

A data set of gridded daily temperature in Iceland, 1949–2010

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Abstract — *A high spatial resolution data set of gridded daily surface air temperature in Iceland has been derived for the period 1949–2010. Between 60–80% of the daily estimates are within $\pm 1^\circ\text{C}$ depending on the month of the year and between 90–95% are within $\pm 2^\circ\text{C}$ of independent station measurements in 1995–2010. The data set is thus well suited for various hydrological, glaciological and climatological modelling studies. The quality of the gridded data set is found to be best near the coast because of the higher station density. Including data from automatic stations, the establishment of which started in the early 90's, was found to improve the data set. Derived 30-year mean monthly maps compare favourably with reference maps derived directly from monthly mean station temperatures with more sophisticated statistical techniques. An analysis of decadal temperature variations based on the data set shows that the decade 2001–2010 was the warmest of the last 60 years and makes it possible to identify spatial patterns in the decadal variations. As an example, the spatial distribution of the warming of recent decades shows that it is more pronounced in the inland compared with coastal areas.*