

Curriculum Vitae

Titia Mulder

Personal information

Family name: Mulder
First names: Vera Leatitia
Address: 19, Rue Banner
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Phone: +33 651 689 153
Email: vlmulder0@gmail.com
Place and date of birth: Delft (NL), 26 January 1984
Gender: Female
Nationality: Dutch

Work experience

2013 – Present INRA Infosol Unit, Orléans, France

Position: Post-doctoral researcher
Project: GISSOL and GlobalSoilMap
Activities: Mapping and modelling the subsoil carbon storage for France

2012 – 2013 Remote Sensing Laboratories, University of Zürich, Switzerland

Position: Research assistant
Activities: Mapping and modelling regional soil mineralogy using spectroscopy and geostatistics

Education

2008 – 2013 Wageningen University (NL), University of Zurich (CH)

PhD Environmental Sciences (WUR) and Remote Sensing (UZH)

Thesis title: Spectroscopy-supported digital soil mapping
Project: EU FP7 Program e-SOTER
Supervisors: Prof. Dr M.E. (Michael) Schaepman
Dr Ir. S. (Sytze) de Bruin

2003 – 2008 Wageningen University (NL)

2008 MSc Soil Science - Land science

Thesis title: The influence of palaeo-climatic changes on fluvial landscape evolution during the quaternary: a case study of the Upper Thames basin, UK, with the LAPSUS model (grade: 8 out of 10)
Supervisors: Prof. Dr A. (Tom) Veldkamp
Prof. Dr D. (Darrel) Maddy
Dr J.M. (Jeroen) Schoorl

2008 MSc Geo-Information Science and Remote Sensing

Thesis title: The influence of slope in the quantification of soil iron content with spectral reflectance based iron indices (grade: 8 out of 10).
Supervisor: Dr H. M. (Harm) Bartholomeus

2008 Internship: ESA – ESRIN (Frascati, Italy)
Project: DesertWatch - Satellite retrieved soil moisture as indicator for desertification
(grade: 8 out of 10)
Supervisors: M. (Marc) Paganini
Dr Ir. J. (Jetse) Stoorvogel
Prof. Dr M.E. (Michael) Schaepman

2006 BSc Soil Water & Atmosphere
Thesis title: Spatial analyses of the tradeoffs in Machakos District, Kenya
(grade: 8 out of 10).
Supervisor: Dr Ir. J. (Jetse) Stoorvogel

1996 – 2003 Johannes Fontanus College, Barneveld (NL)

2003 Pre-university secondary education
Units: Mathematics, Physics, Chemistry, Biology, Arts, Dutch, English

Relevant experience

Computer / programming:

- Expert in using ArcGIS and Grass
- Expert in using Erdas Imagine and ENVI
- Expert with (geo)statistical analysis in R
- Experience with IDL and Matlab and postgresSQL
- Experience in Adobe Web & Design
- Familiar with MacDiff
- Familiar with C++

Participation in collaborative projects:

- GlobalSoilMap, researcher, www.globalsoilmap.net
- GISSOL, researcher, www.gissol.fr
- EU FP 7 e-SOTER, researcher and project partner, www.esoter.net
- ESA DesertWatch, researcher, www.desertwatch.info

Other relevant experience:

- Organization and execution of fieldwork campaigns
- International cooperation, field work and stays: Spain, England, Italy, Morocco, Switzerland
- Laboratory analysis: Soil physical, chemical analysis and spectral measurements
- X-ray diffraction – soil sample preparation, analysis and diffractogram interpretation

Languages:

Mother tongue: Dutch

<i>Language</i>	<i>Writing</i>	<i>Reading</i>	<i>Speaking</i>
French	Fair	Good	Fair
English	Good	Excellent	Good
German	Poor	Good	Fair
Dutch	Good	Excellent	Excellent

Extracurricular competencies:

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| 2012 | Session reporter at the fifth Global Workshop on Digital Soil Mapping, Sydney, Australia |
| 2015, 2012 | Convenor at EGU General Assembly, Vienna, Austria |

Research

Key qualifications

- Spatial modelling of natural resources at regional and larger scales
- Spatial statistics
- Digital soil mapping
- Soil spectroscopy and remote sensing

Reviewer for journals

- Geoderma
- International Journal of Applied Earth Observation and Geoinformation
- Remote Sensing of Environment

Invited Lectures and Keynotes

- 2015 Keynote at Pedometrics 2015, 14-18 September 2015 - Cordoba, Spain
- 2011 Agroscope Reckenholz-Tänikon ART, Zürich, Switzerland
- 2012 Physical Geography division, Department of Geography, University of Zürich, Switzerland
- 2012 Global Soil Partnership workshop: Towards Global Soil Information: Activities within the GEO Task Global Soil Data, Rome, Italy, 20-23 March 2012.

