EUROGEO 2026

INTERNATIONAL CONFERENCE

GEOGRAPHIES IN FLUX: NAVIGATING A SHIFTING WORLD ORDER

PROGRAMME & BOOK OF ABSTRACTS

Tilburg, Netherlands
21-22, May 2026

Fontys
UNIVERSITY OF
APPLIED SCIENCES

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This publication includes the official conference programme and collection of abstracts submitted by participants from across Europe ant the globe

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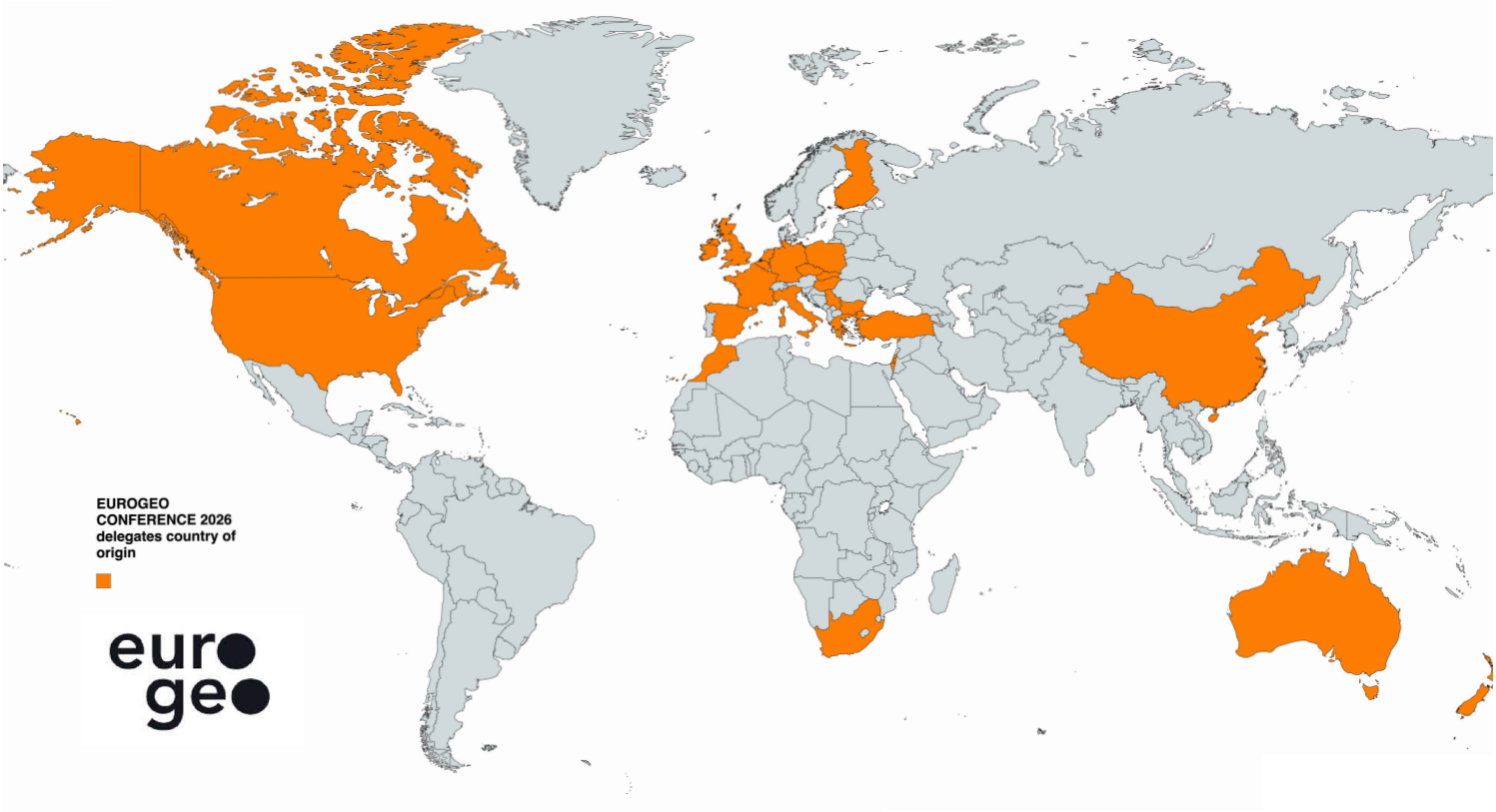
Introduction

The 2026 EUROGEO Annual Meeting and Conference is organized in May 2026 in Fontys University of Applied Sciences, Tilburg, The Netherlands, to present outcomes of geographical or interdisciplinary research related to the theme: “GEOGRAPHIES IN FLUX: NAVIGATING A SHIFTING WORLD”.

This Conference comprised 152 particpants (from 25 countries): 3 keynote plenary sessions, 80 paper presentations, 22 posters, 6 workshops, 4 special panels and 2 field trips post-conference.

Conference attendees represent countries from almost all continents**.**

Participants of the Conference, Tilburg 2026



Geographies in Flux: Navigating a Shifting World Order invites participants to critically explore the role of geography in an era of rapid and far-reaching global change. From geopolitical transformations to environmental crises, and from polarising public debates to the evolution of spatial inequalities, the world is undergoing accelerated and complex shifts. Geography—as a discipline that bridges physical and human dimensions—offers vital tools for interpreting, teaching, and engaging with these challenges.

The conference encourages contributions that reflect on:

- The impact of changing geopolitical dynamics and the emergence of new global powers.
- How geographers can address controversial and polarising topics in education and research.
- The ways in which environmental, demographic, and technological transformations reshape places, regions, and identities.
- The role of spatial and place-based knowledge in a world of rapid transitions.
- How geographical education fosters critical citizenship and resilience in times of uncertainty.

Special Focus

This edition of EUROGEO will also present findings from collaborative projects on teaching controversial issues in geography classrooms, exploring pedagogical strategies and challenges in dealing with topics such as migration, climate justice, and inequality.

Tilburg, with its location at the heart of Europe, offers an ideal backdrop to reflect on the role of geography in navigating the complexity of the 21st century.

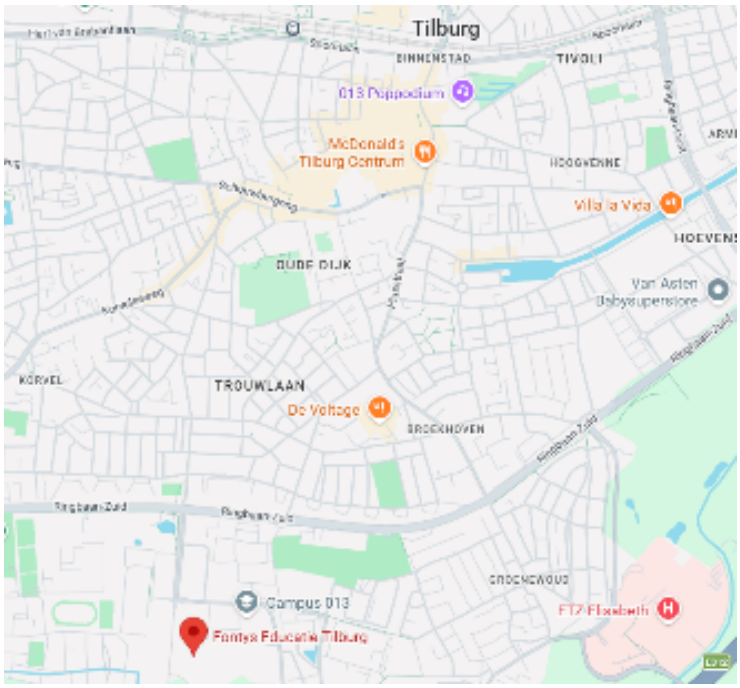
Conference Venue EUROGEO TILBURG – Practical Information

The conference will take place at:

Fontys University of Applied Sciences – Educatie
Building P1 (Mollergebouw)
Professor Goossenslaan 1
5022 DM Tilburg
The Netherlands
The venue is located on **Campus Stappegoor**. On the campus you will find several buildings:

- **P1 – Mollergebouw** (conference venue)

Please make sure you enter **Building P1 (Mollergebouw)**.



Getting There

By Bike

Tilburg is a cycling city. Many hotels offer rental bikes. You can also reserve a bike in advance via: Guill van de Ven Fietsen dumont@guillvandevenfietsen.nl www.guillvandevenfietsen.nl Please contact them by email to make a reservation.

By Bus

Several city buses stop near Campus Stappegoor. From **Tilburg Central Station**, the venue can be reached in approximately 10 minutes by bus.

By Car – Parking Information

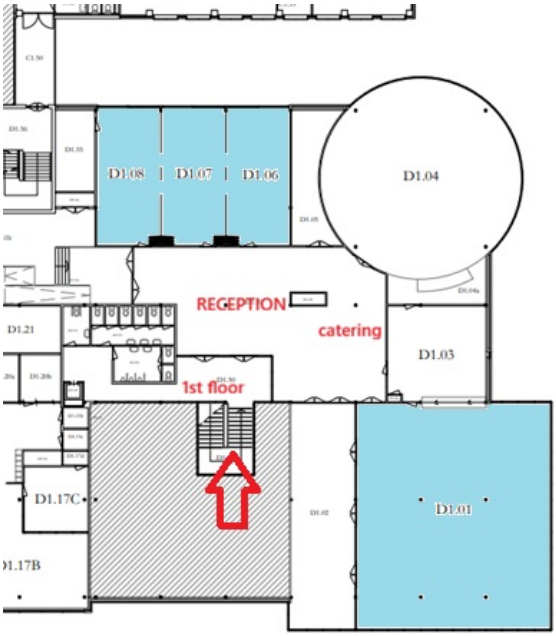
Parking is available on Campus Stappegoor. Visitors (non-Fontys staff/students) pay for parking. Parking rates: €1.50 per hour (maximum €4.00 per day) €4.00 per 24 hours (day 1 & 2) €10.00 per 24 hours (from day 3 onward) €7.50 for a lost ticket The first 30 minutes are free. Payment is possible **by debit card only** at the payment terminals.

At the registration we have a limited number of exit tickets available.

Upon Arrival

Please enter **Building P1 (Mollergebouw)**.

- After entering the building, you will see the general institute desk.
- **Before reaching the main reception**, take the **stairs on the left-hand side** to the **first floor**.
- There you will find the **conference reception desk**, where participants can register.
- Catering will also be provided in this area.



Accessibility

Participants who require elevator access are kindly requested to report to the **general desk at the entrance**. Staff will assist you and provide access to the lift.

Wi-Fi Access

Wi-Fi is available throughout the building. Participants can connect via the **guest network**. Access instructions (network name and login link) will be provided during the conference at the registration and in the conference rooms.

Conference Rooms

All conference rooms are located on the **first floor**.

🟣 **D-Wing (Purple Wing)**

- **D101** (main hall)
- D106
- D107
- D108

🔴 **C-Wing (Red Wing)**

- C120
- C102
- C103
- C104
- C105

Conference dinner

The conference dinner will take place at:

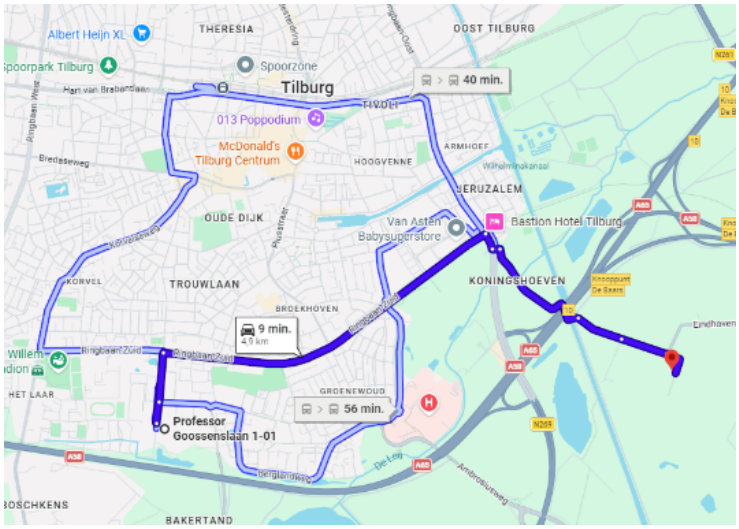
Proeflokaal La Trappe
Eindhovenseweg 3
5056 RP Berkel-Enschot
The Netherlands

The dinner venue is located at the Abbey of Koningshoeven, home of the internationally known La Trappe Trappist brewery.

The venue can be reached from the conference location:

- by car or taxi in approximately 10 minutes,
- by bicycle in approximately 18 minutes,
- or by public transport in approximately 55 minutes.

Further practical information regarding transport and departure arrangements will be provided during the conference.



We look forward to welcoming you in Tilburg and hope you will have an inspiring, engaging and enjoyable conference.

Fontys University of Applied Sciences & EUROGEO

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APPLIED SCIENCES

euro geo

Scientific and Organising Committees

Members of the Scientific Committee:

Uwe Krause, Fontys University of Applied Sciences, The Netherlands

Rafael de Miguel González, University of Zaragoza, Spain

Aiketerini Klonari, University of the Aegean, Greece

María Luisa de Lázaro Torres, Universidad Nacional de Educación a Distancia (UNED), Spain

Karl Donert, National Teaching Fellow, United Kingdom

Alexandros Bartzokas-Tsiompras, National Technical University of Athens, Greece

Gerry O'Reilly, Dublin City University, Ireland

Daniela Schmeinck, University of Cologne, Germany

Luc Zwartjes, Ghent University, Belgium

Sohie Wilson, St Mary's University Twickenham London, United Kingdom

Javier Álvarez Otero, UDIMA University, Spain

Chair of the Organising Committee

Uwe Krause, Fontys University of Applied Sciences, The Netherlands

Members of the Organising Committee:

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Luc Zwartjes, VicePresident / Treasurer

María Luisa de Lázaro Torres, Secretary General

Conference Schedule

Time table	Thursday 21st May
08:30-17.30	**Registration**
9:00-10:00	**Welcome ceremony** (D101 (main hall)
10:00-11:00	**First keynote**: "Geographical literacy and geopolitical disorder" by Prof. Dr. ***Virginie Mamadouh***, University of Amsterdam.
11:00-11:30	Coffee break
11:30-13:00	**Parallel sessions**
13:00-14:00	Lunch
14:00-15:30	**Parallel sessions**
15:30-16:00	Coffee break
16:00-17:30	**Parallel sessions**
18:30	**EUROGEO Conference dinner** Trappist Monastery. Eindhovenseweg 3, 5056 RP Berkel-Enschot.

Time table	Friday 22nd May
8:30-9:30	**Second keynote: "Designing effective interventions for sustainable land use",** by Prof. Dr. ***Eric lambin***, UCLouvain and Stanford University
9:30-10:00	Coffee break
10:00-11:30	**Parallel sessions**
11:30-12:30	**Third keynote: "A curriculum for school geography in flux",** by Prof. Dr. ***Tine Béneker***, Utrecht University
12:30-13:30	Lunch
13:30-15:00	**Parallel sessions**
15:00-15:30	Coffee break
15:30-16:30	**Parallel sessions**
16:30-17:30	**EUROGEO Annual General Meeting. Eelections. Concluding remarks.**

10:00-13:00	**Saturday 23rd May. Field trip to Breda. Meeting at Bread railway station**
08:00-21:00	**Sunday 24th May. Field trip to Port of Rotterdam and Delta Works. Departure from Tilburg University Campus**

(D101 Main Hall)

Geographical literacy and geopolitical disorder

Prof. Dr. Virginie Mamadouh, University of Amsterdam.

It might be a common to experience current times as 'interesting', both chaotic and anxiogenic because of the uncertainties we perceive, compared to past experiences we know through well-crafted narratives. There is however much to argue that the times in which we live are particularly interesting. Like the French philosopher Edgar Morin, some claim we live through a polycrisis, a set of multiple, distinct (economic, environmental, geopolitical, social, or technological) crises that interact and reinforce each other. Without doubt, geographers have a lot of knowledge and insights to offer to study and to understand these crises and geographical literacy is key for both individuals and groups to navigate them.

This lecture focuses on geopolitical crises, the acute sense of geopolitical disorder created by dramatic changes in foreign policies and military interventions, as well as how other crises, especially those link to global warming and digitalization, are interrelated. Political geographers have developed distinct geopolitical perspectives to analyze the relation between power and space and more specifically international and global politics. These approaches range from the traditional geopolitics centered on physical geographical features of states' territories and their influence on their foreign policy, through critical geopolitical and popular geopolitics focused on geographical imaginations and geopolitical representations and their impact in political discourses deployed to justify (foreign) policies and mobilize the public, and feminist geopolitics recentering human security and embodied experiences, to materialist geopolitics foregrounding the geopower of matter and more-than-human assemblages.

These perspectives provide different but complementary insights to advance a geographical literacy that is much needed to navigate the rapidly changing geopolitical and geographical contexts (the Russian war in Ukraine, the Belt and Road Initiative, climate change, sea level rises, droughts and fires…). The lecture reviews key transformations undermining familiar geographical imaginations and geopolitical representations pertaining to the position of the West in global politics, the rise of powerful and ambitious states in the Global South, divisions among challengers, and rearrangements and divisions among Western states. As a result, it calls for more attention to enhance geographical literacy regarding temporalities, scales, and power, as well as the omnipresence of augmented and fake geographies.

Designing effective interventions for sustainable land use

Prof. Dr. Eric Lambin, UCLouvain and Stanford Universtyi.

Human-environment interactions on land have profoundly transformed landscapes, with multiple biophysical and social implications. Among all land system changes, tropical deforestation has the greatest impact on the Earth system. Multiple policies attempt to promote a more sustainable land use at local to global scales. They range from public, command-and-control interventions, such as land use zoning, to market-based mechanisms and supply chain initiatives, such as voluntary sustainability standards. This lecture will summarize recent studies we have conducted on tropical agricultural-forest frontiers to evaluate the effectiveness of various land use policies. These studies combine remote sensing data, surveys of land managers, and impact evaluation methods. They have been conducted across tropical regions. I will discuss selection bias, negative spillovers, policy mixes and the influence of geographic context. Results highlight the importance of adopting a system's perspective on land use.

A curriculum for school geography in flux

Prof. Dr. Tine Béneker, Utrecht University.

After a long period, the national curricula for school geography in the Netherlands are undergoing significant changes. These new curricula will have to last for quite some time in a shifting world order, far-reaching digitization, and the context of the Anthropocene. In preparation for a contemporary and future-proof curriculum, academic geographers emphasised the importance of a holistic perspective when studying current and future social challenges, whereby an integrative approach to human and physical geography is important, as is attention to power relations and historical developments. In addition, they pointed out the importance of paying attention to knowledge issues in order to evaluate facts and assess knowledge claims. The academic geographers also called for a connection to be made with the daily lives of young people and for geography to be practised in an activating and investigative manner. In a time of flux, it may also be good to pause occasionally and look not only forward, but also backward. With current debates among (international) geography education researchers about powerful knowledge, an F3 curriculum of engagement with knowledge and the emancipation of the students in mind, we will take the perspective of more than 50 years of curriculum developments in Dutch geography education.

Paper presentations in parallel sessions

Worskshop sessions

Poster sessions

Panel sessions

Timetable and rooms:

https://www.eurogeography.eu/wp-content/uploads/2026/05/Planning-Eurogeo-Conference.pdf

Paper abstracts

Earth Systems, Water and Environmental Monitoring. Thursday 21, 11:30. D106.

Spatiotemporal Dynamics of Global Forest Litterfall and Its Biogeochemical Coupling with Soil Respiration

Chunsheng Wang

The spatiotemporal dynamics of forest litterfall production (PFL) exert a fundamental constraint on the global carbon cycle by driving the biogeochemical coupling between substrate input and soil respiration (RS). Synthesizing 14,912 in-situ observations with remote sensing biophysical products, this study developed an ecologically constrained framework to map global PFL at a 500-meter resolution from 2000 to 2022. Estimations reveal a global annual average PFL of 30.06 Pg of dry mass, with production density exhibiting a sustained spatiotemporal expansion of $8.25 \pm 1.37 \times 10^{-3}$ $t \cdot ha^{-1} \cdot yr^{-2}$ across 50.64% of global forest domains. To elucidate the biogeochemical coupling mechanisms, asymmetric residual analysis was applied to decouple endogenous substrate drivers from exogenous climatic noise, quantifying the standardized sensitivity slope of RS to PFL at 0.016. Furthermore, modeling exponential substrate decomposition via Olson's first-order decay kinetics revealed a profound spatial divergence in carbon memory. Tropical ecosystems exhibit rapid turnover with acute input-dependency, whereas temperate and boreal forests demonstrate robust biogeochemical inertia, retaining significant legacy buffering up to four years. Global validation across 128 in-situ manipulation experiments confirmed this climatic gradient, with the asymmetric sensitivity index shifting systematically from -0.151 in the tropics to -0.558 in temperate regions. These findings resolve critical spatial heterogeneities in PFL-RS feedback, providing explicit physical constraints for advancing large-scale biogeochemical models.

(Note: This research has been recently published in Remote Sensing of Environment, 2026, https://doi.org/10.1016/j.rse.2026.115373.

