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Crop Monitoring in Europe

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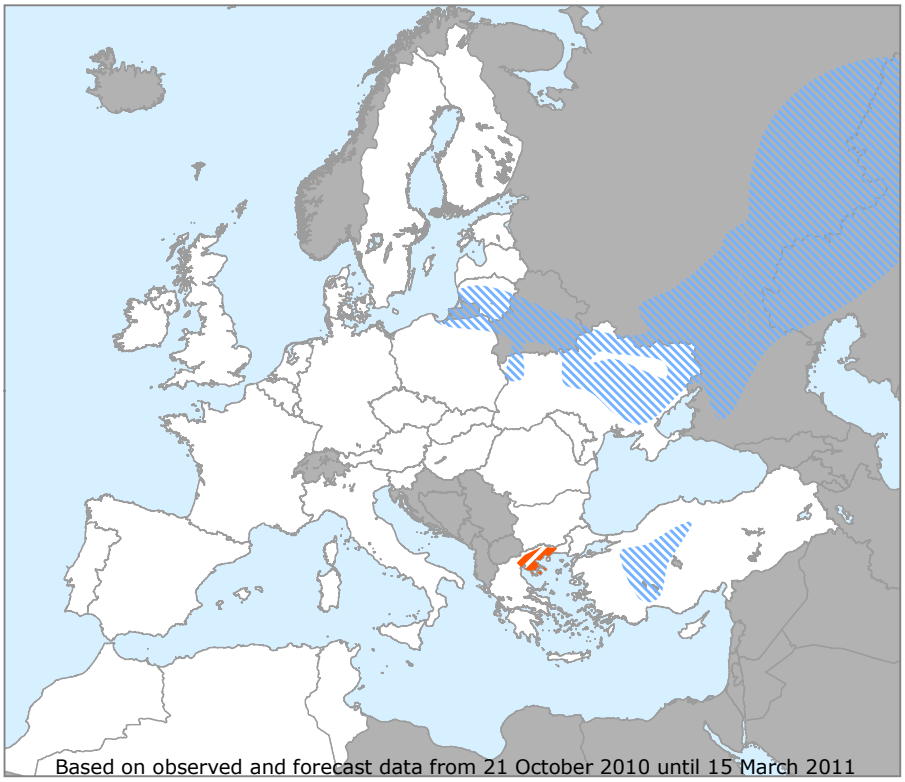
SATISFACTORY START OF CROP SEASON DESPITE A COLDER DECEMBER THAN USUAL

Contents

AREAS OF CONCERN



Rain deficit Wet conditions Possible frost impact

Data source: MARS crop yield forecasting system 07.02.2011

A cold December in western Europe; milder weather with wide fluctuations in eastern Europe, the Black Sea basin and Russia

Crop conditions across Europe are considered satisfactory and no major concerns are reported. Western Europe experienced a cold December with early winter crop dormancy and partially lower biomass accumulation before the winter. It was milder than usual in eastern Europe, the Black Sea basin and Russia, but wide fluctuations and a sharp frost did occur, adversely affecting crops in Russia and Ukraine. For the EU-27 there are no particular frost kill concerns; snow covered the crops during cold temperatures in December and the cold spells in January. Crops are vulnerable to late frosts due to rather mild temperatures in February.

I. Agrometeorological overview

Like last year, milder than seasonal temperatures but with wide fluctuations in eastern Europe, the Black Sea basin and Russia. In December and February sharp frosts very likely impacted on the winter crops in Russia. Large GDD deficits in the British Isles. Good rain supplies.

1. Temperatures and evapotranspiration

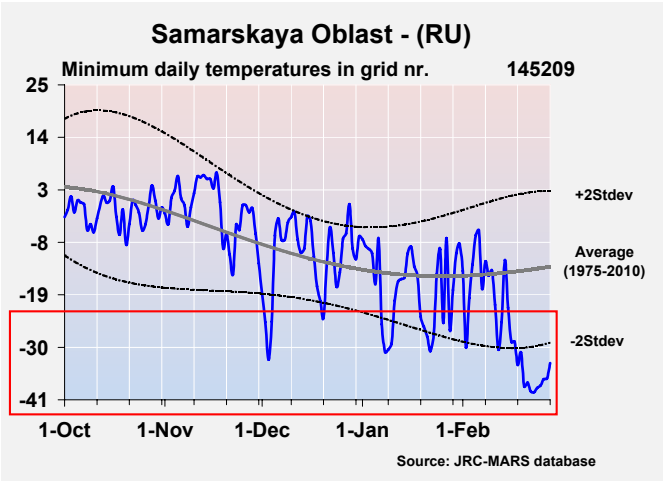
On the eastern and western sides of the continent two opposite anomalies were recorded: it was decidedly milder in the Black Sea and eastern Mediterranean — but, with sharp frosts in Russia, colder than the LTA in the higher latitudes.

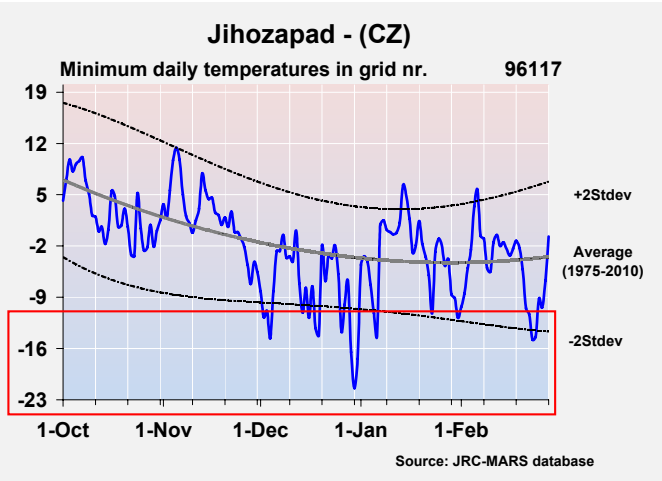
Since the second half of the **autumn** the growing degree days (GDD) accumulation data clearly showed the presence of anomalous thermal conditions in the eastern and western areas of Europe: the eastern German borders separated the higher than seasonal GDD accumulation to the east from the lower than seasonal level to the west. This was due to the anomalies in both maximum and minimum daily values: 4°-5 °C above the average to the east and 2°-3 °C below the average to the west. However, in Russia, Sweden and Finland severe frost events (-28°/-32 °C) were recorded in early December. In these areas, those temperatures combined with limited snow cover probably had a negative impact on the winter crops. At the same time, in the north-west of Europe and in particular in all the areas facing the English Channel, the North Sea and the Baltic the cooler than seasonal conditions brought winter crop dormancy forward, also blocking biomass accumulation.

The **winter** started with relatively more seasonal conditions on the eastern side of the continent whilst the milder conditions moved westward, affecting the central and eastern EU and the Maghreb. At the end of **January**, GDD surpluses were recorded in almost all the EU countries, with the exception of the UK, western France and Italy where seasonal thermal condition were observed. On the contrary, Ireland was the only country with values below the long-term average (LTA). In **February** the milder temperatures persisted across almost the whole of the EU and in particular along the English Channel and in Italy. Until the middle of February in Great Britain (50-60 GDD surpluses were recorded), France, north-eastern Spain, Italy, Benelux, western Germany, Austria, Slovenia, Greece and Bulgaria the maximum daily temperatures were on average 3-4 °C above the seasonal means. Moreover, in the British Isles, northern France, Germany and Benelux the minimum daily values were also as much as 3 °C above the LTA. However, in the last decade of February severe frosts (-20 °C or even lower) occurred in eastern Germany, the Czech Republic, Poland and Baltic's. Temperatures relatively cooler than seasonal were recorded in Morocco and Algeria. Nevertheless, in the second half of the month warmer conditions settled in Morocco, the Iberian peninsula and Turkey.

These agrometeorological conditions caused a marked deceleration of the crop development generally associated with a longer period of biomass accumulation (leaf formation and tillering).

As a whole, the impact of those temperatures on cumulated evapotranspiration was limited by the early crop development and the winter dormancy.





2. Rainfall

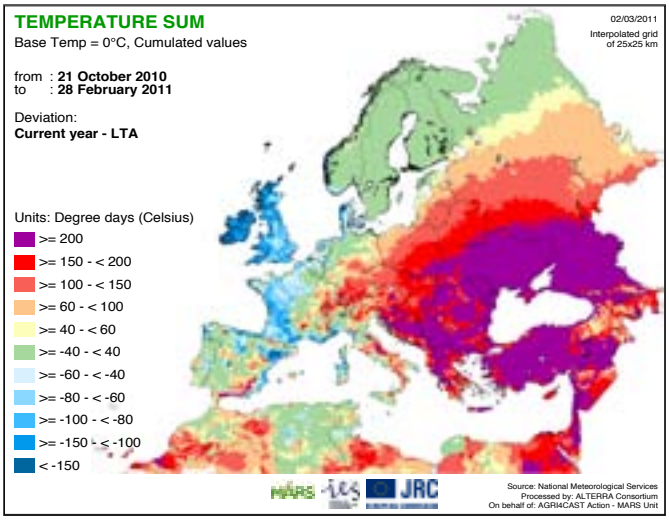
Good rain supplies almost everywhere; possibly excessive rain in northern Poland, the Po Valley, Andalucía, northern Germany; persistent and significant water scarcity in Cataluña and Aragón

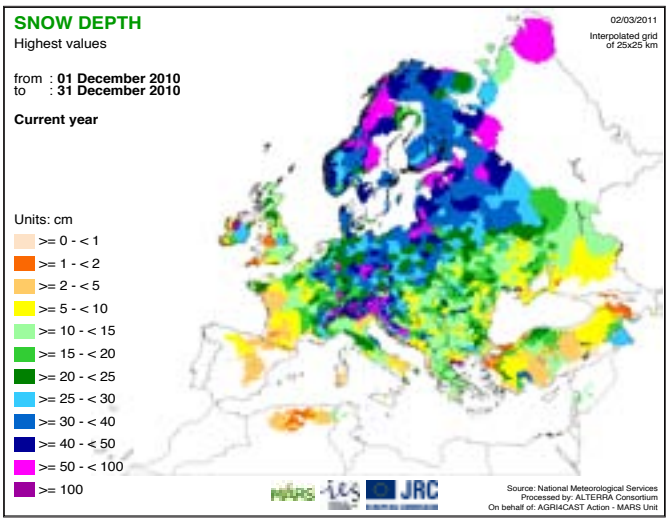
During the **autumn**, the rain was mainly concentrated on the western Atlantic coasts and in the central Mediterranean. In Portugal, southern Spain, northern Morocco, Italy and the Adriatic basin the rain was particularly abundant: > 450-500 mm and in some cases (Andalucía, central Italy) even above 600 mm. In these areas, rainfall was particularly persistent and abundant in November and December. In the heaviest soils these water supplies very likely caused conditions of temporary soil saturation with root asphyxia. However, in the southern areas (in particular the Maghreb, Greece, southern Italy, southern France) this rain enabled the soil reservoirs to be completely refilled, which will have positive effects in the coming months.

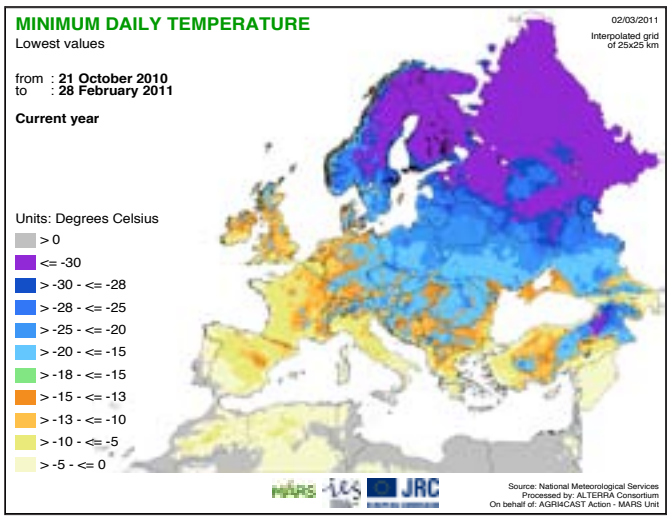
In contrast, **the supply was very scarce in south-west Spain** (Aragón, Cataluña: 15 mm), Greece (50 mm) and Great Britain (70-90 mm). In these areas, the autumnal water shortage is hampering winter cereal sowings or their prompt germination.

