

Giuseppe Molinario

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Education

- **Doctor of Philosophy**, Geographical Sciences
2011- current, PhD Candidate, All but dissertation (ABD), prospective completion: 12/2016
Department of Geographical Sciences, University of Maryland, College Park, MD
- **Master of Arts**, Geographical Sciences
2008-2010, Department of Geographical Sciences, University of Maryland, College Park, MD
- **Bachelor of Arts**, double major in Environmental Studies and Philosophy, minor in Studio Art
1997-2001, Tufts University, Boston, MA, USA
1999-2000, Study abroad program - University of New South Wales, Sydney, Australia
- **U.S. High School diploma** and **International Baccalaureate (IB) diploma**
1993-1997, American Overseas School of Rome, Italy

Professional Experience

- **07/2010 – Currently: Senior Faculty Specialist, Remote Sensing Scientist**
Department of Geographical Sciences, University of Maryland, College Park, MD
 - Investigating the forest cover dynamics of shifting cultivation as part of land cover and land use change in the Congo Basin funded by USAID's Central Africa Regional Program for the Environment (CARPE). Developed web-GIS tools as well as a processing pipeline for imagery obtained from the National Geospatial-Intelligence Agency (NGA).
 - Field work in the Democratic Republic of Congo: 07/2011; 07/2012.
 - Coordinates the InfoCongo project advancing capacity and efficacy of data-driven earth journalism.
 - Published several peer reviewed articles.
- **08/2008 – 05/2010: Graduate Research Assistant**
Department of Geographical Sciences, University of Maryland, College Park, MD
 - Graduate research assistant working on the joint UMD, NASA and Food and Agriculture Organization (FAO) Fire Information for Resource Management System (FIRMS) project.
 - Summer 2009 - FAO, Rome, Italy: Migrating the FIRMS system to FAO.
 - 12/2010 - St.Petersburg, Russia: Speaker; global aerosol emissions from biomass burning meeting.
 - Published the M.A. thesis in a peer-reviewed journal.
- **02/2008 – 7/2008: Consultant, Food and Agriculture Organization of the United Nations, Rome, Italy**
 - Data-analyst and geospatial investigation of global greenhouse gas emissions from the livestock sector and possible mitigation strategies commissioned by the Animal Production and Health division; Livestock Information, Sector Analysis and Policy Branch (AGAL).
- **10/2007 – 08/2008: Consultant, Friends of the Earth International, Rome, Italy**
 - Modeling the environmental and social external costs of congestion caused by road transportation in Italy. The results were used by the Italian Ministry of Transportation to subsidize companies using ferries for long-haul trips along the Italian peninsula instead of highways.
- **10/2007 – 12/2007: Consultant, UNCEM (Italian Union of Mountain Communities), Rome, Italy**
 - Developed a Geographical Information System (GIS) training curriculum for Italy's Mountain Communities focusing on environmental, planning, risk assessment and forestry decision making.
- **02/2006 – 10/2007: Consultant, Uniteam, Rome, Italy**
 - Project manager for the development of a webGIS monitoring system of free-range cattle using integrated Global Positioning System (GPS)/Global System for Mobile communications (GSM) telemetry collars with funding from the European Union (EU). The project integrated GIS, GPS/GSM, Radio Frequency Identification (RFID) and open source webGIS.
 - Developed a GIS infrastructure for the Province of Caserta (Italian second-level admin unit).

- **04/2005 – 07/2008: Consultant, FormAutonomie, Rome, Italy**
 - Taught over 30 two-day, beginner level GIS classes to the technical staff of Italy's city administrations (*Comuni*) as a contractor for the Italian Government's Ministry of the Environment. Trained over 200 urban planners, engineers and architects.
 - Developed the curriculum and taught the 2-day GIS training of trainers for the above project.

