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**PROFILE**

I am an environmental engineer, with a Ph.D. in hydrogeophysics and remote sensing of soil moisture. My Ph.D. research topic focused on soil moisture sensing by ground penetrating radar and on soil moisture geostatistics and modeling. More generally, I have a broad interest in environmental modeling and GIS and remote sensing technologies, for applications with a strong concern for environmental and societal issues.

**EDUCATION**

- 2007-2011 **Ph.D.**, Université catholique de Louvain (UCL), Earth and Life Institute, Faculty of Agronomical, Environmental and Biological Engineering, Louvain-la-Neuve, Belgium. Ph.D. thesis: *High-resolution soil moisture mapping by a proximal ground penetrating radar : a numerical, laboratory and field evaluation*. Ph.D. thesis supervisor: Prof. Sébastien Lambot
- Sept. 2007 Formation at the Belgian Technical Cooperation agency (BTC-CTB), Brussels, Belgium.
- 2004-2007 **M.Sc. Environmental engineer**, orientation Water and Soils Resources, UCL – *magna cum laude*  
M.Sc. thesis : *Influence de la dispersion du parcellaire sur la gestion du risque climatique au Fakara, Niger*. 6-weeks terrain in Niger in spring 2007.  
M.Sc. thesis supervisor: Prof. Pierre Defourny  
Awarded by the “Prix de Vuyst – CERA 2008” for the best M.Sc. thesis in the Faculty of Agronomical, Environmental and Biological Engineering, UCL.
- 2006 Erasmus exchange program at Universidad Politécnica de Madrid (5 months)
- 2003-2006 Complementary studies diploma in Philosophy, UCL – *cum laude*
- 2004 Internship in NGO ‘Action Micro Barrage’ in Koudougou, Burkina Faso (1 month)
- 2002-2004 **B.Sc. Bio-engineering**, UCL – *magna cum laude*

**PROFESSIONAL EXPERIENCE**

- Oct. 2012 - now **Post-doc researcher** at Université de Liège, Arlon Campus Environnement, Belgium. Coordination of the Belgian activities within the European Joint Programming Initiative FACCE (Food Agriculture Climate Change). Research activities, networking & capacity building. See <http://www.facce.be>
- Oct. 2012 - now **Free-lance activities in webmapping and GIS** including development of webmapping applications and maps.
- Sept. - Oct. 2012 **Post-doc researcher** for UCL-Geomatics, Earth and Life Institute, Université catholique de Louvain, Belgium. Development of a web-based validation tool for a global land cover map project coordinated by the European Space Agency.
- Aug. - Sept. 2011 **Webmapping developer** for UCL-Geomatics, Earth and Life Institute, Université catholique de Louvain, Belgium. Development of a webmapping application for land use planning.

2007-2011 **Research assistant** and **PhD student** in “Unité Génie Rural”, Earth and Life Institute, Université catholique de Louvain, Belgium within the HYDRASENS project. Including research activities, redaction of scientific papers, presentation in international conferences, field surveys in Belgium, Luxembourg, Germany, Morocco and Tunisia, redaction of scientific projects, organization of a scientific event (GFHN 2010 LLN) and co-supervision of two M.Sc. students.

## PROFESSIONAL ACTIVITIES

### Memberships

European Geophysical Union (**EGU**)  
Groupe Francophone Humidimétrie et TraNsfers en Milieux Poreux (**GFHN**)

### Editorial

Reviewer for *Journal of Hydrology*, *Hydrological Processes*, *Vadose Zone Journal*, *Soil Science Society of America Journal* and *Catena*.

## AWARDS

“Prix de Vuyst – CERA 2008” for the best M.Sc. thesis in the Faculty of Agronomical, Environmental and Biological Engineering, UCL.

“Prix des doctorants GFHN 2009” for the best oral presentation among the PhD’s students at the GFHN conference, Aix-en-Provence, France, 2009.

