

Winter drought and fire risk in southern Europe

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INTRODUCTION

A significant precipitation deficit over the south-western parts of Europe, together with above normal amount of sunshine, led to serious drought in the region in January 2022. The drought was so severe that even in the middle of winter the risk for wild fires was high for large parts of the Iberian peninsula.



Large parts of Europe received below average precipitation during January 2022

According to measurements of the Global Precipitation Climatology Centre (GPCC), some regions in Portugal had no rain during the entire month of January.

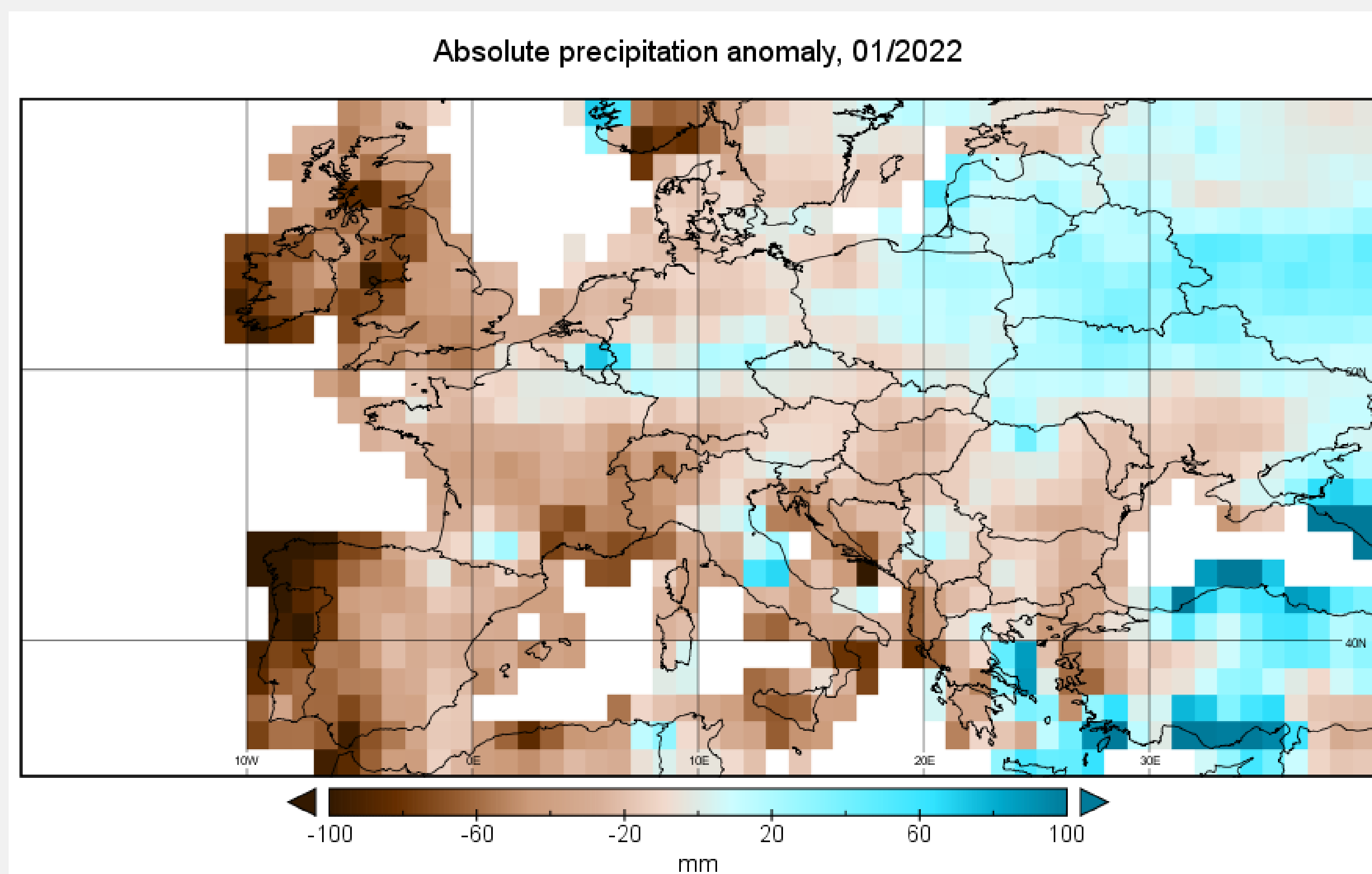
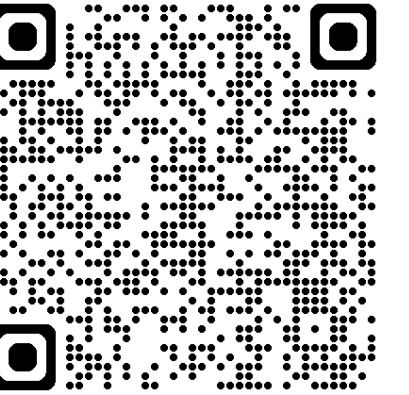


