

From sources to partners: how expert-reviewed journalism is changing investigative reporting

Elisabetta Tola
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Who am I

1990s - Agricultural scientist and PhD in Microbiology

2001 - started a new life

- MSc, SISSA, Trieste
- founder&CEO formicablu.it
- Rai Radio3 Scienza

Today:

- co-founder and editor-in-chief Facta.eu
- chief editor Il Bo Live UniPD
- Rai Radio3 Scienza
- lecturer on digital and AI journalism



Fieldwork: participatory breeding

Science-based journalism for democracy

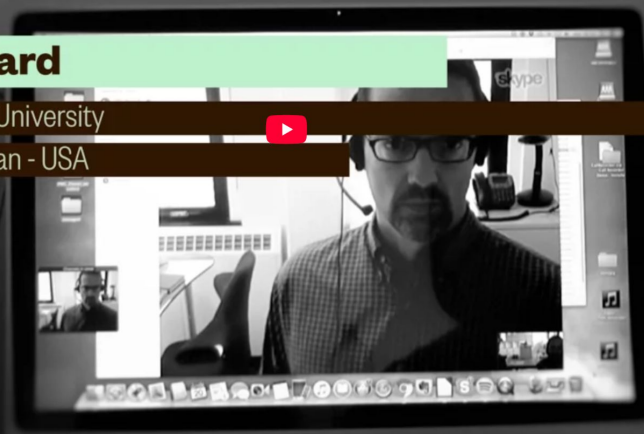




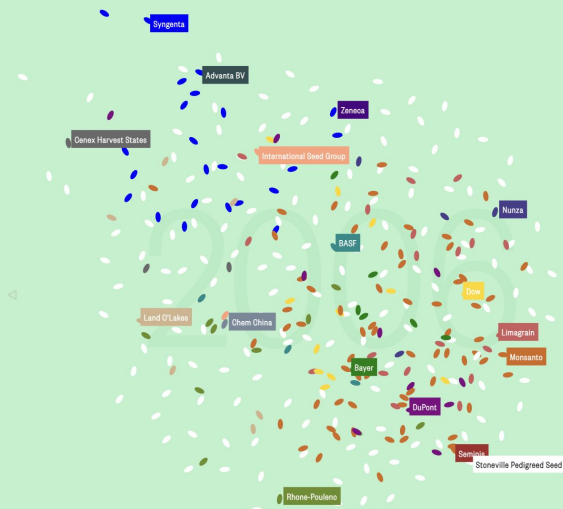
Phil Howard

Michigan State University

Lansing, Michigan - USA



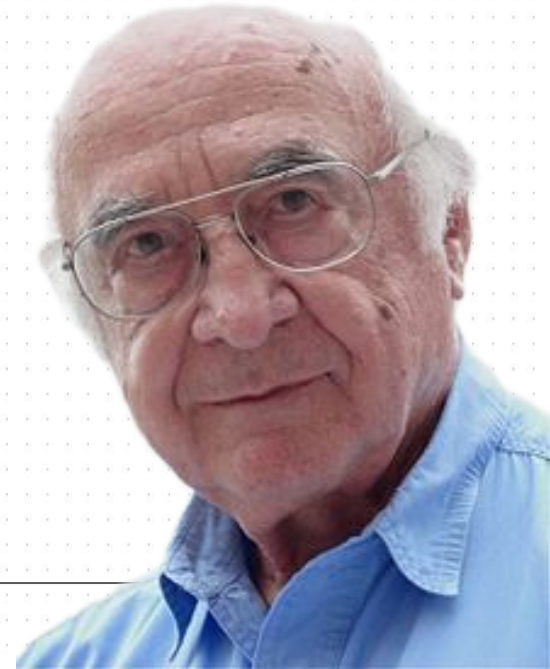
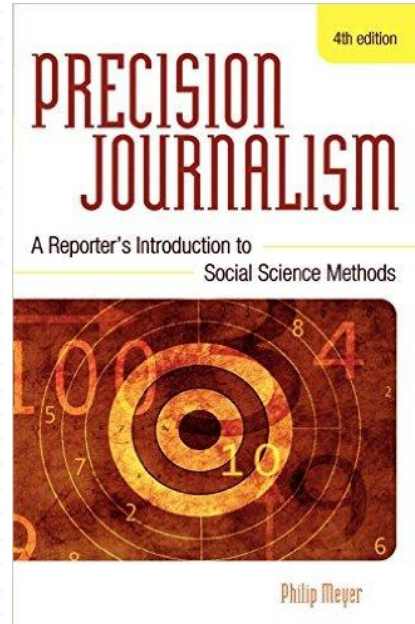
Guarda su YouTube



In 1996 the top 10 companies own the 16.7% of the global seed market

Journalists who report major stories need major tools

Philip Meyer



Detroit, July 1967



Mobs Burn and Loot 800 Stores; Troops Move In; Emergency Is On



Action Line
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Action Line solves problems, gets answers, one red tape, stands up for your rights. Write Action Line, Box 881, Detroit, Mich. 48211. Or dial 222-6464 between 8:30 a.m. and 4:30 p.m. Monday through Friday.

We're preparing a computer exhibit which is supposed to be able to predict the next U.S. president. To do it, we have to program all kinds of voter information—including the number of registered voters in Michigan. Everyone we've called says they only keep track by counties.—M.E.

Feed 2½ quills into the machine. Last count was in April, 1966, when 1,231,776 voters were registered. Robert Montgomery, director of state elections, says that's a good estimate. Things should be better after Oct. 1, when a new law will require cities, townships and villages to report figures to the county clerk within 15 days after registration closes. They still won't be exact, though. Since a precinct has one divider if it's over the quota (1,600 in machine precincts, 600 for paper ballots), they get lots of counts that say "79 or 1,300." Montgomery says "petrified people in a house."

Has a woman ever been awarded the Congressional Medal of Honor?—L.W. Warren.

Once—did they take it back. Dr. Mary Walker, a surgeon for the Union Army in the Civil War, got the medal. She had been suffering for years for battlefield

Looter Killed; 724 Held as Riot Spreads



Gov. Romney called in the National Guard and clamped a state of emergency on Detroit Sunday night in an attempt to quell spreading Negro sniping, burning and looting that broke out in the Twelfth and Clairmont area on the city's West Side.

Tanks, jeeps and 2½-ton trucks moved in ahead of infantry units to clear a sealed-off area bounded by W. Grand Blvd., Chicago, Linwood and the Lodge Freeway.

The state of emergency—a step just short of martial law—was ordered by the governor at 9:30 p.m. amid reports of sporadic rifle fire throughout the city. Three looters were wounded early Monday, one fatally.

When the emergency order was issued, more than 500 stores had been looted, more than 200 persons were arrested and hundreds had been treated in hospital emergency rooms.

At 1 a.m. Monday, Police Commissioner Ray Cleland said a total of 724 persons had been arrested. This included 600 adults and 124 juveniles. The charges ranged from breaking and entering, through felonious assault to carrying a weapon.

After 17 hours of rampaging by Negroes, triggered by

How Survey Was Organized

A happy coincidence was responsible for the production of this unusual survey following the tragic Detroit riot of July, 1967.

The Detroit Free Press had brought in Phil Meyer from its Washington Bureau to help report and cover the story. Meyer had only a few weeks previously returned from a year at Harvard University, where he had been studying social science research methods. He quickly saw in the riot an opportunity to put his own personal concern and the knowledge that he had attained at Harvard to work on a survey. He provided an outline for such a survey to Executive Editor Derrick J. Daniels and Managing Editor Frank Angelo of the Detroit Free Press.

Adding to the coincidences, in the midst of the strife, the League's Board had held an extraordinary meeting at which it authorized Executive Director Francis A. Kornegay to use a fund for a survey. Angelo informed Kornegay about the plan and told him that the Free Press would make Meyer available to the Urban League to co-ordinate and direct the project if he wished. Kornegay quickly accepted, and within minutes the project was under way.

Meyer was given full co-operation by the Urban League in helping him to recruit interviewers and in

helping to train them after they were hired, with an orientation conducted by Executive Director Kornegay.

The net result was that less than a month after the Detroit riot the community was provided with a scientifically accurate study to give guidance in its efforts to restore tranquility.

The Urban League was quick to make the results available to the New Detroit Committee, which was established to co-ordinate post-riot projects, and to other people involved in this area of human relations.

This concern is further emphasized by this report which has been put together to meet an unusual number of requests which has come to the Detroit Urban League from all over the country. It is obvious that this survey is going to be used by students of race relations for years to come.

Francis A. Kornegay
Executive Director, Detroit Urban League

Frank Angelo
Managing Editor, Detroit Free Press
Member, Board of Directors,
Detroit Urban League

SCIENCE-BASED JOURNALISM FOR DEMOCRACY

About

FACTA is an **independent Italian non-profit media outlet** that applies the **scientific method to investigative and data journalism**. Our mission is to **promote democracy** through science-based investigations. We work in **Italy**, a country with enormous political, environmental, and social issues. We publish in **Italian and English**, often in syndication with other Italian media. We strongly believe rigorous, transparent, open science, public interest journalism can help better **inform the public debate and build scientific citizenship**.

