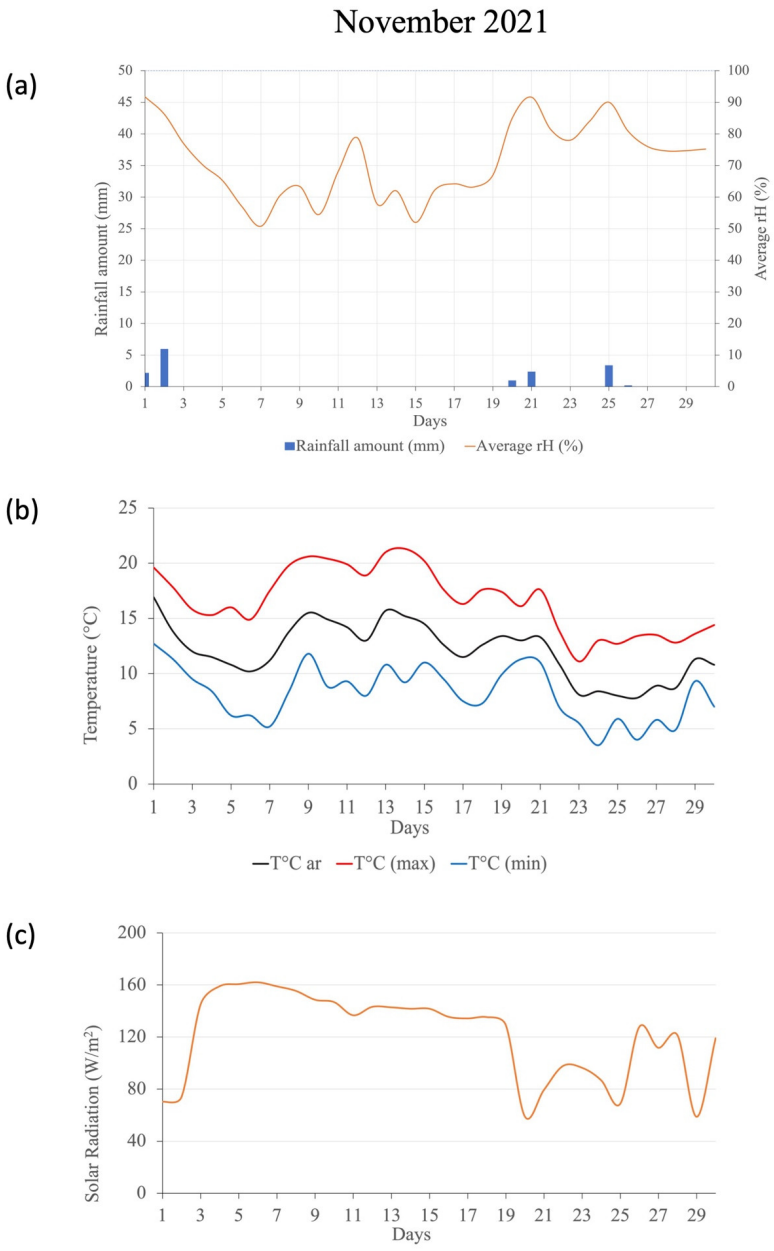
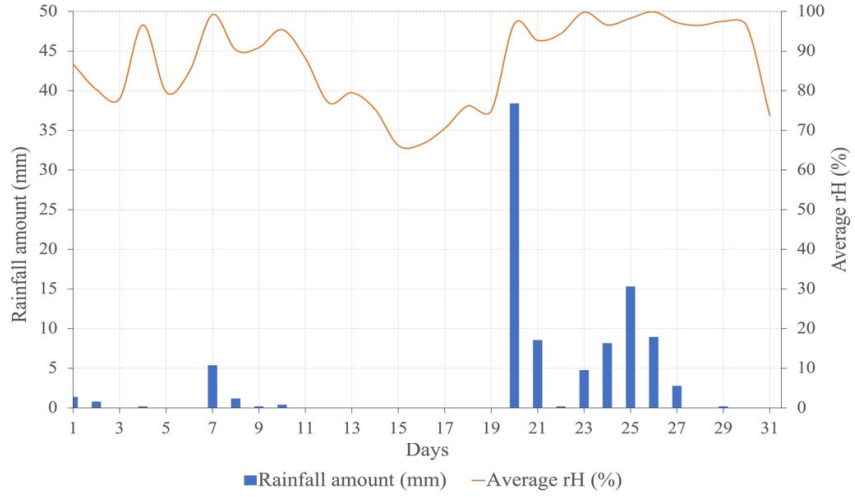
Annex S1. Évora climatic parameters from November 2021 to April 2022: (a) amount and relative humidity; (b) minimum, maximum and average temperature and (c) solar radiation expressed. All paremeters are expresses as daily average.

