TRENDS IN TUSCANY (ITALY) SUMMER TEMPERATURE AND INDICES OF EXTREMES (1955-2004)

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In the last decades worlwide many studies showed an increase of minimum and maximum temperature, and, consequently, significant changes in frequency and persistance of extreme high temperature events were observed. In Europe many evidences showed a sharp increase in the occurrence of extreme events and temperature, especially minimum. In order to analyze summer Tuscany (Italy) situation, in the period 1955-2004, indices of temperature (minimum, maximum, diurnal temperature range) and of extreme events (number and consecutive days with maximum temperature above the upper 90^{th} percentile) were investigated for evidence of trend, by using data of 44 meteorological stations. Interannual variability of indices was also studied. The results showed a general increase in summer minimum (mean rate of + 1.8 ˚C/ 50 years), maximum temperature (mean rate of + 2.1 ˚C/ 50 years), in the number of days with maximum temperature above the upper 90^{th} percentile (mean rate of + 17.4 days/ 50 years and in duration of these events (mean rate of + 6.4 consecutive days/ 50 years). Maximum temperature increase was, therefore, generally greater than minimum temperature one and, consequently, was noted a light increase in summer diurnal temperature range. As previous study confirmed, the further analysis of temperature and extreme events data showed a sharp increase in the last decades in spite of a light decrease trend until the eighties.

Also some parts of Tuscany that, during summer, usually presented lower maximum and minimum temperature, respectively coastal and hill areas, showed a great increase of temperature and in the occurrence of extreme events. Mountain area showed the less important increase of temperature and in extremes. Interannual variability showed an evident increase trend in the whole areas of Tuscany in regard to extreme event occurrences while, as concerns the other indices, a not well defined trend in spite of a light increase tendency was pointed out. Only diurnal temperature range interannual variability showed an evident negative trend.

All this results must be take into consideration as, the increase of minimum, maximum and consequently of number and duration of days with extreme temperatures, as well as the increase of climate variability, can represent a risk for human health and acclimatization.