



Historical sources as useful tools to detect the possible occurrence of dry fogs: the Italian case study (AD 1150–1730)

Историческите източници като потенциални инструменти за установяване на евентуални появи на „сухи мъгли“: примери от Италия (1150–1730 сл. Хр.)

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Dry fogs are a peculiar natural phenomenon. They are clouds of volcanic aerosols and gases, which remain captured and trapped in the planetary boundary layer. These kinds of fogs are produced by relatively minor, climatically ineffective, volcanic eruptions. Dry mists are also generated by continuous fissure eruptions that quietly release volumes of flowing lava, which is degassed. Their creation can be caused also by the explosions that may be either modest and rhythmic or continuous. They are the result or irregular gas escape in conditions of atmospheric stability. According to Camuffo and Enzi (1995) dry fogs consist of mist, composed of foul smelling and malodorous gases and aerosols, which do not wet surface. Dry fogs are characterized by a reddish color and could form mainly at the beginning of the hot season, persisting even up to the middle of the day. Dry mists are often associated with the appearance of red dusks, weak sun and solar or lunar halos. Furthermore, another distinctive feature of dry fogs is the remarkable and extensive damage to harvests, vegetation, animals and as well people. On the basis of these selective and restrictive criteria for the identification of dry mists, this research focused on the analysis and the critical re-reading of primary and secondary historical sources as quoted and narrated in Corradi (1865, 1867, 1870) and in Pozzi (1825). Only the historical sources narrating the occurrence of dry fogs in the Italian Peninsula, and also not reported in Camuffo and Enzi (1995), were selected. Examples of the possible occurrence of dry fogs in Italy extracted from historical sources are described below and presented in Figure 1.

AD 1151 – “Dense, darkish fog of fetid smell, leads to epidemics and deaths among men and flock.”
AD 1353 – “For four full months, from August on-

wards, rain did not fall, and this drought was attributed to the influence of a large burning steam. On August 11, after sunset, an ashen steam was seen from east to west.” AD 1531 – “After winter and a very rainy spring with southern winds, a misty steamy hot and dry summer followed.” AD 1557 – “After a serene spring and a dry summer with winds from the north, southern winds started to blow in May; they were so baleful in many parts of Italy, and they destroyed the crops and brought a heavy mist that resembled a gray autumn. This fog began from the borders of Sicily and climbed up to the Alps, infecting the whole Italy. The fog created heaviness of head, it weakened the senses, dried out the throat and chest with continuous fevers, with violent coughs not mortals but tremendous. Few men and especially young people were affected by this form of disease, which then led to fever and tuberculosis and lead many of them to death in a few days.” AD 1601 – “In the summer of 1601 there dominated a situation with warm winds from the south, without rain, but full of moisture and fog that obscured the sun. This situation continued in the autumn, which passed almost dry.” AD 1721 – “This kind of fog or humidity occurs in temperate climates during the summer. In general, the fog dominates a large part of the country, so as to assume that it is not the effect of a local cause only. A haze of this type was seen on April 1, 1721 and was seen in the same day also in Paris, Antwerp, to Milan.”

Moreover according to Newhall and Self (1982), between AD 1500 and 1729, numerous volcanic eruptions occurred globally with an index of volcanic eruption (VEI) between 1 and 4, likely to generate possible dry fogs (Fig. 1). These data confirm the present study.

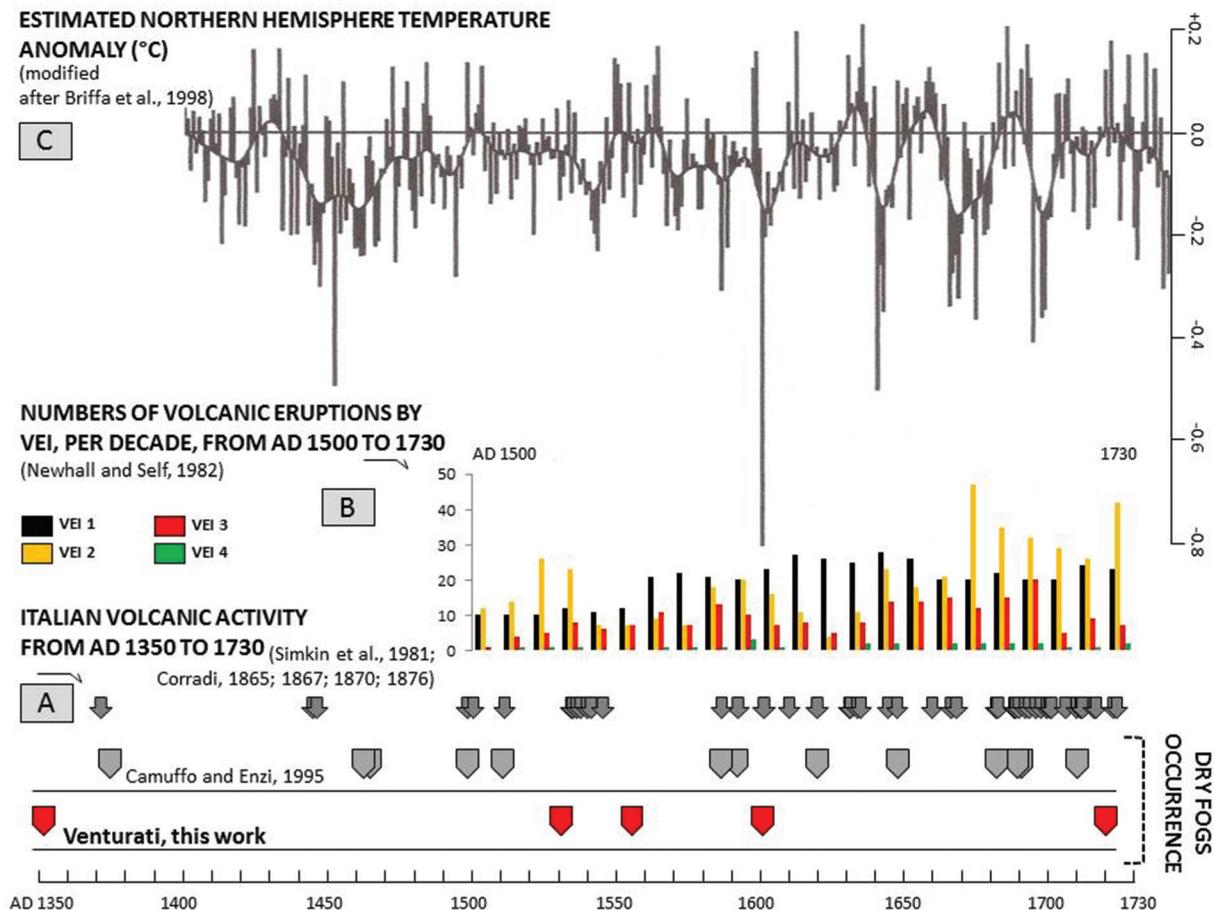


Fig. 1. Dry fogs appeared in Italy during the period AD 1350–1730 plotted against: *a*, Italian volcanic activity from AD 1350 to 1730; *b*, numbers of volcanic eruptions by VEI, per decade, from AD 1500 to 1730; *c*, estimated Northern Hemisphere temperature anomaly. The dry fog occurred in AD 1151 is not reported in figure. References of primary and secondary historical sources regarding the dry fogs occurrence are quoted in Corradi (1865, 1867, 1870).

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