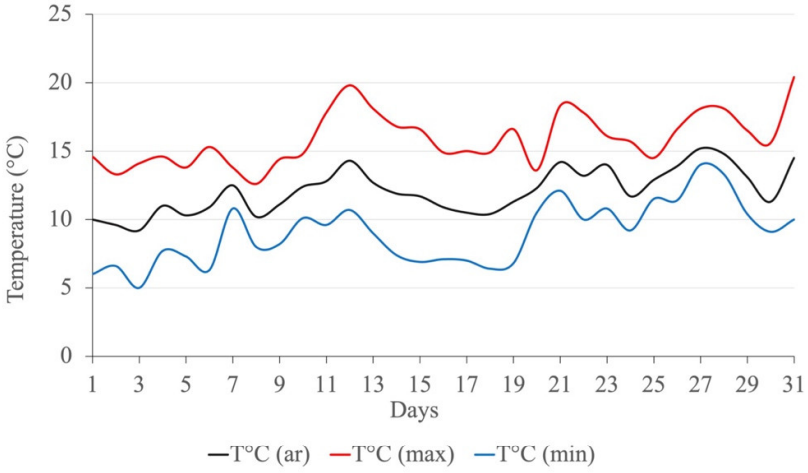


December 2021

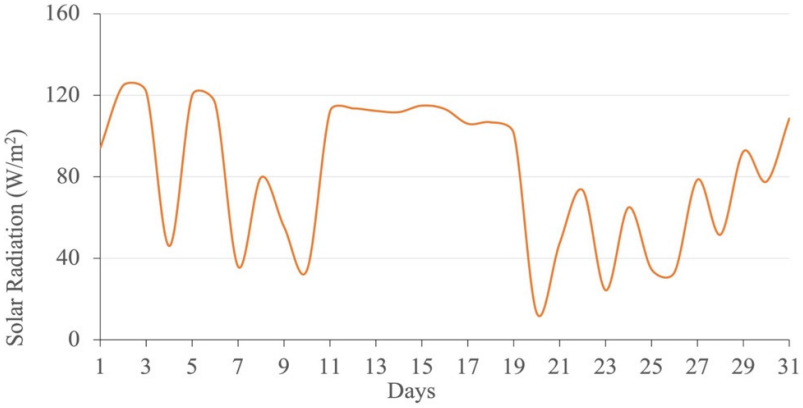
(a)



(b)