Figure 1: Precipitation Anomaly January 2022 compared to the long-term average of precipitation in January during the normal period 1991–2020. Regions with above average precipitation in blue and below average in brown. Source: GPCC

Find more information about the case study and used datasets:

<https://user.eumetsat.int/resources/case-studies/winter-drought-and-fire-risk-in-southern-europe>



Serious drought conditions in January 2022

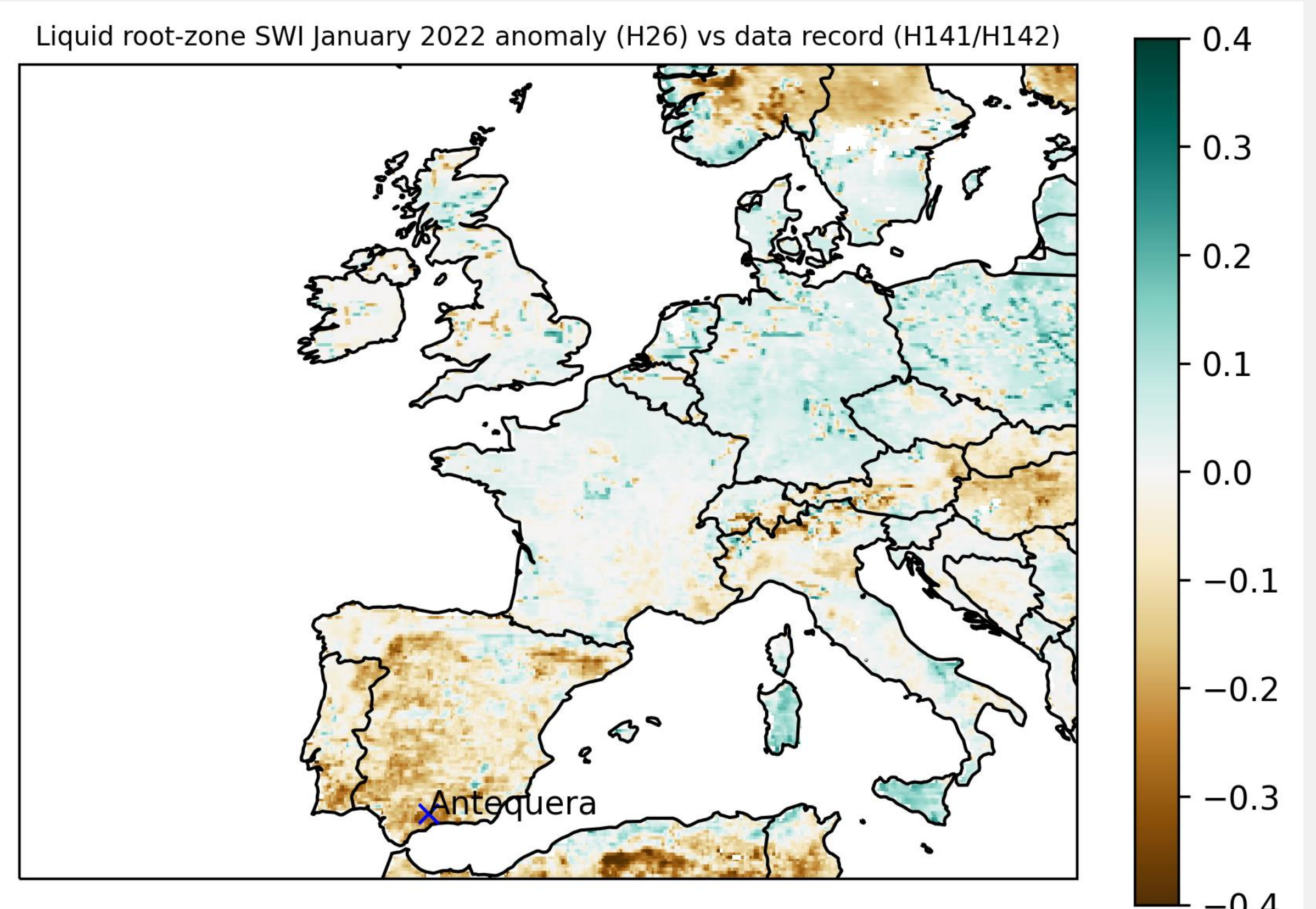


Figure 3: Soil moisture anomaly in January 2022 (0-1 m depth) in Europe compared to the 1992-2021 average. Large parts of the Iberian Peninsula, including Antequera (blue cross), were unusually dry.

