COMMUNICATING CLIMATE CRISIS AND EXTREME WEATHER EVENTS

BOOK OF ABSTRACTS

Book of abstracts
Communicating Climate Crisis and Extreme Weather Events
Ljubljana, October 10–11, 2024

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CONFERENCE PROGRAMME

October 10

8.30–9.00 Registration

9.00–9.15
Welcome address

Dejan Jontes, Chair of conference organizing committee

Ksenija Vidmar Horvat, Vice-Rector for study and student affairs, University of Ljubljana

9.15–10.30
Keynote speaker

James Painter: What's up with the weather? Research priorities and journalistic challenges in the communication of extreme events

James Painter is a research associate at the Reuters Institute for the Study of Journalism, Department of Politics and International Relations at Oxford University, and a senior teaching associate at the Environmental Change Institute, School of Geography, also at Oxford. He has published widely on climate change in the media in several countries His current research includes analysis of media coverage of heat waves in India, the UK and Europe.

10.30–10.45 Coffee break

10.45–12.30
Parallel session 1a

Communicating and knowledge transfer about climate change in agriculture
– *Ana Novak*

Extreme weather events as media events in climate change era. The case of the 2023 Emilia-Romagna floods
– *Flavio Piccoli*

In the swirl of change
– *Marina Dermastia*

How climate change affects citizens. Key for creating resilient and sustainable cities
– *Begoña Verdejo Herreras*

Chair: Mateja Grego

10.45–12.30
Parallel session 1b

AI enabled prediction of extreme weather events: a case study in river flooding
– Frenk Dragar, Leon Samotorčan, Tim Vidmar, Ivan Šokić, Jože Rožanec, Sašo Petan and Ivan Bratko

Graphical representation of climate change assessment for Slovenia over the 21st century
– Anže Medved and Katja Klančar

Communicating climate change in the age of artificial intelligence
– Andrej Srakar

Chair: Matej Huš

12.30–13.30 Lunch break

13.30–14.45
Keynote speaker

Tjaša Pogačar: Escalating heat stress risk in a changing climate

Tjaša Pogačar is the head of the Centre for Agricultural Meteorology and assistant professor of climatology at the University of Ljubljana, Biotechnical Faculty. She is a meteorologist by profession and conducts research in the field of agricultural meteorology and biometeorology with a focus on the impact of climate change on ecosystems and humans. Her recent projects were addressing the workers' heat stress and alleviation measures in various sectors, climate change vulnerability and adaptation in tourism sector, agroclimatic indicators etc.

14.45–15.00 Coffee break

15.00–16.45
Parallel session 2a

Picturing climates: steps towards embedding artistic practice within climate change research
– Mark Kasumovic

The role of art in climate crisis: how science museums are using art to help visitors imagine more sustainable futures
– Amy Harris

Visualizing the unseen: the role of art in communicating climate change
– Eva Garibaldi and Ana Laura Richter

Chair: TBA

Parallel session 2b

Safety of journalists who cover natural disasters and the use of social media for this purpose: an approach to the Icelandic case due to latest eruptions
– *Oiane Díaz Echarri*

The green battle in the media: Visual claimsmaking in Nigeria's digital green public sphere
– *Agboola Odesanya*

Navigating the fine line: Effective climate change communication without resorting to fear
– *Jadranka Jezeršek*

Chair: Dejan Jontes

16.45–17.00 Coffee break

17.00–18.45
Parallel session 3a

Metaphorical narratives of climate crisis in cinema
– *Beyza Ergan and Mara Seitkhamit*

Climate crisis matters: representations in worldwide cinema
– *Federica Carbone*

Using immersive storytelling to engage youth in climate action: a case study of the Magical Forest Virtual reality Film
– *Sohail Dahdal*

A study on use of folklores in Indian cinema on climate change: a systematic literature review
– *Dharitri Satapathy and Rudra Prasanna Mahapatra*

Chair: Amanda Buhinjak

Parallel session 3b	Migration in cli-fi movies – *Nazife Ebru Güney* Representing environmental crises in contemporary European crime fiction: fatal enclosure and the ecological uncanny in Le Châlet (2018) – *Jeannine Helene Baetz* Climate change in A Tale for the Time Being by Ruth Ozeki – *Tanja Dimitrijević* Desolution of language as desolution of space: environment in time of Lingua Tertii Imperii – *Žiga Kovač* *Chair:* TBA
19.30 Conference reception	Mestni muzej Ljubljana (Gosposka ulica 15, Ljubljana)

October 11

9.00–10.30
Parallel session 4

Is informing enough? How can science communicators make people care even more about climate change
– *Zarja Muršič*

Climate change communication in the tourism field: to influence, persuade or deliberate?
– *Maja Turnšek*

From images to impact: a multimodal analysis of disaster representation on Instagram
– *Mihaela-Alina Coste*

Understanding gender implications and preferences in utilizing climate information services in semi-arid agricultural communities of Tanzania
– *Bahati Ally Magesa*

Chair: TBA

10.30–10.45 Coffee break

10.45–12.15
Keynote speaker

Anastasia Denisova: Effective climate communication: from eco-anxiety to eco-empowerment

Anastasia Denisova is a Senior Lecturer in Journalism at the Communication and Media Research Institute, University of Westminster. She specialises inviralcultures, Internet memes, and climate change communication. She published a book Internet Memes and Society in 2019. In 2021, Denisova undertook an extensive review of fashion coverage in the media and released a policy brief Fashion Media and Sustainability. Anastasia has published widely in top academic journals, includingSocial Media+Society; Media, Culture and Society; Journalism etc. Dr Denisova is a Senior Fellow of Higher Education Academy and a Board member of Westminster Papers in Communication and Culture.

12.15–13.30 Lunch

13.30–15.00
Parallel session 5

Doing digital journalism differently: a case study of The Local's "Toronto's Climate Right Now" issue
– Shirley Roburn

Climate science and policy journalism on Radio Študent
– The scientific editorial board at Radio Študent (Klara Jurečič, Editor-in-chief)

Exploring challenges and perspectives: a mixed method investigation of climate change reporting in Pakistani journalism
– Rabia Noor

Slovenian newsworkers and their role in shaping climate change narratives
– Anamarija Šiša, Maruša Pušnik and Dejan Jontes

Seeking causes or finding solutions? Understanding the framing of biodiversity crisis in the Croatian media
– Dunja Majstorović, Dina Vozab and Karla Martinić

Chair: TBA

15.00–16.30
Keynote speaker

Matjaž Ličer: Tales of Tails: communicating the extremes far above average

Matjaz Ličer is a physicist, working as a physical oceanographer at Slovenian Environment Agency and at National Institute of Biology. He is involved in numerical ocean modeling, deep learning coastal flood modeling and Lagrangian modeling for oil spill mitigation and marine search and rescue. He is a member of the Scientific committee of the Liege Colloquium 2024 on Ocean Extremes, a guest editor of the Copernicus journal Ocean Science special issue on Extremes in the marine environment and a co-organizer of sessions on Extremes in the marine environment at the European Geosciences Union General Assembly meetings.

16.30–16.45 Closing session

ABSTRACTS

Ana Novak

Communicating and knowledge transfer about climate change in agriculture

Agriculture is the second-largest contributor to greenhouse gas emissions (GHG) after energy consumption. Despite the availability of numerous mitigating measures, farmers often fail to adopt them, even when they are low-cost or financially beneficial. One of the key barriers to implementing these measures is the lack of information and education among farmers. Strengthening and improving communication and knowledge transfer can thus play a vital role. In agriculture, these processes can encompass various approaches, traditionally including mass dissemination methods and ex-cathedra lectures. However, they have encountered criticism for their lack of incorporating farmers' perspectives and their tendency to favour simplistic innovations over integrated and complex ones. Consequently, a shift towards participatory approaches has occurred, promoting peer-to-peer and group learning alongside individualized methods providing targeted and comprehensive advice. Moreover, the rise of digital communication has elevated the importance of digital tools in knowledge transfer in agriculture. However, while these novel approaches offer enhanced farmers' engagement and more targeted communication, they may encounter challenges regarding organisational complexity, cost-effectiveness and reach within the target group. In our conference session, we will aim to present these diverse ranges of knowledge transfer approaches through the results of our recent research work in Slovenia and discuss their application in climate change mitigation within agriculture. By examining the strengths, limitations, and potential synergies of these methods, we can develop more effective communication and knowledge transfer strategies for fostering awareness, understanding, and adoption of mitigation practices among farmers.

