European Commission

Period covered: 1 February – 20 March
Issued: 23 March 2015

Crop monitoring in Europe

MARS Bulletin Vol. 23 No 3 (2015)

Current outlook is predominantly positive

Winter crops are generally in good shape and well developed in the EU due to the mild winter conditions. In general, prospects for the new season are promising. At this stage of the season the forecasts are based on the historical trend or average values.

In most of the EU-28, temperature conditions were close to the long-term average during the period of review (1 February – 15 March). North-eastern Europe experienced significantly warmer-than-usual conditions, with anomalies with respect to (w.r.t.) the long-term average exceeding 4 °C. Significantly drier-than-usual conditions (with precipitation of less than 50 % of the long-term average) occurred over the western Iberian Peninsula, where soil water availability is becoming a concern, as well as in eastern Germany, the Czech Republic and Poland, where soil moisture contents are still satisfying. Significantly wetter-than-usual conditions, in several places associated with waterlogging, were observed in north-eastern Spain, the Italian Peninsula, the Balkans and central-western Turkey.

AREAS OF CONCERN - EXTREME WEATHER EVENTS

Crop	Yield t/ha				
	2014	MARS 2015 forecasts	Avg 5yrs	%15/14	%15/5yrs
TOTAL CEREALS	5.58	**5.27**	5.19	-5.5	+1.7
Total Wheat	5.84	**5.55**	5.42	-5.0	+2.3
soft wheat	6.08	**5.79**	5.65	-4.8	+2.3
durum wheat	3.31	**3.28**	3.25	-1.1	+0.8
Total Barley	4.91	**4.63**	4.51	-5.5	+2.7
spring barley	4.17	**4.08**	3.91	-2.1	+4.5
winter barley	5.91	**5.44**	5.39	-7.9	+0.9
Grain maize	7.51	**7.19**	6.91	-4.3	+4.1
Rye	4.20	**3.70**	3.57	-11.8	+3.8
Triticale	4.53	**4.26**	4.15	-5.8	+2.7
Other cereals	3.09	**2.93**	3.46	-5.3	-15.3
Rape and turnip rape	3.57	**3.24**	3.12	-9.4	+3.7
Potato	33.55	**32.87**	31.18	-2.0	+5.4
Sugar beet	76.06	**72.81**	70.26	-4.3	+3.6
Sunflower	2.13	**2.02**	1.91	-5.2	+5.8

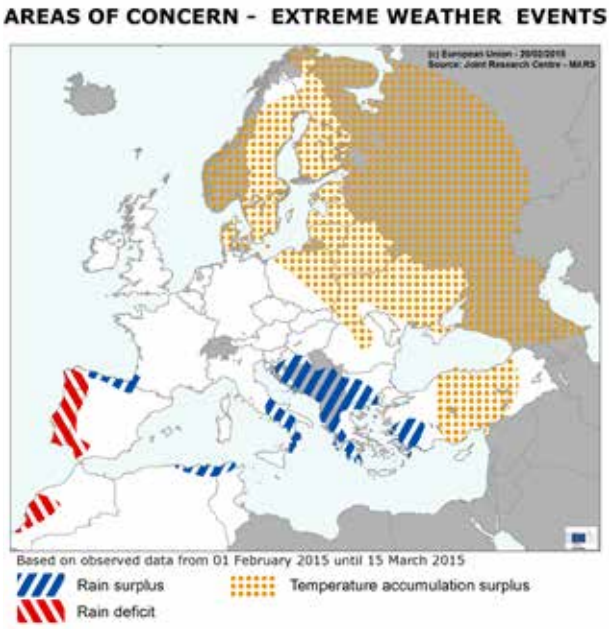
Issued: 20 March 2015

Joint Research Centre

1. Agro-meteorological overview

1.1 Areas of concern

Portugal and **south-western Spain** have experienced a precipitation deficit since the start of winter. Winter crops are not yet affected, mainly thanks to lower-than-usual temperatures, but the current low levels of soil water availability could be a relevant limiting factor to plant growth in the coming weeks. **Northern Spain** has experienced a positive rainfall anomaly since mid-February. A similar situation is found in the regions by the **Adriatic Sea** and around the **Balkans**, where a clear rainfall surplus was recorded for the whole period of analysis. Winter crops suffered locally from waterlogging; possible impacts might be detectable in the coming weeks. Similar anomalies were registered in regions such as **western Turkey** and the **Maghreb**, where the rainfall is mainly beneficial, sustaining good soil water content that could be of use for winter crops during their most critical phases in late spring. During February, temperatures in western and central Europe were seasonal and below, while significant positive temperature anomalies were recorded in **northern and eastern European** countries, including **Ukraine, Belarus, Russia and Turkey**. No relevant effects are yet visible, but an early regrowth of winter cereals is expected in the coming month for the latter.



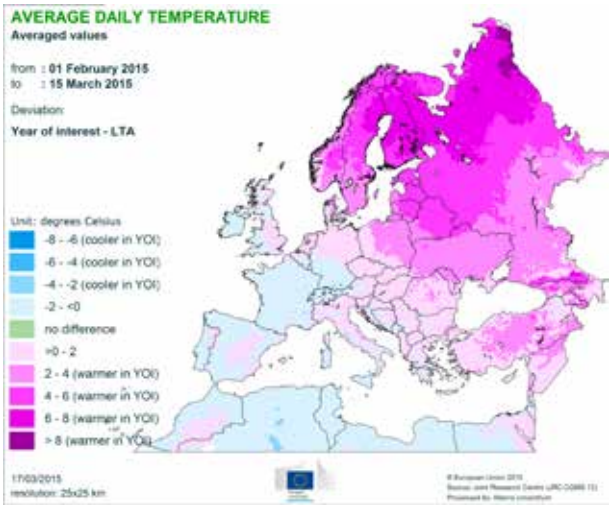
1.2 Meteorological review (1 Feb.–15 March)

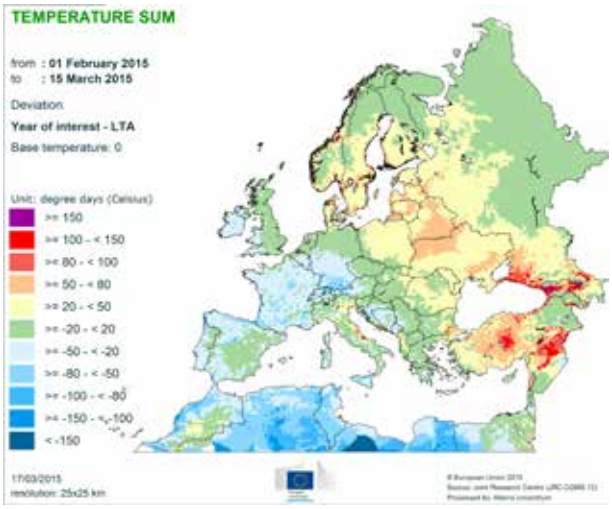
North-eastern Europe experienced significantly warmer-than-usual conditions, with anomalies w.r.t. the long-term average exceeding 4 °C. Significantly drier-than-usual conditions (with precipitation less than 50 % of the long-term average) occcurred mainly over the western Iberian Peninsula, eastern Germany, the Czech Republic and Poland.

Temperature

During the analysed period (1 February – 15 March), significantly warmer-than-usual conditions occurred in eastern Europe and particularly in north-eastern Europe, where anomalies more than 4 °C higher than the long-term average were observed. Slightly colder-than-usual conditions (with negative anomalies w.r.t. the long-term average not exceeding 2 °C) were observed over western Europe, except for some areas in the Iberian Peninsula and Italy.

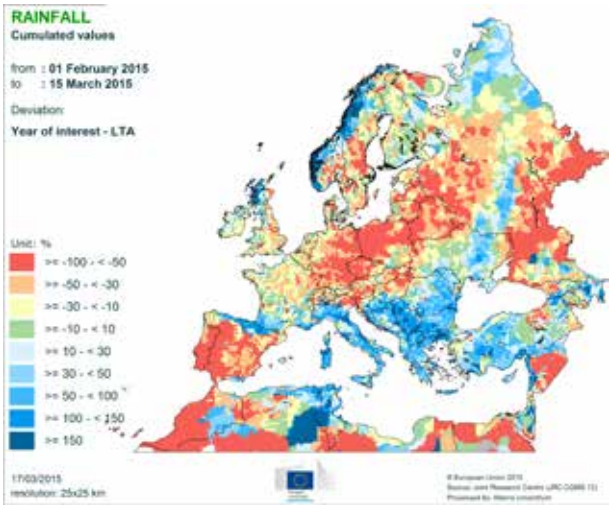
Temperature sums (threshold at 0 °C) were higher than usual, especially over north-western Ukraine and Belarus, the eastern coast of the Black Sea and central Turkey.

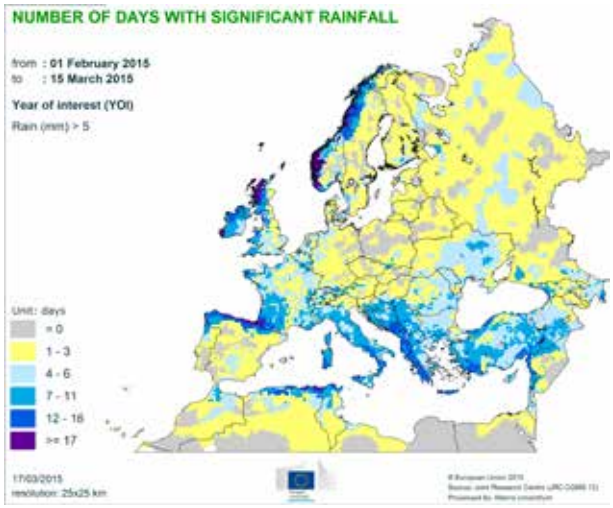




Precipitation

Significantly drier-than-usual conditions were observed in large regions of Europe, such as the western Iberian Peninsula, eastern Germany, the Czech Republic and Poland, where precipitation was less than 50 % of the long-term average. There were less than 4 days with significant daily precipitation (threshold at 5 mm) in these regions, as well as in the Iberian Peninsula (except the northern part and along the Pyrenees), and central, eastern and northern Europe, except western Norway. Significantly wetter-than-usual conditions were observed, especially in north-eastern Spain and along the Pyrenees, the Italian Peninsula, the Balkans, central-western Turkey, the eastern part of Ukraine, the western part of Norway and western Scotland. Locally, the anomalies w.r.t. the long-term average exceeded 150 %. There were more than 12 days (but less than 16) with significant precipitation in northern Spain, Scotland and northern Norway, southern Italy, the south-western Balkans and large parts of Turkey.

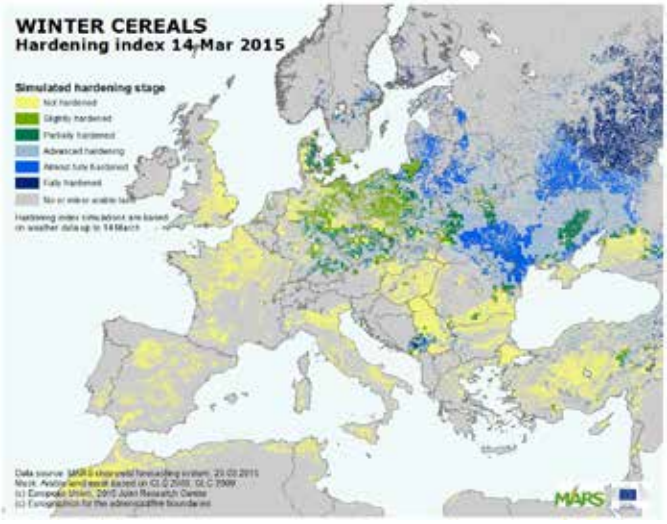




1.3 Frost-kill analysis

From mid-February onward, the frost tolerance of winter cereals decreased significantly due to the increasing temperatures. This de-hardening process is progressing on a daily basis, but with considerable differences between crop stands depending on local conditions. The general European situation is as follows: no frost tolerance is simulated in western and southern Europe, Hungary, the Balkan Peninsula, Turkey and some surrounding areas of the Black Sea. Crops are slightly or partially hardened in eastern Germany, western Poland, the Czech Republic, Slovakia and Austria. Crops are advanced or almost fully hardened in eastern Poland, the Baltic countries, Belarus, most of Ukraine and western Russia. Winter wheat is still fully hardened in eastern Russia, where wintery conditions continue to prevail.

