

## Maria Antonia Brovelli



Degree with honours in Physics, PhD in Geodesy and Cartography. She is a Professor of “GIS”, “Earth Observation” and “The Copernicus Green Revolution for Sustainable Development” at Politecnico di Milano (PoliMI) and a member of both Schools of Doctoral Studies in “Data Science” and “Earth Observation” at La Sapienza University in Rome.

She has spent her entire career at the Polytechnic University of Milan, starting as a researcher and eventually becoming a Full Professor in 2010, where from 1997 to 2011 she was the Head of the Geomatics Laboratory of PoliMI (Campus Como) and from 2011 to 2016 she was the Vice-Rector of PoliMI for the Como Campus. Besides, from 2006 to 2011 she lectured GIS at the ETH of Zurich.

Currently, she is the coordinator of the Copernicus Academy Network for the PoliMI and the Head of the GEOLab (Geomatics and Earth Observation), an Interdepartmental Lab of PoliMI to which 7 Departments of Politecnico di Milano are contributing.

She is Vice President of the International Society for Digital Earth (ISDE), Vice President of the ISPRS Technical Commission on Spatial Information Science [1], a former member of ESA ACEO (Advisory Committee of Earth Observation Director of ESA's Earth Observation Programmes) [2]; co-chair of the WG5 - GEOAI - of the United Nations Open GIS Initiative, former chair and current Advisory Board member of the UN-GGIM (Global Geospatial Information Management) Academic Network [3], mentor of the PoliMI Chapter of YouthMappers (PoliMappers) [4], the curator of the geospatial series of the AI for Good, organized by ITU in partnership with 40 UN Sister Agencies [5]. In this last frame, she organises workshops and webinars related to GEOAI and Geospatial Foundation Models. She was one of the Directors of OSGeo in 2016-2017 [6]

Her research focuses on geomatics and Earth Observation. Her interests have varied, beginning with geodesy and radar altimetry, later expanding to GIS, webGIS, geospatial web platforms, VGI, Citizen Science, Big Geo Data, Earth Observation, GEOAI, and Geospatial Foundation Models (NASA- IBM FM or extensions of LLMs with geospatial applications and models).

She participates in and leads research on these topics within both national and international projects and scientific networks. One of her main interests lies in Open- Source GIS, where she plays a significant global role.

Her contributions to geospatial sciences are extensive and impactful. In the Open Source Geospatial community, she has been pivotal in promoting the use of open- source platforms

for geospatial research. Her leadership in developing and advocating for various open- source GIS tools (e. g., QGIS plugins, GRASS plugins, Open Data Cube applications) has made high- quality geospatial data more accessible to a wider community.

She has pioneered efforts to involve citizen science in geospatial data collection and analysis. Through platforms such as OpenStreetMap (OSM) and her collaboration with local communities, she has championed and implemented solutions enabling non- experts to actively contribute to addressing global challenges like disaster management, environmental monitoring, and urban planning.

Her recent work emphasizes utilizing machine learning and foundation models to better comprehend and address environmental challenges. This includes employing advanced algorithms to estimate air pollution levels, predicting climate conditions, monitoring landslides, and analyzing land- cover patterns, all of which contribute to more effective and efficient environmental management solutions.

She has also made substantial contributions to urban climate resilience by utilizing hyperspectral remote sensing data in this field for the first time. Her innovative methodologies have enhanced the understanding of thermal comfort in cities, particularly through mapping urban heat islands and analyzing local climate zones. This research supports urban planners in developing more climate- resilient cities.

Using Satellite Data and Machine Learning for Modeling Urban Pollution: Professor Brovelli' s research at the intersection of satellite remote sensing and machine learning has been crucial in understanding and modeling urban pollution. By combining high- resolution satellite imagery with advanced AI techniques, she has developed models to assess air quality, urban heat islands, and other pollution factors, providing valuable insights for policymakers and environmental organizations.

