European Commission

JRC MARS Bulletin Vol. 26 No 11

Period covered: 1 October 2018-30 November 2018

Issued: 26 November 2018

JRC MARS Bulletin

Crop monitoring in Europe

November 2018

Poor emergence of winter cereals on dry soils

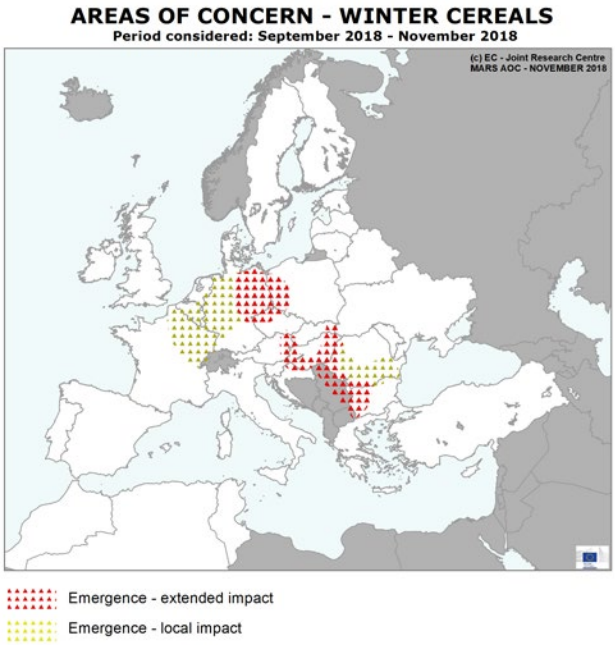
Harvesting of root and tuber crops also affected

Continued warmer- and dryer-than-usual weather in large parts of Europe created near-optimal conditions for the conclusion of the harvesting of maize and sunflower, which was completed earlier than usual in many places.

Favourable conditions for the sowing and emergence of winter crops prevailed in most parts of western and northern Europe. However, in large parts of central Europe, strong rainfall deficits hampered the emergence and early growth of winter crops, as well as the harvesting of sugar beet and potatoes.

Persistently dry soil conditions in many areas of Germany, western Poland, Romania, Hungary, Bulgaria, Slovenia, Croatia, the Czech Republic, Austria and Slovakia, complicated field preparations and sowing operations, and limited plant emergence and early crop development, resulting in under-developed and gappy crop stands, or no emergence at all. The sowing window for rapeseed has now closed and rapeseed areas in Germany, eastern Poland and northern parts of the Czech Republic are expected to be significantly reduced. Soft wheat can still be (re)sown in some countries, albeit not optimally.

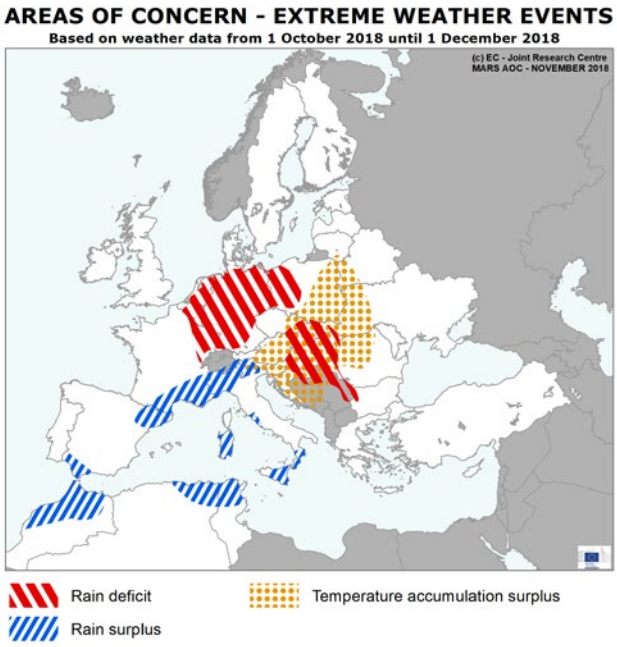
The harvesting of potatoes was mostly completed in October, but sugar beet harvesting is still ongoing in many countries. In regions affected by a persistent rain deficit, hard and dry soil conditions (particularly of loamy and clayey soils) caused delays and damage to the harvested roots and tubers (and sometimes even to the machinery). Farmers are trying to complete sugar beet harvesting as much as possible before frosts and snow potentially cause further problems.



