The glaciers of South America are thinning twice as fast as they were a few decades ago, researchers report. As a result, the ice fields of Patagonia are contributing excessive amounts of water to the world's oceans as compared to larger icefields located elsewhere. The findings are published today in the journal Science.

All told, the Patagonia glaciers in Chile and Argentina cover 90,000 square kilometers. Eric Rignot of the California Institute of Technology and his colleagues analyzed radar topographic maps, aerial photographic maps, aerial cartographic surveys and traditional cartographic surveys for 63 of the largest icefields between 1968 to 2000. They determined that during the time period between 1995 and 2000, the ice was thinning at a rate equivalent to a sea level rise of 0.105 millimeters a year whereas the data from 1968 to 1995 indicate a thinning rate of only 0.042 millimeters a year. The recent data accounts for 9 percent of the annual sea level rise attributed to mountain glaciers. Alaska's glaciers, in contrast, are five times larger than the Patagonia fields and account for 30 percent of glacier melt's contribution to sea level rise. “The contribution of Patagonia to sea level rise is therefore disproportionately larger (by a factor of 1.5) than is indicated by its area,” the authors conclude.

The scientists report that warmer air temperatures and lower precipitation levels cannot explain the increased rate of disappearance for Patagonia's glaciers. Instead, they suggest that ice dynamics, including pieces breaking off into oceans or lakes in a process known as calving, are responsible for part of the thinning. --Sarah Graham

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