

CLIMATE OVER NORTH-CENTRAL ITALY IN 2015

2015 IS THE WARMEST YEAR ON RECORD OVER NORTHERN ITALY. PRECIPITATION WAS GREATER THAN THE AVERAGE IN SOME AREAS, BUT SMALLER ELSEWHERE. THE MAJOR CLIMATIC ANOMALY WAS THE SCARCITY OF PRECIPITATION DURING THE LAST MONTHS OF THE YEAR. SEVERAL INTENSE PRECIPITATION EVENTS CAUSED DEBRIS FLOW PRODUCING DAMAGES.

During the year 2015, the global climate presented several intense anomalies, observed by the monitoring networks. In particular it was noted that 2015 was the hottest year on records, globally speaking, with very intense monthly thermal anomalies. The meteorological offices of the regions contributing to the Working Group on Climate ARCIS present a descriptions of the major climate anomalies observed in North-Central Italy in 2015.

Figure 1 shows the time series of mean annual temperature over Northern Italy from 1961 to present. Blue dots are obtained using the official validated data published over the *Annali Idrologici*, while the red dots are obtained starting from the data of the meteo-climate monitoring network.

2015 is the warmest year on record, and all years after 2010 a part from 2013 are warmer than all years from 1961 to 1990. The thermal anomaly was more intense at higher locations over the Alps, due to high frequency of vertical thermal inversion during winter and autumn months.

During the summer, an intense heat wave caused the temperatures to reach very high maximum values over all the regions, producing very intense monthly anomalies for the month of July.

As for precipitation, the annual cumulated values were mostly greater than the 1961-'90 reference climate over the Alps, in Romagna and Marche, but smaller than average elsewhere. The major climatic anomaly was the scarcity of precipitation during the last months of the year.

Figure 2 shows the cumulated precipitation over the months of November and December 2015: totals were below 10 mm over a large area extending over the Alps, which represents in several regions a record since the start of the monitoring network.

Although precipitation was overall scarce in the second part of the year, there were several very intense precipitation events. The most relevant was the one that hit the basin of Trebbia in Emilia-Romagna, characterised by a return period of 500 years: precipitation intensities reached 108.4 mm/1h and 229.6 mm/3h at Alpe di Gorreto, and record values of 123.6 mm/1h and 189.0 mm/3h at Cabanne and 107.6 mm/1h and 201.8 mm/3h at Salsominore. The event caused several debris flow producing damages to several houses along the river bed at Farini and the death of two persons travelling by car along the provincial road close to the river at Bettola.

Working Group on Climate ARCIS



FIG. 1
TEMPERATURE
ANOMALIES

Time series of annual mean temperature anomalies averaged over Northern Italy.

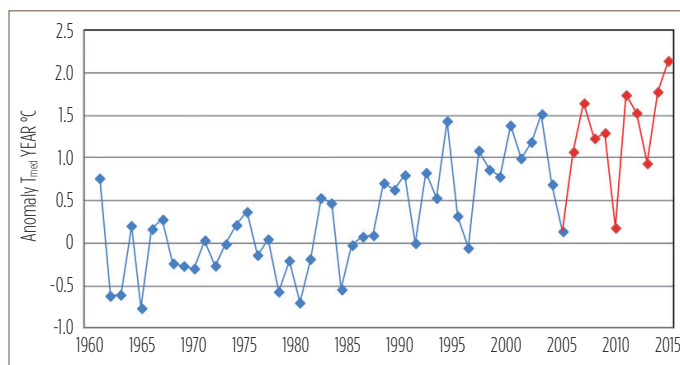


FIG. 2
CUMULATED
PRECIPITATION

Total cumulated precipitation over the months of November and December 2015 (values in mm).