During this winter, the majority of frost-kill events occurred in December and the first half of January. No significant damage has been simulated since late January. Overall, frost-kill damages in the EU-28 are expected to have been limited to Bulgaria, Romania, Hungary and Poland. By contrast, the areas along the northern and eastern borders of Ukraine, as well as southern Russia and some areas close to the Black Sea, appear to have been considerably affected by frost kill, due to severe frost events coinciding with no or shallow snow cover until mid-January. Moreover, winter crop establishment was weaker than usual in these regions, as a consequence of insufficient rain and dry soil conditions at the start of the crop season last autumn.

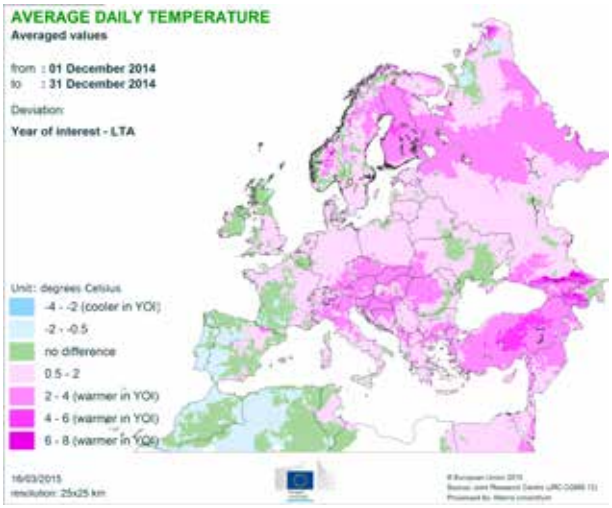


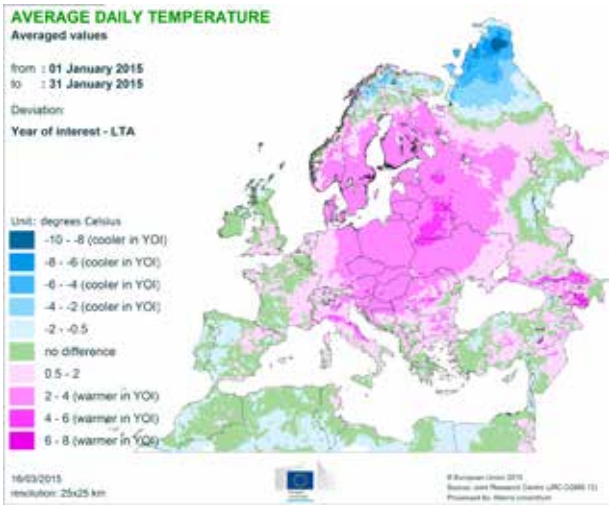
1.4 Meteorological winter review (Dec., Jan., Feb.)

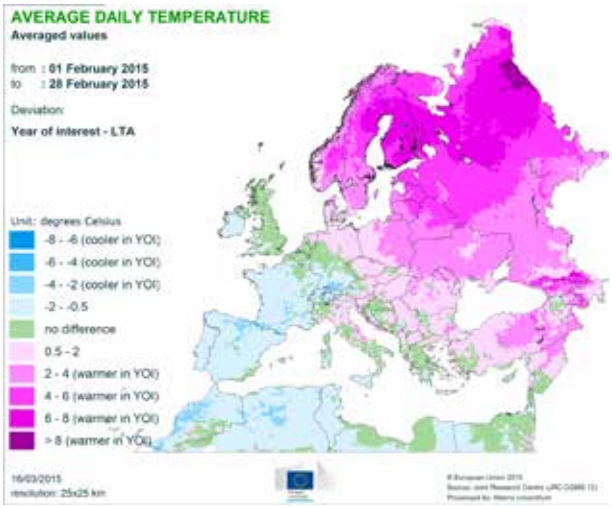
The winter was warmer than usual in northern, central and eastern Europe. Normal temperatures were observed in western Europe. Winter crops in the EU are generally in good shape due to the mild winter conditions, with only local frost-kill damages in Bulgaria, Romania, Hungary and Poland.
Contrasting precipitation conditions occurred in Europe during the winter of 2014/15. It was one of the wettest winters in our records in the southern Balkans, with winter rainfall accumulation locally exceeding 300 mm. Abundant rainfall was also recorded in southern Italy, some areas in northern Africa and western Turkey. One of the driest winters was recorded in Portugal. Below-average precipitation was also observed in France, central Europe and southern Russia.

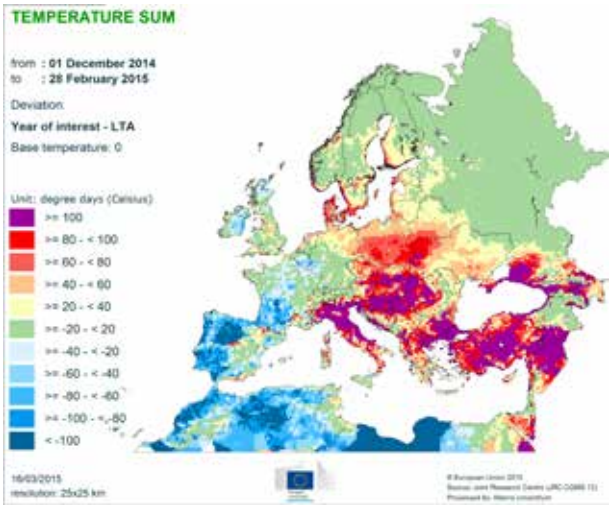
Temperatures

December was characterised by significantly warmer-than-average conditions in central, south-eastern, northern and eastern Europe, the eastern Mediterranean and eastern Black Sea regions. Average air temperatures generally exceeded the long-term average by 2 and 4 °C. Mean daily air temperatures in the range of 4 to 6 °C above expected values were recorded in the Scandinavian Peninsula and Turkey. The first half of December was, however, colder than usual in Ukraine and south-eastern Russia, with temperature anomalies of up to – 6°C. The most significant frost event occurred in the last days of the year in northern and eastern Europe, with minimum air temperatures as low as – 15 °C in Russia, Belarus, Ukraine, the Baltic countries, the Scandinavian Peninsula, eastern Poland and Romania. In the first dekad of **January**, cold air invaded the eastern half of Europe. Minimum air temperatures during this period decreased between 10 and 15 °C in Poland, Hungary and the northern areas of the Balkan Peninsula. These frost events were insufficient to cause serious frost-kill damage to winter cereals. In the Baltic states, Belarus, eastern Romania, western Ukraine and central Turkey, the measured minima reached between – 15 and – 20 °C, whereas temperatures in eastern Ukraine and southern Russia were between – 25 and – 30 °C. In the second and third dekads of January, normal or warmer-than-usual conditions prevailed in major European agricultural areas. In general, the very mild weather conditions observed mainly in western, central and southern Europe hampered the hardening of winter cereals. The first dekad of **February** was characterised by an intrusion of cold air over western Europe, causing temperature anomalies of up to 6 °C below the long-term average. Warm temperature anomalies moved towards eastern and northern Europe, where they persisted for the rest of the month. Warmer-than-usual weather conditions therefore prevailed in northern and eastern Europe, with average daily air temperatures 2 to 4 °C above the long-term average. Winter crops were slightly or partially hardened in western and central Europe, but our simulations indicate that no significant frost-kill damage occurred in the EU.


AVERAGE DAILY TEMPERATURE
Averaged values
from : 01 December 2014
to : 31 December 2014
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-4 - -2 (cooler in YOI)
-2 - -0.5
no difference
0.5 - 2
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
6 - 8 (warmer in YOI)
16/03/2015
resolution: 25x25 km

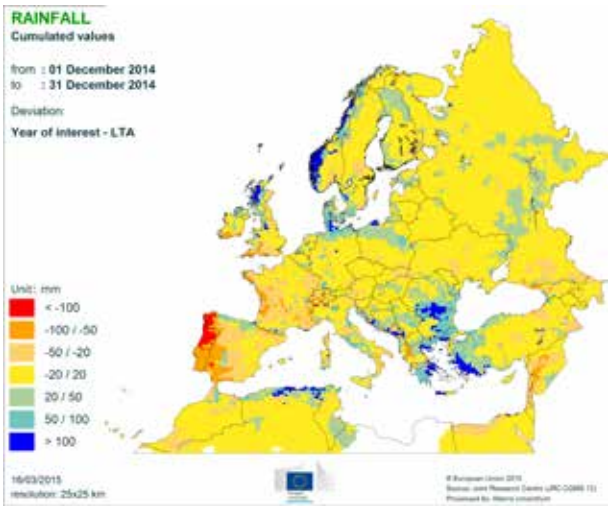

AVERAGE DAILY TEMPERATURE
Averaged values
from : 01 January 2015
to : 31 January 2015
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-10 - -8 (cooler in YOI)
-8 - -6 (cooler in YOI)
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
-2 - -0.5
no difference
0.5 - 2
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
6 - 8 (warmer in YOI)
16/03/2015
resolution: 25x25 km

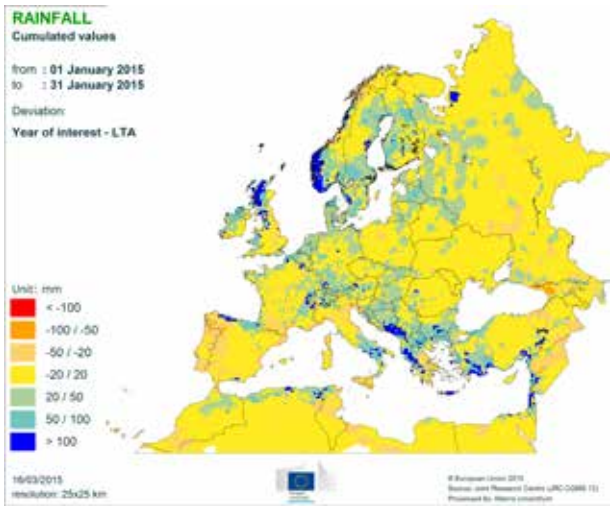

AVERAGE DAILY TEMPERATURE
Averaged values
from : 01 February 2015
to : 28 February 2015
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-8 - -6 (cooler in YOI)
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
-2 - -0.5
no difference
0.5 - 2
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
6 - 8 (warmer in YOI)
> 8 (warmer in YOI)
16/03/2015
resolution: 25x25 km

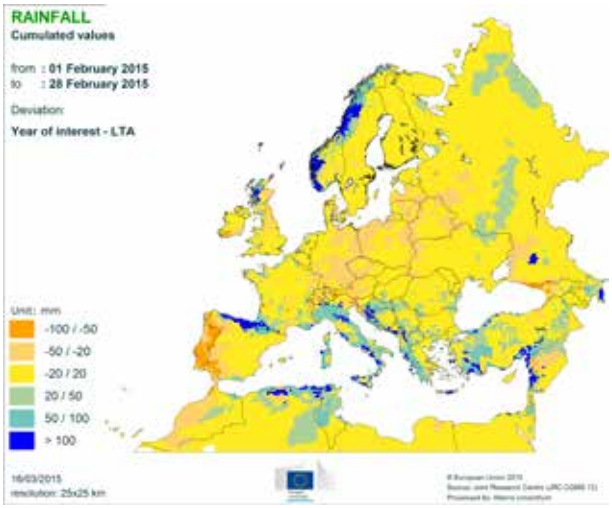

TEMPERATURE SUM
from : 01 December 2014
to : 28 February 2015
Deviation:
Year of interest - LTA
Base temperature: 0
Unit: degree days (Celsius)
>= 100
>= 80 - < 100
>= 60 - < 80
>= 40 - < 60
>= 20 - < 40
>= -20 - < 20
>= -40 - < -20
>= -60 - < -40
>= -80 - < -60
>= -100 - < -80
< -100
16/03/2015
resolution: 25x25 km

