

# NEWS RELEASE

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## Virtual Tour Debuted of Permafrost Tunnel near Fairbanks, Alaska

COLUMBUS, Ohio – The Ohio State University’s Byrd Polar and Climate Research Center released a virtual tour of the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) Permafrost Tunnel located near Fairbanks, Alaska. The virtual tour was developed to provide the public with a greater understanding of permafrost as part of the National Science Foundation-funded [Permafrost Discovery Gateway](#), which aims to enable the creation and discovery of big geospatial data across the Arctic permafrost region.

“Virtual tours give people, anywhere in the world, a chance to experience landscapes that are extremely remote, ecologically fragile, and physically challenging to access,” says Jason Cervenec, team leader of the Byrd Center’s Education and Outreach Team. “By allowing a wider audience gain a more visceral sense of features, such as permafrost, we are better able understand, appreciate, and take actions to protect them.”

The Permafrost Tunnel Virtual Tour starts at the tunnel entrance where visitors can choose to enter the tunnel or explore the forested landscape above. Visitors can jump between tour stops, each including an immersive scene, short video clips, high-resolution photos, and descriptive text highlighting features surrounding them. These features include buried green grass, animal bones, clear ice layers, and massive pillars of ice called ice wedges. Visitors can learn how permafrost forms, how the landscape changes when permafrost thaws, and how scientists study permafrost.

“Finally, anyone can now experience this unique treasure, which otherwise has been pretty much inaccessible to the public” says Anna Liljedahl, Woodwell Climate Research Center, who was part of creating the Permafrost Tunnel Virtual Tour. Virtual tours may be used for self-guided exploration by a broad audience, including youth, and live-guided events hosted virtually by scientists.

In collaboration with Tom Douglas from CRREL and Woodwell Climate Research Center, team members Jennifer Moss and Eric Lonn from eCampus at the University of Alaska Fairbanks captured and edited video and photographs and composed the text content necessary to create the Permafrost Tunnel Virtual Tour. According to Moss, “The Permafrost Tunnel is amazing – being able to stand underneath a giant ice-wedge polygon and touch a half-buried mastodon bone really gives you a new perspective on time, climate change, and the human experience. It was great to work with Tom and capture some of the essence of that feeling for learners across the globe.” This content was shared with team members at the Byrd Center who created the tour and developed it for online access. Reflecting on the rapid creation of this tour, Jason Cervenec commented, “We delivered this tour

quickly because of the skills each partner brought to the project and the willingness to focus on a few core elements of the tunnel and ongoing research there.”

The tour is currently available for exploration on any device using a web browser, including desktops, laptops, tablets, and smartphones. For a fully immersive experience, the tour may be explored with a VR headset. While visually captivating, the virtual tour is designed to work on basic devices with standard internet connections; there is no need for a gaming computer or high-bandwidth internet connection. All six immersive scenes include supplemental photos, video, and text presented at an 8<sup>th</sup> grade level but should be of interest to a broader audience including educators, scientists, and engineers.

Virtual Tours are a way to for students, educators, and the public to learn more about Earth’s Polar Regions and climate science. The Byrd Center has advanced development of virtual tours of Earth’s icy landscapes using low-cost 360-cameras, standard software packages, and basic web-hosting capabilities. Additional media is layered onto tours to enhance the user experience.

The [U.S. Army CRREL](#), part of the Engineer Research and Development Center, has 20 employees located near Fairbanks, Alaska, that operate the Permafrost Tunnel and other research sites across the Arctic. Douglas notes he is “appreciative of the efforts put towards sharing the tunnel with a diverse audience because interest in Arctic climate change and extinct animals like mammoths is increasing.” The tunnel is not open to the public.

The tour is available for direct access at <https://virtualice.byrd.osu.edu/permafrost/> and also via the Permafrost Discovery Gateway at <https://permafrost.arcticdata.io/>. The entire collection of virtual tours of Earth’s icy landscapes is available via the NSF-funded Virtual Ice project at <https://virtualice.byrd.osu.edu/>.