Joint Research Centre

1. Agrometeorological overview

1.1. Agrometeorological review (1 October to 18 November)

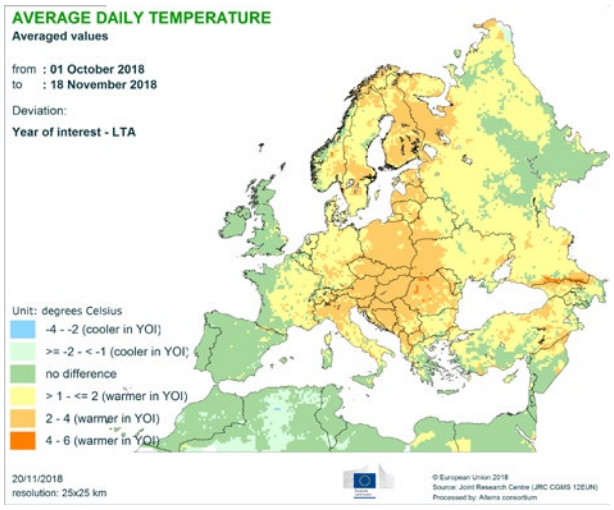


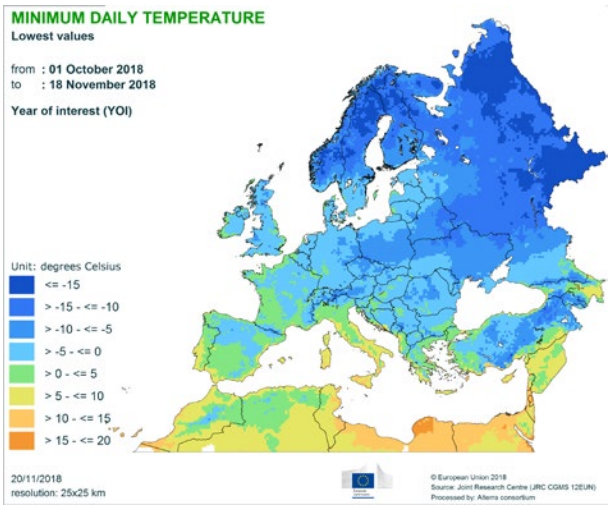
The analysed period was significantly **warmer than usual** in central, northern and eastern Europe. Temperature anomalies reached between 1 and 4 °C above the long-term average (LTA). The analysed period was the warmest in our records (since 1975) in Romania, Serbia, Croatia, Hungary, Austria, the Czech Republic, Slovakia and Ukraine. Most distinctly warmer than usual were the 2nd dekad of October and (even more so) the end of October and beginning of November. Due to the unusually mild autumn conditions, winter crops have so far developed no or only weak frost tolerance in most of Europe.

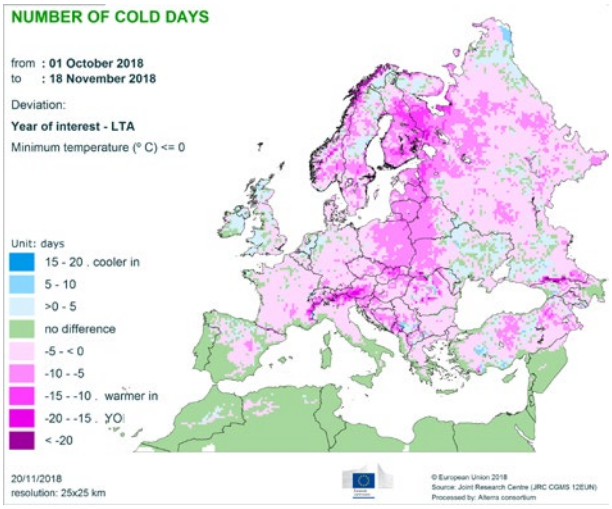
The **number of cold days**, with daily minimum temperatures below 0 °C, was substantially **below the LTA** in central and northern Europe. Nevertheless, minimum temperatures below 0 °C occurred in all parts of Europe, except Mediterranean areas. Minimum temperatures below – 5 °C were spatially confined to southern Poland, Belarus, Ukraine, Russia and north-eastern Europe. Frost-kill events may have occurred in winter crops in south-eastern Russia, where minimum temperatures between – 10 and – 20 °C were recorded on some days in late October and November.

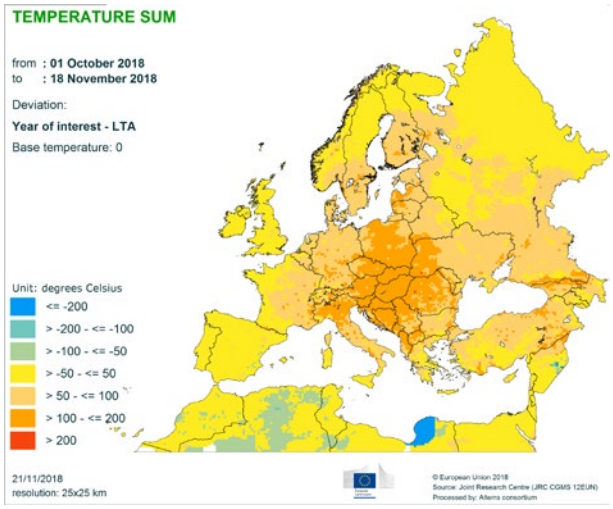
A **strong rainfall deficit** (cumulative rainfall of less than 50 % of the LTA) prevailed in south-eastern Europe, Germany, eastern France, the Benelux countries, Ukraine and central parts of European Russia; cumulative rainfall remained below 20 mm in the most affected regions. The lack of rainfall and warm weather contributed to a negative climatic water balance in these regions, amplified the rainfall deficit or drought conditions (ongoing since spring) in Germany, western Poland, the northern part of the Czech Republic, eastern France and the Benelux countries, and affected the harvesting of root and tuber crops and the sowing and/or emergence of winter crops.

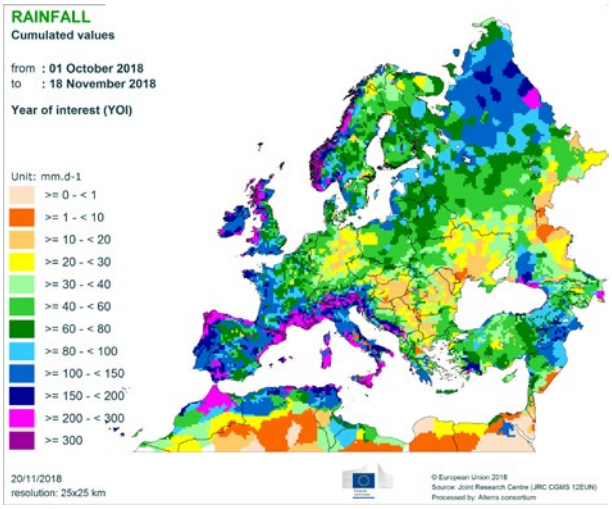
Abundant rainfall with cumulative amounts above 200 mm occurred in the southern Alpine regions, southern France, southern Italy, several coastal regions of the Iberian peninsula, the Atlantic coast of Scandinavia and western coastal regions of the British Isles. Daily cumulative amounts locally exceeded 100 mm during heavy rainfall events in western Slovenia, south-western Austria, north-eastern Italy, south-western France and the north-eastern coast of the Iberian peninsula.