Very sunny conditions in Europe experienced in January 2022

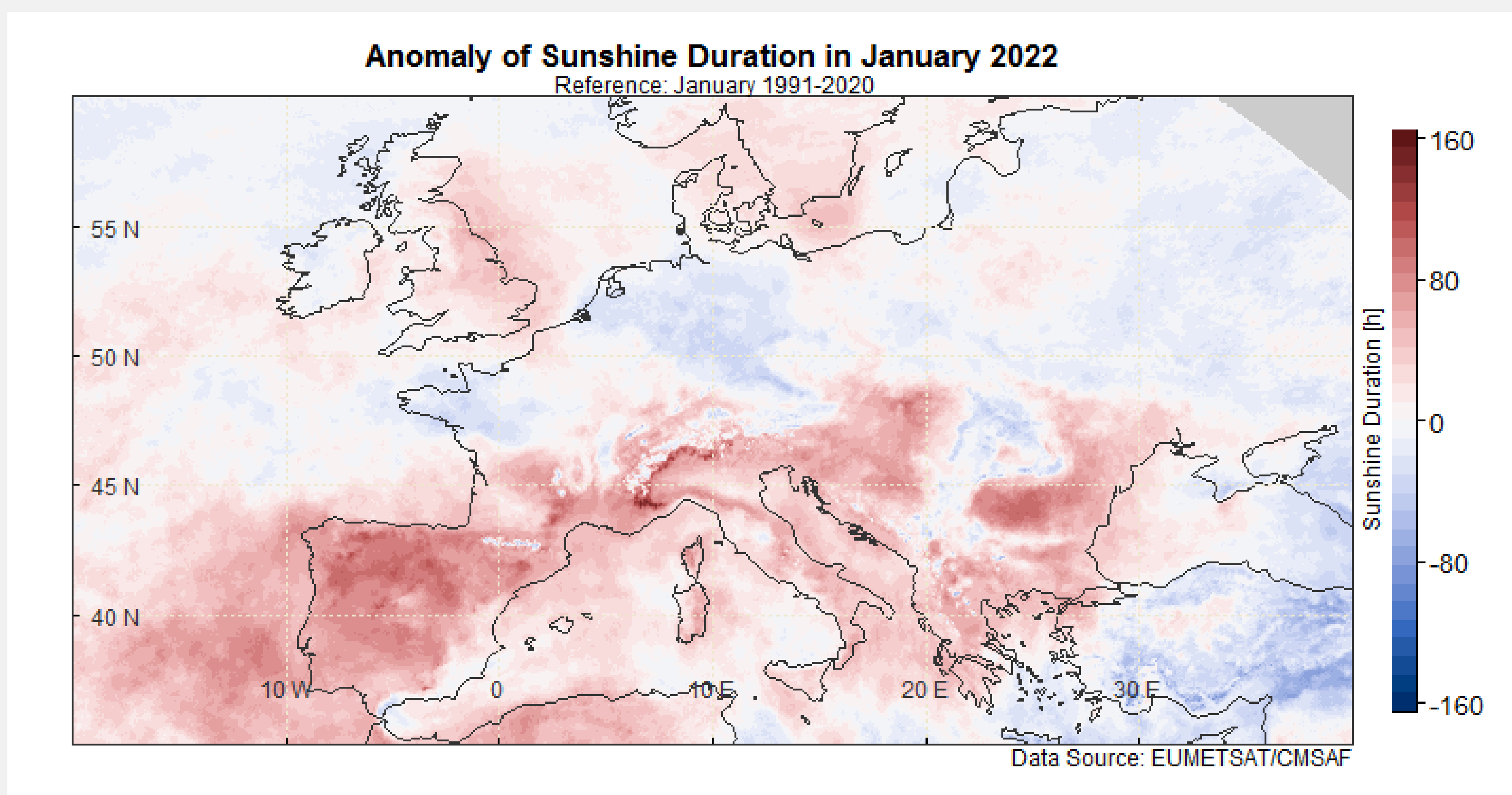


Figure 2: Monthly anomaly of sunshine duration for January 2022 in reference to 1991 to 2020. Regions with above average sunshine duration are red and below average sunshine duration are blue

Dry conditions in southern Europe since August 2021

Since August 2021, the soil moisture in Antequera, Spain, has been well below average. From August 2021 to February 2022, moisture in the root zone (0-1 m depth) (cyan line in Figure 4) was mostly below the 5th percentile of the long term monthly average (dashed red line in Figure 4).