Writing research proposals

- 2013 Agreenskills – Pathways for inventive researchers (France) – leader
- 2013 The Swiss National Science Foundation - National Research Programmes "Sustainable Use of Soil as a Resource" (NRP 68) – contributor
- 2013 Forschungskredit der Universität Zürich – leader

Membership of professional bodies and committees

- Member of the editorial board of Geoderma
- Member of the advisory board of the IUSS Pedometrics Group, September 2014

Awards

IUSS Pedometrics “Best Paper Award” for 2014 and the **Geoderma** “Best Paper Award” for 2014: Mulder, V.L., Plötze, M., de Bruin, S., Schaepman, M.E., Mavris, C., Kokaly, R., Egli, M., (2014). Quantifying mineral abundances of complex mixtures by coupling spectral deconvolution of SWIR spectra (2.1-2.4 μm) and regression tree analysis. Geoderma, (107-108), 279-290.

Teaching activities

Courses

- Introduction Geo-Information Science, BSc and MSc, (Wageningen University): lecturer
- Advanced Remote Sensing courses, MSc, (Wageningen University): guest lecturer
- Remote Sensing and GIS integration, MSc, (Wageningen University): teaching assistant

List of MSc Theses co-advised

- Supervisor: Bakker, A.R. (2012). Digital soil mapping of soil texture at a regional scale with the use of Remote Sensing. MSc Thesis, Wageningen University.
- Co-supervisor: Jemali, N., (2010). Mangrove's structural complexity and disturbances: A case study of the Berau Delta, East Kalimantan, Indonesia. MSc thesis, Wageningen University.
- Examiner: Junwei, Z., (2009). Estimation of N content of natural vegetation using hyperspectral remote sensing data. MSc thesis, Wageningen University.

Hobby's & interest

- Volunteer at the animal rescue team (2011)
- Playing saxophone
- Sports: mountain biking, hiking, running
- Cultural activities

References

Detailed contact information is available on request.

Publication record

Titia Mulder

Peer reviewed journals

- Lacoste, M., **Mulder, V.L.**, Martin, M., A., Arrouays, D., *Under review*. Spatial modelling of total soil depth for France. *Geoderma*.
- Mulder, V.L.**, Lacoste, M., Martin, M., Richer de Forges, A., Arrouays, D., (2015). Understanding large-extent controls of soil organic carbon storage in relation to soil depth and soil- landscape systems. *Global Biogeochemical Cycles*, 29.
- Mulder, V.L.**, Lacoste, M., Martin, M., Richer de Forges, A., Arrouays, D. *Under review*. National versus global modelling the 3D distribution of soil organic carbon in mainland France. *Geoderma*.
- Mulder, V.L.**, Lacoste, M., Martin, M., Richer de Forges, A., Arrouays, D. *In preparation*. GlobalSoilMap France: high-resolution spatial modelling the soils of France up to two meter depth. *PlosOne*.
- Mulder, V.L.**, de Bruin, S., Weyermann, J., Kokaly,R., Schaepman, M.E., (2013). Characterizing regional soil mineral composition using spectroscopy and geostatistics. *Remote Sensing of Environment*, (139), 415-429.
- Mulder, V.L.**, Plötze, M., de Bruin, S., Schaepman, M.E., Mavris, C., Kokaly, R., Egli, M., (2013). Quantifying mineral abundances of complex mixtures by coupling spectral deconvolution of SWIR spectra (2.1-2.4 µm) and regression tree analysis. *Geoderma*, (107-108), 279-290.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E., (2012). Representing major soil variability at regional scale by constrained Latin Hypercube Sampling of remote sensing data. *International Journal of Applied Earth Observation and Geoinformation* 21,(1), 301-310.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E.; Mayr, T. (2011). The use of remote sensing in soil and terrain mapping - A review. *Geoderma* 162, (1-2), 1-19.
- Richer-de-Forges, A.C., Saby, N.P.A., **Mulder, V.L.**, Laroche, B., Arrouays, D., *In preparation*. Digital soil mapping of the probability of iron pan occurrence in sandy podzols of South-West France. *Geoderma Regional*.

Other scientific publications

- Drufin, S., **Mulder, V.L.**, (2015). Syntheses report for importing and processing satellite images for France. IRNA technical report. INRA Val de Loire, Unité Infosol, France.
- Lacoste, M., **Mulder, V.L.**, Saby, N., Arrouays, D., (2014). High-resolution spatial modelling of total soil depth for France. *6th Global workshop on Digital Soil Mapping*, 11-14 November 2014 – Nanjing, China.
- Bartholomeus, H.M., Roosjen, P., Clevers, J., Suomalainen, J., **Mulder, V.L.**, Kooistra, L. (2013). Estimation of soil clay content using multidirectional laboratory spectroscopy measurements. In: *In: Proceedings of the 8th EARSeL Imaging Spectroscopy workshop*, 8-10 April 2013. - Nantes, France.
- Bartholomeus, H.M., Roosjen, P., Clevers, J., Suomalainen, J., **Mulder, V.L.**, Kooistra, L. (2013). Estimation of soil organic matter using multidirectional reflectance measurements. In: *Proceedings of the 16th International conference on Near Infrared Spectroscopy*, 2-7 June 2013. – Montpellier, France.

