

Sabine Vanhuysse

Researcher
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Research Themes

Land use/land cover mapping and analysis at different scales using remote sensing data and GIS, geospatial analysis notably as a decision-support tool.

My current research focuses on the use of remote sensing tools to study the spatial patterns that influence the epidemiology and space/time dynamics of certain vector-borne and contact diseases.

Work Experience

Since 1/2002 Researcher in geospatial analysis

Since Dec. 2006 : EPISTIS – Remote Sensing Tools to Study the Epidemiology and Space/Time Dynamics of Diseases (<http://www.ulb.ac.be/project/epistis/>)

The main epidemiological hypothesis of this multidisciplinary project is that remote sensing tools can be developed to highlight the spatial patterns in time and space that influence the epidemiology of certain diseases. The two main scientific objectives that are addressed by the project are (i) to explore how a wide range of remote sensing tools and GIS can be integrated and contribute to the understanding of the space/time dynamics (spread) of diseases; (ii) to explore how integrated spatial analysis outputs can contribute to improved information and decision support for disease management (case-studies: Bluetongue in Italy and Foot-and-Mouth Disease in South Africa).

2006 : Multi-Resolution Temporal Study of Imperviousness Evolution in the Brussels-Capital Region

This study aimed at measuring the evolution of imperviousness from the 1950s up to now in the Brussels-capital Region, with extensions following the limits of the watersheds. It provided an estimate of the percentage of impervious areas at different dates based on spatial databases and remote sensing data processing and analysis.

2005 : Consumer buying behaviour of foreigners in Brussels and inhabitants of Brussels abroad

Data collection and analysis, survey design and supervision, statistical analysis.

2002 – 2004 : SMART – Space and airborne Mined Area Reduction Tools

European project intended to help Mine Action Centres (MAC) or Mine Action Authorities (MAA) in their task of area reduction by providing a GIS-based environment with specific tools to ease the interpretation work of the operators. Using multi-spectral optical data as well as SAR data obtained during a flight campaign in Croatia and satellite data from before the conflict, the tools help in the land-cover classification and the detection of indicators of presence or absence of landmines. The processing results are input into a data fusion module that summarizes all data and contextual information available to facilitate the creation of danger maps and associated confidence maps displaying uncertainty.

1991-2000 Médecins Sans Frontières – Belgique (Doctors Without Borders - Belgium)

HQ (mainly): Field/HQ interface, assistance to project management for field missions in Eastern European Countries, Vietnam, Chad and Guinea-Conakry.

Creation, promotion and management of a documentation centre regrouping two existing sections (medical library and internal image bank for communication purposes), a new one (geopolitics) and a book supply service for field missions, in an emerging ICT context.

Fieldwork: Administrative and human resources management (DR Congo), several short field missions (Russia, Armenia, Azerbaijan, Guinea-Conakry, Ethiopia).

Scientific Contributions

Peer-reviewed

- R. Hamdi, A. Deckmyn, P. Termonia, G.R. Demarée, P. Baguis, S. Vanhuyse, et E. Wolff, Effects of Historical Urbanization in the Brussels Capital Region on Surface Air Temperature Time Series: A Model Study, *Journal of Applied Meteorology and Climatology*, vol. 48, Oct. 2009, pp. 2181-2196.
- F. Landsberg, S. Vanhuyse, et E. Wolff, Fuzzy multi-temporal land-use analysis and mine clearance application, *Photogrammetric engineering and remote sensing*, vol. 72, 2006, pp. 1245–1253.

