

BULLETIN

Campaigns 2026-27

July 2026

Seasonal & decadal predictions for Viticulture

Earth Sciences
Department



DESDE 1551
CODORNÍU

www.aspect-project.eu

WATER MANAGEMENT SUMMARY

Drier than normal growing season in Catalunya

Campaign 2026 - Seasonal predictions for year 2026 show above normal average temperatures across Catalunya during the second half of the year (July - December), with above normal growing degree days. The number of heatwaves for July and August 2026 is predicted to be above normal in the mid-western regions of Catalunya, where the Raïmat vineyard is located. A higher probability of above normal precipitation is predicted from August to October, with slightly below normal precipitation at the end of the year. The drought index indicates drier than normal conditions in Raïmat from July to November.

Campaign 2027 - Decadal predictions indicate above normal temperatures across Catalunya and in the Raïmat region during the 2027 growing season (April-September), with above normal growing degree days in this period. A higher than normal number of heatwaves (>3) is predicted during the growing season in the western region, including the Raïmat vineyard. Although above normal precipitation is expected in the northern part of Catalunya, no clear precipitation trend is predicted in Raïmat. However, the drought index indicates drier than normal conditions across Catalunya.

FROST PROTECTION SUMMARY

Below normal probability of spring frost in Catalunya

Decadal predictions show a lower than normal probability of having spring frost in March and April 2027.



If you have queries or feedback, contact us:

hello-aspect@bsc.es



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the European Union

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USER GUIDE

FROST PROTECTION INDICATORS

FROST DAYS (FD)	Number of days with minimum temperature below 0°C between March 1st and April 30th
GROWING DEGREE DAYS (GDD)	Accumulated sum of daily differences between daily mean temperature and 10°C (vegetative growth minimum temperature), excluding days with mean temperature above 30°C, between March 1st and April 30th

WATER MANAGEMENT INDICATORS

GROWING SEASON TOTAL PRECIPITATION	Total precipitation from April 1st to September 30th
GROWING SEASON AVERAGE TEMPERATURE	Average of daily mean temperatures between April 1st and September 30th
STANDARDISED PRECIPITATION AND EVAPOTRANSPIRATION INDEX (SPEI)	Index that assesses water availability for the plants by estimating the water balance between precipitation and potential evapotranspiration during a given period. SPEI6 accumulates such a water balance during 6 months, and measures long-term drought conditions relevant for agriculture.
GROWING DEGREE DAYS (GDD)	Accumulated sum of daily differences between daily mean temperature and 10°C (vegetative growth minimum temperature), excluding days with mean temperature above 30°C, between April 1st and September 30th
HEATWAVE	Number of periods with at least 3 consecutive days when the daily maximum temperature exceeds 36°C between April 1st and September 30th

TIME SCALES

SEASONAL PREDICTIONS	Probabilistic forecasts of climate conditions for the next months and seasons. Results are shown for prediction systems with the best performance (best skill scores)
DECADAL PREDICTIONS	Probabilistic forecasts of climate conditions for the next years. Results are shown for prediction systems with the best performance (best skill scores)



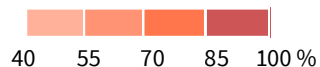
USER GUIDE

LEGEND

PREDICTED TERCILE (tercile plots)

PREDICTED TERCILE (probability maps)

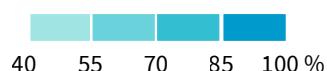
FROST DAYS - GROWING DEGREE DAYS - AVERAGE TEMPERATURE



Above Normal



Normal



Below Normal

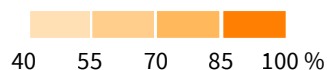
TOTAL PRECIPITATION - SPEI



Above Normal



Normal



Below Normal

Climate predictions are shown using terciles, which represent three categories - below normal, normal, and above normal - and the probabilities of each category to occur. The most likely tercile refers to the tercile with more probability to occur. The 'normal' category (in grey) refers to the average conditions for a variable or indicator in a particular time of the year. In the past, the probability of each tercile is considered to be the same (that is, one third). This is what we call the climatology.

PREDICTION QUALITY (tercile plots)

PREDICTION QUALITY (probability maps)

FROST DAYS - GROWING DEGREE
DAYS - AVERAGE TEMPERATURE



TOTAL PRECIPITATION - SPEI

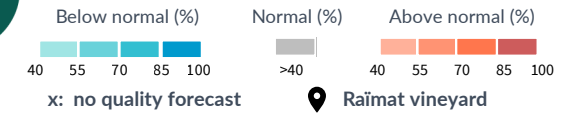


No quality forecast
(transparency)

X

No quality
forecast

No quality forecast means that past predictions were not better than climatology, and it is indicated with a cross on the map. In these cases, the use of the climatology (or business as usual) is recommended. When the prediction has quality, it means that using the prediction is better than using the climatology.