We apply the scientific method to investigative and data journalism.

This means a solid, data-driven methodology for journalistic work, involving experts and researchers throughout all phases of the investigations, with clear agreements ensuring mutual independence. It also means collecting needs from the involved communities along the way.

1.

Clear hypothesis

Guided by experts and scientists, the needs of local communities, relevant literature, and public discourse, we formulate clear and explicit hypotheses to be tested.

2.

Data and literature

The investigation begins: we search for literature reviews, relevant publications and reports, open and public data, and original or citizens' science experiments.

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Back to research



[The project](#) [Who we are](#) [Archives](#) [SPIs](#) [Manifesto](#) [Observatory](#)

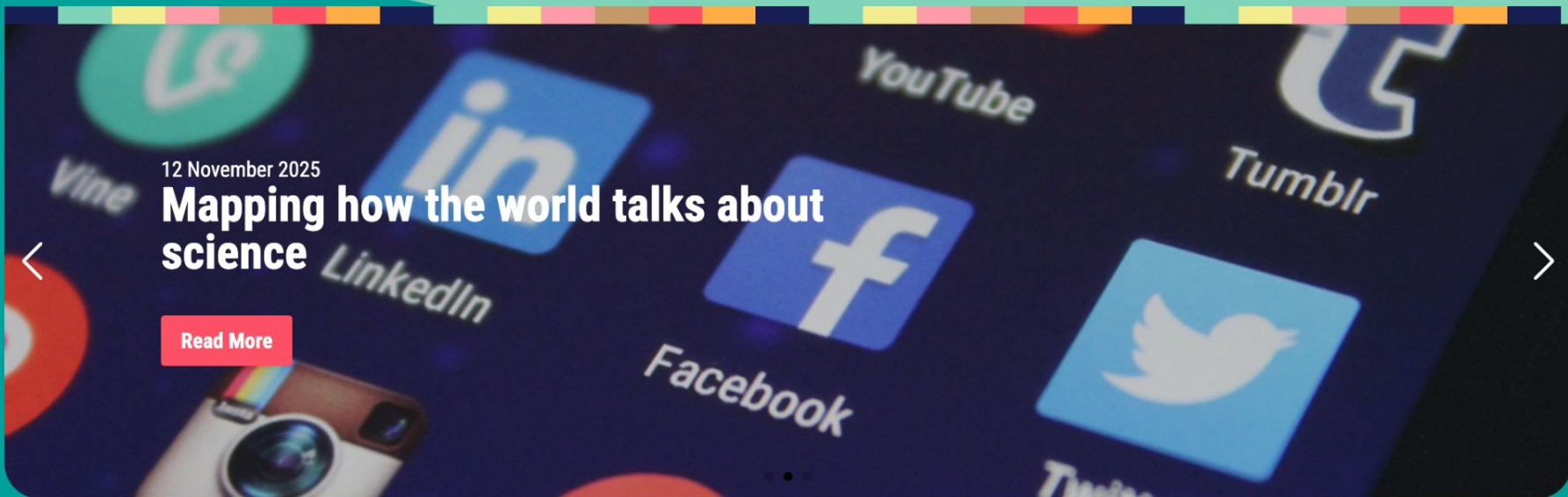
 Search

The Observatory For Outstanding Open Science Communication

12 November 2025

Mapping how the world talks about science

[Read More](#)



ENJOI - Engagement And Journalism Innovation For Outstanding Open Science Communication

SwafS-19 (2020-2023) - science with and for society programme H2020

Focus on science journalism and any form of science communication
distributed via media platforms - co-creation with producers/consumers of
scicomm

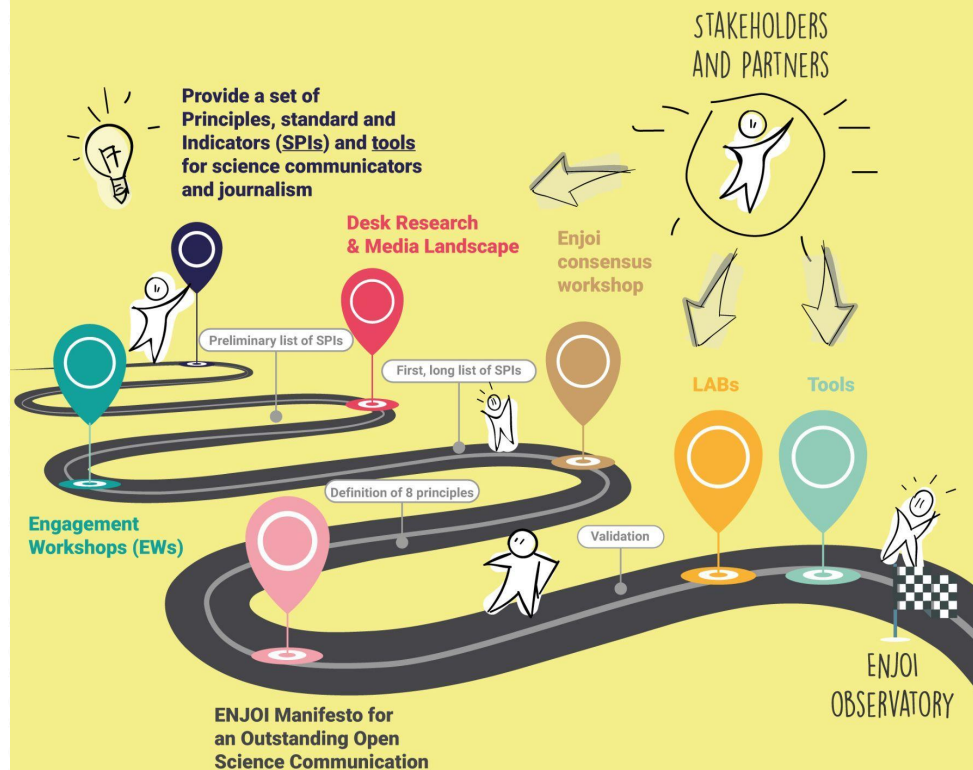
Main outputs:

- Standards, principles and indicators (SPIs) condensed into a Manifesto
- Co-design tools
- Research + Policy recommendations
- ENJOI Observatory

ENJOI's pathway

ENJOI

ENJOI THE ROAD:
Improving science communication and
journalism in a systematic way





SciCAR 2026

ENJOI



ENJOI - Engagement and Journalism
Innovation for Outstanding Open Science
Communication This project received
funding from the European Union's Horizon
2020 Research and Innovation program
under Grant Agreement n°101006407

[FACTA.EU]

PRINCIPLES, STANDARDS AND INDICATORS (SPIs) FOR AN OUTSTANDING OPEN SCIENCE COMMUNICATION

"Principles, standards and indicators (SPIs) should be at the core of a solid ethical and deontological approach to science communication and journalism."



Science-based journalism for democracy

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WHAT ARE THE ENJOI SPIs ?

SciCAR 2026

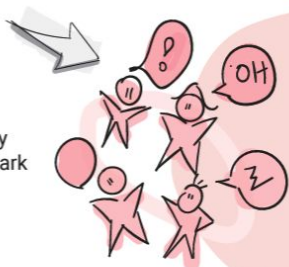


PRINCIPLES

Concepts that serve as foundations and guide the attitude and the conduct of science communicators and journalists. Principles shape the entire communication working framework and ecosystem.

STANDARDS

Reference models that are recognised and used as general rules to measure quality, extent and value in science communication. They need to be widely recognised and accepted as a benchmark or reference point, representing a set of criteria to ensure consistency and reliability in a certain field. There are technical and behavioural standards in communication as in other sectors.



INDICATORS

Indicators: measurable or observable factors, quantitative or qualitative, that help monitor the road towards the application of the principles and standards.



ENJOI'S PRINCIPLES



ETHICS AND DEONTOLOGY

INTEGRITY

Science journalism and communication must be factual, transparent, and respectful of the public. Journalists and their sources should act utterly independent from any external pressure, political or institutional. Communicators should always be transparent if they act on behalf of an institution or any other entity. Conflicts of interest should always be declared. Complete transparency can be fostered by publishing a code of ethics and transparency on the media's website or public profile.

RIGOUR AND COMPLEXITY

Rigour, accuracy, complexity, and uncertainty are innate features of science. They should also be fundamental characteristics of science communication. This applies to any output, from the quick post on social media to the more articulate long-form article or interactive cross-media. To support the development of scientific literacy and nurture critical thinking, science communication should focus more on the process of science-making and not only on the results. Scientific results should never be presented as abiding pieces of truth nor exploited to raise false hopes or expectations. The use of open data and open science allows for cross-verification by an enlarged community, facilitates the understanding of the scientific method and contributes to building trust.

