



An airborne laser scanner data based glacier inventory for South Tyrol, Italy

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The airborne laser scanner data (ALS) based glacier inventory for South Tyrol, Italy, is a new approach in compiling glacier inventories. It gives the possibility for highly accurate results with a minimum expense in human supervision. Two earlier inventories of 1983 and 1997 provide the basis for the comparison of glacier parameters like area and volume change or equilibrium line altitude (ELA). A reduction of glacier area is observed for almost all glaciers in South Tyrol between 1983 and 2006. 32% of the glacier area was lost. Volume changes for the ice and firn cover have been derived from the digital elevation models (DEMs) of 1997 and 2006 as -1.037 km^3 and an ELA rise of 54 m to almost 3000 m a.s.l. is calculated for this period. The loss in the calculated parameters shows a wide variability for individual glaciers but an increasing acceleration is recognizable for all of the South Tyrolean glaciers since the first inventory of 1983.