <https://www.uil.unesco.org/en/articles/recognition-validation-and-accreditation-portugal>, accessed 30/04/2025

³⁰ <https://education.ec.europa.eu/education-levels/higher-education/inclusive-and-connected-higher-education/european-credit-transfer-and-accumulation-system>, accessed 30/04/2025

Institutes, organizations involved in working on Validation of Informal and Non-Formal Learning (VINFL) in this country?

Several key organizations oversee and implement the validation of informal and non-formal learning in Portugal, but not related to Environmental and Geospatial Journalism :

- *Agência Nacional para a Qualificação e o Ensino Profissional (ANQEP)*: Responsible for coordinating the RVCC system and ensuring its alignment with national qualifications (as mentioned before).
- *Centros Qualifica*: These centers conduct validation processes, assessing individuals' competencies and aligning them with the NQF.
- *Sectoral Councils for Qualification (CSQ)*: Advisory bodies that identify sector-specific training needs and develop corresponding qualification standards.
- *Direção-Geral do Emprego e das Relações de Trabalho (DGERT)*: Certifies training providers, ensuring the quality and relevance of vocational education³¹.

Competences requested by enterprises and their involvement in the design of courses in universities or internships

The demand for competencies in Environmental and Geospatial Journalism is growing in Portugal, driven by the increasing importance of data-driven reporting on environmental issues. Job postings in media organisations and NGOs often seek candidates with skills in data analysis, GIS, and environmental reporting. While specific job titles may not always reference "Environmental and Geospatial Journalism," the required skill sets align closely with these areas.

Portuguese higher education institutions actively collaborate with enterprises to design courses and provide practical experiences, two examples are:

- *NOVA Information Management School (NOVA IMS)*: Partners with companies like NTT DATA and ESRI to integrate real-world applications into their curricula, particularly in data and geospatial analysis³².

³¹<https://www.cedefop.europa.eu/en/tools/validation-non-formal-informal-learning/countries/portugal-2023>, accessed 30/04/2025

³²<https://www.novaims.unl.pt/en/who-we-are/partnerships-with-institutions/>, accessed 30/04/2025

- *Escola Superior de Comunicação Social (ESCS)*: Engages with media organizations to offer internships and practical training in journalism, including data journalism³³.

These collaborations ensure that academic programs remain aligned with industry needs, providing students with relevant skills and experiences.

These collaborations ensure that academic programs remain aligned with industry needs, providing students with relevant skills and experiences.

REFERENCES

Barros, A. T., & Sousa, J. P. (2010). Journalism and environment: the distant proximity between Brazilian and Portuguese studies. *Matrizes*, 4, 233. <https://doi.org/10.11606/issn.1982-8160.v4i1p233-237>

Desk Research – Europe

How is Environmental and Geospatial Journalism perceived?

Environmental and Geospatial Journalism in Europe is gaining increasing recognition and importance, but its visibility and institutional support vary significantly by country, media outlet, and funding context.

Environmental journalism in Europe has become much more central due to the climate crisis, EU climate policies like the **Green Deal**, and rising extreme weather events:

- The **European Science-Media Hub** highlights that the **European Green Deal** is foundational for environmental and climate policy across Europe—and urges journalists to explain complex policy shifts and their human impact³⁴.
- The **European Union** is close to meeting its 2030 climate goals, with emissions down 37% by 2023 and a target of 55% by 2030—illustrating the high public and political stakes for environmental journalism³⁵.

³³<https://www.escs.ipl.pt/en/school/offices/internships-and-career-office>, accessed 30/04/2025

³⁴ European Science-Media Hub, <https://sciencemediahub.eu/2022/06/29/reporting-on-climate-change-a-complex-task-challenges-and-solutions/> accessed 23/07/2025

³⁵ Reuters, <https://www.reuters.com/sustainability/cop/eu-almost-track-reach-2030-climate-goal-2025-05-28/>, accessed 23/07/2025

- UNRIC’s 2024 World Press Freedom commentary frames environmental reporting as essential to "raising awareness about the climate emergency," emphasising the watchdog and explanatory role of journalists³⁶.

Geospatial journalism is more niche but increasingly respected as data-driven storytelling becomes mainstream. Outlets across Europe are investing more in interactive maps, satellite imagery, and data visualisations to explain environmental issues, migration, land use, and urban development. See this example from **La Vanguardia**³⁷, named "[R.I.P. Mare Nostrum](#)", from Spain.

Who are the potential stakeholders

- Key stakeholders in environmental journalism are the same in any country, they may include:
- Non-Governmental Organisations (NGOs): Such as environmental associations focusing on nature conservation, are key to providing reliable information and data, and reach a wider audience through compelling stories;
 - Research Institutions connected to the geographical field, geospatial data and more, can be essential stakeholders to connect science and journalism;
 - Media Organisations: Editorial leaders and journalists committed to improving climate change coverage across Europe.

Types of organisations that can deliver Environmental and Geospatial Journalism courses (besides HEIs)

Here’s a small list of organisations (Table 7) that offer courses for journalists, related to the environment and other fields:

Table 7. Environmental and geospatial journalism and reporting related Initiatives around Europe

Organisation	Type	What They Offer	Website
Journalismfund Europe	NGO/ Foundation, EU-funded	Training, grants, and fieldwork support for climate & geospatial journalism	https://www.journalismfund.eu
European Journalism Centre	Foundation, based in the Netherlands	Training and resources on solutions	https://ejc.net

³⁶ UNRIC, <https://unric.org/en/world-press-freedom-day-2024-journalism-in-the-face-of-the-environmental-crisis/>, accessed 23/07/2025

³⁷ La Vanguardia Stories, <https://stories.lavanguardia.com/>, accessed 24/07/2025

		journalism and climate coverage	
Copernicus C3S/CAMS	EU Agency, European Commission program (via ECMWF)	Satellite data training for journalists and communicators	https://climate.copernicus.eu https://climate.copernicus.eu/training-data-journalists
Earth Journalism Network	Global NGO network with strong European activity	Offers fellowships, workshops, and data training to support science-based environmental and geodata reporting	https://earthjournalism.net

Environmental and Geospatial Journalism in Universities

Here are several specific Higher-Education programs and modules in Europe that focus on acquiring environmental and geospatial-related competences.

Table 8. Environmental and geospatial related Initiatives in Higher Education around Europe

HEI	Country	Course	Type of course	Website	Description
University of Copenhagen	Denmark	MSc in Geography & Geoinformatics	MSc	Link	Offers restricted elective modules relevant to geospatial and environmental journalism, including: Remote Sensing of the Bio-Geosphere, Applied GIS and Geoinformatics for Urban Spatial Analysis, Spatial and Temporal Pattern Analysis, Satellite Image Processing and Analysis in the Big Data Era, Programming, Automation in GIS, Environmental Impact Assessment, Geopolitics of Climate Change, and Human Adaptation to Climate Change.
University of Southampton	UK	GIS for Environmental Management and Consultancy	Module	Link	A 7.5 ECTS module taught at Level 7 (2025/26), introducing how GIS supports environmental management: includes working with DEMs, river networks, forestry and ecological applications, environmental impact assessment, and decision-support use cases.
University of Hohenheim /	Denmark	EnvEuro Master Specialisation	MSc specialisation	Link	A transnational MSc specialisation via the EnvEuro consortium. Offers fundamental

SLU / Copenhagen		tion: Environmental Management			modules in Spatial Data Analysis with GIS (7.5 ECTS) and Geographic Information Systems for environmental and natural science studies (7.5 ECTS)—directly aimed at geospatial competence in environmental contexts.
Nova Information Management School (Lisbon Nova University), Institute for Geoinformatics (University of Münster) and Universitat Jaume I	Portugal, Germany and Spain	Master's of Science in Geospatial Technologies (Erasmus Mundus Program)	MSc	Link	A high-level program focused on GI science, remote sensing, spatial analysis, environmental planning, and storytelling with geographic data—ideal for building geospatial reporting capabilities alongside environmental competence.
UNIGIS Network	Global	Distance-Learning GIS Programs	Postgraduate; MSc; Diplomas	Link	UNIGIS offers Postgraduate Certificates, Diplomas, and Masters in GIS via flexible, modular distance learning across Europe. Key topics include Environmental Impact Analysis, Remote Sensing, Spatial Data, Visualization of Spatial Data, and Geodata Sources—all relevant for environmental journalism and mapping-based storytelling.
University of Tartu	Estonia	MSc in Geoinformatics for Urbanised Society	MSc	Link	A two-year program focusing on spatial data analysis in environmental and urban contexts. Emphasises GIS-based understanding of climate change, urbanisation, mobility, and environmental governance—equipping graduates for spatial data storytelling.

These are a few examples of programs and modules that equip students with tangible geospatial tools (GIS, remote sensing, spatial analysis) and teach how to apply them within environmental contexts—including reporting, mapping, and investigation. Although GIS and geospatial analysis exist at the HEI level, they are not directed to journalist students/professionals. We couldn't locate clearly labeled **environmental journalism MSc programs** in Europe combining journalism with **GIS, remote sensing or geospatial modules** (aside from data journalism electives). Most journalism schools emphasize digital media, data journalism, or science communication, but seldom embed

geospatial-specific modules tied to environmental reporting. We can give a very good example of a Journalism Master's – the **Master's in Journalism, Media & Globalisation (Erasmus Mundus joint degree)** – that has a few of data related topics in its structure: includes a core **Data Journalism** module (15 ECTS) in the second year (in London), which equips students with data handling, visualization, and other data related topics. This joint programme, which involves several European countries, is delivered across universities in **Denmark, Germany, Prague, Amsterdam, and London** ^{38,39}.

