THE OHIO STATE UNIVERSITY
BYRD POLAR AND CLIMATE RESEARCH CENTER

A Permafrost Virtual Tour to Enhance the Permafrost Discovery Gateway

Amadou Agne[1], Daniel Hamilton[1], Jason Cervenec[1], Jennifer Moss[2], Tom Douglas[3], Anna Liljedahl[4], and Eric Lonn[2]

(1) Byrd Polar and Climate Research Center, (2) University of Alaska Fairbanks, (3) CRREL, (4) Woodwell Climate Research Center

Virtual Tours

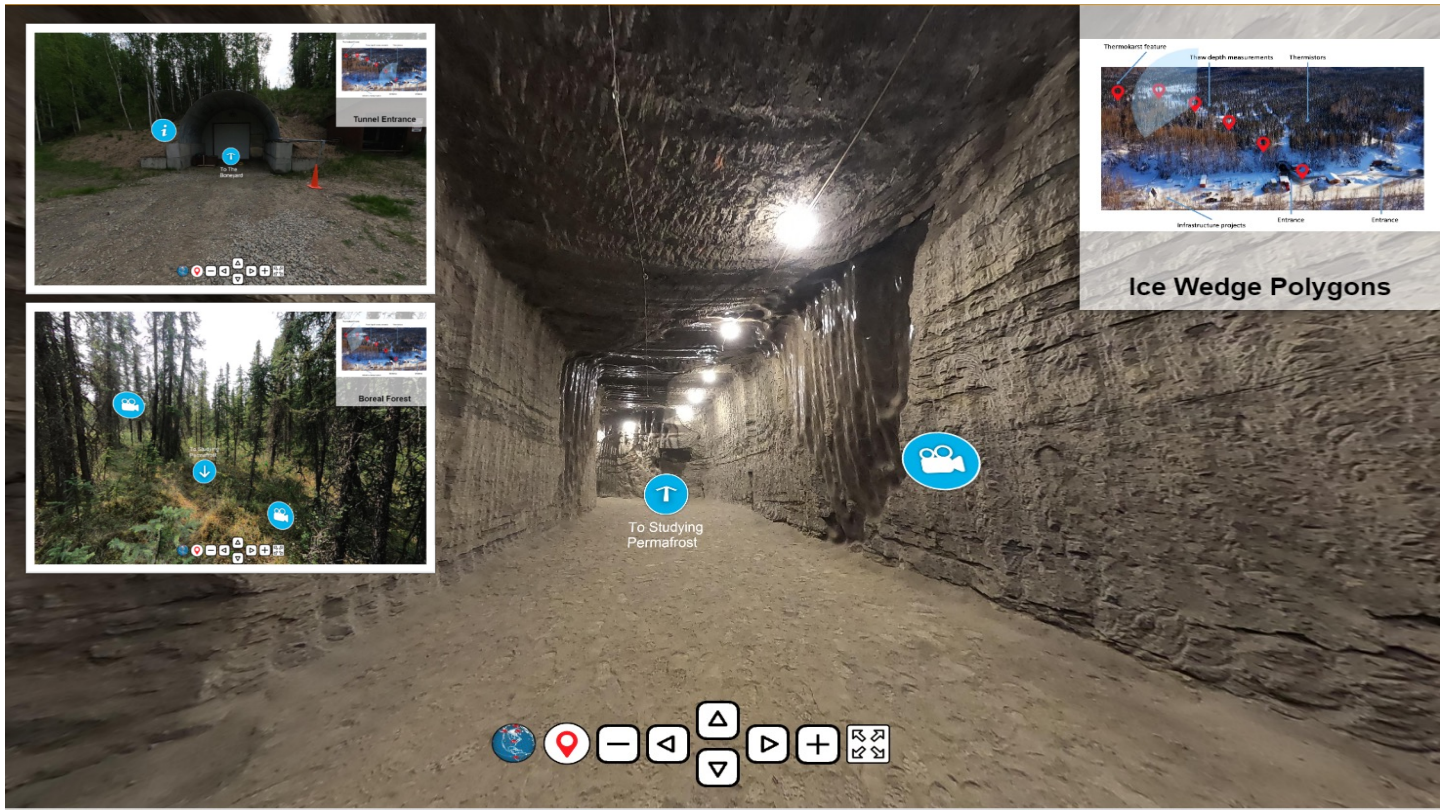
Virtual tours of landscapes and facilities may be created using low-cost 360-cameras, standard software packages, and basic web-hosting capabilities. Additional media may be layered onto tours to enhance the user experience. While the workflow is not arduous, time needs to be dedicated by a staff member who is comfortable with technology and willing to learn the process. Having a team willing to co-create a compelling narrative for the tour and design it with end use in mind is critical. Depending on their design, virtual tours may be used for asynchronous exploration, live-guided events, or both.

Touring with the Public

When VR headsets are used at public events, they draw a sizable crowd, whether scientists, students, or the public. Sufficient space needs to be provided around each user as well as space for users to cue and others to observe. Our team requires users to remain seated as a safety precaution and sanitizes the headset between uses with bleach wipes. Users should be instructed on how to don the headset and manipulate the controller. Once wearing the headset, the user becomes fully immersed in the virtual landscapes. Users are often awestruck by the technology, and we are prepared to discuss the landscape and answer questions to provide a worthwhile educational experience. Transitions between users is quick and can be streamlined depending on the format deployed (the length and format of the tour can be formatted for larger or smaller groups, fully interactive tours for smaller groups versus video loops of portions of tours for larger groups). Links to the tours are shared with users and observers to explore at their leisure, whether using a headset, computer, tablet, or smartphone.

Creating the CRREL Permafrost Tunnel Tour

The project team identified content objectives to guide creation of the CRREL Permafrost Tunnel tour including: (1) showing surface and subsurface of permafrost landscapes, (2) highlighting changes to these landscapes over time, (3) featuring one area of ongoing research by scientists (paleoclimate in this case). The tour is limited to six scenes at an 8th grade reading level. The video, photographs, and text needed to create the Permafrost Tunnel tour were captured by team members at the University of Alaska in collaboration with CRREL. This content was shared with the team members at Ohio State who created the tour and posted it for online access. Subsequent revisions were made to the tour to improve user navigation, improve content clarity, and adapt supplemental media. The tour supports understanding of permafrost for users of the Permafrost Discovery Gateway as well as individuals who want to learn about the Permafrost Tunnel located in Fox, Alaska.



Partners

Permafrost Discovery Gateway
CRREL
UAF University of Alaska Fairbanks eCampus
Woodwell Climate Research Center

Funding provided by the National Science Foundation Navigating the New Arctic through awards 1927920, 1927872, and 2052107.

NSF

Captions: Screenshots from the Permafrost Tunnel virtual tour (top), use of virtual tour content during an elementary school literacy night (bottom, left) and STEM festival (bottom, right).

Try It Out!

Tour of the CRREL Permafrost Tunnel

virtualice.byrd.osu.edu/permafrost/

Entire Virtual Ice Tour Collection

https://virtualice.byrd.osu.edu/

Permafrost Discovery Gateway

https://arcticdata.io/catalog/portals/permafrost