Flavio Piccoli

Extreme weather events as media events in climate change era. The case of the 2023 Emilia-Romagna floods

Numerous studies have highlighted the challenges faced by news media in establishing a link between climate change and extreme weather events. Despite the controversy in existing literature about the potential of these events to alter beliefs and perceptions of climate risks, the media's agenda-setting effect significantly influences the discourses and narratives constructed around climate change. Adopting a holistic approach that combines media event theory and media ecosystem analysis, we investigate the discourses, frames, rituals and narratives that shape media representation of the floods that hit the Emilia-Romagna region of Italy in May 2023. Special attention has been given to the causes mentioned and the role of vulnerability in exacerbating the floods and subsequent damages. The research design employs a mixed-methods approach, combining qualitative content and narrative analysis with descriptive statistics and quantitative text analysis. The data set includes Italian news from five national newspapers, seven prime-time news programs, and tweets throughout May 2023.

Preliminary findings suggest a relatively consistent narrative structure, agenda, and circulating discourses across different media and news outlets, with some variations in the framing of news stories and in the mention of causes and their link to extreme weather. Firstly, the emphasis on mourning and loss, reinforced by the portrayal of resilience shown by Emilia-Romagna residents, created a ritual of national solidarity that relegated to the margins critical viewpoints considering causes and preventive measures that could have been enacted. Secondly, mainstream journalism in Italy seems to lack a dedicated space for environmental and scientific issues, resulting in a simplified and sometimes misleading coverage of the connection between climate change and extreme weather events.

Marina Dermastia

In the swirl of change

In this paper, the organization of the international two-day symposium on the impacts of climate change on water and biodiversity, entitled 'In the Swirl of Change: The Interplay of Water, Life, and Climate,' held in October 2021, is discussed. This carbon-neutral meeting was organized by the National Institute of Biology, in collaboration with the non-governmental movement Youth for Climate Justice and took place in a virtual space. It coincided with COP15 on biodiversity in Kunming, China, and occurred just 14 days before COP26 on climate change in Glasgow, UK.

One of the key goals of the symposium was the mission of communicating science, disseminating the results of the research work of the National Institute of Biology, and connecting knowledge with the understanding of the non-scientific public. The ambition of the international symposium and cooperation with the Youth for Climate Justice movement, an influential and competent civil initiative, were deliberate decisions, recognizing the importance of intergenerational dialogue and the reliance on scientifically established facts. Employing a systematic approach (two days, three sessions, three round tables), the participants educated the public with scientific facts related to the topic. With the participation of 21 researchers and experts from Slovenia, Brazil, Australia, and France, the organizing committee ensured that the general public could comprehend the symposium's information based on scientifically established facts. The timing of the symposium, coinciding with the heightened global awareness of climate change and biodiversity loss in anticipation of COP26, was critical, and its impact on the awareness of the non-scientific public was significant. The event was streamed online by the STA across various channels and social media platforms, attracting over 400 participants from the general public, as well as representatives of governmental and non-governmental organizations.

At the conclusion of the symposium, an Environmental Manifesto was drafted and widely distributed through various platforms. The symposium received widespread acceptance and recognition, including an award from the Slovenian Science Foundation Prometheus for outstanding science communication."

Begoña Verdejo Herreras

How climate change affects citizens. Key for creating resilient and sustainable cities

A famous quote of Voltaire can be connected to climate change "Man argues. Nature acts". And the act is now. Indeed, many local governments of cities and towns of all shapes and sizes have seen the need for action and are taking various initiatives in their localities to take the right measures in our fight against the effects of climate change. But, how to determine where to start with and what to spend the available funds on first? Technologies to evaluate the variables are essentials for a better organization, for example: In terms of energy management, buildings, and areas where the heat loss is high, must have higher priority for being refurbished. Moreover, the world is becoming less and less dependent on fossil fuels and the share of sustainable forms of energy production is constantly increasing. This is connected to air quality management. Integrating different data sources and sensors information in areas and moments of the day in which there is an increase of value of CO2 (or other type of air pollution) will help you to understand the situation and do analysis on traffic or works in the city. In urban planning, the concrete pavements are hotspots that have adverse effects such as increasing the temperature, but moreover they prevent rainwater being absorbed adequately. Several reasons make this critical: with heavy rainfall, the paved areas are more likely to turn into ponds or rivers causing floods. Also, in periods with rainfall it is important that the rainwater easily flows into the soil to later be used as drinking water, instead of being wasted in the sewers. Advanced technologies inside the Geospatial Industry, such as the ones offered by Hexagon's portfolio will help to create the necessary Urban Digital Twins that will help to convert cities in a better place to live.

Frenk Dragar, Leon Samotorčan, Tim Vidmar, Ivan Šokić, Jože Rožanec, Sašo Petan and Ivan Bratko

AI enabled prediction of extreme weather events: a case study in river flooding

Motivated by the extreme flooding that hit Slovenia in August 2023, we are developing machine learning models that would reliably predict river water levels. Research was conducted focusing on the Gradaščica river by leveraging various machine learning techniques. Two problem settings were considered: (i) a regression problem, where the water level was predicted, and (ii) a classification problem, where the forecasts aimed to identify whether an extreme weather event would take place. We used time series data from three hydrological stations and 20 meteorological stations in the Gradaščica river basin. The data included information on water level, water body discharge, and rainfall. In the regression setting, it was observed that under normal conditions AI-enabled predictions were mostly reliable, but under extreme conditions prediction error increased significantly. The obtained Mean Absolute Error was 1.79 cm. However, the error at extreme levels was ranging from 150 to 200 cm. The results show that the regression model was unable to accurately predict under extreme conditions. We understand this is due to the scarcity of extreme weather samples in the historical data. This was not the case for the classification problem to predict whether water level will exceed 200cm. There, the achieved Area under ROC curve was 0.90 indicating good accuracy. Future work will aim to leverage more historical data with extreme weather events and apply novel techniques to capture the dynamics (e.g., soil saturation) prior to the rise of the river to a critical level. The uncertainty inherent to the abovementioned predictions represents a special challenge when communicating forecasts of extreme weather events. Open data and interdisciplinary collaboration are crucial for successfully addressing and communicating this complex issue.

Anže Medved and Katja Klančar

Graphical representation of climate change assessment for Slovenia over the 21st century

Understanding past and future climate conditions is crucial for climate change adaptation in Slovenia. Alongside tracking changing average conditions, it's vital to assess the frequency, severity, and duration of extreme weather events that significantly impact us, our environment, and our activities. Projections of temperature and precipitation changes, including extreme events, form the basis for developing effective climate change adaptation policies. The project »Climate Change Projections for Slovenia over the 21st Century« analyses climate change projections and corresponding changes in extreme weather and hydrological events. We used regional climate model (RCM) simulations from the EURO-CORDEX project, based on CMIP5 global climate model (GCM) simulations, and different Representative Concentration Pathway (RCP) scenarios. We selected two RCM simulations for RCP2.6 and six for RCP4.5 and RCP8.5. Bias adjustment of RCM simulations was performed for daily mean, minimum and maximum air temperature at 2 m, precipitation and reference potential evapotranspiration, using national gridded homogenized observational data from 1981–2010 as a reference. Precipitation was adjusted using non-parametric quantile mapping using the empirical quantiles with linear extrapolation. All other variables were adjusted using the quantile delta mapping method, considering the variable's dependency on precipitation amount. The outputs are available in 12 km spatial resolution on a daily basis for the period 1981–2100. Interpreting climate model ensemble outputs can be complex due to the range of estimates they produce. We introduced the »reliability of the change« indicator, which assesses the coherence of the ensemble and indicates whether the members show similar changes. This indicator is based on the statistical significance of calculated changes.

