



## **Dr. Sebastian van der Linden/Lecturer**

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### **Background**

Sebastian van der Linden is a senior scientist and lecturer at the Geography Department of Humboldt-Universität zu Berlin since 2010. He has studied applied Environmental Sciences at Trier University, Germany, and the University of Edinburgh, UK. He holds a doctoral degree from Humboldt-Universität zu Berlin, Germany. In his research, he explores machine learning approaches for mapping complex environments from Earth Observation data. His doctoral studies aimed at mapping urban land cover from airborne imaging spectroscopy data with support vector machines (2004-2007). Based on this work, approaches for mapping land cover fractions in urban and semi-natural environments were developed using regression and adapted classification algorithms, e.g. together with synthetic spectral training data. As part of the lab's role as a member in the Science Advisory Group for the German EnMAP satellite mission (Environmental Mapping and Analysis Program) most of the work focused on the step from air- to spaceborne data, i.e. from 3-9 m to 30 m spatial resolution. Sebastian van der Linden leads the development of the EnMAP-Box, where several algorithms for imaging spectroscopy data are collected and implemented in standardized and userfriendly applications. In two current projects, capabilities of machine learning for multi-temporal analysis of imaging spectroscopy data (EnSAG project) and the spatial-temporal transfer of regression models (UrbanEARS project) are explored.

### **Activities in education**

Sebastian van der Linden has more than ten year experience in teaching remote sensing with a focus on imaging spectroscopy, remote sensing of vegetation and remote sensing of urban areas at bachelor and master level. He has been a lecturer at ESA's Advanced Training Course in Land Remote Sensing in 2011, 2015 and 2017, and at the jointly organized Trans-Atlantic Training by ESA and NASA in Krakow, 2014. He has supervised three doctoral researchers and several bachelor and master students.

## Recent projects

- UrbanEARS (PI, 2014-2018, funded by BelSPO, Belgium)
- EnMAP-Box development (PI, since 2008, funded by DLR/BMWi through GFZ Potsdam, Germany)
- LUMOS (PI, 2017-2019, funded by BelSPO, Belgium)
- EnMAP Science Advisory Group (Co-PI, since 2010, funded by DLR/BMWI, Germany)

## Selected publications

Small C, Okujeni A, van der Linden S, Waske B (2018) 6.07 - Remote Sensing of Urban Environments. In: Shunlin Liang (Ed.) Comprehensive Remote Sensing, Elsevier, Oxford, Pages 96-127, ISBN 9780128032213, <https://doi.org/10.1016/B978-0-12-409548-9.10380-X>.

Schug F, Okujeni A, Hauer J, Hostert P, Nielsen JØ, van der Linden S (2018). Mapping patterns of urban development in Ouagadougou, Burkina Faso, using bi-seasonal Landsat time series. *Remote Sensing of Environment*, 210, 217-228.

Okujeni A, van der Linden S, Suess S, Hostert P (2017). Ensemble learning from synthetically mixed training data for quantifying urban land cover with support vector regression. *IEEE Journal of Selected Topics in Applied Remote Sensing*, 10, 1640-1650.

van der Linden S, A Rabe, M Held, B Jakimow, PJ Leitão, A Okujeni, M Schwieder, S Suess, P Hostert (2015): The EnMAP-Box—A Toolbox and Application Programming Interface for EnMAP Data Processing. *Remote Sensing*, 7, 11249.

van der Linden S, Hostert P (2009). The influence of urban surface structures on the accuracy of impervious area maps from airborne hyperspectral data. *Remote Sensing of Environment*, 113, 2298-2305.

See [https://www.researchgate.net/profile/Sebastian\\_Van\\_Der\\_Linden2](https://www.researchgate.net/profile/Sebastian_Van_Der_Linden2) for more information on publications.