

PERSONAL INFORMATION

Monia Santini



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 ✉ [monia.santini@cmcc.it](mailto:monia.santini@cmcc.it)

Sex Female | Date of birth 20/06/1977 | Nationality Italian

WORK EXPERIENCE

- March 2013 to present **Scientist (permanent position)**  
 CMCC Foundation (formerly CMCC s.c.a r.l.)  
 Researcher at the Division on Impacts on Agriculture, Forests and Ecosystem Services (IAFES).  
 Research Team coordination on climate change impacts modelling.  
 Director of the Division from 2015 to 2016 and from July 2019.  
**Business or sector** Research Development
- October 2016 – August 2017 **Consultant**  
 Far East Federal University (FEFU) – Vladivostok, Russia  
**Business or sector** Research Development
- June 2010 - February 2013 **Junior Scientist**  
 CMCC S.c.a r.l.  
 Researcher on climate change impacts. Research Project and Consultancy Management. Publication of results. Projects: FUME; EU-Forest, ETC-CCA, Nigeria (see [www.cmcc.it](http://www.cmcc.it))  
**Business or sector** Research Development
- 2012 **Consultant**  
 University of Tuscia (Viterbo, Italy)  
 Developing a GIS database on global soil carbon sequestration potentials and gaps using a number of available global products.  
**Business or sector** Consulting service
- 2012 **Consultant**  
 Tevere River Basin Authority  
 Consultancy for the development of GIS models for the definition of hydraulic risk for urban areas on first and second order streams, optimizing available data and assuming alternative protection measures.  
**Business or sector** Consulting service
- Feb 2012 **Lecturer**  
 Mediterranean Agronomic Institute of Zaragoza (Spain)  
 Lecturer for the Advanced Course “Forest fires in the perspective of global change”. Session: Landuse and landcover change modelling  
**Business or sector** Education
- 2010 to 2014 **Consultant**  
 WWF Italia  
 Hydrological modelling for water footprint accounting and monitoring for a food industry in Northern Italy  
**Business or sector** Consulting service
- 2010 **Lecturer**  
 Polytechnic of Milan, Italy  
 Lecturer at the course “Methods for hydrologic simulations”  
**Business or sector** Education
- Apr 2008 – May 2010 **Research assistant**  
 University of Tuscia, Italy  
 Researcher on GIS modelling for studying climate change impacts on land degradation/desertification  
**Business or sector** Education and Research Development
- Jul 2009 **Lecturer**  
 University of Catania, Italy

- Lecturer at the SANTANDER summer school “Recent developments for modelling environmental systems”  
[Business or sector](#) Education
- 2009 **Lecturer**  
 Polytechnic of Milan, Italy  
 Lecturer at the course “Methods for hydrologic simulations”  
[Business or sector](#) Education
- Jul 2009 **Lecturer**  
 Polytechnic Institute at New York University, NY, USA  
 Lecturer at the summer course “GIS Terrain Analysis for hydrogeomorphic applications”.  
 Development of GIS compatible software routines for terrain analysis and hydrological purposes.  
[Business or sector](#) Education
- Jul 2008 **Lecturer**  
 Polytechnic Institute at New York University, NY, USA  
 Lecturer at the summer course “GIS Terrain Analysis for hydrogeomorphic applications”.  
 Development of GIS compatible software routine for terrain analysis and hydrological purposes.  
[Business or sector](#) Education
- Aug 2007 **Lecturer**  
 Columbia University, NY, USA  
 Lecturer at the summer course “GIS Terrain Analysis for hydrogeomorphic applications”.  
 Development of GIS compatible software routines for terrain analysis and hydrological purposes.  
[Business or sector](#) Education
- 2007 **Consultant**  
 Agriconsulting S.p.A. (Rome, Italy)  
 Professional Collaboration on “Realization of a Geographic Information System to monitor areas at risk of desertification in Sardinia (Italy)”. Project funded by Sardinia Regional Government and developed by Agriconsulting S.p.A. (Rome) and ESRI Italia. Development of GIS models (hydrology, vegetation, soil)  
[Business or sector](#) Consulting service
- 2005 **Consultant**  
 Terrasystem - Society of Geomatics and Remote Sensing (Viterbo, Italy)  
 Professional collaboration for the implementation of vegetation and soil productivity models into GIS environment  
[Business or sector](#) Consulting service
- 2003 to 2004 **Consultant**  
 GeoTevere - Society of Geology (Rome, Italy)  
 Geological, hydrogeological and geotechnical consultancies, geotechnical and hydrogeological campaigns.  
[Business or sector](#) Consulting service
- Since 2004 **Registered Professional Geologist**  
 Umbria Region (Italy)  
[Business or sector](#) Consulting Service