No European journalism HEI programs explicitly bundle environmental + geospatial journalism as core modules. Data Journalism courses offer transferable skills and can be a springboard, and non-HEI training and workshops (e.g., Journalismfund's webinars) are currently the only structured routes offering dedicated geospatial and environmental competencies for journalists.

The GEOJO project represents a significant step forward in bridging the gap between geospatial science and journalism education. By introducing a course and applied training modules focused on geospatial data storytelling, the project enhances both the dissemination and practical uptake of geospatial skills within journalistic fields of study across Europe.

³⁸ <https://mundusjournalism.com/the-mundus-journalism-ma-degree/the-mundus-journalism-ma-degree>, accessed 24/07/2025

³⁹ <https://fsv.cuni.cz/en/admissions/masters-degrees/erasmus-mundus-journalism-media-and-globalisation-emj>, accessed 24/07/2025

Online Questionnaire

Results

The **online questionnaire** was conducted across five project countries with the aim of gathering input from a diverse range of professionals and organizations, including university academics, students, experts, media, institutes, think tanks, and grassroots organizations.

The online questionnaire had a total of 159 responses, covering the 5 countries of the GEOJO project consortium. In Figure 1, we can see the distribution of all respondents – 38 for **Albania**, 40 for **Greece**, 18 for **Italy**, 25 for **Kosovo**, and 36 for **Portugal**.

GEOJO Consortium: respondent by country

The number of respondents is fairly evenly distributed among the five countries participating in the consortium, ranging from a minimum of 18 in Italy to a maximum of 40 in Greece.

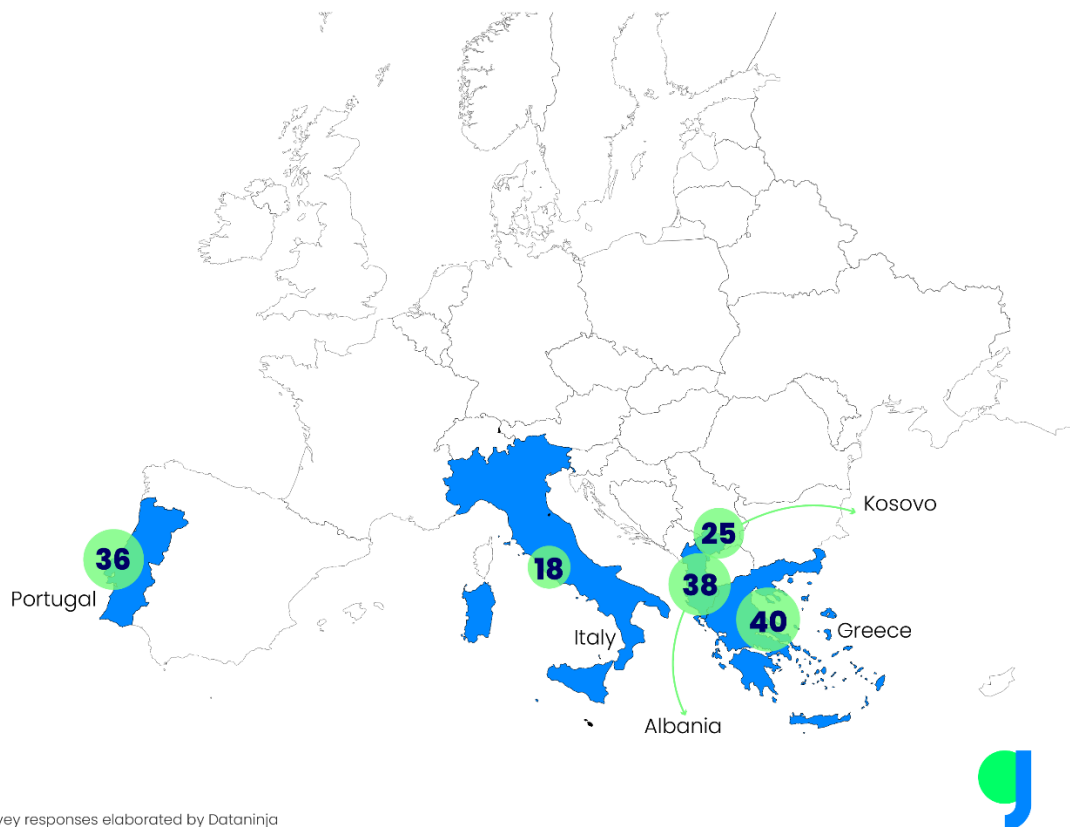


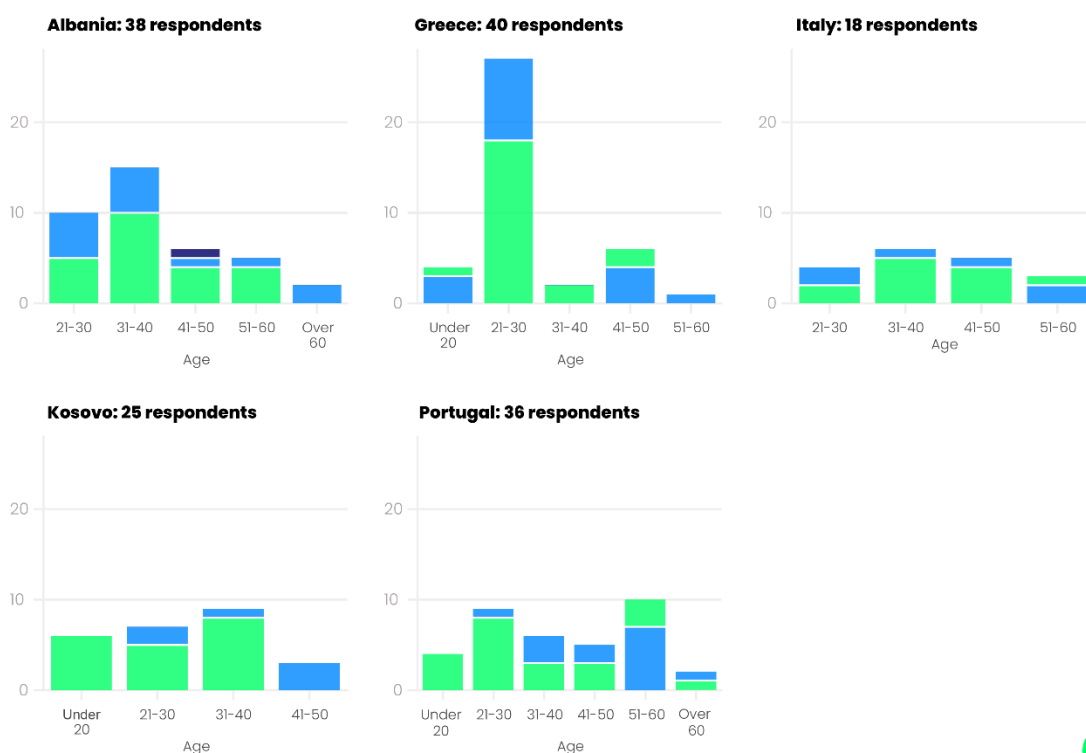
Figure 1. Distribution of the GEOJO online questionnaire respondents across consortium countries.

In terms of demographics, we see that most of the respondents are female (64%) and are between 21 and 30 years old. In Figure 2, below, we can see this especially in Greece and Albania. The remaining countries have a more balanced distribution in gender and age. One curious fact is that respondents above 40 years of age are mainly male, especially in Portugal, Greece, Kosovo, and Italy, where the majority are above 50 years old. This might indicate a big engagement among young females in the field of data in journalism.

GEOJO Consortium: respondent demographics by country

Across all five GEOJO partner countries, 64% of respondents identify as female (101 out of 157 total), and over 61% are between 21 and 40 years old.

Gender: ■ Female ■ Male ■ Prefer not to say



Source: Survey responses elaborated by Datatinja



Figure 2. GEOJO online questionnaire respondents' demographics. Distribution of gender vs age, per country.

Among all respondents, around 62% were from Higher Education Institutions (HEI), the remaining institutions were spread across private companies, Media, NGOs, Freelancers, and so on. We had a very good number of professionals involved in the questionnaire, they spanned from Teachers in HEIs, Researchers, Consultants, Journalists, both freelancers to full-time employees, to other roles related to media and journalism.

The questionnaire had separate questions for students and other professionals. asking for current public understanding of environmental issues aided by geospatial information; *knowledge of Environmental and Geospatial Journalism*; the importance of the collaboration between journalists, geospatial experts, and environmental professionals in producing high-quality reports; using *e-learning or blended learning*; what are the emerging trends in shaping the future of environmental and geospatial journalism; *which competences related to soft skills are considered most important for Environmental and Geospatial journalism?*

When asked about how respondents would rate the current public understanding of environmental issues aided by geospatial information, both students and professionals agree that this understanding is mostly low (Figure 3).

