

Dear Thomas Schultz,

It is a pleasure as ICA's National Member of the Netherlands to propose a new commission: The Commission on Cartography and Sustainable Development. We also propose as its new chair Britta Ricker. Britta is currently the chair of the Working Group on Cartography and Sustainable Development.

Attached you find Britta's CV and the Terms of Reference for the new commission.

During the General Assembly the Netherlands will be represented by Britta Ricker. The name second representative will be forward later.

Greetings



*Tim Brouwer
Secretary GIN*

PERSONAL INFORMATION

Family name, First name: Ricker, Britta

Researcher unique identifier(s) (such as ORCID)<https://orcid.org/0000-0001-5256-7824>

Date of birth: 20/02/1983

Nationality: U. S. Citizen, Resident of The Netherlands

URL for web site: <https://bricker0.github.io/> and <https://www.uu.nl/staff/BARicker>

• EDUCATION

- 2014 PhD
 Faculty of Environment, Department of Geography, Simon Fraser University, Burnaby, British Columbia, Canada
 Professor Nadine Schuurman
- 2009 Master of Science
 Department of Geography, McGill University, Montreal, Quebec, Canada

CURRENT POSITION(S)

- 2019 – present Current Position Assistant Professor (tenured December 2021)
 Faculty of Geosciences
 Copernicus Institute for Sustainable Development, Utrecht University, The Netherlands
- 2016 –Present Adjunct Assistant Professor (affiliate)
 Department of Geography, University Washington/ Seattle, Washington, United States of America

• PREVIOUS POSITIONS

- 2018 – 2019 Assistant Professor
 Geo-information Science & Earth Observation/ITC, University of Twente, The Netherlands
- 2014 – 20018 Assistant Professor (tenure track) School of Urban Studies, University of Washington Tacoma, Washington, USA

• FELLOWSHIPS AND AWARDS

- 2015-2018 Fellowship award “Challenging Risk: Achieving Resilience by Integrating Societal and Technical Knowledge EP/K022377/1” [United Kingdom Engineering and Physical Sciences Council \(EPSRC\)](#) (Funded \$36,235.83 USD)
- 2014-2015 Research Fellow with the CyberGIS Center for Advanced Digital and Spatial Studies and [National Center for Supercomputing Applications](#) at the [University of Illinois at Urbana-Champaign](#) National Science Foundation, United States of America

• TEACHING ACTIVITIES (if applicable)

At Utrecht University in the Netherlands, I contribute to teaching in the Global Sustainability Science (GSS) Bachelor’s program and Masters in Sustainable Development, both offered in the Copernicus Institute of Sustainable Development. I am the course coordinator and lecturer for the course “Environmental Impact Assessment” which has on average 120 students per year and 4 teaching assistants to manage. This course is a pillar of the GSS curriculum. I also contribute teaching related to Geographic Information Science in Land Change Science, Global Integration Project, Regional Integration Project and independent student thesis projects all within the GSS. I developed a new study

abroad course titled Consultancy Project Aruba, and act as the course coordinator. At the Masters level, Environmental Change and Ecosystems and Transdisciplinary Case Study courses. I help run the [Utrecht 2040](#) Location Based Serious Game where students and community members are challenged to come up with Sustainable Solutions for Utrecht. I contribute teaching at the University College Utrecht and University of Aruba course on [Interdisciplinary & Multidisciplinary Approaches to Sustainable Development](#) Community Engaged Research in the Caribbean. I earned the Netherland Standardized Basic University Teaching Qualification (BKO) in 2021.

As a co-founder and co-developer of the Masters in Geospatial Technologies at the University of Washington Tacoma (2014-2018), I independently developed and taught the following courses: Introduction to Geospatial, Technologies, Mobile Geographic Information Systems (GIS), WebGIS and Environmental Planning & Applications. Many of these students all had jobs as GIS technicians, primarily in the government sector in local municipal, county, state, or federal level GIS positions and those who did not gained employment in the government sector, or in the private sector managing assets for utility companies or other mapping companies such as Apple, ESRI, Google Maps, Microsoft. At the undergraduate level at this same institution, I taught and developed the course titled Urban Remote Sensing and Urban Research methods.