- [1] <https://www2.isprs.org/commissions/comm4>
- [2] [ESA forms new Earth observation advisory group - Earth Online](#)
- [3] <http://unggim.academicnetwork.org>
- [4] [PoliMappers](#)
- [5] <https://aiforgood.itu.int/about-us/discovery/> and scrolling down to GEOAI
- [6] [Board Election 2016 Results - OSGeo](#)

## Education background

**BSc and MSc in Physics (1980–1986), Università Statale di Milano, Italy**

- **Thesis:** *"Analysis of Rain Acidity in the Area of Milan about Environmental and Meteorological Parameters in the Period 1984–1986"*
- **Final Grade:** 110/110 cum laude (with honours)

**Ph.D. in Geodesy and Surveying Engineering (1988–1991), Interuniversity Consortium Milan–Turin–Pavia, Italy**

- **Thesis:** "Geoid and Marine Topographic Surface Estimation using Radar Altimetric Measurements" (Prof. Fernando Sansò tutor)
- **Fields of Interest:** Geodesy, Radar-Altometry, Gradiometry, Statistics

## Working Experience

- **1983:** Temporary Teacher of Mathematics, *State Vocational Institute for Industry and Small Business of Cusano Milanino*, Italy
- **1986:** Consultant, *Province of Milan - Ecology Department*, Italy
  - **Topic:** Database of the Quality of Groundwater of the Milan Province
- **1986–1988:** Consultant, *Philips I&E*, Italy
  - **Topic:** Air Quality Information Monitoring System
- **1987:** Consultant, *University of Milan - Institute of Applied General Physics*, Italy
  - **Topic:** Atmospheric Pollution and Acid Rain
- **1988:** Consultant, *Politecnico di Milano*, Italy
  - **Topic:** Adaptation of the CALGE Software to a Rigorous Local Cartesian Field (Fortran Software for Transformation among Coordinate Reference Systems: from Global to Local)
- **1991:** Consultant, *Politecnico di Milano*, Italy
  - **Topic:** Software for the Solution of the Altimetry-Gravimetry Problem
- **1992:** Consultant, *Politecnico di Milano*, Italy
  - **Topic:** Integral Problem of the Altimetry-Gravimetry in the Mediterranean Sea: Data Pre-processing
- **1992:** Temporary Teacher of Physics, *State Vocational Institute "L. Settembrini"*, Milan, Italy
- **1992–1994:** Researcher, *Istituto Nazionale di Geofisica e Vulcanologia*, Italy
  - **Topic:** International Geoid Service (IGeS, currently named International Service for the Geoid (<https://www.isgeoid.polimi.it/>))
- **1994–1998:** Assistant Professor, *Politecnico di Milano - DIAR (Department of Hydraulic, Environmental, Infrastructure, and Surveying Engineering)*, Italy
- **1997–2011:** Head of GeoLab, *Politecnico di Milano*, Campus Como, Italy
- **1998–2010:** Associate Professor, *Politecnico di Milano - DIAR*, Italy

- **2006–2011:** Lecturer, *ETH Zurich*, Switzerland
  - **Course:** GIS3 at the Master of Science in Geomatics
- **2010–Present:** Full Professor, *Politecnico di Milano – DICA (Department of Civil and Environmental Engineering)*, Italy
  - **Teaching:** “Geographic Information Systems (GIS)”, “Earth Observation”, and “The Copernicus Green Revolution for Sustainable Development”; formerly “Geodetic Measurements”, “Surveying”, “Navigation”, “Remote Sensing”, “Digital Mapping”, “Internet GIS, Geospatial Web, Geo Big Data, Citizen Generated Geographic Information (CGGI)”
- **2011–2016:** Vice Rector for Como Campus, *Politecnico di Milano*, Italy
- **2016:** Proposer of a new MSc in "Geoinformatics Engineering", *Politecnico di Milano*, Italy (<https://www.polimi.it/en/education/laurea-magistrale-programmes/programme-detail/geoinformatics-engineering>)
- **2016–Present:** Member of the Board of Faculties for the Ph.D. in Data Science, *University of Rome "La Sapienza"*, Italy
- **2016–Present:** Member of the Board of Faculties for the National Ph.D. in Earth Observation, *University of Rome "La Sapienza"*, Italy
- **2023-2024:** Consultant to UNDP on the development and harmonization of GIS activities, including: GIS work types, required GIS technology, and the types of personnel and groups required.
- **2010-Present:** Evaluator for the recruitment and promotion of researchers at universities and research institutions in Italy and abroad; reviewer of national and international research proposals funded by public agencies and private organizations supporting the scientific development of regions and countries.