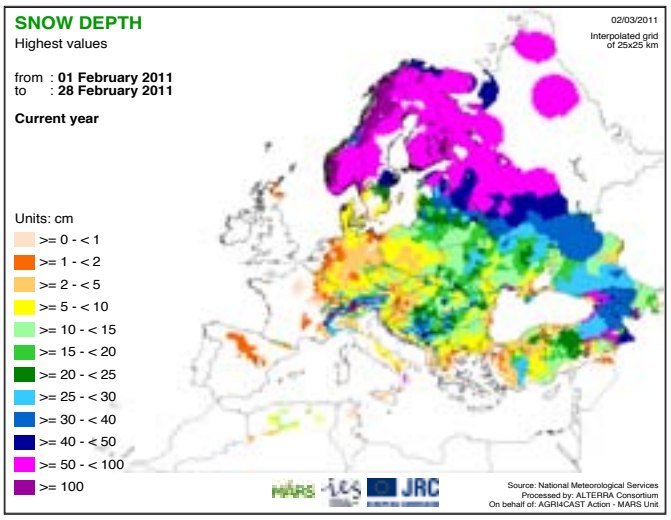
The temporal and spatial distribution of the rainfall during the **winter** was decidedly different: it was largely scarce, as compared with the LTA, in the EU belt ranging from eastern Spain (Cataluña, Aragón, País Vasco, Valencia, Murcia) to Hungary, including the whole of France, north and central Italy, Slovenia, the Czech Republic and Slovakia and partly also Austria and southern Germany. Similar conditions were recorded also in eastern Greece (Kentriki Makedonia) and north-west Turkey. In these areas the rain recorded was on average only around 50-60% of the seasonal expected amount. Again, the limited rain was generally concentrated in a few rainy events and almost absent in February. Therefore, in these areas the soil water content was depleted and future supplies will be fundamental for positive continuation of the crop cycle. Also in central-eastern Ukraine and the Volga valley reduced amounts of rainfall were recorded. Unfortunately in some areas (Hungary, central France, the Czech Republic, Slovakia and southern Spain, eastern Ukraine and the Volga valley) significant rain is not expected in the next 10-15 days. In the other areas, more seasonal amounts of rain occurred. However, locally and spatially erratic large amounts of rain (+40/+50% as compared to the LTA), some of which were beneficial, were recorded in central Spain (Extremadura, Castilla-La Mancha), southern Italy (Sicilia and Sardegna), southern Greece (Peloponnisos), Scotland, Denmark, north-east Poland and the Baltic area, northern Morocco, Algeria and southern Russia.

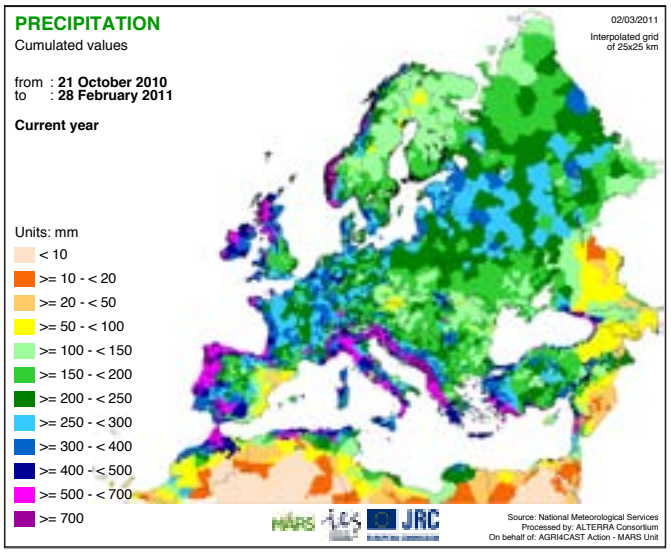
In this last area the snow depth was generally within the seasonal range of variation and will therefore represent a beneficial water reservoir during the months ahead, providing protection against the most severe frost events.

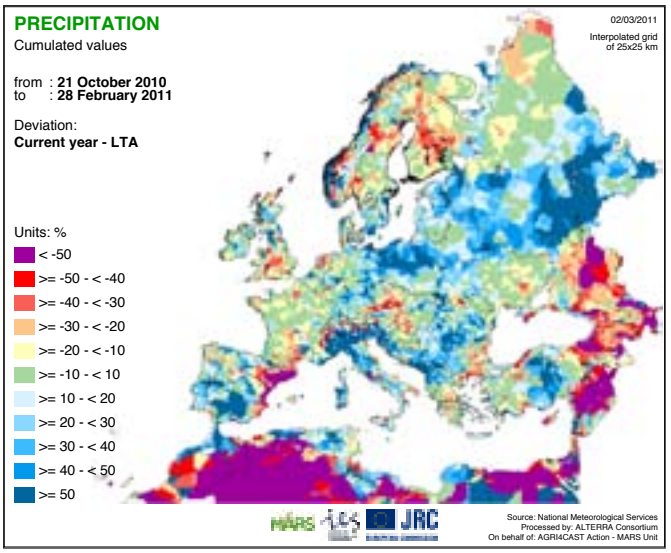





MINIMUM DAILY TEMPERATURE
Lowest values
from : 21 October 2010
to : 28 February 2011
Current year
Units: Degrees Celsius
> 0
<= -30
> -30 - <= -28
> -28 - <= -25
> -25 - <= -20
> -20 - <= -15
> -18 - <= -15
> -15 - <= -13
> -13 - <= -10
> -10 - <= -5
> -5 - <= 0
02/03/2011
Interpolated grid of 25x25 km
Source: National Meteorological Services
Processed by: ALTERRA Consortium
On behalf of: AGRI4CAST Action - MARS Unit


SNOW DEPTH
Highest values
from : 01 February 2011
to : 28 February 2011
Current year
Units: cm
>= 0 - < 1
>= 1 - < 2
>= 2 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 25
>= 25 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50 - < 100
>= 100
02/03/2011
Interpolated grid of 25x25 km
Source: National Meteorological Services
Processed by: ALTERRA Consortium
On behalf of: AGRI4CAST Action - MARS Unit

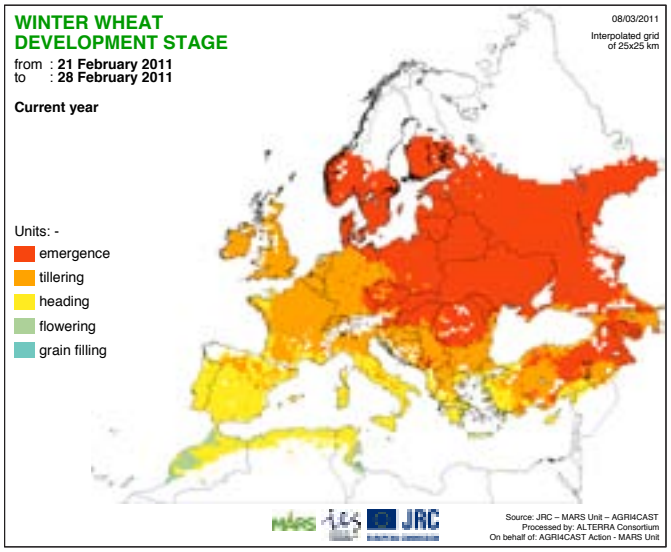

PRECIPITATION
Cumulated values
from : 21 October 2010
to : 28 February 2011
Current year
Units: mm
< 10
>= 10 - < 20
>= 20 - < 50
>= 50 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200 - < 250
>= 250 - < 300
>= 300 - < 400
>= 400 - < 500
>= 500 - < 700
>= 700
02/03/2011
Interpolated grid of 25x25 km
Source: National Meteorological Services
Processed by: ALTERRA Consortium
On behalf of: AGRI4CAST Action - MARS Unit

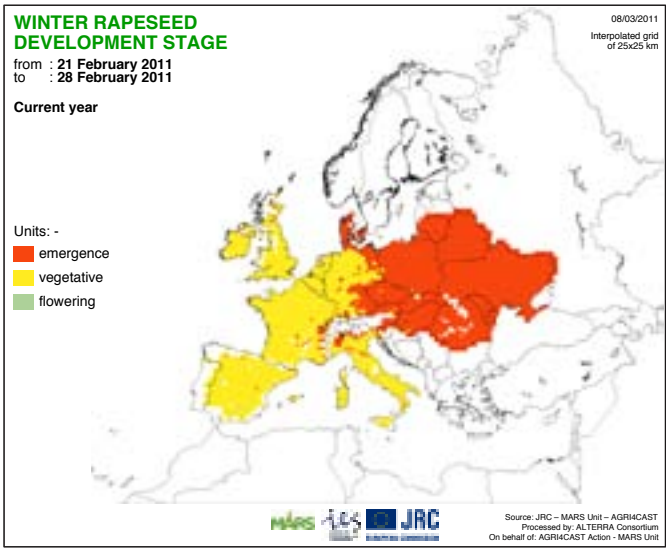

PRECIPITATION
Cumulated values
from : 21 October 2010
to : 28 February 2011
Deviation:
Current year - LTA
Units: %
< -50
>= -50 - < -40
>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50
02/03/2011
Interpolated grid of 25x25 km
Source: National Meteorological Services
Processed by: ALTERRA Consortium
On behalf of: AGRI4CAST Action - MARS Unit

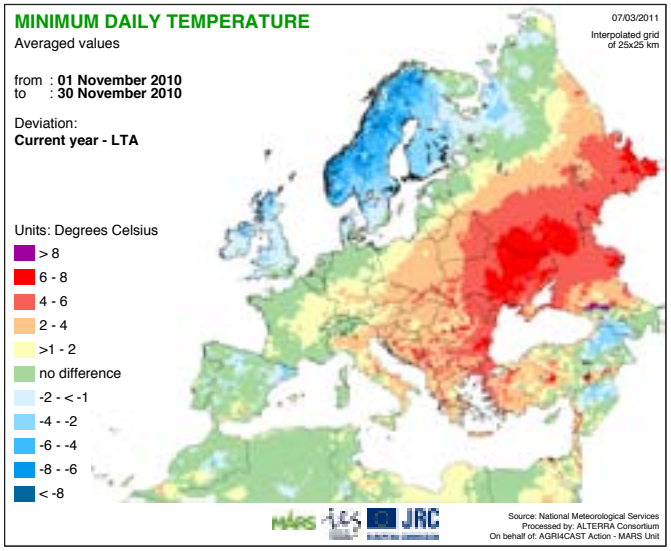
II. Crop Monitoring

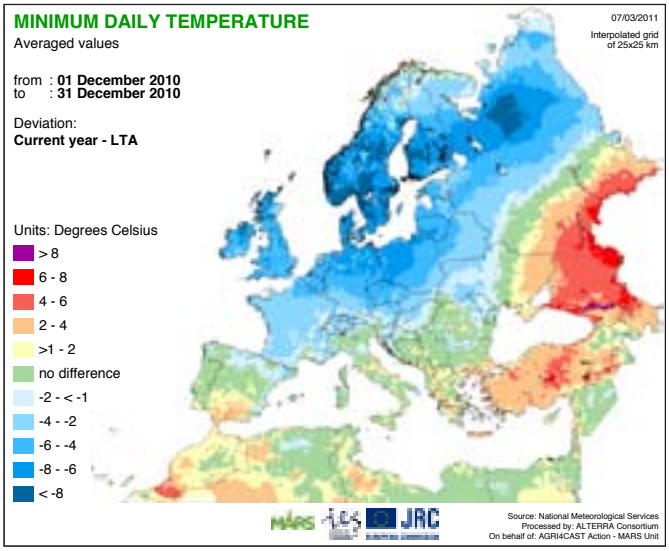
1. Crop atlas maps

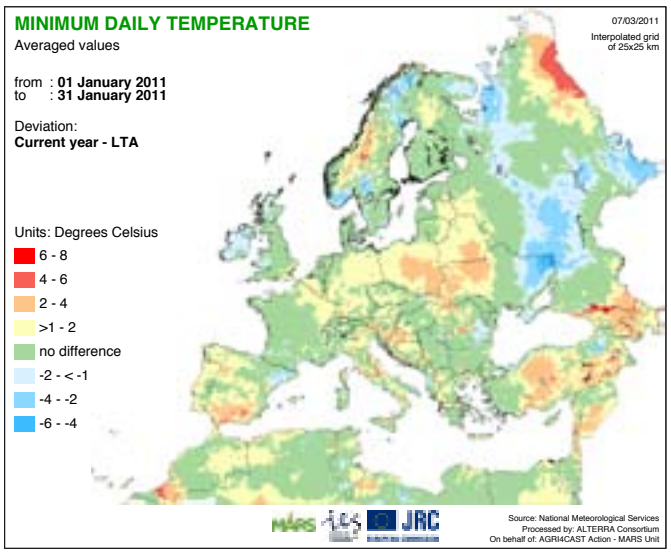
Development stage of winter crops and minimum daily temperature

