

# Bluesky Aerial Maps Help Assess Risk of Flash Floods



Aerial photography from Bluesky is being used to identify changes in sediment movement in upland river courses, to help assess the risk of flash flooding. In research centred on the English Lake District National Park, the imagery is helping map region-wide river erosion and sedimentation patterns.

Using a Geographical Information System (GIS), the aerial maps, dating from 2003 and 2009, alongside older aerial photographs and historic Ordnance Survey maps, are being used to understand river channel change from 1850 to the present day.

“Upland rivers experience high rates of erosion and sediment transfer and are highly susceptible to changes in their planform. This can influence flood risk, affect land

boundaries, damage infrastructure and habitat diversity,” commented Hannah Joyce, Research Postgraduate Student at Durham University and author of the study. “Understanding how these rivers have changed in the past can provide insights into how these systems might evolve in the future. With more extreme weather events, such as storm Desmond in 2015 which broke the UK’s 24 hour rainfall record, we are expected to see future changes in upland river courses.”

Using GIS, river channel banks and gravel bars are being digitised on the different dated imagery. The different data will be overlaid to quantify channel changes and movements over time. This information will be compared for all rivers in the central Lake District National Park, and the outcome of the research and the approach used will be applied to other upland areas for improved understanding and management of river sediment and erosion issues.

Designed to inform targeted management strategies to address current engineering problems and mitigate against future flood risks, the imagery is being used in a partnership between Durham University, Newcastle University and the Lake District National Park Authority (LDNPA). The project is funded by the Natural Environment Research Council (NERC).

The Bluesky aerial photography was originally purchased by the LDNPA, where it is accessed by all staff using the Authority’s GIS. Applications of the data include use by the Planning Team to examine developments over a period of time, while other staff use the imagery to assist with conservation management, identify archaeological features and manage LDNPA properties.