The graphical representation of our climate model ensemble projections includes maps and region-averaged plots showing median change and reliability. These visuals cover annual and seasonal scales and are accessible to the public via the Atlas of Climate Projections.

Andrej Srakar

Communicating climate change in the age of artificial intelligence: possibilities and challenges

In his recent article in Journal of Science Communication, Mike Schäfer overviewed the consequences of the emergence of ChatGPT and generative artificial intelligence (AI) on science communication research (Schäfer, 2023). He pointed to four areas of future research: public communication about AI; user interactions with ChatGPT and other large language models, i.e. communication with AI; impact of generative AI on science communication and its foundations; and emergence of generative AI as a conceptual and theoretical challenge (e.g. in the lines of generating misinformation and disinformation). In our contribution we analyse science communication about climate change following the advent of ChatGPT and generative AI and focus on Schäfer's second and fourth strand. We refer to recent article of Donoho (Donoho, 2024) and relate communication about climate change to changes in data science and open-source intelligence. Specifically, we point to citizen science as example for communicating on the topic, based that a lot of citizen science initiatives derive from environmental and climate science (Fritz et al., 2022). We shortly analyze three existing and developing citizen science initiatives: iNaturalist, Fotoquest Go and Slovenian initiative of Podnebnik. We define clear lines of advantages and challenges that rise of generative AI has for communicating climate change by citizen science initiatives. We refer to Schäfer's fourth strand and analyze challenges facing communication about climate change in light of generating misinformation and disinformation, enabled and strengthened by the advent of generative AI, and propose solutions for reducing their impact. Our article is an advancement of recent work and the first to put it in the climate change perspective. It refers to contemporary and emerging scientific and societal topics such as generative AI, citizen science and open-source intelligence and provides an important theoretical contribution and reflection for the field of science communication research.

Mark Kasumovic

Picturing Climates: steps towards embedding artistic practice within climate change research

From shifting weather patterns that threaten food systems, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. It is widely understood that without drastic action today, adapting to these impacts in the future will be more difficult and costly. However, much of the science that predicts and models climate systems and climate change is not typically seen by publics and therefore remains mystified in popular culture, hidden behind specialist terminologies. This lack of engagement with actual climate science could be improved by encouraging new ways for climate scientists to engage with the public by employing the creativity found within the visual arts. Communication as a multidisciplinary endeavour, alongside the recognised benefits of introducing creativity into scientific practice, form the basis of a strong argument for increasing collaboration amongst practitioners.

This paper acknowledges the principle that understanding the anthropogenic cause of climate change is the strongest predictor of climate change risk perceptions. Thus, raising climate literacy through a shared cultural vocabulary is vital to public engagement and support for climate actions. This paper proposes and outlines potential ways to achieve deeper cultural communication of climate science by establishing approaches to demystify and 'picture' the complexities of climates and climate change. Directly embedding artistic practice into climate change research provides a practical, cost effective and interdisciplinary approach to exploring, encouraging and enhancing collaboration between visual artists and climate science communities – resulting in a greater connection between climate science and communities – by bridging the gap between specialist knowledge and public understanding of critical issues via a more universal visual language.

Amy Harris

The role of art in climate crisis: how science museums are using art to help visitors imagine more sustainable futures

The shadow of the climate crisis looms large as its impacts wreak havoc on a mostly unprepared world. Science Museums provide accurate and trusted information and are becoming a locus for the general public to learn about climate change and how to understand what the future might look like. In recent years, there have been a number of exhibitions taking place in many Science Museums around the world that engage with these themes, aiming to provide the public not only with desperately needed sources of reliable data, but also spaces where they can reflect, imagine, and create the conditions for those futures to be realised. Without the restriction of only needing to provide scientific facts and figures, these exhibitions draw on various mechanisms for communication and meaning making that not only appeal to a wide audience, but also serve to empower them. Building on previous work on the role of the imagination in climate communication, this research explores key exhibitions that focus on the climate crisis, and asks how they are addressing the need to furnish agency, without stimulating a fear response which only leads to indecision and delay. Further, this paper centers these explorations using the lens of "futures literacy" (UNESCO, 2022) or literacies (Horst & Gladwin, 2022) that are crucial to helping people understand how actions taken now can shape what the future could look like. The science museum as a platform for climate crisis communication offers a unique space with which to explore questions related to the crisis, and what can be done to counter it for a more hopeful, preferred future. This research presents insights including commonalities found across multiple modes of engagement; highlights of the responses from visitors to the exhibitions; and puts a spotlight on best practice demonstrated by unique effective cases.

Eva Garibaldi and Ana Laura Richter

Visualizing the unseen: the role of art in communicating climate change

Amidst the escalating urgency of the climate crisis, traditional scientific communication often struggles to convey climate change effectively to the public. Recognizing this gap we explore innovative artistic strategies to communicate environmental changes and speculate on future climates. Our project centers on the Škocjan Caves, employing advanced digital methodologies such as photogrammetry and 3D scanning to create a digital archive of the present geological moment. This approach visualizes the impacts of anthropogenic activities on caves and enables speculative exploration of their futures under varying climate scenarios. By integrating scientific data with speculative eco-fiction, we craft narratives that make invisible forces of climate change visible and palpable to a broader audience. Further exemplifying the power of art as an advocacy tool, we reference initiatives like TBA21-Academy's Ocean Archive and the work of artist Jakob Kudsk Steensen, who utilize artistic media to influence environmental policies. This illustrates how art transcends aesthetic boundaries to make substantial statements on climate change, engaging viewers emotionally and intellectually. The proposal aims to demonstrate how art, as a dynamic intermediary, can amplify the discourse on climate change, making it more accessible and urgent to society. Artistic research and visualization offer a unique perspective on climate change, evoking emotional responses that resonate more deeply with audiences. While scientific findings often remain confined to hermetic scientific circles, it is increasingly challenging to communicate climate change through a purely scientific lens in today's information-saturated age. This is where artistic methods, visualizations, and storytelling become crucial. By combining scientific data collection with artistic research methodologies, art complements scientific endeavors and transforms public engagement with climate science, advocating for a more informed global community.

Oiane Díaz Echarri

Safety of journalists who cover natural disasters and the use of social media for this purpose: an approach to the Icelandic case due to latest eruptions

The link between climate change and an increase in the number and frequency of natural disasters has been verified by various investigations (IPCC, 2023). In order to cover these events, journalists travel to affected areas risking their own lives. As Warren (2016) indicates "since 2005, fourty journalists around the world have died while reporting environmental stories", which has led to consider this journalistic work covering natural disasters as "a new sort of conflict journalism" (Elbein, quoted in Warren, 2016:1). Since the definition of the "United Nations' Plan of Action on the Safety of Journalists and the Issue of Impunity" (UNESCO, 2012) there has been an increase in research on the safety of journalists, especially focused on gender issues, digital threats or workplace safety (CFOM, 2023). However, there are few contributions that focus on the safety of journalists who cover natural disasters. This work is part of the JOSAFCON research project, funded by the Ministry of Science of the Spanish Government (PID2021-122680NB-I00), which addresses the safety of journalists who cover international conflicts. Based on it, the adaptation of the analysis model of the safety of journalists in conflict zones is proposed for the study of the safety of journalists who cover natural disasters. To do this, the defining elements are identified before, during and after the coverage, in a diachronic approach. Twenty-three Icelandic media photographers who covered the latest eruptions in Iceland were asked to fulfil a questionnaire about their safety conditions, use of social media as a communication tool and the impact of this coverage in their lives. Among the conclusions, the similarity of elements that condition the safety of journalists who cover natural disasters and conflicts stands out, also the job insecurity (Wadud, 2022) or the need for a comprehensive approach to both physical and psychological security (McMhon, 2017).