- **ORGANISATION OF SCIENTIFIC MEETINGS (if applicable)**

- *Co-Organizing* (with Robert Roth) Cartography User Experience and Design for Sustainable Development: Hands on Workshop at the International Cartographic Association Joint Commission Meeting. 12 August, 2023 ahead of ICA in Cape Town, South Africa
- *Co-Organized* (with Robert Roth) User Experience Design for Mobile Cartography: Setting the Agenda at the International Cartographic Association Joint Commission Workshop. Beijing Normal University (BNU) | Beijing, China. 11-12 July, 2019 ahead of ICA in Tokyo, Japan 2019
- *Co-Organized Paper Session* (with Patrick Rickles and Muki Haklay), “Public Participatory GIS and Disaster.” Association of American Geographers Annual Conference Boston 2017
- *Co-Organized Panel Session* (with Adam Mathews), “Conceptualizing the Integration of Unmanned Aerial Systems (UAS) Technology into Geography and GIScience Research” Association of American Geographers Annual Conference Boston 2017
- *Co-Organized, Reviewed and Edited IEEE Proceedings Mini Track* (with Jim Thatcher) “Digital Location” in the Digital and Social Media Track at the Hawaii International Conference in System Sciences (HICSS) 50 in Waikoloa, HI, January 2017

- **INSTITUTIONAL RESPONSIBILITIES (if applicable)**

2021- Present Utrecht University wide Faculty Fellow [FAIR Open Data and Software Committe](#)
2021- Present Faculty Committee GeoFOST -Promoting FAIR and Open GeoSciences UU

- **REVIEWING ACTIVITIES (if applicable)**

2018-present Editorial Board Member for the *Journal Geographical Research* publication of the Institute of Australian Geographers a Wiley Publication
2022 PhD Reviewer and Opponent for dissertation Bala Bhavya Kausika “GIS4PV- A technological impact assessment of the application of GIS for Photovoltaic Solar Energy.” From Energy Group within Copernicus Institute Promoter Professor Wilfried van Stark
2020 Grant Reviewer for the Czech Science Foundation (GACR)
2018-2022 Reviewer for the Hawaiian International Conference on System Science (HICSS) , Cartography and Geographic Information Science (Taylor and Francis), Ecosystems and People (Taylor and Francis), Journal of Sustainable Development, Journal of

Environmental Psychology, Journal of Human Geography, The Canadian Geographer, Journal
ISPRS International journal of Geo-Information, The Professional Geographer

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES (if applicable)**

2022 – present Chair of the Working Group Cartography and Sustainable Development for the
“International Cartographic Association” <https://icaci.org/working-groups/>
2019 – present Member, International Cartographic Association
2011 – 2021 Member, Association of American Geographers (AAG)
2020 Member, European Geophysical Union (EGU)

- **MAJOR COLLABORATIONS (if applicable)**

Eric Mijts, Island Sustainability, Sustainable Island Solutions through Science Technology
Energy Mathematics (SISSTEM) program, University of Aruba, Aruba.

Section c: Early achievements track-record (max. 2 pages)

My research focuses on identifying ways in which accessible geospatial technologies – from everyday mobile smartphones to flying drones – can be effectively utilized for sustainable development initiatives focused on environmental issues from a social justice perspective. I have shown strong leadership and influence throughout my scientific career, particularly in open governmental and spatial big data from the international to local level, by offering technical and cartographic guidance to the United Nations, Federal Government of New Zealand, the Directorate of Environment in Aruba, the City of Tacoma in the United States, and many more. As an expert in geospatial technologies, cartography, open data and software, and sustainable development I have been invited to several leadership positions. I am currently the chair of the International Cartographic Association’s Working Group on Cartography and Sustainable Development. This organization works hand-in-hand with the United Nations Statistics Division who specializes in Global Geospatial Information Management (GGIM) committee where I was invited to present at their recent meeting in Hyderabad India in October 2022. Since 2020, I have been a University Wide Open Science Fellow at Utrecht University where I offer guidance for Open Access and FAIR data & software practices to be put into official policy, including pragmatic solutions to educators and researchers at our university.

Through these experiences and research collaborations I developed a keen awareness of the challenges associated with interdisciplinary research in Geographic Information Science. In this article I document some key points to consider for successful collaborations. This article proved to be useful to others as it is in the top 10 most read articles of all time for this journal:

Ricker, B., Rickles, P., Fagg, G., Haklay, M. (2020) “Interdisciplinary research team seeking Geographic Information Scientists: Considerations for successful collaboration.” *Cartography and Geographic Information Science (CaGIS)*. 47(4): 350-366. DOI:10.1080/15230406.2020.1748113

Since the SDGs are inherently, interdisciplinary, the challenge of mapping them was an opportunity I have pounced upon. Published by the United Nations and the International Cartographic Association (ICA) I wrote an **Open Access** book has been downloaded over 2828 times and there are over 3000 printed publications in circulation world-wide. This book is a specialized textbook offering cartographic principles as they apply to mapping the SDG indicators themselves. The United Nations has informed me that they have received positive feedback from UN Member State statistics divisions about the book and specifically two of my contributed chapters titled: Project Planning and the Cartographic Design Process. This book is currently being translated into French, Japanese and Arabic.

