# Creating Climate Change Collaboration (4C)

4th Webinar on Climate Change Impacts on the Geo- and Biosphere on Thursday, February 13th, 2025

**Itinerary**

| Time | Speaker |
|---|---|
| **6.00 pm**<br>Introduction | Dr. Jaishankar Raman, CSU Executive Director of International Affairs<br>Dr. Hermann Rügner, 4C Academic Coordinator<br>Nick Ebner, 4C Program Coordinator |
| **6.05 pm** | Narek Mirzoyan, Karlsruhe Institute of Technology (KIT) |
| **6.10 pm** | Prof. Tony Marks-Block, CSU East Bay |
| **6.15 pm** | Martin Böckling / Prof. Heiko Paulheim, University of Mannheim |
| **6.20 pm**<br>Summary | Dr. Jaishankar Raman, CSU Executive Director of International Affairs |
| **6.30 pm** | Prof. Trent Biggs, San Diego State University |
| **6.35 pm** | Dr. Claus Haslauer, University of Stuttgart |
| **6.40 pm** | Prof. Jose Jarrin, Cal Poly Humboldt |
| **6.45 pm** | Dr. Sigrid van Grinsven, University of Tübingen |
| **6.50 pm**<br>Summary | Dr. Hermann Rügner, 4C Academic Coordinator |
| **6.55 pm**<br>Final Remarks | Dr. Hermann Rügner, 4C Academic Coordinator<br>Nick Ebner, 4C Program Coordinator |

**Researchers from Baden-Württemberg**

## Dr. Claus Haslauer

University of Stuttgart

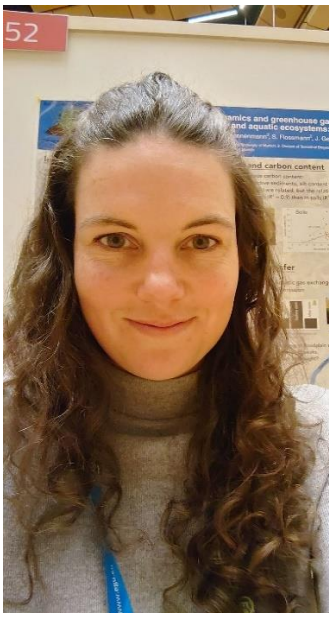
**Research Topic:** High Temperatures in Water Distribution Pipes as a Water Quality Threat.

**Research Abstract:** Temperatures of >25°C in drinking water supply pipes were observed. This is a health concern, as these temperatures are favorable for microbial growth.
We set out to monitor and model soil temperatures and soil moistures driven from meteorological forcing functions. With meteorological observations and soil material properties we also set out to describe the heat transport and water flow from ground surface into the subsurface and from there into the pipes and the water into the pipes.

**Presenter:** Dr. Haslauer is the Scientific Director, Institute for Modelling Hydraulic and Environmental Systems, VEGAS - Research Facility for Subsurface Remediation

## Dr. Sigrid van Grinsven

University of Tübingen



**Research Topic:** Methane cycling in wetlands - a biogeochemical perspective.

**Research Abstract:** Methane is a potent greenhouse gas that is emitted from wetlands around the world. Methane consuming bacteria can reduce emissions, but their activity has long been thought to be limited to oxic environments. As waterlogged soils are generally anoxic, this meant that no effective biological filter against methane emissions could be present there. We investigate whether iron-oxides, nitrate, or organic matter can be used instead of oxygen, and whether this can stimulate these microbes to consume methane in anoxic environments

**Presenter:** Dr. van Grinsven is Junior Research Group Leader in the area of Geomicrobiology at the Department of Geosciences. She has worked on methane microbes in a variety of environments. Her interest started during a research internship at Washington State University, where she worked on stratified lakes. She continued her work on methane during a PhD at the Netherlands institute of Marine Sciences (NIOZ), after which she relocated to Switzerland for a postdoc at Eawag. After a second postdoc at TU Munich, she has started working at Tübingen University in 2024, building a junior research group around the topic of methane cycling in terrestrial and aquatic environments.

## Martin Böckling

University of Mannheim

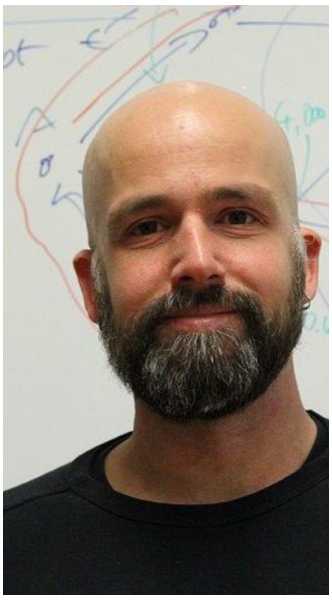
**Research Topic:** Research and insights on leveraging Spatial Temporal Knowledge Graphs for wildfire prediction in California.

