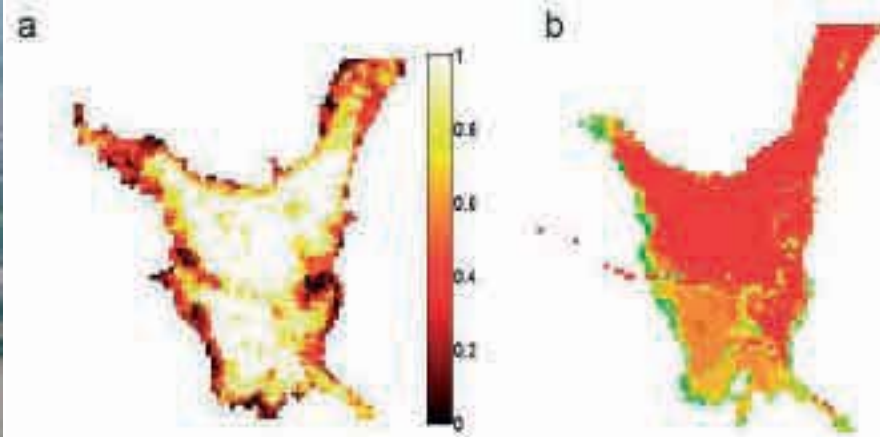


SENSED

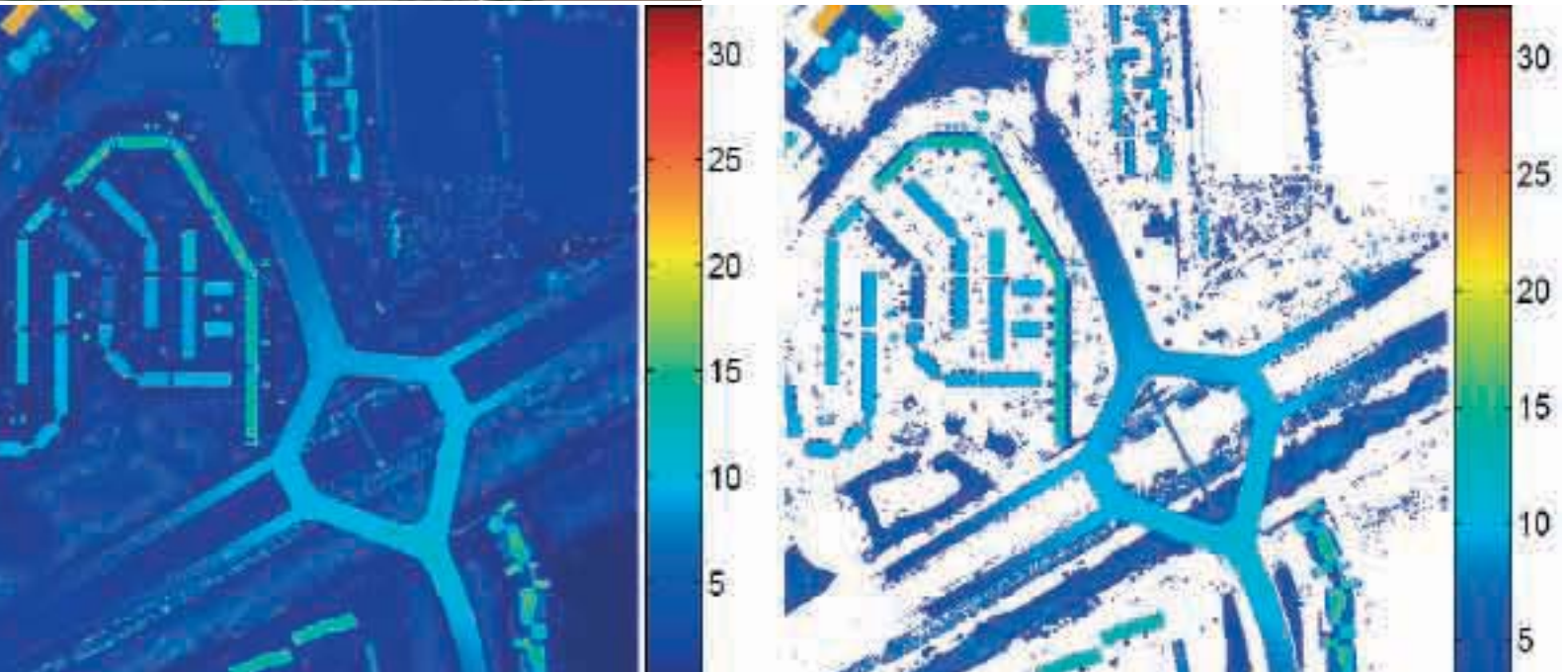
The RPSoc Newsletter



In this issue:



Fuzzy flood mapping from space-borne RADAR imagery: a new approach.



LIDAR Filtering – a Computer Vision Perspective

Plus a range of regular features including: industry and space news, meeting reports, RPSoc student forum, Chairman's message and much more.



Publisher

The RSPSoc
c/o School of Geography
University of Nottingham
University Park
Nottingham
NG7 2RD
Tel: 0115 951 5435
Fax: 0115 951 5249
rspsoc@rspsoc.org

Editors

Karen Anderson
Mark Cutler

Design

Tina Thomson
Fakhar Khalid

Published quarterly

Material for inclusion should be sent to the Publisher by: 1st March for publication in April; 1st June for publication in July; 1st September for publication in October; and 1st December for publication in January. Please send by email to newsletter@rspsoc.org

Items for the RSPSoc Newsletter are accepted in good faith and the RSPSoc takes no responsibility for any inaccuracies that occur in the original material of submitted articles.

Credits

Images and photographs included in this Newsletter are provided by the authors and advertisers. We also gratefully acknowledge the support of NEODAAS for other satellite images used throughout.

Printed by Alphagraphics, Nottingham, on recycled paper. When you have finished with this Newsletter, please pass it on to others or recycle it.

4 Guest Editorial

5 Chairman's Message

Featured Science Articles

6-7 LiDAR filtering: a computer vision perspective
Dr Marc Bartels (recipient of RSPSoc PhD award)

8-9 Remote sensing the human impact on vegetation at high latitudes
