

# DR AMY WOODGET

## ***Post-doctoral Researcher and Lecturer in Remote Sensing and River Science***

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### ***Overview***

- MSc and PhD qualified scientist working on remote sensing of river habitats and geomorphology (including work on topography, grain size, change detection, debris-covered glaciers, and climate change impacts).
- Growing international profile demonstrated by 10 invited speaker requests since 2014, including international conferences and NERC funded doctoral training programmes, and role as the UAVs special interest group chairperson for the UK's leading remote sensing society (RSPSoc).
- 6+ years' research experience acquiring, processing and analysing high-resolution geospatial data acquired using UAVs and SfM-photogrammetry for environmental applications.
- Developing interest in the use of high resolution UAV imagery and topographic data for applications in biodiversity and ecosystem services.
- Strong research profile for REF2021: six peer-reviewed publications since 2015, with c.150 citations. Significant evidence for a research impact case study. Google Scholar h-index of 5.
- 6+ years' lecturing experience in Geography, GIS and Remote Sensing in Higher Education. Strong interest in development of research led teaching, technology enhanced learning and employability skills.
- Associate Fellow of the Higher Education Academy. Strong performance in PG Cert modules to date, due for completion summer 2018.
- 3.5 years' commercial experience in engineering geomorphology consultancy, with focus on GIS/remote sensing analysis and outputs. Includes work on slope stability, coastal erosion, risk and hazard management, river restoration and monitoring, climate change impacts, oil/gas pipeline routing and nuclear waste management.

### ***Qualifications & Employment***

<b>On-going</b>	<b>Post-graduate Certificate in Teaching and Learning in Higher Education</b>	University of Worcester, UK
<b>On-going</b>	<b>Post-doctoral researcher and lecturer</b> in remote sensing and river science	University of Worcester, UK
<b>2011-2015</b>	<b>PhD:</b> Quantifying physical river habitat parameters using hyperspatial resolution UAS imagery and SfM-photogrammetry	University of Worcester, UK <b>Runner-up for the IES John Rose Award for Science Communication</b>
<b>2008-2011</b>	<b>Consultant Geomorphologist</b> (GIS and remote sensing specialist)	Halcrow Group Ltd, Birmingham, UK
<b>2006-2007</b>	<b>MSc by research:</b> An assessment of the use of airborne LiDAR for estimating growth of Sitka spruce ( <i>Picea sitchensis</i> ) plantation forestry at Kielder Forest, UK	University of Durham, UK <b>Winner of the RGS GIScience Dissertation Prize</b>
<b>2003-2006</b>	<b>BSc (Hons) Geography, Class I</b>	University of Durham, UK

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### ***Peer-Reviewed Publications***

**Woodget, A.S.,** Fyffe, C.L. and Carbonneau, P.E. (2018) From manned to unmanned aircraft: Adapting airborne particle size mapping methodologies to the characteristics of sUAS & SfM. *Earth Surface Processes and Landforms*. DOI: [10.1002/esp.4285](https://doi.org/10.1002/esp.4285)

