

JRC MARS Bulletin

Crop monitoring in Europe

November 2019

Wetter than usual in large parts of Europe

Difficult sowing conditions continued, sometimes poor establishment

The sowing campaign of winter cereals is practically completed in central Europe, whereas some obstacles to sowing, emergence and establishment remain in the over-wet regions in western and northern Europe, as well as in Italy. Lack of rainfall is mostly in south-eastern Europe.

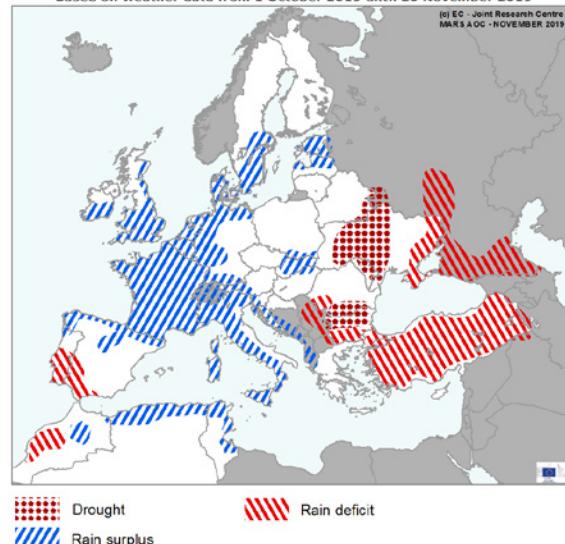
Frequent and abundant rainfall continued to delay field operations in the British Isles, France, Italy, Benelux countries, northern Germany and southern Sweden, but in those countries, the vast majority of winter cereals have already been sown. Rainfall was particularly intense in southern France and regionally in northern and central Italy.

While dry conditions in August and September hampered sowing of rapeseed in some parts of Germany, France and Hungary, the rainfall recorded since the beginning of October has improved conditions for emergence.

The central Balkans, large parts of Turkey and Ukraine, together with the southern part of the Iberian Peninsula and western Morocco, experienced a lack of rainfall, with less than half the long-term average cumulates recorded. These conditions affected sowing and continue to affect crop establishment in southern Romania and northern Bulgaria, although some rain is forecast. Eastern and south-eastern Europe were also affected by pronounced warm anomaly.

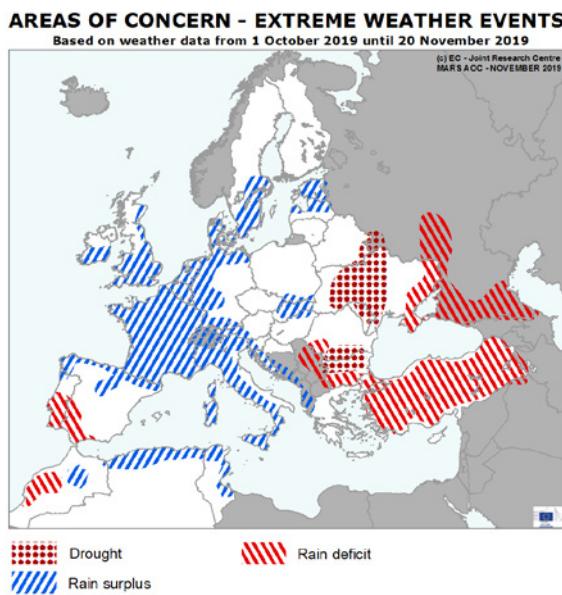
AREAS OF CONCERN - EXTREME WEATHER EVENTS

