



PERSONAL INFORMATION

Maria Antonia Brovelli



+ 39 02-23996242

+39 328 0023867

maria.brovelli@polimi.it

Sex F | Date of birth 01/05/1961 | Nationality Italian

WORK EXPERIENCE

From 2011 to 2016

Vice Rector for Como Campus - Politecnico di Milano

Politecnico di Milano - Como Campus, via Natta 12/14 - 22100 Como, Italy

Business or sector University

Since 2010

Full Professor at the Politecnico di Milano (Department of Civil and Environmental Engineering - Dipartimento di Ingegneria Civile e Ambientale (DICA))

Politecnico di Milano - Como Campus: via Natta 12/14 - 22100 Como, Italy

I currently teach "Digutal mapping", "Geographic Information System (GIS)" and "Geospatial Web, Geo Big Data and Citizen Generated Geographic Information" I also taught in the past: "Geodetic Measurements", "Survey", "Navigation", "Remote Sensing" and "Internet GIS". Politecnico di Milano: Piazza Leonardo Da Vinci, 32 – 20133 Milano, Italy

Business or sector University

From 2006 to 2011

Lecturer at the ETH Zurich

ETH- Zurich - Hönggerberg Stefano- Franscini-Platz 5 - 8049 Zürich, Switzerland

I taught GIS3 at the Master of Science in Geomatics.

From 1998 to 2010

Associate Professor at the Politecnico di Milano (Department of Hydraulic, Environmental and Surveying Engineering – Dipartimento di Ingegneria Idraulica, delle Infrastrutture, Ambientale e del Rilevamento (DIIAR))

Politecnico di Milano: Piazza Leonardo Da Vinci, 32 – 20133 Milano, Italy

Business or sector University

From 1994 to 1998

Assistant Professor at the Politecnico di Milano ((Department of Hydraulic, Environmental and Surveying Engineering – Dipartimento di Ingegneria Idraulica, delle Infrastrutture, Ambientale e del Rilevamento (DIIAR))

Politecnico di Milano: Piazza Leonardo Da Vinci, 32 – 20133 Milano, Italy

Business or sector University

From 1992 to 1994

Researcher with the Istituto Nazionale di Geofisica e Vulcanologia (National Institute of Geophysics and Volcanology – IGeS (International Geoid Service)

Istituto Nazionale di Geofisica e Vulcanologia - Via di Vigna Murata 605 - 00143 Roma, Italy

Business or sector Research

From 10/02/1992 to 31/05/1994

Temporary teacher of Physics at the State Vocational Institute for Industry and small Business "L. Settembrini"

Physics at the State Vocational Institute for Industry and small Business "L. Settembrini": via Grazia Deledda, 11 – Milano, Italy

Business or sector Instruction



1990 Consultancy "Integral Problem of the Altimetry-Gravimetry in the Mediterranean Sea: Data Preprocessing" – Politecnico di Milano

Politecnico di Milano: Piazza Leonardo Da Vinci, 32 - 20133 Milano, Italy

Business or sector University

1989 Consultancy "Software for the Solution of the Altimetry-Gravimetry Problem" – Politecnico di Milano

Politecnico di Milano: Piazza Leonardo Da Vinci, 32 – 20133 Milano, Italy

Business or sector University

1988 Consultancy "Adaptation of the CALGE Software to a Rigorous Local Cartesian Field" – Politecnico di Milano

Politecnico di Milano: Piazza Leonardo Da Vinci, 32 – 20133 Milano, Italy

Business or sector University

1987 Consultancy "Atmospheric Pollution and Acid Rain" – Università degli Studi di Milano – Institute of Applied General Physic

 $\label{thm:continuous} \mbox{Universit\`{a} degli Studi di Milano - Institute of Applied General Physic - 20133 Milan, Italy}$

Business or sector University

1986 Consultancy "Database of the Quality of Groundwater of the Milan Province"— Provincia di Milano – Ecology Department

Provincia di Milano – Ecology Department

Business or sector Public Administration

1986 Consultancy "Air Quality Information Monitoring System" – Philips I&E Monza (Milano)

Philips I&E Monza (Milano)

Business or sector Private

1983 Temporary teacher of Mathematics at the State Vocational Institute for Industry and Small Business of Cusano Milanino (MI)

State Vocational Institute for Industry and Small Business of Cusano Milanino (MI)

