Geophysical Research Abstracts
Vol. 21, EGU2019-18887, 2019
EGU General Assembly 2019

Regional Downscaling over Arabian Peninsula using PRECIS Model

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Era Interim and similar reanalyzes databases constitute a valuable set of global meteorological data. It could be used for different scientific purposes. But its added value in climatology is culminant, especially over bare regions devoid of in-situ common observation sources. However, the horizontal resolution of this database could only cover regional sub-synoptic scale, and thus, is unable to describe some very interesting weather situations like fog occurrences, sea and land breeze, isolated convective activity caused by dynamic lifting along with the associated wind gusts and shear. Downscaling the information provided by these type of global reanalyzes to higher resolutions on limited area domains is of a concern in climatology.
This work aims to quantify the impact of downscaling era-interim data over the United Arab Emirates and the Arabian Peninsula, using the widely used climate model PRECIS (Providing REgional Climates for Impacts Studies) developed at the Hadley Centre at the UK Met Office. The targeted horizontal and vertical resolutions are 2 to 3 times higher than the one provided by era-interim.
Weather parameters like temperature, humidity, wind, pressure on the surface and at different atmospheric vertical levels will be studied and compared mutually and with a set of observational data in selected existing synoptic weather stations in the mentioned region.