- **10/2004 – 02/2006: Consultant, Italian Ministry of the Environment, Rome, Italy**
 - GIS consultant to the Environmental Impact Assessment (EIA) commissions of the Italian Government. The Commissions assessed major infrastructure projects of national and strategic relevance, including highways, bridges, power plants and high-speed railways.
 - Responsibilities included preparing GIS-based site assessments for each EIA case working in *ad-hoc* teams of urban planners, engineers, geologists, biologists and other domain experts.
 - Specific in-depth analyses included the development of noise pollution maps, 3D view-shed analysis, watershed proximity and contamination evaluations, hydrological hazards (flooding, landslides) and the interaction of infrastructure with wildlife and protected areas.
 - Participated as geospatial data expert in a working group on the proposed regulation for the electronic reporting of air quality data within the existing European Union Air Quality Directive.

- **03/2003 – 12/2004: Researcher, Friends Of the Earth International, Rome, Italy**
 - **"5th Report on the External Costs of Transportation in Italy", 09/2005:** Funded by the Italian Railway company. Developed a congestion model to estimate the external costs of transportation.
 - **"Environmental and Social Cost Comparison of Roll-on/Roll-off Ferries and Road Freight in Italy", 10/2004:** Commissioned by the Italian Ministry of Transportation, the study compared the social and environmental external costs of truck-transporting ferries to all-road transportation.
 - **"Indicators of Sustainable Transportation", 06/2004:** Funded by the Italian Railway company the study investigated the use of indicators of sustainable transportation.
 - **"External Costs of Transportation in the Turin Metropolitan Area", 07/2004:** GIS support to the quantification of the social and environmental costs of transportation in Turin.

Other applicable experience

- **PhD Research, 2011-ongoing:** Forest Cover Dynamics of Shifting Cultivation in the DRC. (Published)
- **Master's Research, 2008-2010:** Characterizing the spatio-temporal fire regime in Ethiopia using the MODIS-active fire product. (Published)
- **Internship: Majella National Park, Italy (04/2004 – 08/2004):** Fire risk and wolf and bear habitat maps.
- **Internship: Food and Agriculture Organization of the United Nations (FAO) Rome (summer 2003):** G First global sub-national level map of child stunting & wasting as indicator of chronic poverty.

Publications

- 1) **Molinario G., Hansen M. C. and Potapov P. V. (2015).** *Forest cover dynamics of shifting cultivation in the Democratic Republic of Congo: a remote sensing-based assessment for 2000–2010* Environ. Res. Lett.
- 2) Nackoney, J., **Molinario, G.,** Potapov, P., Turubanova, S., Hansen, M. C., & Furuichi, T. (2014). *Impacts of civil conflict on primary forest habitat in northern Democratic Republic of the Congo, 1990–2010.* Biological Conservation, 170, 321–328. doi:10.1016/j.biocon.2013.12.033
- 3) **Molinario, G.,** Davies, D. K., Schroeder, W., & Justice, C. O. (2013). *Characterizing the spatio-temporal fire regime in Ethiopia using the MODIS-active fire product: a replicable methodology for country-level fire reporting.* African Geographical Review, 0(0), 1–25.
- 4) **Molinario, G. (2007).** *Virtual Fence: GPS Tracking, Tradition and Technology in the Livestock Sector.* MondoGIS n°61.
- 5) Molocchi A., **Molinario G.,** (2007), *Highways: External Costs of Congestion*, Nuova Energia, 3/2007.
- 6) *GIS Manual for Analysts, Contributor.* Published 04/2006 by the Italian Ministry of the Environment.
- 7) *GIS Analysis for Public Administration, Contributor.* 10/2006, by the Italian Ministry of the Environment.
- 8) Molocchi A., **Molinario G.,** (2004) *Indicators of Sustainable Transportation*, Nuova Energia, 4/2004.