## PUBLICATIONS

### Peer-reviewed ISI articles

1. **Minet J.**, Lambot S., Slob E.C. and Vanclooster M. Soil surface water content estimation by full-waveform GPR signal inversion in the presence of thin layers, *IEEE Transactions on Geoscience and Remote Sensing*, 2010, 48, 1138-1150.
2. **Minet J.**, Lambot S., Delaide G., Huisman J. A., Vereecken H. and Vanclooster M. A generalized frequency domain reflectometry forward and inverse modeling technique for soil electrical properties determination, *Vadose Zone Journal*, 2010, 9(4), 1063-1072.
3. **Minet J.**, Wahyudi A., Bogaert P., Vanclooster M. and Lambot S. Mapping shallow soil moisture profiles at the field scale using full-waveform inversion of ground penetrating radar data, *Geoderma*, 2011, 161, 225- 237.
4. **Minet J.**, Laloy E., Lambot S. and Vanclooster M. Effect of high-resolution spatial soil moisture variability on simulated runoff response using a distributed hydrologic model, *Hydrology and Earth System Sciences*, 2011, 15, 1323-1338.
5. **Minet J.**, Bogaert P., Vanclooster M. and Lambot S. Validation of ground penetrating radar full-waveform inversion for field scale soil moisture mapping, *Journal of Hydrology*, 2012, 424-425, 112-123.
6. Akponikpe P., **Minet J.**, Gérard B., Defourny P. and Biielders C. Spatial fields' dispersion as a farmer strategy to reduce agro-climatic risk at the household level in pearl millet-based systems in the Sahel: A modeling perspective, *Agricultural and Forest Meteorology*, 2011, 151(2), 215-227.
7. Patriarca C., Lambot S., Mahmoudzadeh M.R., **Minet J.** and Slob E.C. Reconstruction of sub-wavelength fractures and physical properties of masonry media using full-waveform inversion of proximal penetrating radar, *Journal of Applied Geophysics*, 2011, 74(1), 26-37.

8. Vernieuwe H., De Baets B., **Minet J.**, Pauwels V., Lambot S., Vanclooster M. and Verhoest N.E.C. Integrating coarse-scale uncertain soil moisture data into a fine-scale hydrological modelling scenario, *Hydrology and Earth System Sciences*, 2011, 15, 3101-3114.
9. Lievens H., Heitz S., **Minet J.**, Lambot S., Vanclooster M., Matgen P., Hissler C., Hoffmann, L. and Verhoest N.E.C. Mapping within-field soil moisture variability with high-resolution C-band SAR and GPR, *Canadian Journal of Remote Sensing*, submitted.
10. **Minet J.**, Verhoest N., Vanclooster M. and Lambot S. Temporal stability of soil moisture patterns measured by proximal ground-penetrating radar, submitted in HESS.

#### **Book chapters**

1. Lambot S., Slob E.C., **Minet J.**, Jadoon K.Z., Vanclooster M. and Vereecken H. Full-Waveform Modeling and Inversion of Ground Penetrating Radar Data for Non-Invasive Characterization of the Soil Hydrogeophysical Properties, in: *Proximal Soil Sensing, Developments in Soil Science Series*, Viscara Rossel R.A., A.B. McBratney and B. Minasny ed(s), Springer, 2010.
2. **Minet J.**, Jadoon K.Z., Jonard F., Mahmoudzadeh M.R., Tran P.A. and Lambot S. Advanced Ground Penetrating Radar for Soil Moisture Retrieval, in: *Advances in Hydrologic Remote Sensing for Monitoring Global Changes*, in review.