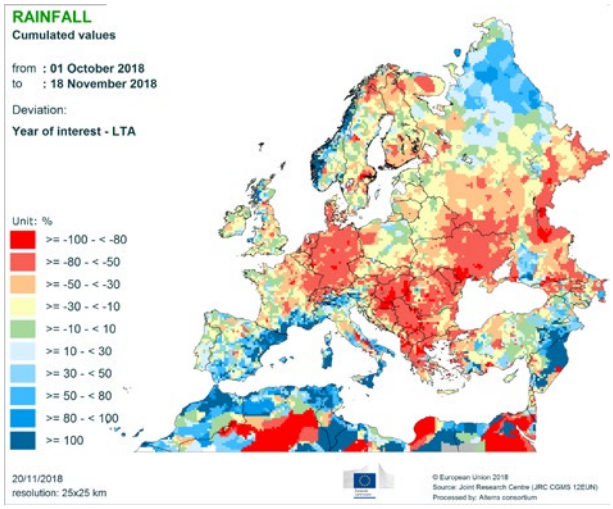


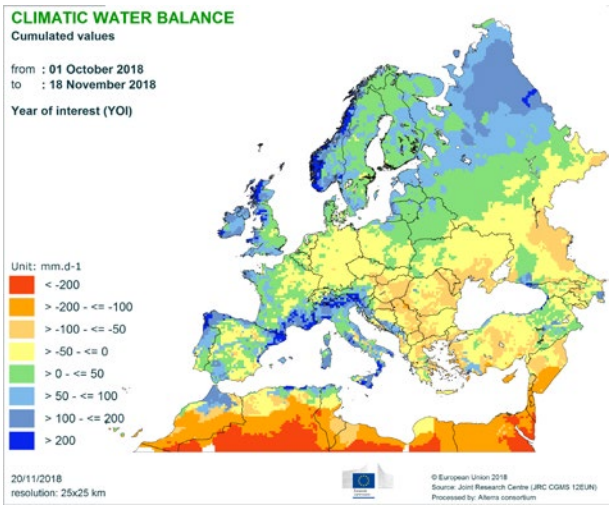


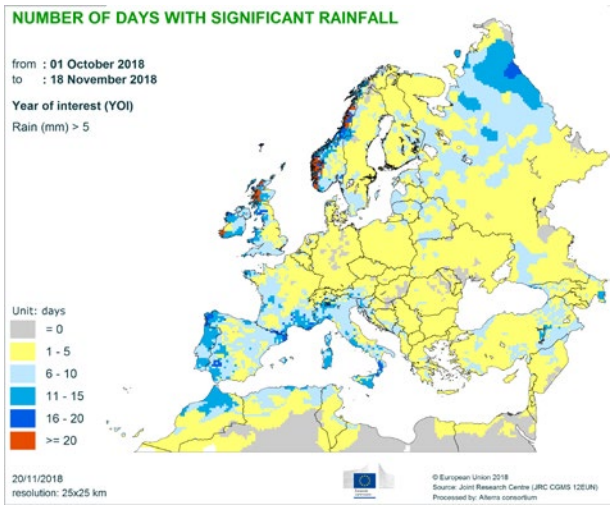

NUMBER OF COLD DAYS
from : 01 October 2018
to : 18 November 2018
Deviation:
Year of interest - LTA
Minimum temperature (° C) <= 0
Unit: days
15 - 20 . cooler in
5 - 10
>0 - 5
no difference
-5 - < 0
-10 - -5
-15 - -10 . warmer in
-20 - -15 . YOI
< -20
20/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium


TEMPERATURE SUM
from : 01 October 2018
to : 18 November 2018
Deviation:
Year of interest - LTA
Base temperature: 0
Unit: degrees Celsius
<= -200
> -200 - <= -100
> -100 - <= -50
> -50 - <= 50
> 50 - <= 100
> 100 - <= 200
> 200
21/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium


RAINFALL
Cumulated values
from : 01 October 2018
to : 18 November 2018
Year of interest (YOI)
Unit: mm.d-1
>= 0 - < 1
>= 1 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200 - < 300
>= 300
20/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium


RAINFALL
Cumulated values
from : 01 October 2018
to : 18 November 2018
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
20/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium

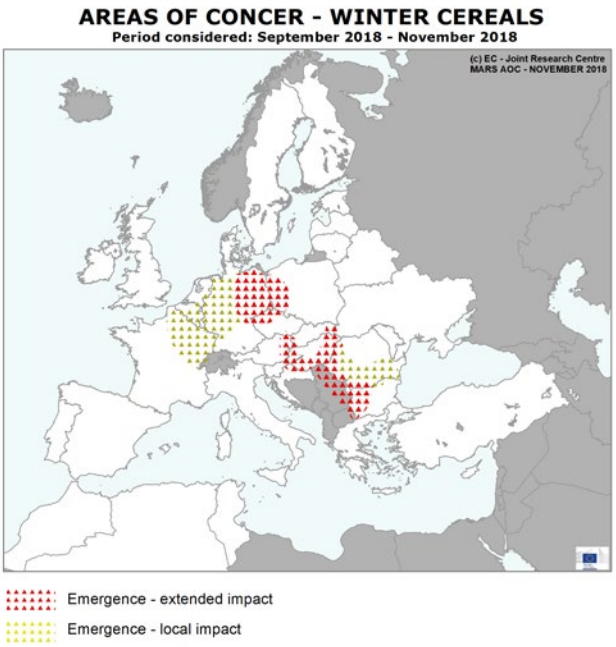

CLIMATIC WATER BALANCE
Cumulated values
from : 01 October 2018
to : 18 November 2018
Year of interest (YOI)
Unit: mm.d-1
< -200
> -200 - <= -100
> -100 - <= -50
> -50 - <= 0
> 0 - <= 50
> 50 - <= 100
> 100 - <= 200
> 200
20/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 October 2018
to : 18 November 2018
Year of interest (YOI)
Rain (mm) > 5
Unit: days
= 0
1 - 5
6 - 10
11 - 15
16 - 20
>= 20
20/11/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12EUN)
Processed by: Alterra consortium

2. Autumn sowing progress update

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

The winter cereal sowing campaign was completed on time in almost all of western, northern, central and eastern Europe in dry and warmer-than-usual weather conditions. In many areas of Germany, Romania, Hungary, Bulgaria, Slovenia, Croatia, the Czech Republic, Austria and Slovakia, sowing was affected by dry soil conditions, which complicated field preparation and limited plant emergence and early crop development.



Winter sowing was completed in October in good conditions in the United Kingdom, Ireland, Scandinavia and the Baltic states, where crops established well and uniformly.

In Germany, emergence and early growth were highly compromised by the lack of water and of nutrients that became scarce at low humidity levels. However, the sowing window in this country is still open (albeit not optimal) for soft wheat, which might still be re-sown.

In the Benelux countries, France, Poland and Ukraine, sowing and emergence have generally proceeded well; only a relatively small part of the area sown with winter cereals was affected by the dry conditions, causing substantial delay to plant emergence or, locally, very gappy emergence or no emergence at all. Early sown fields that developed under favourable conditions for growth show well-advanced development, which could however make them more vulnerable to frost.

Sowing was also concluded in Romania, Hungary and Bulgaria. However, inadequate soil moisture delayed plant emergence in many areas, resulting in considerably under-developed and gappy crop stands. In these regions it is now too late to re-sow. Weather conditions during the winter season will determine how these crops will perform later.

Sowing is still ongoing in Slovenia, Croatia, the Czech Republic, Austria and Slovakia, where sowing was substantially delayed due to low soil moisture. In particular, dry and abnormally warm weather resulted in poor establishment of the already emerged winter crops in the most affected areas of the Czech Republic, located in the northern half of the country. In these regions the sowing window is still open but now outside the optimal range. Conversely, western Slovenia and coastal regions in Croatia have received regionally abundant rainfall since the beginning of October, which did not affect sowing but increased the risk of pests and diseases.

In Spain and Portugal, following rather dry conditions, there was abundant rainfall at the end of October and in the first half of November. The lower precipitation since then has favoured the start of sowing, with adequate soil moisture levels for germination and emergence. In the absence of abundant rainfall sowing should be completed within the usual window.

In Italy, wet and warmer-than-usual weather conditions in November were favourable for the sowing and germination of winter cereals within the usual sowing window.

Sowing of durum wheat started in mid October in southern France, with some delay due to high rainfall, whereas in Italy and Spain, sowing started at the beginning of November, in accordance with the normal sowing time for durum wheat.

In Greece, the current dry conditions may cause a delay in sowing winter crops. For the time being this is not a concern as mild temperatures allow the sowing window to be extended until December, if necessary. In Cyprus, the wet beginning of the season provided generally good conditions for field preparation and the sowing of winter crops.

In Morocco, Algeria and Tunisia, the sowing of winter cereals started in good conditions within the normal sowing window (early October), which is significantly earlier than the previous campaign in Morocco. Crops established well and favourable soil moisture conditions boosted the emergence of winter cereals, which are currently around 10 days advanced compared to the average season.

Rapeseed

This autumn was characterised by very warm conditions all over Europe with the exception of western Europe (including the United Kingdom and Ireland). While warm autumn temperatures are generally beneficial to advance crop growth, a substantial rainfall deficit impeded such development in many areas.

In areas with sufficient rainfall, such as in large parts of Poland, rapeseed is at a very advanced stage or even over-developed and requiring growth regulators to avoid over-exposure to cold temperatures during winter. In the United Kingdom and Ireland, near-optimal temperature and soil moisture conditions have led to uniform and well-developed stands. In France, average crop conditions predominate but, especially in eastern France, emergence has been affected by the dry September conditions, which is expected to have repercussions on the acreage as a result of re-sowing with other crops. For now, weak stands have often been left and a decision will be taken at the latest after winter. In Germany, exceptionally dry conditions have prevailed since spring, early summer and autumn rainfall so far amounts to the lowest in our records (since 1975). Rapeseed areas are expected to be reduced to < 1 million hectares (down approximately 20 % compared with last year's area). This reduction is partly due to a priori or contingency planning but also in part to effective or planned re-sowing after poor emergence/early development during the autumn. UFOP ([1]) provides estimated areas of rapeseed in line with these expectations and in more detail at regional level. A situation similar to that in Germany applies to eastern Poland and northern Czechia. Many rapeseed stands in Hungary (except in western parts), Romania and Bulgaria are reported to be under-developed and gappy due to the combination of warm temperatures and a sub-optimal water supply. In southern Scandinavia, the conditions are favourable and plants are in good condition, which also applies to the Baltic states, despite the relatively low rainfall there.