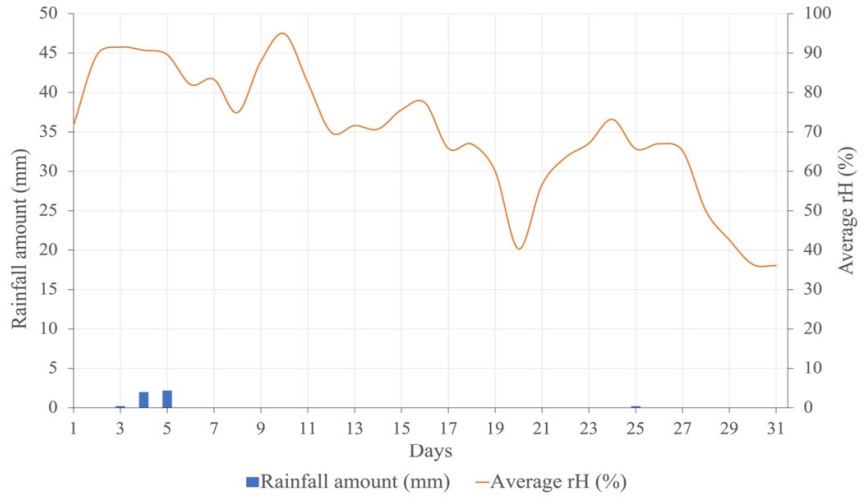


(c)

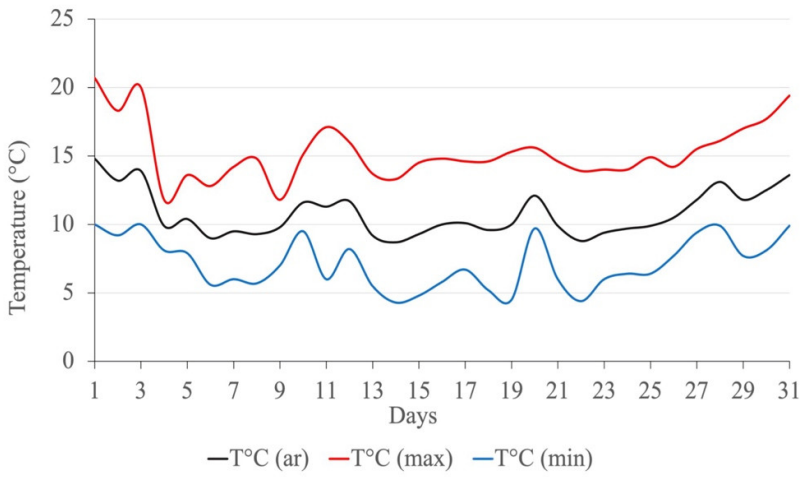


January 2022

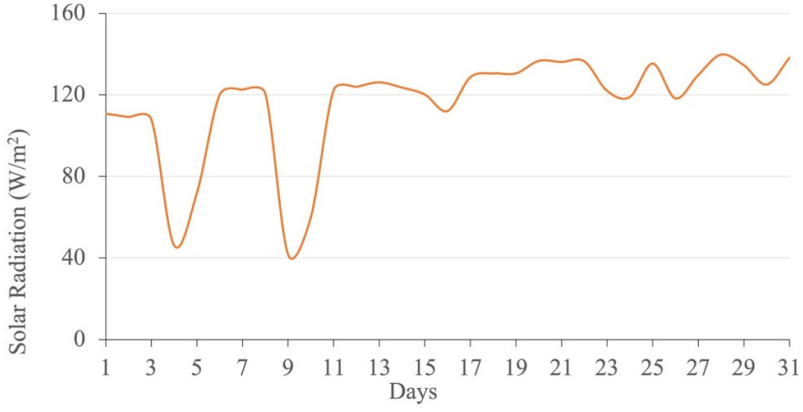
(a)



(b)