#### **Conference Proceedings**

1. Lambot, S., **J. Minet**, K. Z. Jadoon, E. C. Slob, H. Vereecken, Advanced Ground-Penetrating Radar for Digital Soil Mapping, European Geophysical Union, Vienna, Austria, April 2009.
2. Lambot, S., **J. Minet**, K. Z. Jadoon, D. Moghadas, F. André, E. C. Slob, H. Vereecken, M. Vanclooster, Advanced Characterization Monitoring of Soil Water Content Salinity using Integrated, Full-Waveform Inversion of Off-Ground Ground Penetrating Radar Electromagnetic Induction, Atelier Qualité des sols et des eaux: outils de suivi et surveillance de la variabilité spatiotemporelle, Rabat, Morocco, January 2009.
3. Lambot, S., **J. Minet**, E. Slob, K. Z. Jadoon, M. Vanclooster, H. Vereecken, Full-Waveform Modeling Inversion of Proximal Ground Penetrating Radar Data for Soil Hydrogeophysical Characterization, First Global Workshop on High Resolution Digital Soil Sensing & Mapping, Sydney, Australia, February 2008.
4. Lambot, S., **J. Minet**, E. C. Slob, H. Vereecken, M. Vanclooster, High- Resolution, Real-Time Mapping of Surface Soil Moisture at the Field Scale using Ground Penetrating Radar, American Geophysical Union, San Francisco, CA, US, December 2008.
5. Lievens, H., **J. Minet**, S. Lambot, M. Vanclooster, P. Matgen, M. Montanari, L. Hoffmann, P. Marzahn, R. Ludwig, F. Mattia, et al. Soil Moisture Retrieval Based on SAR-Derived Effective Roughness Parameters, 3rd ALOS Joint PI Symposium, Kona, Hawaii, US, November 2009.
6. **Minet, J.**, A. Besson, M. Vanclooster, S. Lambot, Analysis of a Frequency Domain Reflectometry Forward Inverse Modelling Technique for Complete Characterization of a Water Content Profile, European Geophysical Union, Vienna, Austria, April 2008.
7. **Minet, J.**, S. Lambot, E. C. Slob, M. Vanclooster, Surface soil water content estimation by GPR signal inversion facing shallow soil layering, GPR conference 2008, Birmingham, UK, June 2008.
8. **Minet, J.**, S. Lambot, E. C. Slob, H. Vereecken, M. Vanclooster, Highresolution digital mapping of surface soil water content at the field scale using Ground Penetrating Radar, American Geophysical Union – Spring Assembly, Toronto, Canada, May 2009.
9. **Minet, J.**, S. Lambot, M. Vanclooster, Cartographie digitale de la teneur en eau de surface du sol

à l'échelle du champ par Ground Penetrating Radar, 34emes Journées Scientifiques du GFHN, Aix-en-Provence, France, November 2009.

10. **Minet, J.**, S. Lambot, M. Vanclooster, Mapping of soil moisture at the field scale using full-waveform inversion of proximal Ground Penetrating Radar data, European Geophysical Union, Vienna, Austria, May 2010.
11. **Minet, J.**, C. Patriarca, E. C. Slob, M. Vanclooster, S. Lambot, Characterization of layered media using full-waveform inversion of proximal GPR data, URSI International Symposium on Electromagnetic Theory - EMTS2010, Berlin, Germany, August 2010, invited presentation.
12. **Minet, J.**, S. Lambot, M. Vanclooster, Evaluation of a proximal ground penetrating radar technique for soil moisture mapping at the field scale, European Geophysical Union Leonardo Topical Conference, Luxembourg, Luxembourg, November 2010.
13. **Minet, J.**, A. Wahyudi, P. Bogaert, S. Lambot, M. Vanclooster, Amélioration de la cartographie de la teneur en eau du sol mesurée par télédétection radar rapprochée grâce à l'élimination des effets de lignes par un outil géostatistique, GFHN 2010: Transferts en milieux poreux: hétérogénéité des processus et des propriétés, Louvain-la-Neuve, Belgium, November 2010.
14. Patriarca, C., S. Lambot, M. R. Mahmoudzadeh, **J. Minet**, E. C. Slob, Potential of Monostatic Proximal Penetrating Radar for Non-Destructive Inspection of Concrete Structures, 10th Workshop on subsurface electromagnetic measurement, Tokyo, Japan, October 2009.
15. Vande Kerkhove, C., M. Vanclooster, S. Lambot, **J. Minet**, F. André, M. Lahlou, Caractérisation spatio-temporelle de la salinité dans une parcelle irriguée du Tadla, Maroc, par EM38, Atelier Qualité des sols et des eaux: outils de suivi et surveillance de la variabilité spatio-temporelle, Rabat, Morocco, January 2009.
16. Verhoest, N., H. Lievens, **J. Minet**, M. Vanclooster, S. Lambot, H. Vernieuwe, B. De Baets, L. Giustarini, P. Matgen, L. Hoffmann, et al. Integrating Radar Remote Sensing, Hydrologic and Hydraulic Modelling for Surface Water Management, Flemish Water Forum, Antwerpen, Belgium, October 2010.