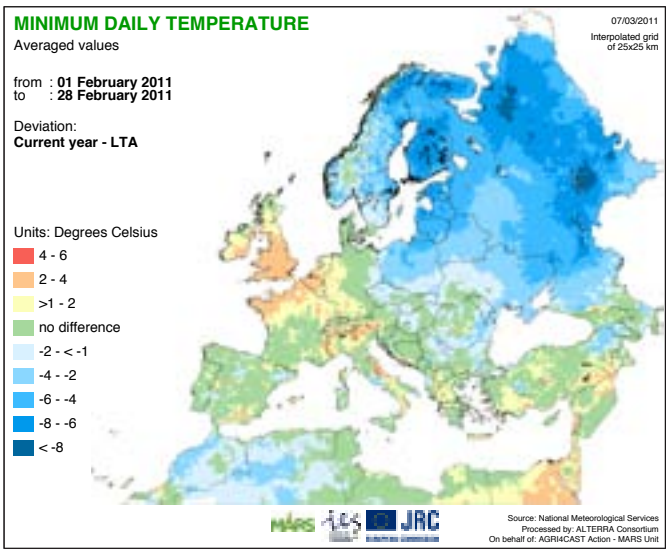




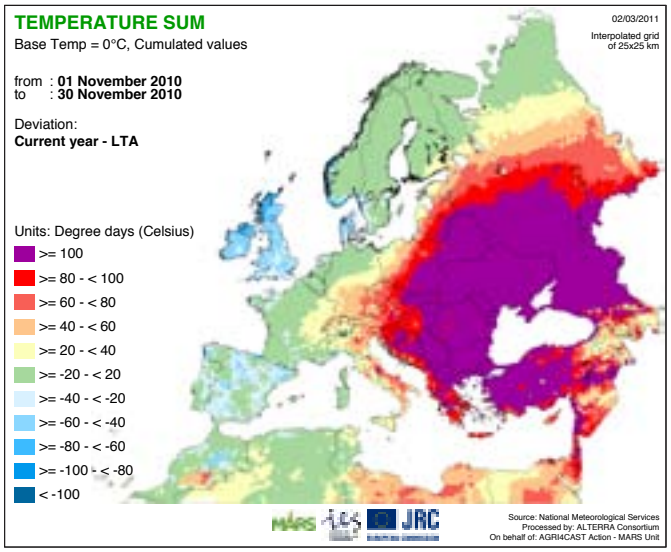


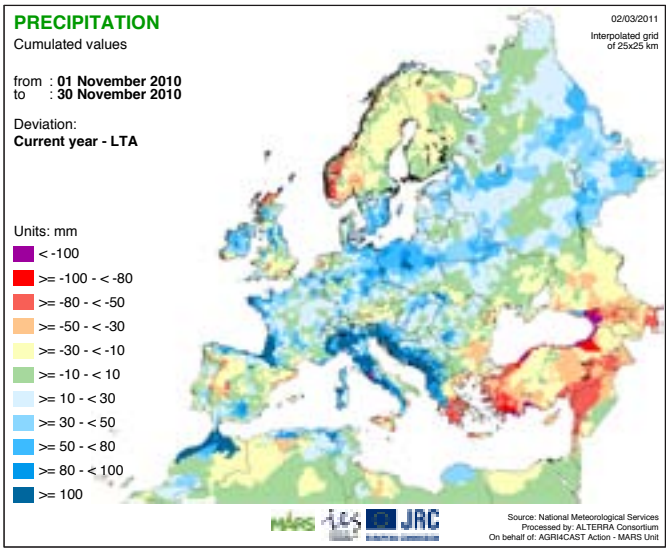


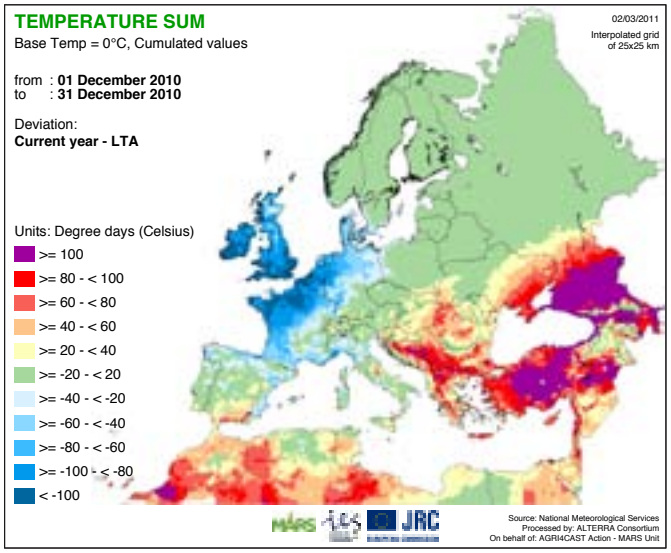


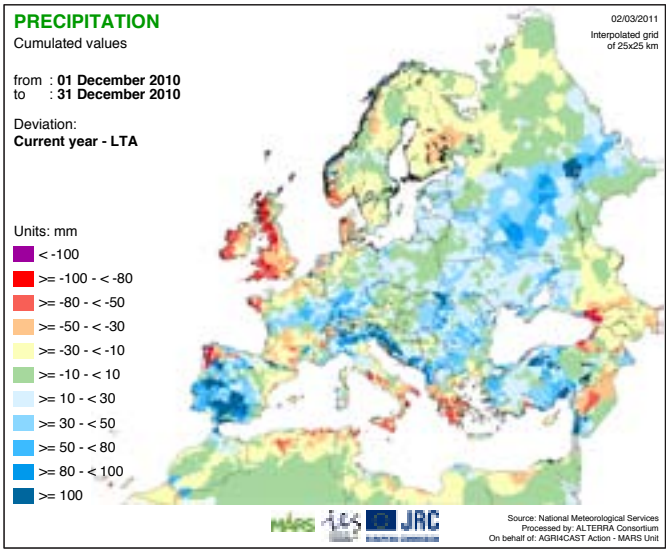


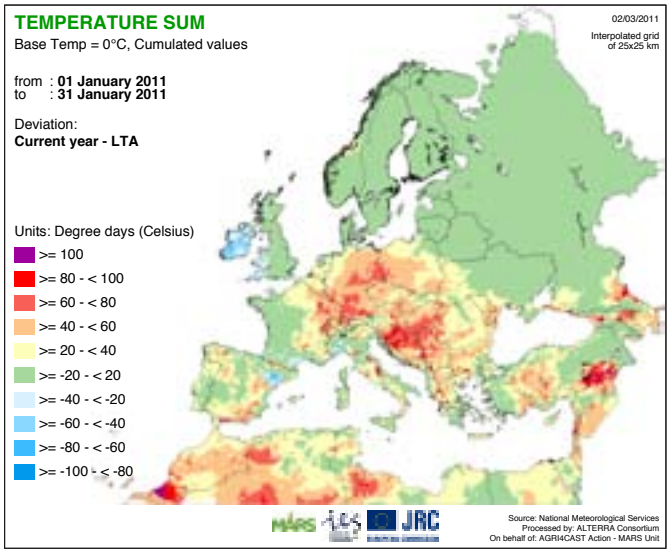
Cumulated temperature and rainfall

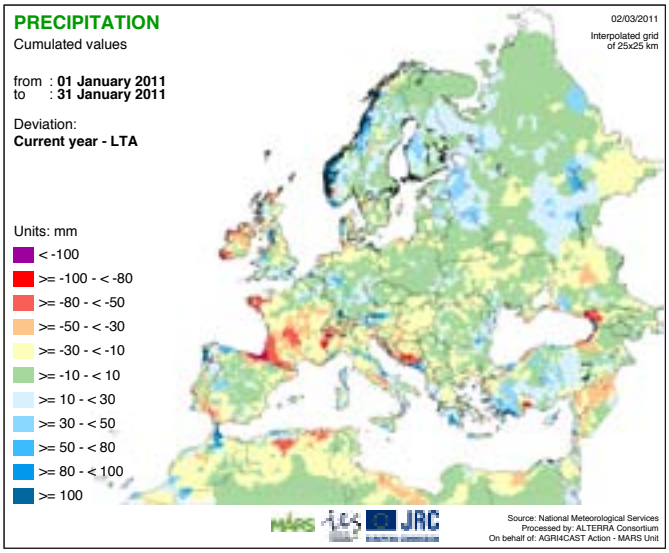


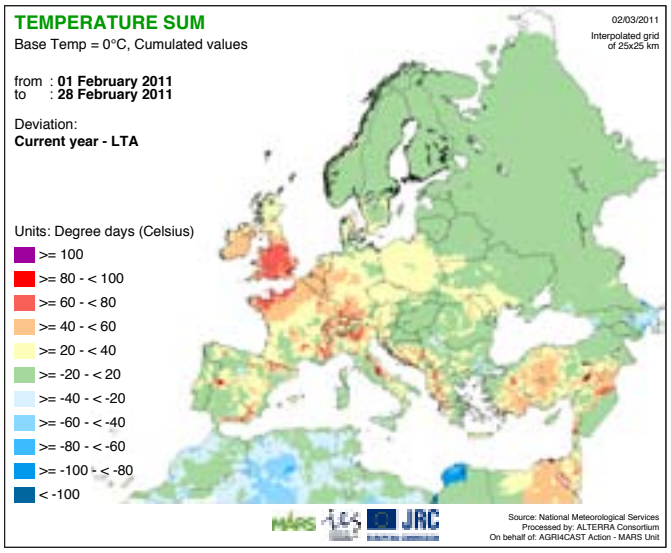


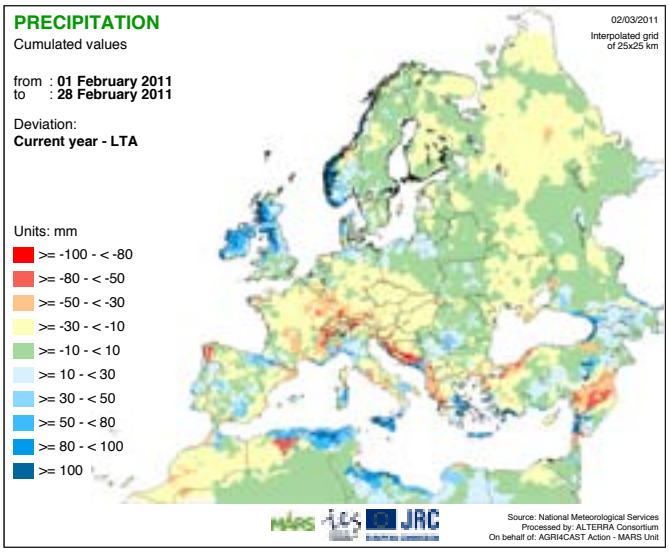




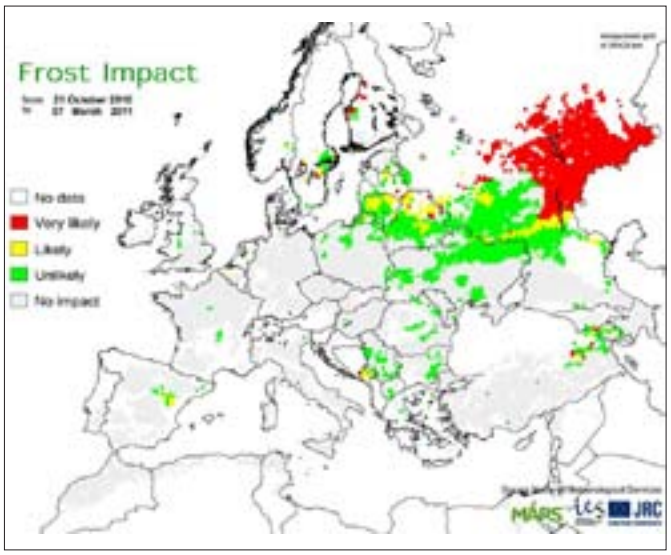


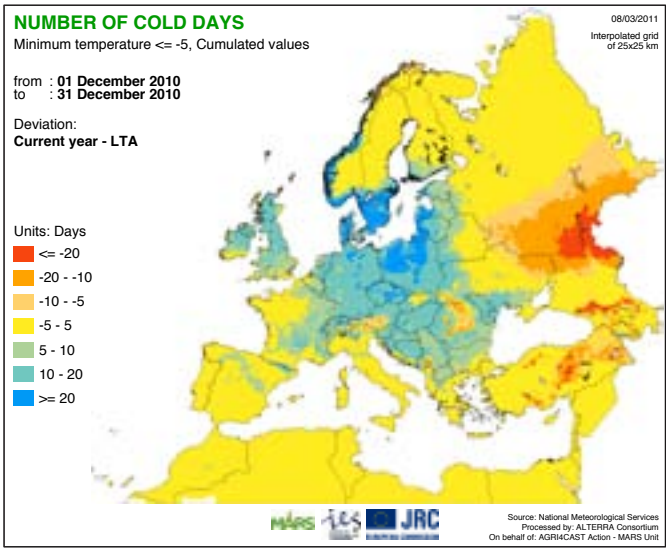


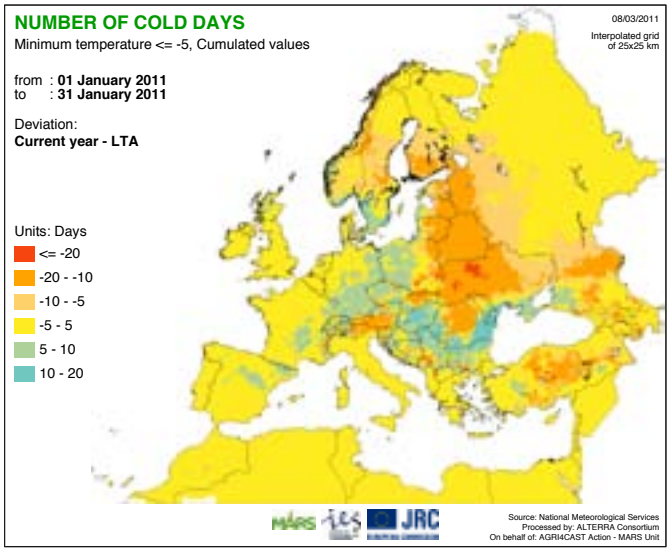


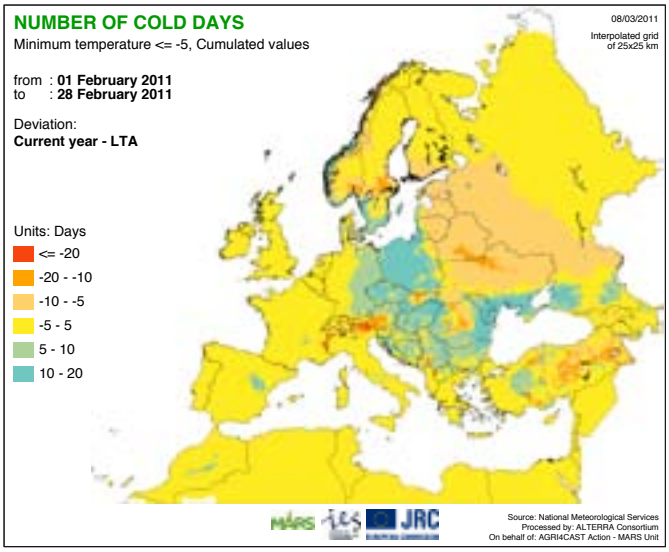


Cold days and frost



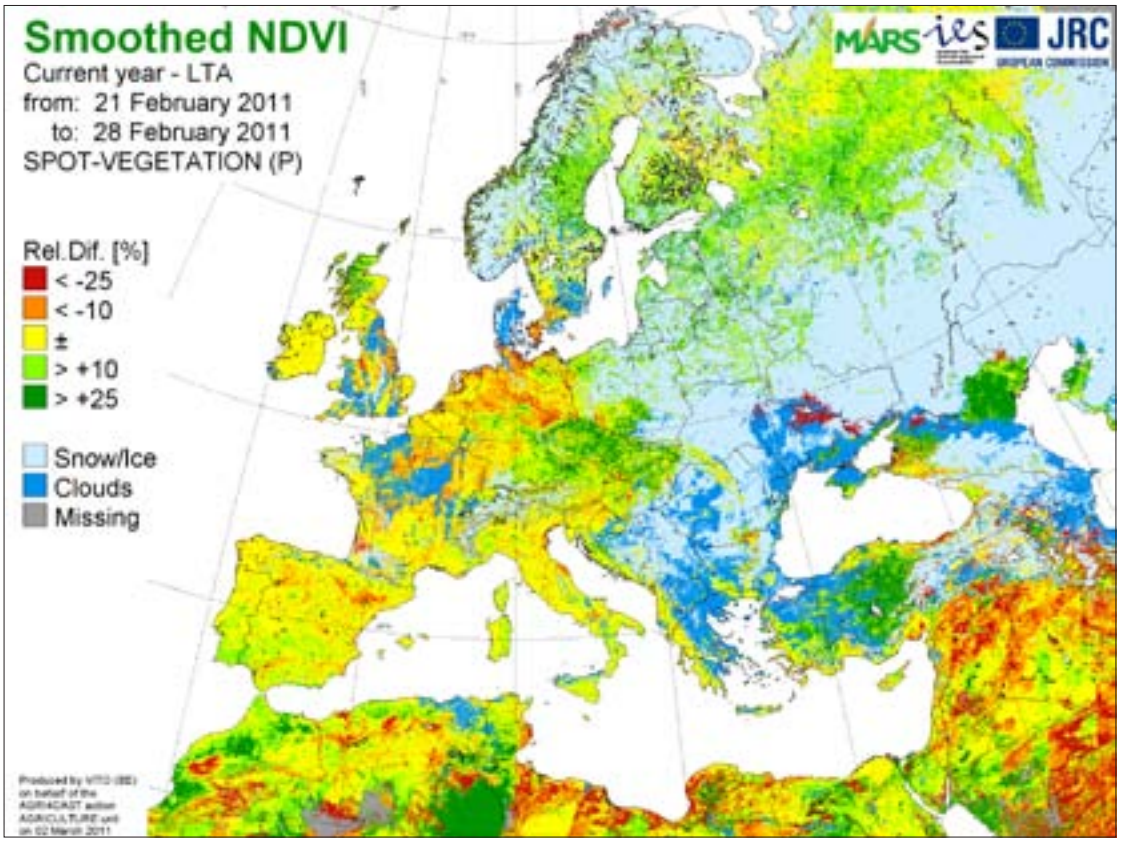






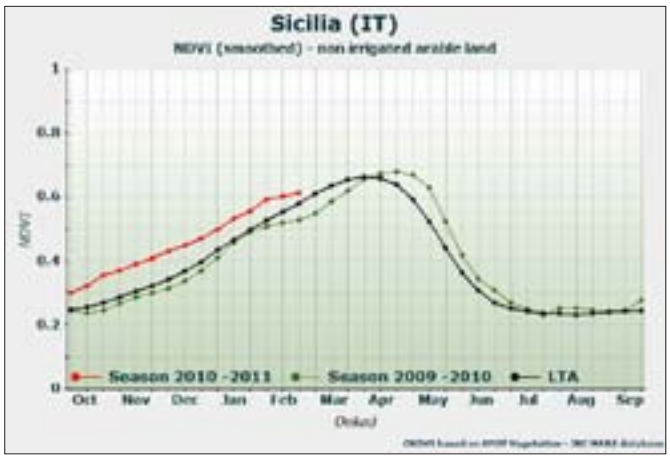
2. Remote sensing – Spot vegetation images analysis

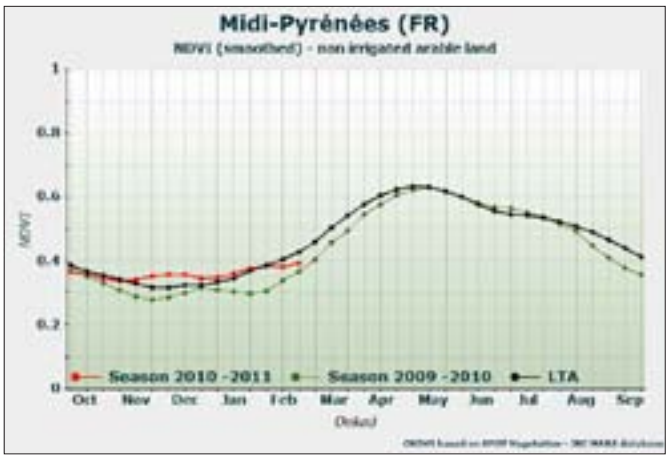
Good to very good vegetation development across the Mediterranean basin; NDVI values below the average in Spain and southern France; good development in the Maghreb region.

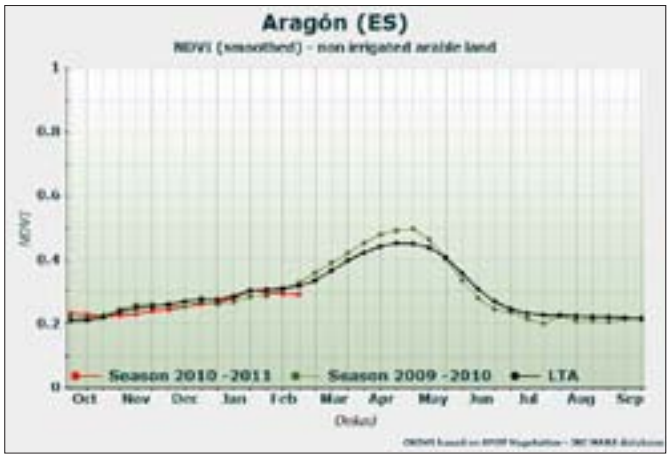


The map displays the Normalised Difference Vegetation Index (NDVI) values at the end of February for the current season against the long-term average (LTA) values for the same period. The difference is expressed in relative terms. In **Spain** the vegetation conditions are below the average. In Andalucía the reduced vegetation coverage is probably related to a change in land use for some arable land, from winter to spring crops, due to the unfavourable sowing conditions in autumn. In Aragón (see NDVI profile) and Cataluña the scarcity of winter precipitation affected the canopy growth. Similar meteorological conditions in southern **France** are responsible for slightly lower than average biomass development. An example is provided by the NDVI profile of Midi-Pyrénées. In central and northern regions the spring growth has not yet started. **Italy** faces, as usual in this period, a