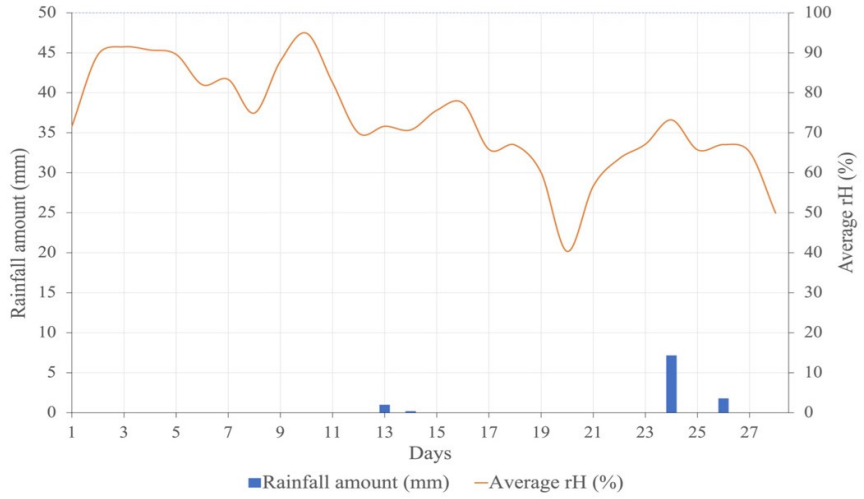


(c)

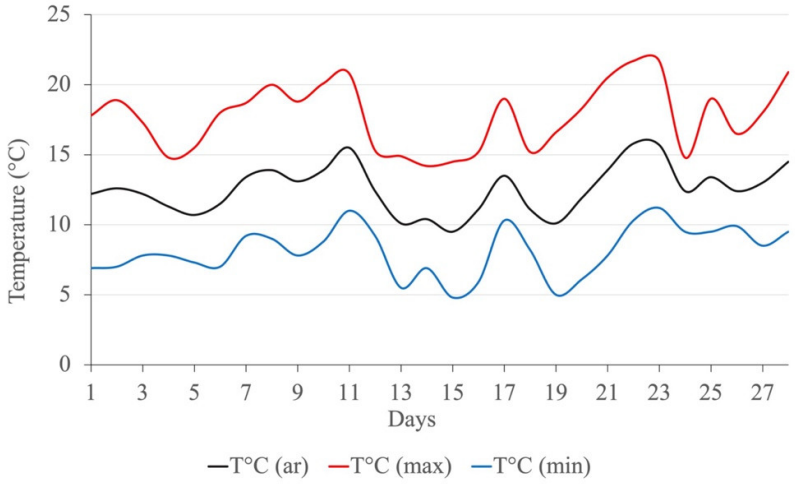


February 2022

(a)



(b)



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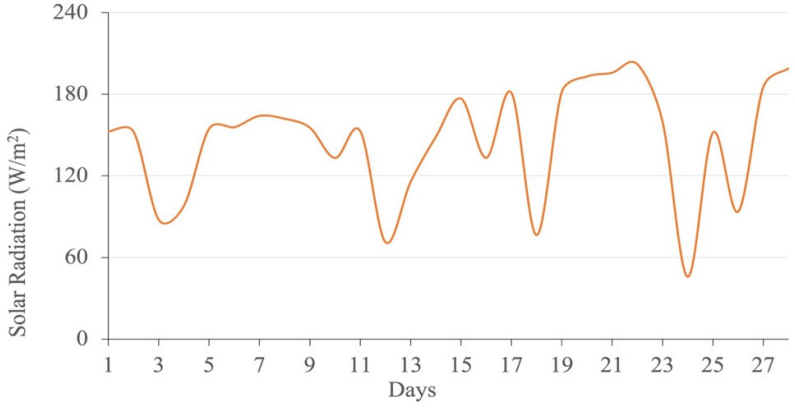
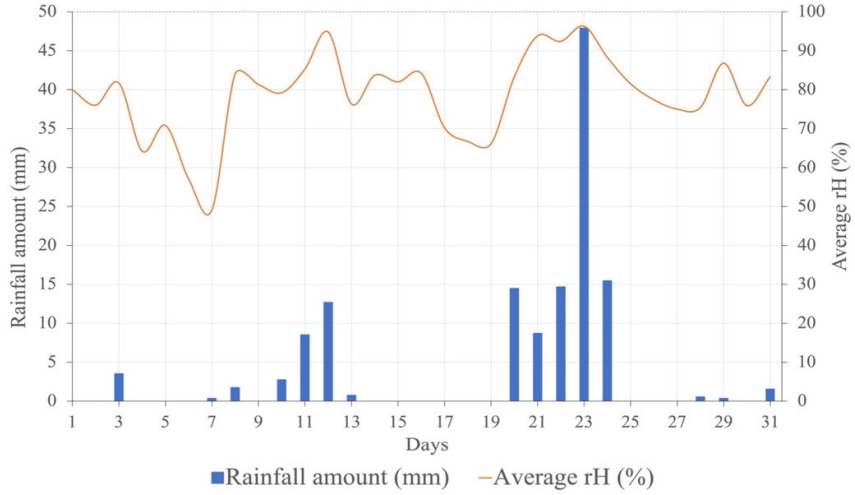
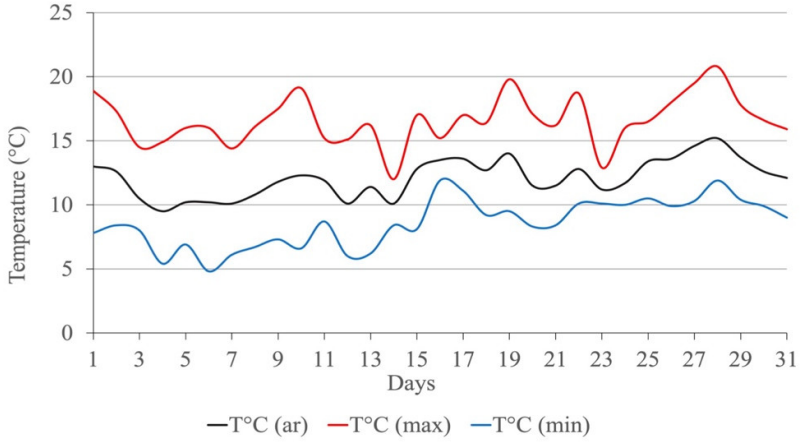


