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**Elizabeth Gordon (Geology), waiting out a lightning storm that blew up while she was drilling for water with the South Dakota State Geological Survey.**

July 2009

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### Deciphering Earth's past calls for rock-steady nerve

*For the summer issue of the St. Norbert College Magazine, out next week, we talked to the professors who teach in the environmental science major about the perils they meet when their research takes them out into the field.*

*Their hair-raising true tales of adventure had us wondering, who else on the faculty is out there doing battle with Nature, all in the name of science. Doug McInnis, a contributor to New Scientist and Popular Science, spoke to **Elizabeth Gordon** (Geology).*

For her doctoral research, Elizabeth Gordon was required to get a rock sample from the edge of a quarry wall. She climbed a ladder to reach a loose rock, plucked the rock free, and then watched in horror as a small-scale avalanche began. "Had the whole thing collapsed, I would have been killed," recalls Gordon.

This was a sign of things to come. Geological fieldwork is inherently dangerous, whether the mission is recovering rocks from the lunar surface, as the Apollo astronauts did, or simply removing a sample from an unstable rock formation.

The risks are myriad. Over the years, Gordon has encountered moose and bears, been caught in lightning storms, and suffered an extreme allergic reaction from fire-ant bites. She has inhaled rock dust, and worked with equipment that can tear away fingers in an instant.

Much of her work is routine and generally safe – collecting core samples, for instance. Core samples are layers of sediment pulled from the earth. They offer a backwards glimpse in time and can be used by geologists like Gordon to decipher Earth's environmental past. Along with other geological data, the core-sample information can help predict future environmental change facing the planet – changes in sea level, rainfall, temperature and the like, for instance.

But even core sampling has its hazards. To retrieve a core sample, an aluminum pipe is thrust into the ground. A stopper is placed in the top to create suction while the pipe is pulled up. It's similar to filling a straw with water, then capping it with your finger to create a suction that holds the water in the straw. As the cap is removed, the extreme suction can trap a

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researcher’s hand between the top of the pipe and the stopper. And that’s what happened to Gordon in 1990 while she retrieved a core sample from a Georgia tidal marsh.

Minutes ticked by while two of her students struggled to pull her hand free. Meanwhile, the tide was coming in. As the students worked vainly to free her, Gordon thought through her problem. She realized that they had to break the suction. She told one of the students to grab a hacksaw they had brought with them, and slice into the pipe. In an instant, the suction was broken. Gordon pulled free.

“I was a little panicked,” she recalls. “The tide was rising, and there was an alligator that hung out there everyday.”