Business or sector Instruction

WORKING GROUPS AND EDITORIAL UNDERTAKINGS

2018 – Member of ACEO (ESA)

2018 Chair of FOSS4G 2018 Academic Track

2017 – Deputy Chair of the "UN-GGIM Academic Network"

2016 - Chair of the WG 2 "Capacity Building" of the "UN Open GIS" Initiative

2016 - Chair of WG IV/4 "Collaborative Crowdsourced Cloud Mapping (C3M)" of ISPRS

(http://www2.isprs.org/commissions/comm4/wg4.html)

2016 - CNR (Italian National Research Council) Associate

2016 Proceedings Editor "XXIII ISPRS Congress", Commission II, Eds. L. Halounova, S. Li, V. Šafář, M. Tomková, P. Rapant, K. Brázdil, W. (John) Shi, F. Anton, Y. Liu, A. Stein, T. Cheng, C. Pettit, Q.-Q. Li, M. Sester, M. A. Mostafavi, M. Madden, X. Tong, M. A. Brovelli, K. HaeKyong, H. Kawashima, and A.

Coltekin, ISPRS Archives, Volume XLI-B2, 2016, pp. 1-760.

2016 Proceeding Editor "XXIII ISPRS Congress", Commission VII, Eds. L. Halounova, F. Sunar, M.





Potůčková, L. Patková, M. Yoshimura, U. Soergel, E. Ben-Dor, J. Smit, G. Bareth, J. Zhang, S. Kaasalainen, U. Sörgel, B. Osmanoglu, M. Crespi, M. Crosetto, T. Blaschke, M. A. Brovelli, and B. Zagajewski, ISPRS Archives, Volume XLI-B7, 2016, pp. 1-1006.

- 2016 Member of the COST ACTION CA15212 "Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe" (https://www.cs-eu.net/)
- 2016 Member of the Board of Directors of OSGeo
- 2015 Chair of FOSS4G EU (Free and Open Source For Geospatial) in Como
- 2015 Co-organizer of NASA World Wind Europa Challenge 2014 (eurochallenge.como.polimi.it)
- 2015 Proceedings Editor Workshop WebMGS 2015, B. Veenendaal, M. A. Brovelli, and L. Wu, ISPRS Archives, Volume XL-4/W7, 2015, pp.1-45
- 2015 2017 Member of the ICT COST Action IC1203 COST Action European Network Exploring Research into Geospatial Information Crowdsourcing: software and methodologies for harnessing geographic information from the crowd (ENERGIC) (https://www.cost.eu/domains-actions/ict/Actions/IC1203)
 - 2015 Member of the Advisory Board of GeoForAll (http://www.geoforall.org/)
- 2014-2016 Member of ICT COST Action TD1202 Mapping and the citizen sensor (http://www.cost.eu/domains_actions/ict/Actions/TD1202)
 - 2013 Co-organizer of the NASA World Wind Europa Challenge 2013 (eurochallenge.como.polimi.it)
 - 2013 Editor of Special Issue on "Mobile Mapping for Disaster Relief", Eds. D. Alvarez, P. Boccardo, M.A. Brovelli, M. Madden, PE&RS, October 2013, pp. 901-973.
 - 2013 Editor of "Towards Intelligent Geoprocessing on the Web", Eds. S. Li, S. Dragicevic, B. Veenendaal, Maria Antonia Brovelli, ISPRS Journal of Photogrammetry and Remote Sensing, Vol. 83, September 2013, pp. 138-204
 - 2012 Co-organizer of the LatinOSGIS First Latin American Congress of Free and Open Source GIS Guayaquil –Ecuador.
- 2012 2016 Co-chair of WG IV/5 "Web and Cloud Based Geospatial Services and Applications" of ISPRS (http://www.commission4.isprs.org/wg5/)
 - 2012 Member of the Board of the Italian Photogrammetric Society (SIFET)
 - 2011 OSGEO charter member (www.osgeo.org)
 - 2010 Editor Proceedings Workshop "WebMGS 2010: 1st International Workshop on Pervasive Web Mapping, Geoprocessing and Services", Eds. M.A. Brovelli, S. Dragicevic, S. Li, B. Veenendaal, ISPRS Archives Volume XXXVIII-4/W13, 2010, pp. 1-258.
- 2008 2012 Co-chair of WG IV/5 "Distributed and Web-Based Geoinformation Services and Applications" of ISPRS
 - 2010 Associate Editor of international review "Applied Geomatics" (https://link.springer.com/journal/12518)
 2010 Member of the Scientific Committee of the Italian Photogrammetric Society (SIFET)

