

## Submitted Abstract

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## Abstract

It is generally accepted, within the scientific community, that the historical meteorological observatories play an irreplaceable role in many studies and research projects focused on the comprehension of climate dynamics and on the identification and analysis of past weather events severity and frequency. In the light of recent climatic changes, there is a renewed interest in preserving and enhance the long-term observations, as testified by recent initiatives launched by the World Meteorological Organization (such as the Centennial Observing Stations recognition mechanism) and by several actions and projects led by local meteorological agencies and research institutes.

In this work, we present the past and present scientific activities carried out in Montevergine Observatory (40.936502°N, 14.729150°E, 1280 m a.s.l.), which is located in the Southern Apennines (Campania Region, Southern Italy). This historical specola was founded in 1884 and offers a rare opportunity to investigate climate features of the central Mediterranean mountain environment prior to the 1950s, thanks to its very rich heritage of historical atmospheric measurements. Distinguishing Montevergine features can be synthesized in the following key points: (i) Montevergine is the only meteorological observatory among those operating in Apennine regions at elevations above 1000 m a.s.l. to provide a climatological time series extending back to the late 19th century; (ii) Montevergine time series has been collected near the top of the atmospheric-boundary layer, in a location whose features have remained unchanged over time due to the absence of urban settlements.

The dataset collected in Montevergine consists of daily meteorological records, involving minimum and maximum temperature and accumulated rainfall and snowfall, which extend from late 19th century to date. Moreover, for the period 1884-1961, the MVOBS dataset also includes sub-daily meteorological observations, related to a wide spectrum of atmospheric variables (dry-bulb temperature, wet-bulb temperature, water vapour pressure, relative humidity, atmospheric pressure, cloud type, cloud cover, rainfall, snowfall and precipitation type).

Nowadays, Montevergine observatory is also equipped with a laser optical disdrometer, which is part of the Disdrometric Italian Group, and manages, with the support of the University of Naples "Parthenope", several mountain meteorological stations located in the Campania Apennines.