The use of the NDWI in monitoring and assessing water resources: the case of Moulay Youssef Dam reservoir

Abdelilah Khanniba

Morocco faces urgent and difficult water restrictions, resulting in unstable dry spells, unpredictable rainfall patterns, and unexpected floods. Moroccan dam development, which began in the 1960s, strives to ensure the country's water resource needs. However, erosion and flash floods, especially in the higher elevations within river basins, cause siltation in these reservoirs. Moroccan reservoirs lose around 75 million cubic meters of storage capacity each

year. Remote sensing and geographic information systems (GIS) are important modern technologies for monitoring, analyzing, and managing water resources, particularly in water bodies and coastal areas. We used Landsat satellite data from 1981 to 2020 to monitor the development of siltation in the Moulay Youssef dam reservoir based on the normalized difference water index (NDWI), which showed its effectiveness and reliability in water surface studies. The Moulay Youssef reservoir's storage capacity decreased significantly and steadily between 1981 and 2020, when it was assessed at just 125.8 million cubic meters, down from an estimated 200 million cubic meters in 1970. The reservoir lost about 74 million cubic meters of reserved water due to sediments accumulating in the reservoir dam, reducing its carrying capacity by 37.1%. This concerning scenario necessitates immediate action within the framework of integrated management of the Oued Tassaout River basin at the height of the Moulay Youssef dam to limit the risk of erosion and land degradation.

Factors affecting adoption rate of biomass energy saving technologies: a case of Bolero in Rumphi, Malawi

Maureen Kaputa

Majority of rural households in developing nations use traditional cooking devices with high-energy inefficiency and high biomass use. The main objective of the study is to investigate factors affecting the adoption of biomass saving technologies in Bolero Extension Planning Area in Rumphi. The study used mixed approach where both qualitative and quantitative data were used. Excel and SPSS were used to analyze the data.

Results shows that women are the ones mostly involved with the firewood saving technologies. In addition to that, the respondents still considers firewood as their primary source of energy for cooking. In terms of factors influencing adoption of firewood efficient cooking technologies, respondents reported mostly positive factors like energy saving, forest conservation and the cost of the firewood saving technologies.

In conclusion, there are more benefits when using energy saving cooking technologies. There is need to conduct another study to explore the cost effectiveness of these firewood saving technologies.

Session Teacher education in Changing Contexts.

Thursday 21, 11:30. D108.

Teachers' experiences of decolonising and indigenising secondary school geography in Aotearoa New Zealand

Karen Finn Auckland

The Aotearoa New Zealand secondary school system is undergoing immense educational change. The ongoing changes aim to review and overhaul the national curriculum and assessment system. For geography, the changes include teachers enacting aspects of decolonisation, such as critiquing power and integrating mātauranga Māori (Māori Indigenous knowledge) into local curricula, which may challenge many teachers' existing understanding of geography.

This presentation draws on one part of my doctoral research into Aotearoa New Zealand secondary school geography teachers' experiences of decolonising and indigenising their practice during educational change. This research bricolage used critical and decolonising methodologies in a sequential explanatory approach. In this presentation I will share the findings of a study that investigated six teachers' journeys to decolonise their teaching of secondary school geography. I collected the data for this study through interviews, classroom observations, teaching documents and a demographic questionnaire, and analysed it using portraiture and poetic analysis techniques.

First, I will give an overview of the Aotearoa New Zealand educational changes highlighting the iterative and somewhat controversial nature of the changes. Then I will outline the research methods and ethical approaches. Finally, drawing on the teachers' voices and portraits, I will unpack the supports and challenges that the teachers faced when decolonising and indigenising geography.

This research aims to help teachers who are non-Indigenous, like me, to share responsibility for incorporating mātauranga Māori into school curricula. The findings offer implications for geography teachers' praxis, geography initial teacher education, and educational policy more broadly. The presentation adds to international and localised discussions of decolonising and Indigenising curricula, and questions how non-Indigenous teachers can safely engage with Indigenous knowledges alongside Indigenous peoples.

Cross-cultural Collaboration on Perceived AI Literacy among Future Teachers in Geography and Environmental Education

Neli Heidari

Artificial Intelligence (AI) has become a pervasive and transformative force across all sectors of society, including education. As future teachers act as key multipliers of knowledge, skills, and critically reflective practice, the development of AI literacy, including knowing and understanding AI, using and applying AI, evaluating and creating AI, and engaging with ethical perspectives on AI, is essential within higher education (Ng et al., 2021; UNESCO, 2025). Current AI literacy frameworks are highly generic; therefore, future teachers' perceptions of AI literacy provide valuable insight into their intentions to adopt and apply AI in geography and environmental education (Chai et al., 2020, 2021). Despite growing interest in AI across educational contexts, research on AI in geography and environmental education remains limited (Yusuf et al., 2025). To address this gap, a transnational collaboration between the University of Bremen and the University of California, Irvine—TEACH-AI: Teacher Education for AI and Climate Harmony—examines and compares future teachers' perceptions in Germany and the United States. Large-scale surveys and in-depth interviews (n = 10, Germany; n = 10, US) were conducted to explore participants' perceptions, experiences, and needs related to AI literacy in the context of geography and environmental education. A combination of concept-driven and data-driven coding (Mayring, 2021; Saldaña, 2021) is applied to analyze the data. The findings are currently being curated and will be presented at the conference.

Regional Learning3 - An educational concept for transformative educational networks

Lena Neumann & Hannah Lathan

"Healthy living on a healthy planet" requires profound transformations in governance, research, planning, and education in order to ensure human well-being while addressing climate change, biodiversity loss, and pollution (Ebi 2023). In this context, education plays a crucial role (Sustainable Development Goal 4), particularly when approached from critical-emancipatory (ESD II) and transformative (ESD III) perspectives (Pettig & Singer-Brodowski 2025). Educational settings should empower learners to become active agents of change who are capable of developing and implementing transformative action strategies.

At the University of Vechta, the concept of Regional Learning³ provides a framework for linking transformative learning processes with regional contexts and networks. By connecting schools, universities, companies, and civil society actors, the Competence Center for Regional Learning creates opportunities for learners to explore sustainability challenges in their immediate environment, test transformative ideas in practice, and reflect on their impact (Castillo Mispireta et al. under review).

The presentation introduces the conceptual foundations of Regional Learning³ and discusses the role of regional educational networks for fostering transformative learning processes. Building on this framework, two current projects from the Competence Center will be presented as short case examples. These projects illustrate how transformative learning approaches can be implemented in educational contexts and how they contribute to the development of key competencies, for example students' action skills in the context of regional climate change. By presenting new insights from ongoing qualification projects as well as practical experiences from collaboration with schools, universities and regional stakeholders, the contribution reflects both the potentials and challenges of implementing transformative learning modules in educational practice. The presentation aims to open a discussion on how regional educational networks can support transformative education and strengthen learners' capacity to actively shape sustainable futures.

References:

Ebi, K. (2023): Voices to the WBGU flagship report 2023. URL: https://www.wbgu.de/de/publikationen/publikation/gesundleben

Castillo Mispireta, A., Diersen, G., Dolezil, K., Lathan, H., Mönter, L., Neumann, L., Schmidt, C. & Uxa, M. (under review): Von der Ernährungsgeographie zur Transformationspraxis: Das Konzept Regionales Lernen³. In: GW-Unterricht.

Pettig, F. & Singer-Brodowski, M. (2025): Learning in Relation with a Changing World: Thinking Beyond ESD 1 and ESD 2 Towards ESD 3. JESD 18:176–201. DOI: https://doi.org/10.1177/09734082251347383

Out of the Flow: Cities Crafting New Trajectories in a Changing World Order. Panel session.

Thursday 21, 11:30. C102.

Global Ruptures and Urban Entanglements: Understanding Cities in a Reordering World

Oksana Zaporozhets

Cities do not merely mirror large-scale transformations; they actively accumulate, materialize, and drive them. Based on the outcomes of the project, ""Cities 'Becoming Lost': The Ruptures of Grand Narratives of Modernity,"" this presentation focuses on a particular category of urban settlements — those originally founded as pioneering spaces to address the challenges and needs of modernity, including industrialization, military peacekeeping, social justice, and equality. Once embedded in dense economic, geopolitical, and ideological networks, many of these settlements have undergone profound structural transformations, including deindustrialization, demilitarization, and the collapse of their founding ideals, pushing them to the margins of dominant global processes.

Rather than interpreting these settlements and their trajectories through the lens of decline or abandonment, the presentation proposes a conceptual shift toward an analytical framework centered on the interplay of entanglement and rupture. Entanglement refers to the multiscalar webs of relations (Pendleton-Jullian, Brown 2023), while rupture denotes the radical reconfiguration of these webs — not their dissolution, but their reworking into new relational constellations (Holbraad et al. 2019). This framework enables a more integrated analysis of macro-level structural changes and the micro-level processes through which residents make sense of and navigate altered conditions.

Empirically, the presentation draws on comparative ethnographic fieldwork in three cases: a former industrial town in Armenia, a decommissioned NATO military base in Germany, and a utopian Finnish community in Canada. Drawing on Robinson's comparative practice (Robinson 2016) and Jacobs's concept of repeated instances (Jacobs 2006), the analysis traces resonances across differences rather than formal equivalence.

The analysis demonstrates how rupture intensifies processes of meaning-making and valuation. As entanglements are destabilized, residents reinterpret what endures, negotiate competing "grammars of worth" (Lamont 2012), and actively reassemble their ties at the local level and beyond. By focusing on these settlements, the presentation argues that places "out of the flow" are analytically privileged for understanding contemporary transformations.

Scientific Landscapes in Transition: Russian and German Research Towns amid a Reordering World

Ekaterina Lapina-Kratasiuk

Research towns, among them Novosibirsk, Pushchino, and Protvino in Russia, and Dresden-Rossendorf, Berlin-Buch, and Berlin-Adlershof in Germany, were once flagship sites of socialist modernity. Designed to concentrate scientific talent and advanced technology under authoritarian states, these settlements embodied a foundational paradox: international scientific collaboration coexisting with stringent political surveillance, producing distinctive spatial regimes and tightly knit communities.

This paper draws on an ongoing comparative research project funded by the Gerda Henkel Foundation to examine how these towns, already operating ""out of the flow"" of ordinary urban life under socialism, were reshaped by the geopolitical shifts of 1989/1991. At a moment when the continuing reordering of global power redeploys spatial inequalities and redefines the place of regions within broader knowledge economies, these settlements offer a particularly sharp lens. Built at the intersection of science, ideology, and geopolitical competition, their post-socialist trajectories have diverged dramatically. Soviet research towns have largely entered protracted decline, losing funding and institutional status, their grand infrastructure projects becoming monuments to rupture. Their East German counterparts have been more successfully repurposed and are now flourishing as modern research and technology hubs. Yet this has come at a profound human cost: the erasure of specific forms of expertise, social bonds, and collective identity.

Preliminary research has revealed the complex texture of these divergent trajectories. Situating these cases within the panel's conceptual frame, the paper asks how the worlding of research towns has been reconfigured as knowledge production ceased or fundamentally changed. Methodologically, it also reflects on the challenges of researching communities shaped by classified histories, proposing oral history and visual analysis of private sources as essential counterweights to lacunae in official archives.

References:

Tuvikene, T., Sgibnev, W., Zupan, D., Jovanović, D., & Neugebauer, C. S. (2020). Post‐socialist infrastructuring. Area, 52(3), 575–582.

Trubina, E., Gogishvili, D., Imhof, N., & Müller, M. (2020). A part of the world or apart from the world? The postsocialist Global East in the geopolitics of knowledge. Eurasian Geography and Economics, 61(6), 636–662.

Brooke, R., Dodge, M., & Hogg, J. (Eds.). (2021). Cold War Cities: Politics, Culture and Atomic Urbanism, 1945–1965. Routledge.

Relation to Sointula. Relation to Utopia in the disrupting global order

Irina Shirobokova

In the midst of climate catastrophe, authoritarian resurgence, wars, and increasing socio-spatial disparities, a time where the future is often foreclosed by apocalyptic narratives (Jameson, 2005), I ask how to relate to utopia or places after utopia today? This paper addresses this urgency in relation to Sointula, a small utopian settlement established in Canada, BC, in December 1901, by Finnish miners on Malcolm Island on Indigenous Kwakwa̱ka̱la land. The land remains part of the unceded territory of the Kwakwaka'wakw peoples, marked by ancestral use, seasonal ceremonies, and ties to land and ocean. Sointula today remains a lively community of about 650 people who continue to uphold many utopian principles, including self-government, strong social ties, care, and cooperative everyday practices. Sointula's history thus exists as both a site of alternative settler imaginaries and an example of how settler utopianism can, in a way, contribute to the structures of Indigenous dispossession (Leinonen, 2022).

Working with this settlement, I do not focus on great ideas, leaders, and failures, as researchers often portray Sointula. I approach it through everyday practices that never these pure models of social order thought in the repetitive history of utopias since Plato, Tomas More, or Robert Owen. This project acknowledges that ordinary people continue to live and build far more sustainable and practical utopias in these so-called failures of predominantly masculine desires and ambitious projects.

Driven by feminist methodologies, I build relations to place through its fragmented histories and materialities on the shore using narrative and video ethnography. Remnants of fishing and wooden boatbuilding rooted in the place, open a way to engage with this place through shared spatial practices of indigenous, early utopian settlers, 1960-70s waves of US draft dodgers and hippies' immigration, my own position as a researcher, and rooted in my childhood identity as a fisherwoman. By doing so, I challenge the traditional way of studying this utopian settlement. At the last, oldest surviving boatyard, I collect, examine, and dig up rusted fragments of boats, posing questions concerning the politics of archiving (Derrida, 1995) and knowledge production.

When Are Cities Lose-able? Geographies of Loss of a Post-Military Town

Sophia Reidl

Empirically, the study focuses on the written discourse on economic globalisation in French secondary school geography. The data consist of a corpus of widely used geography textbooks, including course texts, and accompanying documents related to production systems, global value chains, trade, and economic actors. The methodology combines lexicometric analysis with qualitative discourse analysis. Lexicometric tools are used to identify dominant lexical fields, recurring concepts, and discursive patterns associated with economic globalisation, showing a preference for a global and systemic approach. Qualitative discourse analysis (Gee 2010) will allow a deeper understanding of narrative structures, style, metaphors, and representations.

Session Mapping, Representation and Spatial Thinking in Geography Education.

Thursday 21, 11:30. C103.

Sumerian "Pathmaps of the Oceans" and the Origins of Cartography: Iconocartographic Analysis of Bronze Age maps of Maritime Trade Routes

Kai Helge Wirth

This paper examines the possibility that early celestial representations functioned as practical navigation tools, potentially encoding knowledge of Bronze Age maritime trade routes. Moving beyond purely mythological interpretations, it explores whether constellations may have served as cognitive cartographic frameworks linking seafaring, spatial orientation, and cosmological thought.

Isaac Newton, in his Chronology of Ancient Kingdoms (1728), proposed that Greek constellations were devised to support the voyage of the Argonauts. Building on this line of reasoning, Giuseppe Maria Sesti (1991) highlighted Mesopotamian concepts of "celestial ocean paths," in which constellations are associated with the god Ea, a deity of water and orientation. These interpretations suggest that early sky lore may have contained functional geographical knowledge.

The study integrates evidence from Sumerian cuneiform texts (Papke 1989; Lambert 1966) and Babylonian astronomical compendia (Rochberg 2004; Hunger & Steele 2018), alongside recent findings from the ZODIAC project. Using comparative morphometric analysis, it investigates potential correspondences between constellational patterns and known maritime corridors, particularly in the Mediterranean, Black Sea, Atlantic margins, and the region of the British Isles.

The results are discussed in terms of early cartographic thinking, proposing that "pathmaps" may represent an initial stage in the abstraction and transmission of spatial knowledge. Such an approach contributes to a broader understanding of how geographical knowledge was generated, structured, and communicated in pre-classical societies.

By situating ancient astronomical traditions within the history of cartography, the paper offers new perspectives relevant to geographical education and the conceptual foundations of mapping. It highlights the importance of interdisciplinary approaches combining geoscience, history of science, and cultural geography in reassessing the origins of spatial representation.

Mapping Inclusion: Story Maps for Learning about Diversity and Inclusion

Neli Yakunina

Inclusive secondary education requires approaches that ensure access to learning while valuing students' diverse backgrounds, as well as supporting teachers in developing inclusive practices. This paper explores storymaps as both a pedagogical and professional development tool that combines storytelling with Geography as a connecting framework across disciplines.

Based on Universal Design for Learning and Inclusive Education, storymaps are conceptualised as tools that organize knowledge through narrative and spatial representations. In the classroom, they support students in connecting curricular content with lived experiences, fostering engagement and meaningful learning. At the same time, story maps can function as a reflective tool for teachers, enabling them to design interdisciplinary learning sequences, integrate students' backgrounds into instruction, and plan differentiated support measures. This dual function situates storymaps within both classroom practice and ongoing professional learning.

By linking storytelling, interdisciplinarity, and teacher reflection, storymaps promote inclusive practices that benefit both students and educators. This approach highlights their potential as a flexible tool for fostering participation, equity, and professional growth in secondary education.

Fostering Responsible Consumer Behavior in Primary Schools: Research Findings and Implications from the Re3PriS Project

Daniela Schmeinck

Consumer behavior is influenced by a variety of factors, including advertising, communication, personal preferences, habits, and spontaneous incentives. Given their considerable purchasing power and future customer potential, children and young people represent a key target group for marketing strategies. This makes it essential to introduce responsible consumer behavior at an early age. Consumer education in schools therefore plays a crucial role in fostering sustainable consumption patterns from primary school onwards.

This presentation introduces the Re3PriS project, which addresses the urgent need for early consumer education in the context of increasing marketing influence on young people. The project promotes the development of responsible and sustainable consumption habits by providing innovative teaching concepts aligned with European curricula. These concepts are structured around a three-year cycle based on the principles of Reduce, Reuse, and Recycle.

The presentation focuses in particular on the first project phase, "Reduce," and highlights educational materials and approaches that engage students with topics such as waste and CO_2 reduction, fast fashion, water conservation, and emission awareness. In addition, it offers

insights into the project's research findings, illustrating how students engage with these topics and how their awareness and attitudes toward consumption evolve.

By combining empirical results with practical classroom strategies, the project demonstrates its potential to encourage reflection on everyday consumption patterns among students and their families. Overall, the presentation emphasizes the importance of consumer education as a key driver for long-term behavioral change towards more sustainable lifestyles.

Session Experiential and placed-based learning.

Thursday 21, 11:30. C104.

Learning about a world in flux through fieldwork

Susan Pike

The Learning Secondary Geography (LSG) project in Ireland, brings together lecturers, teachers and students to collate examples of good practice to enhance learning in geography. The case studies focus on the learning experiences of students, collated during lessons, in a range of schools. The focus on the project is the students' voice on their experiences of learning geography in a world in flux. This presentation will provide and outline of the project, before focussing on one aspect of the project, fieldwork.

Research evidence shows that fieldwork is impactful in multiple dimensions (Nundy, 1999; Oost, De Vries and Van Der Shee, 2011; Wessell, 2021). One of the LSG schools, embeds fieldwork in single lessons, whole days and as residential experiences. This presentation presents an in-depth examination of the range of students' experiences of and attitudes to learning, in both cognitive and affective dimensions, including before, during and after fieldwork.

Nundy, S. (1999). The Fieldwork Effect: The Role and Impact of Fieldwork in the Upper Primary School. International Research in Geographical and Environmental Education, 8(2), 190–198. https://doi.org/10.1080/10382049908667608

Oost, K., De Vries, B., & Van Der Schee, J. A. (2011). Enquiry-driven fieldwork as a rich and powerful teaching strategy – school practices in secondary geography education in the Netherlands. International Research in Geographical and Environmental Education, 20(4), 309–325. https://doi.org/10.1080/10382046.2011.619808

Wessell, J. E. (2021). Experiential Learning in Geography: Experience, Evaluation and Encounters. Springer International Publishing AG.

Navigating normativity while fostering constructive hope in future-oriented geography education

Tim Favier

In a world characterised by ecological, political and epistemic flux, sustainability education is frequently framed as both urgent and morally imperative. Yet this urgency raises fundamental normative questions: education for what kind of sustainability, and for whom? Should geography education aim to steer students toward predefined sustainable behaviours and favour sustainable futures (learning for sustainable development), or should it cultivate

capacities to critically engage with contested futures and offer plural worldviews (learning as sustainable development)?

This paper reflects on the Dutch Didactiek van de Hoop (Pedagogy of Hope) project through this normative lens. The project developed and tested short, curriculum-embedded lesson designs that approached climate change and other sustainability issues through “constructive hope” rather than apocalyptic framings. Over twenty teachers from twelve secondary schools implemented and evaluated these materials. While all participating teachers endorsed the importance of fostering hope, they expressed ambivalence about normativity. Many feared moralising instruction that promotes sustainable solutions and wanted the lessons to be “objective”.

These tensions revealed a central dilemma. A strongly directive, behaviour-oriented model of learning for sustainable development risks instrumentalising geography and narrowing its intellectual scope. However, a fully open, relativistic model of learning as sustainable development may insufficiently acknowledge the ethical weight of planetary crises. The project therefore sought a middle position. Lesson designs foregrounded geographical concepts (e.g., scale, systems, spatial justice) and future imaginaries, enabling students to analyse sustainability challenges critically while exploring multiple possible responses. Rather than prescribing specific actions, the approach aimed to expand students’ sense of agency and possibility.

Teachers’ enactments showed that curriculum making is indeed a social practice shaped by institutional constraints, professional identities, and personal beliefs. Importantly, most teachers experienced the hopeful framing not as depoliticising, but as re-balancing a curriculum often dominated by crisis narratives.