- Bock, M., Köthe, R., Schuler, U., Günther, A., Pickert, E., Willer, J., Baritz, R., Zawadzka, J., Mayr, T., **Mulder, V.L.**, Moussadek, R., van Engelen, E., (2012). Soil and terrain modelling to develop medium to small scale conceptual soil maps. *Geophysical Union (EGU) Conference*, 22-27 April 2012. - Vienna, Austria.
- Mulder, V.L.**, (2015). Coupling spectral deconvolution and regression tree analysis for quantifying mineral abundances, *Pedometron*, (37).
- Mulder, V.L.**, Lacoste, M., Saby, N.P.A., Arrouays, D., (2015). Large-extent digital soil mapping approaches for total soil depth. *EGU General Assembly Conference*, 12-17 April 2015 – Vienna, Austria.
- Mulder, V.L.**, (2015). Pedometrics and large-extent digital soil mapping applications. *Pedometrics 2015*, 14-18 September 2015 – Cordoba, Spain.
- Mulder, V.L.**, Lacoste, M., Richer de Forges, A.C., Martin, M., Arrouays, D., (2015). Soil organic carbon storage in French soils – an example of French GlobalSoilMap products (v1). *Pedometrics 2015*, 14-18 September 2015 – Cordoba, Spain.
- Mulder, V.L.**, Martin, M., Lacoste, M., Saby, N., Richer de Forges, A., Arrouays, D., (2014). Controlling factors explaining soil carbon in relation to soil depth for French soils. *ELS 2014 – The Earth Living Skin: Soil, Life and Climate Change*, 22-26 September 2014 – Bari, Italy.
- Mulder, V.L.**, Martin, M., Lacoste, M., Arrouays, D., (2014). Determining land systems of pedogenesis for large-scale soil modelling. *6th Global workshop on Digital Soil Mapping*, 11-14 November 2014 – Nanjing, China.
- Mulder, V.L.**, (2013). Spectroscopy-supported digital soil mapping. PhD thesis, Wageningen University, 188 pp.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E., (2012). Soil mapping at regional scale using Remote Sensing –integrating multiple research methods. *Geophysical Union (EGU) Conference*, 22-27 April 2012. - Vienna, Austria.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E., (2012). Retrieval of composite mineralogy by VNIR spectroscopy. In: *Proceedings 5th Global Workshop on Digital Soil Mapping 2012*, 10-13 April 2012. - Sydney, Australia.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E., (2011). Towards spectroscopic modelling of composite mineralogy. *9th Swiss Geoscience Meeting*, 11-13 November 2011. - Zürich, Switzerland.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E., (2011). The use of remote sensing for soil mapping at regional scale. *Soil Science in a Changing World*, 18-22 September 2011. - Wageningen, The Netherlands.
- Mulder, V.L.**, de Bruin, S., Schaepman, M.E. (2011). Soil mapping at regional scale using ASTER and VNIR spectroscopy. In: *Proceedings of the Second Global Workshop on Proximal Soil Sensing*, 15-18 May 2011. - Montreal, Canada.
- Mulder, V.L.**, Bartholomeus, H.M. (2009). The influence of slope in the quantification of soil iron content with spectral reflectance based iron indices. In: *Proceedings of the 6th EARSeL SIG IS workshop Imaging Spectroscopy: Innovative tool for scientific and commercial environmental applications*, 16-19 March 2009. - Tel Aviv, Israel.
- Mulder, V.L.** (2008). The influence of palaeo-climatic changes on fluvial landscape evolution during the quaternary: a case study of the Upper Thames basin, UK, with the LAPSUS model. *MSc thesis, Wageningen University*, 127p.
- Mulder, V.L.** (2007). The influence of slope in the quantification of soil iron content with spectral reflectance based iron indices. *MSc thesis, Wageningen University*, 66p.

- Roman Dobarco, M., Orton, T., Saby, N.P.A., **Mulder, V.L.**, Lemerrier B., Arrouays, D., (2015). Spatial prediction of topsoil texture in Region Centre (France) combining regression and area-to-point kriging. *Pedometrics 2015*, 14-18 September 2015 – Cordoba, Spain.
- Saby, N.P.A., Boukir, H., **Mulder, V.L.**, Brus, D.J., (2015). Comparison of methods to estimate the sampling variance of design-based estimates of spatial means from systematic random sampling: application to the French soil monitoring network. *Pedometrics 2015*, 14-18 September 2015 – Cordoba, Spain.
- Wulf, H., **Mulder, V.L.**, Schaepman, M.E., Keller, A., Jörg, P., (2014). Remote Sensing of Soils. Technical report no. 00.0338.PZ / L435-0501, *Zurich, Switzerland*, 71p.