## Matrix overview

Scopus Author ID: <https://www.scopus.com/authid/detail.uri?authorId=6602533891>

WoS Author ID: <https://publons.com/researcher/2916607/maria-antonia-brovelli>

ORCID ID: <https://orcid.org/0000-0003-3161-5561>

Google Scholar ID: [https://scholar.google.it/citations?hl=it&user=qXBjE\\_AAAAAJ](https://scholar.google.it/citations?hl=it&user=qXBjE_AAAAAJ)

Typology	#Documents	#Citations	#h index
WoS	154	1550	18
Scopus	226	2,482	23
Google	483	4796	32

(15/1/2026)

## Recent Research Projects (last 10 years)

**2016 - 2018** Erasmus + giCASES (Creating a University-Enterprise Alliance for a Spatially Enabled Society) - Leader of the Politecnico di Milano Unit.

Description: the project fostered collaboration between universities and enterprises to innovate Geographic Information education through case-based learning.

**2017** - Cariplo Foundation “Brezza” - Leader of the Politecnico di Milano Unit.

Description: aimed to develop feasibility studies for cycling routes along the Po River's tributaries. It focused on connecting existing bike paths to areas of natural, cultural, and gastronomic interest, enhancing sustainable tourism and promoting a 'slow' lifestyle.

**2018 - 2019** Cariplo Foundation “Mychonos” - Participant.

Description: the project aimed to develop a robust and exportable methodology to investigate hydrological thresholds of shallow landslides triggering by gathering field and laboratory data on soil and hydrological parameters. An efficient GIS system was created to store, handle and represent the main outputs of the project.

**2018** ISPRS Capacity Building Initiative: “Capacity Building for High-Resolution Land Cover Inter-comparison and Validation” - Project Leader.

Description: co-led by Hao Wu from the National Geomatics Center of China, the project aimed to enhance the capacity of GIS and remote sensing users, particularly in developing regions, to validate and compare global high-resolution land cover maps. The project developed open-source educational materials and conducted workshops in Tanzania and Kenya to promote the effective use of these datasets for applications like natural resource management and climate change assessment.

**2017- 2020** Erasmus + “Geodesy and Geoinformatics for Sustainable Development in Jordan” (GEO4D) - Participant.

Description: an Erasmus+ Capacity Building project aimed at modernizing geodesy education in Jordan through the establishment of geodesy laboratories, development of new curricula, and implementation of innovative teaching methodologies to address the country's sustainable development challenges

**2017 - 2020** MIUR National Project PRIN: “URBAN GEOmatics for Bulk Information Generation, Data Assessment and Technology Awareness” (URBAN GEO BIG DATA) - Project leader.

Description: The project contributed to improving the exploitation of new data from Earth Observation and mobile sensors, for a better understanding of a number of urban dynamics. It extracted information from data and represented it for better comprehension, aiming at an improved public engagement.

**2018 - 2021** ESA “High Resolution Land Cover CCI +”. Leader of the Politecnico di Milano Unit (Subcontractor).

Description: It aimed at producing a high-resolution land cover map to support climate modelling at the regional scale. Sub-Saharan Africa, Siberia and Amazonia were the three regions selected for mapping. The outputs of the project were multiple: static land cover for each selected region at 10m spatial resolution for year 2018, historical land cover map for selected subregion in each main region at 30m resolution for every 5 years starting from 1990 until present date, and land cover change maps for specific land cover change at 30m spatial resolution on a yearly scale. The Politecnico di Milano Unit was part of the Validation team and

carried out inter-comparisons of the project outputs with existing land cover maps.

**2019-2020 INTERREG V-A project IT-CH 2014-2020 – “GIOCOOnDA”** - Open data and public administration: design, data format transformation and geo-referencing. Participant.