Agboola Odesanya

The green battle in the media: visual claimsmaking in Nigeria's digital green public sphere

Research underscores the fact that images, such as those depicting polar bears or climate protests, are not neutral entities. Instead, they carry with them a sense of urgency and power dynamics, thereby influencing the way audiences perceive and respond to the issue of climate change. However, much of the existing environmental communication research has been conducted at the textual level and has predominantly focused on legacy media in the Global North. This leaves a significant gap in our understanding of the 'green battle in the media' by visual claimsmakers on climate change in the context of 'digital born' news media in the Global South, particularly in countries like Nigeria. To address this gap, this study delves into the significant role that visual representations play in shaping the public's perception of climate change, with a specific focus on digital-born news media in Nigeria. Employing content analysis, the study undertakes an analysis of imagery in two leading Nigerian digital-born newspapers, *TheCable* and *Premium Times*, spanning a period from January 1, 2015, to December 31, 2021. Results of the content analysis reveal that while citizens were the most common visual claimsmakers, they were often portrayed as victims of climate change. In contrast, sources linked to the domestic government, though less visible, emerged as the 'primary definers' of visual claimsmaking on climate change. Based on these, the study posits that the narratives around climate change, as presented by the media, are influenced by the ideologies of journalists and the ownership of media outlets. This influence shapes how problems are defined, and solutions are framed, reflecting a strategic use of visuals to guide public understanding and (in)action on climate change. These findings key into the context of power dynamics and the potential of images to render claimsmakers visible or invisible. The study contributes to environmental communication research by putting the Nigerian context on its map.

Jadranka Jezeršek

Navigating the fine line: effective climate change communication without resorting to fear

In today's climate change discourse, striking the right balance between highlighting the urgency of action and avoiding the pitfalls of fear-based messaging is crucial. This abstract proposes a presentation for the 2nd International Conference on Science Communication in Slovenia, aiming to dissect and improve upon current strategies in climate change communication. The focus is on fostering methodologies that effectively educate and engage the public on climate issues and extreme weather without resorting to scare tactics, which risk desensitization or feelings of defeat. The core of the presentation will be the introduction of 'constructive journalism' as an innovative framework for climate communication. This strategy focuses on the dual reporting of problems and solutions, intending to empower audiences by showcasing successful climate action and adaptation stories. Such an approach seeks to transition the narrative from disaster to possibility, offering hope rather than fear.

Visual storytelling's critical role in climate communication will also be addressed. The power of visuals to make complex concepts accessible and to drive action is undisputed, yet their selection must be strategic to avoid inducing 'disaster fatigue.' Guidelines for choosing imagery that fosters understanding and engagement rather than fear, will be shared. Moreover, the presentation will delve into the significance of audience segmentation. Customizing messages to fit various demographic, cultural, and social contexts can significantly enhance their impact, facilitating a deeper connection with the climate change narrative. Drawing from the latest environmental psychology, communication studies, and successful climate campaigns, this presentation aims to offer practical insights for communicators. This contribution intends to spark a broader discussion on the ethical considerations and practical challenges of communicating climate change in an impactful and respectful way to the audience's emotional and cognitive responses. The ultimate goal is to foster a more informed, engaged, and hopeful public discourse around climate action.

Beyza Ergan and Mara Seitkhamit

Metaphorical narratives of climate crisis in cinema

We are witnessing an exceptional increase in weather, resulting in historically high temperatures across the globe. Therefore, the climate crisis has transcended the realm of scientific and policy discourse and become a tangible reality. As a result, it has emerged as a prevalent theme in movies. The primary aim of the research is to explore the metaphorical language used in climate change themed movies and its impact on the audience. The analysis will concentrate on how climate change is depicted in three movies: *Don't Look Up*, *The Day After Tomorrow*, and *WALL-E*. Using conceptual metaphor analysis, the aim is to identify source domains of climate crisis metaphors that evoke a sense of urgency concerning to the climate crisis. Additionally, image schemas are applied to visual elements using different film stylistic techniques such as camera movement and editing. Out of findings show that movies use different metaphors to explain the climate crisis, with war being the most common one. Other metaphors used are movement, vehicle, target, power, and natural disaster. The films also use a low-angle view to emphasize the magnitude of the crisis. In the editing phase, the duration of the scenes was prolonged and dramatized. It is concluded that the climate crisis is a frightening phenomenon that needs to be fled or fought. Cinema plays a vital role in creating awareness about climate change and shaping public opinion. The findings can encourage us to use popular culture's power to increase awareness and take meaningful steps towards addressing the climate crisis. Despite the depth of the analysis, this study has some limitations. These include the small sample size of selected movies and the fact that the study primarily focuses on English language content, which may limit its coverage.

Federica Carbone

Climate crisis matters: representations in worldwide cinema

An interesting development regarding the environmental sustainability of the film product is the recent rise of an indicator called Climate Reality Check, that starting from contemporary findings from climate science, offers essential perspectives to empower individuals in making informed decisions in their daily lives. This resource aims to assist policymakers in tackling the alarming gap between existing climate threats and the inadequate measures taken to handle them. Underestimating the seriousness of today's climate challenges, poses significant risks to societal stability, well-being, governmental capacities for safeguarding citizens and global equilibrium. So, this test seeks to demonstrate the impact of climate change, measuring the presence of this topic within film products according to specific criteria. This indicator, which operates on the model of the F-rating1, has been gaining popularity and is currently undergoing analysis to determine its impact on global cinema. Taking into consideration several nominated feature films of this year (2024), only 3 Oscar-winner features passed it: *Barbie*, *Nyad*, and *Mission Impossible: Dead Reckoning part 1*. But why were they the only ones? The criteria that must be met to pass the test are summarised in the possibility to answer these questions: does climate change exist in the world of the story? And if so, does a character know it? Is the movie set on Earth? Does it take place now or in the future?

Concluding, it seems possible to observe that the creation of such an index could soon become a useful instrument to change the ways of representing the topic of environmental sustainability on the screen, providing a more pleasant narration of such an urgent issue, also improving the capabilities of film products of being active spokesman for the society.

Sohail Dahdal

Using immersive storytelling to engage youth in climate action: a case study of the Magical Forest Virtual Reality Film

The Magical Forest Virtual Reality Film project is designed to engaging youth with the urgent issue of climate change. Functioning as both a creative narrative experience and a research project, it aims to evaluate the impact of immersive storytelling on youth participation in climate action. Placing viewers at the heart of the story, the goal is to evoke empathy and a sense of urgency regarding climate action. In addition to its narrative elements, the project incorporates a comprehensive toolkit designed to empower youth to take meaningful steps in addressing climate change. This toolkit equips young viewers with resources, strategies, and opportunities for action, enabling them to effect change in their communities and beyond. Our research explores the concept of presence, as articulated by Slater (2018), wherein viewers are immersed in the narrative, fostering a state of flow. We investigate how this immersive experience enhances engagement and, consequently, translates into tangible action among youth participants. By examining participants' immediate engagement levels during the VR experience and their subsequent utilization of the action toolkit, we seek to evaluate the overall effectiveness of immersive storytelling in engaging and mobilizing youth toward climate action. Through this interdisciplinary approach, the Magical Forest Virtual Reality Film project aims to not only raise awareness about the urgency of climate action but also empower a new generation of environmental advocates. By harnessing the power of immersive storytelling, we aspire to inspire meaningful change and contribute to a more sustainable future.