Ekaterina Shipignia, Scott Polar Research Institute

10-11 Fuzzy flood mapping
Guy Schumann, University of Bristol

18-19 Monitoring vegetation, soil and water fluxes using remote sensing.
Prof Michael Vohland, University of Trier

Society News

12-16 The launchpad - latest satellite news
Landsat calibration update
Science News
RSPSoc people

17 EH Thompson event: press release

20 Council News from Philippa Mason

RSPSoc Students

24 The latest news from your Student Representative

Meeting reports

26-27 Meeting reports from ISRSE 2009 (Lake Maggiore, Italy) and GRSG 2009 (London, UK)

Commercial members

28 Details of commercial membership opportunities

Technical Programme

29 Forthcoming meetings in 2010 and beyond, society calendar



Vegetation, soil and water fluxes - how to monitor with remote sensing?

Prof. Dr. Michael Vohland

Prof Vohland was last year's recipient of RSPSoc's Len Curtis Award. This award is given in recognition of an outstanding technical work published in the preceding year in the Society's journal, *International Journal of Remote Sensing*. Here, Prof Vohland gives readers a brief overview of his career, research focus and the forward direction for remote sensing studies concerned with flux estimation.



I was not aware of the potentials of remote sensing before I studied Physical Geography. In the courses and lectures held by Prof. Dr. Hellmut Schroeder-Lanz (one of the pioneers of geographical remote sensing in Germany) and his team, I saw that remote sensing can be a powerful tool for land surface observation, to study urbanisation, land use changes, and the state of vegetation and soils.