By situating the Pedagogy of Hope within debates on education for versus as sustainability, this presentation argues that the question is not whether sustainability education is normative, but how its normativity is made explicit, negotiated, and pedagogically enacted. In times of flux, geography education may best serve students not by prescribing futures, but by equipping them to inhabit uncertainty with informed, critical and hopeful agency."

Towards Sustainable Rural Futures; Exploring Students' Ethnographic Imaginations Implications for Place-Based Pedagogy

Moses Anlimachie

Place-based pedagogy (PBP) has become an emerging strategy for improving educational relevance for low-income communities. This study investigates children’s aspirations to motivate broader theoretical discussion about opportunities for enacting PBP for rural schooling success in Ghana. Using an ethnographic case study design, the lead researchers collaborated with a local rural schools’ students and teachers to gather data on children’s home cultural assets and contextual challenges shaping teachers’ pedagogy. Using Bourdieu’s socio-

cultural theory of habitus and PBP theorisations, a thematic analysis of qualitative data found that the participating rural students' aspirations were low, heavily shaped by their immediate environment. The study concluded that inspiring rural children's higher aspirations would require geographically sensitive teachers who reframe rurality as spaces of possibilities, enact pedagogies of place-belongingness while stretching their learners' inculcated images about their community into global opportunities to raise productive local and global citizens for sustainable rural futures. The study proposes integration and renewal of Ghanaian rural indigenous place-sensitive, apprenticeship-based, collectivist learning approaches and traditionally valued skills, through PBP as a key re-positioning strategy to improve educational aspirations and relevance in educational outcomes for Ghanaian rural children through greater harnessing of home cultural capital.

Session Sustainability and citizenship

Thursday 21, 14:00. C104.

Creativity's role in fostering sustainable action competence: a comparative study about geography teachers' conceptions in France, Germany and Madagascar

Mirana Andriambololonirina & Alexandra Budke

Sustainable action competence (SAC) is a central element of Education for Sustainable Development (ESD) in geography classes. SAC involves building sustainability-related knowledge and reflexivity to enable the design and implementation of concrete actions addressing sustainability issues (Schönstein & Budke, 2024). Its goals align with those of creativity in geography education, which aim to question environments, visualize alternatives, and produce innovative solutions for given contexts (Scoffham, 2013; Terzidis, 2019). However, creativity, as well as its role in fostering SAC in geography classes, remains underexplored. This raises the question of how creativity fosters SAC in geography teaching. We thus conducted a study based on a sample of 31 qualitative semi-structured interviews with geography teachers from France, Madagascar, and Germany investigating teachers' conceptual understanding of SAC and creativity in the context of ESD, as well as the extent of their integration in their teaching practices. The main findings identify the factors encouraging or limiting the application of SAC and creativity in ESD in classrooms. While teachers from the three countries agree on the need for creativity in SAC, they hold divergent views on its practical feasibility in lessons and call for clearer recommendations and conceptualization. These findings, combined with existing literature, contribute to the elaboration of a model outlining the steps of SAC and where creativity intervenes, providing a pedagogical framework for geography classrooms.

Between the 'Geography of Encounter' and the 'Geography of Silence': Determinants of Openness to Cultural Diversity among Young Poles

Agnieszka Świętek

Poland's transformation from an emigration to an immigration country has occurred at a pace significantly exceeding earlier forecasts. Since 2016, the migration balance has remained positive, while the full-scale war in Ukraine, ongoing since 2022, has substantially intensified population inflows. The share of foreign nationals in Poland's population is currently estimated at approximately 10%, while in the 2023/24 school year the average proportion of foreign students in Polish schools reached as high as 18.2% in some districts (Janicki, Świętek, 2025). Nevertheless, Poland adopted its first comprehensive governmental migration strategy for 2025–2030 only in autumn 2024. A key prerequisite for the effective integration of migrants is a coherent policy directed at the host society, which constitutes a particular challenge for geographic education (Świętek et al., 2019).

This presentation reports findings from nationwide quasi-longitudinal studies conducted by the author in 2021 and 2025, examining the level and determinants of social distance among young Poles toward migrants and minority groups. The studies were based on representative samples (n = 1361; n = 1338) and grounded in the theoretical frameworks of the "geography of silence" and the "geography of encounter." The results are interpreted through a critical lens on geographic education concerning multiculturalism in Polish schools. The findings demonstrate that openness toward culturally diverse individuals among young Poles varies markedly according to nationality and is shaped by the broader geopolitical context, as well as by attempts to respond pragmatically to media discourses on migration. Moreover, the study reveals the marginalization and stereotyping of culturally diverse groups within formal geographic education in Poland, which may be counterproductive to the long-term process of social integration in Poland's emerging multicultural society.

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Janicki W., Świętek A., 2025. To accept or not to accept? Discrepancies between declared and actual actions of the Polish government towards immigrants. Migration Studies. Vol. 13, 2.

Świętek A., Brunn S.D., Wójtowicz B., 2019. Identifying and Removing the Silences of Roma Culture in Polish School Texts. Journal of Geography, 2019, Vol. 118, 4.

The territory as a resilient educational space

Stephania Montebelli & Guglielmo Marconi

This contribution investigates the central role of the territory as a widespread educational resource and primary experiential field for informal learning. The territory is, in fact, a constantly evolving heritage capable of promoting the acquisition of fundamental knowledge in everyday life (life wide learning), throughout the entire span of existence (lifelong learning), and in such a profound way that it becomes social capital (life deep learning). In particular, education about and for the territory plays a fundamental role in promoting and critical and resilient citizenship, capable of understanding and acting on the uncertainties that every phase of territorial and social change brings with it. Through direct experience and informal learning, individuals develop spatial analysis skills, environmental awareness, and an understanding of socio-territorial dynamics.

Therefore, with a view to lifelong learning that encompasses all aspects of life, education about the local area promotes adaptation to change on different scales, strengthening active and responsible participation in community life. This is because direct, daily interaction with one's local area generates knowledge and skills that are essential for the continuous development of the individual. The contribution is therefore part of a geographical perspective that departs

from a purely functionalist view of space, embracing a vision of the territory as a social, cultural, and symbolic product, where the act of “living” on a daily basis is itself a cognitive act, rich in educational affordances. Thus, informal learning emerges as the key mode through which individuals construct their identity and skills based on their everyday experiences. The analysis carried out not only recognizes the validity of these experiences, but also highlights how spatial awareness acts as a catalyst for individual and collective empowerment. This contribution therefore aims to reflect on the importance of the local area as a “learning land” capable, through everyday experiences in everyday places and continuous informal learning, of developing the cross-cutting skills that are fundamental to educating active, aware citizens who are ready for change.

Session Digital and AI in geography Education

Thursday 21, 14:00. C108.

An Augmented Reality Escape Room for Teaching the Greenhouse Effect in Geography Education

Anastasia Georgiou

This paper presents the European project STEM-IT (Immersive Technology in STEM Education), which aims to equip teachers and students with advanced digital skills through the development of Virtual and Augmented Reality (VR/AR) educational content for secondary education. The project is structured around a set of innovative learning environments addressing key scientific and socio-environmental themes, including climate change, atmospheric science, nanotechnology, chemistry, inclusive biology, and energy transformation. Through immersive and interactive applications, STEM-IT seeks to support conceptual understanding, critical thinking, and interdisciplinary learning across STEM subjects.

The contribution of this paper focuses on an Augmented Reality application designed to support the teaching of the Greenhouse Effect in secondary school geography and environmental science. The application addresses key challenges in climate change education, where complex atmospheric processes are often presented through abstract representations that limit students' spatial understanding. The core pedagogical activity is structured as an AR Escape Room (Plecher et al., 2020), promoting geospatial thinking, inquiry-based learning, and collaborative problem-solving. Students explore different emission scenarios and observe their environmental impacts in real time, bridging atmospheric physics with dynamic geospatial visualization. In doing so, the application directly engages with the conference theme Geographies in Flux.

The study is guided by the following research question: How can an Augmented Reality escape room support students' spatial reasoning and conceptual understanding of the Greenhouse Effect in geography education? By making the mechanisms of climate change tangible, this approach aims to strengthen geographical literacy and support students in interpreting climate-related changes on a rapidly transforming planet (Walczak et al., 2006).

Digital Serious Games for Teaching Disaster Resilience in Geography Education: Preservice Teachers' Perceptions of the 'Stop Disasters' Game

Emmanuel Eze

As climate-related hazards intensify and global uncertainties deepen, geography education is increasingly expected to prepare learners to understand and respond to complex risk environments. Digital serious games are often promoted as innovative tools for supporting such

learning through simulation and experiential engagement. However, there remains limited empirical evidence on how these tools are perceived and evaluated within European geography education, particularly in teacher education contexts.

This study investigates the pedagogical value and limitations of the Stop Disasters! game, a browser-based simulation developed by the United Nations Office for Disaster Risk Reduction, as experienced by preservice geography teachers in Germany. Adopting an exploratory mixed-methods approach, the study draws on reflective reports from fourteen teacher trainees who engaged with five hazard scenarios, including tsunami, hurricane, earthquake, wildfire, and flood.

Quantitative findings indicate generally positive engagement with the game (M = 3.79) and a strong perceived usefulness for introducing disaster preparedness concepts (M = 4.00). At the same time, participants raised notable concerns regarding the game's level of realism (M = 2.57), its ability to challenge existing assumptions (M = 2.36), and its relevance to local and regional contexts (M = 2.43).

Qualitative analysis further reveals four interrelated dimensions shaping participants' evaluations: (i) learning outcomes that foreground preparedness awareness but provide limited insight into underlying hazard processes; (ii) pedagogical affordances, particularly in relation to experiential learning and systems thinking; (iii) implementation constraints, including issues of oversimplification, technological access, and curricular alignment; and (iv) suggested improvements, notably the need for greater realism, structured instructional guidance, and contextual adaptation.

Drawing on the concept of powerful knowledge in geography education, the findings suggest that serious games should be understood not as stand-alone solutions, but as complementary tools that require careful pedagogical integration. In particular, without appropriate scaffolding, such tools risk reinforcing superficial understandings rather than supporting deeper geographical reasoning.

The paper contributes to ongoing debates on digitalization in geography education by demonstrating how preservice teachers critically assess educational technologies in relation to disciplinary knowledge and pedagogical aims. It highlights the need for more context-sensitive and theoretically informed approaches to integrating digital tools in resilience-oriented geography teaching.

From Shock to Adaptation: How Technology Mitigates the Effects of Critical Events in Geography Education

Kinga Bargiel

This paper explores how technology can help reduce the impact of critical events in geographic education. Recent situations, such as the COVID-19 pandemic and the arrival of migrant students, have required quick adaptation, especially from teachers. Digital tools have supported this process by helping to reorganize teaching and by making it easier for students to adjust to new learning conditions.

The paper also shows that while technology creates new teaching opportunities, it requires teachers to continuously develop their digital skills. It concludes that today's school is increasingly hybrid, shaped by experiences of remote learning, working with migrant students, and the ongoing development of digital technologies.

Session Cross-Border and regional spatial dynamics

Thursday 21, 14:00. C102.

Planning for cross-border functional regions - Significance of place-based approach in the time of uncertain border regime

Kitti Dubniczki, Mátyás Jaschitz

This study is an experiment in planning methodology that seeks to provide useful tools for planning practice, specifically for cross-border regions. The research draws on several sources: on the one hand, it builds on the authors' decade and a half of experience in cross-border strategic planning and their exceptional experience in Interreg A and B programme planning and evaluation; on the other hand, it makes comprehensive use of the relevant European bibliography; and thirdly, it tests its findings in practice through a specific case study.

The first section presents a comprehensive, experience-based methodology for cross-border planning. It integrates financing and multi-level governance, bridging official planning nomenclatures across borders. The result is a non-classical spatial development plan and cross-border cooperation roadmap for regional stakeholders. This roadmap is based on a cohesion-focused, spatial reinterpretation of the border region's situation, emphasizing field-based, qualitative planning methods that AI solutions cannot replace.

In the second phase, the authors test the comprehensive methodological presentation in practice and demonstrate its effectiveness. Their sample region for this is the Bodrogköz region along the Hungarian-Slovak border, which is culturally and geographically unified but divided into two peripheries by the state border. The reason for the real-world testing is the strategic planning process of BOTILA EGTC, registered in the region in 2025, which offers an institutional and governance framework for a mutually beneficial rearrangement of the region.

Through all this, the study contributes to the relevant European professional and policy discourse by addressing the complex spatial challenges of Geographies in Flux. By focusing on a unique place-based approach and an experience-based methodology, this research provides a tangible regional development tool for local actors to navigate spatial inequalities and strengthen the functional and governance cohesion of border regions in a world of rapid transitions [OECD, 2024; ESPON, 2018]. Furthermore, by emphasizing qualitative, human-centric planning that digital tools cannot fully substitute, it underscores the vital role of spatial and place-based knowledge in building regional resilience and achieving a mutually beneficial rearrangement of administratively fragmented, yet culturally unified spaces.

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Place-Based Knowledge and Uneven Geographies of Tourism: Diverging Perceptions from a Hungarian–Slovenian Living Lab

Katalin Lőrincz

In a rapidly shifting world order, cross-border rural regions are increasingly shaped by uneven socio-economic and demographic transformations, often mediated through tourism development. This paper investigates how such transformations generate spatial inequalities and divergent local perceptions in the context of cultural and creative tourism (CCT). The study asks: how do place-based knowledge systems and cross-border asymmetries influence the perception and spatial distribution of tourism impacts in rural Europe? CCT has been widely recognised as a driver of rural regeneration, particularly in peripheral regions facing demographic decline and economic restructuring (Duxbury & Richards, 2019). Recent research highlights the growing importance of intangible heritage and local identity in shaping tourism development trajectories (Richards et al., 2025). However, these processes remain spatially uneven and highly context-dependent.

Drawing on empirical evidence from a cross-border Living Lab in the Zala (HU) and Pomurske (SI) regions, the study adopts a mixed-method approach. Primary data collection, conducted between January and July 2025, involved a quantitative survey of 155 local residents, 53 tourism businesses, and 101 visitors, complemented by 16 semi-structured interviews with key stakeholders. The findings reveal significant divergences in perceptions of tourism impacts. Stakeholders on the Slovenian side demonstrate stronger environmental awareness and greater sensitivity to issues such as carrying capacity. In contrast, Hungarian respondents tend to prioritise economic benefits and express lower levels of environmental concern. These differences are closely linked to differences in development trajectories and to the evolving role of borders in a shifting European geopolitical landscape.

The paper argues that tourism acts simultaneously as a driver and an outcome of spatial inequalities, producing uneven geographies of opportunity and risk. Reflecting on debates within European geography regarding the development opportunities of cross-border tourism (Gashi et al., 2021), the study emphasises the role of place-based knowledge in mediating these processes. The paper contributes to European geographical scholarship by providing an empirically grounded account of how tourism reshapes places and identities in cross-border regions, offering vital tools for navigating spatial transitions in contemporary Europe.

Urban-to-rural knowledge transfer through the lens of interactions between 'newcomers' and 'oldtimers': evidence from Poland

Krzysztof Janc

This paper examines how interactions between urban migrants and long-term residents in peripheral Polish villages shape urban-to-rural knowledge transfer and its perceived consequences. Drawing on 63 in-depth interviews with "newcomers" (both permanent migrants and second home users) and "oldtimers" in 18 villages dominated either by seasonal or permanent in-migration, the study analyses economic practical and socio cultural outcomes of knowledge exchange at both household and community scales. The findings show that, irrespective of migration type, newcomers rely heavily on local, place based knowledge to settle, organise everyday life, and, in permanent migration settings, start and run rural businesses, while oldtimers primarily benefit from new employment opportunities and growing demand for local products and services. Socio cultural effects diverge more clearly between village types: in second home villages, repeated seasonal inflows generate a "seasonal buzz" and gradual diffusion of urban cultural practices, whereas in villages with new permanent residents, highly engaged newcomers can act as rural changemakers, enriching local cultural and educational life and contributing to new economic functions and village branding. At the same time, digitalisation, uneven willingness to interact, and occasional culture clashes constrain the depth and reach of tacit knowledge transfer, which remains strongly embedded in local social relations and highly uneven across people and places. By comparing seasonal and permanent migration contexts within a single analytical framework, the study advances geographical debates on rural–urban linkages by demonstrating how different mobility regimes configure channels, benefits, and limits of urban to rural knowledge flows in contemporary rural Europe.

Session Geopolitics, logistics and global networks

Thursday 21, 14:00. C103.

Geopolitics of Science: Uneven Publishing Spaces in Academic Research on Global Production Networks

Ferenc Gyuris, Gyulia Borbeli & Viktor Attila

This paper analyses the academic literature on global production networks (GPN) from 2000 to 2024 based on data from the Scopus database. It focuses on the uneven international landscape of authors, publications, funding sources, publishers and citations in the GPN literature compared with the firm Anglo-American hegemony prevailing in international geography in general. The paper identifies the existence of a 'primary European core' and a 'secondary East and Southeast Asian core' rather than Anglo-American hegemony in the GPN literature, as reflected in the authors, funding sources and case study areas. It also confirms the dominance of Manchester and Singapore as leading global centres of calculation, as well as the still massive British hegemony over major publishing platforms, which is particularly strong in terms of citation-attracting ability. Meanwhile, the results reaffirm the marginalised position of most of the Global South. Finally, the paper draws some general lessons for the geographies and geopolitics of science and the future possibilities of promoting the process of internationalisation, decolonisation and worlding of geographical research.

New Geographies of Fashion Retail: Concentration, Urban Centrality and the Transformation of Commercial Strategies

Carlos López & María Pilar Alonso

The textile and fashion retail sector has undergone significant transformations driven by shifting consumer behaviour and structural dynamics such as fast fashion, digitalization, urban tourism, and the growth of shopping centres. These challenges have prompted firms to adapt their competitive strategies, particularly by reconfiguring their value chains and spatial organization. This paper explores how fashion retailers are reshaping store formats and location strategies within an evolving urban retail landscape.

The study highlights a tendency among large corporations to concentrate commercial activity in a limited number of flagship stores in central urban areas. These firms, due to their scale and resources, often lead relocation processes as part of broader strategic shifts. This involves not only spatial concentration but also the transformation of retail spaces into more experiential and technologically integrated environments.

Focusing on Zaragoza (Spain), the research examines how major retail groups reorganize their presence in city centres. The findings reveal a clear trend toward centralization and the

upgrading of retail spaces, which increasingly function as key nodes in omnichannel strategies. These stores incorporate digital tools, enable online order collection and returns, and strengthen brand image. The paper contributes to the understanding of contemporary urban retail dynamics by linking spatial reorganization with corporate strategies and digital innovation, highlighting their impact on the commercial structure of city centres.

Shifts in FDI and the spatial patterns of Hungarian industry in the age of the fourth industrial revolution

Eva Kiss

Over the past few decades, the geography of global capital flows has undergone significant changes. Although the Central and Eastern European region was practically excluded from international capital investments until the change of regime, the importance of the region has increased after 1989. Since then, the interest of foreign investors in the region has been continuously growing. Foreign direct investment (FDI) has played an extremely important role in the global economic integration of Central and Eastern Europe. FDI has also contributed to its socio-economic transformation, which has often been accompanied by a transformation in the spatial pattern of the economy (Kiss, 2007). In recent decades, due to various reasons (e.g. epidemic, geopolitical tensions, wars, energy crisis), not only has the volume of invested capital changed, but so has its distribution by origin. The main objective of this presentation is to demonstrate how changes in FDI global trends affect the local level on the example of Hungarian industry, with particular attention to the past decade, which can also be considered the era of the fourth industrial revolution (4IR). It is also a question of how all of this affects the spread of Industry 4.0 technologies (Kiss-Páger, 2024). The analysis of data collected from various sources suggests that the geography of Hungarian industry is undergoing significant transformation in the era of 4IR. The Hungarian experiences may also represent to a certain degree the major features of the foreign investments into the industry of other post-socialist countries.

Session European Values and education in times of societal tension. Panel session.

Thursday 21, 14:00. C105.

European Values in Times of Societal Tensions

Tim Reeskens

This session addresses the current state of European values and explores the educational challenges that arise from ongoing societal transformations. In a context marked by geopolitical instability, migration, climate concerns and declining trust in institutions, understanding value orientations has become central to debates on social cohesion, democracy and citizenship education.

The session opens with a keynote contribution by Tim Reeskens, Professor of European Values and Societies at Tilburg University. Drawing on comparative and longitudinal survey research (including the European Values Study and the European Social Survey), Reeskens will provide an overview of the current state of European values. He will reflect on recent empirical findings that challenge established assumptions about generational value change and discuss emerging patterns of divergence, contestation and “cultural backlash” across Europe.

Building on this overview, the second part of the session consists of a panel discussion focusing on the implications of these developments for education, and geography education in particular. The panel will examine how value diversity, polarisation and uncertainty can be addressed in educational settings, and what this means for curriculum design, teaching strategies and teacher education. As an illustrative case, the discussion will reflect on experiences from the Erasmus+ project Teaching Controversial Issues, which explores how empirical value data and carefully designed pedagogical strategies can support values communication and values clarification in classrooms.