Dharitri Satapathy and Rudra Prasanna Mahapatra

A study on use of folklores in Indian cinema on climate change: a systematic literature review

Indian cinema has gown manifold in terms of content and treatment over the period of time. Many filmmakers have contributed towards serious issues like climate change, pollution control and environment protection in various innovative ways. Traditional stories and folklores are one of the prevalent concepts on which the makers are producing effective and impactful movies. Recent success of such movies in the Box Office also reflects the timeless effect of these stories. This study will focus on this aspect of Indian cinema on climate change and environment protection through a systematic literature survey. The study aims at: i) To study and analyze the use of various folklores in Indian Cinema on climate change and environment protection. ii) To review the gradual change in the perspective of using folklore as narratives. iii) To study the success of these movies on the basis of commercial gains, critical acclaim and impact on society. The research methodology for this study will include systematic review of existing literature, including research papers, articles/news features available and other materials available on internet or books.

The study intends to identify the trends of using folklores and stories from Indian tradition and culture on nature and environment in the movies, documentaries and other genres of cinema on climate change. The study expects to find out the timelessness of these folklores and their relevance in the recent times, in terms of commercial success and critical acclaim. The study will help in exploring the folklore yet to be turned into a cinematic narrative related to climate change and environment protection.

Nazife Ebru Güney

Migration in cli-fi movies

The term cli-fi was coined and first publicly used by a journalist and climate activist Dan Bloom in 2011, introducing it in his PR campaign for Jim Laughter's novel *Polar City Red*. Angela Evancie used the phrase on April 20, 2013, in a five-minute NPR Weekend Edition Saturday radio show to describe novels and films concerning human-caused climate change. Global warming is now widely acknowledged as causing climate change through extreme weather events such as rising sea levels, floods, desertification, and the spread of diseases through famine and population relocation. As a result, climate fictions are about such disasters, with descriptions of the consequences for humanity (Goodbody, 2018). This study aims to understand the concept of migration in climate fiction films through the notions of unhomely, desolation and Noah's ark. It adopts qualitative comparative approach where climate fiction films that deal with migration are analyzed. In the first part of this study, the term climate fiction is clearly defined regarding its similarities and differences between other related genres. Then, the issue whether climate fiction can be considered as a new genre is discussed. In the second part, climate fiction films are analyzed through examining their environment, protagonists and resolutions. The findings of this study indicate that climate fiction movies dealing with issue of migration do not offer any solution to the problems of global warming and climate change. Rather they use these issues to create a dystopian setting. In this context, their narration fails to a point where climate fiction cannot be specified as a genre but a modality.

Jeannine Helene Baetz

Representing environmental crises in contemporary European crime fiction: fatal enclosure and the ecological uncanny in Le Châlet (2018)

Since the turn of the century, crime fiction and its potential for socio-political critique have increasingly attracted scholarly attention, particularly in connection with the shared origins and development of crime fiction and Gothic fiction. While recent research into the genre has notably been extended to address both the presence of Gothic elements in contemporary European (Noir) crime fiction and the genre's representation of environmental issues and their socio-political implications, many of these efforts emphasise explicit representations of environmental issues and psychological-realist readings of Gothic elements in crime fiction. While both research strands can undoubtedly provide valuable insights into the representation of issues such as identity or national discourses in the genre, they prove too narrow to address another underlying discourse that has become increasingly significant vis-à-vis the rapid progression of the climate crisis in the twenty-first century: the introduction of the term Anthropocene to address humanity's impact on the planet. This presentation aims to address the gap between recent ecocritical approaches to Gothic fiction and contemporary European crime fiction by analysing the representation of the 'ecological uncanny' in crime fiction's representation of ecological crises. Drawing on the concepts of the Anthropocene, posthumanism, and the ecological uncanny, this presentation aims to demonstrate the relevance of such an approach through a concept-based analysis of the French series Le Châlet (2018), followed by a brief discussion of the transmedial and transcultural prevalence of ecogothic elements in contemporary crime fiction. Arguing that contemporary crime fiction's use of Gothic elements to address socio-cultural crises and anxieties can be considered a functional continuation of the European Gothic tradition, this presentation aims to expand on and bring together several emerging approaches to crime fiction and Gothic fiction to situate crime fiction's representation of environmental issues in the wider context of Anthropocene fiction.

Tanja Dimitrijević

Climate change in A Tale for the Time Being by Ruth Ozeki

Ruth Ozeki's *A Tale for the Time Being* weaves a complex narrative tapestry, braiding personal struggles with the looming threat of climate change. This paper explores how Ozeki portrays climate change not just as an environmental issue, but as a pervasive force impacting characters across the Pacific Ocean. Through the lens of the environmental humanities and transnational literature, we will examine how Ozeki depicts the ripple effects of environmental degradation and its connection to individual experiences.

The analysis will focus on how characters in this novel grapple with the anxieties and uncertainties surrounding climate change, a phenomenon Timothy Morton, in *Hyperobjects: Philosophy and Ecology After the End of the World*, terms a hyperobject. Hyperobjects are massive, complex entities like climate change that transcend individual understanding and national boundaries. The characters experience the consequences of climate change through the 2011 tsunami and the Pacific Gyre pollution, highlighting its global reach. However, the vastness of the hyperobject makes it difficult for them to fully grasp its entirety. Additionally, this paper examines the potential for Jiko's Buddhist teachings to offer a path towards hope and resilience in the face of this environmental crisis. Jiko's emphasis on interdependence resonates with contemporary Buddhist ecological thought, particularly Joanna Macy's work in *Coming Back to Life: Practices to Reconnect Our Lives with the World*. Macy's framework of the "Great Turning" emphasizes the importance of acknowledging our grief for the Earth, but also cultivating a sense of interconnectedness and personal agency in addressing environmental challenges. By examining Ozeki's use of literary devices like the Hello Kitty lunchbox, carried across the Pacific by ocean currents, this paper argues that the novel transcends national borders to depict climate change as a unifying threat demanding a global response. Furthermore, it suggests that Jiko's Buddhist teachings, informed by contemporary Buddhist ecology, offer a potential framework for cultivating the interdependence and collective action necessary to confront this hyperobject.

Žiga Kovač

Desolution of language as desolution of Space: environment in time of Lingua Tertii Imperii

In my contribution I will focus on political and everyday discourse of contemporary society in relation to environmental issues. I will start from the fundamental postulate of the existence of scientific consensus on climate change and the intensity of environmental disasters as a consequence of human actions. I will seek the emergence of cognitive dissonance, which prevents more decisive action at the level of individuals and society, in the occurrence of language itself. In the theoretical part, I will rely on phenomenological linguistic theories, for which language does not only express non-linguistic reality but is itself a means of thought. In formulating my thesis on the connection of linguistic elements in relation to the environment, I will primarily draw on the thoughts of the philosopher Hans-Georg Gadamer and the classical philologist Victor Klemperer. The experience of the world is shaped by the influence of the language we speak and are exposed to, and real changes in behavior are only possible with a change in linguistic usage. Klemperer in *Lingua Tertii Imperii* describes the key characteristics of the changing language during the political instability of the Weimar Republic and the formation of the Third Reich, from which he recognizes the poverty of language as a fundamental change. In his work, he describes how the language of the so-called *Lingua Tertii Imperii* persistently spread and became increasingly established, evolving from the sociolect of the party to the language of the people and ultimately, in the final phase, subordinating all social cells. In the analytical part of the contribution, I will examine the prevailing discourse that trivializes the findings of climatological science and openly dismisses its political, non-governmental, and other representatives as part of a general decline in language culture, as described by Klemperer. In the concluding part, in light of the emergence and promotion of misinformation, I will discuss the placement of environmental discourse within the sphere of so-called problematic or dangerous speech, as defined in sociolinguistic theories, for example by Susan Benesch, Vlasta Jalušič, and Predrag Dojčinović, and the possibilities of preventing it at

the national and European level. Dangerous speech disguises itself as the right to freedom of expression, but in reality, it attacks human psyche, cognition, and integrity - and in the case of the environment, even the long term existence of humanity.