Description: It was an Interreg Italy-Switzerland 2014-2020 project focused on improving coordination for public administrations in open-data publication and sharing. The project aimed to identify stakeholder needs across borders to enhance decision-making and regional socio-economic development. It created a shared platform using open government data and ensured interoperability with enriched geospatial datasets.

**2019-2021 INTERREG V-A project IT-CH 2014-2020 – “INSUBRIPARKS”** - Database and applications design for the Insubric parks monitoring and touristic promotion. Leader of the Politecnico di Milano Unit.

Description: The INSUBRIPARKS project developed a cross-border strategy for managing natural parks between Italy and Switzerland, improving accessibility to environmental information through WebGIS and mobile applications.

**2019- 2021 INTERREG V-A Italy Switzerland 2014-2020 – “SIMILE”** - An Information System for the Integrated Monitoring of Insubric Lakes and their Ecosystem. Project Leader.

Description: The main project goal was the protection of water quality for Lugano, Maggiore and Como lakes through a geo-informatic coordination of existing monitoring systems with new data collection methods. Images from European Space Agency Sentinels satellites were integrated with: high-frequency sensors, placed on buoys and floating platforms, and Volunteered Geographic Information (VGI), produced with a Citizen Science approach.

**2019-2022 Erasmus+ project - "CIDMA"** - Climate Change Induced Disaster Management in Africa. Leader of the Politecnico di Milano Unit.

Description: it focused on enhancing disaster management capabilities in Mozambique through education and technology. It involved developing three MSc-level courses on climate change-induced hazards, establishing eLearning systems, and creating a web-based disaster management tool to support decision-making. The project aimed to build capacity at universities and local institutions, empowering communities to better respond to climate-related disasters.

**2020-2023 Erasmus + project - "GIS4SCHOOLS"** - Leader of the Politecnico di Milano Unit.

Description: GIS4Schools enhanced secondary school curricula by integrating GIS and Earth Observation into teaching, promoting environmental awareness and active citizenship.

**2021-2023 GEOMLIV MAE – Italy-Vietnam Cooperation - Geoinformatics and Earth Observation for landslide monitoring.** Project Leader.

Description: This joint project between Politecnico di Milano and Hanoi University of Natural Resources and Environment focused on landslide detection and monitoring in Italy and Vietnam. It combined geodata science, machine learning, and citizen science to develop innovative observation and processing strategies. The project also aimed to build new capacities, influencing both academic teaching and technology transfer beyond the universities.

**2021-2023 D-DUST - Data-driven moDelling of particUlate with Satellite Technology aid – Fondazione Cariplo Project – Leader of the Project.**

Description: The aim of D-DUST was to assess the contribution deriving by the systematic integration of non-conventional data, with a focus on satellite-based Particulate Matter (PM) estimates, into traditional PM monitoring frameworks based on fixed ground sensors. Data ingestion to support traditional PM monitoring and modelling took advantage of data science

techniques through the combination of machine-learning and geostatistical models.

**2021-2024 HARMONIA** - Development of a Support System for Improved Resilience and Sustainable Urban areas to cope with Climate Change and Extreme Events based on GEOSS and Advanced Modelling Tools. H2020 Project – Participant.

Description: HARMONIA aimed to leverage existing tools and novel technologies to create an integrated resilience assessment platform for urban areas, using data from GEOSS, DIAS, and other platforms. It tested modern Remote Sensing tools, Machine Learning techniques, and developed a scalable data-driven knowledge base using satellite data, in-situ systems, and spatial information. The project also incorporated local ecosystems and active community participation through a social platform to ensure a sustainable and integrated approach.

**2022-2025 Erasmus + project EUthmappers** – open and collaborative mapping for pupils-led projects in Secondary Schools through innovative teaching methodology and fostering STEAM education and Environmental engagement. Leader of the Politecnico di Milano Unit.

Description: EUthmappers supports open mapping initiatives in secondary schools, promoting students' skills in spatial thinking and environmental protection through collaborative activities.

