Global glacier changes: The state of knowledge after IPCC AR5

Frank Paul  
Department of Geography, University of Zurich, Switzerland

Over the past two decades, global glacier shrinkage continued at unprecedented high rates. Satellite observations provided key information about ongoing glacier area and elevation changes on a global scale as well as for a new globally near-complete glacier inventory. This so-called Randolph Glacier Inventory (RGI) allowed us for the first time to determine the area covered by glaciers globally and henceforth their total volume and future evolution using data from climate models. The RGI also allowed for a more precise global upscaling of local measurements (e.g. mass balance or elevation changes) and thus a calculation of the contribution of all glaciers to global sea-level rise over the past decades with unprecedented accuracy. The new datasets also helped to answer key scientific research questions that have emerged after the last IPCC report. For example, the regional variability of glaciers in the Greater Himalaya has been revealed and the glaciers on Greenland have now been separated from the ice sheet. The presentation will provide an overview on all these findings.