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ANTARCTICA ICE MELTING INCREASED BY 280% IN LAST 16 YEARS

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

An Adelie penguin stands atop a block of melting ice near the French station at Dumont dUrville in East Antarctica in this January 23, 2010 | File photo. | Photo Credit: Reuters

Yearly loss of ice from Antarctica has increased by an alarming rate of 280% between 2001 and 2017, according to a study which showed that accelerated melting caused global sea levels to rise more than half an inch in the last four decades.

The researchers, including those from NASA's Jet Propulsion Laboratory (JPL) and Utrecht University in the Netherlands, were able to discern that between 1979 and 1990, Antarctica shed an average of 40 gigatonnes of ice mass annually.

From 2009 to 2017, about 252 gigatonnes per year were lost.

The pace of melting rose dramatically over the four-decade period. From 1979 to 2001, it was an average of 48 gigatonnes annually per decade. The rate jumped 280% to 134 gigatonnes for 2001 to 2017.

For the study published in journal *Proceedings of the National Academy of Sciences*, researchers conducted the longest-ever assessment of remaining Antarctic ice mass.

Spanning four decades, the project was also geographically comprehensive; the research team examined 18 regions encompassing 176 basins, as well as surrounding islands.

"As the Antarctic ice sheet continues to melt away, we expect multi-metre sea level rise from Antarctica in the coming centuries," said Eric Rignot, professor at the University of California, Irvine in the US.

Techniques used to estimate ice sheet balance included a comparison of snowfall accumulation in interior basins with ice discharge by glaciers at their grounding lines, where ice begins to float in the ocean and detach from the bed.

Data was derived from fairly high-resolution aerial photographs taken from a distance of about 350 meters via NASA's Operation IceBridge; satellite radar interferometry from multiple space agencies; and the ongoing Landsat satellite imagery series, begun in the early 1970s.

Rignot said that one of the key findings of the project is the contribution East Antarctica has made to the total ice mass loss picture in recent decades.

"The Wilkes Land sector of East Antarctica has, overall, always been an important participant in the mass loss, even as far back as the 1980s, as our research has shown," he said. "This region is probably more sensitive to climate change than has traditionally been assumed, and that's important to know because it holds even more ice than West Antarctica and the Antarctic Peninsula together."

The sectors losing the most ice mass are adjacent to warm ocean water researchers said.

“As climate warming and ozone depletion send more ocean heat toward those sectors, they will continue to contribute to sea level rise from Antarctica in decades to come,” said Rignot, who’s also a senior project scientist at JPL.

Here is a collection of 15 stories that gives a glimpse of important developments reported by Indian scientists during the year.

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