**2022-2025 "Copernicus 4 Schools - The Great Disaster Challenge"** Work Programme 2020 of the Framework Partnership Agreement on Copernicus User Uptake (FPCUP) - Consultant of the Italian Responsible (ISPRA).

Description: The project aimed to inspire secondary school pupils and teachers to use and understand the Copernicus programme and Earth Observation tools. It involved a European-wide Great Disaster Challenge, where students collaborated on disaster response tasks, such as flood monitoring, after receiving training.

**2022-2024 ASI I4DP\_SCIENCE, Prima Call "Città Sostenibili"** - "Identificazione delle Local Climate Zones e studio della loro correlazione con la temperatura dell'aria nella Città Metropolitana di Milano tramite l'integrazione di dati geospaziali e tecnologie di Osservazione della Terra in ambiente Open Data Cube (LCZ-ODC)". Leader of the Project.

Description: LCZ-ODC aims to identify Local Climate Zones (LCZs) in Milan, correlating them with air temperature data using geospatial analysis and Earth Observation technologies within the Open Data Cube environment.

**2023-2025 UDENE** - Urban Development Explorations using Natural Experiments, HORIZON-EUSPA-2022-SPACE – Leader of the Politecnico di Milano Unit.

Description: UDENE leverages satellite data and advanced spatial analysis to explore how urban environments influence mobility, health, and quality of life.

**2023-2025 GEOAIR** - Geo-Intelligence for improved air quality monitoring and analysis - Project of National Interest (PRIN) funded by the Italian Ministry of University and Research (MUR). Leader of the Politecnico di Milano Unit.

Description: GEOAIR develops AI models for air quality monitoring, combining EO data and ground-based measurements to assess pollutants' spatio-temporal patterns.

**2024-2027 LCZ-UHI-GEO MAE** – Italy-Vietnam Cooperation - Analysis of Local Climate Zones and Urban Heat Island using geomatic techniques (GIS and Earth Observation). Project Leader.

Description: LCZ-UHI-GEO investigates Local Climate Zones and Urban Heat Island phenomena in Italian and Vietnamese cities by applying geospatial methodologies, extending the experience of LCZ-ODC.

**2024-2027 SpaceitUp!** - funded by the Italian Space Agency (ASI) and the Ministry of University and Research (MUR), brings together Italian expertise in space science and engineering. Leader of WG 4, Spoke 7 “Zero emission society”.

Description: The research activities focus on developing innovative methods for monitoring air pollutants and emission sources in urban areas, and advanced techniques to study urban heat islands, local climate zones using Earth Observation data, Machine Learning and Foundation Geospatial Models.

## International Awards

Sol Katz Award – OSGeo (2015)

ISPRS President’s Honorary Citation (2020)

## Editorial Duties

- ISPRS International Journal of Geoinformation (Associate Editor in charge of the Area: Geospatial Artificial Intelligence).
- Remote Sensing, Section 'Engineering Remote Sensing' Associate Editor.
- International Journal of Digital Earth Editorial Board Member.

## Professional Influence

She is particularly recognized for **innovating geospatial education, introducing open-source software into the curriculum, and linking academic training with UN and SDGs research initiatives.**

Below are the main initiatives she is involved in or leading.

### 1. ACEO

The Advisory Committee for Earth Observation (ACEO) serves as the senior advisory body to the European Space Agency's (ESA) Director of Earth Observation (EO) Programmes.

Established in 2018, ACEO replaced the former Earth Science Advisory Committee (ESAC) to provide strategic guidance on ESA's Earth Observation initiatives.

ACEO operates with the highest-level advisory capacity, providing recommendations to the Programme Board for Earth Observation (PB-EO).

ACEO comprises invited members who are senior European scientific experts and ex-officio representatives of relevant stakeholder bodies. Members are selected to achieve diversity and balance in scientific expertise across Earth science disciplines.

**2018-2021:** Member of the ACEO

### 2. AI For Good

AI for Good is a major initiative launched by the International Telecommunication Union (ITU) – the United Nations specialized agency for information and communication technologies.

AI for Good is a global platform that brings together researchers, governments, companies, UN agencies, NGOs, and innovators to explore how Artificial Intelligence (AI) can be used to solve global challenges and advance the UN Sustainable Development Goals (SDGs).