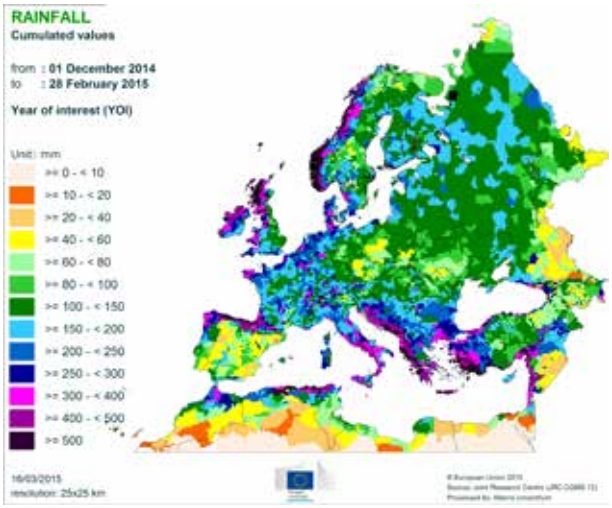
Precipitation

During **December**, drier-than-usual conditions were observed in the Iberian Peninsula, with cumulated rainfall more than 80 % below normal values. Below-average rainfall was also observed in western and southern France, southern Poland and locally in Ukraine. Wetter-than-usual conditions prevailed in northern Germany, southern Scandinavia, northern Poland, Romania, Bulgaria and western Turkey. During first two dekads of **January**, wetter conditions prevailed in central and northern Europe, western Turkey, northern and eastern France and Russia. Drier-than-usual weather conditions prevailed in the Mediterranean regions and the western Black Sea regions. Snow covered northern Europe and large parts of south-eastern Europe during the first half of January. The second half of January was characterised by frequent and abundant precipitation (> 200 mm) in the north-western coastal areas of the British Isles and the Iberian Peninsula, the western coastline of Scandinavia, the Balkan Peninsula and southern Italy. Heavy and persistent rainfall during the last days of January caused flash floods in Greece, Albania and Macedonia. Rainfall was also plentiful in southern and south-western Turkey, Crete and some coastal areas of the Maghreb countries. In south-eastern Hungary and some smaller areas of the Balkan Peninsula, excessive precipitation limited infiltration due to saturated soil moisture conditions. In **February**, wet conditions continued in the western Balkans, the Apennine Peninsula and western Turkey. Drier-than-usual weather conditions were observed in the western Iberian Peninsula and many areas of central Europe. The cumulative rainfall in those areas in February did not exceed 20 mm.



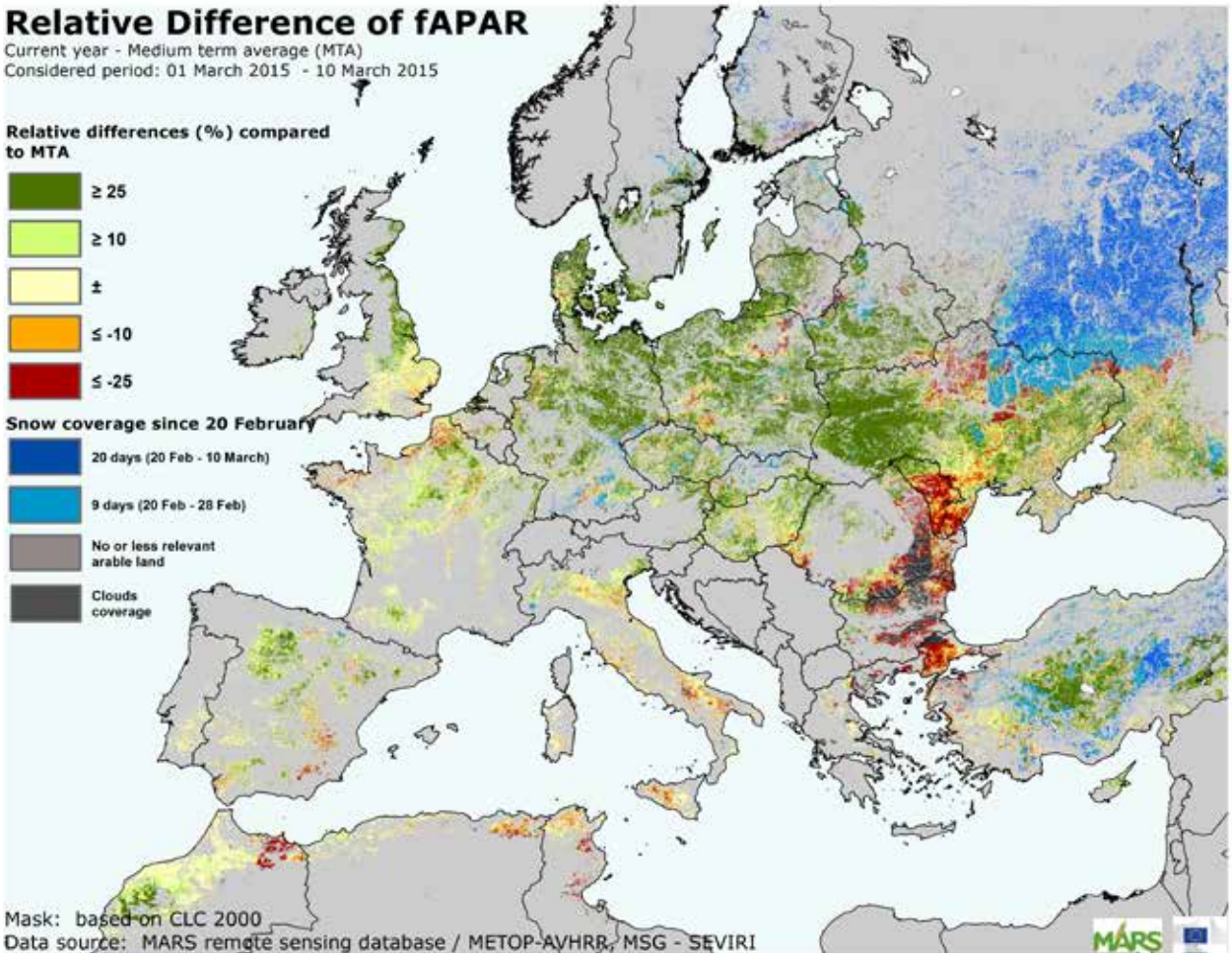






2. Remote sensing — Observed canopy conditions

Winter crops advanced in central and eastern Europe



The map displays the differences between the fraction of absorbed photosynthetically active radiation (fAPAR) during the period 1–10 March 2015 and the medium-term average (MTA, 2007–14) for the same period. Regions that were covered by snow until the end of February are marked in light blue, and regions represented in dark blue remained covered by snow until the date of analysis. It must be noted that most areas shown in red (e.g. in eastern Romania and Bulgaria, Moldova, southern Italy, northern France) are associated with cloud coverage, whereas other negative anomalies (e.g. in Poland and northern Ukraine) appear to be related to partial snow cover. Green indicates areas with positive fAPAR anomalies. Spain presents positive anomalies in the main cereal-growing regions due to a slightly advanced crop cycle. The advanced cycle of winter crops is less visible in France, where fAPAR values are around average. The main wheat-producing regions of the United Kingdom also present around average fAPAR values, whereas positive anomalies are evident in the main winter barley regions (northern England and Scotland). In central and eastern Europe, the warmer-than-usual winter determined a short dormancy period, and regrowth has already started in many regions. The situation in Morocco is quite variable, but around average in the main agricultural areas. In Turkey, the main arable areas in the central regions present positive anomalies.

3. Country headlines

3.1 European Union

France

Weather conditions have been favourable since November. Temperatures fluctuated around the average, and no significant cold spells were registered. Temperature accumulation is surprisingly close to that of an average year in all regions. Rainfall is close to or slightly below average in the main crop-producing regions. The only concern is the coastal area of Languedoc-Roussillon, where rainfall has been 50 % below the long-term average, which may slightly impact the production of durum wheat. Generally, conditions are favourable for winter crops, and the season has got off to a good start.

Germany

Temperature accumulation since the beginning of December shows a surplus in the north-east and a deficit in the south-west of the country. The number of cold days (minimum temperature < 0 °C) was considerably less than average and, other than in the south, no extreme cold temperatures (below – 0 °C) were recorded. However, the past winter was clearly not as mild as that of the previous year. For central and southern Germany, model results even show a slight delay in the development of winter crops. Precipitation between the beginning of December and mid-March generally remained below the long-term average for most of Germany, with the exception of the north. The deficit is most prominent in Rheinland-Pfalz, Hessen, Thüringen and Bayern, where soil moisture contents are starting to decrease. The current outlook for the season is positive.

Poland

Since December, temperatures stayed largely above average and temperature accumulation is 50 % higher than during a normal year. No cold spells were observed, and average temperatures were below 0 °C only at the beginning of December and beginning of January. While rainfall was close to average in most regions, the south-eastern regions (particularly Wielkopolskie) experienced a slight rainfall deficit. However, as water demand is low during winter and a few rainfall events maintained the soil moisture at a sufficient level, this deficit is not considered to be critical. This year started similarly to last year, which had some record yields for winter cereals.

United Kingdom and Ireland

Overall thermal conditions during winter have been average or slightly warmer than usual in the United Kingdom, and slightly colder than usual in Ireland. There were fewer frost events than normal in both countries, and minimum temperatures remained above – 5 °C in the main crop-producing areas. Overall precipitation levels were below average in southern and eastern Britain and Ireland, and just above average in western Britain and Scotland. Since the beginning of February, rainfall levels have been below average in both countries, providing good soil moisture conditions for the start of field operations. Winter crop development is around average in the United Kingdom, but slightly delayed in Ireland. The overall outlook is positive.

Spain and Portugal

Weather conditions during winter were favourable for wheat and barley in the eastern half of the Iberian Peninsula. Temperatures were slightly higher than usual, and precipitation since late autumn was sufficient to support above-average vegetative growth during the initial stages of winter crop development. By contrast, temperatures in the western half of the peninsula were colder than usual, with almost no rainfall registered in the past 2 months. Should dry conditions continue during the coming weeks, the growth of winter cereals in the south-west of the peninsula may be constrained.

Italy

Italy experienced a mild winter overall: positive thermal anomalies have been recorded since the beginning of December in northern Italy, while temperatures were close to normal in the south. Unusually high maximum temperatures were reached in north-western regions during the first dekad of January (15 °C) and in central Italy in early December (18 °C). Overall, however, the past winter was not as mild as that of the previous year. As a consequence of the favourable thermal conditions, winter cereals are presenting a phenological advance in northern and central Italy. Precipitation has been close to normal in northern Italy and above average in the rest of the country. Southern Italy received more than 350 mm of rain since 1 December. These meteorological conditions increased the soil water reservoirs, but the excess of water caused local flooding in some areas. The overall outlook for the current season is positive.

Hungary

Hungary experienced excessive precipitation from August until October 2014. The wet soil conditions seriously hampered soil preparation activities and delayed the sowing of winter crops. The weather became drier and warmer than usual from mid-October onwards, allowing for the sowing to be completed and providing good conditions for emergence. Crops were considered to have been well strengthened before winter. The winter was extremely mild (fifth warmest in the past 40 years), allowing for the good growth of winter crops, but late-sown plants are in a weaker condition. The survival rate of pests and diseases was above average due to a lack of lengthy freezing periods. Abundant precipitation in late winter caused waterlogging in several places along the southern border of Hungary, and there are field accessibility problems in the southern half of the country due to excessively wet soil conditions. At the same time, a moderate precipitation deficiency has been observed in northern regions. The overall yield expectations are slightly positive.