How students and professionals rate the current public understanding of environmental issues aided by geospatial information

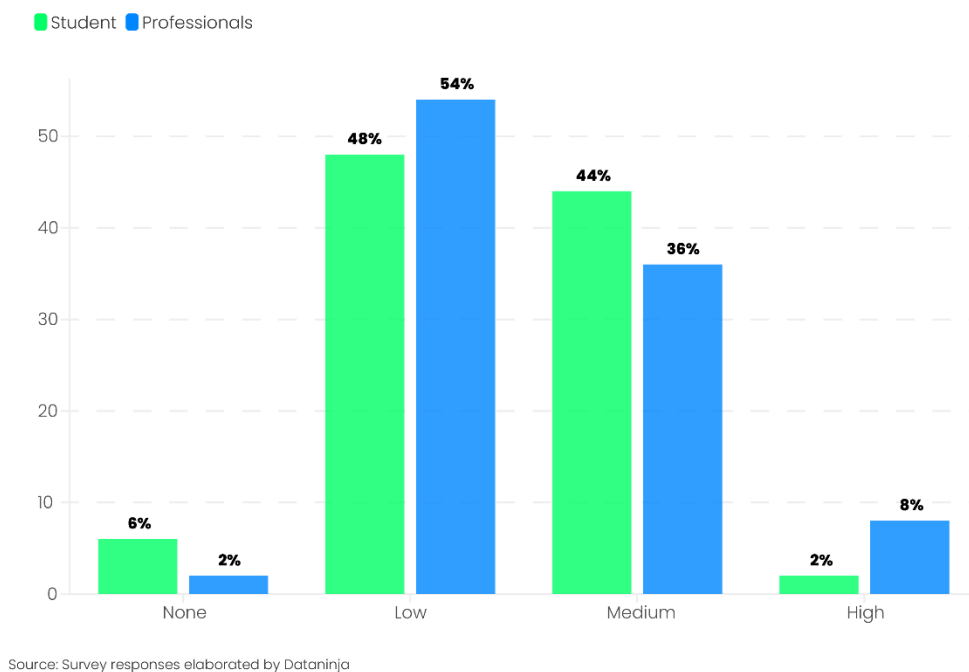


Figure 3. GEOJO online questionnaire respondents' perception of the current public understanding of environmental issues, aided by geospatial information. Comparison between students' vs professionals' perceptions.

126 respondents across the 5 countries of the consortium agree on the importance of collaboration between journalists, geospatial experts, and environmental professionals in producing high-quality reports, considering

extremely important interdisciplinary collaboration. (Figure 4). Both students and professionals see the advantages of this collaboration.

The importance of collaboration between journalists, geospatial experts, and environmental professionals in producing high-quality reports according to students and professionals

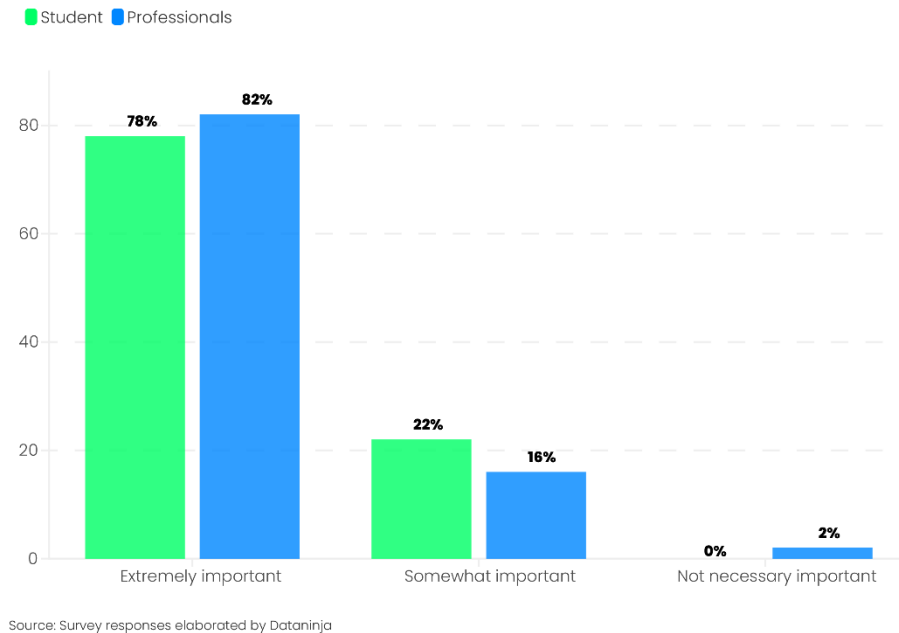


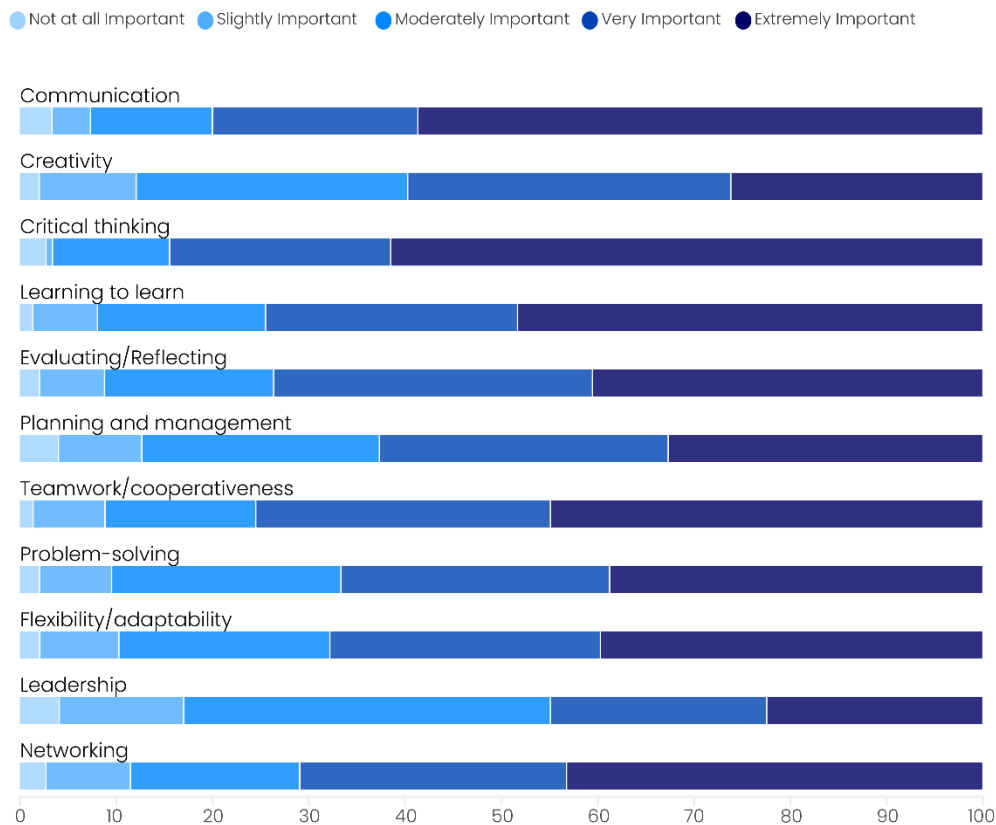
Figure 4. GEOJO online questionnaire responses about the importance of multidisciplinary collaboration for quality reporting. Comparison between students' vs professionals' responses.

In terms of soft skills, we analysed which skills the respondents perceived as most important for environmental and geospatial journalists (Figure 5). Most respondents agree on a few sets of skills, namely:

- Critical thinking
- Communication
- Learning to learn
- Teamwork/cooperativeness

These soft skills seem to be perceived as extremely important, followed by problem-solving and flexibility/adaptability. Although all soft skills are important at different levels, the six skills mentioned seem to generate a consensus among respondents.

Perceived importance of soft skills for environmental and geospatial journalists



Source: Survey responses elaborated by Dataniinja



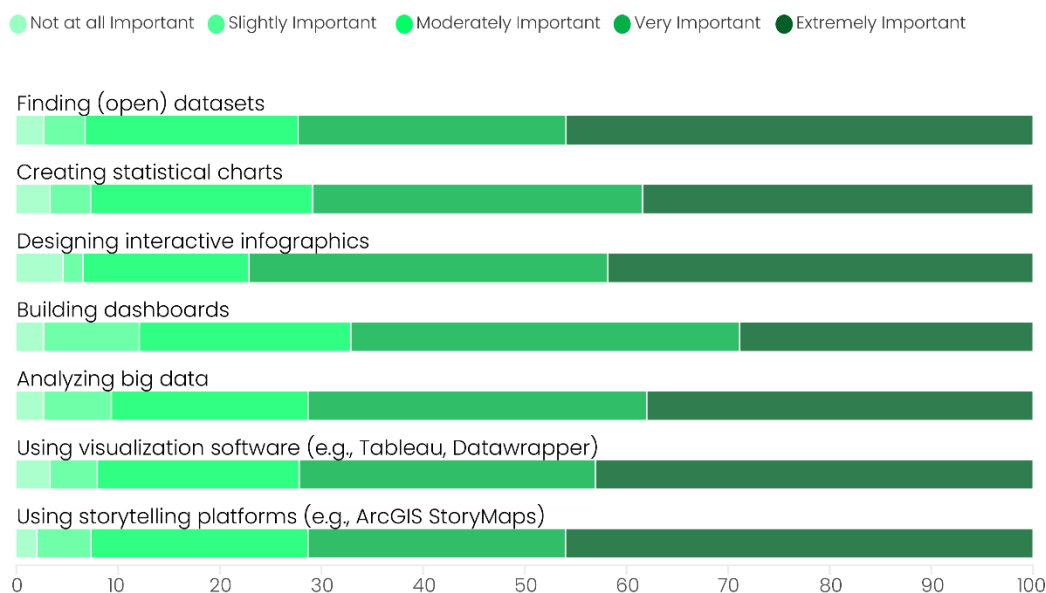
Figure 5. GEOJO online questionnaire responses for the perceived importance of soft skills for environmental and geospatial journalists.