Zarja Muršič

Is informing enough? How can science communicators make people care even more about climate change

Research coming out of behavioural sciences shows that facts do not necessarily change minds, but it is feelings that need to be addressed when we want to support changes in behaviour. In my paper I will investigate how findings about human behaviour influence the way we report, create and form science stories and how we engage people with science. Climate change impacts everyone, no matter their background and science has so far not been accessible to everyone. In science communication we sometimes focus too much on reporting facts and not finding topics that engage our audiences based on their experiences, how they feel and their values. This leads to questions about the role of science communicators in the times of climate change. It is necessary that in climate change reporting science communicators focus on other parts of lived experiences outside of scientific articles. Nowadays, climate change is part of our daily lives and should be taken into account when reporting on culture as well as on sports. Audiences experience particular emotions when following cultural and sports events, which is not always true for science. In the paper I will explore, how climate change should be portrayed and included in diverse fields; and how can an understanding of human behaviour, in particular values and emotions, inform science communication of all levels from engaging publics with science to science reporting. Another way to bridge the gaps between science and the public is to include citizens in scientific endeavours. Does this change their understanding as well as feelings about science, the environment and climate change? Would these lead to an even higher engagement of people with climate change and ultimately, behaviour change?

Maja Turnšek

Climate change communication in the tourism field: to influence, persuade or deliberate?

This paper discusses the challenges of communicating climate change to the tourism stakeholders and tourism students. In 2023 we have finalised the national research project "V7-2128 Climate change and sustainable tourism development in Slovenia" with detailed accounts of climate change adaptation and mitigation measures for Slovenian tourism. While the research provided more than 500 pages of scientific reports, it also included participatory workshops, PR reports, and a stakeholder communication book published with the Tourism Board of Slovenia. The challenges of communicating climate change to the tourism industry showed to be fairly typical: low interest and lack of time, need for positive spins (e.g. mitigation as an opportunity to save costs), adverse reactions to additional regulation and costs, desire for "proof of concept" experience learning (e.g. visits to good practice examples). However, to be properly understood and addressed we argue here that these challenges need to be contextualised within the communication paradigms. We critically compare our practical approaches to the normative positions on inclusive public deliberation as the most ethical form of public communication. We argue that there is an ethical division between three broad types of climate change communication: influencing, persuading, and deliberating. We discuss how each of the three types are used in climate change communication in the tourism field, taking examples from our own approach and approach of the broad "sustainable tourism" discourses. The aim is to discuss on the ethical and practical limitations of each the three broad types of communication and provide further recommendations for communication and education on the green transition in tourism.

Mihaela-Alina Coste

From images to impact: a multimodal analysis of disaster representation on Instagram

At a time when the link between representations of disasters and the effects on the public are influenced by human reactions, this research investigates the role of photography and social media in influencing public perception of natural disasters. Focusing on the semiotic and narrative properties of images shared on platforms such as Instagram, the study explores narrative construction in crisis situations and how digital visual narratives shape societal reactions to disasters. Through a multidisciplinary approach combining data analysis, semiotic approaches and visual studies, the research examines the evolution of photography as part of visual culture, the dynamics of social media as a platform for communicating risk situations and the relevance of natural disasters in a global context.

Analysis of Instagram narratives related to the Australian bushfires (2019–2020), the Turkish earthquake (2023) and the floods in Emilia-Romagna, Italy (2023), includes a combination of quantitative and qualitative methods, including natural language processing and machine learning with the aim of investigating the interaction between images and text, identifying who are the affected people, the public people involved in relief efforts and what are the emerging central themes. The research aims to provide insights into the socio-cultural nuances of online narratives and visual representations produced and distributed during natural disasters. It also highlights the importance of multimodal analysis and automated analysis techniques in understanding the dynamics of online communication and the role that social media plays in reflecting and shaping discourse around natural disasters.

Bahati Ally Magesa

Understanding gender implications and preferences in utilizing climate information services in semi-arid agricultural communities of Tanzania

Climate change is one of the world's greatest challenges of our times that requires argent actions particularly in sub-Saharan Africa. Its impacts are already evident and projected to increase in vital sectors essential for human and economic development, including the agricultural industry in sub-Saharan Africa. There is high confidence that warm spell durations and heat waves will increase in most regions in Africa toward the end of the century. The fact that the agricultural sector in the region (sub-Saharan) is highly characterized by few technological inputs, rain-fed (98%), and contributing to about 70% of the labour force in the continent, makes the sector more vulnerable to climate change impacts and an issue of concern. Additionally, the agricultural system in the region is more dominated by small-scale farmers who have limited access to infrastructure, financial resources, and access to information. In due regard, it is becoming important to increase the resilience of the small-scale farmers to climate change impacts. Consequently, climate information services in areas where agricultural activities are being done are needed for better management of the climate risks in agriculture. Access to timely climate information services is prerequisite for risk mitigation and agricultural production. Climate information services involve both agronomic advice and climate forecasts, which should be accompanied by response strategies for climate adaptation.

Despite the importance of climate information services on the climate adaptation agenda, little is known about men's and women's preferences on climate information services. Besides that, little is also known on women's and men's preferences on adaptation strategies. In due regard, this study is intending to develop a gender-based framework for climate information services to enhance the resilience of both men and women to climate change impacts in semi-arid agricultural communities of Tanzania.

Shirley Roburn

Doing digital journalism differently: a case study of The Local's "Toronto's Climate Right Now" issue

In the summer of 2022, *The Local*, a digital journalism start-up based in Toronto, teamed up with the Narwhal, a Canadian digital journalism start-up focused on environmental issues, to produce the "Toronto's Climate Right Now" issue. Focused on urban health and the well-being of diverse communities in underserved neighbourhoods, the issue's approach to climate change was qualitatively different from that of the mainstream. Articles ranged from an in-depth exploration of the disproportionate suffering and death of poorer residents living in high rise housing projects; to a first-person reflection by a mid-wife on climate impacts on the health of pregnant women and babies, and on women's calculus about having children; to a long-form text accompanying community naturalists and Indigenous land stewards adapting to the expansion of invasive species through the city's parks and ravines. This paper will argue that the innovative structures, mandates, and ethical commitments of *The Local* and *The Narwhal* are what produced new ways of communicating climate concerns. The start-ups are the first two Canadian Registered Journalism Organizations, non-profits which give tax receipts to all members and donors. Both organizations have specific commitments to financial and donor transparency, and to codes of ethics that frame journalistic accountability in new ways. Perhaps most importantly, *The Local* has a commitment to Race, Equity, and Representation, which ensures reporters are members of the communities they serve. The strong relationships the magazine has built with communities is core to how *The Local* has been able to meet its mandate of "turning complex policy issues into compelling narratives, and addressing problems that are systemic and ongoing, even if they don't have a news hook" (theLocal.ca). These compelling narratives, told through multimedia and intertwined with the kind of deep analysis of systemic issues that long form journalism can offer, are on full display in the "Toronto's Climate Right Now" issue.

The scientific editorial board at Radio Študent
(Klara Jurečič, Editor-in-chief)

Climate science and policy journalism on Radio Študent

The scientific editorial board at Radio Študen 89.3MHz has been since 2022 preparing a monthly climate podcast entitled "ARŠO" (Agencija Radia Študent za okolje). The podcast was started with a dual purpose, to create a regular space for accumulating knowledge of climate sciences and further disseminating it to the interested public. As none of the diverse contributors are primarily climate scientists by training, it was necessary to first form something like a "crash course" to be used as reference in the later episodes. In our contribution, we will discuss the editorial policies that guide the podcast and reporting on climate topics in news segments, the production process and how specifics of a radio show impact the presentation, and share experiences with approaching state-of-the-art climate science.