<https://aiforgood.itu.int/>

### **GeoAI Discovery Series**

- Co-designed a series of webinars and workshops focused on the application of AI to geospatial data.
- Led hands-on workshops on satellite image processing, deforestation monitoring with Google Earth Engine, and climate change mitigation.
- Moderated and participated in panels about GeoAI ethics, health, biodiversity, and spatial digital twins.

### **GeoAI Challenges**

- Organized annual GeoAI Challenges (2022–2024) promoting solutions for real-world problems using open geospatial data and AI/ML techniques.
- Coordinated challenges curated by UNICEF, FAO, ESA, and others, addressing:
  - School mapping
  - Cropland classification
  - Air pollution susceptibility
  - Landslide mapping
  - Human settlement detection
  - Illegal runway detection in Amazonia

### **GeoAI Education**

- Led initiatives to integrate GeoAI into higher education curricula through the UN-GGIM Academic Network.
- Coordinated surveys among universities and UN member states to assess the demand for GeoAI training.
- Helped create four specialized educational tracks:
  - Developers with computing skills needing geospatial knowledge.
  - Geomatics experts needing AI/ML training.

- Decision-makers requiring conceptual understanding.
- A comprehensive Body of Knowledge for GeoAI.

**2020 – Present:** Curator and key organizer of ITU GeoAI activities under the AI for Good framework. Leading figure in organizing the **GeoAI Discovery series**, **GeoAI Challenges**, and **GeoAI Education initiatives**.

**2024:** Editorial Activities Leading Guest Editor of the Special Issue on "Geospatial AI to advance the United Nations Sustainable Development Goals" in the ITU Journal on Future and Evolving Technologies (2025). <https://www.itu.int/en/journal/jfet/2025/001/Pages/default.aspx>

### 3. Copernicus Academy Network

The **Copernicus Academy Consortium (Italy)** is a national network of universities, research centers, and public institutions focused on promoting Earth Observation and geospatial technologies within the European Copernicus Programme. It supports education, training, and the development of professional profiles aligned with national and European strategies. <https://www.consorzioca.it>

**2019- Present:** Coordinator for Politecnico di Milano at the European Copernicus Academy Network

**2021- Present:** Member of the board of directors of the Copernicus Academy Consortium

### 4. ISPRS

ISPRS (International Society for Photogrammetry and Remote Sensing) is a scientific society that focuses on photogrammetry, remote sensing, and spatial information sciences – basically everything about mapping, measuring, and understanding the Earth from images and spatial data. It promotes international cooperation and knowledge sharing, organizes conferences, workshops, working groups, and publishes scientific journals. It is organized into 5 Technical Commissions, each of which includes several working groups. The ISPRS Commission IV focuses on advancing multidimensional spatial modeling, interoperability, and data fusion. It promotes research in open data, artificial intelligence, crowdsourced data, and geo-computation for applications in urban planning, mobility, and sustainability. The commission also supports the development of advanced tools for spatial analysis, human-centered visualizations, and geospatial data management to address global challenges and support the UN SDGs.

**2008-2012:** Co-chair of the ISPRS WG IV/5 “Distributed and Web-Based Geoinformation Services and Applications”

**2012-2016:** Co-chair of the ISPRS WG IV/5 “Web and Cloud Based Geospatial Services and Applications”

**2010:** organizer of the ISPRS “1st International Workshop on Pervasive Web Mapping, Geoprocessing and Services”, Como – Italy

**2015:** co-organizer of the “4th International Workshop on Web Mapping, Geoprocessing and Services”, Cagliari – Italy <https://convegni.unica.it/webmgs2015/>

The WebMGS workshop series commenced thanks to Maria A Brovelli in Como in 2010 followed by subsequent workshops in Vancouver, Canada in 2011 and Xuzhou, China in 2013. This 4<sup>th</sup> event will take place at the University of Cagliari in Sardinia, Italy on 1-3 July 2015. The theme is focused on web and cloud-based mapping, architectures, services, analytics, ontologies, geo-visualisation, collaboration, technologies, semantics and virtual globes, as well as related social and organizational issues.