EDUCATION AND TRAINING

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- Jan 2005 – Apr 2008 **Doctoral Degree in Forest Ecology**  
 University of Tuscia – Viterbo, Italy  
 PhD dissertation title: A new GIS-based spatial modelling approach for desertification risk assessment in the Mediterranean area. An Italian case study: Sardinia island
- 2004 **Post-Lauream Master on General and Applied Geophysics**  
 University of Pisa (Pisa, Italy) and National Institute of Geophysics and Volcanology (INGV; La Spezia, Italy)  
 Dissertation title: Utility of integrating remote sensed images and GIS in erosion modelling applications
- Sept 1996 – Mar 2003 **Master’s degree in Geological Sciences (5 year course), Grade: 110/110 cum laude**  
 “Sapienza” University of Rome

Graduation thesis (in Italian) on: Application of GPR (Ground Penetrating Radar) methodology at an archaeological site: data acquisition, elaboration and interpretation by means of 3D time-slices. Instrument and software used: Radar Pulse Ekko 100, Ekko 3D, Gradix (Interpex).

**Jul 2007 Summer Course**

University of Cagliari (Italy)

Distributed Hydrological modelling: Use of Geospatial Data and Tools for Watershed Studies

**Jan 2006, Apr 2006, Oct 2006 Professional Courses**

University of Urbino (Italy) (1) and CE.R.I. Valmontone (Italy) (2,3)

ArcGIS rel. 9.x – Base (1), Advanced (2) and Spatial Analyst and 3D Analyst extensions of ArcGIS rel. 9.x (3)

**June 2006 Summer Course**

University of Tuscia (Italy), CNR (Italy), MIT (US)

Landscape form and processes: models and applications in watershed analysis

**2006 Professional Course**

University of Tuscia (Italy)

Course on Remote Sensing and Forest Information Systems

**2004 Professional Course**

Perugia (Italy)

Soil dynamic characterization and methodological approach to evaluate local seismic response

**PERSONAL SKILLS**

Mother tongue(s)

Italian

Other language(s)

English

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C2*	C2*	C1	C1	C1
C2*				

\*Based on EF SET <https://www.efset.org/cert/foM7Jd>

**Organisational / managerial skills**

Highly respected team member and coordinator, skilled in Research Project and Consulting Service Management

**Job-related skills**

Very high skills in distributed hydrological model development and GIS integration of related terrain analysis procedures. High skills in climate data analysis and in ecosystem modelling.

**Computer skills**

Skilled in using Microsoft Office suite, GIS and Remote Sensing software (ArcGIS, IDRISI, ErMAPPER), statistics' tools and software (SPSS) and high skills in Programming Languages (Fortran, Python, Visual Basic) and climate data analysis tools (CDO, NCO).