For hard skills, respondents had balanced responses. Like soft skills, all are important at different levels, but some hard skills are perceived as very important to extremely important by respondents (Figure 6). These skills are:

- Designing interactive infographics
- Using visualization software (e.g., Tableau, Datawrapper)
- Using storytelling platforms (e.g., ArcGIS StoryMaps)
- Finding (open) datasets

These are the four main technical skills desired, but the remaining skills don't fall to behind, as shown in figure 6, below.

Perceived importance of hard skills for environmental and geospatial journalists



Source: Survey responses elaborated by Dataniinja



Figure 6. GEOJO online questionnaire responses for the perceived importance of hard skills for environmental and geospatial journalists.

In regard of using digital tools, Videoconference tools are often used; Learning management system often and occasionally, about E-Portfolio most of them don't know about it; Blogs are relatively used; most of them don't know what the MOOCs are; and Online courses/platforms are considerably used. So, we conclude that digital learning is known, but not all described tools are used by the respondents.

When asked, "What emerging trends do you see shaping the future of environmental and geospatial journalism? Could you please share 2-3 links of recent articles that have impressed you?" we obtained some engaging responses. Below, it is possible to see all the responses and the links shared:

- Artificial Intelligence and Machine Learning
- Not sure
- Since I have not been involved in this topic, I do not have what to share.
- <https://mgiss.co.uk/the-future-of-gis-trends-in-geospatial-technology/>
- <https://www.environmentaljournalists.org/the-challenges-and-rewards-of-environmental-journalism/>

AI

I have not so much information

open data / climate and investigative journalisms/ real time climate crisis etc

- <https://atlas.co/blog/gis-for-environmental-journalism/>
- <https://gijn.org/stories/powering-up-geo-journalism-for-investigative-environmental-reporting/>

Use of satellite Albania 1 and Albania 2

- https://www-nrk-no.translate.goog/dokumentar/xl/bindinger_-hogst-og-politikere-som-ikke-ante-hva-de-stemte-pa_-historien-om-inngrepet-pa-viken-park-1.16882702?_x_tr_sl=no&_x_tr_tl=en&_x_tr_hl=en-US&_x_tr_pto=wapp
- <https://www.reportersunited.gr/15653/natura-costa-navarino/>

Just talking about it in general

I believe that some of the emerging trends shaping the future of environmental and geospatial journalism include the extensive use of AI and satellite imagery to track climate change, wildfires, deforestation, and natural disasters in real time. Mapping and geospatial storytelling are becoming essential tools for journalists to engage audiences with data-driven narratives. As weather conditions continue to worsen without significant improvements in human behavior toward the environment, journalists must leverage these tools to highlight the urgency of such issues and drive meaningful action. Links: •

<https://www.reportersunited.gr/15653/natura-costa-navarino/>

- <https://forensic-architecture.org/investigation/gold-mining-and-violence-in-the-amazon-rainforest>
- <https://www.sustainablecyclades.gr/>
- <https://www.nytimes.com/interactive/2025/03/20/climate/clean-energy-solar-wind-sites-space.html>
- <https://forensic-architecture.org/investigation/a-cartography-of-genocide>
- <https://www.bellingcat.com/news/2024/09/27/nagorno-karabakh-satellite-imagery-shows-city-wide-ransacking/>

Save the planet

- <https://gijn.org/stories/powering-up-geo-journalism-for-investigative-environmental-reporting/>
- <https://earthjournalism.net/resources/tipsheet/how-to-use-maps-effectively-in-climate-and-environmental-journalism>
- <https://shorthand.com/the-craft/environmental-journalism-examples/index.html>
- <https://www.aljazeera.com/features/longform/2024/2/27/brazils-fordlandia-tracing-the-roots-of-amazon-deforestation>
- <https://www.aljazeera.com/program/earthrise/>
- <https://wearesolomon.com/mag/format/investigation/tracing-the-path-of-greeces-plastic-waste/>
- <https://www.wsj.com/us-news/same-spot-is-a-small-new-years-morning-blaze-connected-to-the-los-angeles-fire-disaster-e5056038>
- <https://www.theexamination.org/articles/oil-companies-leak-toxic-gas-across-texas-making-local-residents-sick>
- <https://www.theexamination.org/articles/india-lead-battery-pollution-africa>
- <https://amenazaroboto.com/uruguay2100/montevideo>
- https://amenazaroboto.com/de_la_sequia_a_la_inundacion/trabajo_y_cambio_climatico
- <https://amazonminingwatch.org/en#4.37/-63.00/-8.90>, allow me to share an older one:
<https://projects.propublica.org/graphics/wva>

<https://top-channel.tv/2022/10/16/dy-syte-superteknologjike-qe-do-te-monitorojne-shqiperine-rama-poston-foto-nga-satelitet-gati-per-tu-leshuar-ne-hapesire0/>

<https://storymaps.arcgis.com/stories/4faf6d052c8f41b3b9b99c506642bca5>

Topics related to climate change and urbanisation

<https://atlas.co/blog/gis-for-environmental-journalism/>

- https://www.europeandatajournalism.eu/cp_data_news/troubled-waters-the-multiple-impact-of-the-devastating-floods-in-europe/
- <https://correctiv.org/en/europe/2024/10/16/europe-on-fire-how-rising-temperatures-are-threatening-energy-supply/>

I think the real trend will be to maximize our ability to work with analysis and visualization tools so we can extract as much patterns and informations as possible from data sources and use them to ask the important questions and create impactful stories. And to achieve this we need to learn, adapt and work closely with the scientific community.

- <https://www.esri.com/en-us/geospatial-artificial-intelligence/overview#:~:text=AI%20and%20GIS%3A%20Location%20intelligence%20at%20scale&text=Com%20bined%20with%20AI%2C%20it%20delivers,automation%2C%20prediction%2C%20and%20optimization.&text=Geospatial%20AI%20automates%20data%20analysis,unlock%20deeper%20insights%20from%20data>
- https://drone-detection-system.com/?gad_source=1&gclid=CjwKCAjw--K_BhB5EiwAuwYoyg5GXicyC_wHKx-AqDmohrVtKn9y8JLsJE_CLI7rIWl3BxGVnyBMxoClnQQAvD_BwE

One emerging trend is using real-time geospatial data, which helps journalists track things like deforestation and climate change more accurately. Also, new technologies like VR and AR let readers experience environmental issues directly, which can make them more engaged and better understand the problems. The recent articles that have impressed me are: <https://reportfortheworld.org/2024/11/18/geojournalism-uncovering-environmental-exploitation-with-geospatial-data/> and <https://www.magnasoft.com/blog/emerging-trends-in-geospatial-technology-in-2025/>

<https://telegrafi.com/teknologjia-e-re-e-komunikimit-dhe-nderveprimi-faktoreve-strukture-institucional-dhe-socio-ekonomik-ne-etiken-gazetareske-ne-kosove>

Using AI and LLM to identify anything from space and simulation

Emerging trends: Augmented reality, generative AI and 3D and digital twins. A link -->

<https://geoawesome.com/unlocking-the-future-key-trends-in-geospatial-technology-for-2025/>

<https://earthjournalism.net/> ; <https://picterra.ch/blog/uncovering-ground-truth-using-geoai-in-osint-investigative-journalism/>

digital twins, (small) objects detection from imaging

- <https://mgiss.co.uk/the-future-of-gis-trends-in-geospatial-technology/>
- <https://www.magnasoft.com/blog/emerging-trends-in-geospatial-technology-in-2025/>

Emerging trends shaping environmental and geospatial journalism include the use of satellite imagery for real-time climate reporting

AI tools, satellite imagery, and interactive maps are key trends shaping environmental and geospatial journalism.

<https://www.recommon.org/il-video-di-le-monde-sul-caso-total-mozambico/>

"The 2024 Geospatial Trends Report: Geospatial Digital Twins and Their Relevance" – data.europa.eu ;
"Emerging Trends in Geospatial: May 2024" – Element 84

I am not aware

Visual storytelling and dashboard to monitor to show easily and monitor the impact of climate crisis. Eg. The snow and drought observatory in Italy by Il Sole24ore: <https://lab24.ilssole24ore.com/osservatorio-siccita-italia/> , <https://lab24.ilssole24ore.com/impatto-siccita-italia-europa/>

AI

- <https://miir.gr/longreads/flood-in-europe-en.html>
- <https://www.reportersunited.gr/15653/natura-costa-navarino/>

The growth and enhancement of partnerships between journalism and professionals with specialised knowledge as a new routine in the newsrooms, namely researchers and academic analysts. And also the creation of proper institutions that help the journalist work, such as the Geospatial Competence Centre (<https://www.publico.pt/2022/08/02/local/noticia/governo-lanca-centro-acelerar-cadastrro-terrenos-rurais-2015950>). An article to suggest: <https://interaktiv.morgenpost.de/klimawandel-hitze-meeresspiegel-wassermangel-stuerme-unbewohnbar/>

Even though in Italy we are still far behind, I believe that journalists and NGOs communicators are increasingly learning both to use geo-journalism tools independently to carry out investigations and to cover certain topics (such as climate change or deforestation) through maps and interactive graphics based on studies conducted by scientists. Links: <https://infonile.org> - <https://storymaps.arcgis.com/stories/fc6bd62674564744a6349f2a85274a42>

Three things stand out. First, AI is reading the Earth – scanning satellite images for oil spills, tracking forest loss as it happens. The scale is different now. So is the speed. Second, stories have become maps. Interactive, immersive, zoomable. People don't just read – they explore. Third, the tools are opening up. Platforms built by journalists, scientists, and citizens alike. Less gatekeeping. More collaboration. Two projects I keep coming back to: European Waters: It turns dense EU data into something you can see and feel – the health of rivers, lakes, coastlines. It's clean, precise, and surprisingly human. Carbon Brief Attribution Map: A global database linking extreme weather to climate change, with peer-reviewed backing and a calm, relentless clarity.