Based on weather data from 1 October 2019 until 20 November 2019



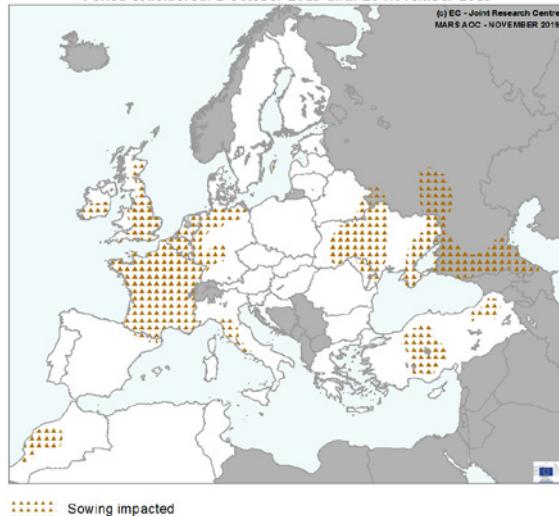
1. Agrometeorological review

1.1. Areas of concern



AREAS OF CONCERN - WINTER CROPS

Period considered: 1 October 2019 until 20 November 2019



The review period, from 1 October to 20 November, was marked by contrasting weather events across Europe. While the weather in eastern and south-eastern Europe and Turkey was characterised by an exceptionally warm and drier-than-seasonal anomaly, wet conditions prevailed in large parts of western Europe, southern Scandinavia and north-eastern Europe. These conditions had diverse implications for finalising the winter cereals sowing campaign and establishment of winter crops, and hampered the last part of the harvest of summer crops.

The winter cereals sowing campaign was generally completed under favourable conditions in central Europe and the Baltics. Sowing is also progressing well on the Iberian Peninsula. However, several of the EU's main grain-producing countries faced difficulties in November: Abundant rainfall since November has hampered field preparation and sowing in France, where the sown area for winter soft wheat is expected

to decrease compared to last year. Wet weather continued to cause delays in the United Kingdom and northern Germany. Wet conditions also limited the progress of winter cereal sowing in the central part of Italy.

While dry conditions in August and September hampered the sowing of rapeseed in some parts of Germany, France and Hungary, the rainfall recorded since the beginning of October has improved conditions for emergence.

Northern Bulgaria, large parts of Turkey and Ukraine, together with the southern part of the Iberian Peninsula and western Morocco, experienced a lack of rainfall, with less than half the long-term average (LTA) cumulates recorded. These conditions affected sowing and continue to affect crop establishment in southern Romania (as reported in the last Bulletin) and northern Bulgaria, but here some rain is forecast.