Romania

Romania has experienced a mild winter. The active temperature sum (T base = 0 °C), calculated since early October, currently exceeds the long-term average by 100 growing degree days (GDD) for winter crops in the eastern territories, and up to 150–300 GDD in western and (especially) north-western regions. The first dekad of 2015 was freezing cold, but only some frost-kill damage to crops occurred thanks to a deep protective snow blanket. Precipitation was around average in the northern half of Romania, but precipitation exceeded the long-term average by 100 mm in southern regions, and by 200 mm in the areas along the Bulgarian border, causing waterlogging problems in several areas, depending on local conditions. The crops wintered well and are generally in good shape, except in the overly wet areas. Crop development is advanced by 1–2 weeks, and biomass accumulation is at normal levels for this period of the year.

Bulgaria

In Bulgaria, the period between 1 September and 15 March has been the wettest in our records (since 1975). Precipitation exceeded the average by 50–90 % in the northern half of the country, and by up to 250 % in the south. These conditions led to persistent waterlogging in several places. The most seriously affected and damaged winter cereal areas, which are mostly located in the southern regions, are likely to be resown with spring crops. However, the sowing of spring crops may be delayed by very wet upper soils which limit field accessibility. Crop development in less affected areas is near normal or slightly accelerated due to a positive thermal anomaly since January.

Austria, Slovakia and the Czech Republic

Warmer-than-usual winter conditions were recorded with temperatures of up to 4 °C above the long-term-average. The number of cold days was significantly less than average in all agricultural areas. Minimum air temperatures below – 15 °C occurred only in Slovakia and southern Austria, during the first dekad of January. According to our simulations, no frost-kill damage affected the winter crops. As a consequence of these mild winter conditions, the model results suggest slightly advanced development of winter crops in Slovakia, the central Czech Republic and eastern Austria. Below-average precipitation from the beginning of winter until mid-March was recorded in the Czech Republic and southern Austria. Average or slightly above-average precipitation was observed elsewhere. Soil moisture content is starting to decrease in the areas with rainfall deficiencies.

Denmark and Sweden

The main agricultural areas in Denmark and Sweden experienced one of the warmest winters in our database (since 1976). Since 1 December, temperatures in Denmark and southern Sweden (e.g. Sydsverige, Vastsverige) were above the long-term average, sometimes significantly so. Below-average temperatures were observed only during two short periods (from 25 to 30 December and from 31 January to 6 February). Northern Sweden was characterised by strongly fluctuating temperatures (e.g. average daily temperature increasing from – 18 °C to + 4 °C within 3 days). Both countries received precipitation, with cumulated values far above the long-term average. Our models show that the development of winter cereals is advanced in both countries, thanks to the mild temperature conditions.

Finland, Lithuania, Latvia and Estonia

The Baltic countries enjoyed mild winter temperatures, with the exception of short cold spells during the last and first dekads of December and January respectively. However, no severe frost kill was simulated in the Baltics or in Finland. In Finland, temperatures fluctuated around average during the first half of winter, coupled with short cold spells, and were warmer than usual during the second half. The first half of winter was quite wet followed by a drier-than-usual February in Lithuania and Latvia (and also, to a lesser extent, in Estonia and Finland). Beneficial rainfall in March improved soil moisture reserves, but more rainfall in the coming weeks could be beneficial in the Baltics.

Belgium, the Netherlands and Luxembourg

Thermal conditions during the winter can be characterised as having been close to average, with slightly above-average cumulated temperatures (since 1 December) in the coastal provinces and somewhat below-average values in southern Belgium and Luxembourg. Frost periods were relatively mild, with minimum temperatures remaining above – 5 °C in most of the crop production areas in the Netherlands and Vlaanderen and occasionally somewhat lower in Wallonie and Luxembourg. Overall precipitation levels were above average in most of the region, especially during December and January. March has been mostly dry so far, leading to favourable soil moisture conditions for field preparation and the early sowing of spring crops. Winter crop development is around average in most of the region, with a slight delay in southern Belgium and Luxembourg.

Greece and Cyprus

This winter in Greece and Cyprus was mild, with temperatures consistently above the long-term average except for the first dekad of January and the second dekad of February. The first cold period was particularly intense, with below-zero temperatures reaching an extreme of – 13 °C in West Macedonia. Since 1 December, cumulated rainfall has been consistently above the long-term average. In several parts of northern Greece, rainfall exceeded the average by 100 %, leading to some flooding. However, it is still too early to estimate any damage to cereals. Compared to last year, both countries have experienced a less mild and much wetter winter period. For both countries, the overall outlook for winter cereals is positive.

Slovenia and Croatia

Slovenia and Croatia experienced a warmer-than-usual winter, with temperatures of up to 4 °C above the long-term average. Minimum daily air temperatures fell below – 15 °C in major parts of continental Croatia and central and southern Slovenia during the first dekad of January. As snow provided a protective cover during the period of very low temperatures, our models do not indicate any significant frost-kill damage. Winter crops are generally advanced due to the warm winter conditions, especially in eastern Croatia and western Slovenia. Abundant precipitation was recorded in Croatia, with accumulation from 1 December until mid-March regionally exceeding the long-term average by more than 100 mm. In Slovenia, however, a precipitation deficit prevailed over the western part of the country, whereas normal precipitation levels were recorded elsewhere.

3.2 Black Sea area

Ukraine

Conditions since December have been milder than average throughout the country and temperature accumulation is largely above that of a normal year. Temperatures fell below 0 °C at the beginning of December and January, but most of the cropland was covered by snow, which protected the plants from frost. Only a little frost-kill damage is therefore expected. The main concern relates to low soil moisture levels, as rainfall was sparse over the studied period. These dry conditions had a particular impact on the emergence of winter cereals, as rainfall was sparse after the sowing. Most of the fields that suffered from dry conditions are expected to be resown. According to T. Adamenko of the Ukrainian Hydrometeorological Centre, 8 % of the area of winter crops has been lost. Apart from that, the outlook is positive and, given the investments and technical improvements of recent years, yields are expected to follow the trend.

Turkey

Temperatures in Turkey have been mainly above the long-term average since 1 December, except for a cold spell that affected the entire country from 9 to 11 January, during which minimum temperatures dropped below – 20 °C in parts of central-eastern Turkey (e.g. Orta Anadolu, Erzurum, Agri, Kayseri). Another, yet less intensive, cold spell mainly affected the central-western areas during the second dekad of February. As a consequence, frost-kill damage is likely to have occurred locally in central-eastern areas. Precipitation during the same period was well distributed, and the cumulated values are above or close to the long-term average, with the exception of some north-eastern areas where precipitation remained below average (e.g. Dogu Karadeniz). Our models suggest mainly average or slightly advanced development of winter cereals.

3.3 European Russia and Belarus

European Russia

The start of the winter crop season was unfavourable in several regions of southern and central Russia. First, germination and emergence were negatively affected due to dry and cold autumn conditions, and then the weak crop stands were impacted by frosts during late autumn and early winter while they were still inadequately protected by snow. As a consequence, it is likely that considerable areas will have to be resown in springtime in the Near Volga, Central and Southern okrugs. Overall, winter conditions were milder than usual, resulting in positive thermal anomalies of 1–2 °C in the southern areas and 2–4 °C in the central and northern regions of Russia until 15 March. February and the first half of March were particularly mild. Precipitation, from early December onward, was around average, normalising the water supply situation. The mild weather provides satisfactory or good conditions for the crops that withstood the earlier adversities, but the picture will be clear only after the melting of the snow cover.

Belarus

In Belarus, thermal conditions were about 3 °C above the long-term average for the winter as a whole. These mild conditions were interrupted by two brief and sharp cold spells, which occurred at the end of December and in the first dekad of January. In Gomel, minimum temperatures dropped to – 18.9 °C on 8 January. Some areas that only had shallow snow cover may have been affected by frost kill. Rainfall was close to average in north-eastern regions, and 20–30 mm lower than usual (for the period between 1 December and 15 March) in the rest of the country. Conditions have been generally favourable for winter crops, which are well advanced in development, and the outlook is positive.

3.4 Magrehb

Morocco, Algeria and Tunisia

Temperatures were close to average over the winter (slightly warmer for the first part, slightly cooler for the second part). There was good rainfall in Morocco, Algeria and Tunisia in December, but January was relatively dry in all three countries. Better rain fell in February and March in Algeria and Tunisia, but it has remained relatively dry in Morocco. Yield forecasts remain on trend at this point.

4. Crop yield forecasts

Country	TOTAL WHEAT t/ha					TOTAL BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	5.84	**5.55**	5.42	-5.0	+2.3	4.91	**4.63**	4.51	-5.5	+2.7
AT	5.92	**5.32**	5.26	-10.1	+1.2	5.80	**5.16**	5.03	-11.1	+2.5
BE	9.41	**8.66**	8.75	-8.1	-1.1	9.30	**8.86**	8.65	-4.8	+2.4
BG	4.19	**3.94**	3.92	-5.8	+0.5	3.96	**3.77**	3.71	-4.8	+1.5
CY	-	**-**	-	-	-	1.63	**1.59**	1.83	-2.6	-12.9
CZ	6.24	**5.61**	5.42	-10.0	+3.5	5.57	**4.69**	4.56	-15.7	+3.0
DE	8.66	**7.64**	7.64	-11.7	+0.0	7.41	**6.43**	6.37	-13.2	+0.9
DK	7.46	**7.27**	7.00	-2.6	+3.8	5.95	**5.71**	5.55	-4.0	+3.0
EE	3.86	**3.31**	3.34	-14.3	-0.8	3.53	**2.97**	2.91	-16.0	+2.1
ES	2.95	**3.13**	3.08	+6.0	+1.5	2.57	**2.83**	2.68	+10.1	+5.7
FI	3.85	**3.63**	3.65	-5.6	-0.4	3.60	**3.43**	3.40	-4.8	+0.7
FR	7.36	**7.21**	7.01	-2.0	+2.9	6.64	**6.55**	6.37	-1.3	+2.8
GR	3.07	**2.84**	2.85	-7.5	-0.4	2.88	**2.74**	2.92	-4.9	-6.3
HR	4.20	**4.85**	4.81	+15.5	+0.8	3.81	**4.49**	4.13	+17.8	+8.6
HU	4.71	**4.33**	4.21	-8.0	+2.8	4.45	**4.08**	3.87	-8.3	+5.2
IE	9.87	**8.88**	8.82	-10.0	+0.8	7.95	**7.51**	7.36	-5.5	+2.0
IT	3.81	**3.87**	3.84	+1.7	+0.8	3.79	**3.64**	3.69	-4.0	-1.1
LT	4.15	**3.98**	4.03	-4.1	-1.2	3.40	**3.13**	3.10	-7.8	+1.2
LU	6.31	**6.41**	6.01	+1.5	+6.7	-	**-**	-	-	-
LV	3.26	**3.48**	3.49	+6.9	-0.3	2.80	**2.71**	2.71	-3.1	+0.2
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	9.41	**8.85**	8.86	-6.0	-0.1	7.25	**6.64**	6.29	-8.4	+5.5
PL	4.91	**4.44**	4.31	-9.7	+2.9	4.03	**3.71**	3.49	-8.0	+6.3
PT	1.84	**1.58**	1.44	-13.8	+10.0	2.14	**1.63**	1.56	-24.0	+4.2
RO	3.52	**3.27**	3.20	-7.0	+2.1	3.30	**3.00**	2.90	-8.9	+3.8
SE	6.79	**6.17**	5.94	-9.2	+3.8	4.49	**4.60**	4.37	+2.5	+5.2
SI	5.23	**4.82**	5.02	-7.8	-3.8	4.85	**4.45**	4.48	-8.3	-0.8
SK	5.27	**4.25**	4.30	-19.4	-1.2	4.74	**3.76**	3.63	-20.7	+3.5
UK	8.62	**8.08**	7.64	-6.3	+5.7	6.51	**6.04**	5.86	-7.1	+3.2