split situation. In the main northern agricultural districts the crops are just emerging from winter dormancy while in the main durum wheat regions (Puglia and Sicilia) they have already entered into the stem elongation phase. The NDVI signal is definitely performing better than average. Good yields can be expected for the current season. The NDVI profile of Sicilia is given as an example.

In **Germany** the NDVI map shows a reduction in biomass development. This could be driven by the low winter temperature coupled with cloud-free observations that negatively affect the current year's NDVI signal. The NDVI graph of Sachsen-Anhalt explains the general trend across all the main agricultural regions. In the **United Kingdom** the dry and cold winter cannot have affected the crops thanks to the sufficient snow coverage. The NDVI profile of Essex, influenced by the cloud-free satellite observation, shows that the spring regrowth of vegetation has not yet started. So far this year **Greece** is enjoying good biomass development although the rain rate during winter was below the average. The NDVI graph for Kentriki Makedonia highlights good canopy status for the ongoing season while the winter crop phenological cycle in Thessalia is slightly more advanced. On the southern **Black Sea** coast the mild winter temperatures gave vegetation a boost at the start of the season. The NDVI profile of the Yougoiztochen (BG) region describes the early development of the winter crops. Even better conditions with very advanced stages of development could be observed in the main **Turkish** agricultural regions. The **Maghreb** countries are facing another exceptional year. With NDVI values greatly above the average very good yields for winter crops can be expected. One of the main regions for winter crops is Centre (MA): the related NDVI graph highlights the current season's outstanding performance.

