

# Luke P Spadavecchia

16 Coventry Road  
Bulkington  
Warwickshire  
CV12 9ND

Tel: 02476 312 706  
Mobile: 07792250871

Email: [L.Spadavecchia@gmail.com](mailto:L.Spadavecchia@gmail.com)

Website: <https://www.geos.ed.ac.uk/homes/s0198247>

## Research Interests

Biosphere – atmosphere exchange of mass and energy with an emphasis on statistical and physically based modeling of interannual CO<sub>2</sub> and H<sub>2</sub>O flux at the plot, regional and global scale. Investigating the propagation of uncertainty through ecosystem models from the plot to regional scales. Space-Time statistical methods, focusing on Gaussian process models/Geostatistics, model data fusion and data assimilation techniques. Remote sensing for land cover mapping and model parameterisation. GIS/Computer cartography. Forestry applications of computer vision/image segmentation.

## Employment

August/September 2004: Edinburgh Centre for Carbon Management (ECCM),  
Edinburgh, Midlothian

### Remote sensing consultant

- Assessment of land use change in the Nhambita régulado, Mozambique 1991 – 2000.

June 2006: Envirotrade, Tower Hamlets, London

### Remote sensing consultant

- Land use mapping of the Quirimbas National Park, Mozambique and quantification of forest area.

September 2007: Envirotrade, Tower Hamlets, London

### Remote sensing consultant

- Land use assessment of Marrameu district, Mozambique, and quantification of forested area.

August 2008 – Present: CS Engineering Services, Coventry, Warwickshire

### Electrical engineer

- Responsible for the assembly of printed circuit boards, manufacture of equipment and calibration/testing of finished products for the aerospace industry.

## Education

PhD. University of Edinburgh, 2008

Ecology/Environmental Science

*Thesis:* Estimation of landscape carbon budgets: Combining geostatistical and data assimilation approaches

- NERC funded through the Centre for Terrestrial Carbon Dynamics (CTCD)

B.Sc (1<sup>st</sup> Class Honours) University of Edinburgh, 2004

Ecology

*Dissertation:* GIS habitat suitability assessment for the Bean Goose (*Anser fabalis*) on the Slamannan plateau, Central Scotland

- In association with RSPB Scotland

### Teaching and Student Advising

- Four years of tutoring/demonstrating experience at undergraduate level at the University of Edinburgh. Subjects taught include Ecology, Micrometeorology, Computer Modelling, and Statistics.
- Two consecutive years of demonstrating and supervising groups on field courses at Firlush Point, Loch Tay. Giving short introductory lectures on remote sensing of vegetation, forest canopy observation and the use of GPS. Leading undergraduate projects. Assisting students with plant identification. Supervising hikes up Ben Lawers.

### Publications

#### In Review

- Spadavecchia L, M. Williams, B.E. Law (in review) Uncertainty in predictions of forest carbon dynamics - separating driver error from model error. *Global Change Biology*.
- Stoy P.C, M. Williams, R. Bell, L.E. Street, A. Prieto-Blanco, L. Spadavecchia, M.T. van Wijk (in review) Optimum pixel size and shape for process-based studies: application to arctic ecosystems. *Ecosystems*.

#### In Print/In Press

- Spadavecchia L, M. Williams (in press) Can Spatio-Temporal Geostatistical Methods Improve High Resolution Regionalisation of Meteorological Variables? *Agricultural and Forest Meteorology*.
- Spadavecchia, L, M. Williams, R. Bell, P.C. Stoy, B. Huntley & M.T. van Wijk (2008) Topographic Controls on the Leaf Area Index and Plant Functional Type of a Tundra Ecosystem. *Journal of Ecology* 96: 1238-1251.
- Williams M, R. Bell, L. Spadavecchia, L.E. Street, M.T. van Wijk (2008) Upscaling leaf area index in an Arctic landscape through multi-scale observations. *Global Change Biology* 14:1517-1530.

### Academic Skills

Writing technical reports and articles for academic journals. Extensive experience in Microsoft Office. Excellent computer skills on all major platforms (Windows/Linux/Mac OS). Experience with database and large dataset management. Skilled at scientific programming (FORTRAN, C, Matlab, R/S-plus, Bash). Familiar with all major remote sensing and GIS software packages. Advanced statistical analysis, particularly with spatially and temporally dependent datasets.

### Field Skills

Plant identification. Soil sampling (texture, bulk C and N analysis). Spectral reflectance measurements in field and laboratory settings. Field campaigns in remote environments.

Canopy density measurements (LiCor LAI2000 and hemispherical photography).  
Timber cruising/biomass survey.

#### **Other Qualifications/Certifications**

- Full clean UK drivers license
- Disclosure (Scotland)
- CTCD/Quest Terrestrial Carbon Cycle and Earth Observation summer school
- Terraseer “Geostatistical Analysis” and “Advanced Geostatistical Analysis”
- Marlin Fieldwork/Outdoor First Aid qualification

#### **Professional Contacts**

##### Dr. Mathew Williams

School of GeoSciences

Institute of Atmospheric and Environmental Sciences

Crew Building, Kings Buildings

University of Edinburgh

Edinburgh, EH9 3JN, UK

Tel: + 44 (0) 131 650 7776

[Mat.Williams@ed.ac.uk](mailto:Mat.Williams@ed.ac.uk)

##### Professor John Grace

School of GeoSciences

Institute of Atmospheric and Environmental Sciences

Crew Building, Kings Buildings

University of Edinburgh

Edinburgh, EH9 3JN, UK

Tel: + 44 (0) 131 650 5400

[JGrace@ed.ac.uk](mailto:JGrace@ed.ac.uk)

##### Professor Shaun Quegan

Department of Applied Mathematics

University of Sheffield

Hicks Building

Hounsfield Road

Sheffield

S3 7RHTel: +44 (0)114 222 3778

[S.Quegan@sheffield.ac.uk](mailto:S.Quegan@sheffield.ac.uk)