The panel brings together expertise from sociology, political science and geography education, including Dr. Inge Sieben (Tilburg School of Social and Behavioral Sciences), Prof. Dr. Ellen Claes (KU Leuven, Didactics in Social Sciences), Dr. Uwe Krause (Fontys University of Education, Didactics in Geography) and Dagmar Ulrichova (ESS Liptovsky Mikulas, Geography teacher), alongside Tim Reeskens. Together, the panelists will discuss both the opportunities and the remaining challenges in translating research on European values into meaningful, responsible and pedagogically sound educational practices.

The session aims to foster dialogue between values research and educational practice, and to contribute to ongoing debates on how education can respond to societal tensions while supporting democratic resilience and informed citizenship."

Lecture followed by a panel:

Challenges for education to teach about Controversial Issues

Inge Sieben, Ellen Claes, Uwe Krause & Dagmar Ulrichova

Session Teacher professional development

Thursday 21, 14:00. C104.

Professional Development of Geography Teachers: What Does Theory Say and What Are The Real Needs of Teachers?

Kostová Gabriela Masaryk

Teaching is a complex and demanding intellectual profession requiring lifelong learning (Cochran-Smith & Villegas, 2015). Teacher professional development is therefore considered crucial. This paper focuses on geography teachers' development.

A review by Kostová and Knecht (2025) revealed an uneven thematic focus in geography TPD, with particular emphasis on GIS and environmental education, and significant differences in length, number of participants, and methods of evaluation. Despite the absence of a universally applicable model, the importance of adhering to research-based criteria is evident (Höhnle et al., 2016).

The objective of this study is to identify geography teachers' professional development needs as articulated by the teachers themselves and to compare these needs with the findings from previous research.

Eighteen geography teachers in the Czech Republic were interviewed to gather data for this study. The interviews focused on the participants' experiences with professional development, their motivation to participate, perceived barriers, and professional learning needs. The interview data were anonymized and analyzed using thematic analysis according to Braun and Clarke (2006) with the aid of MAXQDA software.

Geography teachers perceive professional development as meaningful only if it is practically applicable, respects professional autonomy, and aligns with their professional identity. There are similarities and significant differences between the criteria for the quality of professional development described in the literature and teachers' reported perspectives. While research emphasizes long-term, systematic, and coherent approaches, teachers emphasize immediate applicability and a connection to daily teaching. Concurrently, they highlight structural barriers — namely the lack of time, administrative burdens, and professional overload — which significantly influence their engagement in professional development.

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Kostová, G., & Knecht, P. (2025). Professional development of geography teachers: A review. International Research in Geographical and Environmental Education, 1–21."

Tracing the origins of teaching expertise: insights from expert geography teachers in Germany

Nina Scholten

A central concern of research on teacher professionalisation is how geography teachers can best be educated and prepared for teaching—understood here as the actual enactment of classroom instruction. While practical experience and professional knowledge are widely recognised as essential, empirical studies suggest that they are not as influential for classroom teaching as previously assumed. Geography teachers face particular professional challenges rooted in the epistemic and ontological characteristics of the discipline. Yet the subject-specific nature of professional learning opportunities has so far received little systematic attention, although it seems plausible that geography teachers value different learning opportunities than teachers of other subjects.

To address this gap, we conducted semi-structured two-tier interviews with seven expert geography teachers. The initial open-ended phase encouraged participants to reflect freely on how they became experts in teaching geography, followed by more structured prompts addressing influential practices, resources, individuals, and extra-curricular experiences. Data were analysed using qualitative content analysis with both inductive and deductive coding.

Findings reveal that teaching expertise develops through a diverse range of formal and informal learning opportunities. Four central areas supporting the development of geography teaching expertise were identified: (1) reflective classroom practice, including lesson planning and lesson enactment; (2) professional exchange encompassing both horizontal and vertical interactions; (3) the assumption of leadership or specialised roles that broaden professional perspectives and responsibilities; and (4) reflective spatial engagement, including everyday and travel-related experiences that inform subject-specific teaching. These findings highlight the importance of considering discipline-specific learning opportunities in research on teacher professionalisation.

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What kind of geography teacher (or geography teacher trainer) are you? - A Q-methodological analysis

Rainer Mehren & Sandra Thume

Teachers and university lecturers have different ideas about how geography lessons should be structured. In a Q-methodological study, different perspectives on subject-related learning and teaching processes were explored. The Q-method is particularly well suited to identifying individual and/or inter-individual shared views on a common subject (WATTS, STENNER 2012). To this end, individual interviews were conducted with 31 geography teachers and university didactics experts, in which they were asked to rank 39 statements on geographical teaching principles according to their relative importance. The Q-sorts they created were used in a factor analysis to determine shared and coherent perspectives, which were then interpreted with reference to the order of the statements in the subsequent discussion. In a second study, the distribution of these perspectives was examined in a sample of 700 geography teachers using a questionnaire derived from the first study, and hypotheses about the relationship between perspective assignment and personal characteristics (e.g. length of professional experience, second subject) were tested.

Four different perspectives on subject-related learning and teaching processes in geography lessons were synthesised and interpreted on the basis of material-based comparative levels linked to the theoretical and empirical discourse on subject-specific knowledge: the conceptual-abstract perspective, the connecting-empowering perspective, the everyday-action perspective and the interesting-coping perspective.

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Session Environmental change and spatial resilience

Thursday 21, 14:00. C120.

Mastic cultivation in Chios under environmental change: integrating satellite analysis and local knowledge

Emily Nesme

The Mediterranean basin is highly exposed to climate change, with rising temperatures, shifting rainfall patterns, and increasing wildfire frequency. For island agroecosystems, these pressures create combined risks that remain poorly understood at local scales. Recent research on Chios, Greece, has highlighted emerging climate change impacts on mastic cultivation [1]. Within this context, our study examines the resilience of the mastic cultivation system on Chios to environmental disturbances over the past three decades. Practiced for centuries around the island's southern villages, mastic cultivation is a unique agroecosystem of high economic, cultural, and ecological value. It represents a form of place-based knowledge and identity, and offers a lens through which to explore how local systems respond to broader environmental transformations.

The study adopts a mixed-methods design, combining remote sensing analysis with in-person interviews. A Soil Moisture Index derived from Landsat imagery using Google Earth Engine is used to quantify spatiotemporal trends across mastic-growing areas between 1995 and 2025. This is complemented by semi-structured interviews with growers, workers, and representatives of the Mastic Growers Association, analyzed through thematic analysis. The satellite analysis reveals a statistically significant decline in summer soil moisture across mastic-growing areas. The qualitative findings reveal that awareness of climate change from the grower community is relatively recent and often linked to information shared by the Mastic Growers Association, highlighting its role in supporting adaptation.

Overall, the findings highlight both strengths and vulnerabilities within the cultivation system, as well as convergences and divergences between quantitative and qualitative insights, which together provide a more nuanced understanding of ongoing changes. As such, this study contributes to discussions on the value of integrating scientific and local knowledge in understanding adaptation processes.

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A spatiotemporal framework for assessing ecosystem resilience in Mediterranean region: A 40-year multi-index analysis of post-fire recovery in Lemnos Island, Greece

Eleftheria Alexoudaki

Geographic monitoring of post-fire dynamics is essential for understanding the long-term resilience of Mediterranean ecosystems and managing the socio-environmental drivers of landscape change under the pressure of rural development and climate change. In semi-arid island environments such as Lemnos, Greece, fire often emerges as a symptom of land-use competition between different branches of the primary production sector, specifically beekeepers protecting thyme shrublands and livestock producers seeking new grazing pastures. This study presents a robust spatial framework designed to bridge the gap between long-term satellite archives and land-use/cover change.

Utilizing a comprehensive Landsat time series (1984–2025), we implemented a three-stage analytical approach. First, we used the BFAST (Breaks For Additive Season and Trend) algorithm at the island-wide scale to detect historical ""breakpoints"" signaling significant disturbances [1]. Second, we detected the fire areas using local square-window sampling method and segmented regression. Third, we analyzed the long-term temporal ecosystem disturbance and post-fire recovery through multispectral indices, including NDVI, EVI, and NBR [2]. This precision in spatial analysis allows for the correction of administrative spatial records, revealing significant discrepancies in official coordinates and area estimations.

Our results highlight a spectrum of landscape changes: from stable post-fire recovery to critical ecosystem transformations, where woody habitats are replaced by invasive, fire-prone grasses. These changes have an impact on biodiversity and local flora of the island, affecting the high-quality local honey production. By monitoring these ecosystem changes with the use of long-term remote sensing techniques and understanding the land-use dynamics and potential conflicts that generate these changes is critical for the island. The proposed spatiotemporal framework for assessing ecosystem resilience could facilitate the decision process of local authorities for land management, towards conservation of biodiversity and resilience of the Mediterranean ecosystems and landscapes.

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Mapping a shifting riskscape in Ontario, Canada: Identifying how recent regulatory changes have altered the geographic accessibility to substance retailers

Jason Gilliland

Geographic accessibility to alcohol, cannabis, and tobacco has changed in Ontario, Canada between 2019 and 2022 due to regulatory changes. We conceptualize geographic accessibility to these substances as a 'riskscape' and investigate how these recent regulatory changes have altered the substance riskscape in Ontario, Canada in relation to neighborhood socioeconomic factors. We use an interrupted time series design to calculate the shortest distance between the centroid of each dissemination block and the nearest alcohol, cannabis, and tobacco outlet in 2019 and 2022. The geographic accessibility to substance outlets is further evaluated in relation to neighborhood disadvantage.

Accessibility to alcohol and cannabis increased substantially across the province, while there were minimal reductions in accessibility to tobacco during the same time period. Neighborhoods with a higher prevalence of lone parenthood, low educational attainment, and government transfer recipients exhibited a higher exposure to risky substances compared to the general population. The regulatory changes further exacerbated potential vulnerability among these populations to varying degrees.

The substantial changes in accessibility to alcohol, cannabis, and tobacco warrant further investigation, particularly focusing on how these shifting riskscapes influence consumption patterns, disparities in harm, and long-term health outcomes.

Session Digital learning and virtual environments

Thursday 21, 16:00. D108.

Fostering Diversity and Inclusion in Geography Education: Using Virtual Field Trips to Teach about Sustainability

Sophie Wilson

In a world undergoing rapid change and facing complex challenges—from geopolitical shifts to environmental crises—geography plays a vital role in helping learners understand and engage with pressing issues such as inequality, migration, and justice. This presentation explores the crucial theme of fostering diversity and inclusion within geography education, with a particular emphasis on teacher training and the development of trainee teachers.

Drawing on insights from the VGeoSciEd project, this session will examine the challenges and opportunities involved in embedding inclusive approaches to diversity within sustainability education through the innovative use of virtual field trips. Attendees will discover effective practices and strategies that can be applied across a range of controversial topics, empowering educators to create more equitable, reflective, and responsive teaching and learning environments in geography.

The presentation will showcase the latest outputs from the VGeoSciEd project, including a glossary, guideline, and two instructional videos. Initial findings from case studies developed as part of this work will be shared, providing practical examples of how virtual field trips can be adapted to promote inclusivity and address diverse learner needs.

Participants will leave with valuable knowledge and practical tools to begin implementing inclusive approaches in their own teaching, so helping the development of geography education that is genuinely diverse, inclusive, and impactful.

Virtual Exchanges and Their Typologies

Miguel Bañares Martín

Virtual Exchanges (VE) have emerged as a key pedagogical approach for promoting intercultural dialogue, collaborative learning, and the development of global competencies through technology-mediated communication. As an umbrella concept, VE encompasses multiple models that connect students across cultural and geographical contexts in structured online learning activities. Established typologies—such as e-tandem, telecollaboration, and Collaborative Online International Learning (COIL)—have been widely implemented for over two decades. Their adoption accelerated significantly after COVID-19, when the virtualization of traditional teaching practices became necessary and new methods emerged that were not

always systematically researched or assessed. VE particularly strengthens intercultural learning by encouraging students to compare cultural perspectives, discuss shared content, and critically reflect on cross-cultural communication (O'Dowd, 2023). Furthermore, VE contributes to sustainability by reducing physical mobility, lowering the carbon footprint (Campbell, 2022).

This contribution synthesizes existing scholarly literature on VE typologies and models, focusing especially on their pedagogical affordances for education for sustainability. The analysis draws on state-of-the-art reviews that map the evolution of VE from language-learning contexts toward broader educational aims, including global citizenship education and internationalisation at home. Building on this foundation, the study examines how VE practices can be applied to sustainability education, identifying key features, challenges, and opportunities across diverse institutional settings. The integration of VE into sustainability education highlights emerging trends that align digital internationalization with the principles of global citizenship and environmentally sustainable practice.

Understanding VE typologies is fundamental for designing effective, sustainable intercultural learning experiences. As VE continues to expand beyond its origins in foreign language education, its relevance for sustainability education becomes increasingly evident.

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Bridging Formal and Non-Formal Geography and Astronomy Learning through an AR–AI Serious Game in a World of Environmental Flux

Anastasia Georgiou

In an era marked by environmental uncertainty and shifting planetary conditions, geography and astronomy education should equip young learners with the conceptual tools needed to navigate complex scientific and societal challenges. This research presents the design and early implementation of AcademIA of ARistarchus, a hybrid board based serious game enhanced with Augmented Reality (AR) and Artificial Intelligence (AI), developed to bridge the gap between formal and non formal learning environments. While geography education (Lambert & Morgan, 2010) is traditionally situated within the formal school curriculum, this study foregrounds the

role of non formal learning by positioning the school itself as a hybrid learning site, where voluntary after school workshops and science themed events extend students' opportunities for inquiry beyond the constraints of the timetable.

The game integrates AR visualisations and a rule-based AI chatbot to support learners (aged 10–12) in exploring complex concepts such as the greenhouse effect and planetary atmospheres. In non formal contexts, the teacher's role shifts from an authority figure to a facilitator, while the AI agent "Aristarchus" acts as a digital animator. This agent provides personalised scaffolding and diagnoses documented geographical misconceptions—such as the conflation of the ozone layer with the greenhouse effect.

Methodologically, the study follows a Design Based Research (DBR) approach, utilising the TPACK framework (Mishra & Koehler, 2006) to ensure that technological affordances are pedagogically and disciplinarily aligned. Expert evaluations indicate that AR visualisations address genuine pedagogical challenges related to scale by rendering invisible atmospheric structures manipulable. By operationalising comparative planetology—contrasting Earth, Venus, and Mars—the intervention transforms abstract ideas into concrete objects of inquiry, supporting deeper geographical and astronomical understanding.

Ultimately, this work suggests that hybrid AR–AI board based tools can facilitate seamless learning, enabling knowledge to flow between formal and non formal educational contexts.

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Session Energy, environment and socio-economic impacts

Thursday 21, 16:00. C102.

Geographical analysis of the energy poverty in Europe: the case of Bulgaria

Rossen Koroutchev

The inclusion of buildings and road transport in the EU Emissions Trading System is projected to significantly increase household energy and transport expenses, placing a disproportionate burden on vulnerable households. In this sense, under the Social Climate Fund, Member States are required to identify and prioritize vulnerable groups affected by energy and transport poverty in order to address potential adverse social consequences.

In this paper we will discuss the European geographical distribution of the implications of the EU Emissions Trading System in terms of energy poverty rate by EU country, energy expenditure for low income households, and composition of the EU residential building stock by energy source among other parameters.

The main focus of the analysis is on the case of Bulgaria, where a systematic approach has been recently developed including different indexes corresponding to energy needs, social vulnerability and energy and transport vulnerability in a specific geographical aspect. In addition, a currently developed approach, based on climate hazard indicators and socio-economic vulnerability metrics, will be discussed as well.

By linking climate science with socio-economic and governance data, the analysis permits to identify at-risk populations and highlights the importance of data-driven targeting and coordinated policy design to ensure that the green transition advances both climate neutrality and social equity

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Geographies of Energy Poverty and its impact on environmental degradation

Muhammad Kamran Khan

No access to reliable, clean and affordable energy resources is caused by relax environmental policies, limited adoption of environmental technologies, and insufficient environmental performance in Asian economies, pose significant barriers to achieve sustainability. Energy poverty is measured by access to energy in early research but in this study energy poverty is measured through the no access to clean fuels and technologies for cooking (rural and urban) and the lack of access to electricity (rural and urban) is a new approach as compared to the traditional energy poverty method. This research used the Generalized Method of Moments (GMM): System GMM and difference GMM model for results analysis. The research examines the effects of environmental policy, environment-related technologies, environmental performance, institutional quality, urbanization, energy poverty, economic growth, renewable energy use on environmental degradation in 44 Asian countries from 2006 to 2022. The results reveal that stronger environmental policies, environmental performance and adoption of environmental technologies significantly reduce CO_2 emissions, contributing to the achievement of SDG 13 (Climate Action) and SDG 9 (Industry, Innovation and Infrastructure). Institutional quality, particularly government effectiveness and regulatory strength, plays a vital role in mitigating environmental degradation, aligning with SDG 16 (Peace, Justice, and Strong Institutions). Environmental issues in rural area are increase due to energy poverty, that stress underscoring the urgency of SDG 7 (Affordable and Clean Energy). Although urban energy poverty shows mixed effects, the findings emphasize the need for use of sustainable energy resources. It is recommended that policy expert needs to promote sustainable urbanization, strengthen the institutions, invest in renewable energy projects, and advance the environmental innovations to achieve SDGs in Asian economies. These will promote greener growth, improve energy access to remove energy poverty, and support long-term sustainable development in the region as per SDGs.

Balancing Conservation and Sustainable Development through Spatial Planning Zoning: Evidence from Sharri National Park

Fadil Bajraktari

Spatial zoning is widely recognised as one of the most important environmental management instruments for balancing biodiversity conservation with socio-economic development in protected areas. Across Southeast Europe, national parks are increasingly exposed to development pressures driven by tourism expansion, private land ownership claims, and local economic expectations, often resulting in tensions between conservation objectives and community interests. This study examines the spatial zoning revision process of Sharri National Park in Kosovo, a Category II protected area under the IUCN classification, designated for the protection of high-altitude ecosystems, endemic species, and key ecological corridors.

The research applies a dual methodological framework that combines scientific–empirical biodiversity assessment for strictly protected zones with a multi-criteria socio-economic and spatial planning approach for sustainable development zones. Geospatial data analysis, field-based ecological verification, institutional review, and an extensive public consultation process were jointly employed to reassess zoning boundaries.

The results demonstrate that zoning, when treated as an adaptive and evidence-based management instrument, can significantly improve ecological coherence while accommodating controlled development. An initial draft proposal envisaged a reduction of sustainable development zones by approximately 75% (from 3,772 ha to 952 ha), triggering substantial public response. Following the evaluation of 105 zoning-related requests, 78.1% were approved for inclusion in sustainable development zones, while 4.76% were retained within active management zones due to high ecological sensitivity. These findings show that evidence-based zoning, supported by transparent governance mechanisms and stakeholder participation, can reconcile conservation priorities with local development needs without compromising key environmental values.

This case provides transferable insights for environmental managers and planners facing similar challenges in protected mountainous regions undergoing socio-economic transition.

Session Innovative teaching practices fos sustainability

Thursday 21, 16:00. C103.

The U.BI.TEACH project : Creating a repository of good practices on innovative teaching of Urban Biodiversity in higher education

Luc Zwartjes & Rafael de Miguel González

U.BI.TEACH (Urban Biodiversity Teaching and Learning in Higher Education Sector) is an Erasmus+ project aimed at strengthening teachers' skills and improving student learning in urban biodiversity education. The project, involving eight partners from seven European countries, developed a database of good practices based on the U.BI.TEACH Competence Model for urban biodiversity education.

Through keyword searches and critical review, 36 relevant experiences were identified, including courses, research projects, policy reports, and urban initiatives. Results suggest that dedicated urban biodiversity teaching practices in higher education remain limited, with most activities focusing on ethical responsibility, collaboration, critical thinking, urban biodiversity analysis, community engagement, and policy development.

Evaluating solutions through play: Escape games in climate change in cities

Alexandra Budke & Marine Simon

The lecture will present games for discussing solutions to sustainability problems in cities and approaches for reflection in geography lessons. As part of the EU-funded ERASMUS+ project, the Escape Climate Change Initiative (ECCI) has published two escape games for geography lessons. In the games, pupils aged between 13 and 18 can engage with different solutions to climate change-related problems in cities. They learn about the social discourse on solutions in the areas of housing, green spaces and transport and can form their own opinions. The games and suitable teaching materials for preparation and follow-up have been tested in lessons in Germany, Spain, Italy and France, so their effectiveness has been proven.

The games and the innovative accompanying material can be obtained free of charge via the website and the e-learning platform:

Project website: https://www.ecciproject.eu/

E-learning platform: https://app.ecciproject.eu/ (direct access to the games)

The lecture will present central didactic approaches to the games and the results of the evaluation.

Rejecting climate apartheid: towards decolonizing policies, curricula, and pedagogies on climate mobilitie

Kirsi Pauliina Kallio

This presentation introduces findings from the HUMANE-CLIMATE research project (2022–2026), examining the civic potential of climate mobility through a relational geographical lens. Bringing together policy analysis, curriculum studies, and participatory research with children and youth, the project traces how climate mobility is currently framed, silenced, misunderstood, or re-imagined.

1) Through critical documentary analysis of the EU's migration and climate policies we have identified a 'politics of void', including terminological, epistemic, and systemic forms of avoidance that sidestep the nexus between climate change and (forced) migration, particularly movements toward the EU. This avoidance reproduces hierarchical relations between the European 'we' and climate-impacted communities elsewhere, thereby enabling the emergence of "climate apartheid" (Rice et al. 2022) as a political project.

