



## **Multi-scale Geological Outcrop Visualisation: Using Gigapan and Photosynth in Fieldwork-related Geology Teaching**

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An increasing proportion of geology (and other fieldwork-related discipline) students are mobility impaired. This is partially due to the widening access agenda and the acceptance of increased numbers of students with severe medical disabilities. In the UK, the expectation of “The Special Educational Needs and Disabilities Act (2001)” (SENDA) and “The Higher Education Quality Assurance Agency” (QAA) is that institutions should, wherever possible, provide alternative experiences where comparable opportunities are available which satisfy the learning outcomes. In order to provide this alternative experience, the ways in which students observe and learn from geology in the field need to be resembled closely by, for example, viewing outcrops at different scales and from different perspectives. Whilst a series of still images at different distances could be taken, students need to be able to decide where to look in detail and 'move around' the outcrop.

The Gigapan project is a website and supporting software that allows high-resolution megapixel photographic images to be combined to make gigapixel panoramas which can then be explored at many scales by zooming and panning. Photosynth is a similar project where a number of different digital photographs are combined into a 3D model in which the user can move around. Here, we show examples of both projects, which have been successfully implemented in geology teaching related to a residential undergraduate field course to classic geological areas in Pembrokeshire, South Wales. In addition to providing an alternative learning experience for mobility-impaired students on the fieldtrip, these resources could also be used for non-impaired students where circumstances such as bad weather prevents the whole cohort from visiting a key exposure on a field course. They would also allow a 'virtual' visit of exposures that are inaccessible and may be a useful learning tool for preparing students for a forthcoming field course.