RELEVANCE

The priority of science communication and journalism is to respond to the audience's needs and enable users to incorporate their scientific citizenship rights fully. This can range from cultivating knowledge and enjoying basic science research and its results in looking for solutions, alternatives, and possible applications to face small and big everyday challenges. The first goal of science communication should be to enable citizens to discern among alternatives and make informed choices, particularly on topics that have a substantial impact on their lives as individuals or communities, such as the environmental and global health crises or technological developments and impacts.



ENJOI'S PRINCIPLES



METHODOLOGY AND PRACTICE

ENGAGEMENT

Engagement should not merely be limited to collecting feedback and appreciation for marketing reasons. On the contrary, earnest engagement can play a role in the whole life cycle of information, informing and improving it. It can even become part of new sustainability models in independent science communication and journalism. Various methodologies and practices enable communicators and journalists to connect with people's information needs at the global and local levels and including non-western and indigenous perspectives and voices. Such a deep engagement can help to build a genuine collaborative framework with the public and influence the information agenda. At the same time, engagement should never become a justification for bending science communication to populism and oversimplification.

SOURCES

Science journalism always requires multiple independent and diverse sources, clearly stated and traceable. Particularly on controversial topics, the multiplicity of sources is needed for the communication to be in the public interest. Choosing different experts and voices is functional to reduce the echo chamber and filter bubble effects, where confirmation bias can negatively impact the value of information and hamper critical thinking. Sources should always be protected if and when in a situation of risk.

DIVERSITY AND INCLUSION

Diversity is the best peaceful weapon against polarisation and discrimination. Science communication and journalism should thrive to include voices, perspectives and contributions from different demographics, cultures, and psychographics, with special care to gender and diversity. The digital environment brings new opportunities, but algorithms, AI tools, and metrics can also be associated with biases and amplify discrepancies and inequalities. Responsible communication considers the social, philosophical and legal aspects entwined with these innovations, not just the technological ones. Adopting the lens of intersectionality helps to understand the combination of causes that might create concrete obstacles for people to access science in different contexts. The contemporary science communication challenge, even within the European region, requires recognising the influence of our colonial past on the current structure and dynamics of the scientific ecosystem and valorising non-Western only stories, voices, and perspectives, with particular attention to avoiding post-colonial narratives and attitudes.



ENJOI'S PRINCIPLES



IN THE PUBLIC INTEREST

KNOW YOUR AUDIENCE

There is no general public in the contemporary globalised and digitalised society anymore. Audiences are diverse, fragmented, and connected by different interests, political views, education, needs, ages, languages and purposes. Mapping the niches, listening to and cultivating audiences through diverse tools and methodologies is a crucial asset for journalists and science communicators. Understanding public concerns is pivotal to building trust with readers and users.

ACCESSIBILITY

Science communication should not solely target science enthusiasts and people with previous science knowledge. On the contrary, science information is even more crucial for citizens who, despite not having any science education, are called to partake in health, environmental, and technological decisions. Special care should then be given to ensuring that scientific information is fully accessible to individuals from less science-educated, hesitant or disadvantaged groups.

IMPACT

Science communication and journalism are relevant and valuable if and when they significantly impact the public at different levels. The impact can result in various outcomes, from raising a basic level of awareness to fostering a more complex and proactive level of actions, individual or collective, promoting beneficial behaviours, changes and societal transformations.





ETHICS AND DEONTOLOGY



- To become familiar with the way the science ecosystem works produces and the knowledge
- To nurture and adopt a critical and sceptical attitude towards all sources, including primary ones, verifying independently any piece of information - i.e., to be critical science and not cheerleaders
- To foster collaboration and not competitiveness with the potential sources
- To avoid partisan coverage or false balance
- To be representative of the current debate on controversial issues in terms of and weights of the diverse positions within the scientific community
- To embrace complexity and uncertainty and incorporate them into the final product
- To foster objectivity, when feasible, but even more transparency, mainly when controversial issues or dealing with risk communication
- To describe the historical, political, social and economic framework in a trustworthy fashion to connect science with society
- To detail and make available the methodology used to validate the reported data, information and to craft the communication output



METHODOLOGY AND PRACTICE



- To create conditions for collaborative efforts between scientists, citizen scientists, journalists and communicators from the inception of a reporting project or communication strategy
- To give voice to stakeholders close to the treated issue who can offer a close and different perspective
- To know your beat: journalists and communicators gain familiarity with the topic they are covering, particularly when complex and/or controversial, to avoid misinforming, be misled or even manipulated
- To choose diverse sources (in terms of age, sex, gender, origin, status and career stage) giving the appropriate recognition to young and less famous protagonists
- To involve independent fact-checkers and/or qualified experts in the validation process of the collected information, avoiding always resorting to the usual ones
- To foster a two-way dialogue to establish a loyal community around the reporting/communication project, adopting a range of tools to maintain a regular, periodical, conversation
- To verify every piece of information and source, making them re-traceable while applying all security measures for sources at risk
- To declare any potential conflict of interest of the sources
- To use preferentially open sources and open science to enable access to the original information



IN THE PUBLIC INTEREST



- To select and use tools to better segment the audience, describing the personas detailing their information needs
- To involve a diverse multidisciplinary and multi-expertise team in the design and production process
- To make science communication more reflective of the current emergent society rather than the traditional, patriarchal one that has shaped science and its communication for decades
- To craft stories that are representative and related to the target audience, to enhance cognitive and emotional engagement
- To avoid jargon as well as oversimplification, particularly when discussing technical issues and data or when discussing complex or risk-related topics
- To use formats, language and layouts, as well as any narrative expedient, adjusted to the selected type of audience
- To include links or other clear indications to allow access to data, sources or any other critical piece of information
- To take special care when using data visualisations to make sure they are appropriately designed to facilitate comprehension and to avoid merely esthetical use of data
- To reduce digital oblivion, facilitating online permanence and access to relevant content also in the long term

A virtual lab for the future European Competence Centre for Science Communication.

Funded by the European Commission, COALESCE is a four-year project (Apr '23 – Mar '27) to establish the European Competence Centre for Science Communication and an associated Science Communication Academy.

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Science-based journalism for democracy

Strengthening Science Communication Across Europe

We support daily practices of science communication, bringing together quality-curated resources, training, and networking to support both people and organisations to better reach a diversity of audiences. We actively promote policies and foster science communication developments, recognition, and professionalisation across the EU and beyond.

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Wasted wetlands

Authors	Elisabetta Tola, Giulia Bonelli, Benedetta Pagni
Area	Adriatic , Europe , Italy , Mediterranean basin , Tyrrhenian Sea
Topics	exploitation , landscape , salt pans , water , wetlands
Funders	SISSA Interdisciplinary Laboratory of Trieste - Climate Arena Fellowships 2023 - Journalismfund Europe
Publications	Il Bo Live - Indip

From unwanted to protected, wetlands have recently entered the spotlight. This focus stems from the urgent, almost desperate race to employ every possible strategy to mitigate the effects of climate crisis and global change. That is why wetlands — which comprise salt marshes, lagoons, deltas, artificial lakes, ponds, swamps, mangrove forests, oases, rice paddies, and water basins — appear now more important than ever.



Wetlands represent >10% of earth, but they play a key ecological and ecosystemic role. And they are increasingly threatened.

■ SciCAR 2026



History of wetlands is the history of their destruction

Oliver Rackham,
*The history of the
countryside*

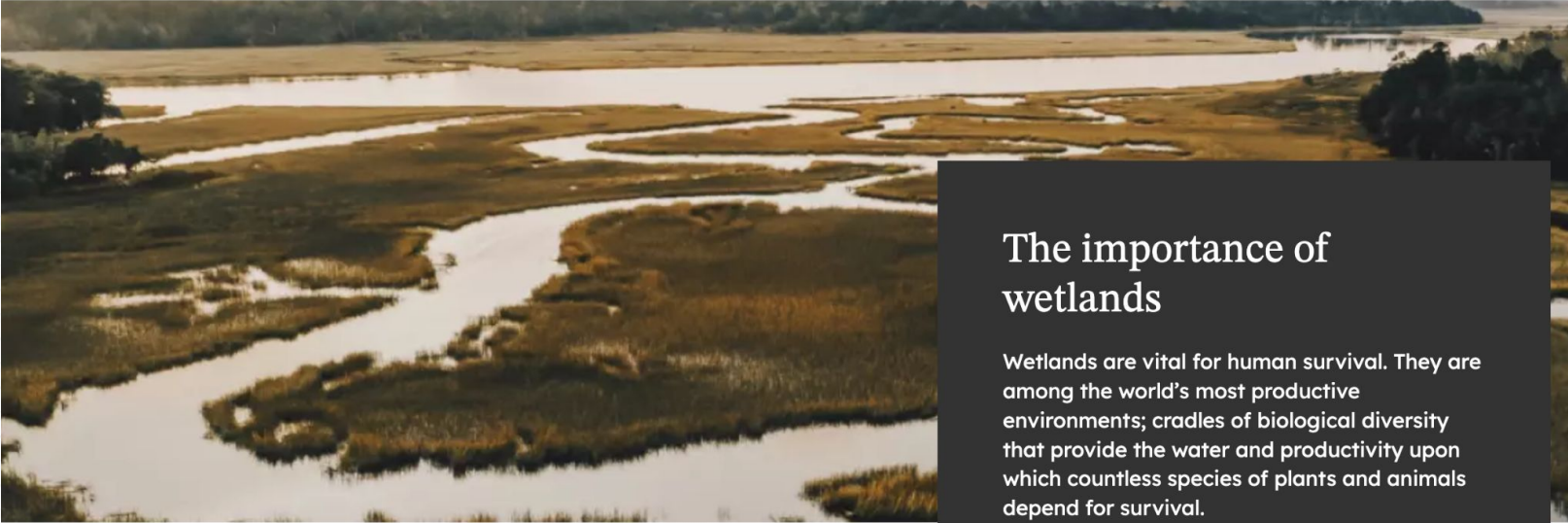


The Convention on Wetlands

  [EN](#)

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 [Meetings](#)  [Notifications](#)  [Documents](#)



The importance of wetlands

Wetlands are vital for human survival. They are among the world's most productive environments; cradles of biological diversity that provide the water and productivity upon which countless species of plants and animals depend for survival.



