Global Geospatial Information Management (UN-GGIM)

UN-GGIM Academic Network
Annual Report

(September 2021 - August 2022)

Jul 5, 2022

The [UN-GGIM Academic Network](#) is a coalition of recognized universities and research and education centers involved in research, development and education on geospatial, land information and related matters, run on a volunteer basis.

The Network's primary objective is to support the aims and objectives of the Committee of Experts on Global Geospatial Information Management (UN-GGIM) by facilitating access globally to research and education capabilities for UN-GGIM and its affiliated members to identify and respond to challenges and opportunities for UN-GGIM and related UN offices. An introductory video with the message from UN-GGIM Academic Network's Chair, Professor Maria Antonia Brovelli is available [here](#).

The activity of the network, thanks to the habit of using online platforms, has become stronger and continues. In particular, the Board continued to meet regularly to discuss the relevant points (proposals for common activities, discussion of the topics to be proposed at UN GGIM events, etc). Currently, the Board, under the guidance of the Executive Committee, is busy organizing the side event at the Twelfth Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). A particularly popular initiative was that of the Mapathon, organized in cooperation with UN Mappers and which involved several universities both from the network and from outside. Overall, activities are progressing increasingly satisfactorily and the network is consolidated and active.

Meetings and Administration

Current officers and board members for the period of Jan 2021- Dec 2022 are as follows:

EXECUTIVE COMMITTEE:

CHAIR: Maria Antonia Brovelli, Politecnico di Milano, Italy
DEPUTY CHAIR: Songnian Li, Toronto Metropolitan University, Canada
SECRETARY: Ivana Ivánová, Curtin University, Australia

ADVISORY BOARD:

Cheryl Desha, Griffith University, Australia
Georg Gartner, Vienna University of Technology, Austria
Menno-Jan Kraak, University of Twente / ITC, The Netherlands
Jonathan Li , University of Waterloo, Canada
Abbas Rajabifard, University of Melbourne, Australia (Immediate Past President)
Michael Starek, Texas A&M University – Corpus Christi, USA
Huayi Wu, Wuhan University, China

REGIONAL REPRESENTATIVES:

AFRICA: Serena Coetzee, University of Pretoria, South Africa
AMERICAS: Rosario Casanova, Lincoln Institute of Land Policy, Uruguay
ASIA-PACIFIC: Huayi Wu, wuhan University, China
EUROPE: Joep Crompvoets, Katholieke Universiteit Leuven, Belgium

GOVERNANCE OPERATION (September 2021 - August 2022):

As reported last year, the newly elected Executive Committee commenced its activities in January 2021 with transition of the governance from the previous team, including creating a sustainable workspace for the Network and updating and restructuring the Network's website. The updated Terms of Reference were endorsed by the members of the Network's Advisory Board - the document was reviewed by the UN-GGIM Secretariat. These works have prepared for the UN-GGIM Academic Network's Executive Team, Advisory Board, and Regional Representatives to continue to work together and virtually meet monthly in the year 2021-2022.

Membership

Currently, the Network has 58 members from 34 different countries (see a map of member distribution in Figure 1). The details of the members are available on the Network website. Since September 2021, the network has admitted three new members: Lund University, University of Winnipeg, Polytechnic University of Valencia, and one associate member: ESRI. Approval of two applications are currently pending.

Figure 1. Geographical distribution of the current Network members

Members of the Network's volunteer in other UN-GGIM bodies and working groups - see in Appendix the list of current Network's representatives in each UN-GGIM body or working group.

Activities

PARTICIPATION IN UN-GGIM EVENTS

The UN-GGIM Academic Network together with the UN-GGIM Private Sector Network and the World Geospatial Industry Council co-organized a webinar on **Effective Geospatial Information Management and Services through Public-Private-Partnerships** as a virtual event during the Eleventh Session of UN-GGIM. During this event, participants concluded that the topic on public-private-partnerships is timely, requires immediate actions, and the UN-GGIM Academic Network and UN-GGIM Private Sector Network can play a critical role in making changes.