EDUCATION AND TRAINING

1991 Ph.D. in Geodesy and Surveying Engineering – Interuniversity Consortium Milan – Turin - Pavia

Thesis title: "Geoid and Marine Topographic Surface Estimation by Means of Radar Altimetric Measurements"

Politecnico di Milano-Supervisor Prof. Fernando Sansò

• Fields of interest during doctoral studies: Geodesy, Radar-Altimetry, Gradiometry, Statistics

1991 (1 month) Danish Research Academy Fellowship



Curriculum Vitae

Maria Antonia Brovelli

Development (in collaboration with Dr. Per Knudsen) of software for the elaboration of GEOSAT ERM (Exact Repeat Mission) observations

Danish Cartographic Institute

From 1987 to 1991

Doctoral Grant

MURST (Ministry of University and Scientific and Technological Research)

1986 Degree in Physics at Università Statale di Milano

Thesis title: "Analysis of Rain Acidity in the Area of Milan in Relation to Environmental and Meteorological Parameters in the Period 1984-1986" —Achieved Grade: 110/110 with honours

Università Statale di Milano

1980 High school diploma

Classical studies orientation - Final grade: 60/60

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C 1/2	C 1/2	C 1/2	C 1/2	C 1/2
B 1/2	B 1/2	B 1/2	B 1/2	B 1/2

English

French

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user Common European Framework of Reference for Languages

Organisational / managerial skills

I was the Vice Rector for Como Campus of the Politecnico di Milano. I am also Responsible for both Italian and European research projects. I'm the chair of ISPRS WG IV/4 "Collaborative crowdsourced cloud mapping (C3M)", Associate Editor of Applied Geomatics Journal (Springer); one of the Directors of OSGeo (Open Source Geospatial Foundation); member of the Advisory Board of GeoForAll, chair of the "Capacity Building WG" of the UN Open GIS Initiative, Deputy-Chair of the UN-GGIM Academic Network. In 2016, I was nominated to represent Italy in the international GEO team on Data Validation of Global Land Cover Datasets (within GEO SB-02-02: Global Land Cover and User Engagement).

Job-related skills

Responsible for both Italian and European research projects; Consultant Responsible for Mapping, Photogrammetry, Remote Sensing and GIS for the Politecnico di Milano.

Computer skills

User of GIS applications and Internet GIS proprietary software, free and open source on Microsoft and Linux. Office and Open Office user.

Driving licence

В

ADDITIONAL INFORMATION



Participation to research projects/networks

2017-2020 MIUR (Ministry of Education, University and Research) National Project PRIN: URBAN GEOmatics for Bulk Information Generation, Data Assessment and Technology Awareness (URBAN GEO BIG DATA) – Project leader.

2016-2020 COST Action CA15212 | Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe

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

2015-2019 COST Action TD1403 | Big Data Era in Sky and Earth Observation (BIG-SKY-EARTH)

2016-2017 GEO team on Data Validation of Global Land Cover Datasets (within GEO SB-02-02: Global Land Cover and User Engagement).

2012-2016 COST Action TD1202 | Mapping and the citizen sensor

2012-2016 COST Action C1203 | European Network Exploring Research into Geospatial Information Crowdsourcing: software and methodologies for harnessing geographic information from the crowd (ENERGIC)

2013-2015 Via Regina, INTERREG project IT-CH 2007-2013. Project: "I CAMMINI DELLA REGINA", ID 33829732, Misura 3.1, P.O. Cooperazione Transfrontaliera - Project leader.

2011-2013 Green Move, Sustainable Mobility Project of the Politecnico di Milano for Regione Lombardia - Responsible for the Geomatics area.

2010-2012 HeliDEM, INTERREG project Italy-Switzerland, Project leader: Regione Lombardia

2010-2012 web C.A.R.T.E. – Como (web Catalogo e Archivio delle Rappresentazioni del Territorio e delle sue Evoluzioni – Como: Catalogue Service for the Web and Archive of the Territory Representations and its Evolutions) – Sponsored by Fondazione Provinciale della Comunità Comasca Onlus – Project leader.

2012-2012 "On the exploitation and validation of COSMO-SkyMed interferometric SAR data for digital terrain modelling and surface deformation analysis in extensive urban areas" – Agreement n. I/044/09/0 Italian Space Agency and Institute for Electromagnetic Sensing of the Environment (IREA) - National Coordinator Ing. Lanari – IREA).

