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The Greek Atmospheric Reanalysis Database

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The METEO unit at the National Observatory of Athens, has developed a new atmospheric reanalysis database utilizing BOLAM numerical weather prediction model. This model incorporates reanalysis data from the European Centre for Medium-Range Weather Forecasts (ECMWF-ERA5) and provides a comprehensive coverage of Europe, as well as parts of the Middle East and North Africa. The dataset offers a spatial resolution of 6 km and a temporal resolution of 1 hour, encompassing the period from 1991 to 2022. This study, performed in the frame of CLIMPACT project (Grant Agreement: 2023NA11900001), focuses on the validation of the reanalysis dataset through comparison with surface and upper-air observations across Europe. Statistical verification was conducted using data from selected meteorological stations, with time series spanning over 15 years. The verification results were also compared with other widely used open-access reanalysis datasets. The findings indicate that the BOLAM reanalysis model is highly suitable for a range of applications, including climate studies and renewable energy resource assessments.