I studied Physical Geography at the University of Trier (Germany) in the nineties (1990-1997). Since then, a new era of remote sensing has begun with a series of new Earth observation satellites, with imaging spectroscopy emerging as an operational monitoring tool and with a variety of quantitative approaches and algorithms for remote sensing data analysis; many concepts of integrating and assimilating remote sensing data in crop growth, SVAT and hydrological models have been developed and applied. In this field, I performed my PhD studies, receiving my PhD degree in 2002 for a thesis on the optimisation of model-based computations of water budgets by the integration of optical remote sensing data.

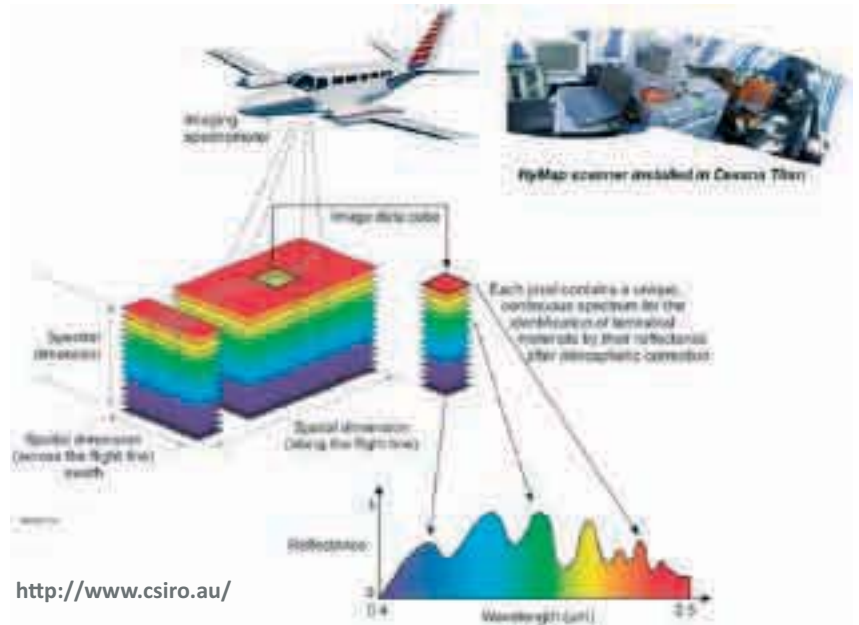
In 2003, I was offered the junior professorial chair of Remote Sensing and Geoinformatics at the University of Trier (Faculty of Geography and Geosciences). In the years as junior professor, I advanced my expertise in ecosystem assessment studies with multi- and hyperspectral remote sensing systems. The coupling of remote sensing data and hydrological models is still one of my major research topics, and I am involved in the working group "Research and future perspectives" in the Scientific Community of Hydrological Sciences (German Association for Water, Wastewater and Waste). Ongoing research in this field focuses on the multiscale assessment of energy and water budgets in complex terrain using a data assimilation concept with remote sensing data and hydrologic and atmospheric modelling approaches (as a cooperative project at Trier University).

Vegetation and, more recently, soil monitoring are further research themes, mainly based on hyperspectral image data (e.g. HyEurope 2005, 2009), and non-imaging field spectroradiometer measurements (VIS-NIR spectroscopy). Key issues in this field are data pre-processing, parameter retrieval (by e.g. canopy reflectance modelling or multivariate data analysis) as well as scaling issues. With respect to soil parameters, my work focuses on the spatially distributed retrieval of soil organic matter (SOM) and SOM fractions. To provide detailed information on SOM, an ongoing cooperative project will combine airborne and in-field spectroscopy with higher resolved laboratory VIS-NIR, FTIR and Raman spectroscopy, together with advanced laboratory fractionation schemes to identify SOM pools of different stability and turnover rate. The main goal is to obtain stable SOM prediction models on landscape scale (using techniques as 2D correlation spectroscopy and multiblock PLS) and to reduce or close the gap between lab, field and imaging spectroscopy.