2008-2010 PRIN: Free and open source geoservices as interoperable tools for sharing geographic data through the internet - Unit project leader

2007-2008 Centro Interregionale di Coordinamento e Documentazione per le Informazioni Territoriali (Interregional Center for the Geographic Information) "Guidelines for production of orthoimagery and DTM"

2007-2008 Centro Interregionale di Coordinamento e Documentazione per le Informazioni Territoriali (Interregional Center for the Geographic Information) "Developing of Technologies for the National Spatial Data Infrastructure"

2006-2007 FAR - Intelligent Logistics: EASyLOG: E-Adaptive Services for LOGistics.

2005-2008 FIRB: ArcheoMedSat: planning and testing of satellite remote sensing and web GIS for the improvement of archaeological sites and monuments of the Mediterranean area, between East and West – National Coordinator prof. Manzoni – Participation as local research unit manager.

2005-2007 PRIN: the GEOPIXEL, defined geometrically and radiometrically as an entity in the territory, seen in relation to multiple scales of investigation from multi-sensory data, and addressed experimentally in thematic applications

2004-2006 PRIN: Web GIS: GeoDBase sharing and system interoperability for the distribution of services in an urban area

2000-2002 PRIN: Use and integrate the elaboration of data and models in a GIS 3D online environment with access to interactive navigation



1998-2000 PRIN: Georeferencing, integration and validation of laser scanner DSMs

Recent publications

Fritz S., See L. and Brovelli M.A., 2017, Motivating and sustaining participation in VGI. In: Foody G., See L., Fritz S., Mooney P., Olteanu-Raimond A.-M., Fonte C.C. and Antoniou V. (Eds) Mapping and the Citizen Sensor, 93-118. London: Ubiquity Press. doi:10.5334/bbf.e

Arias Muñoz C., Brovelli M.A., Kilsedar C.E., Moreno-Sanchez R., Oxoli D., 2017, Web Mapping Architectures Based on Open Specifications and Free and Open Source Software in the Water Domain. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume IV-2/W4, 23-30. https://doi.org/10.5194/isprs-annals-IV-2-W4-23-2017

Minghini M., Brovelli M.A., Vandenbroucke D., Carbonaro M., Prüller S., Painho M., Martirano G. and Frigne D., 2017, FOSS4G as key building block for case-based learning in Geographic Information education. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLII-4/W2, 129-135. doi:10.5194/isprs-archives-XLII-4-W2-129-2017

Brovelli M.A., Minghini M., Kilsedar C.E., Zurbarán Nucci M.A., Aiello M. and Gianinetto M., 2017, MIGRATE: a FOSS Web Mapping application for educating and raising awareness about migration flows in Europe. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLII-4/W2, 51-55. doi:10.5194/isprs-archives-XLII-4-W2-51-2017

Brovelli M.A., Minghini M., Molinari M.E. and Mooney P., 2017, Towards an automated comparison of OpenStreetMap with authoritative roads datasets. Transactions in GIS, 21(2): 191-206. doi:10.1111/tgis.12182

Minghini M., Molinari M.E., See L., Fonte C.C., Brovelli M.A., 2017, Preliminary Assessment of the Global Urban Footprint and the Global Human Settlement Layer for the city of Milan. Proceedings of the 20th AGILE International Conference on Geographic Information Science, Wageningen (The Netherlands), ISBN 978-90-816960-4-3, May 9-12, 2017

Carbonaro M., Minghini M, Vandenbroucke D., Brovelli M.A., Gorni S. and Molina R., 2017, Innovation in GI teaching and learning: a case-based approach. Proceedings of the AGILE 2017 International Conference on Geographic Information Science, Wageningen (The Netherlands), May 9-12, 2017, ISBN 978-90-816960-4-3

Pirotti F., Brovelli M.A., Prestifilippo G., Zamboni G., Kilsedar C.E., Piragnolo M. and Hogan P. (2017) An open source virtual globe rendering engine for 3D applications: NASA World Wind. Open Geospatial Data, Software and Standards, 2(4). doi:10.1186/s40965-017-0016-5

Fonte C.C., Minghini M., Patriarca J., Antoniou V., See L. and Skopeliti A. (2017) Generating Up-to-Date and Detailed Land Use and Land Cover Maps Using OpenStreetMap and GlobeLand30. ISPRS International Journal of Geo-Information 6(4), 125. doi:10.3390/ijgi6040125