Reports

- S. Vanhuyse, J. Depireux, et E. Wolff, Etude de l'évolution de l'imperméabilisation du sol en Région de Bruxelles- capitale, Université Libre de Bruxelles, IGEAT, Brussels, Belgium, 2006.
- Observatoire de la Santé et du Social de Bruxelles-capitale, *Vivre chez soi après 65 ans : Atlas des besoins et des acteurs à Bruxelles*, Bruxelles, 2007, Commission Communautaire Commune (cartography : Wayens B. et Vanhuyse S.).
- Vanhuyse S., sous dir. Grimmeau J.-P. (2005), *Les dépenses des étrangers à Bruxelles et des Bruxellois à l'étranger (phase 2)*, Université Libre de Bruxelles, IGEAT, Brussels, Belgium, étude réalisée pour Foruminvest.
- Vanhuyse S., Wayens B., sous dir. Grimmeau J.-P. (2005), *Les dépenses des étrangers à Bruxelles et des Bruxellois à l'étranger (phase 1)*, Université Libre de Bruxelles, IGEAT, Brussels, Belgium, étude réalisée pour Foruminvest.
- SMART Consortium, 2005., Final Report, Space and Airborne Mined Area Reduction tools, SMART, European Commission IST-2000-25044.
- SMART Consortium, 2002, Scientific report of processing algorithms, Space and Airborne Mined Area Reduction tools, SMART, European Commission IST-2000-25044.
- Vanhuyse, S., Wolff, E., Bajic, M., Matic, C., Krtalic, A. et Vuletic, D., 2002., *Danger Maps, Space and Airborne Mined Area Reduction tools*, SMART, European Commission IST-2000-25044.
- Vanhuyse, S., Wolff, E. et Bajic, M., 2002., *Contextual information, Space and Airborne Mined Area Reduction tools*, SMART, European Commission IST-2000-25044.
- Keller, M., Vanhuyse, S., Bajic, M., Gold, H. et Wolff, E., 2002., *Report on the measurement campaign (airborne and ground)*, Space and Airborne Mined Area Reduction tools, SMART, European Commission IST-2000-25044.
- Vanhuyse, S., 2002., *SMART – 2002 Mission Report (fieldwork in Croatia)*, Space and Airborne Mined Area Reduction tools, SMART, European Commission IST-2000-25044.

Conferences and workshops

- Vanhuyse, S., Wolff, E., *La télédétection pour la cartographie et l'analyse géospatiale (presentation and poster)*, Space Day ULB-VUB, Bruxelles, 14 September 2009.
- Vanhuyse, S., Wolff, E., (for the EPISTIS Network), *Remote sensing tools to study the EPIdemiology and Space/Tlme dynamicS of diseases*, Belgian Earth Observation Day, Namur, Belgium, 12 February 2008.
- Vanhuyse, S., Wolff, E., *Etude temporelle multirésolution de l'évolution des surfaces imperméables en Région De Bruxelles-capitale (presentation and poster)*, Atelier Du Programme De Télédétection Spatiale, La Très Haute Résolution Spatiale en Télédétection Urbaine, Ecole Centrale Nantes, France, 25 et 26 septembre 2007.
- Vanhuyse, S., Wolff, E., *Multi-Resolution Temporal Study of Imperviousness Evolution in the Brussels-capital Region (poster)*, Framing Land Use Dynamics 2 - Utrecht, Netherlands April 18-20, 2007
- Yvinec Y., Borghys D., Acheroy M., Suess H., Keller M., Bajic M., Wolff E., Vanhuyse S., Bloch I., Yu Y. and Damanet O., 2003. SMART: Space and Airborne Mined Area Reduction Tools - presentation, Actes de la conférence EUDEM2-SCOT – 2003, "International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO, Vrije Universiteit Brussel, Bruxelles, Belgique, 5-18 Septembre 2003.
- Vanhuyse S., Wolff E., Acheroy M., Yvinec Y., Borghys D., Süß H., Keller M., Bajic M., Bloch I., Yu Y. et Damanet O., *Space and Airborne Mined Area Reduction Tools (poster)*, Forum – Space and Disasters Management (SSTC/ESA/ICSMD), 23 March 2003.

Education

- 2000 - 2001: DES Interuniversitaire en cartographie et télédétection (GD), ULB, UCL, ULg
Short work experience in this framework:
- Evaluation of the Potential of IKONOS Imagery for Topographic Map Updating in Namibia (UCL - Département de Géographie, Laboratoire de télédétection)
- Analysis of data fluxes and processing for the production of 1:10 000 topographic maps (National Geographic Institute, Belgium)
- 1998 - 2000: DEC en cartographie et télédétection (GD), Université Libre de Bruxelles
- 1990 - 1992: Licence spéciale en commerce extérieur (D), Institut Supérieur de Commerce Cooremans
- 1985 - 1989: Licence en traduction anglais/russe (D), EII (currently Faculté de Traduction et Interprétation)- Université de Mons-Hainaut

Language skills

- French: mother tongue
English: fluent
Dutch: written: good, spoken: moderate
Russian: moderate (lack of practice for many years)

Computer skills

- GIS/Image processing/
Geospatial analysis: ArcGIS 9, PCI Geomatica, eCognition, Idrisi, Grass, MultiSpec, TNTmips
Statistics: SPSS
Surveys: Le Sphinx
Modelling: iThink