

# The Comprehensive Upper Air Observation Network (CUON) Dataset

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The Copernicus Climate Change Service (C3S) has developed the Comprehensive Upper Air Observation Network (CUON) dataset. The main geophysical variables included in CUON are temperature, humidity, and wind. The input observation data are the NOAA Integrated Global Radiosonde Archive (IGRA), the NCAR Upper-Air Database (UADB), the ERA5 observation feedback archive and smaller collections. Available radiosonde, ozonesonde, and pilot-balloon (PILOT) platforms are included, even if the station record contains only a single launch. Key improvements over the aforementioned data input are the following: balloon drift estimates, observation error estimates and homogeneity adjustments for the main variables. The actual launch times were also determined as far as possible. In addition, bias adjustments are available for temperature, humidity variables and wind direction. These unique features make CUON suitable as an input for climate reanalysis, in particular the upcoming ERA6 reanalysis, but also other climate applications.

The CUON dataset goes back to 1905 and will be updated at least annually. It will be made available from: <https://cds.climate.copernicus.eu/datasets/insitu-comprehensive-upper-air-observation-network?tab=overview>. It is currently in testing. A short demonstration of the frontend will be given.