Fonte C.C., Patriarca J., Minghini M., Antoniou V., See L. and Brovelli M.A., 2017, Using OpenStreetMap to Create Land Use and Land Cover Maps: Development of an Application. In: Campelo C., Bertolotto M. and Corcoran P. (Eds) Volunteered Geographic Information and the Future of Geospatial Data. IGI Global, 113-137, ISBN 9781522524465. doi:10.4018/978-1-5225-2446-5.ch007

Brovelli M.A., Minghini M., Moreno Sanchez, R. and Oliveira R., 2017, Free an Open Source Software for Geospatial Applications (FOSS4G) to support Future Earth. International Journal of Digital Earth 10(4), 386-404, doi:10.1080/17538947.2016.1196505

M. A. Brovelli, M. Minghini, M. E. Molinari, 2016, An automated GRASS-based procedure to assess the geometrical accuracy of the OpenStreetMap Paris road network. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B7, 919-925, doi:10.5194/isprs-archives-XLI-B7-919-2016



- M. A. Brovelli, M. Minghini, M. E. Molinari, M. Molteni, 2016, Do open geodata actually have the quality they declare? The case study of Milan, Italy. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B2, 595-601, doi:10.5194/isprs-archives-XLI-B2-595-2016.
- M. A. Brovelli, C. Arias, 2016, Processing Lidar Data. International encyclopedia of geography (http://onlinelibrary.wiley.com/book/10.1002/9781118786352
- M. A. Brovelli, C. Arias, S. Corti and G. Zamboni, 2016, Big Geo Data Management: an Exploration with Social Media and Telecommunications Open Data, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B2, 595-601, doi:10.5194/isprs-archives-XLI-B2-595-2016.
- M. A. Brovelli, D. Oxoli, M. A. Zurbarán, 2016, Sensing slow mobility and interesting locations for Lombardy region (Italy): a case study using pointwise geolocated open data, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B2, 603-607, doi:10.5194/isprs-archives-XLI-B2-603-2016
- M. A. Brovelli, M. Minghini, M. E. Molinari, G. Zamboni, 2016, Positional accuracy assessment of the OpenStreetMap buildings layer through automatic homologous pairs detection: the method and a case study, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B2, 615-620, doi:10.5194/isprs-archives-XLI-B2-615-2016.
- M. A. Brovelli, F. C. Fahl, M. Minghini, M. E. Molinari, 2016, Land user and land cover maps of Europe: a WebGIS platform, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B7, 913-917, doi:10.5194/isprs-archives-XLI-B7-913-2016.
- M. A. Brovelli, C. E. Kilsedar, G. Zamboni, 2016, Visualization of VGI data through the new NASA Web World Wind virtual globe, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B4, 205-209, doi:10.5194/isprs-archives-XLI-B4-205-2016
- M. A. Brovelli, Hogan, G. Prestifilippo, G. Zamboni, 2016, NASA WebWorldWind: Multidimensional Virtual Globe For Geo Big Data Visualisation, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLI-B2, 563-566, doi:10.5194/isprs-archives-XLI-B2-563-2016.
- M. A. Brovelli, C. E. Kilsedar, P. Hogan, G. Prestifilippo, G. Zamboni, 2016, Nasa World Wind: Virtual Globe for an Open Smart City, Proceedings of the OGRS 2016 Conference, October 12-14 2016, Perugia (Italy)
- M. A. Brovelli, M. E. Molinari, E. Hussein, J. Chen, R. Li, 2015, The First Comprehensive Accuracy Assessment of GlobeLand30 at a National Level: Methodology and Results. Remote Sens. 2015, 7(4), 4191-4212; DOI:10.3390/rs70404191
- M. A. Brovelli, G. Zamboni, C. Arias Muñoz, 2015, From paper maps to the Digital Earth and the Internet of Places, Rendiconti Lincei, May 2015, Print ISSN: 2037-4631, DOI: 10.1007/s12210-015-0437-y
- F. Antunes, C. C. Fonte, M. A. Brovelli, M. Minghini, M. E. Molinari, P. Mooney, 2015, Assessing OSM Road Positional Quality with Authoritative Data, Proceedings of the VIII Conferência Nacional de Cartografia e Geodesia, Lisbon (Portugal), October 29-30, 2015, ISBN: 978-989-8152-10-7 M. A. Brovelli, M. Minghini, M. E. Molinari, P. Mooney, 2015, A FOSS4G-based procedure to compare OpenStreetMap and authoritative road network datasets, Geomatics Workbooks 12, pp. 235-238, ISSN: 1591-092X
- M. Antonovic, M. A. Brovelli, M. Cannata, M. Cardoso, C. E. Kilsedar, M. Minghini, G. Zamboni, 2015, Promoting slow tourism through FOSS4G Web Mapping: an Italian-Swiss case study, Geomatics Workbooks 12, pp. 99-104, ISSN: 1591-092X
- M. A. Brovelli, C. E. Kilsedar, M. Minghini, D. Oxoli, 2015, Looking through the changes: an analysis of the buried watercourses of Como, Geomatics Workbooks 12, pp. 497-500, ISSN: 1591-092X