1.2. Meteorological review (1 October-20 November)

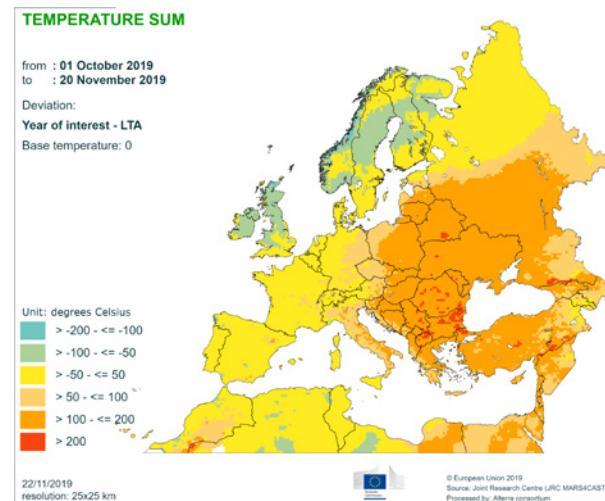
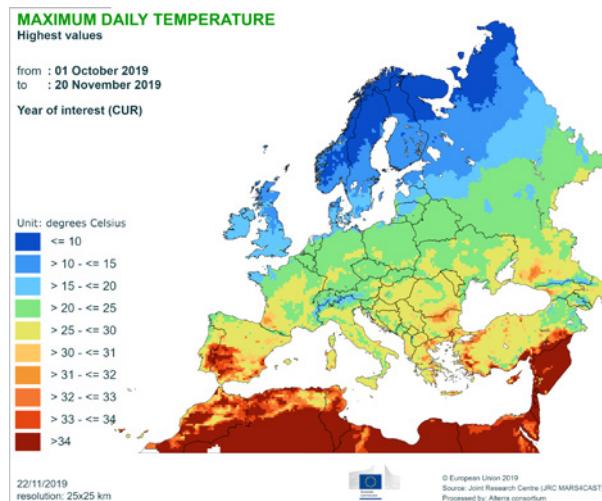
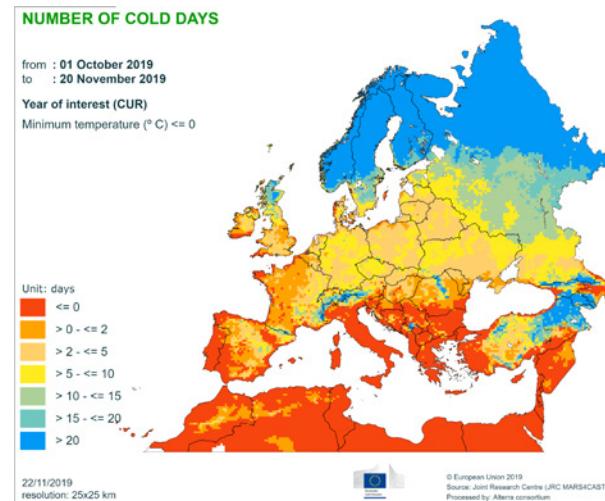
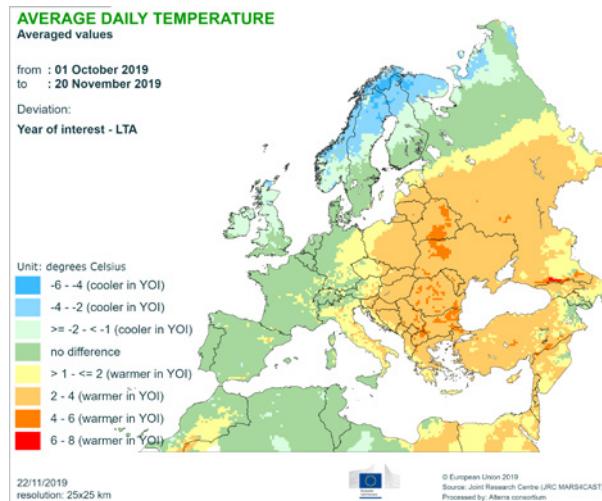
Weather in eastern and south-eastern Europe was characterised by exceptionally warm weather, with temperatures up to 4 °C above the LTA. These regions, together with the southern part of the Iberian Peninsula, experienced a lack of rainfall, with less than half of LTA cumulates recorded. In contrast, wet conditions prevailed in large parts of western Europe, southern Scandinavia and north-eastern Europe.

A warm weather anomaly with temperatures up to 4 °C above the LTA was recorded in most parts of **eastern and central Europe**. Weather in south-eastern and eastern Europe was characterised by exceptionally warm temperatures throughout the analysis period, interrupted only for short periods by colder air inflow at the beginning of October and at the beginning of November. Consequently, the weather was the warmest in our records for the analysis period (1 October-20 November) in several countries in south-eastern and eastern Europe, and among the three warmest periods in central European countries. The beginning of October still saw maximum temperatures above 30 °C in southern Romania,

northern Bulgaria and many eastern Mediterranean regions. Maximum temperatures still reached above 25 °C in these regions at the beginning of November.

Colder-than-usual weather conditions with temperature anomalies down to 6 °C below the LTA were measured in central and northern Scandinavia.