SEASONAL

Seasonal prediction System: ECMWF S5

Model start date: Jul 1st 2026

Calibration method: Quantile mapping

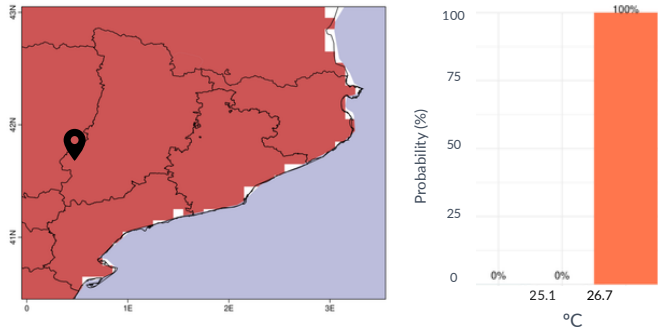
Reference dataset: ERA5

Reference period: 1993-2016

AVERAGE TEMPERATURE

July 2026

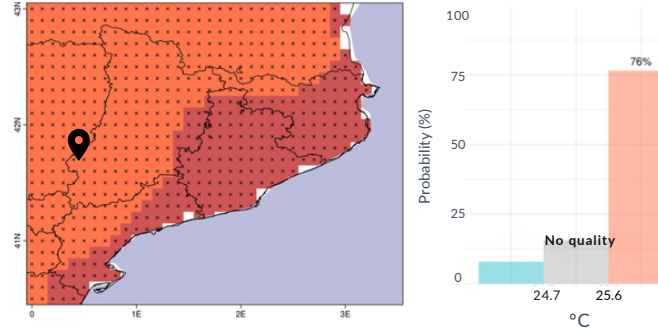
Raïmat vineyard



Higher probability of above normal temperature across Catalunya. Forecast showing 100% probability of above normal temperature in the Raïmat vineyard. The normal average temperature in July in Raïmat ranges between 25.1 and 26.7 °C.

August 2026

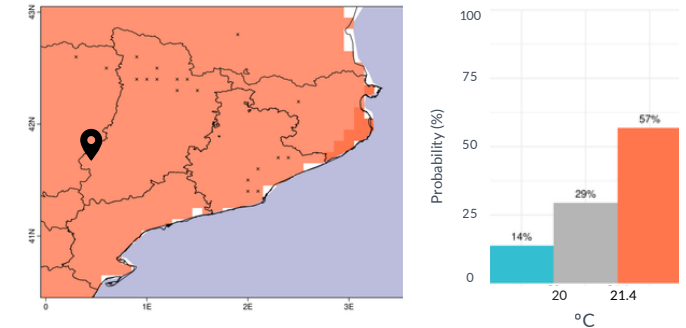
Raïmat vineyard



Higher probability of above normal temperature across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal average temperature in August in Raïmat ranges between 24.7 and 25.6 °C.

September 2026

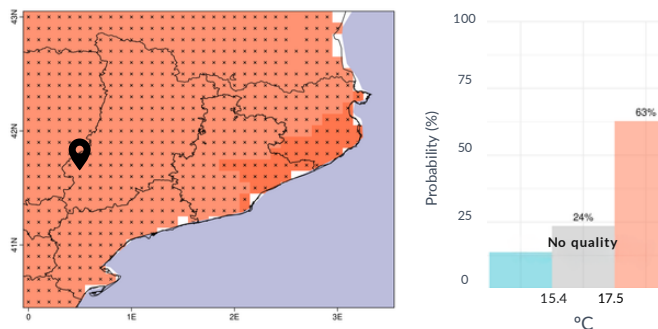
Raïmat vineyard



Higher probability of above normal temperature across Catalunya. Forecast showing 57% probability of above normal temperature in the Raïmat vineyard, where the normal average temperature in September ranges between 20 and 21.4 °C.

October 2026

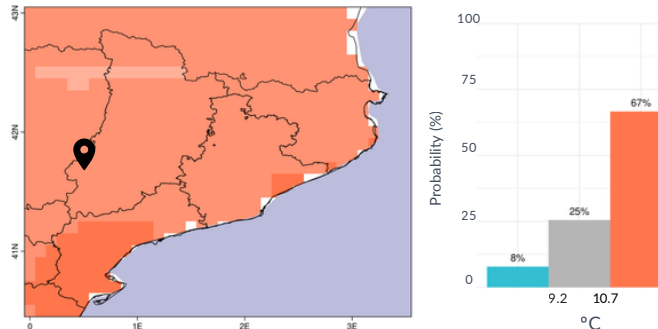
Raïmat vineyard



Higher probability of above normal temperature across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal average temperature in October in Raïmat ranges between 15.4 and 17.5 °C.