Presentations

- 1) *Using satellite imagery to tell the stories of environmental change in the Congo Basin.* InfoCongo data-driven journalism workshop, Yaounde, Cameroon, 04/2016.
- 2) *Spatial Patterns of Forest Cover Loss in the DRC.* SCGIS DC meeting, 03/2013.
- 3) *A Biomass Representative Classification of Land Cover for REDD+ in the Maringa-Lopori-Wamba Landscape of the DRC.* Poster, AGU meeting, San Francisco, 12/2012.
- 4) *Mapping the Congo Basin Forests.* GIS day 2012, University of Maryland, College Park.
- 5) *Mapping and Monitoring Land Cover and Land Use in the DRC.* Worldwide Human Geography Data Group (WWHGD) meeting, USGS, Reston, VA, 11/15/2012
- 6) *Mapping Deforestation in Africa,* NASA Hyperwall, AGU meeting, San Francisco 12/2011. Presented with Compton Tucker (NASA GSFC).
- 7) *Central African Regional Program for the Environment (CARPE) – Data and Tools in Support of Environmental Decision Making in the Congo Basin.* Association of American Geographers, Annual Meeting, Seattle, 04/15/2011.
- 8) *Spatio-Temporal Dynamics of Fire in Ethiopia using MODIS Active Fire Data: 2002 -2009,* Association of American Geographers, Annual Meeting, Seattle, 04/15/2011.
- 9) *Spatial and Temporal Dynamics of Fire in Ethiopia Using MODIS Active Fire Products, 2002-2009,* Poster, Association of American Geographers Annual Conference, Washington DC 04/2010.

Memberships, Activities and Accreditation

- Google Earth Engine Trusted tester, Google Map Engine trusted tester.
- Green Office Representative, Department of Geographical Sciences, UMD.
- Member of: *Association of American Geographers (AAG), American Society for Photogrammetry & Remote Sensing (ASPRS), American Geophysical Union (AGU), American Association for the Advancement of Science (AAAS), Union of Concerned Scientists (UCS), Geospatial Free and Open Source Software community (GFOSS), Society for Conservation GIS , Crisismappers, NASA LCLUC.*
- United Nations Basic Field Training certification (2008).

Foreign Languages

- Bilingual in English and Italian;
- French: basic professional proficiency;
- Spanish: elementary understanding.

Information Technology

Experience with software for geospatial analysis, remote sensing, graphic design and web development.

- ***Operating Systems:*** Windows desktop and server and Mac OS. Basic linux proficiency. Proficiency in networking concepts. Good knowledge of Android and iOS platforms.
- ***Programming:*** Fluent in Python; basic linux and command line scripting, experience with Avenue, VBA, HTML, PHP, IDL, EASI, and R for GUI, GIS, remote sensing, spatial statistics and WebGIS development.
- ***Database:*** PostGRESql/PostGIS, MS Access, MySQL.
- ***GIS and Remote Sensing:*** *ESRI Suite:* Arcview 3.x, ArcGIS ArcInfo and Server 10.x, REST endpoints and Javascript/FLEX applications, Spatial Analyst, 3d Analyst, ArcPad, Arcglobe/Arcscene, ArcIMS/ArcSDE. *GIS/CAD software:* Autodesk AutoCAD and Map, Mapinfo, Google Sketchup. *Remote sensing software:* ENVI, IDL, ERDAS, ErMapper, PCI and EASI. *Open source GIS:* GRASS, QGIS, Udig, Mapbox, Open Street Map, Mapserver. *Google products:* Google Maps, Maps Engine, Google Earth, Earth Engine.
- ***Web/WebGIS:*** ArcGIS server, Mapserver; Metadata catalogs: Geonetwork Opensource and Open Geoportal and familiarity with OGC and ISO interoperability standards; Google Map and Earth products and Google APIs and KML files. NASA/NOAA/USGS satellite imagery download web interfaces,
- ***Other Software:*** R, Office 2003-2011, Prezi, Adobe Acrobat Pro, Photoshop, Illustrator, Dreamweaver.
- ***Mobile Geospatial and Data Collection Software:*** DNR Garmin, Garmin GPS handhelds, OZexplorer, Open Data Kit (ODK) for survey/form development, Fulcrum, Kobo