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Ice thickness measurements of the debris covered Ngozumpa glacier, Nepal

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The presence of extensive debris cover on glaciers in parts of High Mountain Asia increases the certainty about the present day amount of ice, its ongoing rate of change and resultant impact on global sea level rise, regional water and local hazards

Here we use ground penetrating radar measurements of ice thickness for the Ngozumpa glacier, a large debris-covered glacier in Nepal, to explore the challenges of using such data to calculate glacier volume, and to compare how these field measurements compare to the modelled glacier thickness for this glacier generated by the four models used in the global consensus glacier ice thickness dataset, which suggested the region holds 27% less ice than previous estimates (Farinotti and others, 2019). We also compare the ice thickness measured at Ngozumpa glacier to existing data from the smaller neighboring Khumbu glacier and evaluate the maximum volume of a possible moraine dammed lake at this site.