2) Through curriculum and textbook analysis in Finland and Greece, we have explored how national curricula and schoolbooks frame climate change and the related (im)mobilities. In both countries, social-scientific and justice-oriented approaches to climate education remain weak, and climate mobility is nearly absent as a theme. "Climate coloniality" (Sultana 2022) appears implicitly through narratives of neutrality, benevolent helping, and a lack of historical or geopolitical responsibility. Finland's materials emphasize spatial and temporal distance, while the Greek curriculum includes mobility themes more broadly yet with little connection to environmental issues.

3) We carried out participatory research with arts-based methods in two classrooms of 10-year-old students in Tampere, Finland and Athens, Greece (n=71), for one semester, accompanied by shorter engagements in secondary and upper secondary schools. The study focused on how children and young people (can) understand climate mobilities, if approached from a decolonizing and empathic pedagogical perspective (cf. Zembylas 2024). The results highlight tensions between climate-colonial imaginaries (e.g., 'us/them' separations, Northern havens, charity logic) and more relational, empathic orientations (e.g., shared vulnerability, translocal connections, solidarity). The co-creative methods enabled children to unlearn hierarchical framings and to generate alternative geographies, which is encouraging for the development of justice-based climate change education. Based on the three sub-studies, we argue for policies, curricula, and pedagogies that resist the institutionalization of climate apartheid as a structure reproducing colonial patterns and power structures behind the climate crisis.

Session Climate, Energy and Environmental Systems

Friday 22, 10:00. D106.

Tunisia's transition to green hydrogen: encounters between Western patterns of energy governance and traditional land and water practices in the Gabès region

James Vigni

The race for green hydrogen has started. Much of green hydrogen production is expected to take place in solar and wind-rich regions in the Global South to meet the energy needs and climate targets of the Global North. Tunisia is quickly emerging as a key player in this space, leveraging its vast renewable energy potential and proximity to European markets. However, the risks the country faces are multitudinous, particularly with regards to extreme water scarcity, land disputes, and political upheaval. The main aim of the project is to conduct a comprehensive assessment of the National Strategy for the Development of Green Hydrogen and its Derivatives in Tunisia focusing in particular on the Amarenco Green Hydrogen Hub, the Green Hydrogen-to-Ammonia Pilot, and the H2 Notos Project and whether these risk exacerbating water scarcity and land tensions in Gabès, Tunisia's green hydrogen valley. In doing so, the project aims to examine through a neo-Gramscian political ecology framework how Western, neoliberal patterns of energy, land, and water governance interact with local practices and customs in Tunisia; and to uncover any breakdown of collective ownership, traditional water harvesting technologies, and local culture. Finally, the project will endeavour to analyse the corollaries of the Saied government's green hydrogen strategy and the direct interference of foreign companies, governments, IFIs, and MDBs to determine whether these policies could spark further political upheaval leading to another Jasmine Revolution and causing disruptions to the energy supply chain. The goal, ultimately, is to identify the geopolitical risks associated with good and bad energy, land, and water governance and create an alternative assessment of green hydrogen, which addresses calls for a more just transition in the region.

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Optimization of Renewable Energy Integration in Smart Grids: A Case Study from Algeria

Rami Amroune

This study investigates the integration of solar and wind energy into smart grids in Algeria. The research focuses on optimization methods to enhance efficiency and reduce energy losses in regional electrical networks. Various strategies are analyzed, including real-time energy management, load balancing, and predictive maintenance using advanced electrical engineering techniques. The results demonstrate significant potential for sustainable energy solutions that improve reliability, reduce environmental impact, and support economic growth. This work contributes to the development of smart grids in Algeria and provides insights applicable to similar regions worldwide.

War as an “end”, either than a "mean": the paradox of democracies engaging bellicose geopolitics

Igor Jelen

Modern geopolitical schools elaborate their thought in different ways, but fundamentally they assume the war, and the use of force in general, as something uncontrollable, exerting unforeseeable effects, that is necessary to take under control. This on the base of the assumption that violence, namely the explosion of violence, express force in such a way that it can potentially change the “versus” (significance) of any scenario, diverting from any original intention and priority. Furthermore, and consequently, late modern thought arrived to the paradoxical conclusion that the effects of recent wars (form Vietnam to Afghanistan, Gulf wars and Middle–East wars) proved to be simply counter-productive. This not just in ethical, but also in technical-political terms: armies and bellicose actions bring to different conclusions as expected, namely precariousness, unforeseeable effects, the spread-out of regional instability, even a diminution of influence, with formation of new contrapositions, and above all a bulk of innocent victims. In many cases war just transforms friends in enemies, even creating form scratch terrorists or terrorist states (like ISIS), assuming bellicose attitudes. It means the well-known effect of the “heterogenesys of the ends”, one of the founding elements of what – is going to be – the critical thinking.

This approach developed a method based on de-construction namely on search of the s.c. “inside” factors, that would derive from collateral effects, interests’ conflicts, lobbying, inaccuracy and inefficiency of weapons etc., and many other circumstances, that could deviate any action from original purposes. But the most recent events (Ukraine invasion, Gaza strip destruction, USA-Israeli- Iran wars) seem to evidence a step beyond, namely the will of power to destroy indiscriminately beyond any schema (limit): it is neither a question of hegemonic superpower, claiming for re-establishing influence spheres, nor the realization of a strategy pursuing some target; it seems that some leader consider the war as a structural element of a political functioning. Several signals let it imagine that violence in form of war is becoming

(again) a kind of “end”, no longer a “mean”, of politics, overcoming a kind of taboo relegating the idea of the war (at least the conventional war) as something obsolete, no longer useful for pursuing political purpose. This demonstrates again that whatever “power” is always subject to the risk of degeneration, eventually recurring to systemic use of violence, and in the “permanent war”, and of massive and destructive wars to be considered as a pillar of the effectiveness of a political organization, namely of the souverain state.

Session Inclusion, diversity and student perspectives

Friday 22, 10:00. D108.

Walking Their Stories: Empowering Female Students with a Migration Background in School Neighbourhood Tours

Tabea Thomsen

Duisburg-Marxloh is subject to strong spatial stigmatisation in public discourse. These attributions effect the local population, particularly girls from migrant backgrounds. The external stigmatisation results in self-stigmatisation, which reinforce their already low self-efficacy (Peres da Silva & Lauer 2018). Given the importance of self-efficacy for future life paths, its' promotion is crucial. This is where the presented project Inside Marxloh comes in. It examines the interplay of structural challenges, spatial appropriation and self-efficacy in the intersectional crossover of class, migration and gender (Massey 2013).

As part of the project a working group with female students in years 8 and 9 was established. Within the working group, the girls developed guided tours of Marxloh. The aims were to differentiate dominant, stereotypical spatial constructions and to strengthen the girls' self-efficacy. The intervention was accompanied by a qualitative process analysis answering the following research questions:

• How is Duisburg-Marxloh perceived by local girls with a migration background?

• What spatial perspectives do girls from Duisburg-Marxloh have of their own neighbourhood? To what extent are these perspectives shaped by intersectional factors?

• How do the self-efficacy of said girls develop in the context of the space-related, empowering intervention, and what factors contribute to this development?

The results show that the girls were aware of the negative external construction of their neighbourhood, and internalised them (Thomsen et al. 2025). At the same time, they expressed the desire to explore alternative perspectives on space through their own experience-based perceptions. During the tours, the girls externalised aestheticized counter-narratives. In doing so they learn to identify with their neighbourhood and to position themselves within the intersectional field of class, migration and gender. They experienced themselves as active producers and shapers of space. This strengthens their self-efficacy (Thomsen et al. 2025).

The findings are discussed and categorised within the framework of intersectional approaches from feminist geography, youth geography and critical educational research.

The lecture concludes with a critical reflection on the intervention study to identify challenges and conditions for success of those alternative, participatory educational formats in geographical education and neighbourhood work.

Teaching Geographies of Natural Risk: Enhancing Students' Climate Change Competencies with CRISEPAC

Aikaterina Klonari

The CRISEPAC project is a European educational initiative designed to strengthen young people's critical thinking, media literacy, and awareness of natural hazards in the context of accelerating climate change (IPCC, 2023; UNDRR, 2022). This study explores how CRISEPAC contributes to geography education by providing innovative pedagogical tools that enhance students' understanding of the spatial distribution, drivers, and societal impacts of natural risks, while fostering competencies related to informed decision-making and active citizenship (OECD, 2018).

CRISEPAC has developed a comprehensive suite of educational materials through a co-creation process involving researchers, educators, and project partners from multiple European countries (www.crisepac.eu). These materials include interactive learning modules addressing climate-related hazards such as floods, wildfires, storms, and heatwaves. The modules integrate multimedia content, data visualisations, and scenario-based simulations that support students' spatial and critical analysis of risk. Scenario-based classroom activities further engage learners through role-plays, collaborative problem-solving, and decision-making exercises that simulate real-world hazard situations, promoting critical thinking and teamwork skills.

The project also includes a digital assessment tool that enables teachers to evaluate students' understanding of hazards, risk perception, and information credibility, while providing tailored feedback to support learning outcomes. In addition, a digital game offers an immersive, gamified environment in which students experience simulated hazard scenarios, encouraging experiential learning and strengthening decision-making under conditions of uncertainty. Two student booklets, accompanied by solution booklets for teachers, provide structured explanations, exercises, and self-reflection activities on natural hazards. Teacher guides and pedagogical resources offer step-by-step instructions and contextual background to facilitate effective implementation across diverse classroom settings.

Pilot implementations conducted in several European countries indicate that CRISEPAC tools enhance students' geographical literacy, deepen understanding of natural hazards, and increase awareness of climate-related risks. By integrating risk education with media literacy, the project also addresses the growing challenge of misinformation related to natural hazards and climate change. Overall, CRISEPAC provides a scalable and adaptable framework for geography education that supports climate resilience and empowers students to become informed, proactive citizens in an increasingly risk-prone world.

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Climate Education in Poland in a Time of Transformation

Joanna Szczęsna, Monika Wesołowska & Marta Gwiaździńska-Goraj

Climate change and its consequences for the natural environment, human life, and economic systems constitute one of the most pressing challenges of the contemporary world. Mitigating the effects of the climate crisis and preventing its further escalation require a well-informed and aware society. Therefore, comprehensive and compulsory climate education for children and adolescents plays a crucial role in shaping responsible young citizens who understand the need for global climate action.

Session Migration, borders and vulnerability

Friday 22, 10:00. C102.

The European Union as a Humanitarian Border: How the New Pact on Migration and Asylum Produces Vulnerability through Care, Control, and Conditional Protection

Jouni Häkli & Noora Peltonen

This presentation examines the European Union's New Pact on Migration and Asylum through the conceptual lens of the humanitarian border, highlighting how humanitarian rationalities and securitized border control are mutually constitutive in contemporary migration governance. Drawing on critical border and migration studies, the paper argues that the New Pact does not merely respond to migrant vulnerability but actively produces it

Empirically, the analysis is based on a critical discourse analysis of the European Commission's key legislative proposals underpinning the New Pact, including regulations on screening, asylum procedures, migration management, crisis governance, and biometric data collection. These documents are analysed to assess how the EU discursively reconciles commitments to human rights and the protection of vulnerable persons with intensified border control and security objectives.

The paper identifies three interrelated mechanisms through which vulnerability is produced. First, the securitization of migration legitimizes restrictive border practices, pre entry screening, externalization, and crisis derogations, exposing asylum seekers to legal, physical, and temporal precarity. Second, vulnerability operates as an administrative sorting category, selectively distributing care while excluding those whose suffering is not immediately visible or legible within predefined criteria. Third, asylum seekers face pressure to perform vulnerability in order to access protection, fostering conditional recognition and reinforcing hierarchies of deservingness.

Conceptually, the paper contributes to debates on humanitarian bordering by demonstrating how vulnerability functions as a conditional and performative category rather than a universal basis for protection. It shows how humanitarian discourse enables the EU to maintain a liberal self image while institutionalizing exclusionary practices that deepen migrant precarity. The findings underline the paradoxical role of humanitarianism in legitimizing restrictive migration governance and call for closer scrutiny of how care, control, and vulnerability intersect in contemporary asylum policy.

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Neuroarchitecture in Age-Friendly Urban Governance: Reconfiguring Public Space in Times of Demographic Flux

Rengin Aslanoğlu

Global policy frameworks such as the WHO Age-Friendly Cities initiative and the Sustainable Development Goals have played a significant role in shaping contemporary urban responses to population ageing. These frameworks promote inclusive, healthy, and accessible cities, yet they are often translated into practice through standardised design checklists and physical accessibility measures. This study argues that such approaches are insufficient to address the cognitive and neuro-sensory dimensions of ageing, resulting in a governance gap between global standards and local lived experience.

Drawing on concepts from neuroarchitecture, health geography, and urban governance, the study examines how age-friendly policies are mediated by urban environments. It introduces the notion of neuro-responsiveness as an evaluative lens for assessing whether urban governance structures meaningfully engage with ageing-related cognitive diversity, including sensory sensitivity, memory, stress regulation, and spatial orientation. It examines how policy transfer mechanisms, benchmarking, indicators, and best-practice models tend to prioritise universally measurable outcomes, often at the expense of context-specific cognitive needs shaped by culture, climate, density, and socio-economic conditions. As a result, neuroarchitectural considerations are frequently marginalised, despite their relevance to wellbeing, autonomy, and everyday mobility for older adults.

In the context of a shifting world order, marked by demographic ageing, decentralisation, and increasing demands on local governments, the study calls for a reorientation of age-friendly governance toward neuro-informed planning. This involves integrating cognitive criteria into urban policy, fostering cross-sector collaboration, and recognising neuroarchitecture as a form of soft infrastructure embedded in local decision-making. The study concludes by outlining pathways for more cognitively just and context-sensitive urban governance.

Invisible Peripheries: Digital Skills without circular outcomes in South-East Europe

Stefana Matović & Suzana Lović Obradović

The European Green Deal and the Digital Decade implicitly assume that the development of digital skills will support sustainable and circular outcomes across all regions (Ben Youssef, 2025). However, growing territorial disparities suggest that this relationship is not spatially uniform. This paper explores the phenomenon of "invisible peripheries", as regions where relatively high levels of digital skills do not translate into tangible circular economy outcomes. Focusing on Southeast Europe, the study combines Digital Economy and Society Index (DESI) (Gong et al., 2025) data on digital skills with municipal waste recycling rates at the NUTS2 level. Using scatter plots and bivariate choropleth mapping, the analysis identifies spatial mismatches between human digital capacity and environmental performance. The results reveal clusters of regions where digital skills remain an unrealized potential due to institutional, infrastructural, and logistical constraints, while metropolitan areas benefit from cumulative territorial advantages. The findings challenge the assumption of spatial neutrality embedded in EU transition policies and highlight the risk of reinforcing existing regional inequalities. By shifting attention from national averages to sub-national patterns, the paper argues for territorially differentiated policy approaches that acknowledge place-based barriers in translating digital capacity into circular outcomes.

Session Re-Imagining curriculum making with geographies

Friday 22, 10:00. C103.

Experience and education in the Anthropocene: conversations with the non-human

Tom Wils & Veronique Schutjens

In the Anthropocene we are inescapably embedded in the planetary, such that we cannot experience the scales of our impact nor keep analytical or critical distance to it. This new position requires a new pedagogy for geography education in the Anthropocene, able to relate to the fragmentary experiences on a wounded planet. It also requires recontextualization of cutting-edge powerful geographical knowledge. In this contribution we conceptualise the consequences of this new position for teaching geography and explore the importance of transformative approaches. We do so through humanistic and posthuman perspectives. We argue for developing a compassionate distance through ecological dialogue with the non-human. Examples of dialogical border crossing that explore relation, positionality and meaning with students in the Anthropocene classroom are discussed.

Liberal Humanism, Decolonising the Curriculum and the Importance of Epistemic Boundaries

Alex Standish

Boundaries are how we construct meaning for concepts, language and social institutions, including the educational space of schools and content of the curriculum. Decolonial curriculum approaches have their own boundaries based on political identities and social hierarchies, while challenging the contemporary boundaries that give meaning to the school curriculum, academic knowledge and Western culture. Here, I defend the liberal humanist tradition in education which fosters boundaries between educational spaces and the public realm of politics; between academic knowledge and everyday knowledge; between the past and the present; between knowledge and knowers; and between curriculum and pedagogy. Such boundaries are neither set in stone nor always obvious, but they are the responsibility of professionals to maintain. It is only through these epistemic boundaries that we create an educational space for young people to explore the meaning of truth, beauty and social justice, as they mature and grow as individuals.

Futuring for a geography in flux

Spijker Mans

So-called ‘wicked problems’ of our time are the crystallisation of a world in flux. These intricate societal issues, such as climate change and its accompanying crises, are difficult to tackle when

rationalising the world as static. The geographic discipline often falls into a lack of foresight, but it has the possibility of addressing these dynamic and multidimensional societal issues by incorporating techniques and methods that engage with a world to be.

To stimulate thinking about how the geographic discipline can cater to a continuously changing world, this paper addresses the following research question: 'How does the act of Futuring support understanding of the dynamic nature of geography?'

Futuring as an act acknowledges that the present and the future are co-constitutive and is therefore conceptually linked to understanding our dynamic world. By presenting a case in which futuring is used for constructing alternative ecocentric futures, this inquiry highlights how futuring methods can be a valuable technique for geography and geography education.

Through Photovoicing, activists of Extinction Rebellion created and elaborated on their Futuring artefacts to provide an insight into what contemporary spatial elements are constitutive of their ecocentric imaginaries. The rebels' experiences underpin that the present and the future are reciprocally constituting and thereby inextricably linked. This reflects the dynamic nature of geography and acknowledges the geographical dimension as a vital component of future imaginaries.

Attendees are invited to think about the implications of visual Futuring methods on teaching geography.

Session Teaching the new world. (Dis-) Order. Panel session.

Friday 22, 10:30. C120.

Teaching the new world. (Dis-) Order

Gunthram Herb, David Kaplan, Jouni Hakli, Kirsi Kalio & Ferenc Gyuris

Teaching globalization, the geography of Europe, or climate change is challenging for all in this new global context. We are not just experiencing a repeat of naked imperialism, there is some neo-royalism in it as well. There are novel financial instruments, billionaire networks, media conglomerates and AI. Truth is now “Truth Social”. Then there is the ideological onslaught from all sides of the political spectrum about free speech and bias. So, how do we teach these new geographies? Which concepts and theories apply? Are there historical parallels? (Pan-regions, Mackinder’s heartland, and Mahan’s sea power come to mind as blueprints for the United States, Russia, and China). How do we teach divisive issues such as Israel/Palestine? Is there still a Europe or is it many Europes - how do we teach these entangled identities? The panel brings together geographers from different countries to share and develop teaching ideas, strategies, and tactics. We will start with very brief informal presentations by the panelists before we open up the conversation and engage the audience.

Session Learning Pathways and Spatial Understanding in Geography Education.

Friday 22, 13:30. D106.

Is response certainty a reliable predictor of pupils' misconceptions in geography education? Preliminary findings

Tomáš Bendl

Two- to six-tier diagnostic tests are currently among the most commonly used approaches for identifying misconceptions across a range of academic disciplines. These instruments are based on the assumption proposed by Hasan et al. (1999) that the level of certainty individuals express about their answers—measured through the Certainty of Response Index (CRI)—can help differentiate between incomplete conceptual understanding and genuine misconceptions. According to this assumption, an incorrect answer given with high confidence indicates that the respondent likely holds a misconception.

However, this long-standing assumption has recently been questioned. Hull et al. (2022) argue that identifying pupils' misconceptions solely on the basis of answer correctness and CRI may be problematic and potentially premature. They therefore call for further empirical studies testing the hypothesis originally proposed by Hasan et al. (1999).

Responding to this call, the present study examines whether CRI can reliably predict pupils' misconceptions related to contour lines on maps. Investigating this issue in the context of geography education is particularly relevant, as pupils' understanding of topographic representations—such as contour lines—has been widely studied in the field, and previous research has documented a range of recurring misconceptions in this area.

To assess the predictive validity of CRI, a four-tier conceptual test focused on contour lines was administered. Subsequently, semi-structured interviews were conducted with selected participants to verify whether those identified by the test as holding misconceptions indeed demonstrate such misconceptions in their reasoning. This presentation reports preliminary findings focusing on secondary pupils and their conceptual understanding of contour lines.

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Developing Children's Spatial Awareness: Recommendations for School Education

Anna Klimach & Agnieszka Dawidowicz

Spatial awareness is a key competence enabling children to function effectively in the surrounding world. It includes cognitive, skill-based, and affective components that shape how space is perceived, understood, and interpreted (Gross et al., 2025; Newcombe, 2018), as well as children's capacity for independent action in everyday environments (Hegarty & Waller, 2005). Despite its developmental importance, formal education addresses spatial awareness only fragmentarily, usually focusing on selected elements such as spatial orientation, while neglecting emotional and attitudinal aspects related to space (Newcombe & Frick, 2010; Nowicka, 2020).

The aim of this study was to diagnose spatial awareness among primary school-aged children and to present the results of empirical research using a geo-questionnaire as an innovative research tool. This method enabled the integrated analysis of spatial knowledge, practical skills, and affective components, allowing for a comprehensive assessment of students' spatial awareness (Czepkiewicz, Jankowski, & Zwoliński, 2018). The study involved children attending primary and lower secondary schools, divided into three age groups: 8–10, 11–13, and 14–16 years. Both quantitative and qualitative analyses were applied to the collected data.