November 2026

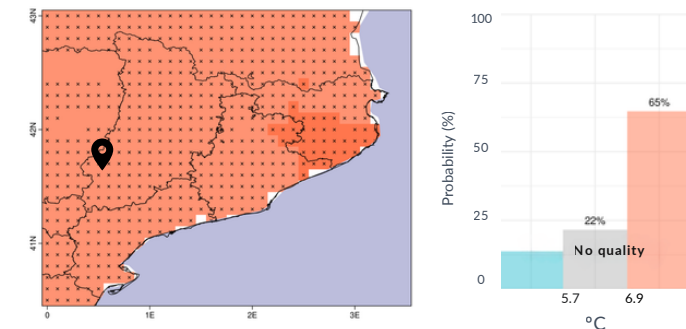
Raïmat vineyard



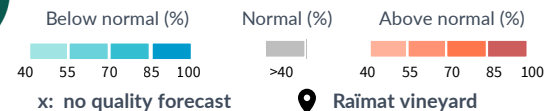
Higher probability of above normal temperature across Catalunya. Forecast showing 67% probability of above normal temperature in the Raïmat vineyard, where the normal average temperature in November ranges between 9.2 and 10.7 °C.

December 2026

Raïmat vineyard



Higher probability of above normal temperature across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal average temperature in December in Raïmat ranges between 5.7 and 6.9 °C.



SEASONAL

Seasonal prediction System: ECMWF S5

Model start date: Jun 1st 2026

Calibration method: Quantile mapping

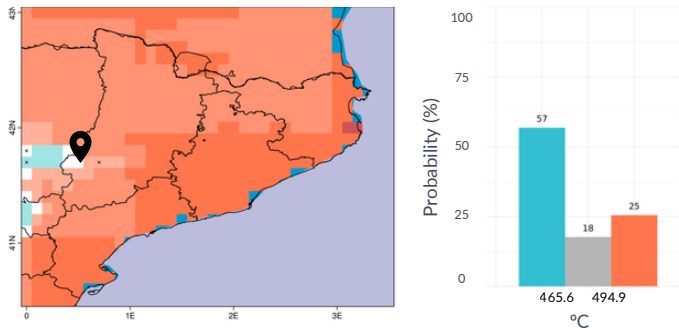
Reference dataset: ERA5

Reference period: 1993-2016

GROWING DEGREE DAYS

July 2026

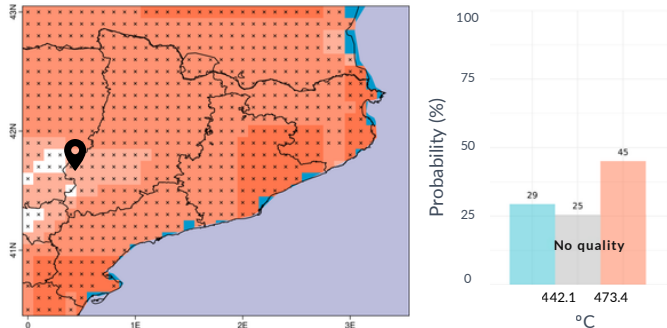
Raïmat vineyard



Higher probability of above normal growing degree days across Catalunya. Forecast showing 57% probability of below normal growing degree days in the Raïmat vineyard, where the normal growing degree days in July range between 465.6 and 494.9 °C.

August 2026

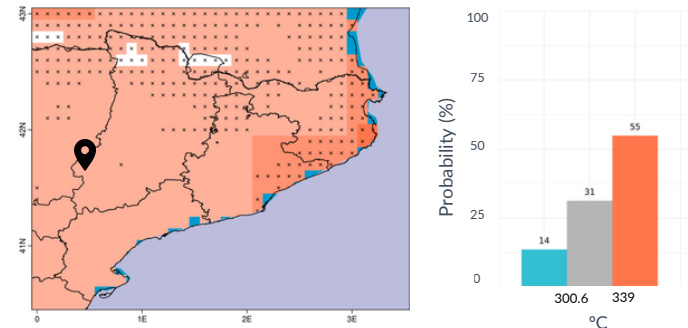
Raïmat vineyard



Higher probability of above normal growing degree days across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal growing degree days in August in Raïmat range between 442.1 and 473.4 °C.

September 2026

Raïmat vineyard

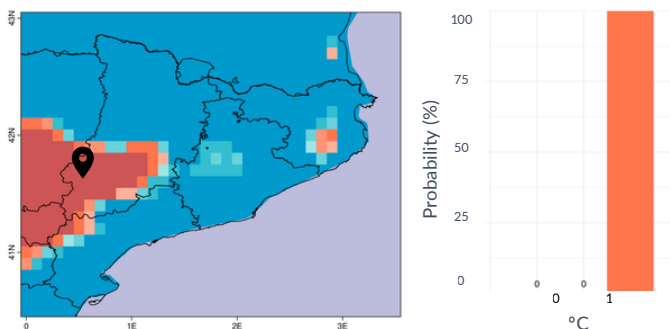


Slightly higher probability of above normal growing degree days across Catalunya. Forecast showing 55% probability of above normal growing degree days in September in the Raïmat vineyard, where the normal growing degree days in September range between 300.6 and 339 °C.