March 2022

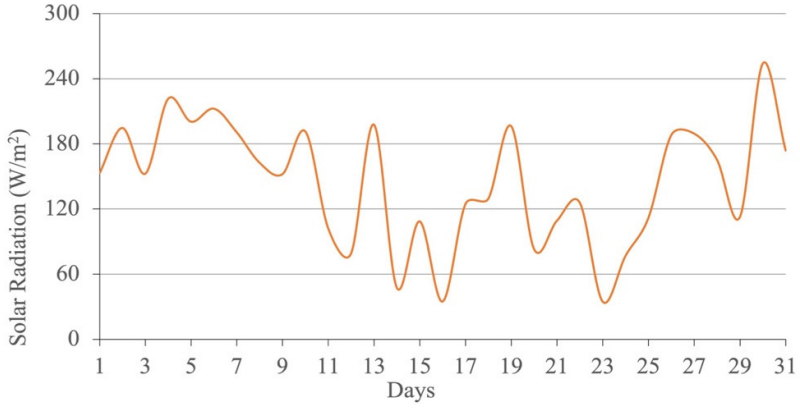
(a)



(b)

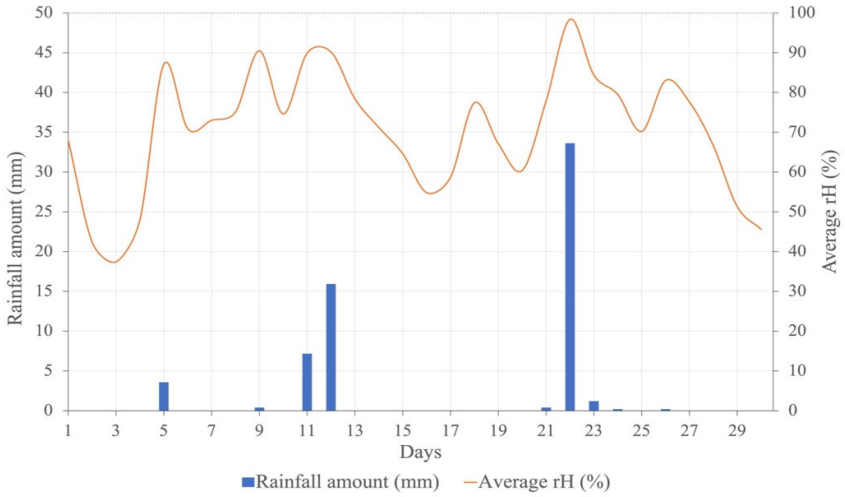


(c)

