

ED55D-0189 Arctic Geology at the Aasivissuit–Nipisat UNESCO World Heritage Site, Western Greenland: Connecting Student Science and Indigenous Land Use Through an NSF REU



Friday, 16 December 2022



15:45 - 19:15



Poster Hall, Hall A (South, Level 3, McCormick Place)

Abstract

As part of an NSF Research Experiences for Undergraduates Site, we have led a geologic field research program at the Aasivissuit–Nipisat Inuit Hunting Ground between Ice and Sea, which was established as a UNESCO World Heritage Site in 2018. The UNESCO site coincides with the NE-striking Ikertôq shear zone, a major component of the Paleoproterozoic Nagssugtoquidian orogeny. It also coincides with a >50 km system of pseudotachylites – frictional melts that formed during deep earthquakes and a subject of our geologic investigations. In 2022, a team of nine students engaged in field research while immersed in the deep cultural history of the UNESCO site. The nearly 420,000 ha site preserves a 4200-year record of indigenous through colonial land use including the ruins of turf winter homes dating from the 15th to 20th centuries, the remains of summer hunting camps, burial cairns, stone hearths, and artifacts. On the western part of the UNESCO site, the focus of most of our research since 2013, the early Saqqaq culture (ca. 2200-700 BCE) inhabited a low-lying archipelago and coastal flats where the Ikertooq and Amerloq fjords empty into the Davis Strait; these sites were subsequently inhabited by newcomers to the region (Jensen et al., 2017).

Most geologic and other scientific research is focused on the eastern part of the UNESCO site on or near the Greenland Ice Sheet. Here, a pilot outreach project integrates geology, climate change, and the multi-millennial history of inland hunting. The project focuses on a popular tourist destination; the 30 km road to the ice sheet east of Kangerlussuaq through the Akuliarusiarsuup Kuua glacial valley. Our work on

the western coastal section of the site similarly integrates science and public outreach by providing a better understanding of bedrock geology and how ~1.8 Ga geologic structures may relate to patterns of human habitation. Our presentation will show how we continue to foster and integrate student scientific research with modern and ancient Arctic cultural awareness.



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