HEATWAVES

July 2026

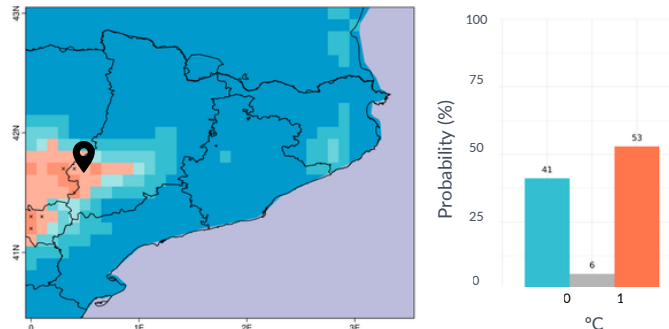
Raïmat vineyard



Higher probability of above normal number of heatwaves in the mid-western region of Catalunya and below normal in the rest of the territory. Forecast showing 100% probability of at least one heatwave in the Raïmat vineyard in July.

August 2026

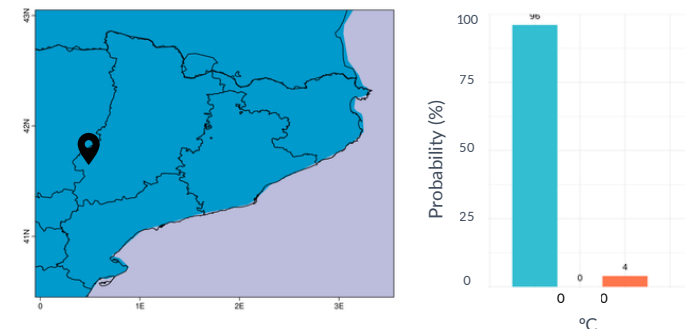
Raïmat vineyard



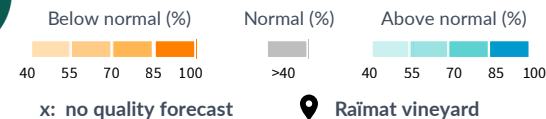
Slightly higher probability of above normal number of heatwaves in the mid-western region of Catalunya. Forecast showing 53% probability of at least one heatwave in the Raïmat vineyard. The normal number of heatwaves in Raïmat in August ranges between 0 and 1.

September 2026

Raïmat vineyard



Higher probability of below normal number of heatwaves across Catalunya. Forecast showing 96% probability of not having any heatwave in the Raïmat region in September.



SEASONAL

Seasonal prediction System: ECMWF S5

Model start date: Jul 1st 2026

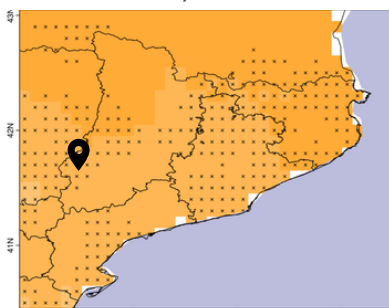
Calibration method: Quantile mapping

Reference dataset: ERA5

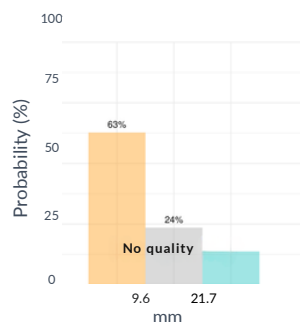
Reference period: 1993-2016

TOTAL PRECIPITATION

July 2026

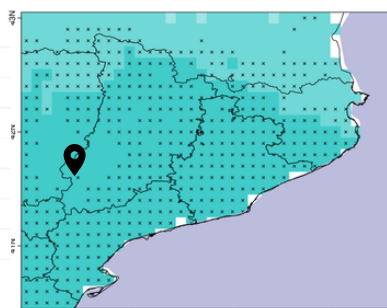


Raïmat vineyard

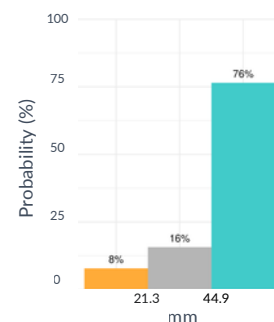


Higher probability of below normal precipitation across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal precipitation in July in Raïmat ranges between 9.6 and 21.7 mm.

August 2026

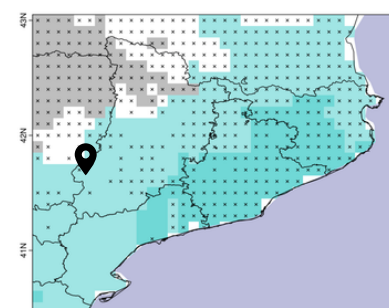


Raïmat vineyard

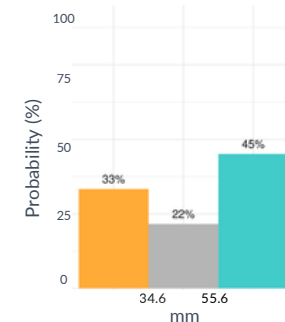


Higher probability of above normal precipitation across Catalunya. Forecast showing 76% probability of above normal precipitation in the Raïmat vineyard. The normal precipitation in August in Raïmat ranges between 21.3 and 44.9 mm.