Country	SOFT WHEAT t/ha					DURUM WHEAT t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	6.08	**5.79**	5.65	-4.8	+2.3	3.31	**3.28**	3.25	-1.1	+0.8
AT	5.98	**5.36**	5.30	-10.3	+1.2	4.78	**4.61**	4.50	-3.6	+2.3
BE	9.41	**8.66**	8.75	-8.1	-1.1	-	-	-	-	-
BG	4.20	**3.96**	3.94	-5.8	+0.5	3.20	**3.21**	3.16	+0.3	+1.6
CY	-	-	-	-	-	-	-	-	-	-
CZ	6.24	**5.61**	5.42	-10.0	+3.5	-	-	-	-	-
DE	8.66	**7.65**	7.65	-11.7	+0.0	6.33	**5.67**	5.37	-10.4	+5.7
DK	7.46	**7.27**	7.00	-2.6	+3.8	-	-	-	-	-
EE	3.86	**3.31**	3.34	-14.3	-0.8	-	-	-	-	-
ES	3.05	**3.30**	3.31	+8.3	-0.2	2.39	**2.29**	2.05	-4.1	+12.1
FI	3.85	**3.63**	3.65	-5.6	-0.4	-	-	-	-	-
FR	7.48	**7.38**	7.15	-1.3	+3.2	5.21	**5.09**	5.15	-2.4	-1.2
GR	3.31	**2.98**	3.04	-10.0	-1.8	2.96	**2.78**	2.78	-6.1	+0.1
HR	4.20	**4.85**	4.81	+15.5	+0.8	-	-	-	-	-
HU	4.71	**4.33**	4.21	-8.1	+2.8	4.56	**4.27**	4.03	-6.3	+5.9
IE	9.87	**8.88**	8.82	-10.0	+0.8	-	-	-	-	-
IT	5.16	**5.50**	5.35	+6.7	+2.8	3.17	**3.11**	3.13	-2.0	-0.8
LT	4.15	**3.98**	4.03	-4.1	-1.2	-	-	-	-	-
LU	6.31	**6.41**	6.01	+1.5	+6.7	-	-	-	-	-
LV	3.26	**3.48**	3.49	+6.9	-0.3	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	9.41	**8.85**	8.86	-6.0	-0.1	-	-	-	-	-
PL	4.91	**4.44**	4.31	-9.7	+2.9	-	-	-	-	-
PT	1.84	**1.58**	1.44	-13.8	+10.0	-	-	-	-	-
RO	3.52	**3.27**	3.20	-7.0	+2.1	-	-	-	-	-
SE	6.79	**6.17**	5.94	-9.2	+3.8	-	-	-	-	-
SI	5.23	**4.82**	5.02	-7.8	-3.8	-	-	-	-	-
SK	5.27	**4.25**	4.30	-19.4	-1.2	-	-	-	-	-
UK	8.62	**8.08**	7.64	-6.3	+5.7	-	-	-	-	-

Country	SPRING BARLEY t/ha					WINTER BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	4.17	**4.08**	3.91	-2.1	+4.5	5.91	**5.44**	5.39	-7.9	+0.9
AT	4.68	**4.25**	4.13	-9.2	+2.8	6.67	**5.96**	5.87	-10.7	+1.6
BE	-	**-**	-	-	-	9.30	**8.86**	8.65	-4.8	+2.4
BG	-	**-**	-	-	-	3.96	**3.77**	3.71	-4.8	+1.5
CY	-	**-**	-	-	-	1.63	**1.59**	1.83	-2.6	-12.9
CZ	5.50	**4.63**	4.51	-15.8	+2.7	5.74	**4.86**	4.69	-15.4	+3.6
DE	6.05	**5.54**	5.39	-8.3	+2.7	7.80	**6.71**	6.72	-14.0	-0.2
DK	5.88	**5.61**	5.45	-4.5	+2.9	6.26	**6.15**	5.93	-1.7	+3.7
EE	3.53	**2.97**	2.91	-16.0	+2.1	-	**-**	-	-	-
ES	2.67	**2.90**	2.72	+8.4	+6.5	1.93	**2.46**	2.44	+26.9	+0.7
FI	3.60	**3.43**	3.40	-4.8	+0.7	-	**-**	-	-	-
FR	6.11	**6.22**	6.03	+1.7	+3.2	6.87	**6.69**	6.52	-2.5	+2.7
GR	-	**-**	-	-	-	2.88	**2.74**	2.92	-4.9	-6.3
HR	-	**-**	-	-	-	3.81	**4.49**	4.13	+17.8	+8.6
HU	3.88	**3.72**	3.36	-4.2	+10.6	4.67	**4.26**	4.15	-8.8	+2.7
IE	7.50	**7.16**	6.97	-4.5	+2.7	9.10	**8.92**	8.79	-2.1	+1.4
IT	-	**-**	-	-	-	3.79	**3.64**	3.69	-4.0	-1.1
LT	3.40	**3.13**	3.10	-7.8	+1.2	-	**-**	-	-	-
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	2.80	**2.71**	2.71	-3.1	+0.2	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	7.25	**6.64**	6.29	-8.4	+5.5	-	**-**	-	-	-
PL	3.81	**3.58**	3.34	-6.0	+7.1	4.61	**4.18**	4.06	-9.5	+3.0
PT	-	**-**	-	-	-	2.14	**1.63**	1.56	-24.0	+4.2
RO	2.23	**2.33**	2.05	+4.1	+13.7	3.68	**3.30**	3.28	-10.2	+0.8
SE	4.42	**4.56**	4.33	+3.0	+5.2	6.04	**5.71**	5.39	-5.5	+5.9
SI	-	**-**	-	-	-	4.85	**4.45**	4.48	-8.3	-0.8
SK	4.64	**3.75**	3.58	-19.3	+4.7	5.14	**3.84**	3.97	-25.3	-3.3
UK	6.02	**5.73**	5.41	-4.8	+5.8	7.25	**6.57**	6.58	-9.4	-0.1

Country	GRAIN MAIZE t/ha					RYE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	7.51	**7.19**	6.91	-4.3	+4.1	4.20	**3.70**	3.57	-11.8	+3.8
AT	10.79	**10.49**	10.16	-2.8	+3.2	4.87	**4.26**	4.25	-12.5	+0.2
BE	10.50	**11.24**	10.98	+7.0	+2.3	-	**-**	-	-	-
BG	6.82	**5.73**	5.61	-16.0	+2.1	1.90	**1.93**	1.78	+1.7	+8.9
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	7.36	**7.73**	7.54	+5.1	+2.5	4.88	**4.82**	4.59	-1.2	+5.1
DE	9.85	**9.83**	9.84	-0.2	-0.1	6.14	**5.36**	5.31	-12.7	+0.9
DK	-	**-**	-	-	-	6.13	**5.85**	5.77	-4.5	+1.5
EE	-	**-**	-	-	-	3.12	**2.56**	2.65	-18.1	-3.4
ES	11.08	**11.10**	10.86	+0.1	+2.1	1.66	**2.07**	2.04	+24.2	+1.2
FI	-	**-**	-	-	-	3.18	**2.86**	2.87	-9.9	-0.3
FR	9.38	**9.12**	9.05	-2.8	+0.8	4.88	**5.09**	4.91	+4.2	+3.6
GR	10.70	**10.87**	11.28	+1.6	-3.6	1.60	**1.88**	2.01	+17.6	-6.5
HR	7.00	**6.56**	5.89	-6.3	+11.4	-	**-**	-	-	-
HU	6.88	**6.38**	5.75	-7.2	+10.9	2.91	**2.59**	2.52	-10.9	+3.0
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	9.71	**9.16**	9.04	-5.7	+1.3	-	**-**	-	-	-
LT	-	**-**	-	-	-	2.49	**2.20**	2.21	-11.5	-0.4
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	2.80	**2.72**	2.74	-2.9	-0.8
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	10.29	**10.86**	10.90	+5.5	-0.4	-	**-**	-	-	-
PL	6.64	**6.67**	6.49	+0.4	+2.8	3.18	**2.91**	2.72	-8.7	+6.9
PT	9.96	**9.93**	8.37	-0.3	+18.6	0.87	**0.90**	0.86	+3.7	+5.0
RO	4.50	**4.08**	3.71	-9.4	+9.9	3.34	**2.77**	2.73	-17.1	+1.5
SE	-	**-**	-	-	-	6.20	**5.96**	5.68	-3.8	+4.9
SI	8.69	**7.94**	7.69	-8.7	+3.2	-	**-**	-	-	-
SK	7.33	**6.66**	6.24	-9.2	+6.6	3.86	**3.33**	3.33	-13.8	+0.1
UK	-	**-**	-	-	-	-	**-**	-	-	-

Country	TRITICALE t/ha					RAPE AND TURNIP RAPE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	4.53	**4.26**	4.15	-5.8	+2.7	3.57	**3.24**	3.12	-9.4	+3.7
AT	5.90	**5.19**	5.16	-12.0	+0.5	3.75	**3.31**	3.26	-11.7	+1.8
BE	-	**-**	-	-	-	4.80	**4.44**	4.33	-7.5	+2.6
BG	3.19	**3.14**	2.86	-1.4	+9.8	2.70	**2.48**	2.45	-8.1	+1.2
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	5.06	**4.54**	4.51	-10.3	+0.7	3.89	**3.35**	3.18	-13.9	+5.4
DE	7.25	**6.22**	6.15	-14.2	+1.2	4.48	**3.85**	3.80	-14.1	+1.3
DK	5.55	**5.46**	5.19	-1.6	+5.3	3.88	**3.83**	3.68	-1.2	+4.2
EE	-	**-**	-	-	-	2.08	**1.78**	1.76	-14.6	+0.9
ES	2.26	**2.39**	2.26	+5.7	+5.7	2.44	**2.50**	2.22	+2.5	+12.9
FI	-	**-**	-	-	-	1.48	**1.42**	1.38	-4.3	+2.8
FR	5.24	**5.36**	5.31	+2.3	+1.0	3.67	**3.42**	3.37	-6.8	+1.3
GR	-	**-**	-	-	-	-	**-**	-	-	-
HR	3.81	**3.78**	3.81	-0.9	-0.7	3.10	**2.73**	2.67	-12.0	+2.2
HU	3.97	**3.76**	3.56	-5.1	+5.6	3.19	**2.54**	2.52	-20.3	+0.8
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	-	**-**	-	-	-	2.40	**2.36**	2.36	-1.5	+0.1
LT	3.36	**3.01**	3.05	-10.6	-1.3	2.00	**2.03**	2.03	+1.4	-0.2
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	2.60	**2.68**	2.72	+3.3	-1.4	2.00	**2.11**	2.11	+5.5	-0.1
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	-	**-**	-	-	-	-	**-**	-	-	-
PL	3.98	**3.70**	3.52	-7.1	+5.0	3.39	**3.04**	2.77	-10.4	+9.8
PT	1.47	**1.38**	1.25	-6.0	+10.6	-	**-**	-	-	-
RO	3.73	**3.41**	3.37	-8.6	+1.1	2.55	**2.20**	2.13	-13.6	+3.3
SE	5.54	**5.20**	5.04	-6.1	+3.3	3.38	**2.92**	2.82	-13.7	+3.4
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	3.90	**3.28**	3.32	-15.9	-1.2	3.34	**2.58**	2.48	-22.8	+3.8
UK	4.45	**4.04**	3.98	-9.3	+1.4	3.71	**3.68**	3.49	-0.9	+5.3