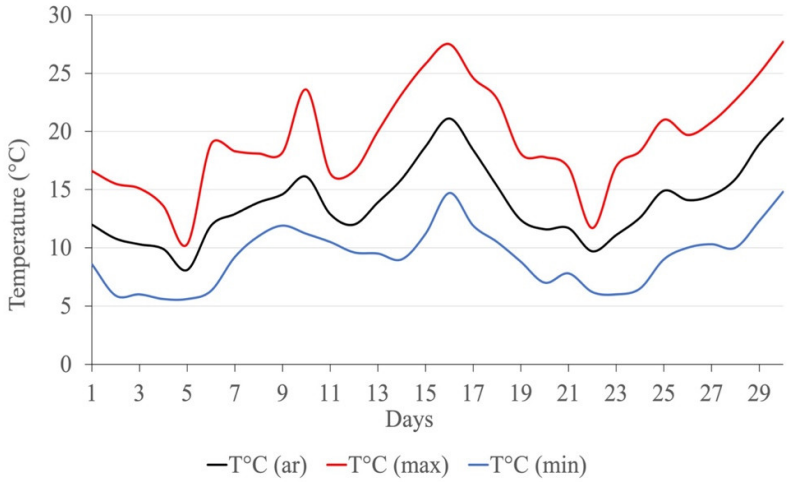


April 2022

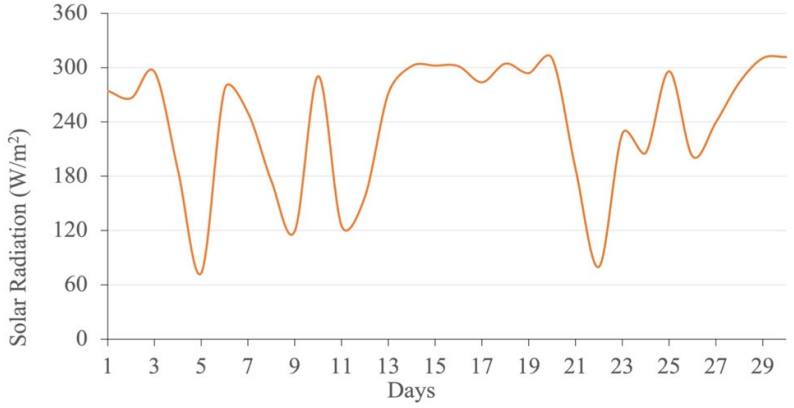
(a)



(b)