September 2026

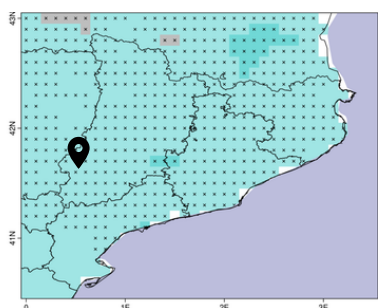


Raïmat vineyard

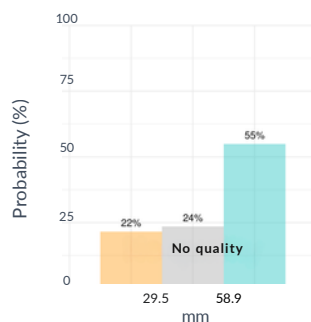


Slightly higher probability of above normal precipitation across Catalunya, except in the north-western region. Forecast showing 45% probability of above normal precipitation in Raïmat, where the normal precipitation in September ranges between 34.6 and 55.6 mm.

October 2026

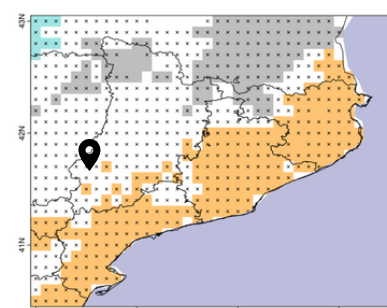


Raïmat vineyard

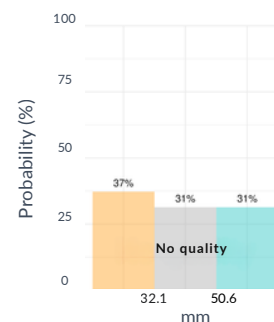


Slightly higher probability of above normal precipitation across Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal precipitation in October in Raïmat ranges between 29.5 and 58.9 mm.

November 2026

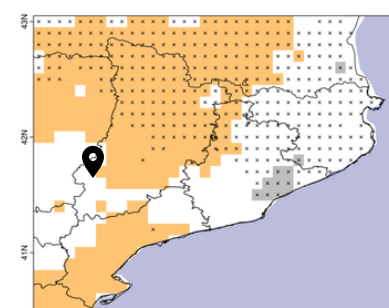


Raïmat vineyard

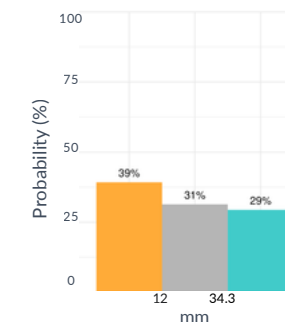


Higher probability of below normal precipitation in the eastern part of Catalunya. Forecast showing no quality in the Raïmat vineyard. The normal precipitation in November in Raïmat ranges between 32.1 and 50.6 mm.

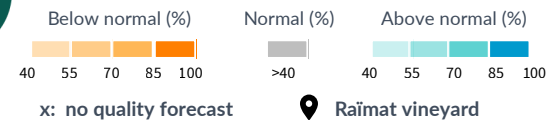
December 2026



Raïmat vineyard



Higher probability of below normal precipitation in the north-western and southern region of Catalunya. Forecast showing 39% probability of below normal precipitation in Raïmat (61% probability of having normal or above normal precipitation). The normal precipitation in December in Raïmat ranges between 12 and 34.3 mm.



