

Creating 360° Virtual Field Guides to improve field learning

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The Arctic Biology Department at The University Centre in Svalbard (UNIS) are trying to improve how students can learn about fieldwork and how fieldwork can be properly assessed. With the recent advances in virtual reality technology, it is now possible to put this to use in an educational setting.

Virtual Reality and our Implementation

Virtual Reality (VR) is an immersive simulated experience that tricks your senses into thinking you're in a different place. Commonly done using a VR headset to project a 360° environment, but to lower the investment for the users, our focus has been to create 360° Virtual Field Guides (VFGs) around Svalbard that can be viewed online in a web browser.

Overview of the Project

Our VFGs contains mostly biological knowledge, such as descriptions of the habitats, relevant species and what abiotic and biotic factors influence it all.

VFGs can provide several benefits for students and the university. Fieldwork comes with a high cost, logistic challenges and safety concerns. Especially in Svalbard.

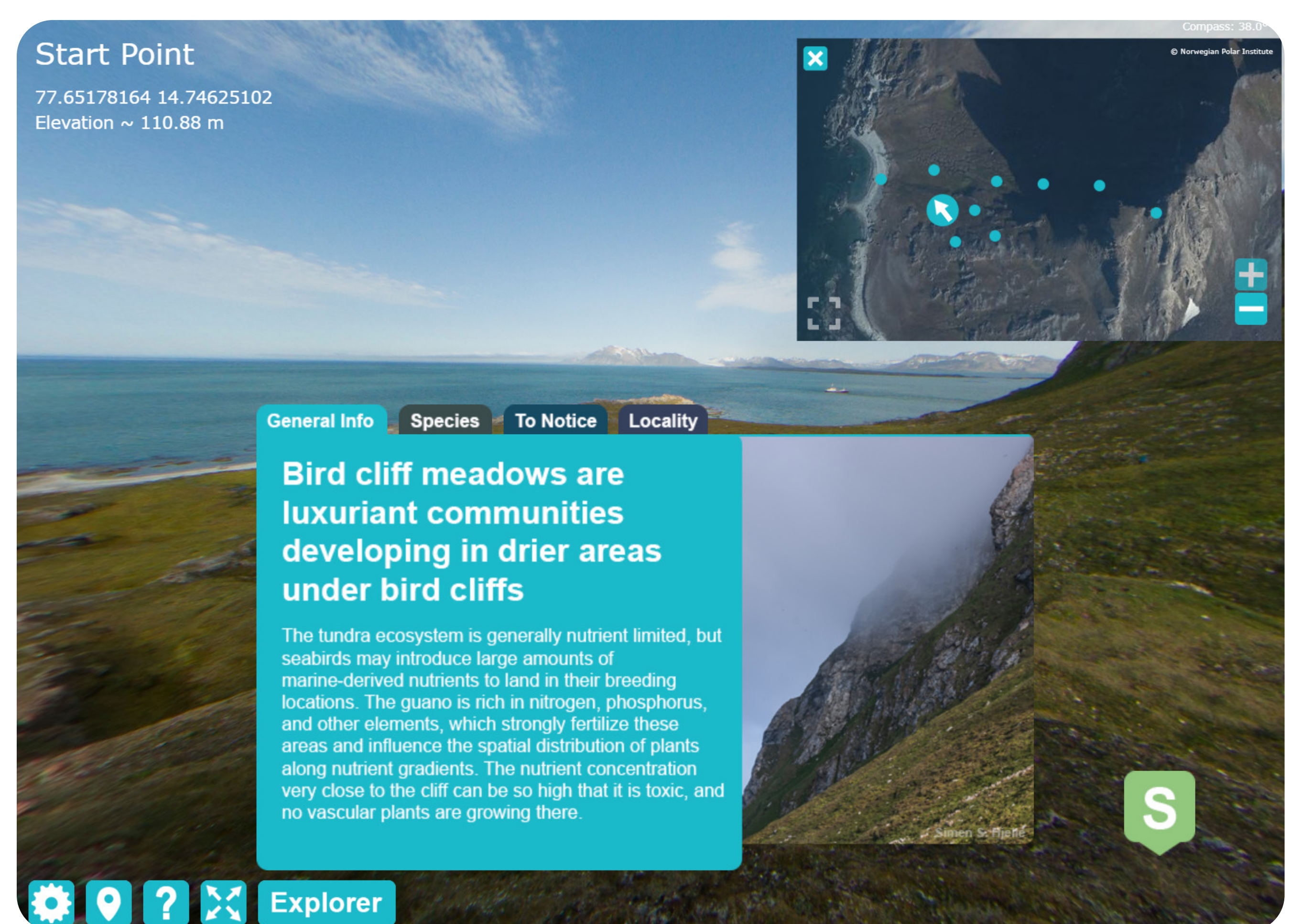
Prospected benefits are:

- Low cost of developing and maintaining (compared to fieldwork)
- Provide students with more realistic expectations
- Enable students to revisit locations later
- Enable virtual visit of locations beyond reach for comparison