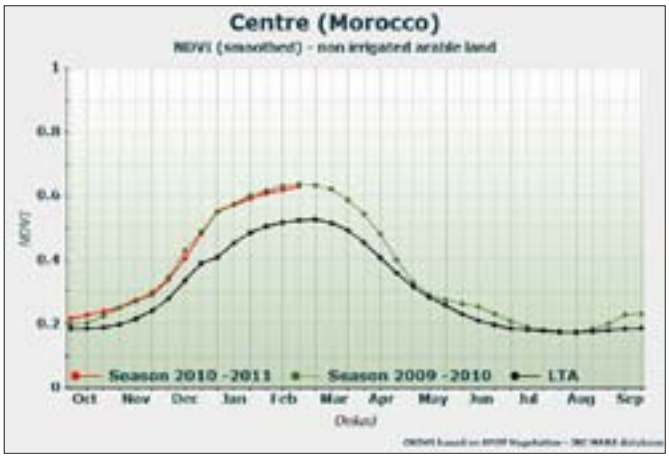

Sicilia (IT)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)

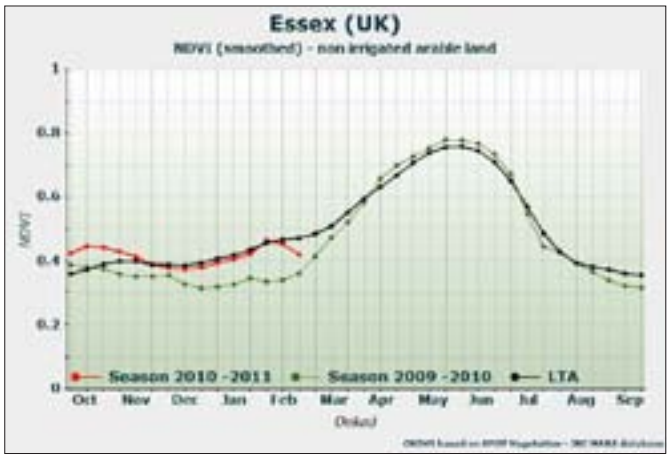

Midi-Pyrénées (FR)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Aragón (ES)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Yugoiztochen (BG)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Kentriki Makedonia (GR)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Centre (Morocco)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Essex (UK)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)


Sachsen-Anhalt (DE)
NDVI (smoothed) - non irrigated arable land
NDVI
1
0.8
0.6
0.4
0.2
0
Season 2010 -2011
Season 2009 -2010
LTA
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
(Dekad)

III. Crop yield forecast in EU-27

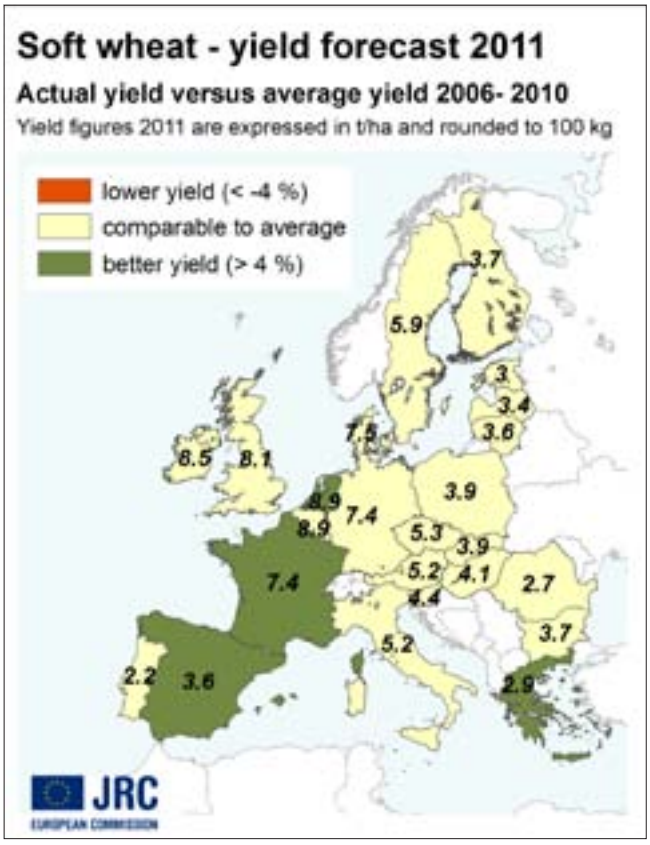
Soft wheat

The frost has had no major impact in Europe on soft wheat. In general, good to satisfactory crop conditions allow a quite positive outlook, reflected in the forecasts that at this stage of the season are mainly based on the trend.

On the areas sown in Europe with soft wheat, consolidated figures are still needed. Therefore, the output figures have to be understood here as a very first proxy.

Nevertheless, the yield forecast in Spain and in the other Mediterranean countries is based on scenario analysis. All these countries will probably achieve good yield performances, bearing in mind that the yield for Portugal is compared to 2010, which was the best harvest ever recorded.

The yield forecast for all other countries is based on trends at this stage.



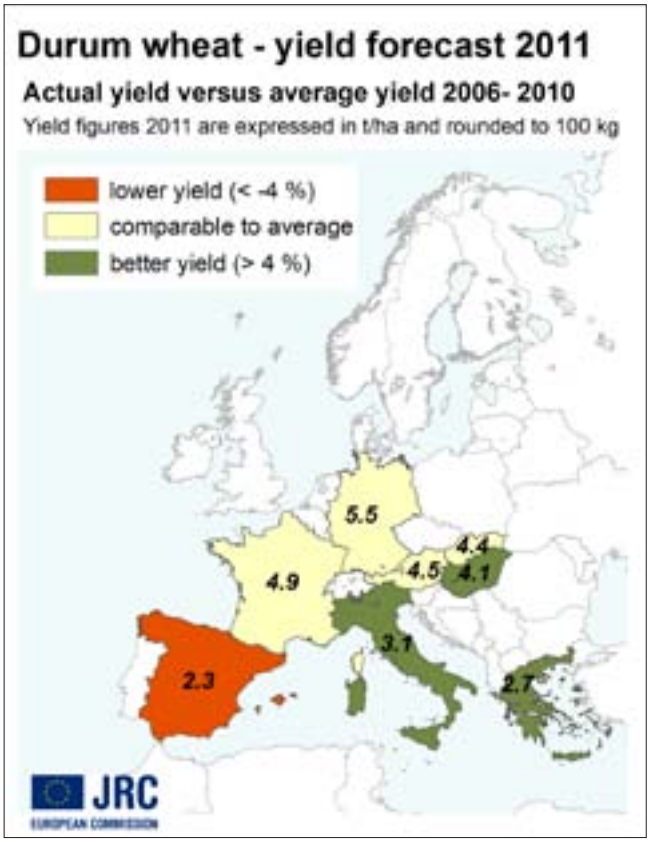
Durum wheat

Reduction at EU-27 level of the expected output, mainly due to a steep reduction in the acreage

Among the main producers a decrease in output is expected compared to the previous crop season, despite a relatively better yield forecast compared to last year's figures at this moment. Only Spain (+22%) shows an increase compared to last year, but the forecast output in Spain is nevertheless lower than the last five years' average output. In Italy, the steep reduction in acreage compared both to last year and the average of the last five years explains the drop in expected output.

All the other producers will face a reduction in their output — which will likely be lower than last year's but still higher than the last five years' average — due also to a reduction in the acreage, except in Greece, where output will be lower even compared to the last five years' average.

The yield forecasts for Spain, Greece and Italy are based on scenario analysis; for the other countries the forecast is based on the trend.



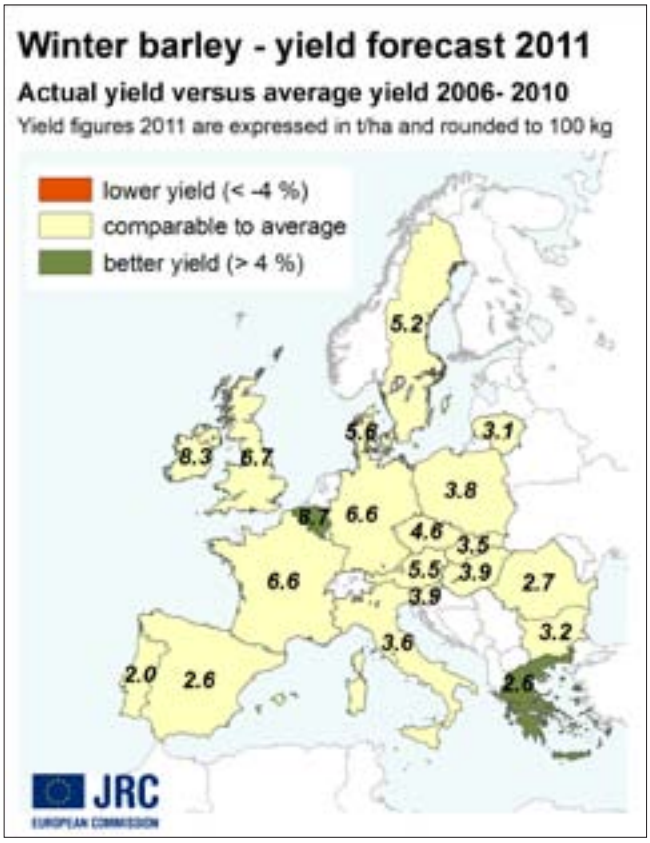
Winter barley

Expected decrease in winter barley output due to acreage reduction

Among the seven main producers of winter barley, DE, FR and the UK will probably record a lower output than both last year and the average of the last five years. All these countries cut their acreage. The acreage was also reduced in PL and RO (20%), which will likely face a reduction of their output compared to last year's harvest (but the figures are still higher than the last five years' average). In Spain and Italy, on the contrary, output will likely increase thanks to the larger acreage but also (mostly in the case of Spain) to the good yield forecast (+15% compared to 2010).

Among the other producers, the output figures for HU and BE are very promising due to both the increase in acreage (+16% in BE) and the yield forecast. In this group, except for GR, IE and SI, the yield forecast for the current season is better than last year.

The yield forecasts for Spain, Greece, Portugal and Belgium are based on scenario analysis; for the other countries the forecast is based on the trend.



Rapeseed

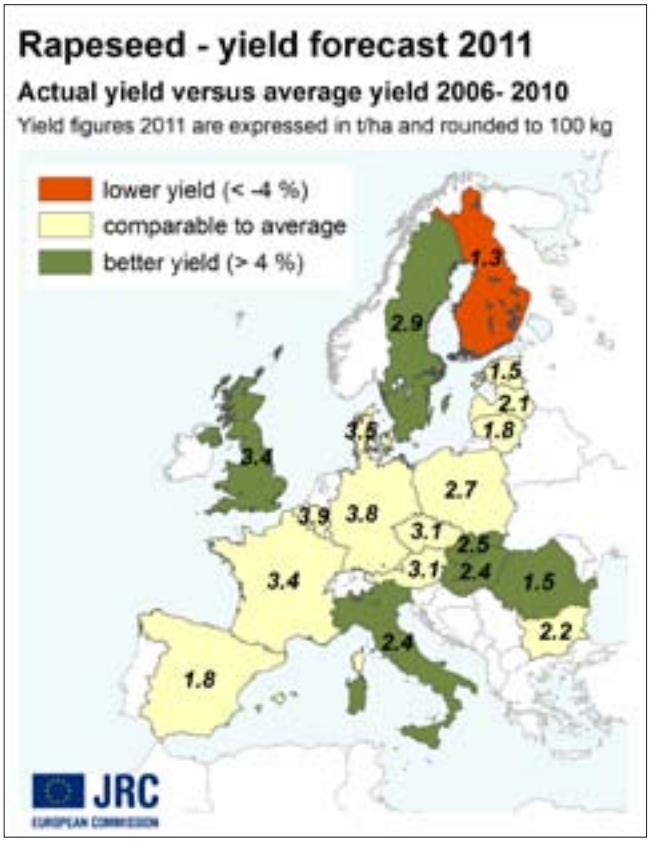
Increased output expected at EU-27 level due to average yield forecast and greater acreage

Among the five main producers in Europe (DE, FR, PL, UK and CZ), simulated output will likely be higher compared to both last year's figures and to the average of the last five years, except in the UK. The reduction in the UK is the result of the lower yield forecast for the current season. The acreage is generally higher compared to the previous crop season, except in the Czech Republic (-8%), but without a big impact on output in view of the very promising yield performance.

In HU, DK, SK, SE and LV output will probably be higher than last year's figures (around +15% to +25%) and the last five years' average (+18% to 35%). All these countries increased their acreage. The simulated yields for these countries are higher than the last crop season, except in Latvia.