Kraak, M.J. Roth, R. **Ricker, B.** Kagawa, A, Le Sourd, G. (2020) Mapping for a Sustainable World. United Nations, New York New York. [ISBN 9789216040468](#)

I have several other publications connected to mapping the SDGs including empirical research measuring what is learned from interacting with the maps, and general design considerations. This publications discusses important considerations when generating these visualizations as they relate to what is communicated in the end.

Ricker, B., Kraak, M.J., Engelhard, Y. (2020) “The Power of visualization choices: different images of patterns in space” Kennedy, H., Engebretsent, N.M. (Eds) Invited book chapter for Data Visualization in Society University of Amsterdam Press. ISBN 9789463722902

As part of the research associated with these publications related to the SDGs, I created several maps with real UN SDG indicator data. While making the maps for these publications, it became painfully clear how much data are missing in the world, particularly for low resource settings. For this reason, I have been investigating ways in which low-cost drones can be used for quick data collection. While I have been flying drones since 2014 in the United States, in 2022 I earned my European Union Aviation Safety Agency Certified A1/A2 Open subcategory Drone Pilot license which expires Exp. 22.07.2027. My publications about the use of drones illustrate my wide range of experience and expertise with drone data collection, where I share my understanding of the entire process of data collection, analysis from both a quantitative and qualitative perspective. I describe how to share these data openly. In this publication, I share the potential of the use of drones for environmental communication, binding their use to science and communication purposes using both qualitative and quantitative methods.

Ricker, B., Frazier, A. (2021) “Aerial Cinematography with UAS.” in Fundamentals of Capturing and Processing Drone Imagery and Data. Taylor and Francis Publishing. ISBN 978036 1

Additionally, my research illuminates the impacts of governmental open data and how it can be used in activism in low resource settings. Focusing on reuse of open data and how it can lead to empowerment from the grassroots level – I conducted empirical research in Cape Town South Africa, the first city in Africa to release open governmental data. The knowledge gained from this research could be useful in the context of the Caribbean, in that the workflow proposed in this research could lead to improved Environmental Management practices like those witnessed in Cape Town.

Ricker, B., Dierwechter, Y., Cinnamon, J. (2020) “When Open Data and Data Activism Meet: An Analysis of Civic Participation in Cape Town, South Africa” *The Canadian Geographer*. Special Issue titled “Smart citizens creating smart cities” 64(3): 359-373. Edited by Peter Johnson and Rina Ghose. [DOI:10.1111/cag.12608](#)

I was invited as an expert in the field of mobile GIS to write two different entries within the University Consortium for Geographic Information Science and Technology Body of Knowledge. One focusing on technical considerations associated with cross platform development (Mobile Devices) and the other on design (Mobile Map Interfaces), these two open access publications are widely used as guidance for how to make maps including specialized map design considerations for a wide range of mobile GIS applications. Here are highlighted publications that are most related to the research I am proposing and in which I am a main author. These works show how I am uniquely positioned to lead this proposed research.

International recognition, activities and networking

I have a robust and international research portfolio and network including collaboration with Geospatial Information Section of the United Nations and with the International Cartographic Association. As a result, I am regularly invited to give lectures about my research at industry events, academic and professional conferences, academic lecture series (University of Bayreuth and University of Erlangen in Germany 2022, UU Stadium General Lecture 2021) and government institutions (Aruba Census and Aruba SDG task force 2022), and within different United Nations units including the Statistics Division Committee of Experts on Global Geospatial Information Management (UN-GGIM), Economic Commission for Latin America and the Caribbean (ECLAC) and UN Women, as well as the industry conference the Geospatial World Forum.

While completing my PhD I was offered a tenure track assistant professorship appointment at the University of Washington Tacoma to continue my line of research while also establishing a new Masters in Geospatial Technologies. Simultaneously, I accepted a National Science Foundation funded fellowship (2014-2016) with the CyberGIS Centre for Advanced Digital and Spatial Studies and United States National Centre for Supercomputing Applications. Through this fellowship I worked with a Team of researchers who established the formal CyberGIS literacy guidelines for geospatial big data.

Leadership and Innovation through Teaching and Supervision

My teaching is tightly coupled to my research, in that they focus on applied cartography and geographic information science. I am training the next generation of geographic information scientists and cartographers.