We should mention too that the particularly high autumn temperatures in central, northern and eastern Europe have led to increased pest and disease pressure

[1] www.ufop.de/presse/aktuelle-pressemitteilungen/ufop-studie-auss-aatflaeche-von-winterraps-bei-1-mio-hektar/

3. Harvesting update

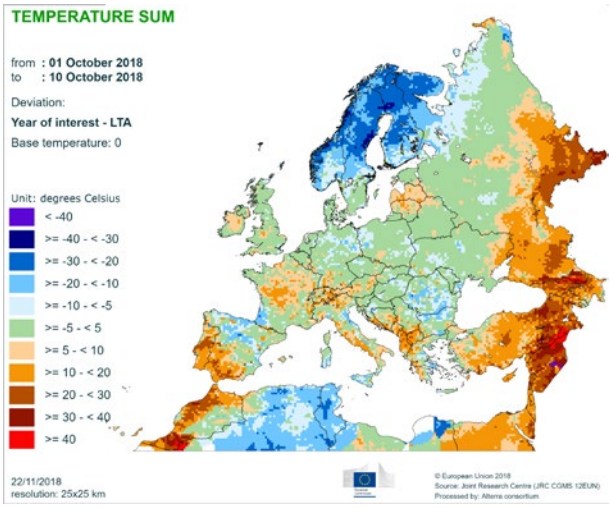
In most EU countries, the harvesting of sunflowers and maize was completed without problems. Hard and dry soil conditions hampered the harvesting of potatoes and sugar beet in the regions affected by persistent rain deficit.

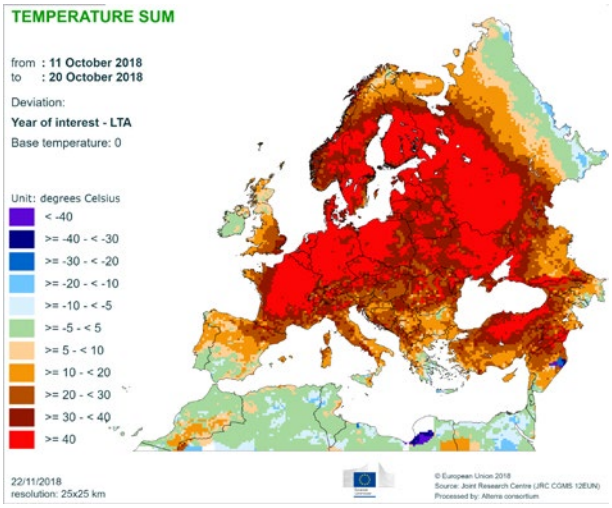
The harvesting of sunflowers and grain maize was finished without problems in most regions and in many places was completed earlier than usual. The harvesting of long-cycle varieties in northern Spain (e.g. Castilla y León) was interrupted by wet weather conditions and is expected to resume in the 3rd week of November, without affecting the yield or quality. In south-eastern Turkey, where irrigated maize is grown as a second crop, harvesting occurred under unseasonal rains, which caused some delays but did not produce concerns about the yields.

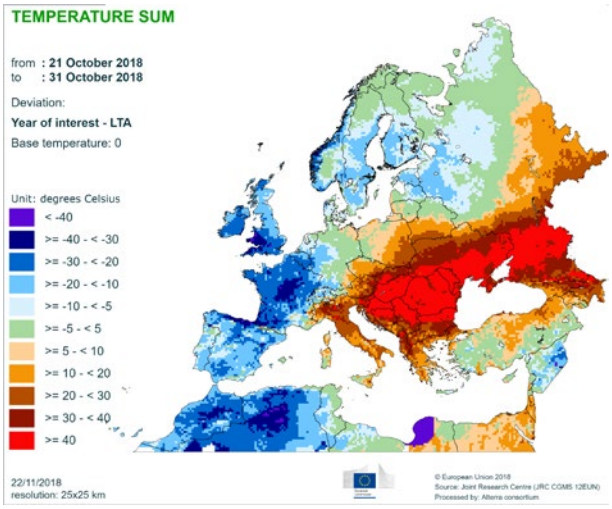
The harvesting of **potatoes** was also completed, mostly in October. In the regions affected by persistent rain deficit, hard and dry soil conditions (particularly of loamy and clayey soils) hampered harvesting and caused damage to tubers (and sometimes even to the machinery). Concerning **sugar beet**, in the United Kingdom and France, harvesting has progressed well, under generally favourable conditions. In many other regions, harvesting has faced delays, partly due to a postponed start of the sowing campaign to allow crops to recover from the adverse summer conditions in central and northern Europe and partly due to hard and dry soil conditions, similar to those mentioned above for potatoes. Farmers are trying to finish as much as possible before frosts and snow potentially cause further problems. In contrast, in Spain (Castilla y León), harvesting delays occurred as a result of wet soil conditions, with negative effects on industry logistics rather than on yields.