Climate-change, climate migrations, economic crises related to previous issues; <https://www.ilpost.it/2025/07/24/corte-internazionale-di-giustizia-parere-consultivo-cambiamento-climatico/> ; <https://tg24.sky.it/ambiente/2025/07/24/earth-overshoot-day-2025> ; <https://lac.iom.int/en/blogs/lets-talk-about-climate-migrants-not-climate-refugees>

As expected, AI is one of the top emerging trends commented on by respondents. So, summarising some of the topics mentioned, we can highlight:

AI and machine learning | LLMs | AI Tools

Climate change topics

Interactive maps | Interactive tools

Visual storytelling and dashboards

Open data

Remote sensing | Using satellite imagery

Real-time climate reporting

Real-time geospatial data

Digital twins

Collaboration between journalists and researchers

Also, among all the comments and trends mentioned by respondents, many useful links were shared, from journalistic articles to examples of climate reporting and data usage.

We also asked respondents to add anything related to the topic of the questionnaire that they felt could be helpful for the Geojo project. Here's what they told us:

Ethical concerns for reporting with data

Access to reliable and timely information can be a significant challenge for environmental journalists. They often face obstacles in obtaining data, scientific research, and official reports related to environmental impact assessments, renewable resources, non-renewable resources, ecotourism, sustainable agriculture, and wildlife conservation. Overcoming these challenges requires building networks, developing relationships with experts, and utilizing investigative techniques to uncover crucial information.

Collaboration with experts in the field

Bridging the gap between professional journalist and data sciences and the role of media in skill or topics recognitions

International collaboration

Not finding open data

One of the key challenges in environmental and geospatial journalism is the need for competence recognition in handling complex datasets. Many journalists lack formal training in data analysis, GIS, and remote sensing, making it difficult to accurately interpret and visualize geospatial information. Additionally, the communication gap between journalists, scientists, and data experts can lead to misinterpretations or oversimplifications of critical environmental—and other—issues. The integration of data literacy into journalism education should be a priority.

I think the main issues are the expected ones. Journalists/editors are not perse technical people, meaning they have to depend upon technical people to analyze, simplify and produce news stories and/or journalistic features. This means that either a) journalists need to learn technical tools and methods taking away time from their reporting and people-work, or b) have someone who is more specialized with the technical tools and get them to commit to a journalism job. This is a problem, especially in limited markets, since having a full-time role for this specific purpose requires a good amount of risk from the media owners and the team managers. This leaves journalists the option of learning themselves tools, but many times this is too much to ask, or the journalist themselves quickly understand that it is unsustainable to become super technical or specialized. However, beat reporters on the environment and energy and infrastructure would have tons to gain from seminars, lessons, practical tools, etc. From my experience journalists are open to trying and learning new things.

Difficult to use big data

little formal recognition of geojournalism in educational and academic contexts / The data are usually not available to the public (not in open source format) and primrily need elaboration through the aid of special scientists/ new tools and techniques related to this subgenre of journalism are usually not taught in academic settings

Use of satellite imagery is also considered an asset

In relation to the data use the main challenges are shared metadata and open access for scientific data.

I would say that the recognition of competence in Environmental and Geospatial Journalism is still evolving. As more data is used, journalists face challenges in ensuring it is accessible and understandable to the public. More training and support are needed to handle and present data effectively.

Environmental and Geospatial Journalism is a field where data literacy is essential. Journalists need to be able to understand and interpret complex data sets to accurately report on environmental issues. They also face challenges with data access, verification, and ethical considerations.

A major challenge is the lack of training in data analysis for journalists. Many struggle to interpret complex geospatial data accurately. More support and recognition of these skills are needed.

One of the main challenges professionals face is the gap between data availability and accessibility. While open data sets are abundant, they are often poorly documented, inconsistently formatted, or difficult to interpret without technical training. Journalists also struggle with integrating geospatial tools (like QGIS or satellite data platforms) into daily workflows due to steep learning curves and limited institutional support.

Journalists can't be a 'one man show', but rather someone who researches and writes extremely well and correctly, respecting the rules of the language, and looking for people who have studied the subjects they want to report on for a long time. The challenge is to reinforce the need for non-journalists in newsrooms who bring other views and knowledge and help ensure that the articles published are rigorous.

Portugal currently lacks the infrastructure necessary for robust data journalism. Environmental reporting often depends heavily on press releases rather than in-depth technical analysis. Geospatial journalism is virtually nonexistent; most newsrooms treat satellite imagery as mere illustration instead of using it for investigative purposes. Moreover, the integration of journalism and data science is largely absent, with few examples of collaboration or combined expertise in the country.

Data science/analysis must be taught in journalism nowadays as it facilitate the story telling process

Using the words of our respondents, we asked ChatGPT⁴⁰ to give us an image of what a geojournalist looks like. Here's the result:

⁴⁰ <https://chatgpt.com/>, accessed 14/10/2025



Figure 7. Geojournalist, according to the words of the GEOJO project online questionnaire respondents. Image generated by ChatGPT, 14/10/2025

Will this become a reality? Right now, the reality is this:



Figure 8. Geojournalist, according to the words of the GEOJO project online questionnaire respondents, regarding the current concerns related to the field. Image generated by ChatGPT, 14/10/2025

At least that is the perception of the questionnaire respondents. Notice the look of concern of the geojournalist in the image. What about the trends mentioned by respondents? How would an AI like ChatGPT characterize them? Here's the result (on the right):

AI and machine learning
 LLMs
 AI Tools
 Visual storytelling
 Interactive maps and dashboards
 Interactive tools
 AI
 Open data
 Remote sensing using satellite imagery
 collaboration between journalists and researchers
 Digital twins

Focus Groups and Interviews

The focus groups (FG) and/or interviews were conducted in the consortium countries. Partners were given the choice to organize individual FG for each organization or work together and organize FG within the same country. The main reporting done by all partners consists of the main findings for the focus group or interviews, with a table with the general information of the FG/interviews participants. In total we gathered 4 focus groups and 6 interviews – 4 conducted in Greece and 2 conducted in Portugal –, which will be reported in the following sections.

Findings of FG – Albania

The discussion highlighted a lack of structured programs, training, and awareness regarding EGJ in Albania. Participants stressed the need for more practical, hands-on learning, particularly in digital tools, mapping, and data interpretation.

EGJ was defined as a multidisciplinary practice combining storytelling with accurate, data-supported reporting using GIS and other spatial technologies. Universities have a key role in promoting EGJ through curriculum development, collaboration with external actors (NGOs, media), and experimental formats like summer schools.

What findings were unexpected?

- Despite the field's relevance, there is no formal certification, assessment framework, or national recognition of EGJ competences in Albania.
- EGJ content is included informally in various academic programs (e.g., development, policy), but not systematically or explicitly framed as a competence area.
- Interest in EGJ was high among students and faculty, but existing learning methods were outdated or too theoretical to meet emerging needs.
- Suggestions to connect EGJ to economics and development policy courses.

Please describe the most valuable insights gained from your side during the discussion group.

- There is clear institutional willingness (among faculty and some programs) to innovate and incorporate EGJ into education.
- Collaboration with researchers, NGOs, and media outlets can bridge the gap between academia and practice.
- A bottom-up approach—starting with pilot programs, workshops, and student-driven initiatives—may be the most realistic and effective strategy for developing EGJ in the current environment.
- Digital and geospatial literacy is becoming as important as traditional journalistic skills in environmental reporting.

From what was discussed in the focus group, what are the Knowledge, Skills and Attitudes that are the most important competences and knowledge necessary for Environmental and Geospatial Journalism?

Knowledge:

- Environmental science and sustainability concepts
- Basics of geospatial data and Geographic Information Systems (GIS)
- Understanding of policy, climate change, and development topics

Skills:

- Data analysis and interpretation
- Use of geospatial tools and digital mapping platforms
- Investigative journalism and storytelling
- Collaboration with scientific experts and use of open data

Attitudes:

- Curiosity and openness to interdisciplinary learning
- Ethical responsibility and accuracy in environmental reporting
- Proactive engagement with new technologies and methods
- Commitment to raising public awareness and promoting sustainability

Albania Focus Group Participants – General information

Location / portal of the focus group	In presence: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Location: Department of Journalism, Faculty of History and Philology, UT, Tirana, Albania	Online: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Portal: --
Date of the focus group	March 3 rd , 2025	
Number of participants	16	

Profession/expert fields of participants and organization (add rows as necessary)		Name	Profession / Field expertise	Organization
	1	Prof. Dr. Nevila Baci	Full Professor / Information Systems and Applied Informatics	UT, Faculty of Economy, Department of Statistics and Applied Informatics
	2	Prof. Asoc. Dr Ezmolda Barolli	Associate Professor / Computer Networks and Security, Research Methods and Data Analysis	UT, Faculty of Economy, Department of Statistics and Applied Informatics
	3	Dr. Romina Muka	Researcher, Lecturer / Smart Grid Technology, Information Systems, and Information Security	UT, Faculty of Economy, Department of Statistics and Applied Informatics
	4	Prof. Dr. Mark Marku	Dean / Media History, Semiotics, Media Literacy, Journalism Education	UT, Faculty of History and Philology
	5	Prof. Dr. Iris Luarasi	Head of Department of Journalism / Journalism Ethics and Media Literacy, Investigative Journalism and Media History, Gender Equality and Media Advocacy	UT, Faculty of History and Philology, Department of Journalism
	6	Matilda Balliu	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism
	7	Kristina Korra	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism
	8	Vanesa Salihasi	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism
	9	Maeva Baraliu	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism
10	Hygerta Molla	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of	

				Journalism
11	Sandra Çaçça	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	
12	Flavia Spaho	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	
13	Benada Dalipi	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	
14	Rosita Hoxha	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	
15	Sara Kola	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	
16	Remi Sadiku	Student of Journalism and Communication	UT, Faculty of History and Philology, Department of Journalism	

Findings of Interviews – Greece

The main issues highlighted during the interviews can be grouped into three key ideas: a) the deep inter-disciplinary nature of environmental and geospatial journalism, b) the importance of combination between technical and theoretical skills, and c) the lack of formal educational programs and training opportunities in Greece.