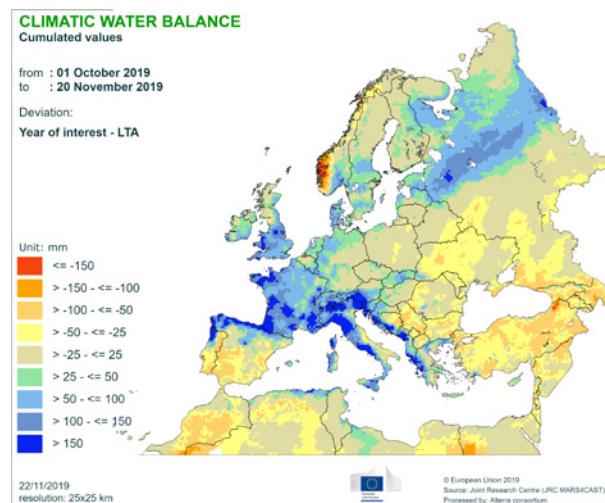
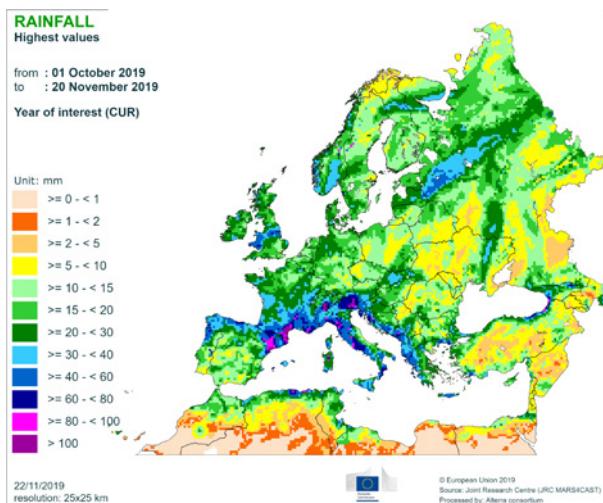
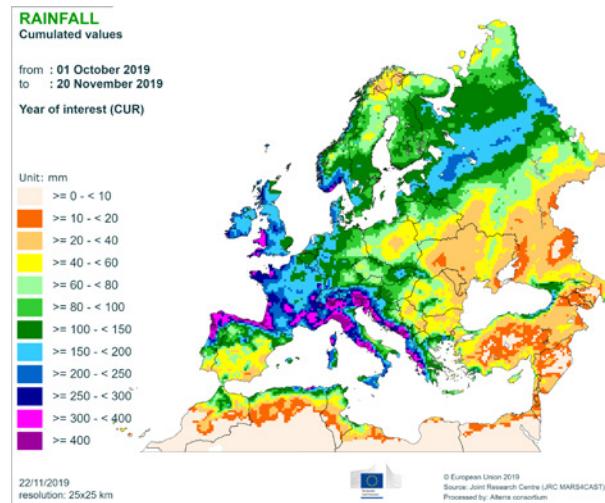
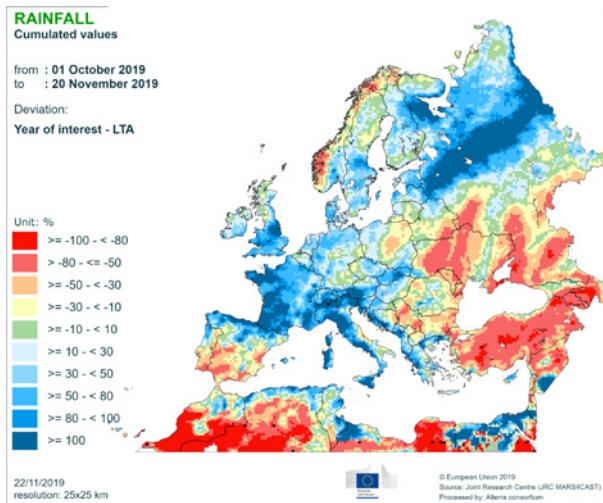
Minimum temperatures below 0 °C were limited mainly to **central and north-eastern Europe**. Major parts of central and eastern Europe recorded fewer than five cold days with minimum temperatures below 0 °C; regionally, up to 10 cold days occurred. Minimum temperatures remained above -6 °C in central Europe, the Baltic countries, southern Sweden and the southern part of European Russia; locally the minimum recorded temperature in these regions dropped slightly below -6 °C. In general, crops are not yet hardened, but first runs of our frost-kill model indicate only limited local damage in eastern Ukraine and the southern part of European Russia.



Substantially drier-than-usual conditions were recorded in the southern part of the Iberian Peninsula and in regions of eastern and south-eastern Europe that were also affected by pronounced warm anomaly. Less than half the LTA rainfall was recorded in these regions. Western Ukraine, southern European Russia and Turkey saw altogether less than 40 mm of rainfall, while up to 50 mm were recorded in the southern Iberian Peninsula and central Balkans.