GOAL

To assess the **conservation or degradation status** of Italian and Mediterranean wetlands from a scientific and economic perspective, also in the light of the application of the **Nature Restoration Law**

Uncover, assess and describe **responsibilities**

[Home](#) / [Supported projects](#) / Wasted Wetlands

Wasted Wetlands



27/03/2024

WICKLOW / CERVIA – This investigation looked into how commercial interests backed by public money are decimating Europe's remaining wetlands, as national authorities ignore this ongoing exploitation.



SISSA
DATA SCIENCE
Machine Learning for the Natural Sciences

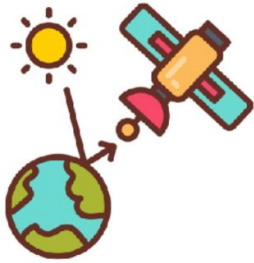
SISSA

ILAS

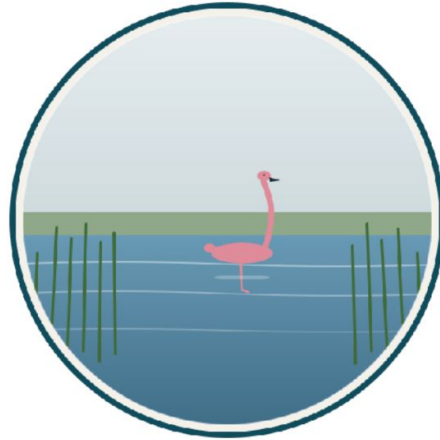
Laboratorio
Interdisciplinare
per le Scienze
Naturali
e Umanistiche

The Unwetlands: expert-reviewed journalism approach

Data Science



Isolate interesting patterns in key remote sensing indices



As a data scientist: “Can we guide the field level reporting?”

Journalism



Field reporting and historical research of targeted sites



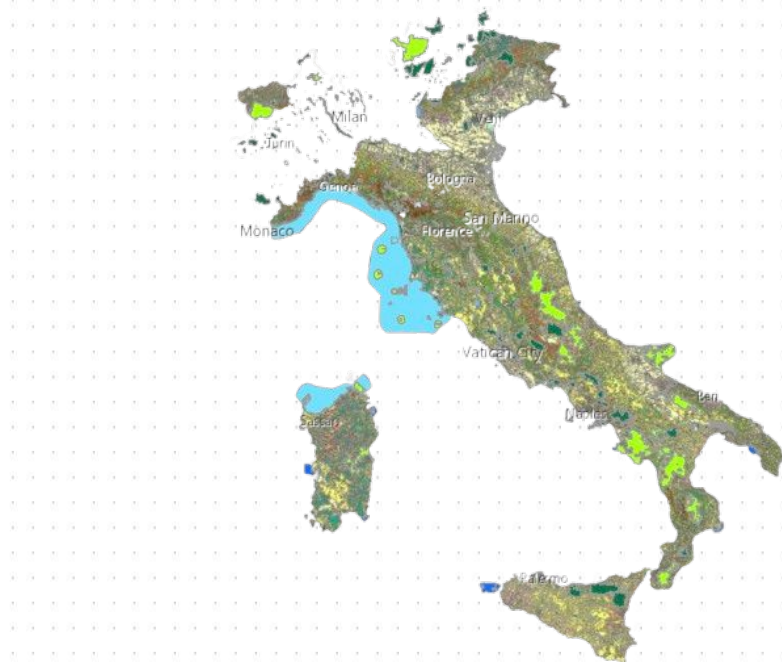
Sources of data

- **Literature and scientific data:** papers, reports, and databases from research institutions (ISPRA, Ministry of the Environment, European Environment Agency, etc.)
- **Reports and databases** from dedicated projects (MedWet, MedSea, Plan Bleu)
- **Field-collected data** (University of Cagliari collaboration - **Mauro Fois**)
- **Satellite data** from Copernicus (SISSA collaboration - **Roberto Trotta**)
- **FACTA collaborative database** (shared with experts and continuously updated)

Sources of data

The Ramsar sites in Italy:
where they are and how
much area they cover

Hectares
0 11,574.5 23,112



Ispra Ambiente

A	B	C	D	E	F	G
Title	Year	Where	Type	Authors	Journal	
Tuteliame le zone umide	2021	Venezia	News	Nadir Sandu	Zero	
Environmental restoration by aquatic macrophyte transplants in transitional water systems: The Venice Lagoon as a case study	2021	Venezia	Scientific paper	Adriano Sfriso, Alessandro Buosi, Chiara Facca, Andrea Augusto Sfriso, Yari Tomio, Abdul-Salam Juhmani, Marion Adelheid Wolf, Piero Franzoi, Luca Scapin, Emanuele Poni, Michele Cornello, Federico Rampazzo, Daniela Berto, Claudia Gion, Federica Oselladore, Rossella Boscolo Brusà, Andrea Bonomett	Science of the Total Environment	
Effect of Ecological Recovery on Macrophyte Dominance and Production in the Venice Lagoon	2022	Venezia	Scientific paper	Adriano Sfriso, Alessandro Buosi, Katia Sciuto, Marion Wolf, Yari Tomio, Abdul-Salam Juhmani and Andrea Augusto Sfriso	Frontiers in Marine Science	
Evaluation of photosynthetic Taxa in the Venice Lagoon from the nineteenth century to present day	2024	Venezia	Scientific paper	Filippo Drigo, Chiara Stefanelli, Isabella Moro and Cristiano De Pitta	Frontiers in Marine Science - Marine Biology	
Nature-based interventions in Venice to restore coastal wetlands	2024	Venezia	Scientific paper	Luca Sittori, Jane da Mosto, Tomas Stercks, Alessandro Gasparotto, François De Keuleneer	Coastal Engineering	
Small Farmers' Agricultural Practices and Adaptation Strategies to Perceived Soil Changes in the Lagoon of Venice, Italy	2024	Venezia	Scientific paper	Tiziana Floridia, Julia Prakofjewa, Luigi Conte, Giulia Mattalia, Raivo Kalie and Renata Sökand	Agriculture	
Geomorphological Effects of Land Reclamation on the Coastal Plain East of the Venice Lagoon (Italy)	2025	Venezia	Scientific paper	Federica Rizzetto, Andrea Osti and Annamaria Volpi Ghirardini	Water	
Giornata mondiale zone umide, Italia quarta in Europa per siti Ramsar	2026	Italia	Report			
Oasi WWF Valle Averso		Venezia				

Sedimentological and stratigraphic data, which were useful to better define the evolution of the study area, were available through the data service "Webgis Geologia—Piani Acque e geologia" of the Metropolitan City of Venice [68]. In particular, only data derived from cores realized in areas not particularly modified by human interventions (e.g., away from buildings, streets, and other infrastructures) were selected to avoid them being altered by anthropogenic activities. Important information about soil characteristics and distribution was provided by ref. [48] and by ref. [69]. They improved the knowledge of the local deposits in relation to the different past environmental conditions and ref. [48] allowed confirming the position of ponds, ridges and channels that were recognized on the historical maps.

Table 1. Historical maps that were digitized and compared.