As the specific field is almost non-existent at an educational level in the country, it has been outlined that professionals related to the field come from various educational backgrounds and bring different tools into the table. As it is not possible for a single individual to obtain expertise in all its aspects, an effective collaboration between experts in data analysis, journalism, environmental and geospatial issues is requested. In these cases, it is essential for all team members to be familiar with this combination of tools. This is highlighted as an important aspect to be considered for a potential educational program. For example, it is suggested that journalists may not need to master data software and run the programs directly; however, it is crucial that they comprehend their use and potential applications and ideally hold a basic knowledge of their functions.

Most participants have reported that a combination of technical and theoretical skills is essential. Familiarization with tools such as QGIS, PostGIS, ArcGIS, MapBox, as well as skills related to data journalism and visualization, satellite data analysis and understanding geospatial file formats have been mentioned as fundamental. However, respondents also outline the necessity of environmental literacy, as well as the ability to analyze data considering national contexts (e.g., climate conditions, over-tourism, migration) as equally important in the production of meaningful conclusions.

With regards to the main challenges in the field, all participants report the lack of formal educational programs and training opportunities in Greece. No existing competence frameworks or formal validation systems are reported to be in place. Professionals in the field rely largely on informal training, brief tutorials and on-the-job learning, which is often enabled through the inter-disciplinary collaboration between team members with different expertise. However, it has been mentioned that some organizations offer training opportunities for their employees through their participation in related teaching conferences, including hands-on session on geospatial analysis with focus on environmental reporting (e.g. "Data Harvest" annual conference). Another crucial issue in the field, reported by one participant, is the limited availability and/or accessibility of data sources in Greece, highlighting that even in the cases where data are available, they are not always up to date.

An unexpected finding that came across all interviews was the fact that despite the high level of complexity and inter-disciplinarity of the field of geospatial and environmental journalism, there is an absence of formal competence frameworks, certification systems and structured methods of skills assessment both at a national and European level. At the same time, it has also been reported that because of its assumed complexity, the field is often overlooked and not given enough time and space to be developed by the mainstream media. This may also result to an additional challenge for young journalists aspiring to work in the field – apart from the lack of educational support and training opportunities, participants report a lack of job opportunities and career pathways in Greece's labor market.

One of the most important takeaways was the equal emphasis on technical fluency and theoretical knowledge. Participants stressed that while the use of tools such as QGIS, PostGIS, satellite imagery, and source databases (open or upon request) is essential, it is equally important to have the ability to interpret this data in meaningful ways, and particularly in relation to national environmental contexts. The discussions also highlighted how critical

thinking and ethical awareness must be embedded in every step of the process – from selecting and analyzing data, to visualizing and communicating their findings. This perspective was summarized by one participant who noted that *“Everything constructs a narrative – even just creating a map”*. This recognition stood out as a particularly valuable insight, underscoring the need for not only technical competence but also reflective practice and ethical sensibility in the field.

Throughout the interviews, participants identified a wide set of theoretical knowledge fields, technical skills, and professional attitudes that are crucial for professionals in the field of environmental and geospatial journalism. From a theoretical knowledge perspective, a solid understanding of environmental journalism, as well as the awareness of national environmental contexts (e.g., natural disasters, over-construction in urban areas, tourism, and migration patterns), were seen as fundamental. On the technical aspect, familiarization with tools such as QGIS, PostGIS, ArcGIS, MapBox, and Google Earth, along with skills in data sourcing (open and upon request), satellite data collection, file format management and visualization, were consistently mentioned as essential.

In addition to technical and theoretical competencies, several respondents highlighted the importance of adopting a particular mindset toward collaboration, adaptability, and lifelong learning. Given the interdisciplinary nature of the field, professionals must remain open to learning new skills and working across fields in collaboration with other team members. The attitudes of critical thinking, ethical sensitivity, and the ability to interpret complex data to produce meaningful conclusions in an accessible way were also emphasized as key qualities by the respondents.

Greece Interviews Participants – General information

No	Name/Surname	Profession/Field of expertise	Organization	Place/Date of interview
1	Ioanna Petsiou	Researcher	Freelancer	Panteion University, 21/3/2025
2	Dafni Karavola	Journalist	Reporters United	Panteion University, 26/3/2025
3	Kelly Kiki	Editor/Data Journalist	iMEdD	iMEdD, 28/3/2025
4	Anastasios Karaganis	Associate Professor/Spatial Econometrics	Panteion University	Telephone interview, 24/4/2025

Findings of FG – Italy

The discussion during the FG focused on two main areas:

- the essential competences for environmental & geospatial journalism
- challenges in environmental & geospatial journalism Environmental and geospatial journalism requires a diverse set of essential competences as identified by participants.

These include:

- data literacy and visualization skills for effectively interpreting and presenting geospatial data;
- scientific knowledge encompassing climate science, biodiversity, and familiarity with reliable data repositories like Copernicus;
- critical assessment abilities to evaluate the credibility of scientific studies while avoiding misinformation;
- and proficiency with geospatial tools and concepts such as GIS, remote sensing, and cartography. Practitioners in this field face numerous challenges, including:
 - restricted access to geospatial data
 - political and corporate obstacles to publishing investigative stories
 - financial limitations including low wages and insufficient funding for comprehensive reporting
 - legal threats when covering sensitive environmental issues
 - oversimplification of complex stories in public discourse
 - Frustration over inaccessible training: Journalists noted that key workshops (e.g., Data harvest) are often too expensive, limiting skill development.
 - Lack of media space for in-depth reporting: Mainstream outlets prioritize short-term events over long-term environmental investigations, reducing public awareness.
 - a lack of accessible training beyond elite circles. Points to highlight
 - Strong demand for delocalized and specialized training in geospatial tools (all participants expressed interest).
 - Disconnect between environmental stories and media interest – many crucial topics go underreported

Interdisciplinary collaboration stands as a cornerstone for advancing environmental reporting, with journalists requiring more robust partnerships with scientists, cartographers, and data analysts to effectively communicate complex issues. Participants emphasized the critical need for hands-on training opportunities, specifically advocating for in-person courses and

mentorship programs focused on developing technical competencies such as coding, data scraping, and Geographic Information Systems (GIS). The discussions also highlighted a concerning gap in long-term storytelling approaches, as media outlets frequently prioritize event-driven coverage like natural disasters while neglecting the systematic environmental issues and policy analyses that provide crucial context and deeper understanding of these challenges.

- **Knowledge:** scientific/domain-specific about climate and environmental issues; cartography;

- **Skills** related to the whole data workflow (where to find geospatial data - e.g. data portals - or how to collect data; competence related to analysis and visualization; confidence with geospatial tools; critical assessment abilities to evaluate the credibility of scientific studies while avoiding misinformation

- **Attitude:** awareness of the limitations, constraints and challenges faced in this field(e.g. political and corporate obstacles to publishing investigative stories financial limitations including low wages and insufficient funding for , comprehensive reporting, legal threats when covering sensitive environmental issues, oversimplification of complex stories in public discourse)

Italy Focus Group Participants – General information

Location / portal of the focus group	In presence: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Location: --		Online: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Portal: Google Meet	
Date of the focus group	--			
Number of participants	8			
Profession/expert fields of participants and organization (add rows as necessary)		Name	Profession / Field expertise	Organization
	1	Alessia Melchiorre	Journalist	DTNJ
	2	Anna Violato	Journalist	RADAR magazine
	3	Benedetta Tonnini	Project manager	DTNJ
	4	Chiara Spallino	Journalist	Freelance

	5	Giorgio Santoriello	Activist	Associazione Cova contro
	6	Guia Baggi	Journalist	Magma Magazine
	7	Marta Abbà	Journalist	Freelance
	8	Vittoria Torsello	Journalist	Marea Media

Findings of FG – Kosovo

What were the most important issues or ideas discussed? What points should be highlighted?

Lack of dedicated environmental journalists – Environmental reporting is often handled ad hoc by general reporters. There is no strategic investment in developing environmental journalism expertise within newsrooms. Traditional printed media once had more structured editorial oversight, whereas online media prioritize speed over depth, limiting the coverage of complex environmental issues.

The editorial desks divide the topics and the journalists go out into the field. However, there are journalists who know the environment and tend to cover environmental topics, but there is no strategic approach to understand environmental topics. Other sectors also suffer in human resources to hire highly specialized journalists.

