ON ANTARCTIC ICE SHELVES

Networks of lakes and streams formed from melted ice are more common in Antarctica than previously believed, implying that current models to understand how quickly the continent's ice might melt and raise sea levels are too simple, scientists have found.

Looking at several decades' worth of satellite imagery and aerial photography of the whole continent, researchers saw widespread lakes and streams on the continent's ice shelves for the first time, as well as a meltwater river system and waterfall. They described the findings in two papers published this week in the journal Nature.

Every year during the summer, some of the ice on Antarctica melts and can pool in the old snow on top of the ice shelves and form ponds, before refreezing in the winter. Meltwater collecting in ponds on the surface of ice shelves acts "as a jackhammer" to fracture the ice, said Robin Bell, a geophysicist at Columbia University's Lamont-Doherty Earth Observatory, lead author on one of the papers. When ice shelves break up and collapse as a few on the northern Ant arctic Peninsula have done, they allow the ice on land to flow into the water as well, contributing to sea-level rise.

The new research shows that the meltwater doesn't only stand still on Antarctica's ice, as current models of ice-sheet melting assume, Dr. Bell said. She describes a river of meltwater on Antarctica's Nansen Ice Shelf that ends in a waterfall into the ocean. Satellite data show the river formed in six of the eight summer melt seasons between 2006 and 2015, and polar-expedition records from 1909 and 1912 that Dr. Bell examined describe meltwater streams on the ice shelf.

The movement "changes the way we think about the impact of meltwater," Dr. Bell says. "Meltwater is still a bad thing," she said, but it's "not always going to be a death to ice shelves."

(By Ellie Kincaid, Wall Street Journal - 4-20-17)



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