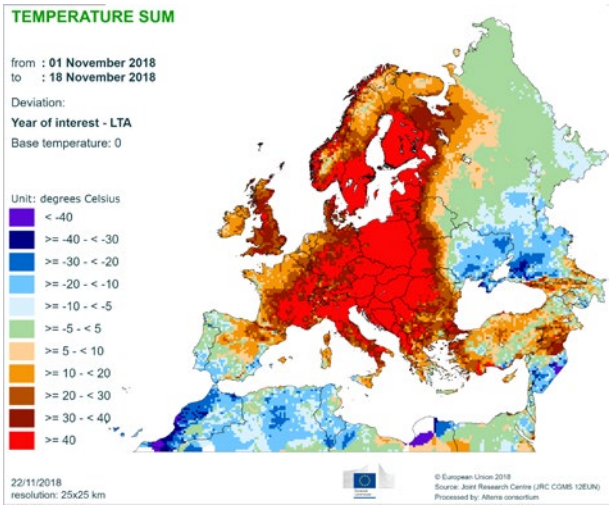
4. Atlas

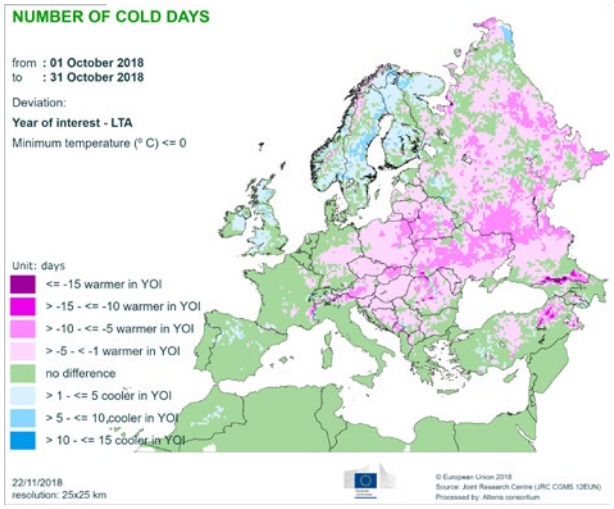
Temperature regime

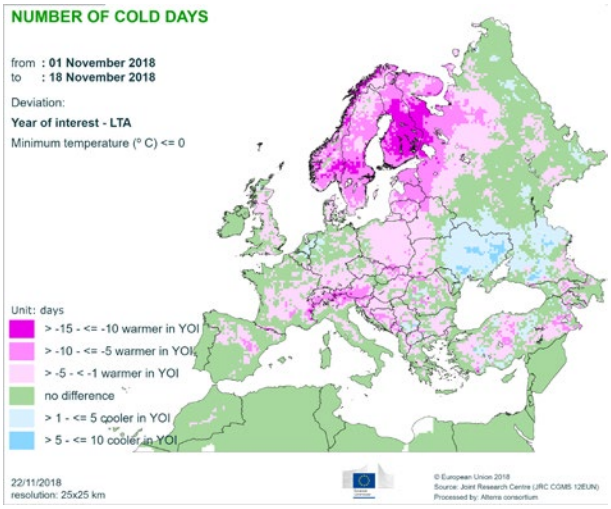




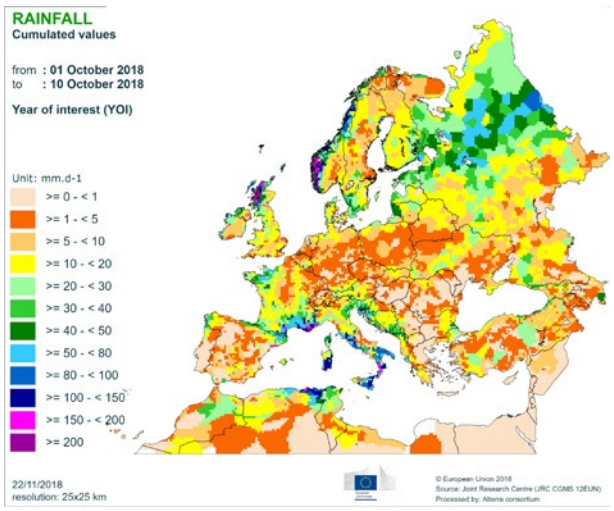


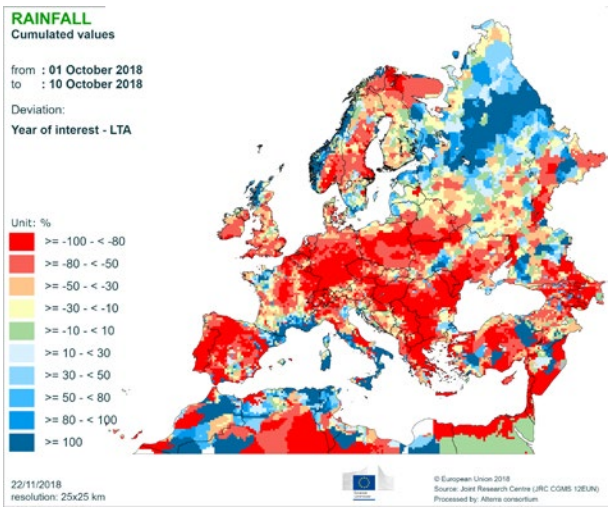


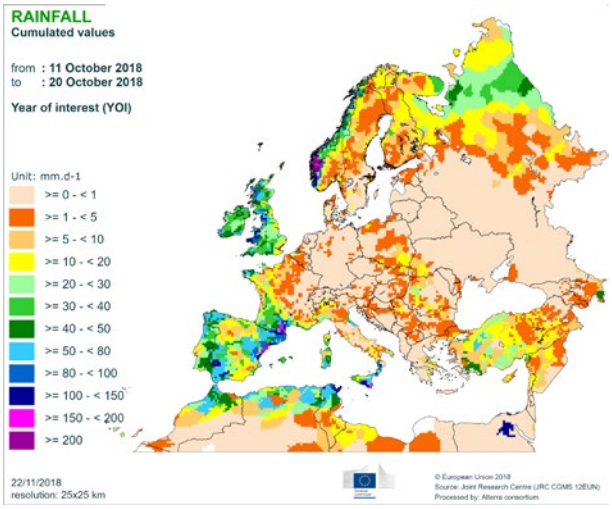


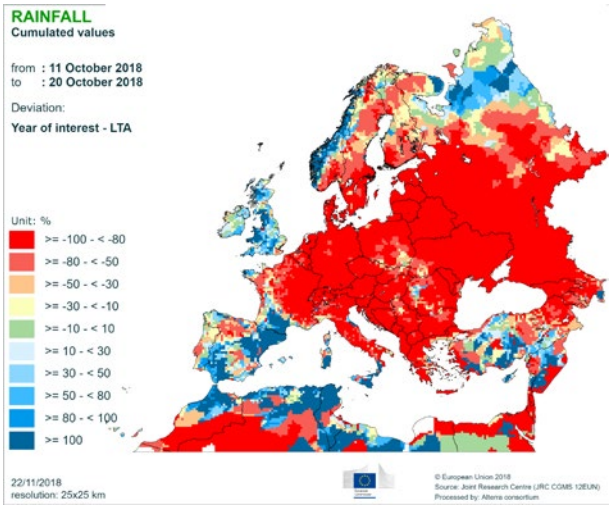


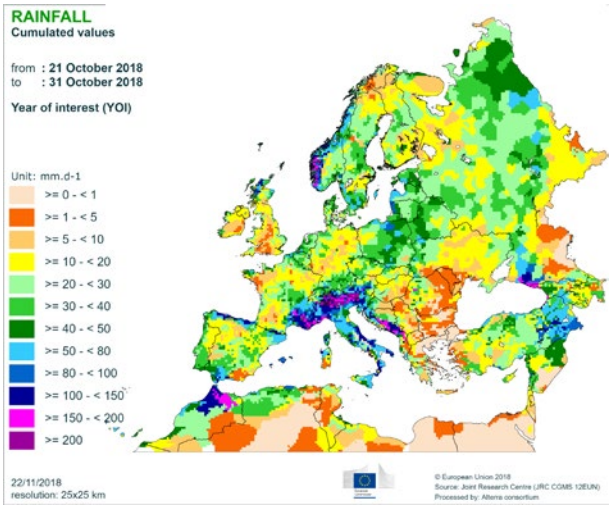
Precipitation

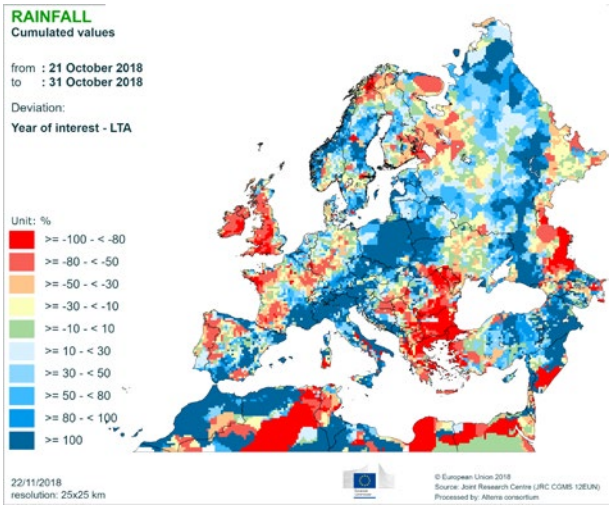





RAINFALL
Cumulated values
from : 11 October 2018
to : 20 October 2018
Year of interest (YOI)
Unit: mm.d-1
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200
22/11/2018
resolution: 25x25 km


RAINFALL
Cumulated values
from : 11 October 2018
to : 20 October 2018