- Woodget, A.S.** and Austrums, R. (2017) Subaerial gravel size measurement using topographic data derived from a UAV-SfM approach. *Earth Surface Processes and Landforms* 42 (9): 1434-1443 [DOI: 10.1002/esp.4139](https://doi.org/10.1002/esp.4139)
- Woodget, A.S.**, Austrums, R., Maddock, I. and Habit, E. (2017) Drones & digital photogrammetry: From classifications to continuums for monitoring river habitat & hydromorphology. *WIREs Water*. [DOI: 10.1002/wat2.1222](https://doi.org/10.1002/wat2.1222)
- Woodget, A.S.**, Visser, F., Maddock, I. and Carbonneau, P. (2016) The accuracy and reliability of traditional surface flow type mapping: is it time for a new method of characterising physical river habitat? *River Research and Applications* 32 (9): 1902-1914, [DOI: 10.1002/rra.3047](https://doi.org/10.1002/rra.3047)
- Woodget, A.S.**, Visser, F., Maddock, I. and Carbonneau, P. (2016) Quantifying fluvial substrate size using hyperspatial resolution UAS imagery and SfM-photogrammetry. *Extended Abstract, 11<sup>th</sup> International Symposium on Ecohydraulics, Melbourne, Australia, 7-12 February*
- Woodget, A.S.**, Carbonneau, P.E., Visser, F. and Maddock, I. (2015) Quantifying submerged fluvial topography using hyperspatial resolution UAS imagery and structure from motion photogrammetry. *Earth Surface Processes and Landforms* 40: 47-64, [DOI: 10.1002/esp.3613](https://doi.org/10.1002/esp.3613)
- Moore, R., Rogers, J., **Woodget, A.** and Baptiste, A. (2010) Climate change impact on cliff instability and erosion. *Proceedings of the Environment Agency/DEFRA Flood & Coastal Management Conference*, Telford
- Woodget, A.S.**, Donoghue, D.N.M., and Carbonneau, P.E. (2007) An assessment of airborne LiDAR for forest growth studies. *Ekscentar* 10: 47-52

### **Publications in Progress**

- Rivas-Casado, M., **Woodget, A.S.**, Ballesteros Gonzalez, R., Maddock, I. and Leinster, P. (*in review*) Unmanned aerial vehicles for riverine environments. *Book chapter (submitted May 2017)*
- Fyffe, C. L., **Woodget, A.S.**, Kirkbride, M. P., Deline, P., Westoby, M. and Brock, B. W. (*in prep*) Determining distributed ablation over dirty ice areas using a UAV-SfM approach. Target journal is *Journal of Glaciology*
- Visser, F., **Woodget, A.**, Skellern, A., Forsey, J., Warburton, J. and Johnson, R. (*in prep*) Low cost fluvial surveying: An evaluation of a simple 'camera-on-a-pole' approach for river management. Target journal is *International Journal of Remote Sensing*
- Puig-Mengual, C.A., **Woodget, A.S.**, Muñoz-Mas, R. and Martínez-Capel, F. (*in prep*) Spatially continuous validation of refraction corrected submerged topography: A case study from the Palancia River, Spain. Target journal is *Earth Surface Processes and Landforms*
- Woodget, A.S.** and Dietrich, J. (*in prep*) Improving the accuracy of bathymetric structure-from-motion approaches for monitoring geomorphic change at fine resolutions. Target journal is *Earth Surface Processes and Landforms*

### **Other Skills and Experience**

- Chair of Remote Sensing and Photogrammetry Society's (RSPSoc) UAV Special Interest Group (since 2016).
- Co-opted member of RSPSoc Council (on-going).
- Invited speaker: Dartmouth College, USA (2017), NERC Doctoral Training Course (2017), Chartered Institution of Water and Environmental Management (2016), Institution of Environmental Science (2015), Environment Agency (2015), British Geological Survey (2014).
- RSPSoc Wavelength Representative for Early Career Members (2012-2014).
- Member of the British Hydrological Society, the British Society for Geomorphology, the American Geophysical Union and the Geological Society of London.
- Guest editor of *International Journal of Remote Sensing Special Issue: UAVs for Environmental Research* (2016-2017).
- Lead Conference Convenor: Small UAS for Environmental Research: >100 delegates, international reach (University of Worcester, June 2016) (4<sup>th</sup> Annual UAS4Enviro Conference); Remote Sensing from Small UAVs: c. 80 delegates, national reach (University of Worcester, June 2013) (1<sup>st</sup> Annual UAS4Enviro Conference).
- Fully trained UAV pilot (rotary) with CAA Permission for Commercial Operations (since 2012).
- STEM Ambassador (since 2013) involved in educational outreach.
- Recipient of numerous small grants for research and conference travel (including £3500 Early Career Researcher Grant from the British Society for Geomorphology).
- Attendee at NERC 'Modelling Ecosystem Services' workshop, University of Cranfield (2016)