



An estimate of global glacier volume

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I assess the feasibility of using multi-variate scaling relationships to estimate glacier volume from glacier inventory data. Scaling laws are calibrated against volume observations optimized for the specific purpose of estimating total global glacier ice volume. I find that adjustments for continentality and elevation range improve skill of area-volume scaling. These scaling relationships are applied to each record in the Randolph Glacier Inventory, and I estimate that the total volume of all glaciers in the world is 0.35 ± 0.07 m sea level equivalent, including ice sheet peripheral glaciers. This is substantially less than other recent estimates.