Wetter-than-usual weather prevailed in the northern part of the Iberian Peninsula, France, Italy, the British Isles,

regionally in central Europe, southern Scandinavia and north-eastern Europe. More than 150 mm of rainfall was generally recorded in these regions, which corresponds to (at least) double the LTA values for the analysis period. **Abundant rainfall** with cumulates above 300 mm occurred regionally in northern Italy, eastern Alpine region, western Balkans, regionally in southern France, north-western Iberian Peninsula and western UK. **Heavy rainfall events** with daily recorded cumulates above 100 mm occurred in north-eastern Spain, southern France and locally in northern Italy.



2. Sowing progress and harvest update

Winter cereals (soft wheat, barley, rye, triticale, durum wheat)

Sowing progresses well in southern Europe

The sowing campaign of winter cereals is practically completed in central Europe. Wet conditions persist in the northern and western regions, and dry conditions remain in south-eastern Europe. In Spain, Portugal and Greece sowing progresses well.

In the UK, Ireland, the Benelux countries and northern Germany, where wet weather had hampered the start of the sowing campaign, abundant rain continued. Due to the decrease in soil temperatures, the sowing window can now be considered closed. In the former five countries, the projected area of winter cereals is below last year, whereas in Germany the area is projected to remain fairly stable. Similarly, in France, drilling continued to be difficult and has been interrupted by abundant rainfall recorded since 1 November. The area is expected to decrease compared to last year for soft wheat. Durum wheat sowing is ongoing. Conditions for emergence and early development have generally been favourable for the earlier sown crops, whereas later sown crops show a delayed development. Conversely, in central and partially in eastern Europe, for example in Poland, sowing was concluded in October, mainly under favourable conditions. Only locally (central Slovakia, southern Austria, north-western and western Slovenia), did abundant rainfall cause waterlogging, which might lead to poor crop establishment.

In Hungary, Romania and Bulgaria, where dry conditions characterised significant areas during recent months, the sowing campaign was mainly concluded by mid-November. In Hungary, soil moisture conditions improved towards the end of October to ensure average crop establishment, but southern Romania and northern Bulgaria still remain dry, affecting crop establishment. However, the situation is improving slightly.

In Greece, the sowing of winter cereals is progressing well and in the absence of abundant rainfall, the campaign should be concluded as usual.

In Italy, winter cereal sowing is ongoing, but hampered in northern and central regions (e.g. *Emilia-Romagna, Toscana*) by generally over-wet conditions. Durum wheat sowing has been progressing well since mid-November in southern Italy, where soils (e.g. in *Puglia* and *Basilicata*) benefited from rainfall at the beginning of November, after a dry October.

In Spain and Portugal, precipitation at the end of October favoured the start of sowing, after an extremely dry period. Sowing progressed well and the mild temperatures in southern Spain and Portugal will allow the sowing window to be extended until December, ensuring more appropriate soil moisture conditions for crop germination.

Rapeseed

Conditions improved in some of the main producing countries

The dry conditions observed in August and September in some of the main producing countries — mostly Germany, France, Bulgaria and Romania — hampered sowing, and conditions for emergence have been partially unfavourable. By contrast, in most of central Europe, the United Kingdom and Baltic countries, conditions have been more favourable during sowing.

The low soil moisture observed in France, Germany, Bulgaria and Romania in August and September has been unfavourable for rapeseed sowing. In Bulgaria and Romania the sown area is expected to be below, in France and Germany, to be close to last year, largely below the 5-year average. In France and Germany, the unfavourable conditions during emergence have improved with the rainfall observed in October. In Germany, currently emerged rapeseed is considered to be in good condition. In France, the rainy weather was prolonged during the first half of November, which is now becoming a concern as some fields may be exposed to waterlogging.

In Hungary, where there was dry weather in September and October along with low soil moisture, nevertheless the

sown area is estimated to be slightly higher than last year. Conditions improved thanks to the recent rainfall. Rapeseed is currently overgrown in several places due to above-average temperatures, which might lead to a lower yield later in the cropping season.

In the United Kingdom and Ireland, rapeseed had been drilled by the beginning of September. While early sown rapeseed is in good condition, late sown crops are currently exposed to high pest pressure. The area is likely to be slightly below last year.

