Geophysical Research Abstracts
Vol. 16, EGU2014-8115-1, 2014
EGU General Assembly 2014

Temperature changes in Norway: Unexpected increases in WFDEI validated against interpolated observations

Irene Brox Nilsen and Lena M. Tallaksen
Department of Geosciences, University of Oslo, Oslo, Norway (i.b.nilsen@geo.uio.no)

Increased global temperatures have been observed during the past decades, and trends are expected to be greatest at high latitudes because of the polar amplification. Polar amplification may be caused by feedbacks between the atmosphere and the surface, such as the ice–albedo feedback: when increased temperatures cause increased snow melting, areas with a lower albedo are exposed and more radiation is absorbed. Thus, the temperature increase is enhanced. In a previous study, we analysed precipitation and temperature trends for the period 1979–2009 using gridded, bias-corrected re-analysis data from the WATCH Forcing Data Era-Interim (WFDEI). The data used consisted of daily temperature and precipitation data from 1 January 1979 to 31 December 2009 (31 years) and covered 34°–72° N and 13° W–32° E with a spatial resolution of 0.5° × 0.5°. Temperature and precipitation trends covering all of Europe were mapped using the Theil-Sen slope as a robust trend estimator. We found the greatest warming in Europe in the northernmost parts of Norway during December and January. The temperature trends for certain months and regions were as high as 8 °C. In this study, monthly temperature trends from WFDEI will be compared with and validated against a daily interpolated dataset for Norway (presented at www.seNorge.no). This dataset has a spatial resolution of 1 × 1 km and covers mainland Norway. Residual kriging is applied to the data to ensure stationarity and remove bias. The daily data will be aggregated to the monthly time scale and monthly temperature trends will be calculated using the Theil-Sen slope for the period 1979–2009. The results will be compared visually with the WFDEI trends covering Norway. In addition, the distribution of trends as well as the fraction of positive and negative trends in the two datasets will be compared.