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
22/11/2018
resolution: 25x25 km


RAINFALL
Cumulated values
from : 21 October 2018
to : 31 October 2018
Year of interest (YOI)
Unit: mm.d-1
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200
22/11/2018
resolution: 25x25 km


RAINFALL
Cumulated values
from : 21 October 2018
to : 31 October 2018
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
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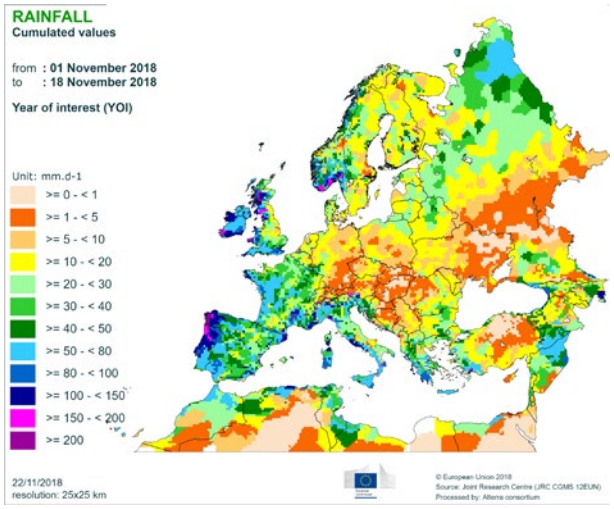
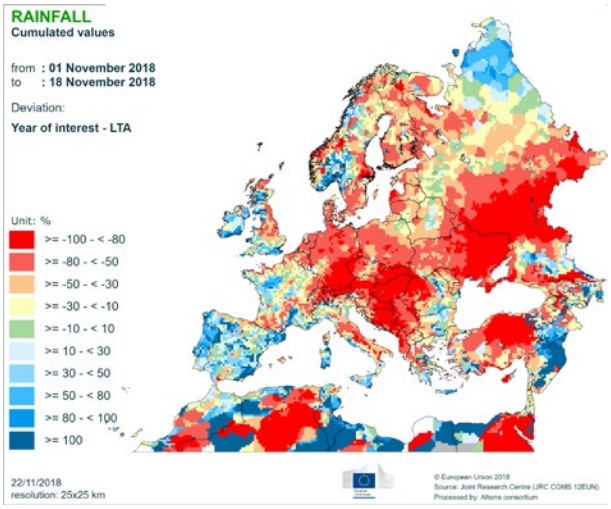
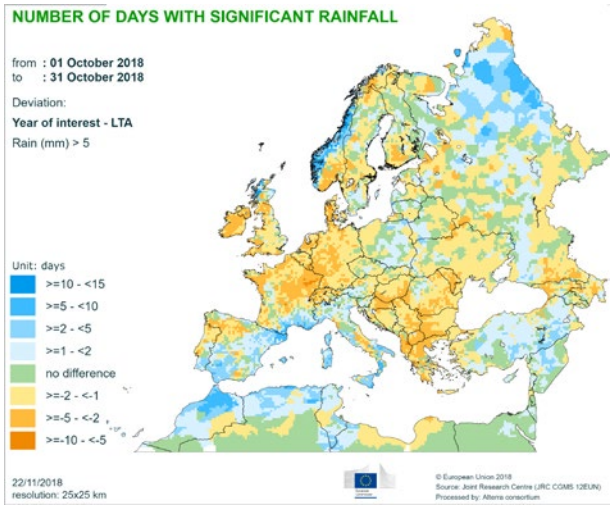
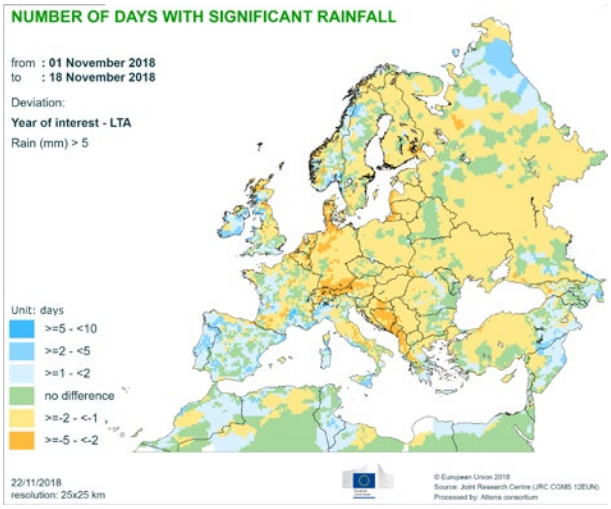
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
22/11/2018
resolution: 25x25 km

