

CURIOSITY COUNTS IN THE WORLD OF SCIENCE

Exploring the migration of Canada's First Nations by analyzing animal bones, scrutinizing the composition of honey and examining rock samples to better understand the Earth's mantle show the diversity of projects currently underway at the Pacific Centre for Isotopic and Geochemical Research (PCIGR) at the University of British Columbia in Vancouver.

As one of the country's leading integrated analytical research centres, PCIGR attracts top researchers and students from science, technology, engineering, arts and mathematics (STEAM) disciplines to solve pressing research problems.



Prof. Dominique Weis, director of Pacific Centre for Isotopic and Geochemical Research, and the Canada Research Chair in the Geochemistry of the Earth's Mantle. SUPPLIED

Prof. Dominique Weis, director of PCIGR, and the Canada Research Chair in the Geochemistry of the Earth's Mantle, typically spends her time examining geological materials and volcanic lava, but a recent study that sought to "fingerprint" B.C. honey allowed the lab to be used for a completely different purpose.

Working with Hives for Humanity, a non-profit organization that promotes beekeeping, Prof. Weis's team analyzed honey collected by the group to determine its lead isotopic composition and any trace metals it contained.

While they found the honey was clean, the analysis piqued their

curiosity. Prof. Weis and her team are now making full use of the honey data to establish a baseline of trace metal concentrations (some of them being pollutants) in Greater Vancouver by comparing them to other data collected in the region over the years – from tree ring analysis to trace lead pollution to the sediment composition in the Georgia Strait and along the Garibaldi Belt volcanoes.

To carry out the sensitive analyses, PCIGR has 14 scientific instruments and maintains three "clean rooms," environments specially designed to minimize contamination, which is critical for the low-level analysis its researchers conduct.

However, the instruments, which cost between \$500,000 and \$2.5-million each, are only as good as the team that operates and maintains them.

"Because these specialists supervise the instruments, they are reproducible and accurate and function properly," adds Prof. Weis. "This allows us to custom design the type

of analyses we carry out here."

PCIGR serves three sectors: academic, government and industry. The centre also plays an important role in highlighting the careers that are open to students in the STEAM disciplines.

As part of its mandate to encourage the next generation of young scientists PCIGR welcomes interns to its lab, giving students the opportunity to participate in research and be mentored by graduate students and postdoctoral fellows.

In spring 2017, eight grade 11 and 12 students had the opportunity to see the work at PCIGR first-hand and participate in research projects ranging from archaeology to the mineralogy of sediments from different layers in a cave.

Prof. Weis is also very aware of her own role as a woman leading a world-class facility and works hard to mentor and encourage more students, particularly young women, to enter STEAM career paths and make a difference in the world of science.