Title	Year	Color	Source
Mappa progettuale del territorio costiero compreso tra Piave e Livenza (Map of the coastal territory between the Piave and the Livenza rivers)	1641	Color	[70]
Map realized by Trevisan	1776	BW	[71]
Topografia della Provincia di Venezia pubblicata da Luigi Forti (Topographic map of the Venetian territory published by Luigi Forti)	1831	BW	[72]
Carta topografica del Regno Lombardo Veneto costruita sopra misure astronomico-trigonometriche ed incisa a Milano nell'Istituto Geografico Militare dell'I.R. Stato Maggiore Generale austriaco (Topographic map of the Lombardy-Veneto Kingdom, obtained from astronomical-trigonometric measurements)	1833	BW	[73]

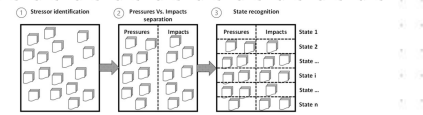
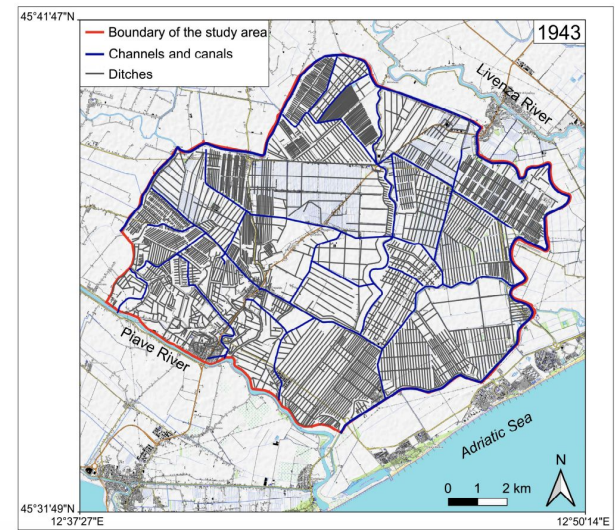


Figure 4. The three steps in the development of the DPSIR framework during the first expert panel consultation.

The research group then produced a table in which each "State" (in one column) was consistently associated with the corresponding "Pressures" and "Impacts" (in two columns next to the first) according to the previous expert clustering. All identified "Drivers" were then placed alongside this table in further parallel columns (one column for each Driver), resulting in an overall matrix with blank cells for expert scoring (Figure 5).

	Pressures	Impacts	Driver 1	Driver ...	Driver ...	Driver n
State 1			Insert score	Insert score	Insert score	Insert score
State ...			Insert score	Insert score	Insert score	Insert score
State i			Insert score	Insert score	Insert score	Insert score
State ...			Insert score	Insert score	Insert score	Insert score
State n			Insert score	Insert score	Insert score	Insert score

Figure 5. The experimental "State x Driver" double entry matrix provided to each panelist for scoring.

■ Satellite data in practice: Copernicus

[FACTA.EU]



- Largest **EO open-access data** offering in the world (10 metres resolution)
- **Limits:** cloud cover, time revisits, massive downloads
- **Sentinel Hub** platform closed by ESA at the end of 2023: transition period to **Copernicus Browser**

Driven by data

The primary goal of the service is to ensure instant data availability to users. The full data archive acquired by the Copernicus Sentinel satellites will be available online and can be accessed in real-time.

- Sentinel-1 SLC and GRD
- Sentinel-2 L1C and L2A
(reprocessed to Collection 1, in parallel with results becoming available)
- Sentinel-3
- Sentinel-5P
- Copernicus Contributing Missions

The data will be available free of charge via designated quotes for individual use. Users that wish to build large scale operations can use practically unlimited resources available under commercial terms.

■ Satellite journalism

- **Satellite data for environmental investigative journalism:** environmental degradation, deforestation, ecosystem loss, droughts, floods
- Changes in **nature** (mainly of earth and water); changes in **structures** (buildings, etc.)
- **Different types of satellites:** Optical VS radar imagery, spatial VS temporal resolution, open-access VS commercial providers

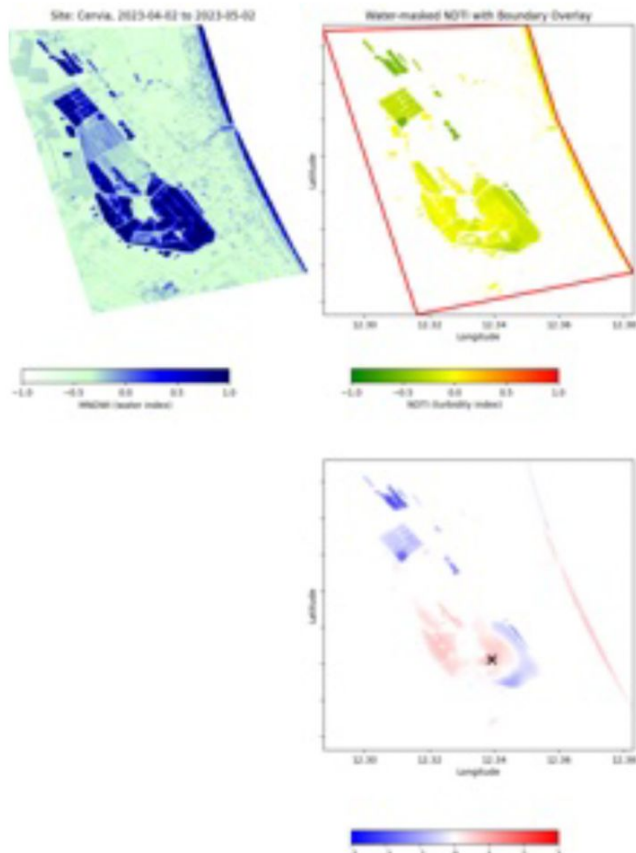


Flood in Emilia-Romagna, Italy. Water depth (m) over Faenza from 17 May 2023. Credits: Copernicus, ESA

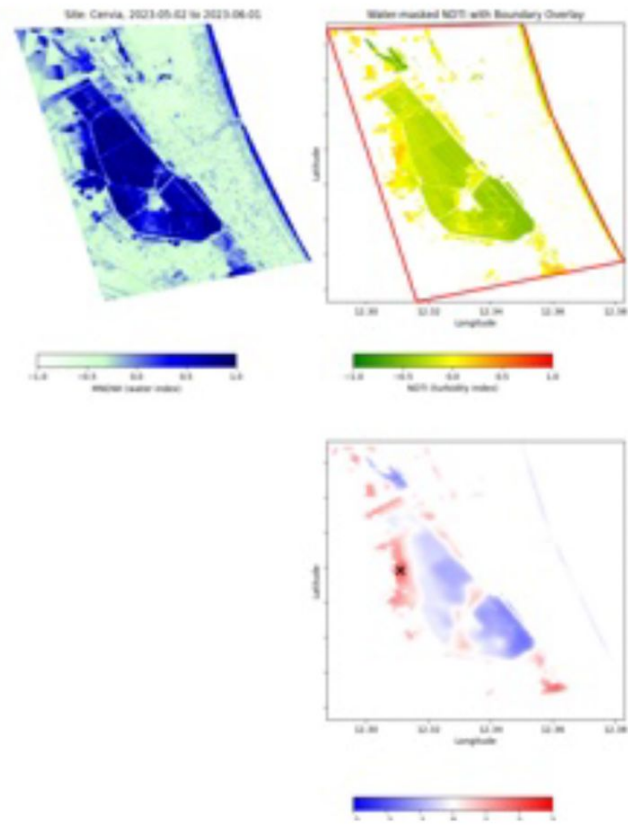


Cervia

Aprile 2023



Maggio 2023



Cervia

“Restoration at a price” investigation. Case study: Cervia





Oristano

Sardinia's Wetlands

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CASE STUDIES AND REVIEWS

WILEY

Knowledge gaps and challenges for conservation of Mediterranean wetlands: Evidence from a comprehensive inventory and literature analysis for Sardinia

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Abstract

1. Wetlands are some of the most important ecosystems on Earth. They play a key role in mitigating climate change-related events and filtering polluted water, and provide habitats for a wide range of species. Despite their importance, and numerous regulations that support their conservation, wetlands continue to be destroyed. Recent reports have indicated a progressive decline in ecological character of remaining wetlands.
2. This research reviews and extends the present status of wetland knowledge in Sardinia, the second largest Mediterranean island. For the first time, Sardinian wetlands were comprehensively mapped using satellite images and field validation. Impacts were also assessed. Trends in literature published about Sardinian wetlands since 1900 were then analysed, mainly according to the location(s) and topic(s) studied.