SEASONAL

Seasonal prediction System: ECMWF S5

Model start date: Jul 1st 2026

Calibration method: Quantile mapping

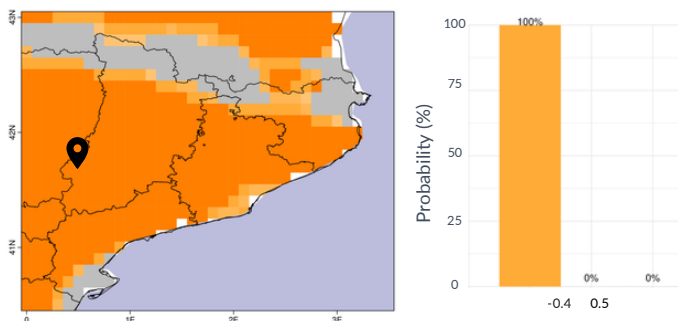
Reference dataset: ERA5

Reference period: 1993-2016

SPEI6

July 2026

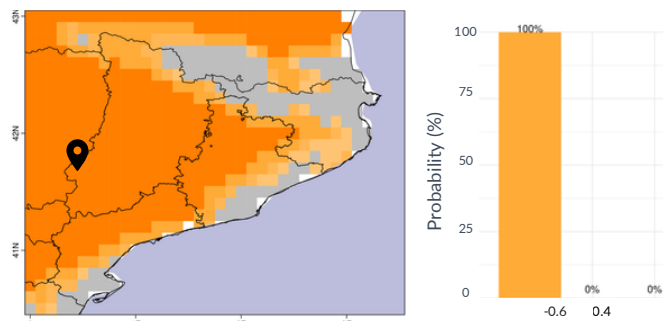
Raïmat vineyard



Higher probability of drier than normal conditions across Catalunya. Forecast showing 100% probability of drier than normal conditions in the Raïmat vineyard.

August 2026

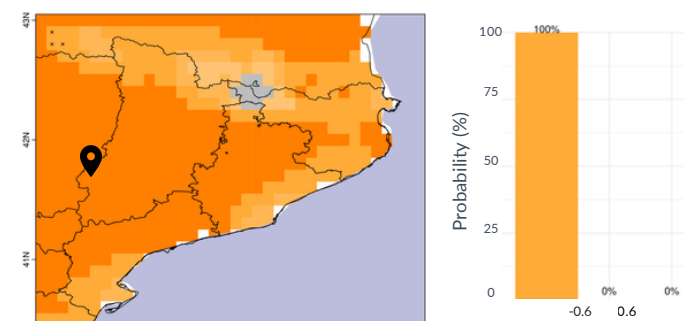
Raïmat vineyard



Higher probability of drier than normal conditions in the central and western regions of Catalunya. Forecast showing 100% probability of drier than normal conditions in the Raïmat vineyard.

September 2026

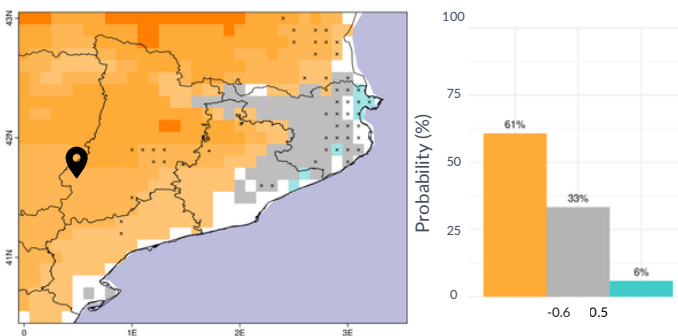
Raïmat vineyard



Higher probability of drier than normal conditions across Catalunya. Forecast showing 100% probability of drier than normal conditions in the Raïmat vineyard.

October 2026

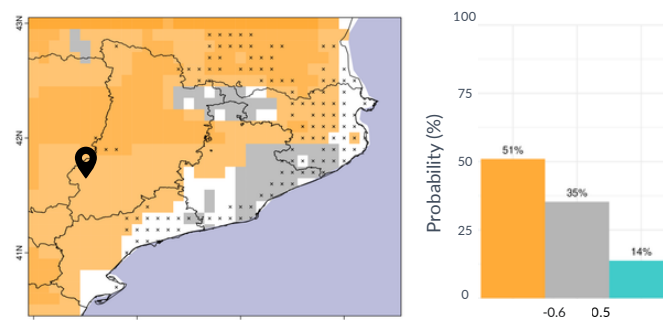
Raïmat vineyard



Higher probability of drier than normal conditions in the central and western regions of Catalunya. Forecast showing 61% probability of drier than normal conditions in the Raïmat vineyard.

November 2026

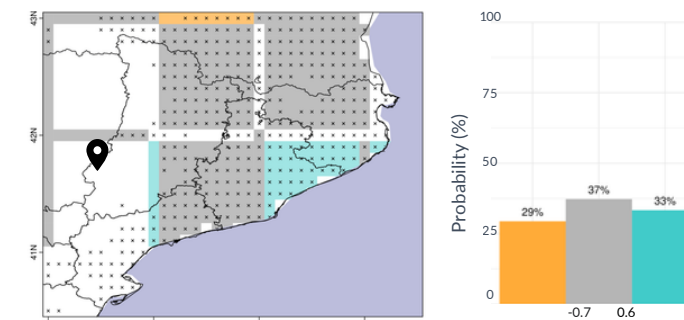
Raïmat vineyard



Higher probability of drier than normal conditions in the western and north eastern regions of Catalunya. Forecast showing 51% probability of drier than normal conditions in the Raïmat vineyard.