The Advisory Board members are currently working on organizing the Side Event of the Twelve Session. It will be focused on "Trustful and Ethical Use of Geospatial Data: the Role of Academics" with a discussion session involving both members of the Academic Network and Experts on Global Geospatial Information Management (Regional Committees, Working Groups, and Thematic Networks)

UN-GGIM Academic Network Side-Event at 11th UN-GGIM Session
The Network organized an An online webinar on "*Education and Capacity Building to support the Global Geospatial Information Management*" on 18 August 2021 as part of the side-events along with the 11th UN-GGIM Session. The event was Attended by over 40 people from 18 countries, this side event gathered the UN-GGIM Academic Network (UN-GGIM AN) members, key people from UN-GGIM regional committees and working groups, and other interested participants to explore gaps, challenges and opportunities facing education capacity building from a global perspective in the context of rapid advancement of related technologies. The particular objectives of the side-event were to:

- Share new experiences on building educational capacities;
- Discuss about what is needed and what is urgent for education and capacity building, and how the Academic Network can contribute; and
- Explore new education initiatives for effective geospatial information management and services through public-private-partnership collaboration.

UN MAPPERS MAPATHON

The UN-GGIM Academic Network and the UN Geospatial Network jointly organized UN Mappers Mapathon on 30 March 2022 with the aim to raise awareness of UN missions and how they use open data sources for these. A mapathon (literally "map marathon") is a collaborative effort to improve OpenStreetMap data, very often for humanitarian purposes, in places where OpenStreetMap data is scarce or non-existent. Apart from learning how to contribute to data for UN missions, participating in the UN-GGIM Academic Network Mapathon gave to the attendees insight into OpenStreetMap data and for which purposes it could be useful.

The Mapathon was open for 10 hours, during which volunteers from several Network member organizations with various backgrounds connected to remotely map a selected area in Libya using satellite imagery or aerial photographs. The mapathon attracted 110 young people from different universities (see here for an example) and mapped 13,700 buildings. Additionally, the assigned members of the Network continued to actively participate in and contribute to the UN-GGIM regional committees and other networks.

The event was preceded by two workshops, open to all members of the Network, but mainly for the educators, where it was explained how to make collaborative mapping and how to organise their students for the mapathon. The workshop is available here.

UN-GGIM INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (IGIF)

Several members of the Network continue to contribute to the development and consultation of UN-GGIM Integrated Geospatial Information Framework (IGIF), and organized and/or actively participated in outreach activities related to IGIF between 2021-2022.

GEOSPATIAL RESEARCH AND INNOVATION IN IMPLEMENTING SDGS

As part of work plan 2019-2022, the Academic Network has defined a research project to Leveraging spatial data infrastructure and integrated analytical platform to support implementation, benchmarking, measuring and monitoring the SDG indicators. This research project is investigating the challenges in effective and sustained access to digital technology, the Internet of Things (IoT), to the provision and exploitation of new data needs, information systems, analytics and associated enabling tools, and technologies to support the timely and reliable implementation and monitoring of the progress in SDGs. The activities and benefits of the project include:

- Enhancing the methodologies and implementation frameworks to support evidence-based policy making towards achieving the SDGs
- Formalizing reusable geospatial tools for producing the SDG indicators, enabling benchmarking and comparison
- Designing a dynamic platform rather than available static dashboards
- Supporting national and local jurisdiction to improve their current static monitoring dashboards
- Assisting governments to predict the future trends of SDG indicators.

This is an ongoing initiative and partial outputs involve the work of Academic Network members.

UN OPEN GIS INITIATIVE

The UN Open GIS Initiative is a Partnership Initiative led by the United Nations Geospatial Operations. The Initiative, established in March 2016, is supported by several UN Member States, UN Field Missions, UN Agencies and technology contributing partners (international organizations, academia, NGOs, and the private sector) and takes full advantage of their expertise. The aim is the creation of an extended spatial data infrastructure that meets the

requirements of the UN Secretariat (including UN field missions and regional commissions). It then expands to UN agencies, UN operating partners, and developing countries. The contribution of Academic Network members can be summarized as follows:

- Organization with other members of the UN Open GIS (ITU leading), the World Geospatial Industry Council (WGIC), OGC within the AI For Good Initiative of a new series related to Geospatial Information. The events co-organized so far are the following:
  - What will it take for AI to work with geospatial data?, 1 February 2022 (1577) GeoAI: What will it take for AI to work with geospatial data? | Discovery - YouTube
  - Analyzing the Amazon Deforestation with Machine Learning and the Google Earth Engine – Part 1, 15 March 2022 (1577) Analyzing the Amazon Deforestation with ML and Google Earth – Part 1 | AI FOR GOOD DISCOVERY - YouTube
  - Analyzing the Amazon Deforestation with Machine Learning and the Google Earth Engine – Part 2, 29 MArch 2022, (1577) Analyzing Amazon Deforestation with ML and the Google Earth Engine – Part 2 | AI FOR GOOD DISCOVERY - YouTube
  - The future of GeoAI for Good with Google Earth Engine, 23 June 2022 (1577) GeoAI for Good with Google Earth Engine | Rebecca Moore, Google | AI FOR GOOD KEYNOTES - YouTube
- Co-organisation of ITU GeoAI Challenge: Students and professionals from around the globe are invited to solve real-world geospatial problems with real-world data by applying artificial intelligence (AI) / machine learning (ML) to advance the United Nations Sustainable Development Goals (SDGs). The Challenge proposed by UN Open GIS and curated by FAO is related to "Cropland mapping with satellite imagery" and was launched on June 27th.

OUTPUT

Members are regularly promoting the UN-GGIM Academic Network and its activities via their networks - in the reporting period, members contributed to the following output:

Organization of the workshop on the challenge of GEOAI, GEOAI for Good & GEOAI for a Sustainable Europe as a side event of the Network at the Regional Committee of United Nations Global Geospatial Information Management for Europe - 8th Plenary Meeting - 14th October 2021. The workshop aimed to raise awareness and understanding of AI within the geospatial/geomatics and Earth Observation AI (GEOAI) context. Three presentations, focused on Machine Learning for Earth and Climate Sciences, Machine Learning and Deforestation in Amazonia and AI at national mapping and cadastral agencies in Europe, were followed by an Interactive Panel Discussion participated by all the attendees.

Support of the "High-level Forum of the Urban Geoinformatics" organized along the Gi4DM 2022 & Urban Geoinformatics 2022 conference in Beijing (1-4 November 2022).

Presentation on the activities of the Network at the AFRICAGIS 2021, hosted by the Government of the Ivory Coast Convened by EIS-Africa in partnership with the African Union Commission (GMES and Africa) and the United Nations Economic Commission for Africa - 22- 26 November 2021.

Presentation of the activities of the Network at the Regional Committee of United Nations Global Geospatial Information Management for Arab States – 9th Plenary Meeting – 29-March-2022.

Communications and Promotion

The UN-GGIM Academic Network communicates with members from a newly set-up email account: unggim.academicnetwork@gmail.com.

Information about member news and interesting events are posted on Network's website: http://unggim.academicnetwork.org/newsevents/

Future Plan

One of the main missions of the UN-GGIM Academic Network is education and capacity building. The pandemic has obliged us to consider new ways of teaching and we can think of reusing what we learned in the last months also for reaching a wider floor, pushing ahead the knowledge in the geo-spatial domain. The network started already discussing both educational platforms/repositories/courses and the necessity of considering also new topics which are overwhelmingly emerging also in the geospatial world. A white paper on innovation in the global geospatial education, considering both the means and the content is currently in progress.

The following is a list of activities the Network has planned for the year 2021-2022, besides continuing the long term initiatives already active in the previous year:

- Workshop on the Development of High-education in Geospatial Information: it will be open to all members and associate members of the Network but also open to other participants. The plan is to organize it in-person, if the pandemic situation allows. The expected time is late in 2022 or early in 2023.
- Biennial General Meeting (BGM): this meeting aims at gathering the Network members to discuss important issues concerned by the entire network membership. BGM will be planned for late in 2022 or early in 2023.
- GEOAI and Education: a panel organized in September 2022
- Establishing a student group or chapter under the UN-GGIM Academic Network

The Network will further strengthen the relationships and cooperation of the Network's members with the other bodies of UN-GGIM, like for instance collaborating in pilot projects with the Private Sector Network.

Appendix: Table of UN-GGIM Academic Network's delegates to other UN-GGIM functions or working groups.

UN-GGIM Africa		
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UN-GGIM Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDGs)		
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UN-GGIM Geospatial Societies		
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UN-GGIM Expert Group on Land Administration and Management		
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UN-GGIM Subcommittee on Geodesy (formerly WG on Global Geodetic Reference Frame)		
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