Journalists avoids the field - Many journalists are becoming desk-based due to resource constraints or lack of institutional support, avoiding in-depth investigative or field reporting.

Lack of media-expert collaboration – Environmental experts remain underutilized and largely invisible in media narratives. This weakens the credibility and depth of environmental reporting.

Data Access to reliable, updated, and open environmental and geospatial data is difficult. Government institutions vary in transparency and timeliness of data release (e.g., Agency of Statistics, Ministry of Interior).

Environmental topics gaining public attention – Climate-related events (e.g., heatwaves, floods), air and water pollution, and climate change are becoming more visible due to their direct impact on people's lives. Example of

huge concerns: 550 schools still using wood heating indicate systemic neglect and a lack of investment in sustainable, health-focused infrastructure.

Universities and schools do not yet integrate environmental journalism effectively. There's a clear need to promote environmental research and support fieldwork-based education.

Institutional weaknesses - Despite improvements in legislation, there is poor monitoring, weak enforcement, and a lack of inter-institutional collaboration.

What findings were unexpected?

Limited national platforms for environmental dialogue - Even when major events like the Rivers Summit held in April 2025 in Prishtina (organized by EcoZ) they are largely ignored by national media - suggesting a disconnect between activism and editorial agendas.

Persistent stagnation: Despite decades of coverage, major environmental problems remain unchanged, creating a sense of professional frustration and societal failure to act.

Please describe the most valuable insights from your side gained during the discussion group

There's a strong call for the public broadcaster to take more responsibility in environmental education and capacity-building through systematic programming.

Educational reform as a long-term solution - The integration of field-based environmental journalism into university curricula could fill the current professional void, while also raising public awareness.

Multisector collaboration is essential - Solving environmental problems and raising public consciousness requires coordinated action between media, institutions, civil society, and academia.

From what was discussed in the focus group, what are the Knowledge, Skills and Attitudes that are the most important competences and knowledge necessary for Environmental and Geospatial Journalism?

- Basic understanding of climate science, pollution, and public health implications
- Awareness of relevant national legislation, environmental standards, and EU directives

- Understanding the institutional landscape: who collects data, what's public, and what's not
- Data analysis and visualization: Creating accessible graphics and maps for the public
- Investigative reporting: Finding and verifying data, conducting fieldwork
- Interpreting complex data in collaboration with scientists or statisticians
- Curiosity and openness to collaborate with experts and institutions
- Proactive mindset in seeking data, building networks, and pursuing underreported topics

Kosovo Focus Group Participants – General information

Location / portal of the focus group	In presence: Yes <input type="checkbox"/> No <input type="checkbox"/> Location: --		Online: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Portal: Zoom	
Date of the focus group	21/04/2025			
Number of participants	4			
Profession/expert fields of participants and organization (add rows as necessary)		Name	Profession / Field expertise	Organization
	1	Afrim Demiri	Journalist/activist	Freelancer
	2	Agron Demi	Researcher/sustainable development	Atlas Institute
	3	Gazmend Berjajolli	Civil society activist/sustainable development	The Balkan Forum
	4	Merita Miftari	Journalist/University lecturer	Express/Universum College

Findings of FG and interviews – Portugal

- Focus Group

The GEOJO focus group was designed to explore participants' perceptions of geojournalism. The main aim was to gather insights into the current status, potential, and limitations of geo-journalism in Portugal; to identify critical skill and main gaps; and to understand the types of interdisciplinary collaboration needed to advance this emerging field. Six participants with diverse backgrounds contributed to the conversation, bringing expertise from journalism, data science, geospatial analysis, and higher education. It was

moderated by Susana Martins Marques (NovalIMS), Tiago Garcia (+Atlantic), and Clara Amante (Gerador). The discussion followed a semi-structured format, guided by a set of open-ended questions that encouraged participants to reflect on their professional experiences, academic contexts, and technical perspectives related to geojournalism.

What is GeoJournalism?

Participants had an overall accurate conception of what Geojournalism is. They described geo-journalism as a data-driven form of journalism that makes use of geospatial data (e.g., environmental data, land use, climate indicators) and mapping tools such as satellite imagery or QGIS. It is seen as a niche within data journalism that requires specialized tools and interdisciplinary collaboration. While its potential is widely acknowledged, participants noted that geo-journalism remains underdeveloped in Portugal and, given the current climate, is difficult to advance.

Required skills

- Participants unanimously argued that geo-journalism must be developed collaboratively, rather than relying on a single journalist to master all required competencies.
- It is essential to know how to build a story from data and communicate it in an accessible and impactful way.
- Working with mapping tools like QGIS, satellite imagery, and data cleaning software is important, but most journalists do not receive this training.
- Participants agreed that it is unrealistic for journalists to acquire all these technical skills alone; teamwork is essential, ideally involving both journalists and data specialists.
- In practice, data journalism should be approached collaboratively, but Portuguese newsrooms often lack the structure and resources for these teams.
- Technical skills like working with Excel or open-source tools are increasingly valued in the market, but journalists have very limited time for specialized training.
- There's a feeling that journalists should at least understand core processes, even if they are not the ones executing them.
- Open-source culture, common in the data and tech world, could positively influence journalism, where openness and collaboration are still lacking.
- The group highlighted a growing disconnect between journalism and numeracy, with fewer students engaging with quantitative methods.

- It was also emphasized that journalists must learn to question the data itself, understanding its sources and limitations, much like they do with human sources.

Structural and educational challenges

- Portuguese newsrooms are currently overstretched and under-resourced, making it nearly impossible to support specialized or team-based journalism consistently.
- Due to funding constraints and a change of priorities, several journalistic specializations are disappearing in Portugal, including cultural journalism, which further reduces the space for innovation and depth.
- Daily newsroom priorities tend to focus on quick-turnaround stories and headline-driven content. As a result, journalists are not given the time to develop in-depth stories or build skills in areas such as data analysis.
- In many cases, job postings are aimed exclusively at credentialed journalists, effectively excluding technically skilled professionals from other areas who could add value to collaborative teams.
- Participants called for greater integration of technical experts (e.g., data scientists, GIS analysts), as journalists alone cannot cover the entire skills spectrum.
- The legal and professional boundaries around journalism (e.g., requiring a press card to publish in some media) limit collaborative models where non-journalists contribute substantively.
- In university settings such as NOVA FCSH, journalism programmes aim to provide a broad skillset but face challenges in sustaining specialized tracks due to low enrolment. For example, the MA in Science Communication exists only because it attracts professionals from various fields beyond journalism; otherwise, there wouldn't be enough students to keep the programme viable.

Insights and recommendations

Key Needs

- Establish collaborative structures that enable journalists to work effectively with professionals from data, science, and technology backgrounds.
- Develop flexible training formats, such as short courses, that align with the limited availability of working journalists.
- Create conditions for non-journalists to be part of editorial processes, especially in data-heavy stories, and encourage open debate on expanding the definition of “journalistic work.”

- Promote data literacy and critical skills within journalism curricula and newsrooms, without assuming that every journalist must become a technical expert.
- Promote meetings, encounters and networking between journalists and specialists from other fields, such as data science.

Recommendations for the GEOJO project

- Frame geojournalism training around interdisciplinary teamwork, rather than individual mastery of all tools.
- Encourage cross-sector learning between journalism and open-data communities, integrating best practices from open-source culture into storytelling approaches.
- Pilot collaborative story development workflows that include journalists, analysts, and mappers, potentially redefining roles within journalistic production.
- Facilitate discussion spaces about professional identity: if a data analyst coproduces a story, can and should they be considered a journalist? What does authorship mean in team-based reporting?
- Facilitate the creation of those spaces for meetings and networking between journalists and data specialists.

Making GeoJournalism more accessible

Develop bridges between data communities and media by inviting participation from civic tech, environmental data initiatives, and academic researchers. Emphasize the public relevance of geospatial storytelling, particularly for climate justice, land use, and environmental monitoring.

Focus Group Conclusions

Geo-journalism in Portugal is limited by structural, cultural, and legal barriers, but holds great potential if rethought as a team effort. Journalists should be familiar with data logic and tools, while also being able to collaborate with technical specialists. There is a need to open up the profession to more inclusive forms of contribution and co-authorship, especially in data-rich projects. The GEOJO project can lead by example by building interdisciplinary prototypes, developing modular training offers, and promoting a culture of open and collaborative journalism.

Portugal Focus Group Participants – General information

Location / portal of the focus group	In presence: Yes <input type="checkbox"/> No <input type="checkbox"/> Location: --		Online: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Portal: Zoom	
Date of the focus group	23/04/2025			
Number of participants	9			
Profession/expert fields of participants and organization (add rows as necessary)		Name	Profession / Field expertise	Organization
	1	Carla Rodrigues Cardoso	Associate Professor and Researcher	Lusófona University
	2	João Pedro Santos	Geospatial Analyst	Freelancer
	3	Cátia Vilaça	Journalist	Gerador and freelancer
	4	Cláudia Silvestre	Professor	ESCS – IPL (School of Communication and Media Studies – Lisbon Polytechnic)
	5	António Granado	Professor	NOVA FCSH (Faculty of Social and Human Sciences)
	6	Diana Neves	Journalist	Gerador and freelancer
	7	Susana Martins Marques	Project Manager	Nova IMS (Information Management School)
	8	Tiago Garcia	Science Communication Officer	+Atlantic
9	Clara Amante	Project Manager	Gerador	

- **Interviews**

The interviews conducted under the GEOJO project aimed to gather insights from journalists and science communicators with practical experience, to support the design of an innovative training programme in data journalism focused on geospatial data. The conversations were led by Susana Martins Marques (NOVA-IMS), Clara Amante (Gerador) and Tiago Garcia (+ATLANTIC) with two experienced professionals: Vera Novais, a science communicator and journalist, and Laura Aragó, a data journalist. Topics addressed included the definition and perception of geojournalism,

challenges in environmental and data journalism, required skills, and suggestions for structuring training courses for students and professionals.