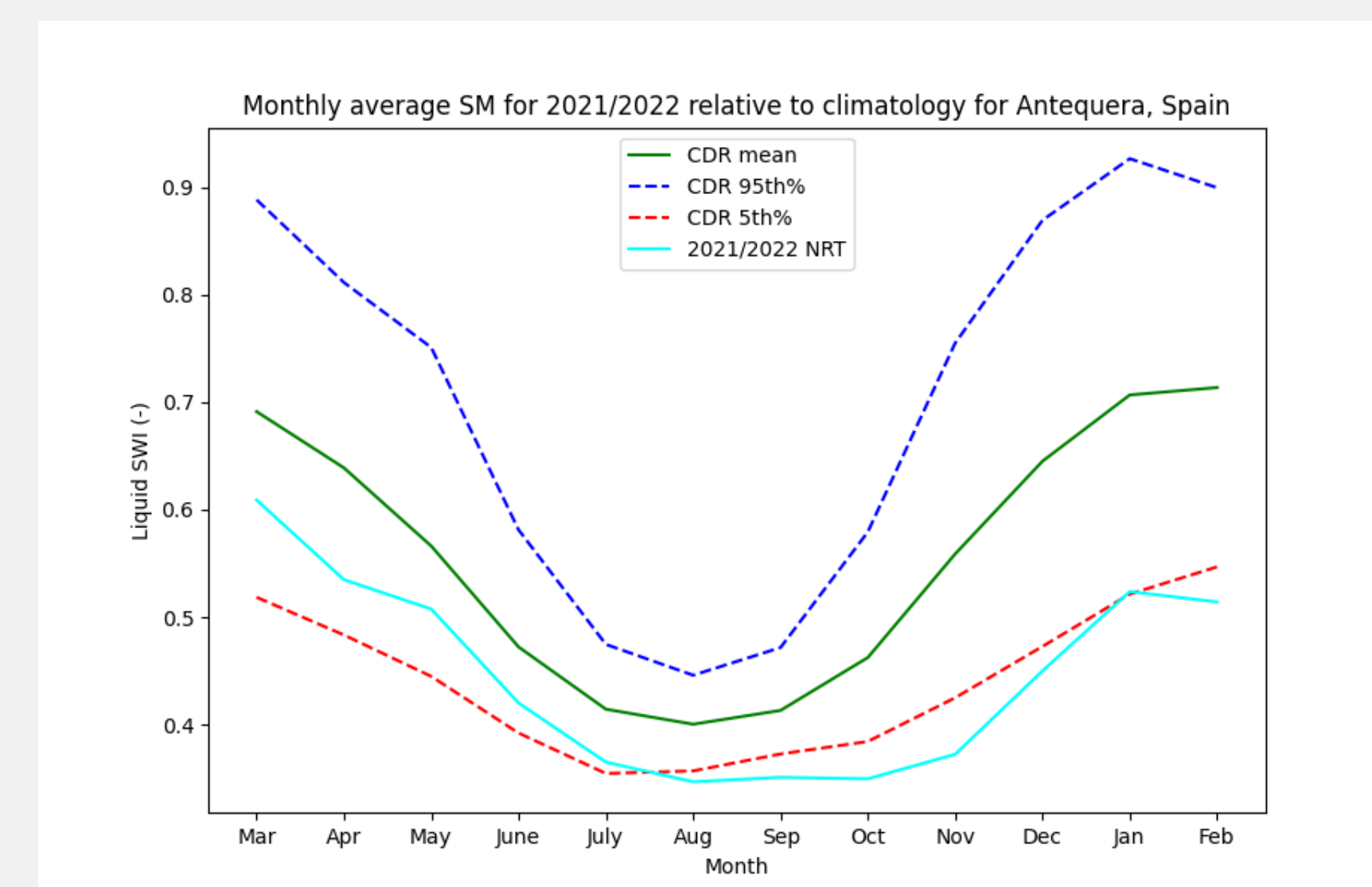


Figure 4: monthly average liquid soil wetness index (SWI) in the root-zone (0–1m depth), Antequera

Risk for potential wildfires

As a consequence of all the mentioned conditions, the risk for a potential wildfires in large parts of the Iberian Peninsula was rated to be in the