**2016-2022:** Chair of ISPRS WG IV/4 “Collaborative Crowdsourced Cloud Mapping (C<sup>3</sup>M)”

**2022-2026:** Vice-President of Technical Commission IV: Spatial Information Science

(<https://www2.isprs.org/commissions/comm4/>)

Moreover, she has been involved in several Scientific Committees of the ISPRS Congresses and Workshops.

## 5. OSGEO and FOSS4G

OSGeo (Open Source Geospatial Foundation) is a global non-profit organization dedicated to supporting the use and development of open-source geospatial technologies. It works to foster collaboration among developers, users, and organizations within the geospatial community, advocating for the adoption of open standards and tools in geographic information systems (GIS) and spatial data management. The foundation's efforts are aimed at improving accessibility to geospatial data and software, promoting innovation, and enabling the global exchange of knowledge. OSGeo organizes educational initiatives, conferences, and workshops, including the annual FOSS4G event, to raise awareness and build capacity around open-source geospatial solutions.

Additionally, OSGeo helps drive the development of open geospatial standards and encourages the creation of new tools that empower individuals, businesses, and governments to manage and analyze geospatial data more effectively. Through its collaborative approach, OSGeo contributes to a more inclusive and sustainable future for geospatial technology.

**2000:** Organizer of the First Meeting of the Italian Users of GRASS – Como - Italy

**2002:** Member of the Organizing Committee of the Open Source Free Software GIS - GRASS users conference 2002

<https://web.archive.org/web/20060331191951/http://www.ing.unitn.it/~grass/conferences/GRASS2002/home.html>

**2010 - Present:** Charter member

**2014:** Co-organiser of the 1<sup>st</sup> FOSS4G Europe in Bremen – Germany

<https://europe.foss4g.org/2014/index.html>

**2015:** Organizer of the 2<sup>nd</sup> FOSS4G Europe in Como – Italy. The event is organized jointly by: OSGEO, ICA, ISPRS and Politecnico di Milano <https://www.geolabs.fr/dl/.foss4ge/2015/>

**2016-2018:** Member of the Board of Directors

**2017- 2022:** Chair of the Academic Track of FOSS4G Conferences; the Academic Track is always organized jointly by ISPRS and OSGEO.

- FOSS4G Europe Conference in 2017, in Marne La Vallée, France. 28 papers were collected in the ISPRS Archives Volume XLII-4/W2, 2017 | WG IV/4, edited by M. A. Brovelli, D. Kotzinos, N. Paparoditis, and V. Raghavan.
- FOSS4G 2018 Academic Track in Dar Es Salaam, Tanzania: ISPRS Archives Volume XLII-4/W8, Editors: M. A. Brovelli and A. H. Namangaya with 36 papers;
- FOSS4G 2019 Academic Track in Bucharest, Romania: ISPRS Archives Volume XLII-4/W14, Editors: M. A. Brovelli and A. F. Marin with 39 papers;
- FOSS4G 2021 Academic Track in Buenos Aires, Argentina: ISPRS Archives Volume XLVI-4/W2, Editors: M. Gasparotto, S. Acosta y Lara, and M. A. Brovelli, dedicated to Malena Libman (1984–2021), international geospatial leader and chairwoman of FOSS4G 2021, with 32 papers.
- FOSSG 2022 Academic Track in Florence, Italy: ISPRS Archives Volume XLVIII-4/W1-2022, Editors: M. A. Brovelli, M. Ciolli, and M. Minghini, with 78 papers

**2015-2017:** Chair of GeoForAll Europe (<https://www.osgeo.org/initiatives/geo-for-all/>).

“Geo for All” is the Open Source Geospatial Foundation’s Committee for Educational outreach and works for making geospatial education and opportunities accessible to all. Central to “Geo for All” mission is the belief that knowledge is a public good and Open Principles in Education will provide great opportunities for everyone.