Vera Novais (Portugal) is a science journalist with an academic background in biology. She worked for over a decade at the Portuguese newspaper *Observador* and is now engaged in local journalism in the Greater Lisbon Area, while also collaborating with the British and World Federations of Science Journalists. She is a board member of SciComPt, the Portuguese Association of Science Communicators. Vera emphasised the importance of peer knowledge sharing and making scientific and environmental content more accessible to wider audiences.

Regarding geojournalism, Vera initially found the term unfamiliar but later associated it with the intersection of data journalism and environmental journalism using geospatial data. She noted that although this area is highly relevant, few journalists have formal training in it and there are practical obstacles to attending training due to time and resource constraints. She recommended that courses should be open-access, modular, and flexible—highlighting platforms like the Knight Centre and NAU (FCCN) as useful references. Vera also warned against isolating course content on a single website, advocating for strategic dissemination via known networks and institutions. She suggested involving journalism unions, training centres (e.g. CENJOR), and international environmental journalism networks.

Laura Aragó (Spain) is a data journalist at the Spanish newspaper *La Vanguardia*, specializing in visual storytelling and data-driven narratives focused on environmental issues. With a background in journalism and photography, she highlighted the growing role of visual tools and data analysis in environmental and science reporting. She underlined the need for scientific literacy and the ability to interpret complex data, even without programming expertise.

Laura stressed that geospatial data journalism is best tackled by teams combining journalists, data analysts, and designers. In Spain, journalism education remains largely theoretical, so professionals often acquire these skills independently on the job. She emphasized the importance of journalists having enough technical understanding to communicate effectively with GIS and data specialists. Contrary to Vera, Laura did learn to obtain geospatial data from reliable sources, to process it, manage and visualize with programming and GIS tools. She did this by obtaining a Masters' Degree on GIS. She mentioned that this gave her skills and independence to be able to run her research without a team: She feels she only struggles sometimes with

interpreting and understanding the data to find events that are extraordinary and may be the subject of a news story. She usually overcomes this with direct interaction with scientists.

Both Vera and Laura agreed that training in geospatial data journalism should be practical, accessible, and modular. Their main recommendations included:

Vera Novais (Science Journalist, Portugal)

- **Basic understanding of geospatial data**
 - Journalists do not need to master GIS tools, but should know how to interpret and use spatial information in storytelling.
- **Ability to collaborate with data and programming experts**
 - Emphasis on teamwork: journalists should know how to brief analysts or programmers effectively to create visualisations or extract insights from data.
- **Environmental and scientific literacy**
 - Strong foundation in environmental issues and how to use open data sources like Copernicus to support investigative reporting.
- **Storytelling with spatial context**
 - Journalists should learn how to integrate maps, location data, and visuals into compelling environmental narratives.
- **Critical data literacy**
 - Understand the limitations, origin, and reliability of datasets, including basic knowledge of how datasets are constructed.
- **Awareness of tools and networks**
 - Familiarity with online platforms and resources (e.g. Knight Centre, NAU, EJNet) that provide training, materials, or communities of practice.

Laura Aragó (Data Journalist, Spain)

- **Data visualisation skills**
 - Ability to create or conceptualise impactful visuals from geospatial and scientific data, even without deep coding knowledge.
- **Scientific and technical comprehension**
 - Journalists should be able to understand and explain scientific data and concepts, especially in climate or environmental topics.
- **Communication across disciplines**
 - Learn how to work effectively with scientists, data analysts, and developers, bridging the gap between data and narrative.
- **Understanding of spatial analysis tools**
 - Journalists should be introduced to tools like GIS or spatial dashboards, understanding their potential for storytelling.
- **Awareness of the storytelling process**

- Emphasis on slow journalism: how to collect, analyse, and shape stories over time using data as a narrative base.
- **Professional adaptability**
 - Develop a mindset to continually learn and adapt, since many professionals (like herself) learn these skills outside formal education.

Both interviewees stress that journalists do not need to become programmers or GIS specialists, but they must develop the literacy to work with those who are—and to use data critically, responsibly, and creatively.

Main Conclusions

Environmental and geospatial journalism remains a critical yet underdeveloped field across. It is often undervalued by institutions, underfunded by media outlets, and insufficiently recognized by the public. Despite these challenges, the urgency for effective environmental and geospatial journalism has never been greater. Societies are grappling with pressing issues such as pollution, biodiversity loss, and climate risks, all of which require informed, data-driven narratives. However, this vital area of journalism continues to be marginalized in a crowded and resource-constrained media environment.

Key conclusions are as follows:

The Need for Collaboration Across Sectors

Environmental and geospatial journalism cannot thrive in isolation. The challenges identified ranging from political and corporate pressures to financial constraints, demonstrating the necessity for cross-sector collaboration. Universities, media outlets, civil society organizations, and government institutions must work together to create an enabling ecosystem for this field. Academic institutions should integrate geo-journalism skills into mainstream journalism curricula, while media organizations must allocate more resources to environmental and geospatial reporting.

Integration of Environmental and Geospatial competencies in journalism education

There is a clear need for formalized training in geojournalism. Universities should treat environmental and geospatial competencies as core elements of journalism education, rather than optional extras. Skills in Geographic Information Systems (GIS), data visualization, and environmental communication must be formally validated and certified. By doing so, universities will equip future journalists with the necessary tools to report on complex environmental issues effectively.

Collaboration between media, academia, and civil society

The development of environmental and geospatial journalism requires strong partnerships between media schools, environmental agencies, and civil society organizations. Collaborative initiatives, such as joint training

programs, internships, and workshops, will help bridge the gap between theoretical knowledge and practical application. As highlighted by participants in focus group discussions, a bottom-up approach, starting with pilot programs and student-driven initiatives, could be an effective and realistic way to foster this development.

Addressing structural barriers in newsrooms

Media organizations face significant structural barriers that hinder specialized reporting. Newsrooms are often understaffed, overstretched, and underfunded, making it difficult to support sustained investigative or specialized environmental journalism. To overcome this, media outlets must dedicate editorial space and resources to environmental stories, emphasizing their importance to both current and future generations.

The role of data and technology in environmental reporting

A critical finding of the GEOJO project is the gap in geospatial journalism—the ability to map, visualize, and analyze environmental data to tell compelling stories. This gap needs to be addressed through improved access to geospatial data, as well as training journalists in the use of GIS and data visualization tools. Data-driven storytelling, when effectively integrated into environmental journalism, can make complex issues more accessible and actionable for the public.

A call for policy and institutional support

Governments and policymakers must play a proactive role in creating the conditions necessary for environmental and geospatial journalism to thrive. This includes investing in policies that facilitate access to data, protect press freedom, and provide funding for investigative reporting. By recognizing the strategic value of informed, data-driven journalism, governments can help build resilience in communities facing environmental challenges.

The future of environmental and geospatial journalism depends on a cultural shift across media, education, and policy sectors. The challenges identified throughout this report are not insurmountable, but they require concerted effort and collaboration. By integrating geojournalism into academic curricula, fostering cross-sector partnerships, and addressing structural barriers in newsrooms, environmental and geospatial journalism can become a vital tool for informing public discourse and supporting sustainable development.

Based on the findings from the desk research and focus groups and interviews, the following specific skills are identified as crucial:

- **Understanding environmental issues:** Ability to grasp key environmental concepts, challenges, and the broader ecological context (climate change, biodiversity, conservation, and sustainability)
- Critical assessment of scientific studies and misinformation
- **Basic understanding of geospatial data:** Knowledge of spatial data concepts, such as coordinates, maps, and data layers.
 - **Use of GIS and digital mapping platforms:** Proficiency in Geographic Information Systems (GIS) software and digital mapping tools to analyze and visualize spatial data.
- **Data collection and analysis:** The ability to gather data from various sources; surveys, satellite data, field observations
- **Data visualization:** Skills in presenting complex data in an understandable and visually engaging manner.
 - Creating accessible maps and graphics for public communication

Although specific tools and programs for the necessary skills were not widely mentioned during the focus groups and interviews, these are the core tools:

Skill Area	Suggested Tools / Programs/ Online platforms
Environmental Understanding	UNEP, NASA EarthData, Coursera, FutureLearn, Copernicus
Critical Thinking & Scientific Literacy	Google Scholar, Sci-Hub, Climate Feedback
Geospatial Data Basics	QGIS, ArcGIS Online, Google Earth Pro
GIS & Mapping	QGIS, ArcGIS Pro, Mapbox, Carto, Google Earth Engine
Data Analysis & Visualization	Python, R, Excel, Tableau, Power BI, Datawrapper, Flourish
Visual Communication	Canva, Illustrator, Datawrapper, Flourish
Spatial Storytelling	ArcGIS StoryMaps, Shorthand, Knight Lab Tools
Data Credibility Assessment	Eurostat, UNData, Metadata standards
Data Workflow	KoboToolbox, pandas, QGIS, Datawrapper, Tableau



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