- M. A. Brovelli, C. E. Kilsedar, M. Minghini, G. Zamboni, 2015, Web Mapping technologies for the valorisation of slow tourism: the Via Regina project, Proceedings of the AGILE 2015 International Conference on Geographic Information Science, Lisbon (Portugal), June 9-12, 2015, ISBN: 978-90-816960-4-3
- M. A. Brovelli, M. Minghini, G. Zamboni, 2015, Public Participation GIS: a FOSS architecture enabling field-data collection, International Journal of Digital Earth 8 (5), pp. 345-363, DOI:10.1080/17538947.2014.887150
- M. A. Brovelli, I. Celino, M. E. Molinari, V. Venkatachalam, 2015, Land cover validation game, Proceedings FOSS4G Europe 2015 Como, 14-17 July, 2015, pp. 153 158
- M. A. Brovelli, V. Raghavan, 2015, Reflections on FOSS4G Seoul 2015, Directions Magazine, October 2015 in Open Source Section, http://www.directionsmag.com/entry/reflections-on-foss4g-seoul-2015/455554
- M. A. Brovelli, M. Minghini and G. Zamboni, 2014, Web-based Participatory GIS with data collection on the field: a prototype architecture, OSGEO Journal, Volume 13. Pag. 29-33
- C. Arias, A. Oggioni and M. A. Brovelli, 2014, Geospatial web services for limnological data: a case study of sensor observation service for ecological observations, ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, p. 9-14. Suzhou, China, DOI: 10.5194/isprsannals-II-4-9-2014
- M. A. Brovelli, M. Minghini and G. Zamboni, 2014, Public Participation GIS: a FOSS architecture enabling field-data collection, International Journal of Digital Earth, p. 1-19, ISSN: 1753-8955
- M. A. Brovelli, M. Minghini and G. Zamboni, 2014, Web-based Participatory GIS with data collection on the field: a prototype architecture in two and three dimensions, Rendiconti online della Società Geologica Italiana, p. 12-15, ISSN: 2035-8008, DOI: 10.3301/ROL.2014.03
- M. Arnaboldi, M. A. Brovelli and M. Minghini, 2014, FOSS4G in education: a multi-disciplinary case study for the promotion of slow tourism, Proceedings of FOSS4G Europe 2014, p. 1-5, Bremen, Germany.
- M. A. Brovelli, G. Zamboni, C. Arias and A. Bonetti, 2014, Exploring twitter georeferenced data related to flood events: an initial approach, Huerta, Schade, Granell (Eds): Connecting a Digital Europe Through Location and Place, p. 147-150, Castellon, Spain, ISBN: 978-90-816960-4-3
- M. Arnaboldi, M. A. Brovelli and M. Minghini, 2014, Open source software for tourism promotion: Lake Poli School (LaPS) education project, Proceedings of the 3rd Open Source Geospatial Research & Education Symposium, p. 27-33, Espoo, Finland.
- C. Arias, M. A. Brovelli and M. Giuliani, 2014, A FOSS based web geo-service architecture for data management in complex water resources contexts, Procedings 11th International Conference on Hydroinformatics HIC 2014, p. 1-8, New York, USA.
- M. A. Brovelli, M. Minghini and G. Zamboni, 2014, Three Dimensional Volunteered Geographic Information: A Prototype of a Social Virtual Globe, International Journal of 3-D Information Modeling 3 (2), p. 19-34, DOI: 10.4018/ij3dim.2014040102
- M. A. Brovelli, M. Minghini, G. Zamboni, 2014, Web-based Participatory GIS with data collection on the field: a prototype architecture in two and three dimensions, Rendiconti Online della Società Geologica Italiana, Volume 30, DOI: 10.3301/ROL.2014.03
- G. Remetey Fullopp, M. A. Brovelli and P. Hogan, 2014, The NASA WWEC: inspiring use of Open Source Virtual Globe Technology, GeoSpatial Today, July 2014, p. 34-39
- M. A. Brovelli and G. Zamboni, 2014, Environmental Space and Time Web Analyzer. GeoSpatial Today, July 2014, p. 34-39, Proceedings of the 2014 conference on Big Data from Space (BiDS'14),



