Geophysical Research Abstracts
Vol. 18, EGU2016-1187, 2016
EGU General Assembly 2016

MELODIST – An open-source MEteoroLOgical observation time series DISaggregation Tool

Kristian Förster (1,2), Florian Hanzer (1,2), Benjamin Winter (1,2), Thomas Marke (2), and Ulrich Strasser (2)

(1) alpS - Centre for Climate Change Adaptation, Innsbruck, Austria (foerster@alps-gmbh.com), (2) Institute of Geography, University of Innsbruck, Austria

Automatic weather station recordings at sub-daily time steps are being used as input data for various applications in many disciplines such as hydrology or ecology. Evaluations at sub-daily time steps for multi-decadal periods are thereby of great interest due to their climatological representativeness. However, the availability of continuous hourly meteorological time series is restricted to a small number of decades with records covering the full length of three decades being an exception. In contrast, daily observations are available with much better spatial and temporal coverage, i.e. higher network density and longer, multi-decadal records. To benefit from the huge amount of available daily meteorological observations worldwide, disaggregation methods are suitable tools to derive, e.g., hourly out of daily time series. We present an open-source software package, written in Python, that can be used to fill the gap between the advantages of daily time series and methods requiring time series of the meteorological variables with higher temporal resolution. *MELODIST* (MEteoroLOgical observation time series DISaggregation Tool) includes methods to independently disaggregate the most relevant meteorological variables including (i) precipitation, (ii) temperature, (iii) humidity, (iv) wind speed, and (v) radiation data for a given location. This poster gives a brief review of the available methods applicable for each variable, and also provides a sample application and insights on model performance.