The results revealed significant differences in the levels of individual components of spatial awareness across age groups and nationalities, confirming previous findings on the developmental variability of spatial competencies (Uttal et al., 2013; Wronkowski, 2018). The analysis also identified areas requiring targeted didactic support. Based on the geo-questionnaire findings, an expert evaluation was conducted with educators from Olsztyn (Poland), Manchester (United Kingdom), and a representative of the Royal Inspectorate of Education. This process led to the development of recommendations for school education aimed at the systematic enhancement of children's spatial competencies.

The recommendations emphasize modifications to curricular content and teaching methods that promote active engagement with space and the integration of cognitive, emotional, and practical dimensions (Cheng & Mix, 2014; Newcombe & Shipley, 2014). The study highlights that spatial awareness is not only cognitively important but also psychosocially significant, as it supports children's independence, sense of agency, and self-confidence—factors essential for effective school and social functioning (Uttal et al., 2013; Bednarz, 2018). The findings may serve as a foundation for curriculum development and educational practices oriented toward the holistic development of children.

Choosing a Direction: Understanding How Earth Sciences Students Navigate Specialisation Decisions in the First Year

Anneke Kuilman

Choosing an academic specialisation is a consequential moment in a student's higher education trajectory, shaping subsequent curriculum, thesis, and professional orientation (Holmegaard, Ulriksen, & Madsen, 2014).

In the Earth Sciences Bachelor's programme at Utrecht University, students choose one of four directions (Earth Surface, Water, Oceans, Solid Earth) at the end of their first year. Following a curriculum reform (cohort 2023/2024), a strongly uneven distribution has emerged (e.g., 7 students in Water versus 60 in Solid Earth in 2025). This creates organisational challenges (staffing, master's alignment), educational concerns (very large groups may limit interaction and feedback, while very small groups reduce peer learning dynamics), and a mismatch with labour market perspectives in the broader field of geography and geosciences.

This study therefore examines how these direction choices develop, to identify the factors that shape the choice process and inform how this process is designed and supported within the programme. The first data collection (N = 152) is expected to provide insight into (a) differences between students at various stages of the study choice process; (b) differences between intended study directions in terms of students' perceptions, motivations, and influencing factors, and (c) insight into choice processes, such as switching behaviour.

The project conceptualises direction choice as a longitudinal process of sense-making (Nielsen & Ulriksen, 2024), developing over time through experiences, interactions, and emerging self-understandings. We ask: Which factors shape the specialisation choices of first-year Earth Sciences students? Sub-questions address the temporal development of preferences, meaningful academic experiences, evolving images of directions, the role of peers and staff, experiences of doubt and reorientation, and the influence of formal information structures.

Data are collected through two survey moments (April and June) and follow-up semi-structured interviews. The first survey captures first-year students' emerging images of directions, certainty levels, and perceived influences prior to fieldwork; the second revisits these dimensions after fieldwork when the final choice is/has to be made, explicitly probing decisive experiences and reflections on institutional support. Interview data are analysed using thematic analysis (Braun & Clarke, 2006), adopting an abductive approach (Nielsen & Ulriksen, 2024).

By making visible how students navigate specialisation decisions within an Earth Sciences curriculum, this research informs concrete interventions in information provision, curricular sequencing, and mentoring, aimed at supporting more informed, reflective and potentially more balanced direction choices.

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Session Climate change and sustainability.

Friday 22, 13:30. D108.

Teach4Sustainability: Virtual Exchange as a Transformative Model for Climate Change Education in Teacher Training

Emmanuel Eze

As climate change intensifies and global inequalities in educational capacity persist, geography education faces a pressing challenge: how to prepare future teachers to address sustainability in ways that are both contextually grounded and globally interconnected. While Education for Sustainability (EfS) and Climate Change Education (CCE) are increasingly emphasized in policy frameworks, their integration into teacher training remains uneven, fragmented, and often disconnected from intercultural realities.

This paper presents Teach4Sustainability, an Erasmus+ Virtual Exchange initiative that advances a scalable, intercultural, and digitally inclusive model for embedding sustainability and climate education into teacher training across Europe and Sub-Saharan Africa. The project responds to shared structural gaps, including limited curriculum contextualization, uneven digital capacity, and insufficient opportunities for meaningful North–South pedagogical collaboration.

Adopting a design-based and multi-phase research approach, the project is structured around four interconnected work packages, including multi-country needs assessment, curriculum co-development, pilot implementation through virtual exchange, and scaling and institutional integration. Conceptually, the study positions virtual exchange both as a technological tool and as a transformative pedagogical methodology that enables reciprocal knowledge production and supports the co-construction of locally relevant sustainability education. Also, by shifting from “learning about” to “learning with” diverse contexts, the model promotes critical reflection, empathy, and action-oriented teaching practices.

The paper contributes to geography education research by offering an empirically grounded framework for integrating EfS/CCE through virtual exchange, insights into intercultural and digital pedagogies in teacher education, and a scalable model for advancing climate-responsive education across diverse global contexts.

Integrating Climate Change Mitigation Strategies in Geographical Education for Secondary Teacher Trainees

María Luisa de Lázaro Torres, Francisco José Morales & Javier Álvarez Otero

This paper examines how geographical education for secondary school teacher trainees can integrate concrete climate change mitigation strategies into curricula and classroom practice. Drawing on recent climate education frameworks and geographical thinking, we identified key mitigation themes (energy, mobility, consumption, land use, ocean actions) and translated them into teaching activities, informed by a survey of 90 trainees. Empirical evidence from trainees (e.g., lesson plan analyses and surveys) reveals both potential and barriers: they value geography as a space for climate action but often lack didactic tools, systemic perspectives, and confidence to address controversial issues. We propose pedagogical strategies and competence-oriented guidelines to strengthen mitigation-focused geography education, arguing that initial teacher training is a crucial leverage point to empower future educators as agents of climate transformation in schools.

Climate Change Education in Pre-Service- Teacher's Fieldwork

Rieke Ammoneit

TClimate change is demanding resilience from our social-ecological systems, which depend on the interplay among ecological, organizational, and human populations [1]. To enable the necessary transformations within these systems, humans need to transform their understanding; thus, transformative learning becomes essential to master the challenges ahead [2]. Transformative learning towards resilience in social-ecological systems calls for core geographical competence. However, addressing the necessary transformation on a global scale can be overwhelming. Place-based approaches to climate change education are promising [3]. We combine place-based climate change education with fieldwork to increase pre-service teachers' agency and foster geographical competence. The aim is to educate teachers who can take action themselves and thereby help increase their students' agency. Insights from a design-based approach to climate change education in pre-service teacher education will be presented, highlighting the challenges and the potential to strengthen pre-service teachers' agency in addressing climate change.

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Session Geopolitics and global restructuring.

Friday 22, 13:30. C102.

Divergent Perspectives on Irish Geopolitics

Gerry O'Reilly & Nuno Morgado

Various narratives of geopolitics in Ireland primarily revolve around its traditional military neutrality versus closer EU/NATO defence cooperation, its economic globalism versus vulnerability to external shocks, and the differing nationalist/unionist identities regarding Northern Ireland's status. However, the old adage 'all politics is local' is particularly pertinent in Ireland due to its historical trajectory since independence (1921) and Civil War (1922-1923) experiences, and the Proportional Representation (PR) electoral system in a liberal democracy. Due to Ireland's geographical location, territorial area and comparatively small resident population, it's often noted that it 'has to punch above its weight' and especially since joining the EU in 1973. The above thematic strands are reviewed with the support of qualitative and quantitative approaches in the context of Ireland's place in the EU and wider world, and especially since 2016.

Factors of Reshoring, New Narratives, and Reconfiguration of Global-Capitalism

Albert Puig Gómez

Since the 2009 economic crisis, changes have been observed in the globalization process. One of the most significant changes is the increase in the geographical relocation of phases of production processes that had previously been offshored. These relocation operations (reshoring) include the return of some production centres to their country of origin (backshoring), relocation to nearby territories (nearshoring), and more recently, with the worsening of geopolitical tensions, relocation to "friendly" or allied countries (friendshoring)

The objectives of this paper are to identify the factors that explain the increase in recent production relocation operations (reshoring); to analyse whether the evolution of these factors is changing the narrative on the criteria for locating production activities; and to investigate how this may be impacting the reconfiguration of capitalism.

The argumentative order is as follows: in the section after the introduction, we outline the role played by international capital in the definition and consolidation of each stage of capitalism. Next, we present the importance acquired by the production relocation movements observed since the 2008 crisis. In the following section, we identify the causes of these movements and propose a typology of them. We conclude the paper with conclusions section.

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Landlocked Hungary and its geopolitical consequences in the changing world

Péter Reményi & Norbert Pap

Hungary is one of fifteen landlocked states in Europe, situated in the middle of the continent. Its present borders are barely a century old; they were drawn after the First World War.

The absence of a coastline is generally perceived as a disadvantageous condition, one with clear economic and political ramifications thoroughly discussed in the scholarly literature. Since the nineteenth century wave of economic modernization, Hungarian leaders have sought to establish efficient connections between the inner regions of the Carpathian Basin and the Adriatic coast. Initially framed as an infrastructural and administrative issue, after the post war peace settlements this aim became an international question involving state borders—one to which successive political regimes offered varying responses.

This paper primarily analyses the evolving efforts of Hungary’s political and economic elites—after the country became landlocked—to secure access to the sea, complemented by an examination of wider public attitudes toward the sea and the formation of a Hungarian landlocked consciousness.

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Session Innovating Geography Education in response to societal challenges.

Friday 22, 13:30. C103.

From Disruption to Permanence: Education and the Life-Course Reconfiguration of Post-Earthquake Displacement

Ayla Deniz

Large-scale earthquakes constitute critical biographical turning points that disrupt not only physical environments but also the temporal and spatial organization of everyday life. While post-disaster displacement is often treated as a temporary spatial response, this paper examines how education contributes to the longer-term reconfiguration of displacement when analyzed through a life-course perspective. Earthquakes are conceptualized here as moments that unsettle established alignments between time, place, and institutional trajectories.

Drawing on qualitative fieldwork conducted after a major earthquake in Türkiye, the study investigates how educational transitions—such as school entry, grade progression, and examination periods—intersect with displacement to shape spatial decisions over time. The findings identify three interrelated dynamics. First, educational timing constrains mobility: families with children at specific educational stages tend to postpone or abandon return decisions in order to preserve continuity in schooling. Second, educational practices in temporary or relocated settings gradually transform these spaces from provisional sites into everyday centers of life, contributing to the normalization of displacement. Third, children's educational pathways become closely intertwined with household strategies related to housing and employment, producing new, longer-term life trajectories at the family level. These findings suggest that education operates not merely as a public service but as an anchoring institution that stabilizes spatial arrangements in contexts of uncertainty. By integrating life-course theory with geographical perspectives on space and temporality, the paper demonstrates how environmental shocks, mediated through institutional temporalities, generate enduring spatial outcomes. The study contributes to geographical debates on displacement, inequality, and resilience by foregrounding the role of education in transforming short-term mobility into more permanent forms of settlement in an era of accelerating environmental change."

Greengnorance: Changing perceptions of green issues

Karl Donert & Gert Ruepert

The Greengnorance Project (Erasmus+ Project No. 2024-1-HU01-KA220-SCH-000251071) seeks to offer solutions to the negative societal impact of green ignorance among European high school students, by improving their skills related to green issues and equipping their teachers

with tools and resources to help them become more conscious, active citizens who can shape a more sustainable future.

The main outcomes of the project will be introduced, the methodologies, a toolkit and guidebook to help high school teachers to change students' awareness of green topics, taking specific account of psychological aspects. Finally the importance of developing suitable policy recommendations will be explored.

The E-NextGen tool is an innovative digital platform designed to support the development of next-generation skills for sustainable infrastructure and environmental decision-making. This interactive workshop introduces participants to the core functionalities of E-NextGen, including data-driven exploration, and collaborative problem-solving activities. Participants will engage with real-world challenges related to climate resilience, digital transformation, and infrastructure planning, using the tool to analyse data, evaluate trade-offs, and co-create responses.

STEAMedge: Design and Development of a Community of Practice for Innovation in STEAM Education

Karl Donert & Javier Álvarez Otero

STEAMedge is a Teaching Academy aimed at consolidating a Community of Practice that promotes teaching innovation in the STEAM field. Its design is in line with the European Union's Communities of Practice Playbook, which highlights the importance of a clear purpose, collaborative governance and co-creation processes for community development. The initiative establishes a shared vision focused on improving STEAM teaching through inquiry methodologies, with the use of emerging technologies such as AI, Internet of Things and drones, in coherence with the European criteria on purpose and shared learning. It also adopts co-ownership and participatory decision-making structures, which are essential to guarantee the commitment and sustainability of the community. STEAMedge combines face-to-face and virtual meetings to promote continuous interaction, following the European recommendations on convening and effective communication. Finally, it incorporates impact evaluation and monitoring mechanisms, aligned with the Success Wheel, which ensure solid and results-oriented community development.

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Session Re-Imagining curriculum making with geographies (2)

Friday 22, 13:30. C120.

Reading and Speaking the Global Economy at School: a Critical Analysis of Economic Globalisation Discourse in French Geography textbooks

Raphäelle de la Martinière

In a world marked by economic uncertainty, geopolitical reconfigurations and contested narratives of globalisation, geography education can play a key role in shaping how students understand and interpret economic change. This paper argues that enabling students to engage critically with global complexity requires geography education to reflect on its own disciplinary discourse and the particular ways it conceptualizes economic globalisation.

Reimagining Geography Education for an Uncertain Future: European Perspectives on Monumental Global Challenges

Daniela Schmeinck & Gillian Kidman

This presentation will draw upon the findings of an international study Geography for an Uncertain Future: Monumental Challenges and Curriculum Transformation which investigates the intersection of contemporary global issues and international geography education. Our project extends the work contained in the Global Risk Report 2024 (World Economic Forum), the Millennium Project, and the UN's Sustainable Development Goals. We surveyed 853 geography educators, teachers, PhD scholars and preservice teachers to examine how contemporary "monumental challenges" are prioritised within geography education. Participants identified the three most significant societal challenges in their local and global settings.

The study positions geography education as central to preparing young people for uncertain futures shaped by systemic, interconnected risks. Global synthesis data indicated strong consensus around Climate Change and Environmental Resilience as the defining educational priority, followed by Biodiversity Loss and Water Scarcity. However, the analysis of European and UK responses reveals distinctive regional inflections. While climate change remains dominant, biodiversity governance, migration and displacement, geopolitical instability, and spatial inequality are ranked comparatively higher than in Australasian contexts. These priorities reflect Europe's policy landscapes, including climate adaptation strategies, territorial cohesion agendas, and migration governance frameworks.

The findings suggest that European geography educators frame environmental challenges through policy-connected, spatially explicit, and governance-oriented lenses. Migration, human rights, and geopolitical tensions are understood not as peripheral issues but as spatial

phenomena. Digital futures and global health, while recognised as transformative, are positioned as mediating forces rather than primary planetary threats. Notably, youth agency was consistently ranked lower across regions, functioning as a cross-cutting pedagogical condition rather than a discrete geographical challenge. Drawing on recent global risk assessments (World Economic Forum, 2024) we argue that geography education must evolve beyond content accumulation toward curriculum transformation. This involves integrating Earth-system science, spatial justice literacies, and future-oriented civic agency within coherent pedagogical frameworks.

For European geography educators, the challenge is not simply identifying monumental risks but aligning curriculum design, teacher education, and assessment practices with the systemic and territorial realities shaping contemporary Europe. The study contributes empirical evidence to ongoing debates within European geographical education about sustainability, governance, and transformative agency in uncertain times.

Curricular and pedagogical principles to decolonise secondary geography education in the Netherlands

Mieke van Vemden

Geography education plays a crucial role in developing a child's awareness, knowledge, beliefs, and feelings about other regions, countries, and their peoples (Scoffham, 2019; Barrett, 2007). However, geography education has faced criticism for its predominantly Eurocentric and white-oriented curriculum, sparking debates that challenge its Eurocentric perspectives on history, society, and knowledge (Puttick & Murrey, 2020). These calls have also gained traction in the Netherlands within the geography community and the Royal Dutch Geographical Association (Gulikers, 2021; Angel, 2024). Currently, these debates are mainly driven by discussions in Anglo-American geography (Mamadouh & Meeteren, 2023; Radcliffe, 2022). Nonetheless, they draw little from Dutch history or perspectives, and the educational insights may not be directly applicable to the Netherlands. The demographic makeup, colonial history, societal narratives, and origins of migrant groups in the Netherlands differ, as do the educational context and the way geography is positioned in Dutch secondary schools. It is vital to focus on the Dutch context to enhance geography education and deepen academic understanding. In this research, we employed the Delphi methodology to gather expert opinions on pedagogical and curricular principles, thereby guiding reflection on the decolonisation of secondary geography education in the Netherlands.

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Session Language, Identity and Social Change.

Friday 22, 15:30. D106.

Language Matters: Language Practices and Attitudes among Ukrainian Students in Higher Education Institutions in Warsaw

Emilia Wróbelska

The full-scale 2022 Russian invasion of Ukraine has profoundly reshaped perceptions of language, linking linguistic choices to national identity, political allegiance, and state security. Previous research has documented shifts from Russian to Ukrainian within Ukraine [1, 2]. This study examines whether similar changes occur among Ukrainians abroad, focusing on students from different regions studying in Warsaw. Between May and July 2025, 258 students from twenty-one universities participated in an online survey using the Computer-Assisted Web Interview (CAWI) method. The questionnaire collected information on language use, self-reported proficiency, and attitudes towards Ukrainian- and Russian-speaking individuals. The results show that a substantial proportion of students have fully or partially shifted from Russian to Ukrainian, particularly those from central, southern, and eastern Ukraine. Across regions, respondents support the dominance of Ukrainian, although regional differences appear in attitudes towards Russian and Ukrainian speakers. These findings indicate that language practices and attitudes are socially and geographically differentiated, shaped by both origin and socio-political developments. Importantly, the study demonstrates that linguistic shifts observed in Ukraine extend to Ukrainians abroad, highlighting the transnational dimension of contemporary language change. Language remains a key marker of identity and a site of socio-political negotiation, even within diasporic communities. Overall, the study reveals clear regional variation in linguistic behaviour among Ukrainians in Warsaw, showing how external events, such as military conflict, interact with pre-existing regional norms to influence both language practices and attitudes across diverse contexts.

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The Violence of Logistics, the Logistics of Violence: The Territorialization of the Interoceanic Corridor of the Isthmus of Tehuantepec

Giorgio Sebastiani

In supply chain capitalism (Tsing, 2009), logistics operates as a spatial power, reorganising territories according to imperatives of circulation, efficiency, and control. Focusing on the Interoceanic Corridor of the Isthmus of Tehuantepec (CIIT) in southern Mexico, this paper examines how logistics materialises territorially through violence in a global order marked by heightened anxieties over disruption, chokepoints and circulation. Drawing on Critical Logistics Studies (Cowen, 2014; Grappi, 2016) and fieldwork in the Isthmus, I conceptualise this as logistical violence: a form of coercion constitutive of logistical rationality, taking structural, functional, colonial and militarised forms.

Empirically, the paper analyses how the CIIT—a megaproject linking the Atlantic and Pacific through ports, railways and industrial parks—seeks to reimagine one of Mexico's historically marginalised and Indigenous regions as a logistical platform for global circulation. Although the corridor has not yet entered its fully operational phase, its implementation already unfolds through multiple forms of violence: the imposition of state-led planning, the repression of protest, the criminalisation of dissent, and diverse modalities of material and symbolic dispossession. These practices confront sustained Indigenous resistance articulated through assemblies, legal challenges, blockades and everyday practices of territorial defence, which assert territory as a collective and lived space rather than a neutral surface for logistical optimisation.

Conceptually, the paper argues that such violence should not be treated as an unintended side-effect of infrastructure projects, but as a structural and operational condition of logistical territorialisation. Materialised in the spatial form of the corridor, logistics works to neutralise practices, relations and lifeways that resist or slow its operations. In doing so, it enforces colonial continuities and produces violent spatial regimes central to contemporary global circulation. The paper contributes to debates on the power, rationality and violence of logistics by showing how the CIIT, as an interoceanic corridor, organises state power, capital and Indigenous resistance through territorial violence.

Session Spatial change, housing and regional transformation.

Friday 22, 15:30. D108.

Place making, place marking and commercial gentrification in Ivy City, Washington, DC

Elisabeth Chacko

The neighborhood of Ivy City in the north-east quadrant of Washington, D.C. is just 3 miles from both the District of Columbia-Maryland state boundary and the United States Capitol. A pass-by place for most DC residents during much of the 20th century and into the new millennium, it is now an area that is becoming recognized for brew pubs, distilleries, fine food and interesting activities. The area has been transformed by retail gentrification, which has converted it into a landscape of consumption. In this presentation, I analyze how new and trendy commercial enterprises in Ivy City use signs, symbols and artwork to sell their products and services as well as the neighborhood and its conglomerate of fine dining and drinking places as a novel urban experience. I examine the social, cultural and symbolic value of these visual cues in place making, place marking, and branding that market the gentrifying neighborhood as a hip foodie and entertainment destination with historical antecedents and local ties.