#### Posters

1. Besson A., **J. Minet**, M. Vanclooster, Characterization of the Soil Water Content Profile Along a Frequency Domain Reflectometry Probe using Advanced Forward Inverse Modeling Techniques. EuroSoil, Vienna, Austria, September 2008.
2. Heitz, S., P. Matgen, H. Lievens, **J. Minet**, L. Pfister, L. Hoffmann, Potential of Radarsat-2-Data for Retrieving Spatially Distributed Surface Soil Moisture, 3rd Radarsat-2 Workshop, Montreal, Canada, September 2010.
3. Lievens, H., N.E.C. Verhoest, M. Vanclooster, B. De Baets, L. Hoffmann, V. Pauwels, S. Lambot, **J. Minet**, H. Vernieuwe, P. Matgen, et al. Integrating Radar Remote Sensing, Hydrologic and Hydraulic Modelling for Surface Water Management, Luxembourg Earth Observation Day, Luxembourg, November 2008.
4. **Minet, J.**, S. Lambot, E. C. Slob, M. Vanclooster, Soil Surface Water Content Estimation by Full-Waveform GPR Signal Inversion in the Presence of Thin Layers, 3rd PhD Student Day of the Graduate School ENVITAM, Namur, Belgium, January 2010.
5. **Minet, J.**, S. Lambot, E. C. Slob, M. Vanclooster, Soil Surface Water Content Estimation by Full-Waveform GPR Signal Inversion in Presence of Thin Layers. European Geophysical Union, Vienna, Austria, April 2009.
6. **Minet, J.**, M. Vanclooster, S. Lambot, Real-Time Mapping of Soil Water Content using GPR,

SSSB thematic day, Brussels, Belgium, December 2007.

7. Wahyudi, A., **J. Minet**, P. Bogaert, S. Lambot, Geostatistical Tool for Line Effect Removal on Field Water Content Estimation using Ground Penetrating Radar (GPR), GFHN 2010: Transferts en milieux poreux: hétérogénéité des processus et des propriétés, Louvain-la-Neuve, Belgium, November 2010.

COMPUTER  
SKILLS

<b>Operating systems</b>	MS Windows & GNU/Linux (Ubuntu)
<b>Office</b>	MS Office, OpenOffice, LaTeX
<b>Scientific computing</b>	Matlab, Python, R, FORTRAN
<b>Desktop GIS</b>	ArcGIS, QGIS, GDAL/OGR, eCognition
<b>Webmapping</b>	OpenLayers, MapServer, GeoExt, LeafletJS, TileCache, PostGIS, ...
<b>Web edition</b>	HTML, CSS, JavaScript, PHP/MySQL, Wordpress, ...
<b>Infography</b>	The Gimp, Inkscape

LANGUAGE  
SKILLS

French (native)  
English (Full professional proficiency)  
Spanish (Professional working proficiency)  
German (Elementary proficiency)  
Classic Arabic (Elementary proficiency)  
Turkish (Elementary proficiency)

MISCELLANEOUS

1998 – 2005	Member of “ArcHab ASBL”: Archeologic and tourist guide work.
July 2005	Voluntary service in ecoconstruction with the NGO “Service Civil International” near Barcelona, Spain.
July 2006	Conception and realization of a project of drink water supply with a student organization (Kontre La Soif) in High Atlas, Morocco.
2002 – 2007	Involved in students organizations: Attac, Alterciné, Autre Pack.
2006 – 2007	Member of a community student housing with a social and educative project for underprivileged children.
2007 – 2009	Voluntary worker in « Les ateliers de la rue Voot ASBL» : bicycle repairing
Nov. 2010	Organization of a scientific congress “GFHN 2010”: Webmaster, organizer of the ice-breaking activities.
2008 - today	Active member of “Le Début des Haricots ASBL”: Webmapping of community gardens in Brussels & “Réseau des Consommateurs Responsables ASBL”: Linking of producers and consumers.
Oct. 2011 – Aug. 2012	11-month bicycle travel in Europe, North Africa and Turkey.

Interested in Environment and sustainability issues, open-source software and data, cartography and travelling

Free-lance activities in webmapping

Sports: Cycling, climbing, running and trekking