In Poland, temperatures and soil moisture conditions were favourable for early development of rapeseed; the plants have been developing well, and the condition of plants is generally good. Additionally, this year farmers were allowed to use neonicotinoids, so pest pressure was much reduced. In Austria, Slovakia and Czechia, no concerns have been identified during sowing. Only the heavy rainfall observed in central parts of Slovakia and southern Austria has locally caused some waterlogging, which may lead to poor crop establishment.

Harvesting update

Maize: Problems are noted in Germany and France, where frequent rainfall delayed and hampered harvesting activities. In Romania, hot and dry conditions during the harvest further diminished yield expectations. Elsewhere, the harvest campaign of grain maize is finished.

Potatoes and sugar beet: In the United Kingdom and Ireland, the harvest continues to be hampered by waterlogged soil conditions. If the weather does not improve,

it is likely that a significant portion of potato crops may not be harvested until next spring. In Poland, autumn conditions were favourable for the sugar beet harvesting campaign, which was progressing according to plan. Also, Germany does not report any major obstacles to the harvesting campaign of potatoes and sugar beet. Likewise, in the Benelux countries, where most farmers have been able to continue harvesting despite frequent rains; by now, there should be little left to harvest.

3. Atlas

Temperature regime

TEMPERATURE SUM

from : 01 October 2019
to : 10 October 2019

Deviation:
Year of interest - LTA
Base temperature: 0

Unit: degrees Celsius

< -40
>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < -5
>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40

22/11/2019
resolution: 25x25 km



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Processed by: Alterra consortium

TEMPERATURE SUM

from : 11 October 2019
to : 20 October 2019

Deviation:
Year of interest - LTA
Base temperature: 0

Unit: degrees Celsius

>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < -5
>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40

22/11/2019
resolution: 25x25 km



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TEMPERATURE SUM

from : 21 October 2019
to : 31 October 2019

Deviation:
Year of interest - LTA
Base temperature: 0

Unit: degrees Celsius

>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < -5
>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40

22/11/2019
resolution: 25x25 km



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TEMPERATURE SUM

from : 01 November 2019
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>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40

22/11/2019
resolution: 25x25 km



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TEMPERATURE SUM

from : 11 November 2019
to : 20 November 2019

Deviation:
Year of interest - LTA
Base temperature: 0

Unit: degrees Celsius

< -40
>= -40 - < -30
>= -30 - < -20
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>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40

22/11/2019
resolution: 25x25 km



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NUMBER OF COLD DAYS

from : 01 October 2019
to : 31 October 2019

Deviation:

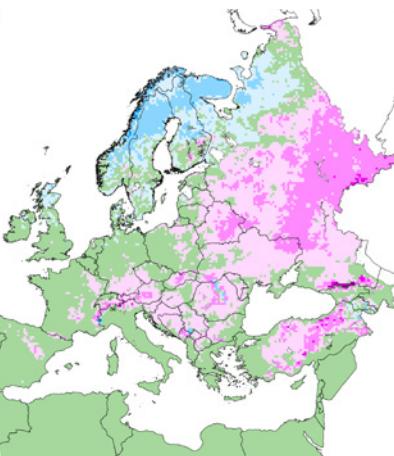
Year of interest - LTA

Minimum temperature ($^{\circ}$ C) ≤ 0

Unit: days

- <= -15 warmer in YOI
- > -15 - <= -10 warmer in YOI
- > -10 - <= -5 warmer in YOI
- > -5 - < -1 warmer in YOI
- no difference
- > 1 - <= 5 cooler in YOI
- > 5 - <= 10 cooler in YOI
- > 10 - <= 15 cooler in YOI

22/11/2019
resolution: 25x25 km

**NUMBER OF COLD DAYS**

from : 01 November 2019
to : 20 November 2019

Deviation:

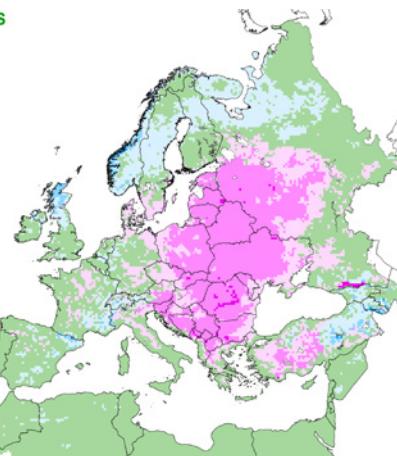
Year of interest - LTA

Minimum temperature ($^{\circ}$ C) ≤ 0

Unit: days

- <= -15 warmer in YOI
- > -15 - <= -10 warmer in YOI
- > -10 - <= -5 warmer in YOI
- > -5 - < -1 warmer in YOI
- no difference
- > 1 - <= 5 cooler in YOI
- > 5 - <= 10 cooler in YOI
- > 10 - <= 15 cooler in YOI