The Spaces that Shape Us: Canadian Youth Perspectives on Their Urban Environments and Mental Health

Shawna Lewkowitz

Youth mental health is closely linked to the characteristics of the environments in which young people live, learn, socialize, and navigate. Including youth perspectives in urban planning can positively impact social determinants of health and improve their mental wellbeing. However, in Canada, youth voices remain largely absent from decisions about how urban spaces are planned and developed, shaping the extent to which cities support or hinder the everyday experiences of young people. To address this gap, the 2025-2026 Human Environments Analysis Lab's Youth Advisory Council (HEALYAC) in collaboration with HEAL students and faculty, is conducting youth-led virtual focus groups with Youth Advisory Councils in six Canadian cities: Vancouver, Edmonton, Winnipeg, London, Montreal, and Ottawa in April 2026. Doing this in a virtual format allows us to engage with a more diverse geographic range, acknowledging that perspectives on urban environments have regional relevance, and likely will differ from coast to coast. The study explores how youth aged 13–25 experience their daily environments; how these environments influence their mental health and overall wellbeing; and what policies or initiatives youth believe are needed to better support them. Based on preliminary discussions with HEALYAC members, we anticipate finding several themes that have emerged in the literature regarding factors that negatively affect youth experiences in cities. These themes include a lack of accessible "third spaces" such as libraries, community centres, and parks;

unsafe, unreliable, or insufficient transportation options; and a general absence of community connection and supportive social infrastructure. This research has important implications for municipal planning and policy development. By incorporating youth informed insights into urban decision making, cities can more effectively design environments that promote mental health, foster community, and meet the unique needs of young people. The findings reinforce the critical importance of engaging youth meaningfully in shaping the urban environments that impact their lives.

Housing shortages in Europe: social and political implications

Seraphim Alvanides

"Adequate Housing is a Human Right, not a privilege" according to the United Nations Human Rights conventions. Across many capital and large cities house prices and residential rents have been on the increase in recent years. This is the result of complex factors involving chronic shortages of housing stocks, strict planning regulations, continuous urbanisation, increasing gentrification, speculative property investment, shortages of construction workforce and reduction of affordable social housing, coupled with gradual ballooning of the private real estate sector. However, populist parties across Europe have seized the negative sentiment surrounding increasing estate and rental prices, attributing the housing shortage to migrant populations, thus fuelling anti-immigrant attitudes. For example, the recent rise of far-right parties in Portugal, Germany and the Netherlands, have been attributed partly to the housing crisis that is now affecting not only low-income households but also the "middle classes", while service sector workers can no longer afford to buy or rent. However, housing shortages are hardly a "European issue", as 2024 was a global election year with half the world's population exercising their right to vote in an increasingly urbanised world, we observed a global shift to populist politics and an increase of parties with increasingly extremist agendas. Given the societal and policy implications the interaction between immigration attitudes, housing shortages and voting behaviours deserves further investigation (Hernández-Morales et al. 2024).

This paper discusses the multiple factors leading to housing shortages, such as planning regulations restricting urban development, the older generations holding on to their family houses, the "not in my backyard" (NIMBY) attitudes of certain socio-economic groups, the treatment of housing stocks as speculative investments and retirement funds. It provides a pan-European, perspective on spatial inequality and socio-economic segregation resulting from lack of adequate housing and how these factors are leading to social unrest and certain voting behaviours. The paper concludes with a critical assessment of the European Affordable Housing Plan's four pillars: boosting housing supply, mobilising investment, enabling immediate support while driving reforms and protecting the most affected (European Commission, 2025).

References

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Session Scholarly Voices on Teaching Geography for a world in transition: powerful teaching in uncertain times. Panel session.

Friday 22, 15:30. D101.

Scholarly Voices on Teaching Geography for a world in transition: powerful teaching in uncertain times

Neli Heidari, Susan Caldis, Alexandra Budke, Rafael de Miguel González, Emanuel Eze, University of Münster, Karen Finn & Alex Standish

This closing panel discussion brings together internationally recognised scholars in geography education for a critical and forward-looking dialogue on Teaching Geography in Uncertain Times. Anchored in the European Journal of Geography Special Issue (Vol. 17) and inspired by the EUROGEO Conference theme Geographies in Flux: Navigating a Shifting World Order, the discussion examines how geography education can respond to profound societal, epistemic, and pedagogical transformations.

The panel addresses a set of interrelated challenges shaping geography education, including the teaching of controversial and polarising issues; the decolonisation of geography education through the interrogation of dominant narratives and the inclusion of diverse ways of knowing; and the navigation of epistemic uncertainty and complexity.

We are looking forward to a closing session synthesizing key debates emerging across the conference, identify shared concerns and productive tensions to outline future directions for geography education research, curriculum development, and teacher education.

Session Communities, Landscapes and Societal Trasnformation.

Friday 22, 15:30. C104.

Buried Under the Mud of Urban Extractivism: Transformation on Kenjeran Coastal Communities' Landscape and Identity

Rusydan Hadid

The Discussion on urban extractivism reveals that resource extraction not only takes place in desolated rural areas but also in urban spaces. This form of extractivism is shown in the commodification of urban lands resulting in the local population displacement and promotes the destruction of natural ecosystems. Therefore, this paper aims to investigate urban extractivism affecting traditional coastal communities in Kenjeran, Indonesia, where the development in the urban areas has resulted in socio-ecological transformations in their sea. The most notable transformation can be seen in the sea surface that has begun to shallow, covered by the mud sedimentation emergence from decades ago. Consequently, it results in the changing relationships with the sea, reshaping the identities of Kenjeran people as coastal communities. To investigate this phenomenon, this paper applies a more-than-human political ecology perspective, emphasizing the reciprocity and mutually constitutive of mud sedimentation as non-human inadvertent ecological processes, in responding to the sea reclamation for elite and private residential areas development.

Research in this paper will apply Harriet Hawkins approach in integrating geography research with artistic practice where the collected data from implementing in-depth interviews with local actors, supported by secondary data from related articles, will be embodied in documentary. This artistic practice will serve as creative intervention where the documentary then will be screened to collect feedback from intragenerational audiences of Kenjeran coastal communities as the tools to identify the corresponding transformations between their landscape and identities. The result of this research indicates that sea reclamation for developing private residential areas has transformed both landscape and identities of Kenjeran coastal communities. Such a transformation shows in their occupational preference where being a fisher is out of favor and it is more preferable for them to pursue land-based careers in the city. This finding then emphasizes how urban extractivism has transformed Kenjeran coastal communities' landscape and identities as their long-existing cultural heritage and place-based knowledge inherited from their ancestors are at risk.

References:

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The Development of Non-Local-Government Education in Poland, 2005–2025 - Tomasz Klemensiewicz

Tomasz Klemensiewicz

Poland is undergoing transformations across various areas of socio-economic life. A decline in the fertility rate has been observed, and consequently, the number of students in schools has also decreased - by 1 million over the last 20 years. This phenomenon is particularly evident in rural areas located far from large cities, where the declining number of children has led to the closure of hundreds of schools. At the same time, in a knowledge-based economy, education has become a key factor in the development of human capital, contributing to increased public awareness of the need to invest in education. After 1989, bodies other than local governments were also allowed to run schools in Poland, opening up new opportunities for activity in the education sector. The financial situation of households also improved, which in turn led to increased parental expectations regarding the quality of their children’s education and the range of care offered.

Schools run by non-local-government bodies have become a response to the unmet educational needs of a segment of society in two dimensions. First, in terms of spatial accessibility, parent-teacher associations began to be established in rural areas with the aim of saving schools from closure. Second, in terms of quality, non-local-government schools charging tuition fees can offer a broader range of services, a richer programme of activities, and more extensive childcare. Evidence of the growing importance of this sector is the increase in the number of students attending such schools over the last two decades - to 470,000, representing a 233% increase - despite the overall decline in the number of students in Poland.

This presentation will discuss the results of research on the development of schools run by non-local-government bodies in Poland over the last two decades. It will examine quantitative and spatial changes in this sector, as well as the factors determining these changes. The research has shown that the school network in Poland is undergoing systematic transformation, driven by socio-economic changes. Non-public institutions run by non-local-government bodies respond to parental demand and unmet educational, care-related, and upbringing needs, while public institutions run by non-local-government bodies meet the needs of local communities related to the availability of schools in their immediate surroundings.

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Workshop abstracts

Learning to Engage with Complexity through Teaching Vignettes: Sustainability Dilemmas in Geography Teacher Education.

Thursday 21, 11:30. C105.

Uwe Krause, Fabian Pettig, Joost van Damme & Marij Zöllner

How can geography teacher education prepare student teachers to deal with the complexity of Education for Sustainable Development (ESD) as it is enacted in real classrooms? This workshop presents an approach in which teaching vignettes represent authentic geography lessons and teaching situations in which sustainability dilemmas are addressed, negotiated, and taught.

The vignettes are based on realistic classroom practices from geography education and portray concrete teaching moments: lesson aims, student responses, emerging tensions, and didactic choices made by the teacher. They focus on ESD-related issues such as the social and environmental consequences of lithium mining or the global production networks behind fast fashion. Rather than presenting abstract dilemmas, the vignettes capture how sustainability issues unfold within actual lessons, including uncertainty, conflicting values, time pressure, and multiple perspectives.

These classroom-based vignettes were developed within an Erasmus+ project on citizenship education and sustainable development and are currently integrated into existing modules of geography teacher education. Their strength lies in connecting geographical content knowledge, values and ethical dimensions, and didactic decision-making in situated teaching contexts. Student teachers analyse not only what sustainability issues are at stake, but also how they are framed pedagogically, which teacher roles are assumed, and how space is created for dialogue and plural perspectives. In this sense, the vignettes function as enriched cases that challenge both conceptual understanding and professional judgement (Evagorou & Dillon, 2020).

During the workshop, participants will work with a classroom vignette depicting an ESD lesson. They will analyse key geographical concepts, underlying tensions and trade-offs, and discuss didactic choices related to teaching wicked problems. Special attention is paid to curriculum integration: how can such classroom-based vignettes be embedded in existing geography courses without overloading the curriculum?

The approach builds on debates about powerful geographical knowledge and teaching (Young & Lambert, 2014) and on developing geographical reasoning in complex systems (Krause, 2025). The workshop offers concrete, practice-oriented tools for geography teacher educators who aim to prepare future teachers for ESD as it is taught in real classrooms.

References:

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Young, M., & Lambert, D. (2014). Knowledge and the future school: Curriculum and social justice. Bloomsbury.

Hold Back the Sea and other wet stories

Thursday 21, 16:00. D106.

Gert Ruepert and Harry Rogge

Hold Back The Sea" is the English title of Dutch prizewinning (State Price for Film; Silver Bear in Berlin) documentary "De Lage Landen" 1961. This iconic documentary -29 minutes – will be shown at the start of the workshop after which presenters Gert Ruepert and Harry Rogge (EUROGEO Boardmembers) will elaborate on the current situation of the Geography of The Netherlands as far as sea- and riverlevel is concerned. A country of which 50% of its surface lies below sealevel and another large part of the country lies below riverlevel. The history of large water disasters will be highlighted againt the background of groundbreaking successes in engineering in dutch geography and worldwide.

The general story of The Low Lands, "Pays-Bas", will also reflect on climatechange and it influence on living in The Netherlands.

This challenging workshop is open to everyone, and it is also an excellent background introduction to the Conference EUROGEO Field Trip of Sunday May 24!

This trip will be guided by the workshop presenters! Feel free to join his workshop and, maybe, the Field Trip!

Teaching Controversial Issues in Geography: Values Clarification and Communication through Classroom-Tested Teaching Strategies.

Thursday 21, 16:00. C105.

Uwe Krause, Semra Sütgibi, Duygu Metin Peten, Tibor Madlenak, Bohuslava Gregorova & Dagmar Ulrichova

How can geography education address controversial societal issues in ways that do justice to complexity, plurality of values, and democratic dialogue? This workshop presents key outcomes of the Erasmus+ project Teaching Controversial Issues (TCI), in which geography educators and schools in four European countries collaboratively developed, tested and refined twelve teaching strategies aimed at values clarification and values communication.

The strategies were selected together with schools, implemented in real classrooms, and iteratively improved based on classroom experiences. Each strategy is supported by filmed classroom examples and comprehensive guidelines that explicitly address typical challenges, dilemmas and pedagogical sensitivities involved in working with controversial issues. The strategies are designed to be used in combination with empirical value data and explanatory tools from the Atlas of European Values, including interactive maps, contextual explanations and a classroom tool based on value dimensions.

The workshop is structured in two parts. In the first part, participants actively experience selected teaching strategies, enabling reflection on how values become visible, negotiated and articulated in geography lessons. In the second part, the structure and pedagogical rationale of the accompanying online course (developed for eTwinning) are introduced. Participants explore how the course can be followed individually or used as a professional development tool in pre-service and in-service teacher education.

By connecting classroom-tested strategies, empirical value data and teacher education, the workshop contributes to current debates on geography education in a changing world, in which teachers are increasingly expected to navigate complexity, disagreement and uncertainty in responsible and informed ways.

Emotion networking with senstive geography topic

Friday 22, 10:00. C105.

Eefje Smit

Abstract Students often express strong emotions about geographical issues such as migration, climate change, and colonialism. And teachers can find it difficult to deal with all those emotions and opinions (Bosschaart, Smit & Oorschot, 2023). Experts in heritage education have developed the method Emotion Networking to facilitate such classroom dialogue (Dibbits, 2020). This method invites students to explore another person's perspective and reflect their own values. In this workshop, you will actively work with two variations of the method. We will show how they are applied in the world of heritage and connect them to current geographical issues.

References:

Bosschaart,A., Smit, E., & Oorschot, F. (2023) Duurzaamheid: waar sta jij? Geografie, december 2023,

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Ode To the Earth! How to combine cinema and geography!

Friday 22, 10:00. C 104.

Harry Rogge and Gert Ruepert

Hold In 2023 Royal Dutch Geographical Society organised the Ode to the Earth filmfestival on the occasion of its 150th anniversary. Four iconic cinematographic masterpieces formed a challenging program. Curators of that festival Gert Ruepert and Harry Rogge will explain why these films were chosen and what dear connection was made with the geography of the earth. From every movie “Koyaanisqatsi”, “Tierra Adentro”, “Berg” and “Anthropocene” a fifteen minute sequence will be shown. Participants will be challenged to discuss the opportunities of film and geography when used in general or in secondary education. Do join this challenging and entertaining workshop!

Accessing social science research data for geography education

Friday 22, 15:30. C 102.

Karl Donert

The E-NextGen tool is an innovative digital platform designed to support the development of next-generation skills for sustainable infrastructure and environmental decision-making. This interactive workshop introduces participants to the core functionalities of E-NextGen, including data-driven exploration, and collaborative problem-solving activities. Participants will engage with real-world challenges related to climate resilience, digital transformation, and infrastructure planning, using the tool to analyse data, evaluate trade-offs, and co-create responses. The workshop emphasises active learning.

Poster abstracts

Human–environment interactions / spatial impacts / GIS and environmental change. Session Poster 1.

Thursday 21, 16:00. C104.

Estimating Carbon Emissions from University Study Abroad Air Travel using Web GIS Tools

Chistropher Badurek

University campuses are actively promoting their campus sustainability efforts to students and the public as evidenced in green campus sustainability ratings and third party reviewers such as AASHE STARS program. While these ratings and reporting programs are often vast in scope, almost all include assessment of carbon emissions generated by the campus(es). Assessment of carbon emissions is often focused on Scope 1 emissions, or carbon generated from consumption of energy to maintain campus infrastructure and operations. In order to provide data on Scope 3 emissions, this presentation reports on a course collaboration between the Campus Energy Manager, Campus Sustainability Outreach Coordinator, Associate Director of Study Abroad, and students of an advanced GIS course at SUNY Cortland in spring 2025. As a pilot study to develop a protocol to calculate Scope 3 emissions as requested by the Campus Energy Manager, students calculated carbon emissions for a calendar year of campus study abroad and international travel activity. In addition, carbon emissions were analyzed at the country, continent, and airport scale as well as in time sequences of semesters and intersessions. The data were visualized using a variety of ArcGIS tools including ArcGIS Pro, ArcGIS Online, ArcScenes, and StoryMaps and provided possible amendments to the portfolio of study abroad locations to balance distance of travel with a reasonable amount of carbon emissions.

Climate Resiliency, Regenerative Tourism, and UNESCO World Heritage Sites: A Case Study of Boating Cultures and Sea Level Rise in Venice, Italy

Yolonda Youngs

Climate resiliency and regenerative tourism are intimately tied to a just and sustainable future for many cities in Europe and around the world experiencing rapid environmental changes coupled with mass tourism and cultural heritage preservation challenges. This paper addresses these issues through a study of a coastal European city and UNESCO World Heritage Site facing sea level rise and the demands of mass tourism and high anthropogenic pressures while balancing the protection of a fragile lagoon ecosystem and traditional boating cultures. United Nations Educational, Scientific and Cultural World Heritage Sites (UNESCO WHS) protect and preserve cultural and natural heritage at a wide range of locations of superlative value to

humanity around the world. In the Anthropocene, these protected areas take on special significance as vital areas of biodiversity, blue carbon, and social-ecological resilience that require protection and further study in the face of a rapidly changing global climate (Puppin et al. 2024). Venice and Its Lagoon is a UNESCO WHS inscribed in 1987 in recognition of its noted artistic, architectural, historical, and economic contributions to world culture as well as its ancient traditions of human management of its lagoon environment. The city is intimately linked to its dynamic lagoon, offering scholars, local stakeholders, and environmental scientists lessons in the effects of human modification the environment (Suman 2005). Yet few studies have examined how the city's historic lagoon mangement strategies and place-based maritime culture shape its contemporary social-ecological resilience and its long-term capacity to adapt to rapidly changing climatic conditions from sea level rise. This project aims to fill that gap in scholarship through a case study of the city and its lagoon through the lens of environmental geography, tourism, protected areas scholarship, and cultural heritage.

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Housing Pressures, Urban Fragmentation, and Emerging Territorial Inequalities in Medium-Sized Cities — Insights from Ciudad Real

María Angeles Rodríguez Domenech

Global geopolitical tensions, demographic restructuring, and technological acceleration are increasingly reshaping spatial dynamics across multiple scales. Medium sized cities—frequently overlooked in international debates—offer strategic vantage points for observing how global transformations materialize in residential systems, urban structures, and socio economic trajectories. This study examines these processes through the case of Ciudad Real, drawing on recent findings regarding the evolution of the housing market, rental pressures, intra urban disparities, and socio spatial fragmentation in the cities of Castilla La Mancha, as documented in recent regional analyses of residential dynamics and inequalities.

The residential system in these cities is shaped by complex dynamics: growing rental market tensions, limited housing supply, price contagion between neighbourhoods, the diminishing role of social housing, and widening inequalities in access to adequate housing. These processes contribute to patterns of micro fragmentation, manifesting physically, socially, and economically—particularly in interior urban areas and medium sized cities outside major

metropolitan systems. They illustrate how global shifts—economic restructuring, new mobility logics, changes in demographic composition, and technological transitions—reconfigure local realities in increasingly uneven ways.

These challenges also highlight critical opportunities for geographical education, which must address controversial and polarising themes—such as spatial injustice, urban sustainability, speculation, and residential vulnerability—through critical, spatial, and participatory methodologies. By integrating real world data, geospatial technologies, and citizen based projects, geographical education can strengthen students' spatial awareness, resilience, and capacity to navigate complex territorial issues within an uncertain global order.

Using Ciudad Real as an empirical anchor, this contribution connects global transitions with local transformations, illustrating how geography—both as a scientific discipline and as a field of educational practice—is essential for interpreting and navigating a rapidly shifting world.

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A GIS-based workflow for identityfying unknown bat roosts and prioritising field surveys

Macario Rodrigo

Wildlife monitoring often relies on spatially limited, time-consuming field surveys, making coverage and detection challenging in areas with difficult terrain, limited accessibility, high effort, and missed observations (Delplanque et al., 2024). Geographic Information Systems (GIS) provide a framework for organising, visualising, and interpreting spatiotemporal information (Verma and Kotwal, 2025). Within the project CABLES (INTERREG ITA-AUS_grant ITAT-27-011), we aimed at developing an interdisciplinary GIS-based workflow to study roosting habits of bats. Focusing on Myotis myotis/blythii roosting in churches from South Tyrol. We performed a tracking study exploiting the SigFox low power wide area network (LPWAN), tagging 39 individuals from two roosts (25 in location 1 and 14 in location 2), and positioned additional detection devices within tagging locations to increase the sensitivity of the system. For the purpose of this work, we analysed only positions received during the daytime, obtained from 22 and 8 individuals respectively over four to five weeks. Data were organised and analysed in QGIS; timestamped records were structured through the Temporal Controller. Thematic maps and time-stamped visualisations were produced to identify roost-related spatial patterns. For

each location, we produced an overview map of all tracked individuals, individual maps and thematic maps on sex, age structure and bat species. These outputs supported that bats from both locations spend days outside their tagging site, suggesting the existence of alternative roosts. While further studies will aim at investigating connections between known sites around location 2, our study highlighted the existence of an unknown colony near location 1. QGIS analyses interpolating ranges of detection with availability of suitable roosts allowed a preliminary delineation of 9 candidate churches, providing an operational basis for field verification. The presented GIS-based workflows can be used to enhance bat monitoring by organising and interpreting movement data while improving fieldwork activities. Prioritising candidate areas for on-site inspection optimises time, personnel, and field resources, supporting more focused investigations. This study showed the importance of integrating GIS workflows into wildlife surveillance plans. Indeed, knowing roosting habits of target animal species is pivotal in a One Health perspective to plan and manage conservation efforts and pathogen surveillance.

