



## **Monitoring variability in trends of temperature and rainfall in the Apennine Alps (Middle Italy)**

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In 2006 the School of Geography and Environmental Sciences of Monash University in collaboration with the Italian Forest Corps (Corpo Forestale dello Stato), Uffici Territoriali per la Biodiversità di Vallombrosa (Florence) and Pratovecchio (Arezzo) started to monitor the variability in temperature and rainfall in the Tuscan Apennine Alps (Middle Italy).

First results showed unexpected variability in trends of both the climate variables and in particular very high variability in similarity of trends among sites even at short distance. Although the time series are ultra-centenary in some sites, trends in temperature and rainfall at the monthly level would show a reduction in temperature and increase in rainfall in the last decade in some cases. This uncertainty poses the question whether the phenomenon was due to some anomaly in the periodical oscillations of 6-7 years of length (spectral Fourier analysis) or the dominant trends in variability of monthly temperature and monthly rainfall are unchanged.

Recent analysis of trends would confirm warming and drying of climate in the Apennine Alps in Middle Italy; however, in some sites a relative cooling is shown in the 2000s. In the area, climate warming appears to reach levels that may have relevant implications for forest composition and shift. The relatively fast increase in temperature and reduction in rainfall during the last 3-4 decades further strengthens the importance to continue monitoring climate variability to a deeper level and extend the understanding of its effects at the local level.