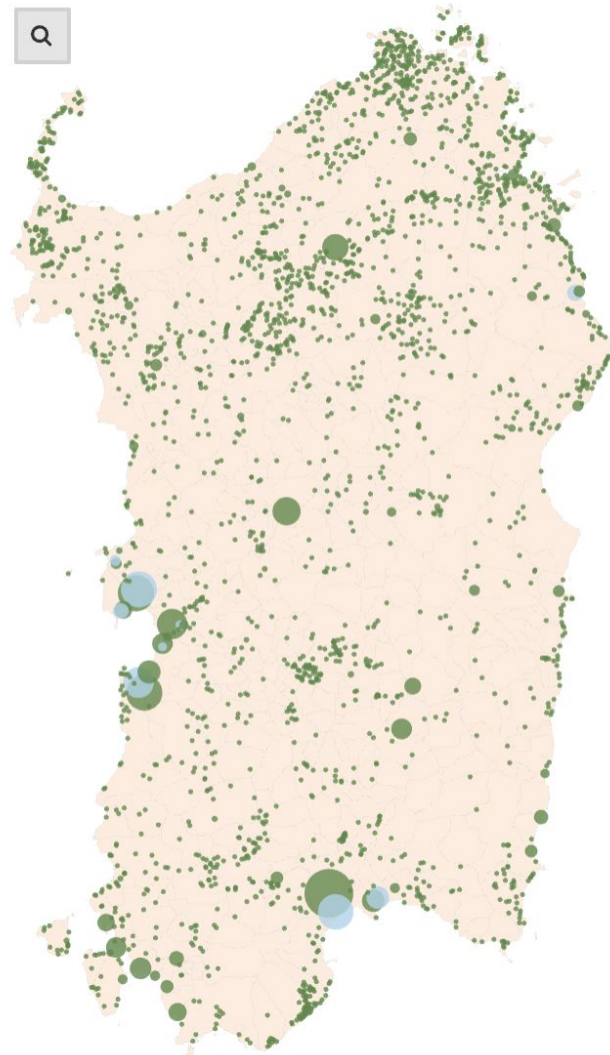
The Sardinian wetlands:

both those listed under the Ramsar Convention and those identified in Fois's research

Click to the legend to hide/show the Ramsar/not Ramsar sites

Sites:

 Not Ramsar
 Ramsar



Source: [Ramsar Sites Information Service](#), [ItIsWet](#)

Fieldwork: Oristano, Nora, Cagliari





JOURNALISTIC TEAM

[FACTA.EU]

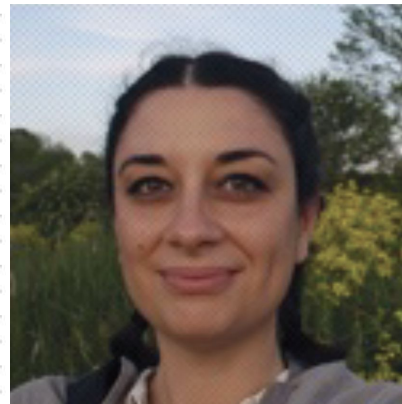
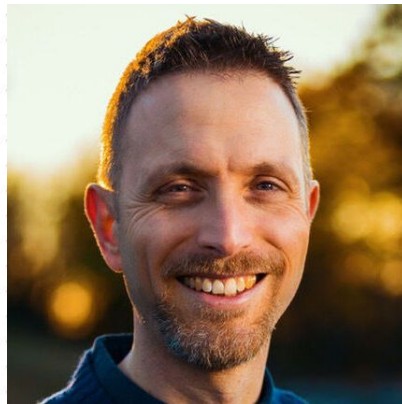
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SCIENTIFIC TEAM

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S.W.A.M.P. Scientific Wetlands Analysis and Monitoring Project*

*acronym by Roberto trotta, astrophysicist



SWAMPOWER

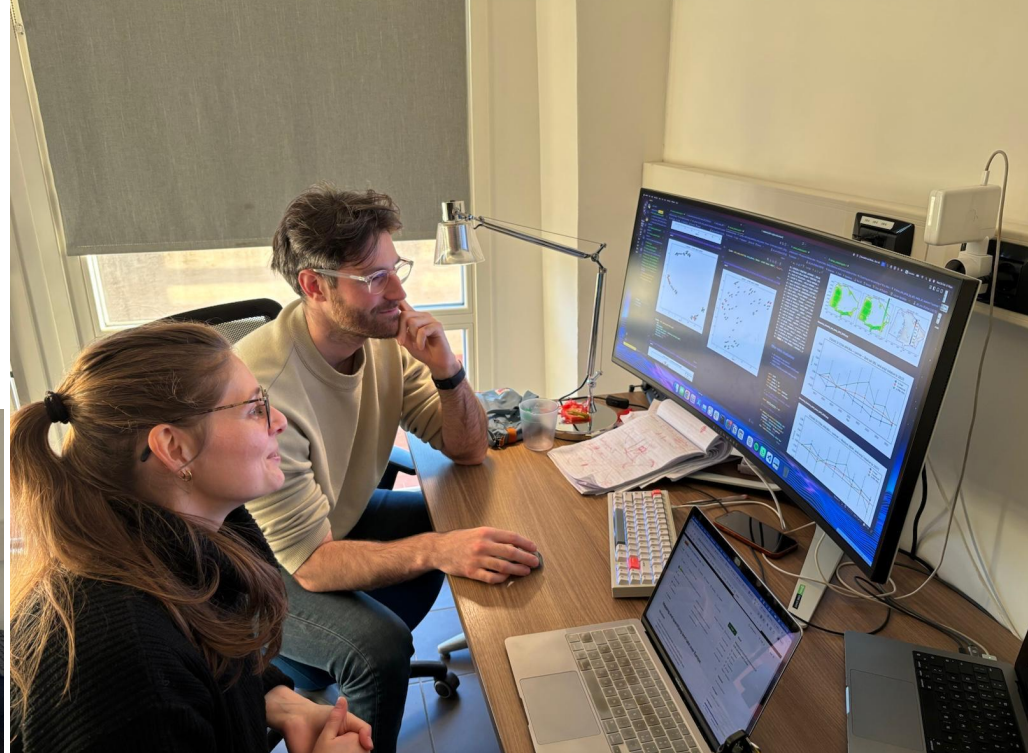
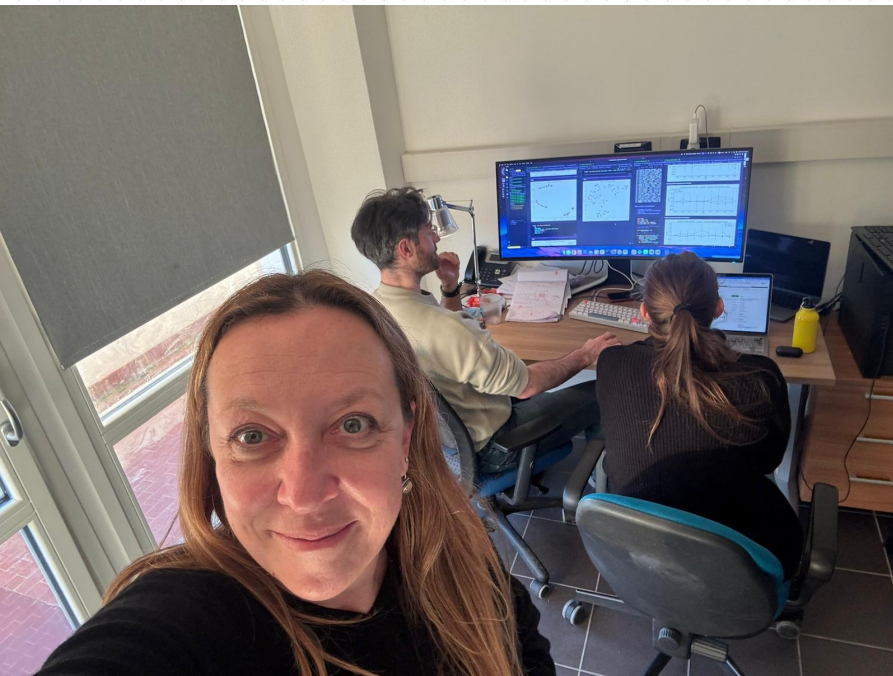


The Unwetlands. A Satellite- Based Investigation into Italy's Lost Wetlands

Italy

Andre Scaffidi, PhD

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Harnessing the data...

*“It’s clear from your profile that you have exactly **the kind of expertise that we need** for this project – being astroparticle physicists/cosmologists, we are used to looking up, rather than down”*

Roberto Trotta to Paolo Villa

RS of wetland ecosystems - courtesy of Paolo Villa

- **Basis:** Remote sensing makes it possible to monitor aquatic ecosystems at detailed scales (**heterogeneity**) and to follow their evolution over time (**dynamics**)
- **Rationale:** The **spectral response** of the **water-vegetation system** provides information on:
 - status of aquatic plant communities (leaf to canopy)
 - habitats they support