high, very high, or even the highest category. Usually, this risk is rated to be in the low or moderate category in January.

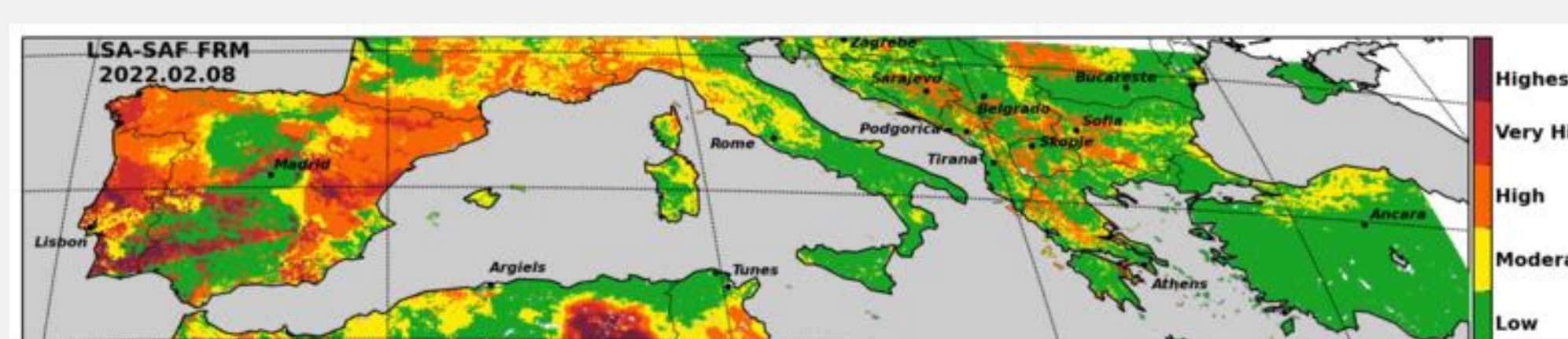


Figure 5: Fire risk map (FRM) for 8 February 2022. The fire risk map provides risk categories on the likelihood of a potential fire event getting out of control