**Driving licence**

B

**ADDITIONAL INFORMATION**

**Publications**  
 Peer reviewed

- Noce S., Caporaso L., **Santini M.** (2019) Climate change and geographic ranges: the implications for Russian forests. *Frontiers in Ecology and Evolution*, 7. Doi: <https://doi.org/10.3389/fevo.2019.00057>
- Santini M.**, Caporaso L. (2018) Evaluation of freshwater flow from rivers to the sea in CMIP5 simulations: insights from the Congo river basin. *Journal of Geophysical Research – Atmospheres*, 123(18), 10278-10300. Doi: 10.1029/2017JD027422.
- Pesce M., Critto A., Torresan S., Giubilato E., **Santini M.**, Zirino A., Ouyang W., Marcomini A. (2018) Modelling climate change impacts on nutrients and primary production in coastal waters. *Science of the Total Environment*, 628-629, 919-937. Doi: 10.1016/j.scitotenv.2018.02.131.
- Noce S., Collalti A., **Santini M.** (2017) Likelihood of changes in forest species suitability, distribution and diversity under future climate: the case of Southern Europe. *Ecology and Evolutions*, 7(22), 9358-9375. Doi: 10.1002/ece3.3427.
- Gariano S.L., Petrucci O., Rianna G., **Santini M.**, Guzzetti F. (2017) Impacts of past and future land changes on landslides in southern Italy. *Regional Environmental Change*, 18(2), 437-449. Doi: 10.1007/s10113-017-1210-9.
- Ronco P., Zennaro F., Torresan S., Critto A., **Santini M.**, Trabucco A., Zollo A. L., Galluccio G., Marcomini A. (2017). A risk assessment framework for irrigated agriculture under climate change. *Advances in Water Resources*, 110, 562-578. Doi: 10.1016/j.advwatres.2017.08.003.
- Saunoy, M., ..., **Santini, M.**, et al. (2017) Variability and quasi-decadal changes in the methane budget over the period 2000-2012. *Atmospheric Chemistry and Physics*, 17, 11135-11161. Doi: 10.5194/acp-17-11135-2017.
- Di Paola A., Rulli M.C., **Santini M.** (2017) Human food vs. animal feed debate. A thorough analysis of environmental footprints. *Land Use Policy*, 67: 652-659. Doi: 10.1016/j.landusepol.2017.06.017.
- Rulli M.C., **Santini M.**, Hayman D.T.S, D'Odorico P. (2017) The nexus between forest fragmentation in Africa and Ebola virus disease outbreaks. *Scientific Reports*, 7: 41613. Doi: 10.1038/srep41613.
- Saunoy, M., ..., **Santini, M.**, et al. (2016) The global methane budget 2000–2012, *Earth Syst. Sci. Data*, 8, 697-751. Doi: 10.5194/essd-8-697-2016.
- Noce S., Collalti A., Valentini R., **Santini M.** (2016) Hot Spot maps of forest presence in the Mediterranean Basin. *Iforest*, 9: 766-774. Doi: 10.3832/ffor1802-009.
- Collalti, A., Marconi, S., Ibrom, A., Trotta, C., Anav, A., D'Andrea, E., Matteucci, G., Montagnani, L., Gielen, B., Mammarella, I., Grünwald, T., Knohl, A., Berninger, F., Zhao, Y., Valentini, R., and **Santini, M.** (2016) Validation of 3D-CMCC Forest Ecosystem Model (v.5.1) against eddy covariance data for 10 European forest sites (2016) *Geosci. Model Dev.*, 9, 479-504. Doi: 10.5194/gmd-9-479-2016.
- Di Paola A., Valentini R., **Santini M.** (2016) An overview of available crop growth and yield models for studies and assessments in agriculture. *Journal of the Science of Food and Agriculture* 96(3), 709-714. Doi: 10.1002/jsfa.7359.
- Santini M.**, Di Paola A. (2015) Changes in the world rivers' discharge projected from an updated high resolution dataset of current and future climate zones. *Journal of Hydrology*, 531(3), 768-780. Doi: <https://doi.org/10.1016/j.jhydrol.2015.10.050>.
- Santini M.**, Collalti A., Valentini R. (2014) Climate change impacts on vegetation and water cycle in the Euro-Mediterranean region, studied by a likelihood approach. *Regional Environmental Change*, 14(4), 1405-1418. Doi: 10.1007/s10113-013-0582-8.
- Collalti A., Perugini L., **Santini M.**, Chiti T., Nolè A., Matteucci G., Valentini R. (2014) A process-based model to simulate growth in forests with complex structure: Evaluation and use of 3D-CMCC Forest Ecosystem Model in a deciduous forest in Central Italy. *Ecological Modelling*, 272, 362-378. Doi: 10.1016/j.ecolmodel.2013.09.016.
- Valentini, R., ..., **Santini, M.** et al. (2014) A full greenhouse gases budget of Africa: synthesis, uncertainties, and vulnerabilities, *Biogeosciences*, 11, 381-407. Doi:10.5194/bg-11-381-2014.
- Santini M.**, Valentini R., Cervigni R. (2013) Climate projection ensemble as support to water management and irrigation in Nigeria. *Journal of Water and Climate Change* 4(3), 287-301. Doi: 10.2166/wcc.2013.039.
- Kirschke S., ..., **Santini M.** et al. (2013) Three decades of methane sources and sinks: budgets and variations. *Nature Geoscience*. Doi: 10.1038/ngeo1955.
- Rulli M.C., Offeddu L., and **Santini M.** (2013) Modeling post-fire water erosion mitigation strategies, *Hydrol. Earth Syst. Sci.*, 17, 2323-2337. Doi: 10.5194/hess-17-2323-2013.
- Santini M.**, Valentini, R. Predicting Hot-Spots of Land Use Changes in Italy by Ensemble Forecasting. *Reg Environ Change* (2011) 11:483-502. Doi: 10.1007/s10113-010-0157-x.
- Santini M.**, Caccamo G., Laurenti A., Noce S., Valentini R. (2010) A multi-model GIS framework for desertification risk assessment. *Applied Geography*, 30(3), 394-415. Doi: 10.1016/j.apgeog.2009.11.003.
- Santini M.**, Taramelli A., Sorichetta A. (2010) ASPHAA: a GIS-based algorithm to calculate cell area on a latitude-longitude (geographic) regular grid. *Transactions in GIS*, 14(3), 351-377. Doi: 10.1111/j.1467-9671.2010.01200.x.
- Fratini G., **Santini M.**, Ciccio P., Valentini R. (2009) Evaluation of a wind erosion model in a desert area of Northern Asia by Eddy Covariance. *Earth Surface Processes and Landforms*, 34, 1143-1157. Doi: 10.1002/esp.1857.
- Santini M.**, Grimaldi S., Nardi F., Petroselli A., Rulli M.C. (2009) Pre-processing algorithms and landslide modelling on remotely sensed DEMs. *Geomorphology*, 113(1-2), 110-125. Doi: 10.1016/j.geomorph.2009.03.023.
- Nardi F., Grimaldi S., **Santini M.**, Petroselli A., Ubertaini L. (2008) Hydrogeomorphic properties of simulated drainage patterns using DEMs: the flat area issue. *Hydrological Sciences Journal*, 53(6): 1176-1193. Doi: 10.1623/hysj.53.6.1176.