22/11/2019
resolution: 25x25 km

**Precipitation****RAINFALL**

Cumulated values

from : 01 October 2019
to : 10 October 2019

Year of interest (CUR)

Unit: mm

- >= 0 - < 1
- >= 1 - < 5
- >= 5 - < 10
- >= 10 - < 15
- >= 15 - < 20
- >= 20 - < 30
- >= 30 - < 40
- >= 40 - < 60
- >= 60 - < 80
- >= 80 - < 100
- >= 100 - < 150
- >= 150

22/11/2019
resolution: 25x25 km



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RAINFALL

Cumulated values

from : 01 October 2019
to : 10 October 2019

Deviation:
Year of interest - LTA

Unit: %

- >= -100 - < -80
- >= -80 - < -50
- >= -50 - < -30
- >= -30 - < -10
- >= -10 - < 10
- >= 10 - < 30
- >= 30 - < 50
- >= 50 - < 80
- >= 80 - < 100
- >= 100

22/11/2019
resolution: 25x25 km



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RAINFALL

Cumulated values

from : 11 October 2019
to : 20 October 2019

Year of interest (CUR)

Unit: mm

- >= 0 - < 1
- >= 1 - < 5
- >= 5 - < 10
- >= 10 - < 15
- >= 15 - < 20
- >= 20 - < 30
- >= 30 - < 40
- >= 40 - < 60
- >= 60 - < 80
- >= 80 - < 100
- >= 100 - < 150
- >= 150

22/11/2019
resolution: 25x25 km



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RAINFALL

Cumulated values

from : 11 October 2019
to : 20 October 2019

Deviation:
Year of interest - LTA

Unit: %

- >= -100 - < -80
- >= -80 - < -50
- >= -50 - < -30
- >= -30 - < -10
- >= -10 - < 10
- >= 10 - < 30
- >= 30 - < 50
- >= 50 - < 80
- >= 80 - < 100
- >= 100

22/11/2019
resolution: 25x25 km



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RAINFALL Cumulated values

from : 21 October 2019
to : 31 October 2019

Year of interest (CUR)

Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150

22/11/2019
resolution: 25x25 km



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RAINFALL Cumulated values

from : 21 October 2019
to : 31 October 2019

Deviation:

Year of interest - LTA

Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100

22/11/2019
resolution: 25x25 km



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RAINFALL Cumulated values

from : 01 November 2019
to : 10 November 2019

Year of interest (CUR)

Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150

22/11/2019
resolution: 25x25 km



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RAINFALL Cumulated values

from : 01 November 2019
to : 10 November 2019

Deviation:

Year of interest - LTA

Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100

22/11/2019
resolution: 25x25 km



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RAINFALL Cumulated values

from : 11 November 2019
to : 20 November 2019

Year of interest (CUR)

Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150

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resolution: 25x25 km



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RAINFALL Cumulated values

from : 11 November 2019
to : 20 November 2019

Deviation:

Year of interest - LTA

Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100

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resolution: 25x25 km



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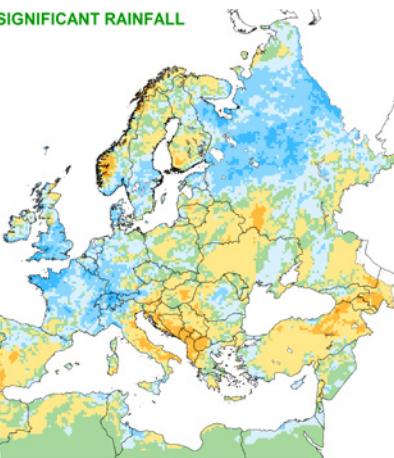
NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from : 01 October 2019
to : 31 October 2019