- ESA Centre for Earth Observation (ESRIN), Frascati, 12th-14th November 2014, ISBN: 978-92-79-43252-1, ISSN: 1831-9424, DOI: 10.2788/1823
- M. A. Brovelli, S. Li, S. Dragicevic and B. Veenendaal, 2013, Introductory editorial: web-based sensors and geoprocessing services, Applied Geomatis, Volume 5, p. 1-2, ISSN: 1866-928X
- D. Alvarez, P. Boccardo, M. A. Brovelli, F. G. Tonolo and M. Madden, 2013, Mobile Mapping for Disaster Relief, Photogrammetric Engineering and Remote Sensing, Volume 78, p. 901-903, ISSN: 0099-1112
- M. A. Brovelli, S. Li, S. Dragicevic and B. Veenendaal, 2013, Theme session "Towards Intelligent Geoprocessing on the Web", ISPRS Journal of Photogrammetry and Remote Sensing, Volume 83, p. 138-139, ISSN: 0924-2716, DOI: 10.1007/s12518-013-0102-z
- L. Biagi, A. M. Manzino, F. Sansò, M. Antonovic, P. Belotti, M. A. Brovelli, S. Caldera, A. Campi, S. Campus, M. Cannata, L. Carcano, M. Cetti, M. Credali, P. Dabove, H. Damaschi, M. De Agostino, M. Gilardoni, V. Guasco, A. Lucchese, M. Molinari, M. Negretti, M. Reguzzoni, D. Sampietro, G. B. Siletto, C. Taglioretti, D. Triglione and M. G. Visconti, 2013, HELI-DEM: integrazione dei dati di altezza transalpini fra Italia e Svizzera (HELI-DEM: integration of height transalpine data between Italy and Switzerland), SIFET Special Volume 2013, p. 11-22
- M. A. Brovelli, M. Minghini and G. Zamboni, 2013, Participatory GIS: Experimentations for a 3D Social Virtual Globe, International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-2/W2, pp. 13-18
- M. A. Brovelli, P. Hogan, M. Minghini and G. Zamboni, 2013, The power of Virtual Globes for valorising cultural heritage and enabling sustainable tourism: NASA World Wind Applications. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-4/W2, pp. 115-120
- P. Belotti, L. Biagi, M. A. Brovelli, S. Campus, M. Cannata, L. Carcano, M. Cetti, M. Credali, P. Dabove, H. Damaschi, M. De Agostino, V. Guasco, A.M. Manzino, F. Sanso'. G. B. Siletto and C. Taglioretti, 2013, Descrizione dei dati disponibili (description of available data), Bollettino SIFET, p. 35-44, ISSN: 1721-971X
- L. Biagi, M. A. Brovelli, L. Carcano, P. Dabove, M. De Agostino, A. Lucchese, A. M. Manzino, M. Negretti, C. Taglioretti and M.G. Visconti, 2013, Cross-validazione e validazione esterna dei DTM (Cross-validation and external validation of the DTM), Bollettino SIFET, pag. 75-106, ISSN: 1721-971X
- M. Minghini, M. A. Brovelli and G. Zamboni, 2013, WebGIS partecipativi e raccolta dati sul campo: un prototipo di architettura in due e tre dimensioni (Web-based Participatory GIS with data collection on the field: a prototype architecture in two and three dimensions), Geologi e Territorio, Volume 2, number 2013, p. 17-20
- L. Valentini, M. A. Brovelli and G. Zamboni, 2012, Multi-frame and multi-dimensional historical digital cities: The Como example, International Journal of Digital Earth, Volume 7, Issue 4, 2014, p. 336-350, DOI: 10.1080/17538947.2012.739662
- M. A. Brovelli, X. Q. Truong and G. Fenoy, 2012, Managing Satellite Precipitation Data (PERSIANN) Through Web GeoServices: A Case Study in North Vietnam, in Intelligent Systems for Crisis Management (by S. Zlatanova, R. Peters, A. Dilo and H. Scholten), Lecture Notes in Geoinformation and Cartography 2013, p. 159-170, ISBN: 978-3-642-33217-3
- M. A. Brovelli and G. Zamboni 2012, Virtual globes for 4D environmental analysis, Applied Geomatics. 4, p. 163- 172, ISSN:1866-9298, DOI: 10.1007/s12518-012-0091-3