**Publications**

Books, Technical Reports

AA.VV., FAO and CMCC (2017) Global Soil Organic Carbon Database (at 30 arcsec), 47 pp. ISBN 978-92-5-109762-5 © FAO, 2017. Available at: <http://www.fao.org/documents/card/en/c/9cfc39c3-2950-4691-aa8d-4eaf23a7ba3c/>; 10.25424/CMCC/GLOBALCARBON30ARCSEC.

Cervigni, R., Valentini, R., Santini, M. eds. (2013) Toward Climate-Resilient Development in Nigeria. Directions in Development. Washington, DC: World Bank. doi:10.1596/978-0-8213-9923-1.

Ramieri E., Hartley A., Barbanti A., Duarte Santos F., Gomes A., Hilden M., Laihonon P., Marinova N., **Santini M.** (2011) Methods for assessing coastal vulnerability to climate change. ETC CCA Technical Paper 1/2011. ETC/CCA, Bologna, IT, October 2011, 93 pp.

**Publications**

Chapters, Other

Caporaso L., **Santini M.**, Noce S., De Sanctis A., Caracciolo L., Antonelli M. (2019) Drivers of Migration in the Trans-Mediterranean Region: The Likely Role of Climate Change and Resource Security in the Geopolitical Context. In: Achieving the Sustainable Development Goals Through Sustainable Food Systems, Springer. ISBN: 978-3-030-23968-8.

**Santini M.**, Caporaso L., Barbato G., Noce S. (2017) Climate Change and Human Migrations. In: Food & Migration: Understanding the geopolitical nexus in the Euro-Mediterranean. Macrogeo and Barilla Center for Food and Nutrition report.

Mereu V., **Santini M.**, Cervigni R., Augeard B., Bosello F., Scoccimarro E., Spano D., and Valentini R. (2017) Robust Decision Making for a Climate-Resilient Development of the Agricultural Sector in Nigeria. In: Lipper, L., McCarthy, N., Zilberman, D., Asfaw, S., Branca, G. (Eds.) Climate Smart Agriculture: Building Resilience to Climate Change.

Picarelli L., Comegna L., Gariano S.L., Guzzetti F., Mercogliano P., Rianna G., **Santini M.**, Tommasi P. (2016) Potential climate changes in Italy and consequences on land stability. In: Ho K., Lacasse S., Picarelli L. (eds.), Slope Safety Preparedness for Impact of Climate Change, pp. 151-198, CRC press, ISBN 9781138032309.