While my research focuses on real-world applied examples of how to measure environmental changes over time, to identify where interventions would be most beneficial, this spills into the assignments that I design for students in my classrooms. My masters' students at UU have applied remote sensing and GIS to monitor change over time at mining sites in Mozambique and have made citizen science tools for local citizens to monitor environmental changes related to Environmental Impact Assessments in their backyard. I have been the primary supervisor and successfully mentored 33 Master's thesis projects in total, at three different Universities. I am well poised to lead a research team, with the help of this grant I will be able to organize students in a coordinated effort to organize action to augment missing SDG indicator data in resource poor settings. This research will also communicate the significance of these data while bridging expertise and research gaps between from remote sensing, machine learning, cartography and evaluation literature.



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Date 28-02-2023
Subject Commission of Cartography and Sustainable
Development Chair Service

To the Secretary General of the International Cartography Association Thomas Shultz,

I am writing to communicate my willingness to serve as the Commission Chair for the Cartography and Sustainable Development Commission for the coming four years. Thank you for considering me for this position.

Yours truly,

A photograph of a handwritten signature in purple ink on a piece of lined paper. The signature appears to read 'Britta Ricker'.

Dr. B.A. Ricker
Tenured Assistant Professor

Terms of Reference

MISSION

Currently, the needs of the global population are not being met. The aim of the Commission on Cartography and Sustainable Development is to identify and employ cartographic practices and visualizations that promote understanding and improve decision making to achieve Sustainable Development. Sustainable Development is the process of meeting the necessities of the present without compromising the opportunities of future generations to meet their own needs. Sustainable Development addresses issues of environmental, social and economic justice and equity. Well-designed maps employing effective cartographic principles can illuminate strategies to reach a sustainable world.

The Commission on Cartography and Sustainable Development aims to foster knowledge and understanding that leads to action through the use of maps to ensure that current and future generations experience human rights and access to environmental resources needed to maintain a reasonable quality of life. Environmental and economic quality is inextricably linked to human equality and justice from the local to global scale. The causes of this inequity are complex. Maps and cartographic visualizations can help reduce complexity by showing current realities as well as future possibilities, to reveal spatial patterns that might otherwise go unnoticed. Sustainable Development requires changes to current understandings of development to improve human wellbeing through economic opportunity and development, environmental preservation, and social equity. Sustainable Development is pivotal to maintain a healthy and prosperous planet.

The vision of the Commission on Cartography and Sustainable Development is to provide pragmatic, conceptual, theoretical, methodological, and empirical basis for supporting and advancing Sustainable Development initiatives through cartography. Cartography can play a significant role in achieving Sustainable Development through reducing complexity, identifying where to employ local solutions to global challenges, indicating opportunities, illuminating injustice, and guiding informed decision-making processes.

Sustainable Development is an inherently interdisciplinary challenge and field. The Commission on Cartography and Sustainable Development will work to support and build off efforts of other existing ICA Commissions and Working Groups. Additionally, this Commission is committed to building linkages between academia, intergovernmental agencies, partners in industry, national and local governments responsible for management geographic information and cartography. The United Nations (UN) Sustainable Development Goals (SDG) offer guidance, as have been agreed upon as a set of global priorities and are used as a starting point for this work group. For this reason, this work group will collaborate closely with the United Nations (UN), including but not limited to UN GGIM and the Economic and Social Council of the UN as well as with academic experts from economic, environmental, technical and social disciplines such as those from human geography, international relations, remote sensing, automated geography (GeoAI) and photogrammetry

associated with computer vision, and environmental ecology to name a few. Thereby, the Commission on Cartography and Sustainable Development puts forward the following Terms of Reference:

TERMS OF REFERENCE 2023-2027

- Advance the use of cartography to communicate effective Sustainable Development strategies by offering written visualization guides made available online and offering in person tutorials with governmental statistics and environmental agencies as the target audience.
- Demonstrate how cartography is an effective tool to illuminate gaps, evaluate challenges and identify solutions faced at different (spatial and administrative) scales (or levels of geography and government) in terms of cartographic design, production and data management (missing data).
- Illustrate, curate and share effective cartographic communication techniques for Sustainable Development initiatives for economic, environmental, educational and social phenomena.
- Define short- and medium-term research goals that address key issues associated with building a sound theoretical and applied methodological base to support the production of maps and geographic information used to advance Sustainable Development. Results will be shared through a Special Issue of the Journal of Cartography and made Open Access.
- Appraise the relevance of size in terms of data collection, analysis and visualization in combining global, national and local initiatives to achieve Sustainable Development – offering geovisualization and cartography solutions related to these specific challenges.
- Actively seek to encourage participation in the Commission from researchers and practitioners in the African, Latin America and Asia-Pacific regions, and those from Small Island Developing States (SIDS), which are currently underrepresented among our ICA membership. We commit to host at least one event in the African region during the term. We also seek, insofar as possible, to also open participation through electronic means, in workshops by using technologies such as Zoom to live cast and record events to improve access for those who cannot physically travel.