



## **A new database of cloudiness for Italy from instrumental time series since the late 19th century**

Veronica Manara (1), Michele Brunetti (2), Maurizio Maugeri (2,3), and Arturo Sanchez-Lorenzo (4)

(1) Department of Physics, Università degli Studi di Milano, Milan, Italy (veronica.manara@unimi.it), (2) Institute of Atmospheric Sciences and Climate, CNR, Bologna, Italy, (3) Department of Physics, Università degli Studi di Milano, Milan, Italy, (4) Pyrenean Institute of Ecology, Spanish National Research Council (CSIC), Zaragoza, Spain

Italy has a very important role in the development of meteorological observations. Consequently, a heritage of data of enormous value has been accumulated in Italy over the last three centuries. However, only a small fraction of Italian data is available in computer readable form and the available records mainly concern temperature, precipitation and pressure. Within this context, we set up a project to recover as much as possible cloudiness Italian records. The goal is to consider total cloud cover (TCC), low and middle cloud cover, and cloud types. The data source we are using include the former national central office for meteorology (now CRA-CMA), the national air force meteorological and climatological service and some of the oldest Italian observatories as Milan, Rome, Turin and Venice. The database contains sub-daily (from 3 to 8 observations per day for each station) information about TCC but also about the amount and the type of low, middle and high cloud in the sky. The oldest records start at about 1858 and about 30 records start in the 1880s. Currently quality check and test for temporal homogeneity is in progress. Then the monthly records will be completed by means of the neighboring records and averaged in order to get national and regional records for Italy and its main climatic areas. This new dataset will be presented and the results of the first analyses will be discussed. The study of cloudiness records for Italy is important also to better understand the behavior of sunshine duration, which shows a rather peculiar behaviour, especially in northern Italy. In this area, in fact, we observe a statistically significant increasing tendency during the period 1936-2103, that most publications do not report, as a consequence of a strong increase starting from the 1980 and a less evident decrease in the previous period.