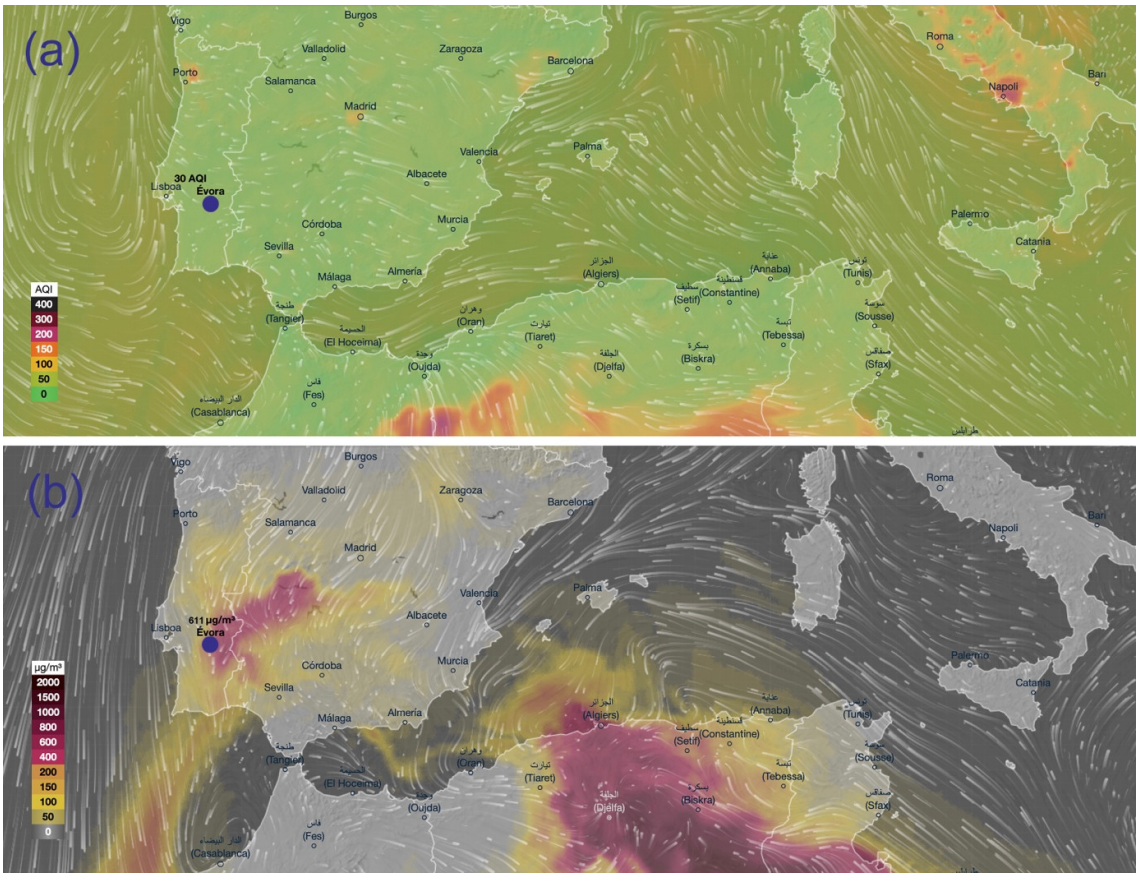


(c)



Annex S2.

According to the and www.ventusky.com database (accessed on 16 March) , the Air Quality Index (AQI) of Evora is good. The AQI scale ranges from 0 to 500, with higher values indicating poorer air quality. The data was obtained and processed by. According to the database, values of O_3, NO_2, SO_2, CO, PM2.5 and PM10 pose little or no risk for human health, except on 17th March, when a desert dust plum arrived in the city. In that case, the maximum dust load registered was 305 $\mu g/m^3$. Semi-quantitative composition of Saharian dust analysed by x-ray diffraction identified Quartz (50%), Microcline (17.1%), Gypsum (15.4%), Illite (9.4%), Albite (8.1%). The presence of this mineralogical phases on the atmosphere has been recognised by its buffer effect and its influence in the pH of rain leading to pH values higher than 5.6. In this study, the pH during a rain event during a desert dust storm was equal to 8.07.



Annex S2. Air Quality Index map (a) and desert dust load in West-Central South Europe (b), after the database of www.ventusky.com. Evora (Portugal) is blue marked. Fig.2a: Air Quality Index (AQI) depiction for Evora. The AQI scale ranges from 0 to 400, with higher values indicating poorer air quality. In this figure, the colour-coded legend represents different AQI categories: green (0-50) for good, yellow (51-100) for moderate, orange (101-150) for unhealthy for sensitive groups, red (151-200) for unhealthy, purple (201-300) for very unhealthy, and

maroon (301-500) for hazardous. Fig.2b: The figure displays the dust load, expressed in μg/m³, in various of North Africa and Portugal on 16th March. In Evora the load reached the ~600 μg/m^3.