Country	SUGAR BEETS t/ha					POTATO t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	76.06	**72.81**	70.26	-4.3	+3.6	33.55	**32.87**	31.18	-2.0	+5.4
AT	74.23	**69.92**	69.94	-5.8	-0.0	33.60	**32.87**	31.86	-2.2	+3.2
BE	81.75	**77.92**	76.05	-4.7	+2.5	54.00	**45.67**	46.91	-15.4	-2.6
BG	-	**-**	-	-	-	14.00	**14.64**	14.36	+4.6	+2.0
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	61.04	**63.88**	60.26	+4.7	+6.0	26.97	**28.34**	26.84	+5.1	+5.6
DE	84.36	**73.00**	71.24	-13.5	+2.5	47.42	**45.21**	43.54	-4.7	+3.8
DK	52.50	**60.13**	61.35	+14.5	-2.0	41.60	**40.03**	39.62	-3.8	+1.0
EE	-	**-**	-	-	-	-	**-**	-	-	-
ES	92.21	**92.47**	85.06	+0.3	+8.7	31.89	**31.40**	30.13	-1.5	+4.2
FI	38.21	**36.32**	36.25	-5.0	+0.2	27.93	**25.92**	25.80	-7.2	+0.5
FR	90.89	**89.95**	87.62	-1.0	+2.7	50.00	**44.38**	44.12	-11.2	+0.6
GR	-	**-**	-	-	-	24.51	**25.61**	25.59	+4.5	+0.1
HR	63.60	**55.19**	51.03	-13.2	+8.1	17.00	**17.61**	16.66	+3.6	+5.7
HU	66.37	**60.08**	53.45	-9.5	+12.4	26.27	**26.08**	23.82	-0.7	+9.5
IE	-	**-**	-	-	-	39.00	**35.31**	33.72	-9.5	+4.7
IT	57.01	**58.05**	57.42	+1.8	+1.1	26.20	**25.72**	25.10	-1.8	+2.5
LT	53.00	**50.78**	50.90	-4.2	-0.2	18.00	**16.18**	16.01	-10.1	+1.0
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	18.00	**17.61**	17.48	-2.1	+0.8
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	87.40	**81.26**	79.19	-7.0	+2.6	45.00	**44.87**	43.88	-0.3	+2.3
PL	54.80	**55.39**	52.16	+1.1	+6.2	23.60	**21.75**	21.40	-7.8	+1.6
PT	-	**-**	-	-	-	19.73	**18.52**	17.14	-6.2	+8.1
RO	40.99	**37.50**	34.54	-8.5	+8.6	16.73	**15.13**	14.61	-9.6	+3.6
SE	59.77	**60.17**	58.91	+0.7	+2.2	32.51	**31.78**	32.08	-2.2	-0.9
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	61.04	**59.18**	54.32	-3.0	+8.9	-	**-**	-	-	-
UK	72.49	**69.63**	67.71	-3.9	+2.8	30.01	**41.61**	38.22	+38.6	+8.9

Country	SUNFLOWER t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	2.13	**2.02**	1.91	-5.2	+5.8
AT	2.82	**2.67**	2.58	-5.2	+3.5
BE	-	**-**	-	-	-
BG	2.40	**2.25**	2.12	-6.4	+5.8
CY	-	**-**	-	-	-
CZ	2.27	**2.38**	2.36	+4.8	+0.8
DE	2.30	**2.13**	2.12	-7.5	+0.1
DK	-	**-**	-	-	-
EE	-	**-**	-	-	-
ES	1.18	**1.11**	1.13	-6.2	-1.8
FI	-	**-**	-	-	-
FR	2.37	**2.36**	2.32	-0.4	+1.8
GR	3.43	**2.68**	2.27	-21.7	+18.3
HR	2.40	**2.60**	2.41	+8.2	+7.6
HU	2.63	**2.67**	2.31	+1.6	+15.5
IE	-	**-**	-	-	-
IT	2.20	**2.19**	2.22	-0.3	-1.2
LT	-	**-**	-	-	-
LU	-	**-**	-	-	-
LV	-	**-**	-	-	-
MT	-	**-**	-	-	-
NL	-	**-**	-	-	-
PL	-	**-**	-	-	-
PT	0.89	**0.64**	0.63	-27.8	+2.2
RO	2.13	**1.77**	1.72	-16.8	+3.3
SE	-	**-**	-	-	-
SI	-	**-**	-	-	-
SK	2.66	**2.39**	2.29	-10.2	+4.3
UK	-	**-**	-	-	-

Sources: 2009–15 data come from DG Agriculture and Rural Development short-term outlook data (dated February 2015, received on 19.2.2015), Eurostat Eurobase (last update: 11.2.2015) and EES (last update: 20.3.2015).
2015 yields come from the MARS Crop Yield Forecasting System (CGMS output up to 20.3.2015).

Country	WHEAT (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	3.71	**3.56**	3.32	-4.0	+7.2
DZ	1.48	**1.68**	1.59	+13.8	+5.7
MA	1.71	**1.62**	1.65	-5.5	-2.1
TN	2.09*	**1.89**	1.91	-9.6	-1.1
TR	2.4	**2.64**	2.59	+10.0	+1.9
UA	4.03	**3.60**	3.29	-10.6	+9.6

Country	BARLEY (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	3.5	**3.40**	3.13	-3.0	+8.5
DZ	1.18	**1.56**	1.39	+32.2	+11.9
MA	0.97	**1.05**	1.10	+8.6	-4.3
TN	1.41	**1.27**	1.19	-10.3	+6.5
TR	2.31	**2.62**	2.56	+13.2	+2.3
UA	3.1	**2.51**	2.38	-19.1	+5.3

Country	GRAIN MAIZE (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	5.38	**5.90**	5.56	+9.6	+6.0
DZ	-	**-**	-	-	-
MA	-	**-**	-	-	-
TN	-	**-**	-	-	-
TR	9.07	**8.92**	7.98	-1.6	+11.8
UA	6.02	**6.22**	5.68	+3.3	+9.6

NB: Yields are forecast for crops with more than 10 000 ha per country.

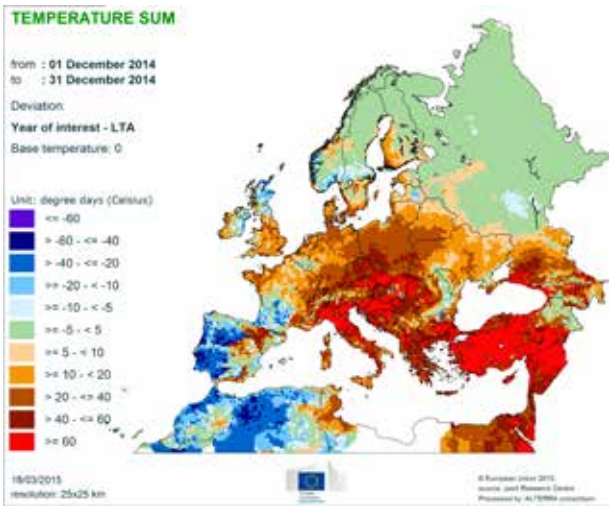
Sources: 2010–14 data come from the UN Food and Agriculture Organisation (FAO), Turkish Statistical Office, PSD-online, INRA Maroc, MinAGRI Tunisia and DSASI Algeria.

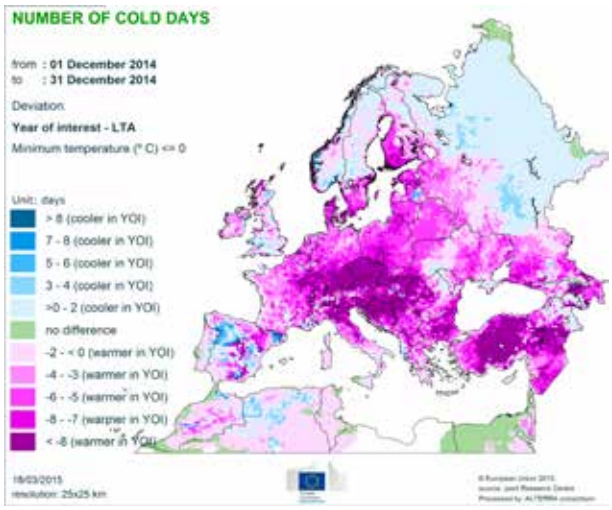
*2014 yields come from the MARS Crop Yield Forecasting System as reported values were not available.

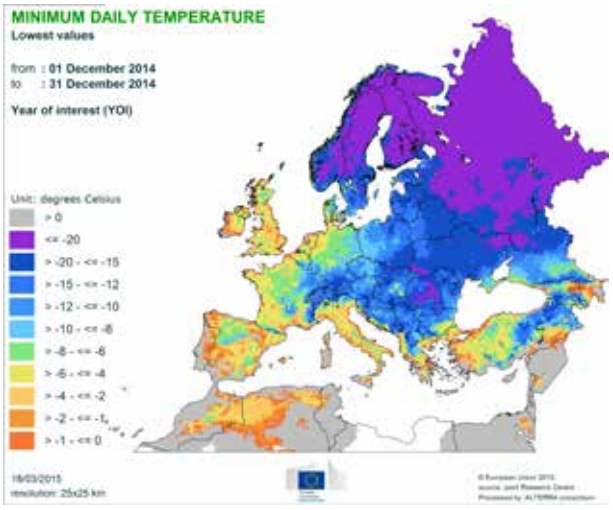
2015 yields come from the MARS Crop Yield Forecasting System (output up to 20.3.2015).