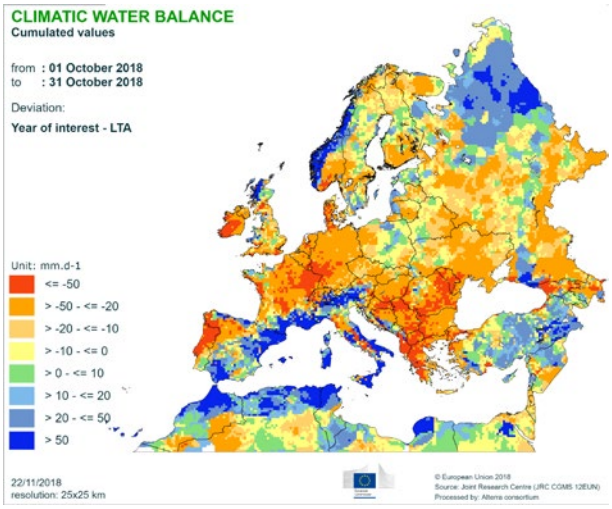

RAINFALL
Cumulated values
from : 01 November 2018
to : 18 November 2018
Year of interest (YOI)
Unit: mm.d-1
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200
22/11/2018
resolution: 25x25 km

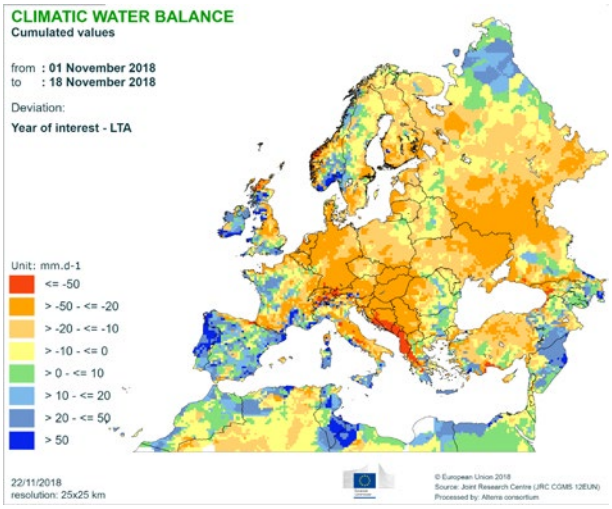

RAINFALL
Cumulated values
from : 01 November 2018
to : 18 November 2018
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
22/11/2018
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 October 2018
to : 31 October 2018
Deviation:
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=10 - <15
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
>=-10 - <-5
22/11/2018
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 November 2018
to : 18 November 2018
Deviation:
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
22/11/2018
resolution: 25x25 km

Climatic water balance





KJ-AW-18-011-EN-N

JRC MARS Bulletins 2018

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

Mission statement: As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.

The current JRC MARS Bulletin — Crop monitoring in Europe is a JRC–European Commission publication from MARS4CAST (JRC Unit D5 — Directorate for Sustainable Resources)

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Reporting support
Prepress projects, I. Biavetti

Editors
M. van den Berg

Data production
MARS4CAST (JRC Unit D5), WENR (NL), MeteoGroup (NL), Copernicus European Land Service, VITO (BE) and CMCC (IT)

Contact
JRC D5/MARS4CAST
JRCMARSBULLETIN@ec.europa.eu

*MARS stands for Monitoring Agricultural Resources

Technical note:
The long-term average (LTA) used within this bulletin as a reference is based on an archive of data covering 1975–2017.

Publications Office

ISSN Print 2443-826X
ISSN PDF 2443-8278