Finally, Lithuania could face a slight decrease in its output due to the reduction of the area sown. A reduction is expected for Bulgaria but the acreage has still to be confirmed.

All forecasts except for Belgium, Spain and the United Kingdom (scenario analysis) use trends or averages at this stage in the season.



IV. Crop yield forecast at country level (EU-27) *

FRANCE – Quite favourable conditions around the sowing period; average winter crop growth with modest acceleration end-February in the northern part of the country

FRANCE					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	7,2	**7,4**	7,1	+2,5	+4,2
durum wheat	5,0	**4,9**	4,8	-1,2	+2,3
winter barley	6,5	**6,6**	6,5	+1,4	+2,0
rapeseed	3,3	**3,4**	3,2	+2,9	+3,8

Autumn was quite favourable in all regions of France for winter crop **sowing**, particularly in October, when there was appropriate rainfall supply. November was particularly wet and, depending on the region, the cumulated rainfall is above the upper limit of the range of variation from Bretagne and Normandie to Picardie and Nord-Pas-de-Calais. In the regions to the south the water supply was more average. This could lead to sowing problems for late varieties of winter crops, given that the conditions in December were definitely unfavourable. In contrast, in the Mediterranean region, conditions were generally favourable for sowing durum wheat.

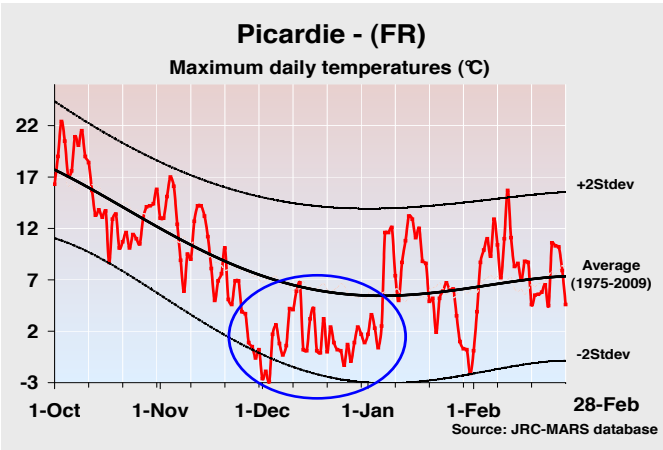
During the winter, **December** was very cold compared to the long-term average, with a significant variation in a very short period of time. In Picardie — an important area for soft wheat — the average temperature was 7 degrees lower than the seasonal average (-4 °C), with temperatures below the lower limit of the seasonal range of variation for a few days.

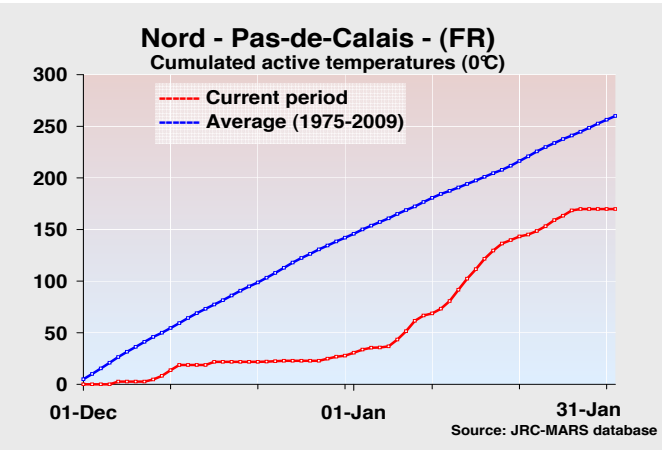
In the important region of Bassin Parisien, the period running from 1 December to 10 January was the second coldest since 1975.

In the south, in Languedoc-Roussillon for example, as well as in Midi-Pyrénées, December was milder but a wide variation could be observed: +10 °C on 23 Dec. to -6.5 °C on 27 Dec. Temperatures became seasonal from mid-January to end-February, with a considerable drop in temperatures during the first ten days of February. In terms of water supply, continuous rainfall occurred in January and February but with different intensities from north to south.

In terms of crop development, the cold period that occurred in December should not have any impact since the crops were at the dormancy stage. The climatic water balance was positive at the end of February, with a less favourable picture in the southern part of the country, but this will probably be compensated by the beneficial rainfall forecast for the next few days. Due to favourable conditions in terms of temperatures in the last 20 days of February, a modest acceleration is displayed by the models, mostly in the northern part of the country. Nevertheless, in practically all regions, the cumulated active temperature is still below the average since the deficit accumulated during December was not totally recovered.

At this early stage — wheat, rapeseed and barley are in the vegetative state — the yield forecast is based on trends.





GERMANY – Early start of winter — partially underdeveloped crop status

GERMANY					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	7,2	**7,4**	7,5	+2,5	-0,6
durum wheat	5,4	**5,5**	5,5	+2,7	+0,3
winter barley	6,7	**6,6**	6,5	-0,7	+2,1
rapeseed	3,9	**3,8**	3,8	-2,5	-0,5

Winter started around the end of November in Germany with abundant snowfall and low temperatures. The first sharp frosts occurred around the first of December, interrupting crop growth at an earlier stage than usual. As a consequence crops started winter dormancy in parts of Germany with less accumulated biomass than on average and risk having an underdeveloped root system with possible negative consequences in the event of spring droughts. This, in combination with the difficult sowing conditions last

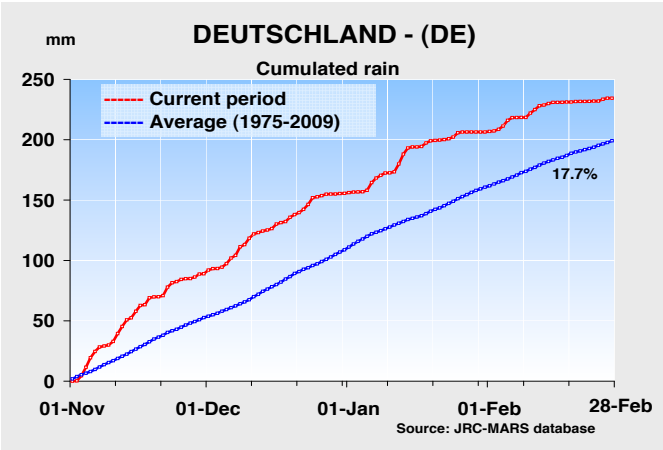
* Source EUROSTAT Eurobase and EES: last update 2011-02-15

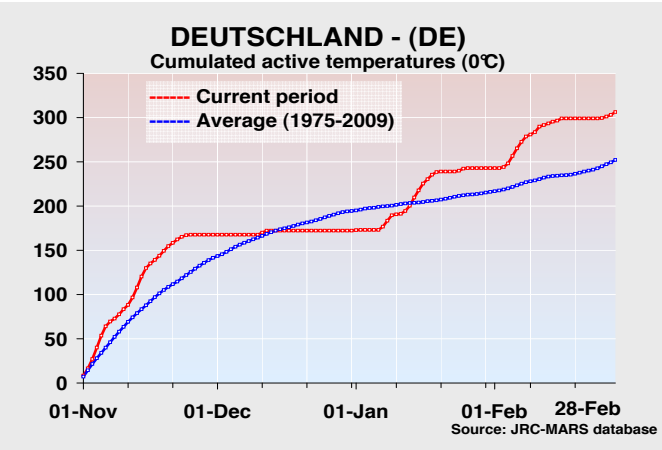
autumn due to over-wet soils (especially the heavy soils in Niedersachsen), led to sub-optimal starting conditions for the regrowth of winter crops. Tailored N and S fertilisation will be very important to help the crops.

Temperatures in December were below the LTA; this holds for the average temperature as well as for minimum and maximum temperatures (with the exception of the south). As a consequence no temperature sum accumulation took place in December and until 7/8 January, when temperatures rose again, giving way to a rather mild period until 20 January with cumulated temperatures well above the average.

In general January was milder than average. February saw milder conditions in the south whereas in the north and the east it was colder than usual. For the **water supply** Germany as a whole shows a cumulated surplus of rain of almost 20% since November, mostly accumulated throughout November and December. January and February have not deviated much from the long-term average. Nevertheless, soils should be saturated, potentially creating problems in the heavy soils (e.g. Niedersachsen) for the coming field works.

The current crop yield forecasts are based on the trend.





THE UNITED KINGDOM – Third consecutive cold winter with below-average precipitation, but crop potential is maintained

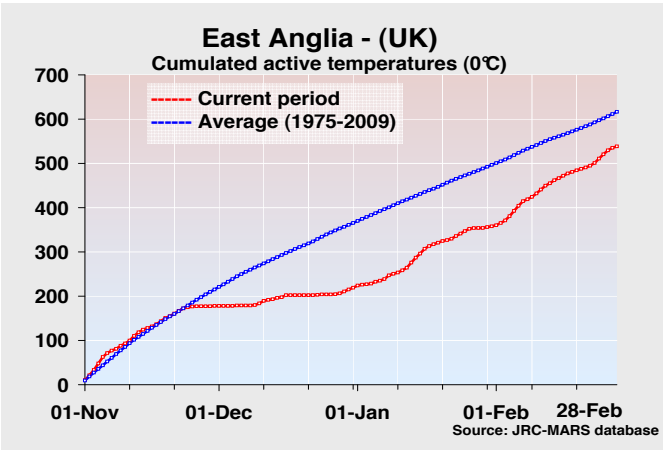
UNITED KINGDOM					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	8,1	**8,1**	7,9	+0,3	+2,3
winter barley	6,7	**6,7**	6,5	-0,2	+2,6
rapeseed	3,5	**3,4**	3,2	-1,9	+5,7

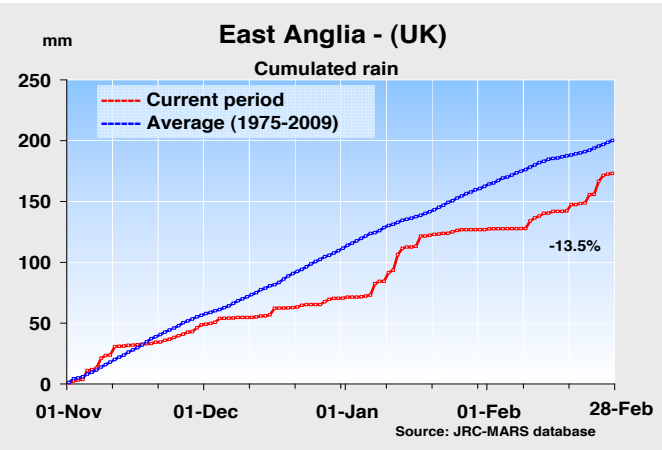
The United Kingdom experienced exceptional cold spells in December, which was the iciest December in our database since 1975, with an average value slightly below 0 degree. This deviates widely from the long-term average of 4 to 5 degrees depending on the region. The cold weather and frost (down to -16 degrees in Berkshire) was accompanied by snow cover protecting the crops. Our frost risk analysis showed no affected areas across the agricultural production areas in the UK. January brought back seasonal temperatures and there was no more snow cover in the main agricultural regions.

February can be described as milder than usual, with average temperatures around 2 degrees above the LTA and catching-up cumulated temperature values.

The total water supply since November is below the average but by a modest margin and at this stage in the season no negative impact on crops is expected. The deficit is mostly in the range between 30 and 50 mm, equivalent to 10 to 30%. The deficit is worse on the western side of the island outside the main cropped areas.

The crop forecasts at this moment in the season are based on trends; crop regrowth has not yet started.





ITALY – Abundant rainfall in southern regions guarantees a good water supply for the coming months.

