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## Alpine glaciers and climate change : mass balance simulation from 1950 to 2100

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Glaciers retreat is now a familiar picture in the Alps, attesting of climate change. Glaciers like Saint Sorlin (Grandes Rousse, France, monitored by Laboratoire de Glaciologie et de Géophysique de l'Environnement), exhibits an acceleration of shrinking in the last 20 years. We have reconstructed this mass balance thanks to the physical snow model CROCUS adapted to glaciers and driven by meteorological data SAFRAN. We put in evidence the link between climate warming and this shrinking. As our snow/ice model is explicitly and separately driven by the various meteorological terms that determine the mass balance (2-m air temperature, 10-m wind speed, 2-m air relative moisture, precipitation quantity and phase, incoming direct and diffuse solar radiation, incoming long wave radiation, and cloudiness), it is therefore particularly suited to evaluate the impact that climate change has on glaciers. We present here an evolution of the mass balance of selected Alpine glaciers for the whole XXIst century, based on Global Circulation Model output. These outputs come from various model and scenarii run for the IPCC 4th Assessment. We use an anomaly method : after the constitution of a ?climatology? for the period 1981-2004, we applied monthly anomaly extracted from GCM outputs for each meteorological parameter which drive the mass balance.