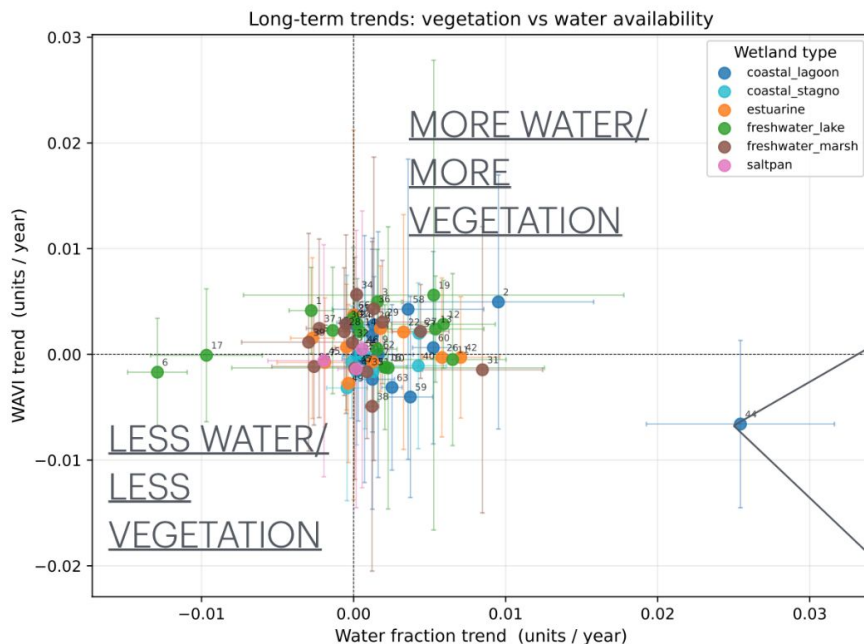
Final decision: to measure

- water fraction in time
- vegetation in time
- correlation between the two
- changes in seasonal periodicity and in the length of each 'season'
- frequency of extreme events and their impacts on water/vegetation

Looking for patterns/anomalies:

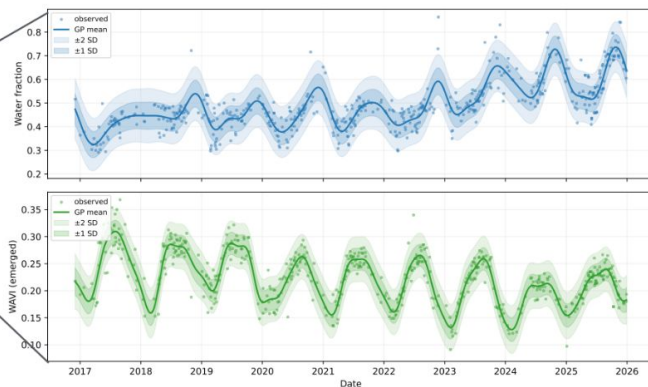
MNDWI (Modified Normalized Difference Water Index)

WAVI (Water-Adjusted Vegetation Index)



Question: does more water implies stronger vegetation amplitude?

Site 44 — SACCA DI BELLOCCHIO
[coastal_lagoon | region: EMILIA ROMAGNA | area: 223 ha]



Built-up index



- What is human-built and what is not? (Roads, buildings or hard surfaces)
- We adopt the “Green-to Grey” project methodology greentogrey.eu/methodology/
- Dynamic World (Google) ⇒ Machine learning model that classifies pixels as built up.
- Uncertainties! ⇒ Only statistically quantify a pixel as built up if we observe a significant positive linear trend in build-up index over time.
- Looking for *encroachments*: increasing external pressure on protected areas.

Built-up index



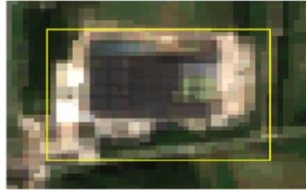
2016

Sentinel-2 RGB · 2016 Jul-Oct (zoom)
10 m / px · 0.1229 km²



2025

Sentinel-2 RGB · 2025 Jul-Oct (zoom)
10 m / px · 0.1229 km²



area = 0.0380 km² | mean w = 0.055

Sentinel-2 RGB · 2025 Jul-Oct (full zone)
20 m / px · 8.1077 km²



Signal
heatmap

Sentinel-2 slope w · 2016-2025 (linear fit, full zone)
20 m / px · 8.1077 km²

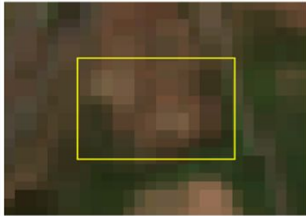


Google Earth high-
res image

Google Maps satellite · modern, no exact date (zoom 17)
0.84 m / px · 0.1229 km²



Sentinel-2 RGB · 2016 Jul-Oct (zoom)
10 m / px · 0.0393 km²



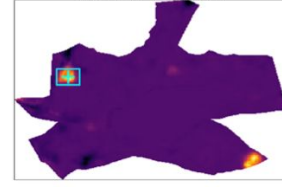
Sentinel-2 RGB · 2025 Jul-Oct (zoom)
10 m / px · 0.0393 km²



Sentinel-2 RGB · 2025 Jul-Oct (full zone)
10 m / px · 2.9128 km²



Sentinel-2 slope w · 2016-2025 (linear fit, full zone)
10 m / px · 2.9128 km²



Google Maps satellite · modern, no exact date (zoom 18)
0.46 m / px · 0.0393 km²



Case study 1: Venice lagoon, Veneto



■ Venice Lagoon, Veneto

- **Ramsar site** since 1989
- **WWF protected area** (Valle Averte)
- Loss and erosion of **salt marshes** (“barene”)
- **Rising sea levels** and climate change impacts, increasing flooding and habitat instability
- Intensive **tourism** pressure
- **Biodiversity** decline
- **Pollution**



[FACTA.EU]





Focus on:

- **remediation & restoration VS industrial conversion and greenwashing**
- **local resistance VS overtourism & overexploitation**

Case study 2: Castel Volturno, Campania



■ Castel Volturno, Campania

- **Ramsar site** since 2003
- **WWF protected area** (Oasi dei Variconi)
- **Loss and fragmentation of wetland habitats**
- **Pollution and waste accumulation** carried by the Volturno River into the wetland and coastal area
- **Chronic lack of management** despite Ramsar and Natura 2000 status





PALUDI

un documentario di Sara Manisera

Copernicus and Planet Labs: lessons learned

- Choosing the right dataset depends on the **story**
- Always consider **key variables** such as resolution, revisit frequency, cloud coverage, licensing conditions
- Satellite imagery is most effective when **combined** with traditional reporting, fieldwork, and expert review
- Most common framework: use satellites to **visualize** what you are investigating
- Next challenge: use satellites to **find new information** on what you are investigating



■ Investigation

Green to Grey

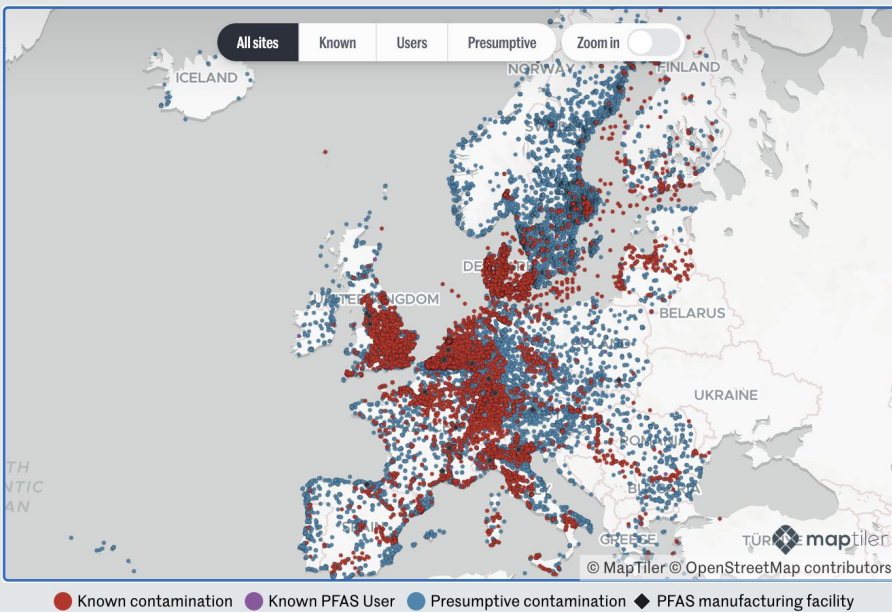


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The Forever Pollution Project

Journalists tracking PFAS across Europe





● Known contamination ● Known PFAS User ● Presumptive contamination ◆ PFAS manufacturing facility

The Cost

How much will it cost to clean up PFAS contamination in Europe? Find out how we calculated, with the help of experts, that the bill could rise to €2 trillion over 20 years if the polluters keep on polluting.

[Read more](#)



The Lobbying

We stress tested the key lobbying arguments used by the plastics industry to counter the EU proposal to ban PFAS, and found them to be straight out of the corporate disinformation playbook.

