

Production of new climate normals for Norway 1981-2010

O. E. Tveito, H. Szewczyk-Bartnicka, S. Kristiansen, and K.A. Iden

Norwegian Meteorological Institute, Climatology Division, Oslo, Norway (ole.einar.tveito@met.no, +47 22963000)

The impact of climate variability and climate change has got a large attention in recent years. The existing standard climate normals presently used as climate reference in Norway refers to the period 1961-90. There is however observed significant changes comparing this period with the thirty recent years. It is therefore decided to derive new official climate normals for the recent thirty-year period in order to provide values better reflecting the present climate. The Norwegian Meteorological Institute has therefore started a project to derive new climate normals both as tables and as gridded data and maps. In addition will the changes from the 1961-90 normal period be analyzed

During the last thirty year period the meteorological and climatological observation networks in Norway has changed considerably, both with respect to density and observation technologies. The result has been many abandoned or relocated stations causing either discontinued observation series, or series with shorter or longer gaps. The process of establishing new climate normals is therefore facing several scientific challenges.

First a thorough inventory of the observed data series for the period 1961-2010 has been carried out in order to define candidates for a set of high quality series with complete or almost complete data coverage. In the case of a few missing days these are interpolated from the high-resolution gridded data set for Norway. This procedure is carried out at a daily scale.

For observation series not covering the entire period, or having longer gaps, multivariate (spatial) statistics accounting for regional climate conditions are applied to fill the gaps. This analysis is carried out on a monthly scale in order to suppress the influence small scale temporal and spatial variability.

Based on this two-step analysis a high quality data set of monthly observation series covering the entire period 1961-2010 is established. These data will be used for deriving the new climate normal tables and be the basis for establishing new climate normal maps. The first version of the normal maps will be based on the gridding methods developed for the previous normal period and implemented for the high resolution daily grids for Norway in order to achieve consistent maps with the previous normal period and previous analysis of climate trends in Norway. The version of the maps new explanatory variables and parameters will be considered in order to provide better spatial description of the 1981-2010 climate of Norway.