December 2026

Raïmat vineyard



Normal drought conditions in some central and northern regions of Catalunya. The forecast is not showing a clear drought signal in the Raïmat vineyard, with similar probabilities predicted for the below normal, normal and above normal categories.



x: no quality forecast

📍 Raïmat vineyard

DECADAL

Prediction System: **Multi-model**

Model start date: **January 2025**

Calibration method: **Quantile mapping**

Reference dataset: **ERA5Land**

Reference period: **1991-2020**

AVERAGE TEMPERATURE

2026 (April-September)



Higher probability of above normal temperatures across all regions of Catalunya.

2027 (April-September)

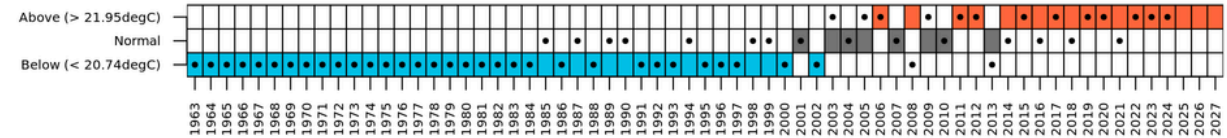


Higher probability of above normal temperatures across all regions of Catalunya.

Raïmat vineyard

Time series showing observations and predictions of average temperature in April-September in the Raïmat vineyard. The normal temperature in this period ranges between 20.7°C and 21.9°C. Coloured squares show the predicted most likely tercile whereas black dots are observations.

High quality



Higher probability of above-normal temperature in the Raïmat vineyard in April-September 2026 and 2027.

GROWING DEGREE DAYS

2026 (April-September)



Higher probability of above normal growing degree days in all the regions of Catalunya in April-September 2026.

2027 (April-September)

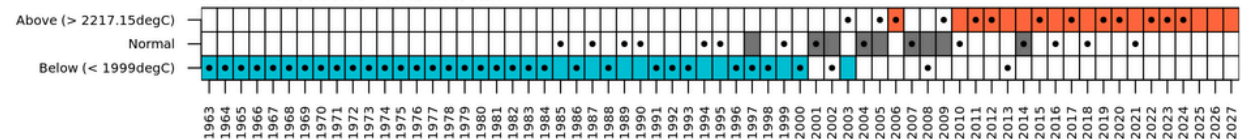


Higher probability of above normal growing degree days in all regions of Catalunya in April-September 2027.

Raïmat vineyard

Time series showing observations and predictions of growing degree days in April-September in the Raïmat vineyard. The normal growing degree days in this period range between 1999 and 2217°C. Coloured squares show the predicted most likely tercile whereas black dots are observations.

High quality



High probability of above normal growing degree days in Raïmat vineyard in April-September 2026 and 2027.



DECADAL

Prediction System: **Multi-model**

Model start date: **January 2025**

Calibration method: **Quantile mapping**

Reference dataset: **ERA5Land**

Reference period: **1991-2020**

TOTAL PRECIPITATION

2026 (April-September)



Higher probability of above normal precipitation conditions in the north-western and north-eastern regions of Catalonia in April-September 2026.

2027 (April-September)

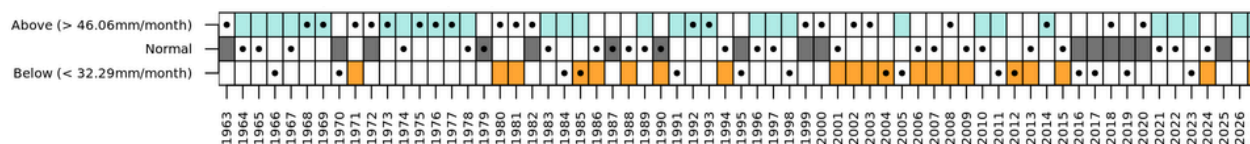


Higher probability of above normal precipitation in the northern regions of Catalonia, and high probability of below normal precipitation over the south-western region in April-September 2027.

Raïmat vineyard

Time series showing observations and predictions of total precipitation in April-September in the Raïmat vineyard. The normal precipitation in this period ranges between 32.3 and 46.1 mm/month. Coloured squares show the predicted most likely tercile whereas black dots are observations.

No quality forecast



Higher probability of above normal precipitation in the Raïmat vineyard in April-September 2026 and no clear precipitation trend predicted for 2027.

SPEI6

2026 (April-September)



Higher probability of drier than normal conditions in all the regions of Catalonia in April-September 2026.

2027 (April-September)

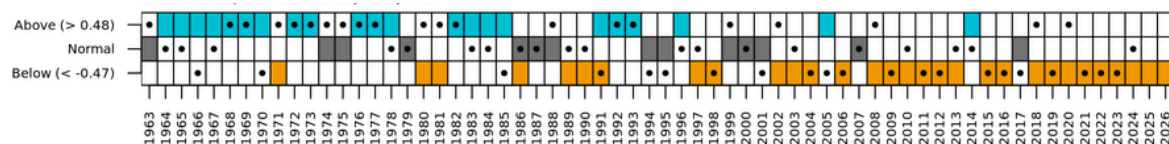


Higher probability of drier than normal conditions in all the regions of Catalonia in April-September 2027.

