

عنوان مقاله:

Validation of the ECMWF Reanalysis ERA5 Dataset for mountainous part of the Urmia lake basin

محل انتشار:

ششمین کنفرانس منطقه ای تغییر اقلیم (سال: 1398)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

The European Center for Medium-range Weather Forecasts (ECMWF) has recently released its most advanced ERA5 reanalysis dataset. It was designed and generated with methods giving it multiple advantages over the previous release, the ERA-Interim reanalysis product. Notably, it has a finer spatial resolution, is archived at the hourly time step, uses a more advanced assimilation system and includes more sources of data. Since long-term and spatially dense observational data are not available, in particular for the mountainous part of Urmia lake basin, we examined the performance of the ERA5 0.25×0.25 degrees' reanalysis dataset to simulate total precipitation and 2m temperature over 8 synoptic stations during the period of 1995-2018. We found that, both observation and ERA5 exhibit similar variabilities. Results showed a significant warm bias of about 2.5 °C in high altitude stations, while low altitude stations show a slightly cold bias of about 0.1 °C. The largest bias was observed in Zarineh station with the highest elevation of 2142.6m MSL and the least bias was observed in the Urmia station with the lowest elevation of 1328.0m MSL. This result indicates that there is a strong need to remove warm bias of ERA5 data especially over high altitudes to avoid exaggerated estimates of temperature-related drought indices, snowmelt and basin's runoff. Mean bias of nearly 1 mm was also estimated for ERA5 precipitation data over the basin.

کلمات کلیدی:

ERA5, Observation, Temperature, precipitation, Urmia Lake

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