**Research Abstract:** Wildfires pose an increasing threat to both the environment and human populations, driven by various spatial and infrastructural factors such as power lines, campfire sites, and road networks. This research explores the use of Spatial Temporal Knowledge Graphs (STKGs) to enhance wildfire prediction accuracy. By leveraging OpenStreetMap (OSM) data, we construct a dynamic STKG to model critical infrastructure. To make use of the structural properties within the STKG for the wildfire prediction, we use different Knowledge Graph embedding methodologies. Through comparative analysis, we demonstrate that integrating STKG embeddings significantly improves wildfire prediction compared to tabular based prediction approaches.

**Presenter:** Martin Böckling is PhD Student at the Data Science Chair of the University of Mannheim with a B.Sc. and M.Sc. in Business Informatics.

Prof. Dr. Heiko Paulheim

University of Mannheim



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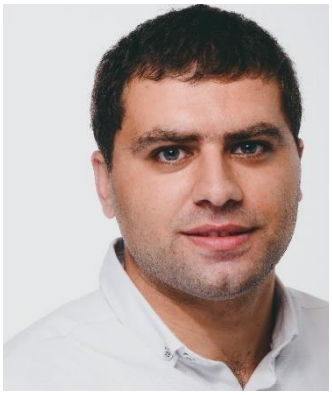
**Presenter:** Prof. Paulheim is Chair for Data Science and Vice President of the University of Mannheim. His research interests include knowledge graphs on the Web and their Applications, data quality and data cleaning on knowledge graphs, the use of knowledge graphs in data mining, as well as societal impacts of artificial intelligence.

Narek Mirzoyan

Karlsruhe Institute of Technology (KIT)



**Research Topic:** The Collective “Efforts” of Bilateral Environmental Agreements to Reduce Greenhouse and Non-Greenhouse Gas Emissions in Europe

**Research Abstract:** Climate change is a global issue with significant impacts on human health and the environment, including increased respiratory illnesses, global warming, and deforestation. Addressing these challenges requires international cooperation, with environmental treaties playing a pivotal role in reducing emissions. While multilateral agreements like the Kyoto Protocol and the Paris Agreement have been extensively studied, the effects of bilateral environmental agreements remain underexplored, particularly within the European Union (EU). This proposal suggests investigating the impact of bilateral environmental treaties among EU states on reducing greenhouse gas (GHG) and non-GHG emissions. The analysis will focus on key emission indicators and the role of bilateral agreements in achieving the EU’s climate neutrality goals by 2050.

**Presenter:** Narek Mirzoyan is a Research Assistant/PhD Student at the Karlsruhe Institute of Technology since 2021. Before he was a Research Assistant at University of Hamburg & the Helmut-Schmidt University from 2019-2021. He holds a M.Sc. in Politics, Economics, and Philosophy (2021, Hamburg University), a M.Sc. in Labor Economics (2015, Armenian State University of Economics).

## Trent Biggs

San Diego State University

**Research Topic:** Rural heat islands: Mapping and mitigating farmworker exposure to heat stress.

**Research Abstract:** The project focuses on mapping rural heat islands in the Imperial Valley, assessing farmworker heat stress, and developing tools for community-based climate adaptation and communication strategies.

**Presenter:** Trent Biggs is professor of geography at San Diego State University, with expertise in hydrology and environmental science.

## Jose Marin Jarrin

Cal Poly Humboldt

**Research Topic:** Improving climate change resilience by increasing capacity for Northern California Tribal fisheries.

**Research Abstract:** This project enhances the climate resilience of Northern California Tribal fisheries by developing research and monitoring capabilities, focusing on culturally important marine species and improving resource management.

**Presenter:** Jose Marin Jarrin is a fisheries biologist and assistant professor at Cal Poly Humboldt, with a focus on marine ecology and tribal fisheries.

## Tony Marks-Block

CSU East Bay

**Research Topic:** Advancing Climate Resilience through Youth-led Action Research in Oakland, CA.

**Research Abstract:** This project engages youth in climate-related action research and education in Oakland, focusing on improving community climate resilience through infrastructural and environmental improvements, supported by university partnerships.

**Presenter:** Tony Marks-Block is an anthropologist and assistant professor at CSU East Bay, focusing on community-based research and climate resilience.