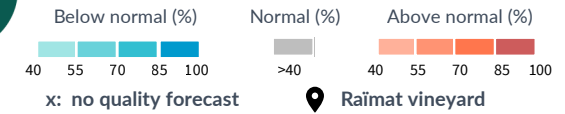
Raïmat vineyard

Time series showing observations and predictions of the SPEI6 (April-September accumulation) in the Raïmat vineyard. The normal range for the SPEI6 in this period ranges between -0.47 and 0.48. Coloured squares show the predicted most likely tercile whereas black dots are observations.

Some quality



High probability of drier than normal conditions in the Raïmat vineyard in April-September 2026 and 2027.



DECADAL

Prediction System: **Multi-model**

Model start date: **January 2025**

Calibration method: **Quantile mapping**

Reference dataset: **ERA5Land**

Reference period: **1991-2020**

HEATWAVES

2026 (April-September)



Higher probability of above normal number of heatwaves in the western regions of Catalunya and below normal conditions in the central and eastern regions in April-September 2026.

2027 (April-September)

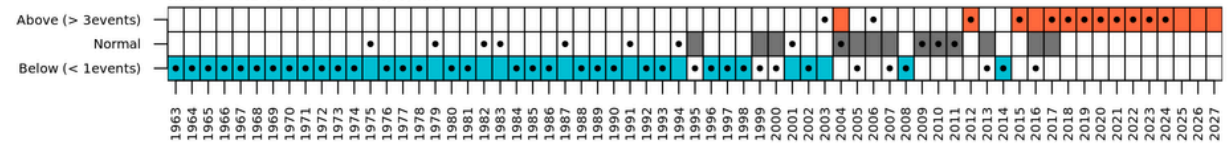


Higher probability of above normal number of heatwaves in the western regions of Catalunya and below normal conditions in the central and eastern regions in April-September 2027.

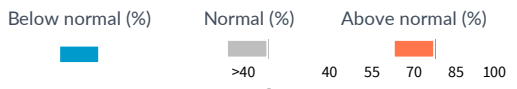
Raïmat vineyard

Time series showing observations and predictions of number of heatwaves (3 consecutive days with maximum temperature above 36°C) in April-September in the Raïmat vineyard. The normal number of heatwaves in this period ranges between 1 and 3. Coloured squares show the predicted most likely tercile whereas black dots are observations.

High quality



High probability of above normal number of heatwaves (more than 3) in the Raïmat vineyard in April-September 2026 and 2027.



FROST DAYS

2027 (March-April)



Higher probability of below normal number of frost days in all the regions of Catalunya in March-April 2027.

GROWING DEGREE DAYS

2027 (March-April)

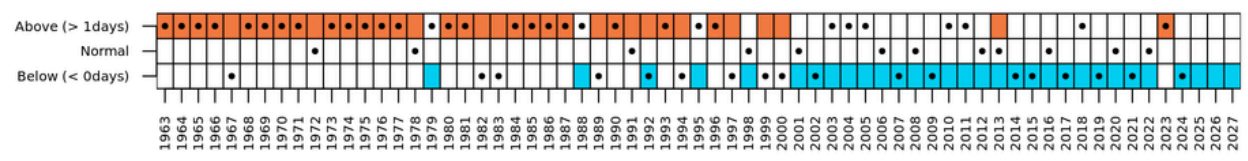


Higher probability of above normal growing degree days in all regions of Catalunya in March-April 2027.

Raïmat vineyard

Time series showing observations and predictions of frost days in March-April in the Raïmat vineyard. The normal number of frost days in this period is one. Coloured squares show the predicted most likely tercile whereas black dots are observations.

Some quality

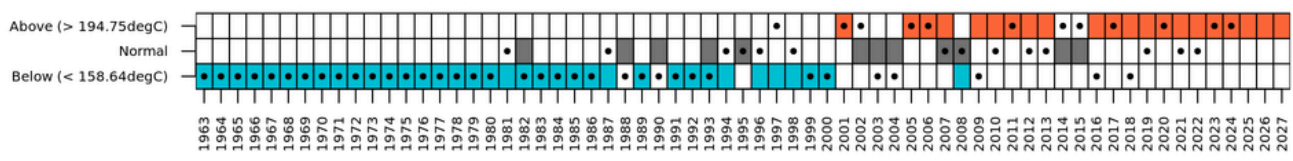


Higher probability of below normal number of frost days (zero days) in the Raïmat vineyard in March-April 2027.

Raïmat vineyard

Time series showing observations and predictions of growing degree days in March-April in the Raïmat vineyard. The normal number of growing degree days in this period ranges between 158.6 and 194.7°C. Coloured squares show the predicted most likely tercile whereas black dots are observations.

High quality



Higher probability of above normal growing degree days (above 195 °C) in the Raïmat vineyard in March-April 2027.