[Read more](#)



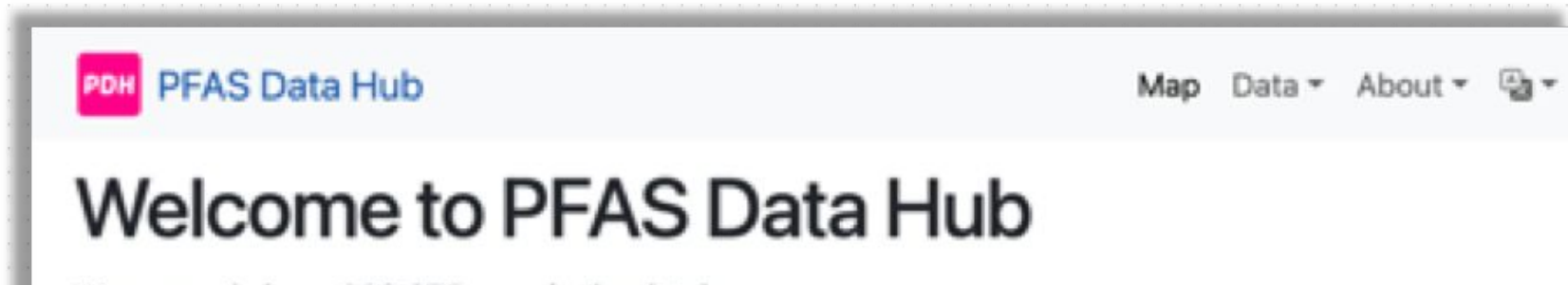


the forever pollution project

46 journalists 130 articles, tv & radio shows
16 countries 14,000 documents
29 medias 18 experts

Stéphane
Horel





About

Project history

Early 2023, the [Forever Pollution Project](#) showed that nearly 23,000 sites all over Europe are contaminated by the “forever chemicals” PFAS. This unique collaborative cross-border and cross-field investigation by 16 European newsrooms revealed an additional 21,500 presumptive contamination sites due to current or past industrial activity. PFAS contamination spreads all over Europe, as shown on [the map](#) created by the project.

To establish this map, each newsroom in the project researched PFAS contamination data in their own area, resulting in over 100 data sources, that had to be standardised to be displayed on the map. The data was published at the same time than the map, as well as the methodology developed for the project (first [published](#) by *Le Monde*, then as a [peer-reviewed article](#) in *Environmental Science & Technology*) .

precise location (some other points only
n the map)

cluding 14 scientific articles and 77

14,000 unpublished documents on PFAS:

- Industry Documents Library (UCSF)
- Toxic Docs (Columbia University, New York, and City University of New York)

4,796 obtained through 184 Freedom of Information (FOI) requests

3,393 attachments submitted to the European Chemicals Agency (ECHA) during the public consultation on the PFAS 'restriction' proposal

6,026 documents come either from the depths of the US Environmental Protection Agency (EPA) document repository or from litigation between the State of Minnesota and 3M

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Europe's land take and the loss of nature and cropland to artificial surfaces

[Zander Samuel Venter](#) , [Bálint Czúcz](#), [Anne Linn Kumano-Ensbj](#), [Léopold Salzenstein](#), [Trond Simensen](#), [Ruben Solvang](#) & [Mads Nyborg Støstad](#)

[Nature Communications](#), Article number: (2026) | [Cite this article](#)

2080 Accesses | 8 Altmetric | [Metrics](#)

This is a preprint and has not been peer reviewed. Data may be preliminary.

WORKING PAPER |  | 22 JANUARY 2026 |  LATEST VERSION

PFAS Remediation Across Europe: Costs and Limited Impacts

Authors: [Alison L Ling](#) , [Raphaëlle Aubert](#), [Eurydice Bersi](#), [Stéphane Horel](#), and [Hans Peter H Arp](#)  [Authors Info &](#)

[Affiliations](#)

<https://doi.org/10.26434/chemrxiv.10001503/v1>

 236  352



pubs.acs.org/est

Article

PFAS Contamination in Europe: Generating Knowledge and Mapping Known and Likely Contamination with “Expert-Reviewed” Journalism

Alissa Cordner, Phil Brown, Ian T. Cousins, Martin Scheringer, Luc Martinon, Gary Dagom, Raphaëlle Aubert, Leana Hosea, Rachel Salvidge, Catharina Felke, Nadja Tausche, Daniel Drepper, Gianluca Liva, Ana Tudela, Antonio Delgado, Derrick Salvatore, Sarah Pilz, and Stéphane Horel*

 **Cite This:** <https://doi.org/10.1021/acs.est.3c09746>

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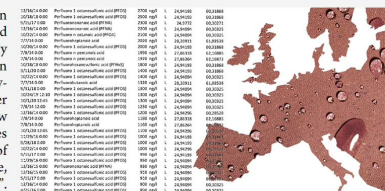
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ABSTRACT: While the extent of environmental contamination by per- and polyfluoroalkyl substances (PFAS) has mobilized considerable efforts around the globe in recent years, publicly available data on PFAS in Europe were very limited. In an unprecedented experiment of “expert-reviewed journalism” involving 29 journalists and seven scientific advisers, a cross-border collaborative project, the “Forever Pollution Project” (FPP), drew on both scientific methods and investigative journalism techniques such as open-source intelligence (OSINT) and freedom of information (FOI) requests to map contamination across Europe, making public data that previously had existed as “unseen science”. The FPP identified 22,934 known contamination sites, including 20 PFAS manufacturing facilities, and 21,426 “presumptive contamination sites”, including 13,745 sites presumably contaminated with fluorinated aqueous film-forming foam (AFFF) discharge, 2911 industrial facilities, and 4752 sites related to PFAS-containing waste. Additionally, the FPP identified 231 “known PFAS users”, a new category for sites with an intermediate level of evidence of PFAS use and considered likely to be contamination sources. However, the true extent of contamination in Europe remains significantly underestimated due to a lack of comprehensive geolocation, sampling, and publicly available data. This model of knowledge production and dissemination offers lessons for researchers, policymakers, and journalists about cross-field collaborations and data transparency.

KEYWORDS: per- and polyfluoroalkyl substances (PFAS), PFAS contamination, PFAS testing and investigation, Europe, known PFAS users, expert-reviewed journalism



Lessons learned

Opportunities:

- science based journalism is a pillar of scientific democracy
- understand science processes and share them with the audience
- building a stronger reputation
- creating a network of relationships with expert that will support work in the long run and might suggest new ideas, stories, data

Conditions:

- study: we need to build an in depth expertise – know your beat
- good understanding of the scientific community and its practices – avoid waste of time and misunderstandings
- need to improve the ability to choose the right expert for the tasks
- stick by values/ethos

Opportunities:

- enhancing public impact of own work (third mission)
- seeing concrete application of research beyond the scientific/academic network
- broader context and connections with other scholars or civil society sectors
- accessing a much bigger database (or map) that is usually not produced academically (more siloed/specific research) – great source for new projects

Conditions:

- formalise collaboration at the beginning – Memorandum of Understanding
- set clear conditions and accept mutual independence
- dissemination strategy and timeline must be discussed early on to respect both parties (publications; open repository; etc)

Critical issues to be clarified

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Ownership of the data: open science approach? how to combine need for peer review publication? how and when to make the data available to others? can the data be included in open repositories for other scientists/journalists to dig, dive and reuse?

Exclusivity: both scientists and journalists have competitors; clarify use of data, possibility to anticipate preliminary results; eventual embargo; etc

Clear understanding of media and science process: there has to be mutual respect of own's practices; a joint training or learning moment might help in setting the correct working framework

Crediting and compensating: how to make it clear that the story is the result of a collaborative effort; how to compensate (if needed) scientists for their time and work?
(Also to avoid inequalities and discriminations)

Build the relationship, possibly well in advance. Allow time and resources to understand each other, to be clear about the respective expectations, motivations and goals.

Establish a common language. This will allow journalists to craft the description of the story and to evaluate its newsworthiness.

Maintain the relationship in time. It is useful to share ongoing advances and data, well before publication, to discuss and find an angle that serves both parties

Share the data in an open way and appropriate format. Previewing the data is a key step to ideate and design the final stories and decide how to build them for the audiences.



Blueprint for #CitSciComm with and for science journalists

Civilian science

Recording environmental data during armed conflicts and in their aftermath is vital for the protection of people and ecosystems. However, conflicts often disrupt national monitoring programmes, where they exist, or render areas inaccessible to researchers. In response, CEOBS is exploring the potential of participatory citizen science methodologies to contribute towards data collection on environmental harm and risks in conflict and post-conflict contexts.

To date we have worked with academia to explore this conceptual framework for “civilian science”. This has reviewed where gaps in data collection exist, how data could be distributed and utilised, how it could complement remote sensing and formal environmental assessments, and how participatory community research could help empower communities affected by armed conflicts. We have also assessed different low-cost technologies and how they could be used to monitor different forms of harm.



**Conflict and
Environment
Observatory**



Science-based journalism for democracy

Rigorous, engaging science journalism is a political act.

Environmental care cannot be solely about emotion: it's a responsibility to our communities, to all living beings, and to those who will inherit this world.

FACTA team

La newsletter di FACTA sulla natura
più bistrattata e preziosa d'Italia

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- More than **300 subscribers**, average open rate of around **70%**
- Stories, behind-the-scenes of investigations, and cultural insights inspired by wetlands and surrounding landscapes
- Collaborative scientific **database**
- An always-open **exchange**: we read everything and always reply :-)

■
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Grazie!