Humanizing Geography: People and Place and Space

Bruce Tamagno

GIS and Media Framing of Transnational Impacts of 2023 Canadian Forest Fires in New York State

Chistropher Badurek & Arien Rozelle

In June and July of 2023, public health air quality warnings severely limited outside activities for residents across New York State and especially in the metro New York City region. The air quality warnings were due to highly elevated particulate matter levels related to wildfire smoke from Canada. This study compares the extent of atmospheric pollutants directly related to mapped data on uncontrolled wildfire in northern Quebec by comparing Black Carbon atmospheric concentration using data from NASA's second Modern-Era Retrospective Analysis for Research and Applications (MERRA-2) Model, gathered from NASA's GIOVANNI web GIS application. The data are collected at 0.5 by 0.625 degrees (MERRA-2) spatial resolution and visualized with ArcGIS Pro. Preliminary results indicate distinct plumes, or temporal periods, of substantial increase in surface mass measures of black carbon across New York State during the two-week period of public health warnings as described in New York media sources.

Fostering Soil Literacy: An insight to Transformative Educational Ecosystem Approach for Soil Health (LOESS)

Hannah Lathan

Healthy soils are the foundation of our planet's future, playing a critical role in mitigating climate change, preserving biodiversity, and ensuring global food security. However, increasing soil degradation threatens these vital functions. Addressing this challenge requires more than just technical solutions; it necessitates a fundamental transformation in how society perceives and interacts with soil. The EU-funded project LOESS (Literacy Boost through an Operational Educational Ecosystem of Societal Actors on Soil Health) addresses this need by developing an integrated educational ecosystem. This approach goes beyond traditional teaching settings by engaging a broad spectrum of societal actors and identifying diverse learning spaces and processes tailored to various stakeholder groups.

The project’s focus is anchored in transformative education, which involves investigating and implementing educational programs that challenge established paradigms to foster a profound awareness of the importance of soil and the possibilities for its conservation and regeneration. Through a holistic societal approach, LOESS maps diverse stakeholders to co-create transformative (geographical) learning arrangements that bridge the gap between science and society, thereby directly contributing to the UN Sustainable Development Goals (SDGs). This approach is operationalized through extensive capacity building and the development of a wide range of tools and resources. These include a teaching framework for higher education, a pedagogical practice handbook, and digital innovations such as a crowd-mapping app and a ""Soil Podcast"", all designed to engage and empower diverse audiences.

As part of the EU Mission ""A Soil Deal for Europe,"" LOESS demonstrates how collaborative, multi-actor educational ecosystems can serve as a catalyst for societal transformation towards a more sustainable and soil-literate future. The poster presentationprovides a brief overview of the projects outcomes and deep dives into the developed material by request of the audience.

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Connecting Classrooms to Conservation: The TiME Learning Experience

Yaar-Waisel Tal

International collaborations in teaching and learning offer unmatched opportunities for growth and education. Through experiential learning and meaningful interactions, understanding deepens and minds expand. Despite challenges, the advantages of global cooperation far outweigh the disadvantages.

We offer an experience that helps educators foster curiosity and engagement in learning about conservation issues. Established in 2016, This is My Earth (TiME) (http://this-is-my-earth.org) is a voluntary international NGO focused on education. It enables children and youth to actively participate in a global environmental movement while learning about the world's richest yet most threatened ecosystems. TiME provides an accessible, hands-on platform for exploring biodiversity hotspots that urgently need protection in this era of mass extinction (Ceballos et al., 2015). Through crowdfunding, TiME mobilizes global citizens to support the purchase and long-term preservation of privately owned lands, in partnership with local organizations that manage and protect them. Educators worldwide use TiME to introduce key concepts of conservation biology, geography, environmental ethics, and sustainability. By involving students in real decision-making, like voting on which habitat to protect next, TiME makes conservation education a participatory, real-world experience that promotes both awareness and activism (Mayrose, 2024). Beyond environmental knowledge, TiME's model encourages democratic values; each member has one vote per campaign, regardless of their donation amount. This ensures that conservation priorities reflect collective choices rather than financial influence. TiME's innovative combination of technology, citizenship, and ecological science can be adapted across educational levels and cultural contexts, inspiring learners everywhere to become informed stewards of the planet.

Both students and teachers view this experience as a valuable opportunity, backed by a variety of technological tools. In an era of global environmental challenges, it is crucial to embrace international partnerships in education.

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Geography Education Research in the BeNeLux and Beyond Investigating Teaching and Learning in a World in Flux. Session Poster 2 followed by a panel discussion.

Friday 22, 13:30. C104.

The Everyday Geography of the European Union: Connecting EU Education to the Lived Experiences of Lower Secondary Students

Thomas Ruiterkamp

This study investigates how education about the European Union (EU) can better connect to the everyday geographies of lower secondary students. Although the EU plays a tangible role in students' daily lives, through travel, consumption and digital services. These experiences are rarely linked to the EU and remain disconnected from disciplinary knowledge about the EU taught in schools. The research approach involved formulating design principles grounded in theory, which were subsequently sharpened and enriched through empirical data derived from student interviews. Findings reveal that students' everyday geographies are filled with EU-related practices. Their understanding of the EU is shaped by local and social contexts, including parental influence, mobility and media-exposure. Students also struggle to grasp abstract EU structures due to a lack of conceptual language. These insights underscore the importance of EU education that starts from students' everyday geographies and transforms these into coherent geographical understanding. The study concludes that meaningful EU education requires a place-based and critical approach, supported by didactic strategies that connect everyday geographies to disciplinary knowledge.

Met vertrouwen in het diepe - condities voor transformatief leren in CEL onderwijs

Annechien Tabak, Veronique Schutjens & Irina van Aalst

Community Engaged Learning (CEL) is nauw verbonden met transformatief leren omdat studenten geconfronteerd worden met onbekende plekken, perspectieven en gemeenschappen. Deze ontmoetingen kunnen aanzetten tot kritische reflectie, herziening van overtuigingen en handelen, de essentie van transformatief leren, maar doen dat niet altijd (Donahue & Plaxton-Moore, 2018; Mezirow, 1997). Daarom is de onderzoeksvraag: Wat zijn condities die transformatieve leerervaringen van studenten in een sociaal-geografische CEL-cursus uitlokken? Er zijn reflectieverslagen van studenten uit de CEL-cursus 2024-2025 Stadsstudio van de opleiding Sociale Geografie en Planologie (Universiteit Utrecht) geanalyseerd.

Uit de analyse blijken drie condities: ten eerste het werken op locatie met ‘echte’ mensen op ‘echte’ plekken waar het vraagstuk zichtbaar wordt. Ten tweede in vertrouwen genomen worden door een partner en docenten, oftewel een gelijkwaardige samenwerking. Ten derde de aard van de opdracht, veel verantwoordelijkheid en onduidelijkheid. Deze condities lokken volgens de studenten emoties uit zoals onzekerheid, ongemak, trots, verbondenheid en vertrouwen die op hun beurt transformatie aanwakkeren.

Om transformatie in CEL onderwijs te faciliteren kunnen docenten, coördinatoren en partners het onderwijs op locatie organiseren, studenten veel zeggenschap geven en zeker in de oriënterende fase van de cursus de onduidelijkheid niet oplossen voor studenten. Daarbij moeten ze wel in dialoog blijven en een veilige omgeving creëren.

Exploring Inclusion: Virtual Field Trips in Teacher Education

María Angeles Rodríguez Domenech, Juan Antonio García Domínguez, Sergio Tirado & Carlota López.

Geography education faces the challenge of promoting diversity and inclusion while addressing sustainability issues. Teacher training is essential to ensure future educators can design learning experiences that respect differences and foster critical thinking. This study, developed within the Erasmus+ project V-GeoSciEd, explores how digital methodologies can support these goals through the design of Virtual Field Trips (VFT) using ArcGIS StoryMaps.

The experience was implemented in the final-year course Didactics of Natural, Social and Cultural Environment at the University of Castilla-La Mancha (Spain), involving future primary school teachers in creating digital itineraries aligned with the national curriculum and the Sustainable Development Goals. Evaluation through a common rubric highlighted strong conceptual rigor and creative use of digital tools. However, analysis revealed significant gaps in inclusion: most VFTs lacked accessibility measures such as simplified texts, multimodal resources (audio, pictograms), and adaptations for diverse learning needs.

To address these shortcomings, a second phase was carried out, requiring students to revise their StoryMaps according to Universal Design for Learning (UDL) principles. Improvements included varied font sizes, additional images, audio explanations, and intercultural themes such as exploring cultural diversity through local shops. Despite these advances, findings confirm a persistent gap between theoretical understanding and practical application, reflecting low preparedness among future teachers.

This case study demonstrates that digital methodologies, combined with structured guidance, can advance equity and participation in geography education. However, explicit training in inclusive design remains essential to ensure that all learners access meaningful geographical knowledge. Further work is needed to consolidate these competencies in initial teacher education.

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Learning Through Play for Sustainable and Responsible Tourism: Experiences from the Faculty of Earth Sciences and Spatial Management

Monika Wesołowska & Joanna Szczęsna

Research conducted in Poland between 2023 and 2025 among students completing compulsory education revealed a low level of climate-related competencies, particularly regarding the causes and consequences of climate change. This situation largely resulted from the limited presence of climate issues in the national core curriculum. Until recently, climate change topics were addressed only to a narrow extent and exclusively within extended-level geography courses in upper secondary schools. Consequently, the majority of students did not receive formal instruction on climate change and relied primarily on media sources for information.

Meeting Workforce Needs with GIST: Engaging students with GeoAI, Mapping Club, Global Internships, and Outreach

Jonathon Little

A hybrid GIS program in Upstate New York intends to support the growing demand for artificial intelligence (AI) and cloud-based skills by (1) integrating them into the geospatial curriculum through course modifications and (2) enabling twenty-four (24) students to further develop these skills through research opportunities and hybrid internships. The program has a history of working with local and global partners, providing students with cross cultural global

workforce-based skills at the human level and technically with GIS. Past and previous internships have been solely remote (Germany, Kazakhstan, Mexico, and Tanzania), while others are hybrid in nature (University of Maine). The program plans to strengthen GIS curriculum in advanced GIS courses with GeoAI, cloud-based GIS, mobile GIS, and other advanced geospatial tools in five credit bearing courses at Monroe Community College (MCC). The program also provides alumni mentors, a mapping club that hosts humanitarian mapathons, and has begun a podcast.

Understanding Geography Education in the Dutch Caribbean

Tom Wils

The Dutch Caribbean islands of Aruba, Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten have a special position within the Dutch educational system. The central exams are in Dutch and similar to those in the European Netherlands, facilitating enrolment of students in university programmes in the Netherlands and worldwide. Yet, Dutch is not the primary language of most citizens of the islands, and may even be considered a foreign language to many, who mostly speak Papiamento/u, English or Spanish. Also, though the exams have been adapted to the Caribbean context, there is still a risk of incomplete engagement with specific geographical issues on the islands. The situation raises a lot of questions on how to construct educational contexts in which Dutch Caribbean students can thrive in partnership with their European counterparts. We have explored the opportunities of translanguaging in the classroom to employ multilingualism as an asset to acquire powerful knowledge. And drawing on work by Freire and Biesta, we are developing an agenda to employ powerful pedagogy to contribute to emancipation and decolonisation. Above all, such an endeavour requires student and teacher attitudes of dialogue and inquiry.

Enablers and barriers to preservice geography teachers' PCK development

Eefje Smit

This longitudinal study investigates the PCK development of 18 preservice geography teachers enrolled in Dutch Bachelor of Education programmes over a period of three years. This study combines lesson observations and stimulated recall interviews to create individual PCK portraits. Our analysis found four stages of PCK development in which PCK transforms from separate PCK elements into integrated PCK and more explicit pedagogical reasoning.

Panel discussion: Geography Education Research in the BeNeLux and Beyond Investigating Teaching and Learning in a World in Flux.

Tine Béneker, Tom Wils, Uwe Krause, Luc Zwartjes, Alexandra Budke.

Poland. Poster 3.

Friday 22, 13:30. C105.

Climate Risks for agriculture: drought and factors determining its spatial distribution in Poland

Mirosław Biczkowski, Marta Biczkowska & Wielki Kazimierz

This study attempts to assess the spatial differentiation of drought phenomena in Poland, taking into account agricultural drought, hydrological drought, and hydrogeological drought. Given that Poland is a country where the agricultural sector plays a significant role, issues related to the risks of climatic phenomena (including drought) remain highly relevant, particularly in the context of observed global trends.

The research undertakes a multi-faceted assessment of the spatial extent of drought, considering a range of local determinants that may influence its intensity and scope. These include natural, ecological, and agricultural factors (e.g., forest cover, the degree of land drainage, irrigation practices, valuable habitats, and endangered bird species within the Natura 2000 network), as well as non-environmental factors (such as the level of infrastructure development, the allocation of EU funds targeted at environmentally oriented measures, and the implementation of agri-environmental actions under the Rural Development Programme, including the agri-environment-climate measure). The analysis was conducted at the level of local administrative units (municipalities and counties).

The study is based on data obtained from multiple institutions, including the online database of Common Agricultural Policy (CAP) beneficiary payments, the Agency for Restructuring and Modernisation of Agriculture, and Statistics Poland. The results indicate a significant risk of drought in many areas, alongside considerable spatial variation. Particularly high levels of drought risk are observed in predominantly agricultural regions, such as Kujawy, Wielkopolska, and the Dobrzyń Land.

From monoculture to mosaic. Multi-scale spatial analysis of the structure of 327 crops in Poland

Łukasz Wiśniewski

Contemporary agriculture faces the challenge of reconciling production efficiency with ecosystem protection. A key instrument in this regard is the Common Agricultural Policy (CAP), which, through greening mechanisms and crop diversification requirements, aims to reduce monocultures and promote field mosaics (European Commission, 2020). Crop diversity is a fundamental factor determining the biological richness of agroecosystems. High diversification limits the spread of pests, improves soil quality, and supports pollinator

populations (Tscharntke et al., 2012). The aim of this paper is to assess and visualize the degree of crop diversification in Poland, with particular emphasis on interregional and local differences.

The analysis was based on detailed data obtained from the Agency for Restructuring and Modernization of Agriculture for 2025. The database included 327 identified species and crop groups reported in area payment applications. Calculations were performed at two levels of spatial aggregation: regional (16 voivodeships) – allowing for the identification of general trends, and local (2,479 municipalities) – enabling the precise identification of areas of low diversity (so-called ""biological deserts"") and havens of diversified agriculture. Statistical indicators (including the Shannon-Wiener index) were used to assess diversity, and the results were processed using GIS tools.

The results, presented in a series of thematic maps, demonstrate the strong spatial polarization of Polish agriculture. The Lublin Voivodeship emerged as the leader in terms of diversity. On the other hand, regions such as Silesia (an industrial region) and Podlaskie (a strong agricultural region) fared the least well. The local-level analysis revealed the complexity of the phenomenon, which must be interpreted taking into account a number of factors: natural (primarily soil quality), historical (the boundaries of former partitions – during the loss of independence), and economic (farm characteristics). The scale of the analysis (2,479 municipalities, 327 crops) deepens and sheds new light on previous research (Wiśniewski, 2023). The analysis demonstrates that, despite EU regulations, the economic aspects of production specialization still dominate the pursuit of environmental optimization in many regions. These results are significant for shaping future agri-environmental programs at the national level.

This research was prepared as part of a research project funded by the National Science Centre entitled ""Determinants Shaping Biodiversity in Crop Structure in Agriculture"" (2024/08/X/HS4/01571).

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Social and Economic Aspects of Renewable Energy Deployment in Poland

Marta Biczkowska & Aleksandra Jezierska- Kazimierz

Energy transition constitutes one of the key challenges of contemporary economic and environmental policy in Europe. In Poland, the development of renewable energy sources (RES) has accelerated significantly in recent years, driven both by the European Union's climate commitments and the growing need to strengthen energy security. The aim of this paper is to analyse selected social and economic aspects of renewable energy deployment in Poland, with particular emphasis on their impact on local development, social acceptance of energy investments, and changes in the structure of regional economies.

The study is based on the analysis of statistical data, strategic policy documents, and a review of the relevant literature. Particular attention is devoted to the role of local governments in the energy transition process. The results indicate that the development of renewable energy can serve as an important factor stimulating the socio-economic development of regions; however, its effectiveness depends on appropriate institutional frameworks, regulatory stability, and the level of public acceptance.

The analysis highlights the need to integrate social and spatial perspectives in energy policy planning and points to the importance of local conditions in the process of implementing renewable energy sources.

Systemic transformation as an important factor in shaping living conditions in Post-PGR Areas in Poland.

Marta Gwiaździńska-Goraj & Monika Wesołowska Contemporary

The systemic transformation of the 1990s in Poland, as well as in other European countries of the former Eastern Bloc, was accompanied by a strong increase in regional inequalities. As a result, the previously more egalitarian spatial structure became (significantly) more polarized. On one hand, broad consumer opportunities emerged; on the other, income inequalities and unemployment arose, leading to socio-economic differentiation in space. Rural areas with socialized agriculture were in a particularly difficult situation in Poland. This article assesses changes in material living conditions in post-PGR areas (Northern and Western Poland) and their evolution from 1995 to 2024. First, a classification of rural areas in Northern and Western Poland at the local level (912 communes) was conducted based on the significance of PGR lands in total area, serving as a key reference point for the research. Material living conditions were defined along with their distinct dimensions, and diagnostic indicators were selected for their local-level assessment. Subsequently, synthetic indicators were constructed encompassing the labor market dimension (WL), housing conditions (WH), local economy (WLE), and a general synthetic indicator comprising all adopted synthetic indicators—the overall quality of life material dimension indicator (WQOLM). Correlations between diagnostic and synthetic

indicators were examined for the study period, along with spatial distributions of their variation. Next, the extent to which past PGR land size influenced material living conditions was identified. The research demonstrated that changes in material living conditions resulting from the functioning and liquidation of socialized agriculture exhibited varying pace and character. The adopted approach enabled determination of the dynamics of transformations occurring in rural spaces. The results revealed that material living conditions were shaped by systemic transformation effects, overlaid with core-periphery spatial interactions, which play an increasingly important role.

Geography in Motion: Spatial Transformations and the Development of Industrial and Warehouse Areas in an Era of Global Change

Małgorzata Dudzińska

Contemporary ‘geography in motion’ is evident in Warmia and Mazury through the dynamic expansion of industrial and warehouse areas. Between 2014 and 2022, their area increased by 311.77 hectares, reaching 7.14% of the region's built-up areas. Although the development of industrial and warehouse areas has so far been concentrated mainly in urbanised commercial hubs, recent years have seen them increasingly appear in areas with lower levels of investment, often of high natural value. Research shows that in a changing spatial layout, it is road accessibility – rather than the historical character of the region – that is becoming a key factor in development. This phenomenon is leading to the expansion of logistics functions into areas of natural value, which poses a significant challenge to maintaining a balance between economic development and environmental protection in a region known as the ‘Green Lungs of Europe’. The results point to the need for effective spatial regulations that will limit the negative effects of transport and infrastructure and ensure a more equitable distribution of their environmental and social impacts.

Demographic transformation and the demand for new residential development in terms of spatial dimension in Poland

Agnieszka Szczepańska, Mirosław Bełej & Radosław Cellmer

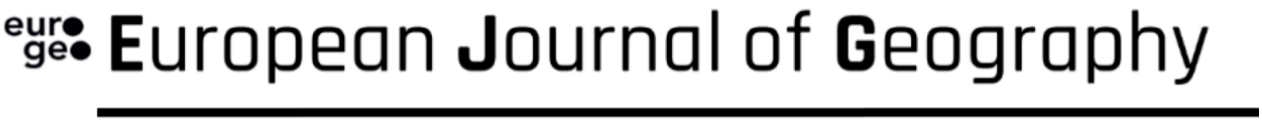
There is a clear problem of oversupply of land designated for residential development in Poland, which results from irrational spatial policy at the local level. Spatial policy is implemented by municipalities through local law documents - local spatial development plans and municipal general plans. In order to ensure the rational use of space, municipalities are required to balance the areas designated for development, which is strictly regulated by the provisions on the preparation of municipal general plans. As part of the balance, the absorption capacity of undeveloped areas is compared with the demand for new residential development in relation to multifunctional planning zones with residential development. The

demand for new residential development is expressed in terms of the number of people and depends on demographic forecasts and the usable floor space of dwellings. As part of the research, analyses were carried out of the spatial distribution of the demand for new residential development in the municipalities of the Warmian-Masurian Province. This made it possible to identify areas with varying degrees of demand for new housing in relation to demographic forecasts and to formulate recommendations for adapting local and regional spatial policy to existing needs and conditions.

Conference Publication Options

Presenters at the EUROGEO Conference are invited to send their contributions according with relevant publication rules to the EUROGEO Journal or the EUROGEO Book Series:

1. European Journal of Geography, http://www.eurogeographyjournal.eu/ (Instructions for authors: http://eurogeographyjournal.eu/index.php?func=page&page_id=45) (Indexed in Scopus, Scimago Journal & Country Rank Q1).



2. Springer – EUROGEO book series: **Geographies in Flux**. Call for chapters will be anounced soon. SCOPUS and Web of Science.