Rabia Noor

Exploring challenges and perspectives: a mixed method investigation of climate change reporting in Pakistani journalism

This comprehensive study explores the landscape of climate change reporting among Pakistani journalists, employing a mixed-methods approach of 20 qualitative interviews and a survey involving 110 journalists. Anchored in Agenda-Setting Theory and Environmental Communication Theory, the research seeks to validate hypotheses concerning the impact of journalists' training on their perspectives, reporting quality, and the broader media agenda regarding climate change. By integrating nuanced insights from qualitative interviews with quantitative data from the survey, the research provides a holistic understanding of the intricate dynamics shaping climate change journalism in Pakistan. The findings underscore the importance of structured training initiatives, increased awareness, and improved technological capacity to enhance journalists' effectiveness in addressing the multifaceted challenges posed by climate change. The study contributes valuable insights for media organizations, policymakers, and stakeholders aiming to improve environmental reporting and awareness in Pakistan. Future studies are encouraged to explore emerging technologies, assess the impact of climate change reporting on policy and public behaviour, and investigate collaborative approaches among stakeholders in addressing climate change challenges. Additionally, longitudinal studies tracking the evolution of climate change narratives over time could offer insights into the sustainability and adaptability of environmental communication strategies.

Anamarija Šiša, Maruša Pušnik and Dejan Jontes

Slovenian newsworkers and their role in shaping climate change narratives

The paper analyses perceptions of the climate crisis by newsworkers of Slovenian (online) media and their news coverage of this topic. Through qualitative analysis of the in-depth interviews, the paper offers insights into the attitudes, perceptions, and motivations of selected Slovenian journalists and editors about climate change reporting and new insights into journalism practice and environmental journalism in Slovenia in terms of the peculiarities and contextual factors that can influence coverage of extreme weather events and climate change. The results show that the environmental and climate topics are underrepresented in Slovenian media, and these topics are covered in accordance with newsworthiness and public liking factors, and marketing neoliberal pressures to sell the news and make a profit. Such a commercialization and popularization of environmental journalism might lead to the passiveness of the audiences since it does not mobilize public awareness but rather represents the environmental topic as just another story in the media. The lack of analytical depth, critical problematization, wider contextualization of climate change, and the exaltation of journalistic norms of dramatization, eventization, noveltyization, and personalization prevent grasping the problem holistically.

Dunja Majstorović, Dina Vozab and Karla Martinić

Seeking causes or finding solutions? Understanding the framing of biodiversity crisis in the Croatian media

Despite not being solely the product of climate change, biodiversity crisis is nonetheless exacerbated by it. Still, as opposed to climate change, this topic seems to receive a lot less media interest (see e.g., Legagneux et al., 2018; Veríssimo et al., 2014). The research also shows that biodiversity is a complex and not easy-to-define concept (Shanahan, 2008) that is seldomly fully appreciated or understood by the media or public in general.

Although Mediterranean coast is especially vulnerable to the effects of climate change (Lincke et al., 2020), the research on framing of climate change in the Croatian media is scarce (some of the notable exceptions being Kalajžić et al., 2022 and Bašić et al. 2020) and the research on the framing of biodiversity crisis is non-existent. Our aim is thus to fill in the literature gap by assessing the overall interest and coverage of the biodiversity crisis in Croatian news media in a longitudinal time frame – in terms of topics, framing, tone of reporting, integration of scientific research and the connection to climate change.

The analysis is done in two phases. In the first, exploratory phase of the research, thematic analysis is used for the inductive coding to determine thematic news frames about biodiversity (with reference to framing categories from Entman, 1993 and Lopera and Moreno, 2014). In the second phase of the analysis, we used the findings from the first phase of the analysis to create a coding matrix for the quantitative analysis of news about biodiversity. We analyzed news articles about the biodiversity crisis published in *Večernji list*, the longest-running national daily newspaper in Croatia by using their archive for the printed edition (for the available period 1959-2010) and their digital edition Vecernji.hr (for the remaining period 2011-2022). We selected articles for the analysis via six keywords related to biodiversity. The final sample consists of 367 news articles.

CONTRIBUTORS

Ana Novak is a graduate agronomy engineer and holds a master's degree in natural resource economics. Since 2020, she has been employed at the Department of Agricultural Economics, Policy, and Law at the Biotechnical Faculty of the University of Ljubljana, where she is currently pursuing her doctoral studies on the knowledge transfer on practices contributing to environmental and nature conservation in agriculture.

Flavio Piccoli is a PhD candidate in Sustainable Development and Climate Change at the University School for Advanced Studies IUSS Pavia and at the University of Insubria. His research focuses on media coverage of climate risks in two scenarios: extreme weather events and release of significant information by international scientific institutions. He holds a degree in Analysis of Social Processes from the University of Milano-Bicocca. Prior to his PhD, he worked as a data scientist for a company creating models and solutions for audience measurement and as a research collaborator on various national and European academic research projects on media and narratives.

Marina Dermastia, after graduating from the Department of Biology at the Biotechnical Faculty at the University of Ljubljana, continued her studies as a young researcher at the Institute of Biochemistry at the Faculty of Medicine in Ljubljana. Following completion of her Master's degree, she pursued a one-year internship at Brandeis University in Boston (USA), where she conducted research on microbial biochemistry. Her doctoral studies at the National Institute of Biology eventually led her to focus on plants. Presently, she holds the position of full professor at the University of Ljubljana and the Jožef Stefan International Postgraduate School, in addition to serving as a scientific advisor at the National Institute of Biology. She has also served as a visiting professor at the University of Florida in Gainesville (USA) for several years. Actively engaged in various international professional associations, she is the author of numerous scientific publications, monographs, and textbooks spanning all levels of education. Dermastia enjoys sharing her knowledge with the general public through popular articles, workshops, and lectures, including her role as chair of the 'In the Swirl of Change' symposium. She has been honored with several national and international awards for her contributions, including the title of Science Communicator of the Year 2023 by the Slovenian Science Foundation.

Begoña Verdejo Herreras has a degree in Geodesy and Cartography from the Polytechnic University of Madrid. She has been working in the Geospatial industry inside Hexagon for more than 30 years in different sectors for the EMEA region, managing projects in Defence, Government, Transportation and lately in Sustainable projects and urban digital twin's developments. Her experience is mainly doing pre sales activities and also business development but had worked in other departments, such as support, product development and training. She collaborates very closely with R_Evolution, the green division of Hexagon that works in sustainable disruptive initiatives and specially has led the Green Cubes initiative.

Frenk Dragar is a Master's student at Utrecht University. He graduated in Computer Science and Mathematics at the University of Ljubljana, where he developed »SloBench: Slovenian Natural Language Processing Benchmark« as part of his thesis project on automating the evaluation of language models. His interests and experience in artificial intelligence and computer science include deep learning, natural language processing, evolutionary computation and data engineering.

Leon Samotorčan is a Master's student at University of Ljubljana. In his undergraduate thesis, he researched the efficient computation of subgraph isomorphism.

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Sašo Petan is director of the government department for hydrological analysis and modeling at ARSO (Slovenian Environment Agency). For more than a decade he has been working in the field of hydrological analysis, modelling and forecasting.

Ivan Bratko is a professor at the Faculty of Computer and Information at University of Ljubljana and Head of the Artificial Intelligence Laboratory, until 2002 he was also Head of the Intelligent Systems Department at Jožef Stefan Institute. His research interests include machine learning, qualitative modelling, intelligent robotics, heuristic programming and chess-playing software.

Anže Medved, a physicist, has been working as a climatologist since 2016 and as a weather forecaster at the Slovenian Environment Agency since 2023. Main fields of his work include preparing analysis of climate projections for external users, working as a weather forecaster and explaining current weather and climate projections in the media. He has been involved in one of the major projects at the Agency in the field of climate change, Climate Change Assessment in Slovenia until the End of the 21st Century and is one of the main authors of summary reports.

Katja Klančar is physics professor, who has been working in the field of climate change for the past 6 years. At first she was working on how the total runoff is going to change in the future due to climate change in the framework of project Climate Change Assessment until the end of 21st century in Slovenia. Now she is working on the second part of synthesis report within the same project and therefore has an overview of the contents of entire project.