**Santini M.**, Valentini R. (2015) Calculating the Water Footprint of an Agri-Food Company's Supply Chain: The Mutti Case. In: The Water We Eat (M. Antonelli, F. Greco eds.). Springer Water 2015, pp 243-256.

**Santini M.**, Rulli M.C. (2015) Water Resources in Italy: The Present Situation and Future Trends. In: The Water We Eat (M. Antonelli, F. Greco eds.). Springer Water 2015, pp 139-143.

Rulli M.C., Gobattoni F., Santini, M. (2013) GALLIUS: Geomorphohydrological Model for Landslide Initiation Under Snowmelting. In: Margottini C., Canuti P., Sassa K. (eds.) Landslide Science and Practice 4, 409-415.

**Santini M.**, Valentini R. (2013) Volume 2: Agriculture, Forests and Ecosystem Services and People. Introduction. In: Regional Assessment of Climate Change in the Mediterranean, Advances in Global Change Research Volume 51, 2013, pp 3-7.

**Santini M.**, Valentini R. (2013) Volume 2: Agriculture, Forests and Ecosystem Services and People. Summary and Major findings. In: Regional Assessment of Climate Change in the Mediterranean, Advances in Global Change Research Volume 51, 2013, pp 157-160.

**Santini M.**, Valentini R. (2013) Calcolo dell'impronta idrica della filiera produttiva di un'azienda agroalimentare: il caso Mutti. In: L'acqua che mangiamo (M. Antonelli, F. Greco eds.). Edizioni Ambiente, Milano, Italia. (*in italian*)

**Santini M.**, Rulli M.C. (2013) La risorsa idrica in Italia: situazione attuale e trend futuri. In: L'acqua che mangiamo (M. Antonelli, F. Greco eds.). Edizioni Ambiente, Milano, Italia. (*in italian*)

AA.VV. Libro bianco. Sfide ed opportunità dello sviluppo rurale per la mitigazione e l'adattamento ai cambiamenti climatici. Ministero delle politiche agricole e forestali. Settembre 2011. (*in italian*)

Taramelli A., Pasqui M., Melelli L., **Santini M.** and Sorichetta A. (2011) Modelling Hurricane Related Hazards and Risk through GIS for Early Warning Systems, Recent Hurricane Research - Climate, Dynamics, and Societal Impacts, Anthony Lupo (Ed.), ISBN: 978-953-307-238-8, InTech.

Valentini R., Petriccione B., Sezzi E., **Santini M.**, Vannini A., Vettraino A. M., Spano D. (2010) Foreste e cambiamenti climatici. In: I cambiamenti climatici in Italia: evidenze, vulnerabilità e impatti. Sergio Castellari e Vincenzo Artale (Eds.). CMCC & Bononia University Press.

Corona P., Monteverdi M.C., Barbati A., Beritognolo I., Balzarolo M., **Santini M.**, Da Canal S., De Dato G., Fratini G., Kuzminsky E., Abbruzzese G., Sabatti M., De Angelis P., Valentini R. (2007) Linee di ricerca forestale a supporto della lotta alla desertificazione. Rendiconti Accademia Nazionale delle Scienze (dei XL) – Memorie di Scienze Fisiche e Naturali, 125°, Vol. XXXI, P. II, t. I, pp. 311-328.

Valentini R., **Santini M.** (2008) Climate impact scenarios on forest biodiversity and land use changes in Alpine zone. In: Climate Change Report, ClimChAlp Project.

Petroselli A., Nardi F., **Santini M.**, Grimaldi S. and Ubertini L. (2008) Confronto tra alcuni metodi per l'estrazione del reticolo idrografico da DEM affetti da aree piane. L'Acqua, vol. 5.

Fratini G., Da Canal S., Monteverdi C., **Santini M.**, Valentini R. and Zompanti R. (2005) Lotta alla desertificazione e sviluppo rurale: l'esempio di un progetto integrato in Cina, Geotema, 25, pp. 68-81.

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

I authorise the use of my personal data in compliance with Italian Legislative Decree 196/03.

Date

 July 18<sup>th</sup>, 2019

 Signature  
 Monia Santini