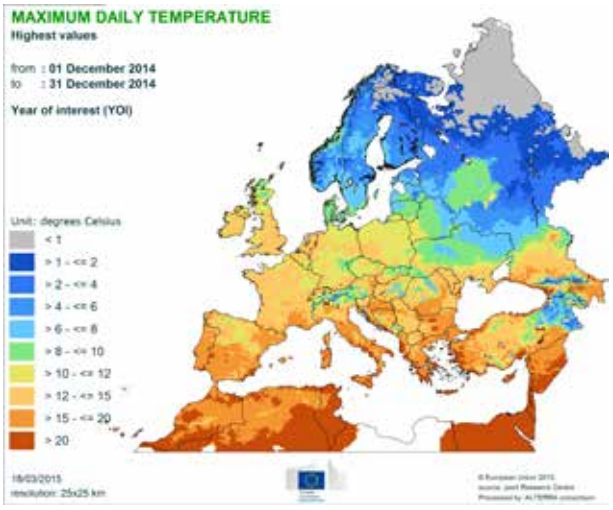
5. Atlas

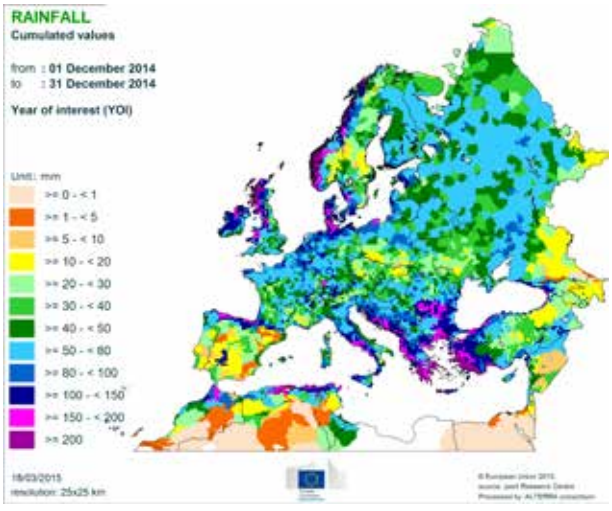
Meteorological conditions — December

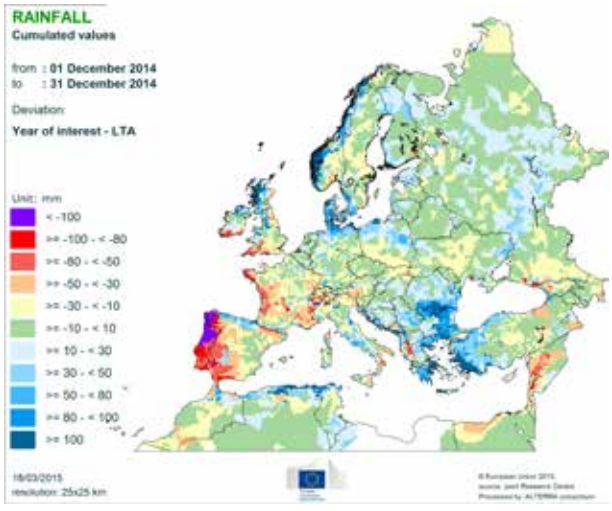




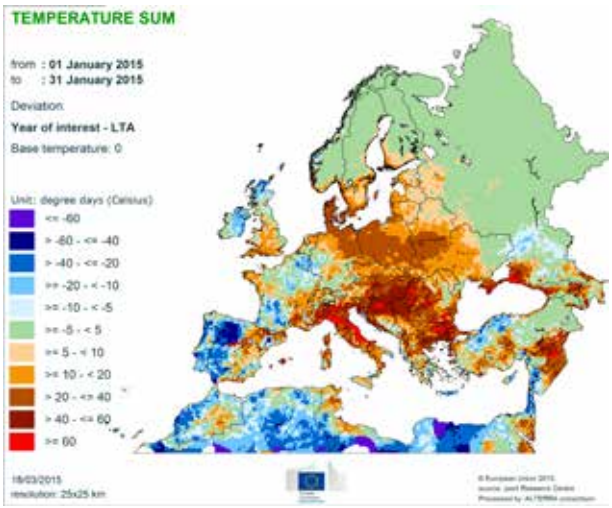


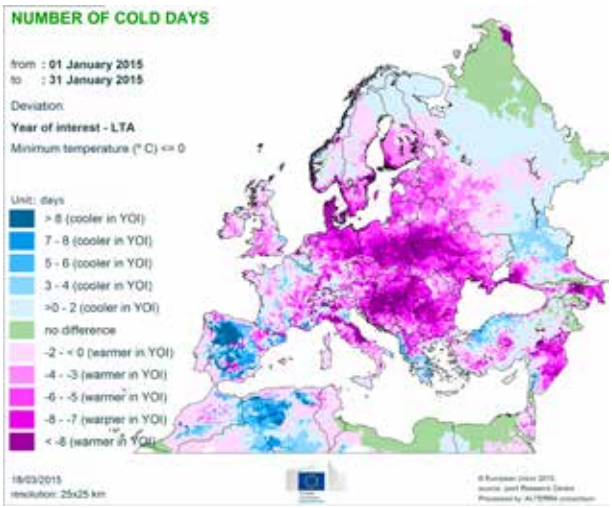


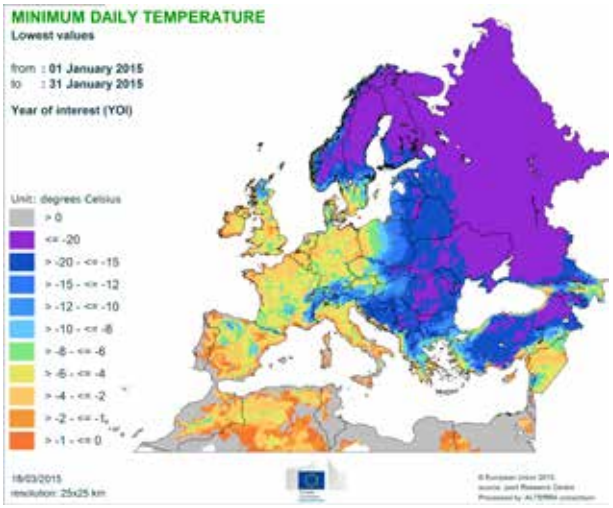


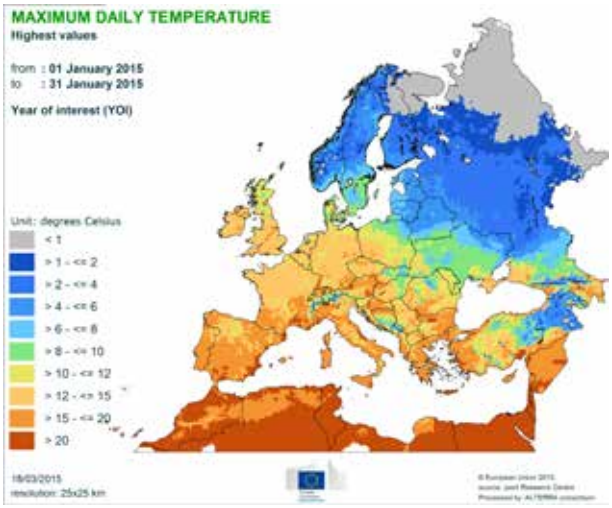


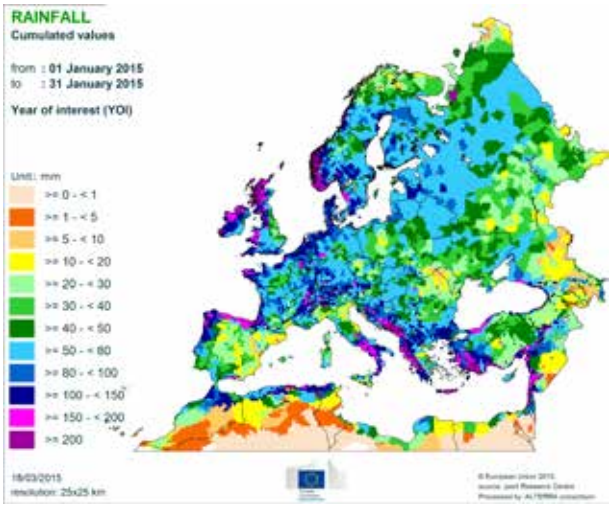
Meteorological conditions — January

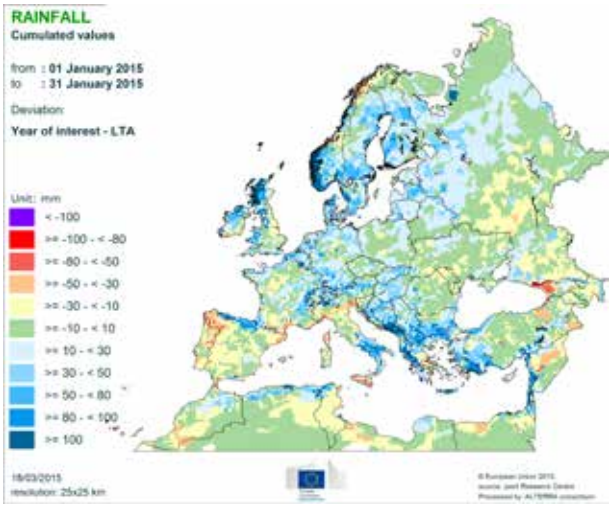




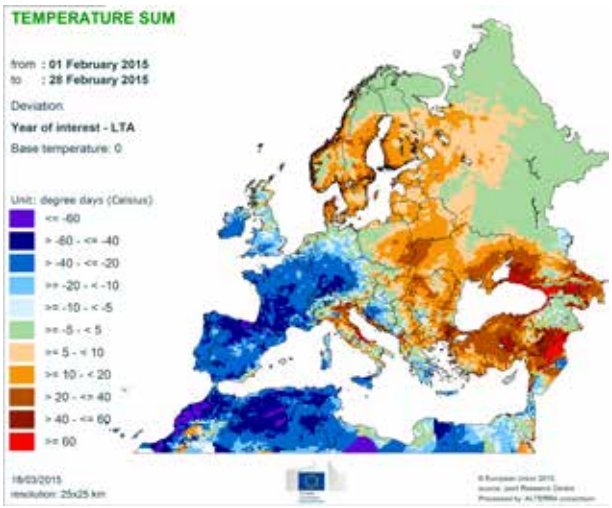


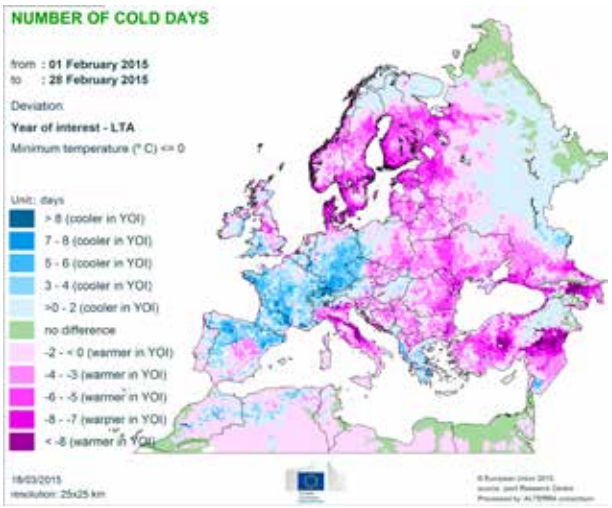


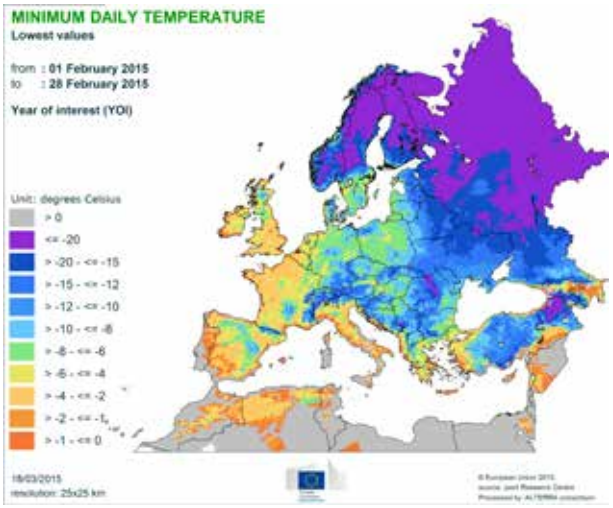


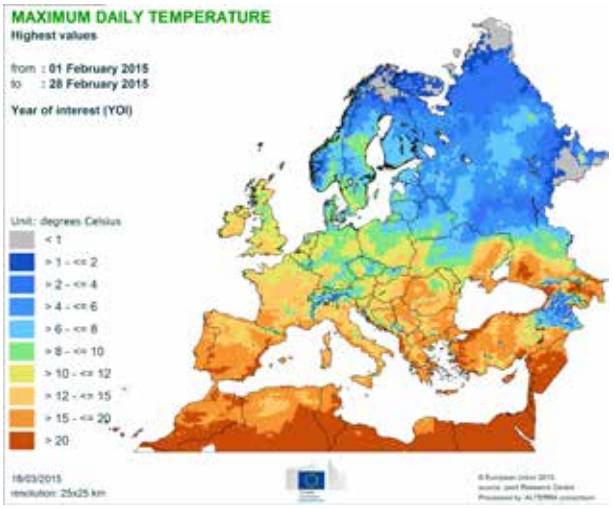


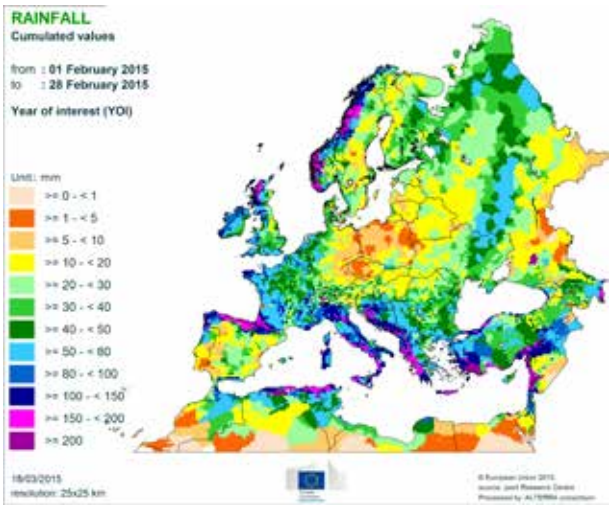
Meteorological conditions — February

