



Mass balance of Myrdalsjökull ice cap and comparison with observed and simulated precipitation

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Mass balance measurements on the caldera plateau of Myrdalsjökull ice cap in South Iceland have been carried out regularly since 2007. Prior measurements were done in 1944, 1955 and 2001. The ice-cap covers the active Katla central volcano, and the glacier plateau ranges from 1350-1500 m a.s.l. The measured winter balance lies in the range 4375-6331 mm (water equivalent), with a maximum winter layer snow thickness of nearly 12 m. The annual mass balance is 2442-4742 mm (w. eq.), and summer ablation is highly variable (924-2690 mm, w.eq.). Comparison of the measured winter balance with observations of precipitation at sea level, indicates that the plateau receives on average 1-1.7 m of precipitation during summer. The mean estimated winter precipitation falling on the glacier furthermore compares well with results from high-resolution numerical simulations made with a state of the art atmospheric model. The simulations indicate a slight decrease in the mean precipitation falling on the plateau since 1994. The estimated annual precipitation amounts are of a similar magnitude as the highest values reported from the caldera plateau of Öräfajökull ice cap (2111 m), Iceland's highest mountain.