

Bolivian observatory collects data as glaciers melt

8 November 2018, by Carlos Valdez



In this Oct. 8, 2018 photo, shows the entrance to the Chacaltaya atmospheric observatory, at Chacaltaya mountain, Bolivia. The station is an important place to collect data samples partly due to its own location on the remnants of a glacier. (AP Photo/Juan Karita)

The snow appears to be pristine on the Andean peaks that loom above Bolivia's capital, but even here ash and smog reach up to a remote plateau that is home to the world's highest atmospheric observatory.

It's an ideal site for a team of international scientists who collect data on pollution that has contributed to the rapid disappearance of Andean glaciers.

Research at the Chacaltaya station, which is located at 17,192 feet (5,240 meters) above sea level, has a pressing urgency: The retreat of glaciers, which is compounded by global warming, threatens the main source of fresh water for residents in the nearby cities of EL Alto and La Paz—and the crops on which they rely.

"If temperatures continue to rise, these high-altitude glaciers will also lose their mass of ice and there will only be snow on the summit," said

glaciologist Patrick Ginot. "This will happen all along the Andes."

Last year, Ginot was part of a team of scientists that transported chunks of ice from a melting Bolivian glacier to Antarctica to be preserved for posterity and future study as part of a global project called "Ice Memory."

The Chacaltaya station is an important place to collect data samples partly due to its own location on the remnants of a glacier. The glacier, which is thought to be about 18,000 years old, once served as the site of Bolivia's only ski resort before it melted a decade ago.



In this Oct. 8, 2018 photo, an employee walks next to air collector of the Chacaltaya atmospheric observatory, 17,192 feet (5,240 meters) above sea level in the Andes mountains, on the outskirts of El Alto, Bolivia. The observatory is an ideal site for a team of international scientists who collect data on pollution that has contributed to the rapid disappearance of Andean glaciers. (AP Photo/Juan Karita)

Initially, the station was launched as a cosmic ray observatory in the mid-1940s, when just hauling up heavy scientific instruments on the back of llamas

was a feat in itself. But Chacaltaya's altitude and location near the Amazon region—and its proximity to Bolivia's capital city—eventually led scientists to obtain information about the pollution released from the burning of forests, coal, oil and gas.

In 2012, the site became an atmospheric station used to measure greenhouse gases, reactive gases and particles that can spread all the way to the Pacific Ocean hundreds of miles away. Its altitude is only rivaled by a station recently built by China on the Quinhai-Tibet plateau near Mt. Everest which sits at 17,060 feet (5,200 meters).

Chacaltaya, which means 'Cold Road' in Aymara, is jointly funded and managed by groups from the United States and Europe, and the initiative is led by Universidad Mayor de San Andres in La Paz.



In this Oct. 8, 2018 photo, an air collector of the Chacaltaya atmospheric observatory stands in the outskirts of El Alto, Bolivia. In 2012, the site became an atmospheric station used to measure greenhouse gases, reactive gases and particles that can spread all the way to the Pacific Ocean hundreds of miles away. (AP Photo/Juan Karita)

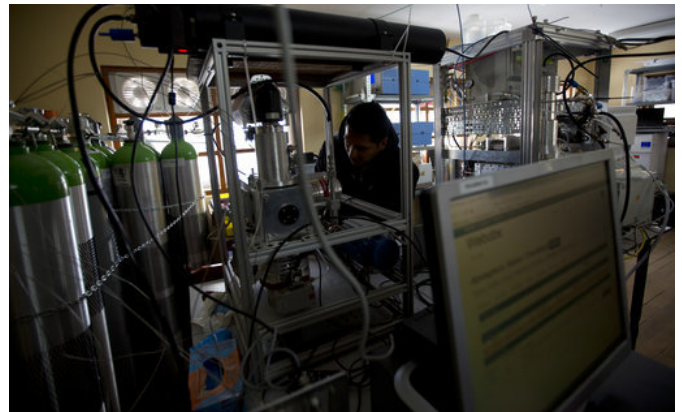
James Butler, head of the National Oceanic and Atmospheric Administration's global monitoring division, said the samples taken and observations made "are not influenced by local emissions or similar influences."

"Upward looking observations from a mountaintop

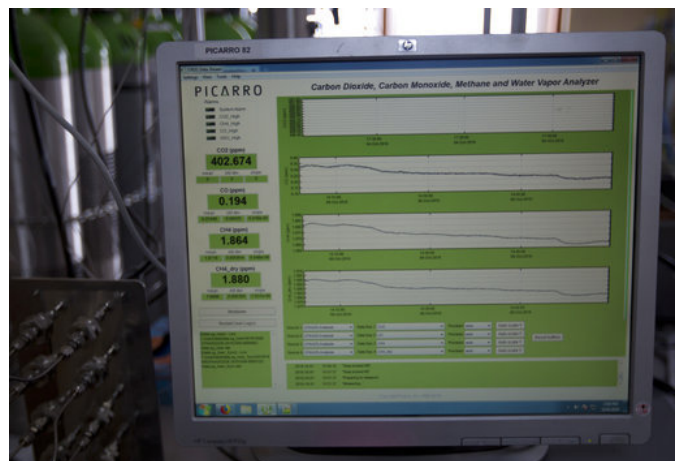
also provide a much better picture of changes in the stratosphere than do observations from lower elevations, because interference in the signal is greatly reduced," he said.

Fernando Velarde, a physicist who works at the observatory, said the data is shared with the international community.

"As scientists we take a problem, study its effects and try to give answers to society," he said. "But the final decisions are in the hands of governments and politicians."



In this Oct. 8, 2018 photo, Fernando Velarde Bolivian physicist works in the laboratory at the Chacaltaya atmospheric observatory on the outskirts of El Alto, Bolivia. Chacaltaya, which means 'Cold Road' in Aymara, is jointly funded and managed by groups from the United States and Europe and the initiative is led by Universidad Mayor de San Andres in La Paz. (AP Photo/Juan Karita)



In this Oct. 8, 2018 photo, a computer screen shows a reading of various gases at the Chacaltaya atmospheric observatory laboratory, on the outskirts of El Alto, Bolivia. The Chacaltaya station is an important place to collect data samples partly due to its own location on the remnants of a glacier. (AP Photo/Juan Karita)



In this Oct. 8, 2018 photo, tourists walk on the outskirts of the Chacaltaya atmospheric observatory on the outskirts of El Alto, Bolivia. The Chacaltaya station is located on the remnants of a glacier, which is thought to be about 18,000 years old and once served as the site of Bolivia's only ski resort before it melted a decade ago. (AP Photo/Juan Karita)

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