

Vandal Explorer Series: Geological Ripples from Yellowstone

Student Investigates Yellowstone Hotspot's Impact on Local Landforms



Yellowstone Vibrations

Watch master's student Chloë Weeks study geology in Montana's Gallatin Valley.

Chloë Weeks didn't just learn how to "bushwhack" and use a sledgehammer during her first season of field work with Assistant Professor [Jessica Stanley](#). The master's student also experienced her first "Yellowstone traffic jam," getting stuck behind a bison in the national park. The pair from the [Department of Geography and Geological Sciences](#) traveled to Montana's Gallatin Valley — which abuts Yellowstone — to study the relationship between the valley's formation and the geological upheaval associated with the Yellowstone hotspot. They think Yellowstone's volcanic activity has ripple effects, shaping the surrounding mountains and river valleys. At various elevations, Weeks and Stanley looked for rocks containing the mineral apatite, which can be used to calculate cooling rates. This information indicates when the rock was exposed at the Earth's surface and suggests the time scale for mountain building in the region. Weeks wants to see if geological events in the Gallatin coincide with volcanic events in Yellowstone. Because the Yellowstone hotspot is still active, Weeks says it's important to understand how the local volcanic activity shapes the landscape.

Chloë Weeks visited Montana's Gallatin Valley near Yellowstone to study the formation of the landscape.

Yellowstone's volcanic activity may shape the surrounding mountains and valleys.

Weeks and her advisor Jessica Stanley use geological maps to locate rock outcrops with the mineral apatite.

After bushwhacking to the outcrop, Weeks uses a sledgehammer to gather pieces of rock.

Article by [Leigh Cooper](#), University Communications and Marketing.

Photos courtesy of Chloë Weeks, College of Science.

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