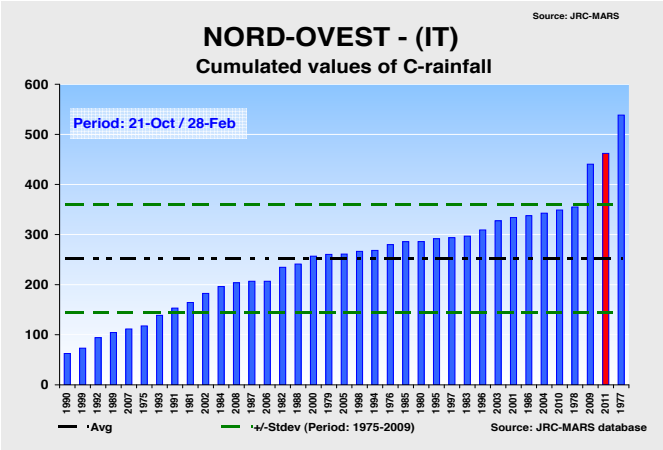
ITALY					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	5,2	**5,2**	5,2	+0,3	-0,2
durum wheat	3,0	**3,1**	3,0	+3,6	+6,0
winter barley	3,6	**3,6**	3,6	+0,5	-0,1
rapeseed	2,5	**2,4**	2,1	-3,9	+13,4

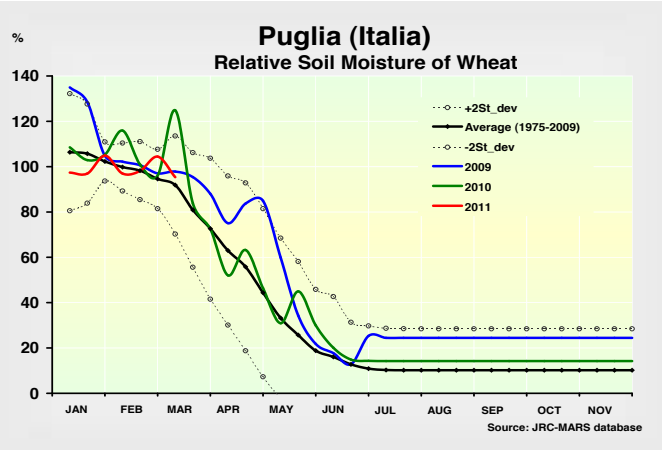
Thermal sums during the last months of 2010 and in January were close to the average in a large part of the country, with the exception of southern Piemonte and Liguria, where colder than usual conditions were observed. In contrast, in western Lombardia, in Veneto and along the Apennines a surplus of more than 30% GDD with respect to the LTA was observed. During the first 20 days of February temperatures rose significantly also in the north-west, leading to good conditions for the vegetative restart of winter crops. The influx of cold air which occurred at the end of February may have slowed down the start of the season. Extremely wet conditions marked the second part of autumn, especially in northern regions (around 250 mm of rainfall cumulated between 1 November and 31 December in Piemonte) and along the Tyrrhenian coast and in Sardegna. In contrast, the lower part of the Po plain, and the Adriatic coast experienced less humid conditions.

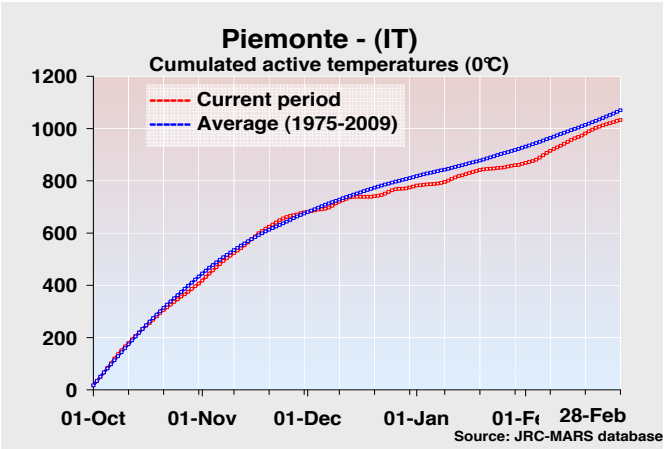
If compared to the average the southern part of the country received more water than usual, with the exception of Sicilia, which experienced a long dry period in December-January.

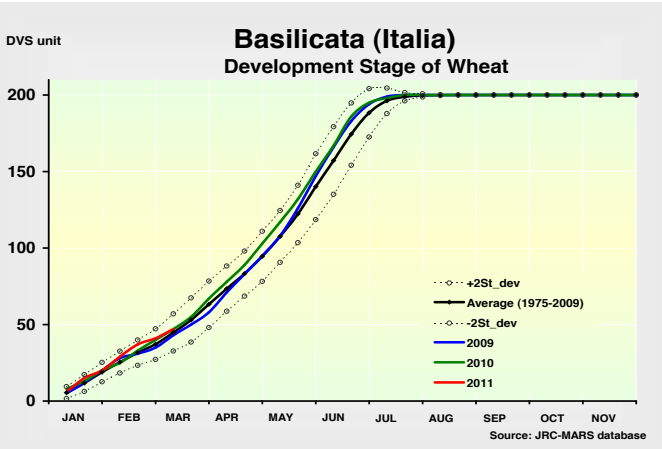
However, given the presence of heavy soils in this area no repercussion should be expected. Moreover, given that the climatic conditions of the other main producer areas have been optimal a good yield potential can be expected for durum wheat. In fact the rainfall which has occurred since the beginning of the year has replenished completely the water reservoir, guaranteeing optimal soil moisture conditions for the forthcoming vegetative period. Soft wheat and barley are still ending the tillering in the northern regions while in central and southern Italy, with the exception of the Marche, they have already entered into the stem elongation phase. The canopy development of winter cereals in that region seems to be reduced, probably as a consequence of the low irradiance levels at the vegetative restart.

Some delay in development due to a few cold days can be observed for rapeseed in Piemonte where the crop hasn't completed the emergence stage, although there is still time to recover, so the final yield potential should not be compromised.









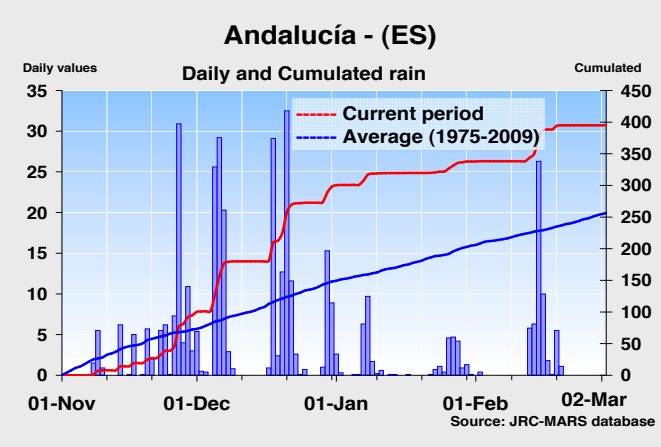
SPAIN – Rainfall above average in the south of Spain and drought in north-east regions; temperatures close to the seasonal values

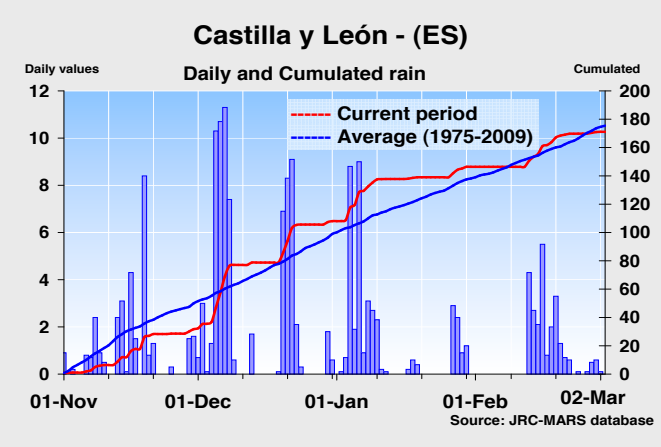
SPAIN					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,4	**3,6**	3,3	+5,7	+7,6
durum wheat	2	**2,3**	2,5	+18,8	-6,4
winter barley	2,3	**2,6**	2,6	+15,5	+1,5
rapeseed	1,8	**1,8**	1,7	-3,2	+2,6

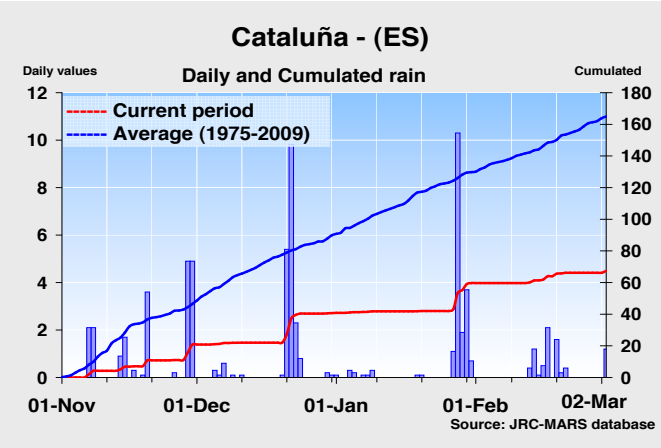
The rainfall observed in southern regions of the country (Castilla-La Mancha and Andalucía) places the current season among the ten wettest seasons of the last 35 years — cumulated rainfalls are, respectively, 44.7% and 55.1% higher than the long-term average. Heavy rains in Andalucía between November and January hampered the late sowing of winter cereals in the region, with a possible shift of crop acreage from winter to spring cereals. The crop development stage is slightly ahead of the long-term average due to higher temperature accumulation.

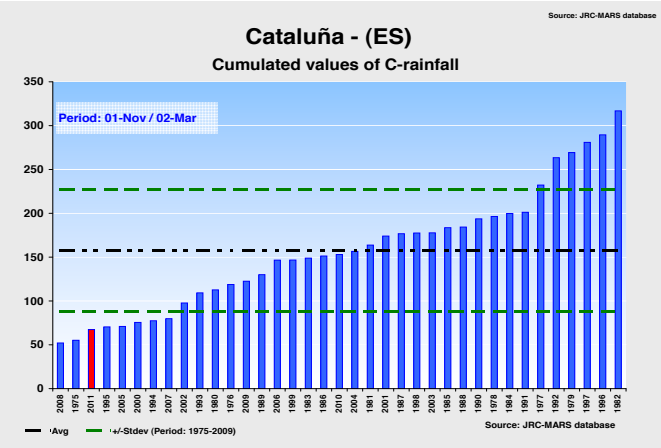
After a humid period between December and January, rainfall accumulation in Castilla y Leon remains near the seasonal values. The sum of temperatures is close to the average year; a mild period in the first 20 days of January was followed by ten days with cold temperatures around 0 °C. The development stage of crops is close to the seasonal values.

The north-east of Spain is experiencing one of the driest seasons of the last four decades with rainfalls accumulated during winter 65% lower than the period 1975-2010 in Cataluña and 36% lower in Aragón, which results in adverse conditions for the development of winter cereals in the Ebro basin.









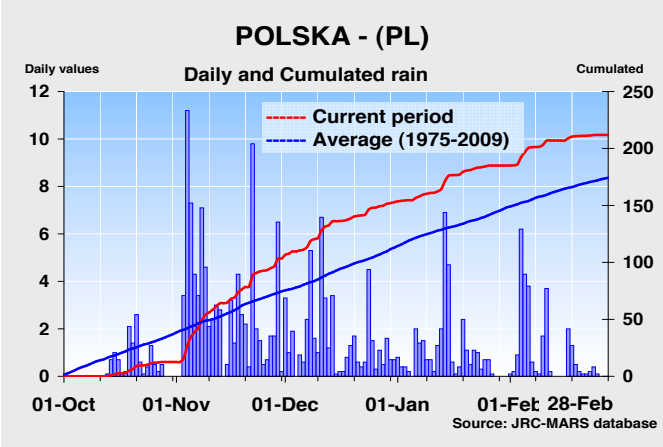
POLAND – Cold and snowy December followed by mild January and cold last week of February

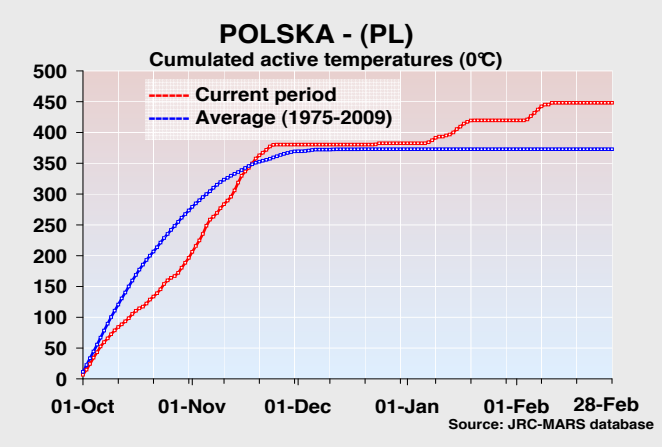
POLAND					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,9	**3,9**	3,9	-1,7	+0,0
winter barley	3,9	**3,8**	3,8	-1,9	+0,0
rapeseed	2,7	**2,7**	2,8	-0,5	-2,3

October was dry and colder than usual all over the country. In November mild temperatures persisted, raising the cumulated active values (Tbase = 0 °C) above the long-term average, mainly in eastern and south-eastern parts of the country. Around 1 December a sudden drop in temperatures (both minimum and maximum) below the normal range of variation was recorded across Poland. Cold weather conditions persisted almost all month; the average minimum temperature in the west and north-west of Poland was at least 6 °C lower than usual and in the south-east 2 °C lower. January was mild, with average temperatures above the seasonal range. In the last ten days of February a sharp frost returned, even harsher than in December, especially in eastern Poland.

