



Augmented reality on poster presentations, in the field and in the classroom

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Augmented reality (AR) is the direct addition of virtual information through an interface to a real-world environment. In practice, through a mobile device such as a tablet or smartphone, information can be projected onto a target- for example, an image on a poster. Mobile devices are widely distributed today such that augmented reality is easily accessible to almost everyone. Numerous studies have shown that multi-dimensional visualization is essential for efficient perception of the spatial, temporal and geometrical configuration of geological structures and processes. Print media, such as posters and handouts lack the ability to display content in the third and fourth dimensions, which might be in space-domain as seen in three-dimensional (3-D) objects, or time-domain (four-dimensional, 4-D) expressible in the form of videos. Here, we show that augmented reality content can be complimentary to geoscience poster presentations, hands-on material and in the field. In the latter example, location based data is loaded and for example, a virtual geological profile can be draped over a real-world landscape. In object based AR, the application is trained to recognize an image or object through the camera of the user's mobile device, such that specific content is automatically downloaded and displayed on the screen of the device, and positioned relative to the trained image or object. We used ZapWorks, a commercially-available software application to create and present examples of content that is poster-based, in which important supplementary information is presented as interactive virtual images, videos and 3-D models. We suggest that the flexibility and real-time interactivity offered by AR makes it an invaluable tool for effective geoscience poster presentation, class-room and field geoscience learning.