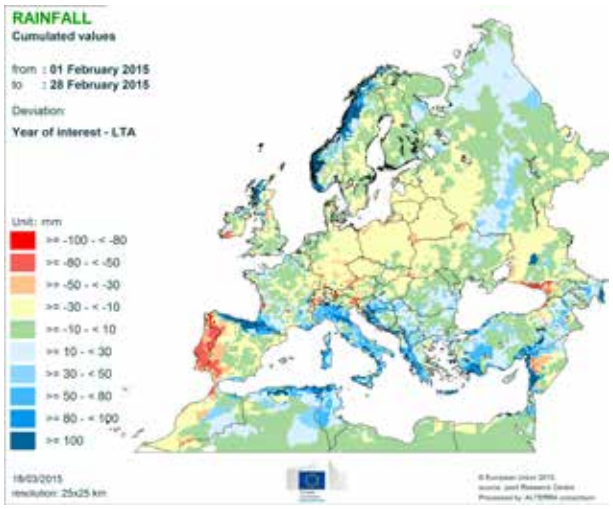




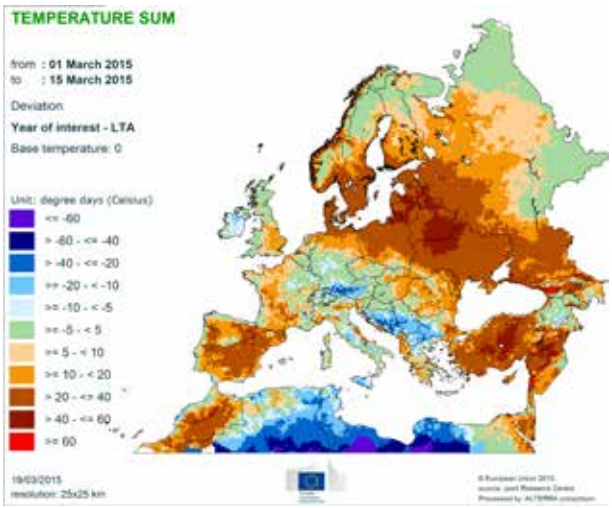


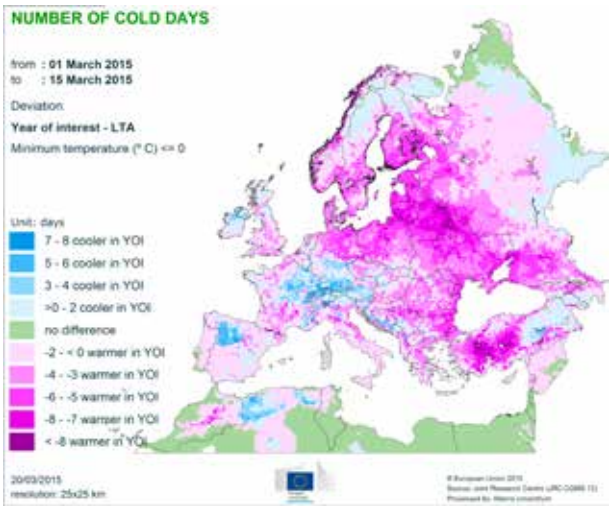


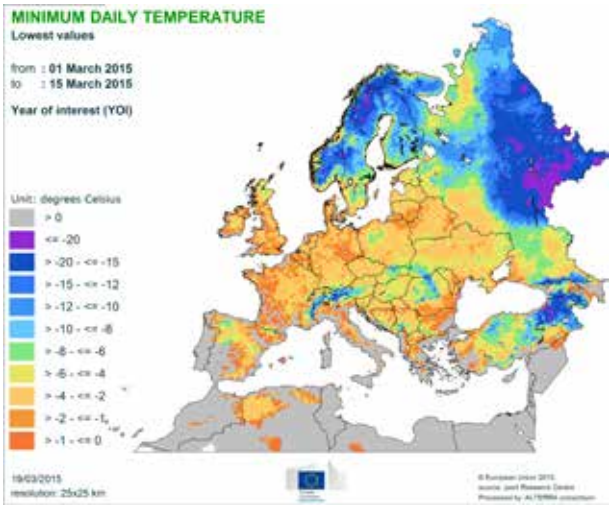


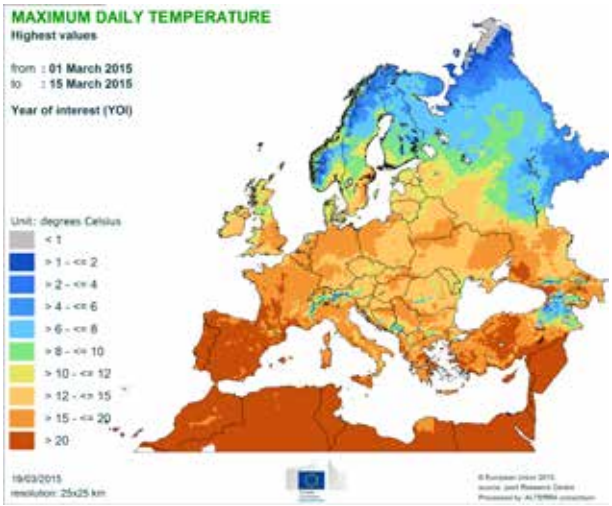


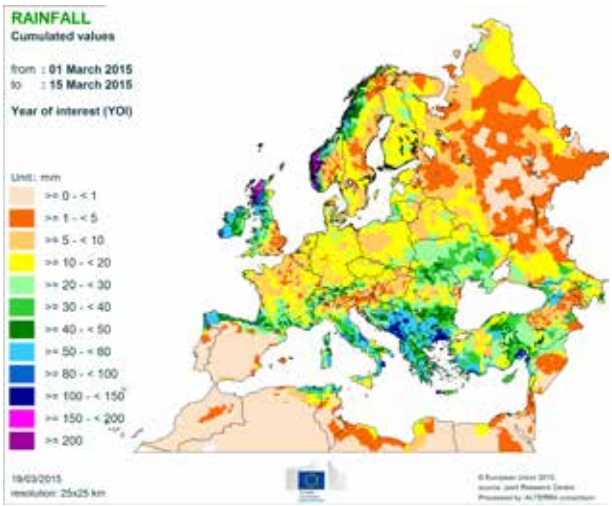
Meteorological conditions — up to 15 March

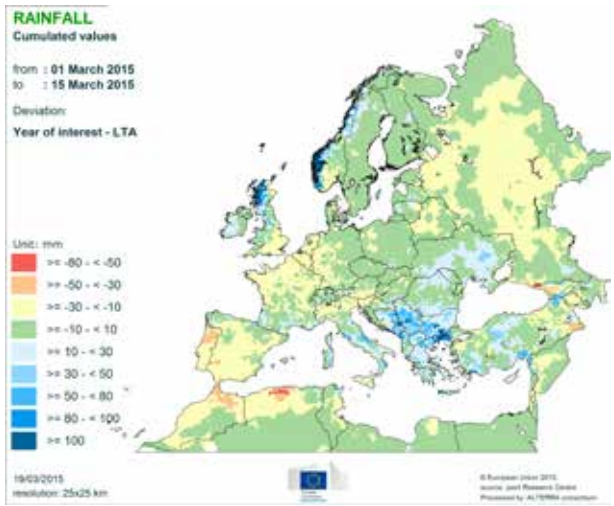




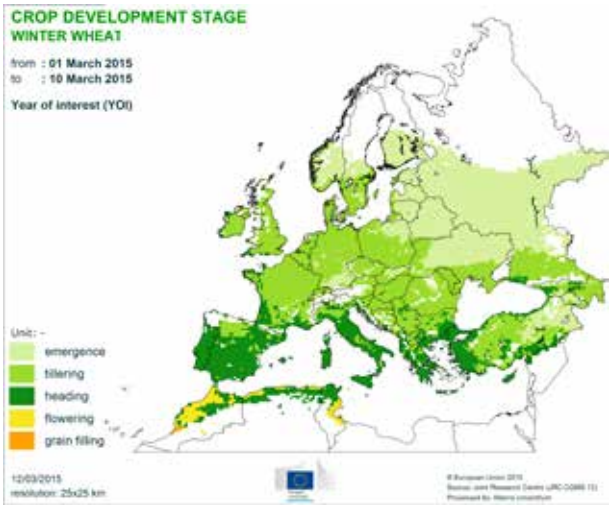


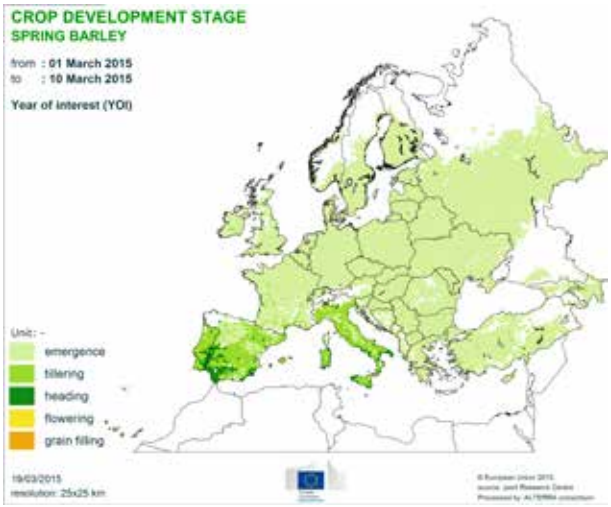


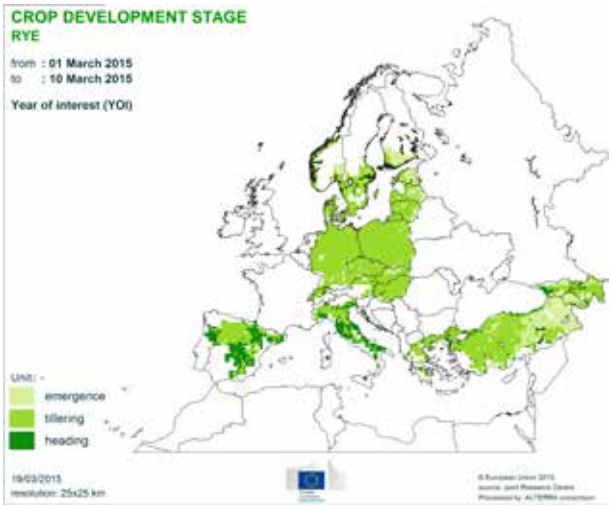


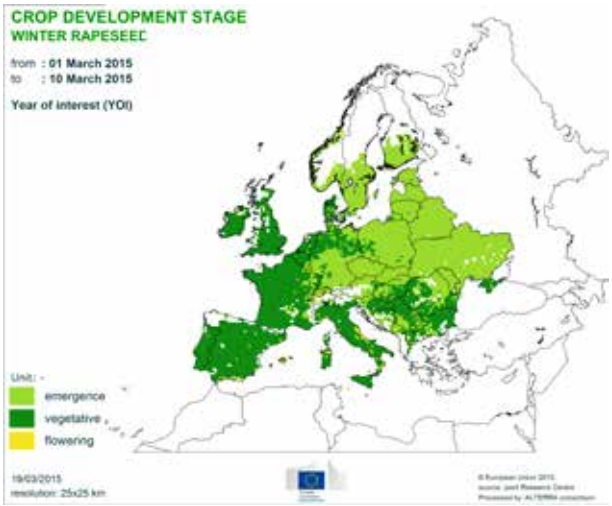


Crop development stages









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MARS Bulletins 2015

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

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