Andrej Srakar, PhD, is an economist and mathematician, interested in probability theory, complex analysis, econometric theory, and applications in culture and the arts, healthcare and ageing. He is employed as scientific associate at the Institute for Economic Research (IER) and teaches at School of Economics and Business, University of Ljubljana. He is coordinator of YoungStatS project in the framework of Young Statisticians Europe initiative of FENStatS association, member of several main organizational committees of Royal Statistical Society and coordinated 23rd European Young Statisticians Meeting (EYSM 2023) under the auspices of Bernoulli Society. He is editorial board member of Alternator-Think Science.

Mark Kasumovic is an artist, researcher and academic at De Montfort University in Leicester, UK. His artistic work explores the relationship between the camera and the scientific instrument through photographic, sculptural and expanded media practices, and has visited over 40 research laboratories and sites in the production of his last project, A Human Laboratory. His academic research focuses on artistic and aesthetic strategies towards the representation of contemporary technology and phenomenon. He has exhibited his work internationally, most recently in Canada with the GardenShip and State project and collective, focussing on issues surrounding climate change and colonialism.

Amy Harris, originally from the UK, has lived in Vancouver, BC for more than a decade. Her academic background was in English Literature, but following an unfulfilling career in personal finance prompting a change of scenery to Vancouver, she worked in communications for 7 years before pursuing a Masters, completed in Spring 2020. She is excited about her PhD research, which explores how museums and exhibitions about climate change help people to understand what the future could look like.

Eva Garibaldi and Ana Laura Richter – duo Swamp_Matter, formed by Eva Garibaldi and Ana Laura Richter, delves into climate change and the Anthropocene's impact on ecosystems. Their practice explores humanity's relationship with environmental shifts, focusing on marginal landscapes such as swamps and caves. They merge spatial installations with digital media and speculative fiction. Garibaldi, an interdisciplinary artist and designer, graduated from ALUO and holds a Master's in Interior Architecture with honors from the Piet Zwart Institute. Richter, also an interdisciplinary artist, graduated in dramaturgy from AGRFT and completed the MA Ecology Futures program at St. Joost School of Art & Design. Currently, they are developing a project on Škocjan Caves, with results to be exhibited at Aksioma U30+ in Fall 2024.

Oiane Díaz Echarri has a degree in Technical Architecture (2012), degree in Building Engineering (2015) and degree in Journalism (2018), Master degree in Construction Engineering (2016). Since 2012 she has been focused in different issues related to sustainability and climate change, including this theme as her main work line. Her research interests include media and corporate communication related to climate change issues as well as journalist safety linked to natural disasters.

Agboola Odesanya is a scholar with significant contributions in the field of Media, Communications, and Sociology. He has served as a PhD Researcher and Graduate Teaching Assistant at the University of Leicester. He has also worked as a Lecturer II at Lagos State University, Ojo, Nigeria. His research interests include journalism studies and environmental communication. Odesanya has published papers on various topics including the portrayal of women and gender role stereotyping in movies, mass media and maternal healthcare, and press regulations. He is about to complete doctoral studies at the University of Leicester.

Jadranka Jezeršek is a Chevening fellow and an alumnus of Metropolitan University, London. She also holds a Master's in Communication of Science and Innovation from the University of Trento. Over the last 15 years, she has been intensively involved in projects that embrace scientific engagement and science communication. She is a "ERC Frontiers Media" Advisory Board member and the European Commission Working Group on Science Diplomacy.

Beyza Ergan is a 23-year-old student originally from Turkey. He graduated from Istanbul Medipol University, Department of Radio, Television and Cinema BA. He is currently pursuing his MA in Communication and Media Studies at Corvinus University of Budapest, Hungary. He is interested in cinema, digital media and metaphorical studies.

Mara Seitkhamit is a 26-year-old student originally from Kazakhstan and is currently pursuing a degree in Media and Communication at Corvinus University of Budapest. She has participated in academic conferences before in Kazakhstan, presenting on finance and media. She is deeply passionate about investigating the complex relationship between climate change and media.

Federica Carbone is a PhD student in the Doctoral School of Humanistic Studies at Sacred Heart Catholic University. Her research interests are the relationships between sustainability communication and the Italian cultural/creative industries, especially Italian film festivals. Her dissertation aims to study how web and social media data can influence sustainability communication in the cultural and creative sphere, leveraging the institutional principles of Agenda 2030. She holds a bachelor's degree in communication and marketing and a master's degree in Digital Marketing. She currently works for Blogmeter, an Italian research institute.

Sohail Dahdal is an immersive media researcher and the head of the Media Communication Department at the American University of Sharjah. Beyond academia, he is an entrepreneur and the founder and creative director of Fifth Wall Immersive Media Lab, an XR Media startup based in Sharjah. Sohail holds a Doctorate of Creative Arts from the University of Technology, Sydney, boasting a remarkable career spanning over three decades as a media creator. Throughout his journey, Sohail has won numerous media awards and accumulated extensive experience in crafting immersive media projects, interactive experiences, and educational games. His body of work consistently defies conventional storytelling norms while paying homage to the timeless art of compelling narratives. Sohail's research and startup goal are to inspire, through story-drivenXR experiences, the younger generation to take proactive steps to become engaged citizens.

Dharitri Satapathy is a PR and Corporate Communications professional with around 15 years of experience in the fields of Corporate Communication, Internal Communication, Content Generation, Communication Research. He is currently working as the Assistant Public Relation Officer at Indian Institute of Technology (IIT) Bhubaneswar, leading the PR and Communication activities of the premier institution, to enhance the brand visibility and public relations of the Institute through various communication strategies. He is a UGC-NET qualified communication professional and has also worked in organisations like National Aluminium Company Limited (NALCO), A Navratna PSU, under the Ministry of Mines, Govt. of India and Vedanta Aluminium Limited.

Rudra Prasanna Mahapatra is a passionate Wildlife Conservationist with around 15 years of experience in wildlife rescue, conflict management, training, disaster response and documentation. He worked for several national and international organisations as documentation consultant and led various wildlife conservation projects. Currently, he is working as Manager & Regional Facilitator at Wildlife Trust of India, as part of which he is serving as the Project Head of Mobile Veterinary Service Units in Odisha; Regional Head of Emergency Relief Network of East Coast of India; Project Head of Human Wildlife Conflict Management Training, Odisha and the Regional Facilitator for WTI's existing and upcoming projects in Odisha.

Nazife Ebru Güney is a research assistant at Bahcesehir University (Istanbul, Turkey) where she continues her PhD studies. Her research field focuses on cli-fi, genre film, and narratology.

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Shirley Roburn is an Assistant Professor in the Department of Communication and Media Studies at York University in Toronto, Canada. She researches the public storytelling strategies used by Indigenous communities and their civil society allies in order to reframe controversies over energy infrastructure development in terms of issues of land and water, food, and cultural sovereignty. More recently, her work has focused on low-carbon media and research practices, and on on-line digital journalism startups use of data visualizations in digital storytelling that foregrounds social inequities related to health and environment.

The scientific editorial board at Radio Študent (Klara Jurečič, chief editor), one of the oldest European independent media, has been active since 2016. At present, it has 30 collaborators, and the chief editor is Klara Jurečič. In line with its mission, scientific editorial board has taken a different approach to reporting and covering science and scientific topics than other media: in its programming, as in other newsrooms, it has relied on students of natural and technical sciences.

Rabia Noor is an international award-winning broadcast journalist, academician and researcher and video blogger based in Lahore, Pakistan. She has presented her paper in the Academic Conference on International Press Freedom Day 2019 grand event in Addis Ababa organized by UNESCO. She has also participated as opening panel speaker in the first Mobile Journalism Conference 2019 in Asia, held in Bangkok. She has achieved inaugural Jamal Khashoggi Award for Courageous Journalism. She has also presented her paper in the International Conference on Safety of Journalists in Oslo, Norway.

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