- M. A. Brovelli and S. Lucca, 2012, Comparison of GRASS-LiDAR modules TerraScan with respect to vegetation filtering, Applied Geomatics, 4 (2), p.123-134, ISSN: 1866-9298
- L. Biagi, M. A. Brovelli and G. Zamboni, 2012, A new multi-resolution algorithm to store and transmit compressed DTM, International Society for Photogrammetry and Remote Sensing (ISPRS), Melbourne, Australia, 25 August 1 September, ISSN: 1682-1750, DOI: 10.5194/isprsarchives-XXXIX-B4-7-2012
- M. A. Brovelli and M. Minghini, 2012, Georeferencing old maps: a polynomial-based approach for Como historical cadastres, e-Perimetron 7 (3), p. 99-110
- M. A. Brovelli, M. Minghini and G. Zamboni, 2012, Valorisation of Como historical cadastral maps through modern web geoservices, ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume I-4, XXII ISPRS Congress, p. 287-292, Melbourne, Australia, 25 August 1 September 2012
- S. Li, S. Dragicevic, B. Veenendaal and M.A. Brovelli, 2012, Analytical geospatial web services, Geomatica, 2012, 66 (1), p. 9-12, DOI: 10.5623/cig2012-004.
- M. A. Brovelli, M. Minghini, G. Giori and M. Beretta, 2012, Web Geoservices and Ancient Cadastral Maps: The Web C.A.R.T.E. Project, Transactions in GIS, 16 (2), p. 125-142, DOI: 10.1111/j.1467-9671.2012.01311.x
- M. A. Brovelli, H. Mitasova, M. Neteler and V. Raghavan, 2012, Free and open source desktop and Web GIS solutions, Applied Geomatics, 4 (2), p. 65-66, DOI: 10.1007/s12518-012-0082-4
- M. A. Brovelli and S. Lucca, 2011, Filtering LiDAR with GRASS: overview of the method and comparisons with Terrascan, Rivista Italiana di Telerilevamento, Volume 43 (2), p. 93-105, ISSN: 1129-8596, DOI: 10.5721/ItJRS20114327
- M. A. Brovelli, G. Giori, M. Mussin and M. Negretti, 2011, Improving the Monitoring of the Status of the Environment Through Web Geo-services: The Example of Large Structures Supervision, Transactions in GIS, Volume 15 (2), p. 173-188, ISSN: 1361-1682, DOI: 10.1111/j.1467-9671.2011.01249.x
- L. Biagi, M. A. Brovelli and G. Zamboni, 2011, A DTM Multiresolution Compressed Model for Efficient Data Storage and Network Transfer, International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. XXXVIII-4/W25, p. 7-13, Guilin, China, 20-21 October 2011, ISSN: 1682-1750, DOI: 10.5194/isprsarchives-XXXVIII-4-W25-7-2011
- M. A. Brovelli, F. Migliaccio and L. Pinto, 2011, Esperienze di ricerca relative alla Cartografia Numerica e ai Sistemi Informativi Geografici al Politecnico di Milano nel SSD ICAR06 (Research experiences related to the Numerical Cartography and Geographic Information Systems at the Politecnico di Milano in SSD ICAR06), Geomatica: le radici del futuro, p. 67-76, Pavia, 10-11 February 2011
- M. A. Brovelli, L. Valentini and G. Zamboni, 2011, Multidimensional and multiframe web visualization of historical maps, 2nd ISPRS Workshop on Pervasive Web Mapping, Geoprocessing and Services (WebMGIS), p. 1-7, Vancouver, 10-12 August 2011
- M. A. Brovelli, M. Minghini and L. Valentini, 2011, Web Services and Historical Cadastral Maps: the first Step in the Implementation of the Web C.A.R.T.E. System, Anne Ruas, Advances in Cartography and GIScience, Volume 2, Selection from ICC 2011, Paris, Francia, p. 147-162, Springer, ISBN: 9783642191428