



Estimated Present-Day Area* and Volume* of Glaciers and Maximum Sea Level Rise Potential

From: **Satellite Image Atlas of Glaciers of the World**
Chapter A: Introduction (U.S. Geological Survey Professional Paper 1386-A)
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Geographic region	Area (km ²)	Percent	Volume (km ³)	Percent	Maximum sea level rise potential (m)**
Ice caps, ice fields, valley glaciers, etc.	680,000 ^A	4.24	180,000 ^A	0.55	0.45***
Greenland (Inland Ice)	1,736,095 ^B	10.82	2,600,000 ^B	7.90	6.50
Local ice caps and other glaciers	48,599 ^B	0.30	20,000 ^B	0.06	0.05
Antarctic	13,586,400 ^C	84.64	30,109,800 ^C	91.49	73.44****
East Antarctica	10,153,170		26,039,200		64.80
West Antarctica	1,918,170		3,262,000		8.06
Antarctic Peninsula	446,690		227,100		0.46
Ross Ice Shelf	536,070		229,600		0.01
Ronne-Filchner ice sheves	532,200		351,900		0.11
Totals	16,051,094	100.00	32,909,800	100.00	80.44

* Modified from Table 1 in Swithinbank (1985).

** Sea level rise potential (in meters) [defined as the maximum sea level rise expected if all glacier ice were to melt in a specified geographic region based on a density of 0.9 for glacier ice (Robin, 1967), an ocean area of $362 \times 10^6 \text{ km}^2$ (National Geographic Society, 1996) and 400 km^3 of glacier ice melted to raise sea level 1mm]. The volume of glacier ice in the Greenland and Antarctic ice sheets that is below sea level must be subtracted from the total volume to give an accurate projection of maximum sea level rise

potential; the final version (e.g., publication of Chapter 1386-A) of this table will include that correction.

*** Meier and Bahr (1996) estimated the total number of glaciers (outside Antarctica and Greenland) at 160,000.

**** The total volume of glacier ice in Antarctica is 30,109,800 km³. For the calculation of sea level rise potential, only the grounded-ice volume of 29,377,800 km³ was used. The total grounded ice volume includes 25,921,700 km³ for East Antarctica, 3,222,700 km³ for West Antarctic, and 183,700 km³ for the Antarctic Peninsula. The volume of ice rises on the Ross Ice Shelf and the Ronne-Filchner ice shelves are 5,100 km³ and 44,600 km³, respectively.

A Source for area and volume: Untersteiner (1975)

B Source for area and volume: Holtzscherrer and Bauer (1954) and Weidick (1995)

C Source for area and volume: Drewry (1983)

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