

## SCIENTIFIC AMERICAN

### Tropical Glaciers in Indonesia May Disappear by the End of the Decade

Glaciers in one of the world's last tropical ice caps will be gone within a matter of years

By Douglas Fischer and The Daily Climate

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*Courtesy of Lonnie Thompson, Ohio State University*

Glaciers in one of the world's last [tropical ice caps will be gone within a matter of years](#), rather than the decades thought previously, according to an Ohio State University researcher who has spent his career probing the world's ice fields. When they go, a unique record of the El Niño-Southern Oscillation phenomenon that drives climate patterns in the tropics could disappear, too, glaciologist Lonnie Thompson said.

The cap, perched on a 16,000-foot-high mountain ridge in Indonesia, "was riddled with crevasses and lacked any substantial snowfall," Thompson said of his most recent trip, earlier this summer.

During that trip a research team pulled three cores from the cap. They were shorter than other cores from some of Thompson's previous 57 expeditions to 16 countries from China to Peru. But a similarly short core from Africa's Mount Kilimanjaro helped the team reconstruct 11,700 years of climate history.

That history is melting away. Radioactivity from atomic bomb tests in the 1950s and 1960s provide time markers that help date ice. Cores recently collected from Himalayan ice fields lacked these radioactive layers, indicating the glaciers are losing mass from the surface down, destroying key time markers.

The Indonesian ice fields near Puncak Jaya are tiny. Together they total barely 1.7 square kilometers (0.6 square miles), an area very similar to the current 1.8 square kilometers (0.7 square miles) on the summit of Mount Kilimanjaro in Africa.

But this is the region, on the fringe of the world's warmest ocean, that generates El Niño and drives weather from India's monsoons to Sierra Nevada droughts. The Puncak Jaya glaciers may store an archive of that climate history.

The expedition almost returned empty-handed, through no fault of global warming: Near the trip's end, local tribe members broke into the freezer where they thought the cores were stored, intent on destruction, according to the university.

"They believe that the ice is their god's skull, that the mountains are its arms and legs and that we were drilling into the skull to steal their memories," Thompson said in a statement. "In their religion they are a part of nature, and by extension they are a part of the ice, so if it disappears, a part of their souls will also be lost."

But team members, preparing for the worst, had moved the ice to a different facility hours before the attack. The team later hosted a public forum to address concerns, and after more than four hours of discussion tribes conceded and let researchers ship the cores to Ohio State.

An analysis of the first of the cores is expected by December, the researchers said.