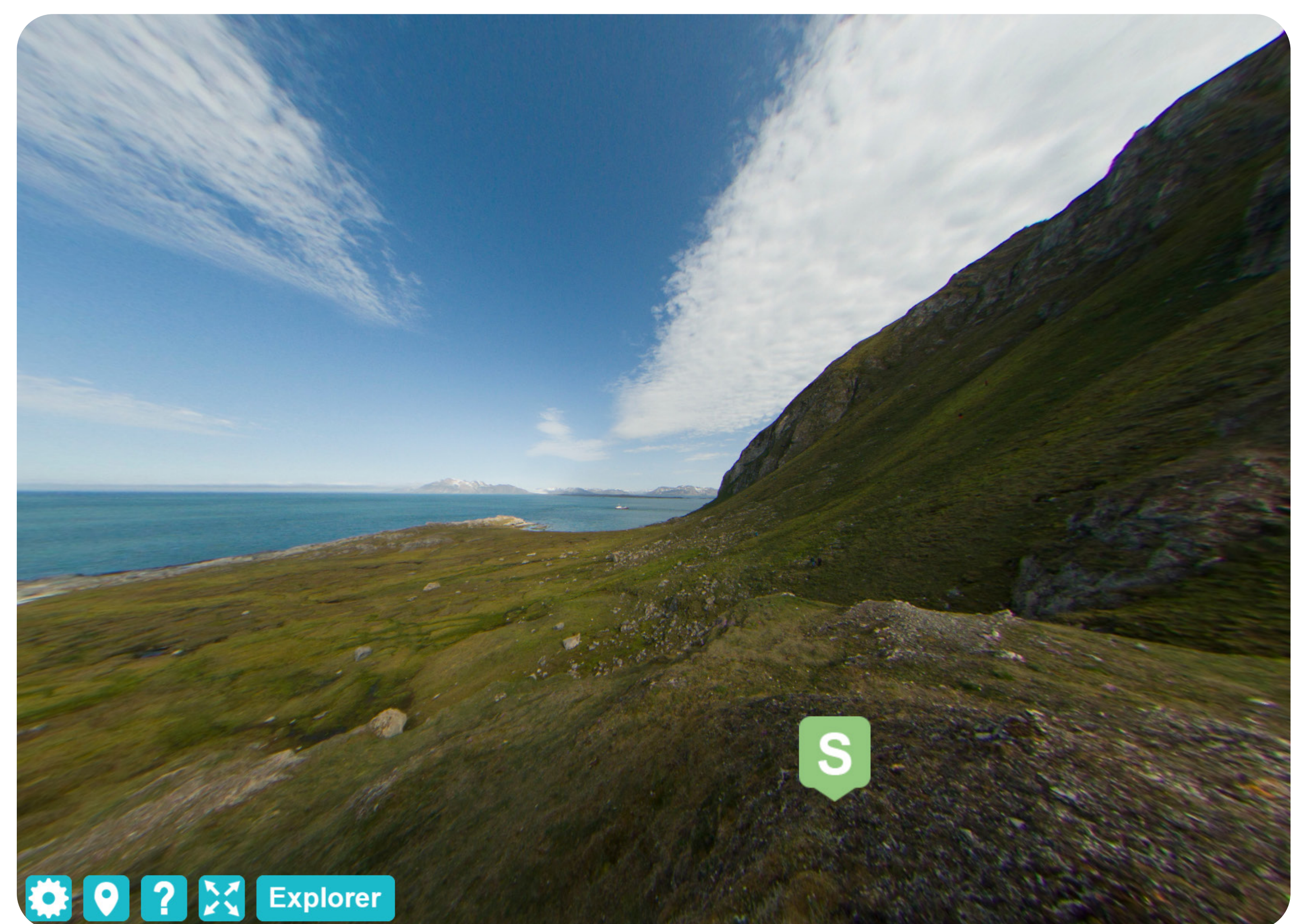
Prospected downsides are:

- Limited to visual stimuli at a fixed resolution
- Limited by the information provided in the VFGs
- Lacks the presence of a teacher who can answer questions
- Some students might find the experience disorienting^[1,2].

Currently we have produced 8 VFGs and 6 simpler 360° Tours. With more to come.



Screen grab from the VFG at Miderhuken, with UI elements. An "Explorer" can be used to guide your experience in the VFG.



Screen grab from the VFG at Miderhuken, with most UI elements hidden. Several of these 360-degree images are strung together to create a guide.

1. Cliffe, A. D. (2017). A review of the benefits and drawbacks to virtual field guides in today's Geoscience higher education environment. *International Journal of Educational Technology in Higher Education*, 14(1), 1-14.
2. Stott, Tim, and Anne-Marie Nuttall. "Design, development and student evaluation of interactive virtual field guides for teaching geosciences at Liverpool John Moores University, UK." *Emerging Trends in Higher Education Learning and Teaching* 274 (2010): 64-71.

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