

Twenty-first century glacier mass changes

April 14th, 2014



Changes in glacier mass for all glaciers in the world have been modelled for climate change projections based from 14 global climate models and two emission scenarios (midrange scenario RCP4.5 and high end scenario RCP8.5; these are the scenarios for the Fifth Assessment Report of the Intergovernmental Panel on Climate Change).

These results suggest a mean reduction of the current global glacier volume by 29% (RCP4.5) or 41% (RCP 8.5) over the period 2006-2100. This equals a contribution of these glaciers to sea level rise of 155 ± 41 mm (RCP4.5) and 216 ± 44 mm (RCP8.5); these numbers are multi-model means \pm one standard deviation.

The regions that are projected to lose more than 75% of their current volume on average are, for RCP4.5: Western Canada and US ($85 \pm 11\%$), Scandinavia ($76 \pm 25\%$), North Asia ($88 \pm 7\%$), Central Europe ($84 \pm 10\%$), Caucasus ($89 \pm 7\%$) and Low Latitudes ($88 \pm 6\%$). For RCP8.5 all of these regions lose on average more than 90% of their current volume by 2100.

Source: Radić et al., 2014. Climate Dynamics 42: 37-58

Photo: Frank Kovalchek (www.stckr.com)