Figure 1 on the facing page shows my research challenge - how do we close the gap between the lab-based understanding of remote sensing signatures, field spectra, collected in natural illumination conditions, and scaled-up remote sensing measurements made from aircraft or satellite platforms? This continues to be a research challenge and it is something I'm working on addressing through current projects.



<http://www.ncaveo.ac.uk>



<http://www.csiro.au/>

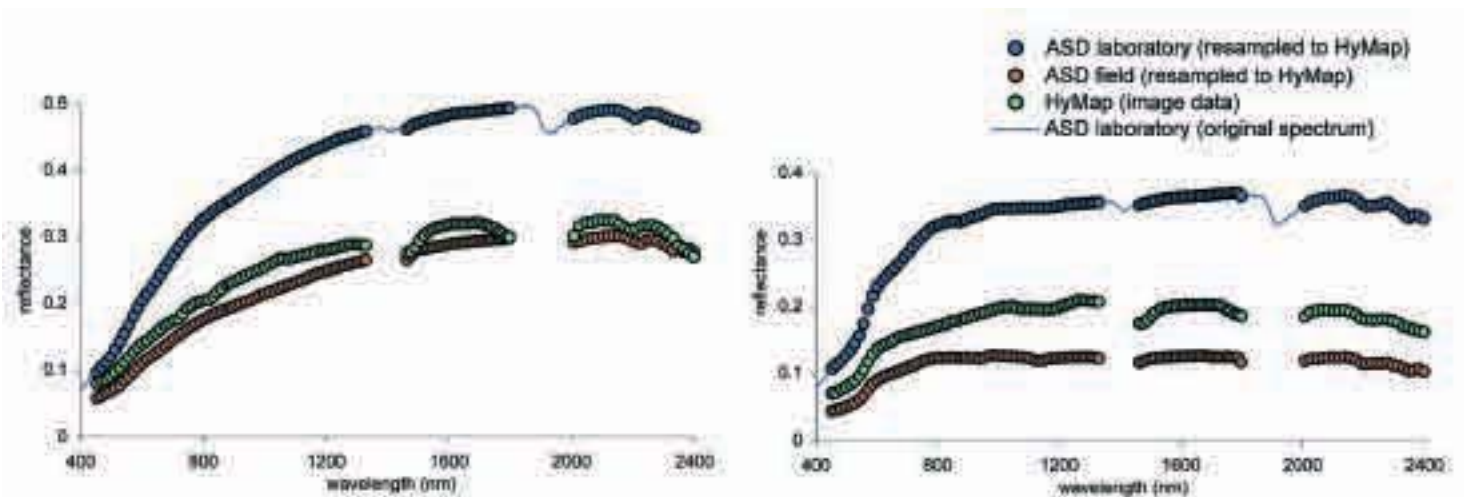


Figure 1: How to close the gap? Inter-comparison of field spectral measurements and those collected from EO sensors continues to be a research challenge (top). This is exemplified by a graphical comparison of lab spectra, field spectra (ASD FieldSpec FR instrument) and HyMap (airborne imaging sensor) spectra for two bare soil plots (left: loamy-sandy cambisol (iron-rich sandstone); right: clayey-loamy calcareous cambisol (limestone) acquired during HyEurope 2009 near Trier, Germany)

ABOUT THE AUTHOR

Michael Vohland was born in 1969 in Engers (Germany). He is adjunct Professor and lecturer for remote sensing, geoinformatics and statistics at the University of Trier (Faculty of Geography/ Geosciences, Remote Sensing Department, headed by Prof. Dr. Joachim Hill).

vohland@uni-trier.de



Would you like to appear in the next issue of *Sensed*?

An article here will reach over 1000 international readers and will ensure that your research gains maximum exposure. We're always looking for exciting science articles, reviews of meetings, or thought-provoking material for our next issue. So, why not get in touch? Email your contribution to newsletter@rspsoc.ac.uk. Articles should be 600-700 words long and should be accompanied by 2-3 informative images. We look forward to hearing from you soon.