Deviation:
Year of interest - LTA
Rain (mm) > 5

Unit: days
 11 - 15
 6 - 10
 3 - 5
 1 - 2
 no difference
 -2 - -1
 -5 - -3
 -10 - -3

22/11/2019
resolution: 25x25 km



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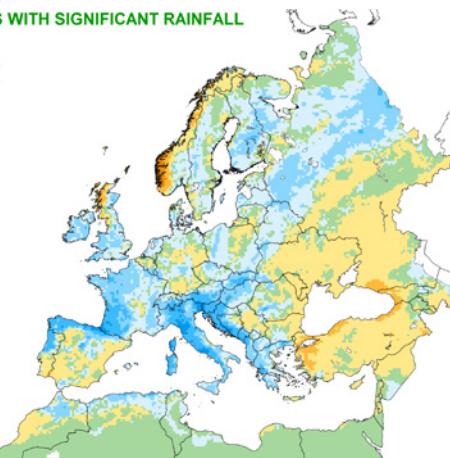
NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from : 01 November 2019
to : 20 November 2019

Deviation:
Year of interest - LTA
Rain (mm) > 5

Unit: days
 11 - 15
 6 - 10
 3 - 5
 1 - 2
 no difference
 -2 - -1
 -5 - -3
 -10 - -3

22/11/2019
resolution: 25x25 km



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Climatic water balance**CLIMATIC WATER BALANCE**
Cumulated values

from : 01 October 2019
to : 31 October 2019

Deviation:
Year of interest - LTA

Unit: mm
 <= -50
 > -50 - <= -20
 > -20 - <= -10
 > -10 - <= 0
 > 0 - <= 10
 > 10 - <= 20
 > 20 - <= 50
 > 50

22/11/2019
resolution: 25x25 km



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CLIMATIC WATER BALANCE
Cumulated values

from : 01 November 2019
to : 20 November 2019

Deviation:
Year of interest - LTA

Unit: mm
 <= -50
 > -50 - <= -20
 > -20 - <= -10
 > -10 - <= 0
 > 0 - <= 10
 > 10 - <= 20
 > 20 - <= 50
 > 50

22/11/2019
resolution: 25x25 km



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JRC MARS Bulletins 2019

Date	Publication	Reference
21 Jan	Agromet analysis	Vol. 27 No 1
25 Feb	Agromet analysis	Vol. 27 No 2
18 Mar	Agromet analysis, yield forecast	Vol. 27 No 3
15 Apr	Agromet analysis, remote sensing, yield forecast, sowing conditions, pasture analysis	Vol. 27 No 4
20 May	Agromet analysis, remote sensing, yield forecast, sowing update, pasture analysis	Vol. 27 No 5
17 Jun	Agromet analysis, remote sensing, yield forecast, pasture update, rice analysis	Vol. 27 No 6
22 Jul	Agromet analysis, remote sensing, yield forecast, harvesting conditions, pasture update	Vol. 27 No 7
26 Aug	Agromet analysis, remote sensing, yield forecast, pasture update, harvesting update	Vol. 27 No 8
16 Sep	Agromet analysis, remote sensing, yield forecast, rice analysis, harvesting update	Vol. 27 No 9
28 Oct	Agromet analysis, remote sensing, yield forecast, harvesting update, sowing conditions	Vol. 27 No 10
25 Nov	Agromet analysis, harvesting update, sowing update	Vol. 27 No 11
16 Dec	Agromet analysis	Vol. 27 No 12

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Analysis and reports

B. Baruth, S. Bassu, A. Bussay, A. Ceglar, I. Cerrani, Y. Chemin, P. De Palma, D. Fumagalli, R. Lecerf, G. Manfron, L. Nisini, L. Panarello, G. Ronchetti, M. van den Berg, Z. Zajac, A. Zucchini

Reporting support

Seprotec, G. Mulhern, I. Biavetti

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B. Baruth

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MARS4CAST (JRC Unit D5), WENR (NL), MeteoGroup (NL), VITO (BE)

Contact

JRC D5/MARS4CAST
JRCMARSBULLETIN@ec.europa.eu

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