**2023- Present:** Member of the Scientific Committee of FOSS4G, FOSS4G Europe and FOSS4G Asia (Academic Track)

**2017-2024:** Chair of the OSGEO UN Committee

The OSGeo UN Committee serves as a liaison between the OSGeo community and UN bodies, facilitating the integration of open-source geospatial solutions into UN operations. It encourages participation from service providers, educators, and developers to contribute to its mission.

## 6. PoliMappers

PoliMappers are a volunteer group made up mostly of students from Politecnico di Milano. They're passionate about open mapping and contribute to OpenStreetMap (OSM) – the

free, editable map of the world – by adding and improving map data. The group was created to promote mapping activities, support humanitarian efforts, and train new mappers, especially in the context of Humanitarian OpenStreetMap Team (HOT) projects and similar initiatives. They are part of the larger YouthMappers network, a global community of university students who create and use open spatial data to address development challenges. <https://polimappers.github.io>

**2016 - Present:** Mentor and Academic Advisor of PoliMappers

## 7. UN GGIM Academic Network

The **UN GGIM Academic Network** is a global initiative established under the United Nations Global Geospatial Information Management (GGIM) program. It brings together universities, academic institutions, and research centers worldwide to advance geospatial information management and contribute to the development of geospatial standards, data, and technologies. The network supports the goals of the UN GGIM by promoting education, capacity-building, and innovative solutions for sustainable development, particularly in relation to the use of geospatial data to address global challenges such as climate change, urbanization, and disaster risk reduction.

**2016 - 2020:** Deputy Chair of the UN-GGIM Academic Network

**2021-2024:** Chair of the UN-GGIM Academic Network

**2025- Present:** Member of the Advisory Board of the UN-GGIM Academic Network

**2021-2024:** Organizer and Co-organizer of side Events at all the UN GGIM in New York

**2021:**

Enabling Policies for Effective Geospatial Information Management and Services through Public-Private-Partnership Collaborative Approaches (with the UN GGIM Private Sector Network) (August 2021)

Education and Capacity Building to support the Global Geospatial Information Management (August 2021)

**2022:** Trustful and Ethical Use of Geospatial Data: the Role of Academics (August 2022)

**2023:** GEOAI: Opportunities and Challenges (with the UN GGIM Private Sector Network) (August 2023)

**2024:** Geospatial data, analytics and GeoAI. Accelerating the SDGs and Impacting National Priorities (with all the Observer Networks)

## 8. UNOpenGIS

The **UN Open GIS Initiative** is a collaborative effort launched in March 2016 by the United Nations Geospatial Operations. Its primary goal is to develop and implement open-source

Geographic Information System (GIS) solutions tailored to the operational needs of the UN, including peacekeeping missions, humanitarian aid, and sustainable development initiatives. By leveraging open-source technologies, the initiative aims to reduce reliance on proprietary software, enhance interoperability, and promote cost-effective geospatial solutions across UN agencies and partner organizations. Under this initiative, hundreds of UN officers have been educated in the usage of open source geospatial software.

**2016-2019:** Member and Chair of WG2 (Capacity Building)

**2019-2024:** Co-Chair of the Initiative and chair of WG 5 (Geospatial Artificial Intelligence)

**2025- Present:** Chair of WG5 (Geospatial Artificial Intelligence)

## 9. International Society for Digital Earth

The **International Society for Digital Earth (ISDE)** is a global organization promoting the advancement of **Digital Earth**—the use of digital technologies to understand and manage our planet. Established in 1999, ISDE fosters international collaboration in geospatial science, Earth observation, and data-driven sustainability.

**2025-2027:** Vice-President

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- Duque, Juan Pablo, and Brovelli, Maria Antonia. (2025). "Calculating Walkability and Bikeability of Cities with a Multimodal and Multiscale Approach". *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLVIII-G-2025, 403–410. <https://doi.org/10.5194/isprs-archives-XLVIII-G-2025-403-2025>
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- Q. Xu and M. A. Brovelli, "Sustainable Cities and Communities: Which Role for CubeSats?," *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XLVIII-G-2025, pp. 1595–1602, Aug. 2025, doi: 10.5194/isprs-archives-XLVIII-G-2025-1595-2025.
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