



West Virginia Geological and Economic Survey

Colloquium Series

Presenting

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West Virginia University

Date: Monday September 15, 2008

Place: **Large Conference Room behind Publication Sales**

Presentation: **Begins around Noon**

Ice Mountain: Ice-Age Ecosystem Refuge in West Virginia



Cold air flows out of >150 small openings at the base of a talus slope at the Nature Conservancy's Ice Mountain Nature Preserve in Hampshire County. Vent air temperatures vary throughout the year, but the mean annual temperature is as low as 2°C (35°F), more than 10C° (18 F°) colder than nearby sites. At least six boreal plant species survive at Ice Mountain, indicating the ecosystem is an "Ice-Age" refugium. Called Nature's Ice Box, the site was a popular destination in the early 1800s. Ice from the talus was used for ice-cream socials as late in the year as September.

Studies in Ice Mountain geology, geomorphology and micro-climatology since 2000 show ice is no longer apparent after early June, but it is difficult to assess whether the shortened ice duration relates to climate change or the abandonment of historic ice-storage strategies. The ecosystem faces additional risks from invasive plants, deer browsing, and a recent tornado.

The perilous existence of the Ice Mountain boreal ecosystem warrants a clear understanding of the geological framework in which it exists. The bedrock geology of Millboro Shale mantled with Oriskany Sandstone boulders and cobbles seems unexceptional compared to thousands of similar sites. Limestone caves and karst are not factors here. The Ice Mountain talus does seem unusually thick, possibly as much as 20 m (60 ft) in places, at least five times more than typical thicknesses in the region. It is likely that other cold-air producing sites like Ice Mountain exist in the Appalachians, and a search is underway in the Virginias and Pennsylvania.

Our speaker, Dr. Steve Kite, has taught in the Department of Geology and Geography at West Virginia University since 1983. Dr. Kite specializes in Surficial Geology and Geomorphology ("the Science of Scenery").