Since October total amounts of precipitation exceeded the seasonal average by 21%. November started with heavy rainfalls, which were persistent all month. In some areas from centre to north, a rain surplus of at least 50 mm was recorded. In December heavy snowfalls occurred. Both months influenced the total precipitation sum over the whole period. In January and February precipitation was in the average range.

Winter dormancy started with full water supplies, but early and severe frosts shortened the autumn development of winter crops (plants went into winter dormancy) as compared with last year and the average season. During the long mild spell in January/February variations in daily temperatures (below and above 0 °C) may have caused local snow melting and ice cover in the fields. The current yield forecasts are based on the trend.





BENELUX

BELGIUM – Quite good sowing conditions during the autumn; average winter crop growth

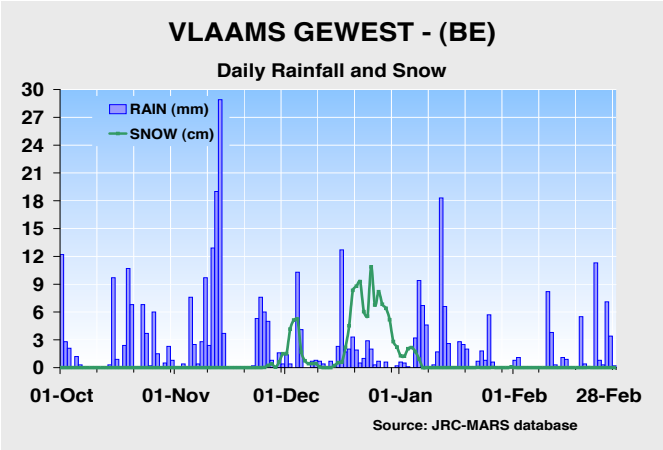
BELGIUM					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	9,4	**8,9**	8,7	-4,7	+2,7
winter barley	8,2	**8,7**	8,2	+4,9	+6,0
rapeseed	4,5	**3,9**	4	-13,3	-1,5

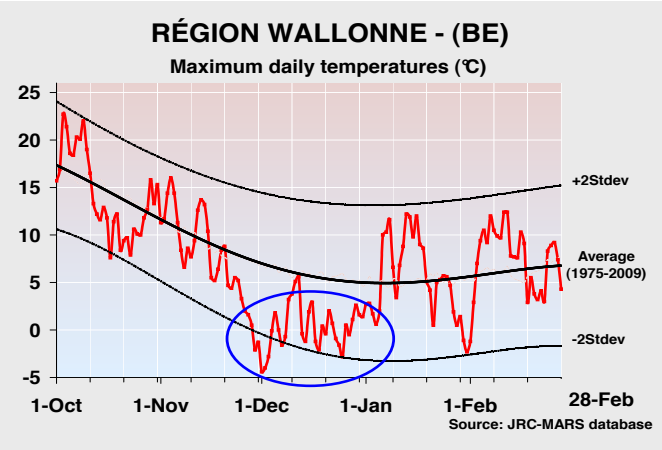
Sowing conditions during the autumn were quite good, particularly in the southern part of the country, where conditions for working in the fields were more favourable than in the north: water supply was average, with rainfall well distributed from October to November. In mid-November heavy rainfall occurred in many places, making access to the fields difficult. Some field work has been definitively postponed to early spring given the significant snow period and very low temperatures from December to early January.

From mid-January onwards temperatures fluctuated within the seasonal range of variation but during the first ten days of February very low temperatures were recorded again.

This led to a deficit in terms of cumulated active temperature at the end of February in all provinces of the country.

Furthermore, in the large winter crop producing provinces, a deficit in cumulated rain is observed (mainly in Hainaut and Brabant, with a deficit of -10 to -14% compared to the long-term average). At this early stage of the season, only average growth is simulated by the models.





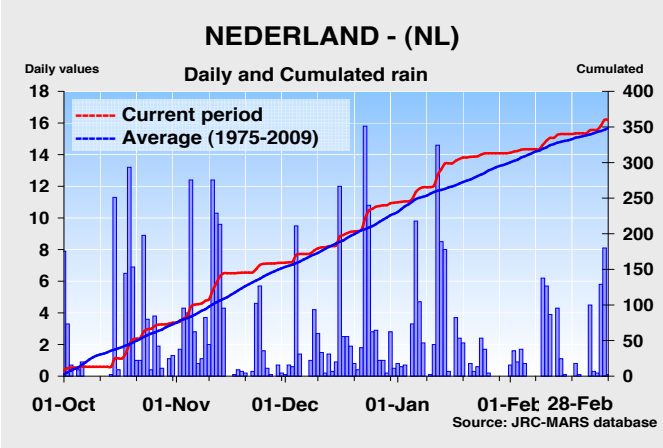
THE NETHERLANDS – No particular difficulties for sowing; average growth despite a very cold December

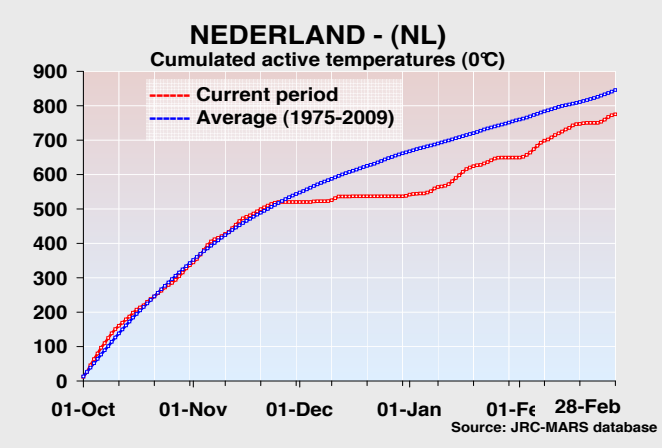
THE NETHERLANDS					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	8,9	**8,9**	8,5	+0,1	+4,7

Autumn in the Netherlands saw a positive water supply. The temperatures in October and November were seasonal and there were no particular difficulties for sowing. In contrast, from end-November to 10 January, heavy snowfall was recorded along with a significant drop in temperatures. The cumulated maximum temperature from the middle third of December to 10 January is below the lower limit of the normal range of variation. From 10 January onward, the temperatures reached normal values. At the end of February, the climatic water balance was slightly above the long-term average but the cumulated active temperature is still below.

Winter soft wheat could suffer from this general weather picture. Nevertheless, at this very early stage of the season, the model's output indicates average growth for soft wheat.

Trends were used to produce the yield forecast.

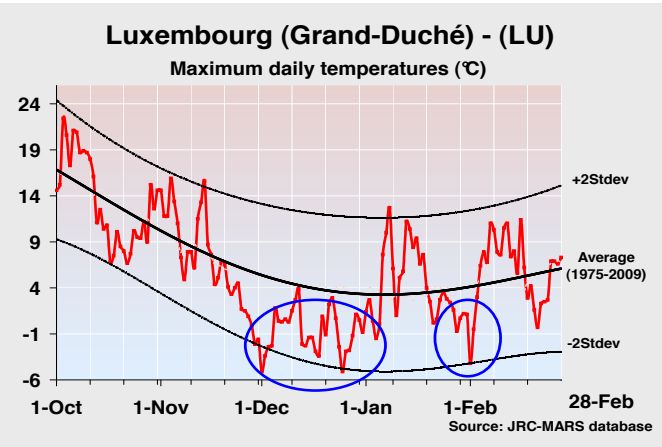




LUXEMBOURG – Very cold December; mild weather conditions in February; positive soft wheat growth at the end of February

LUXEMBOURG					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	6,0	**6,4**	6,2	+6,6	+3,2

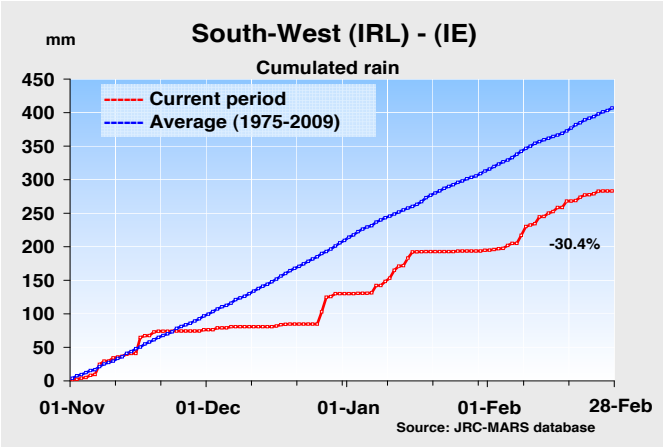
Autumn was notable for average water supply with favourable time windows for sowing. Abundant snowfall occurred from December to the first ten days of January. During this period temperatures were very cold. Fortunately these conditions didn't hamper the soft wheat development, which was favourably affected even by the relatively high temperatures during the last 20 days of February.



North Europe

IRELAND – Cold spells in December and January; normal crop potential

IRELAND					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	8,5	**8,5**	8,7	+1,0	-1,2
winter barley	8,6	**8,3**	8,2	-3,3	+1,2



This year's winter was rather cold in Ireland; December was the coldest month on record, as in the United Kingdom, with frost spells around -8 °C at the beginning and end of December in southern and eastern Ireland. January continued to be cold whereas February was milder, but temperature sums are still well below the average.

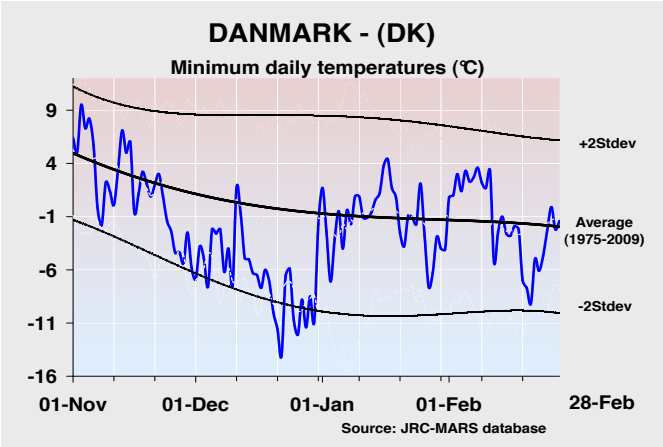
The rain supply in the last four months is balanced, showing a slight surplus for south-east Ireland. A more marked deficit of 30% compared to the long-term average can be found in south-west Ireland.

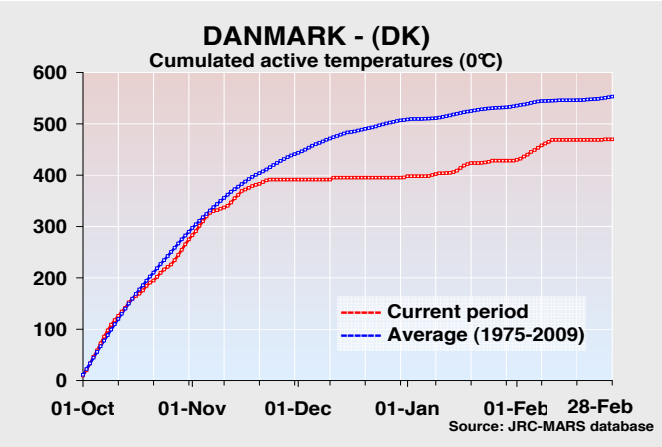
DENMARK – Cold December translates into lower accumulated biomass before dormancy.

DENMARK					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	6,6	**7,5**	7,2	+13,5	+4,0
winter barley	5,5	**5,6**	5,7	+3,2	-1,0
rapeseed	3,5	**3,5**	3,6	+1,3	-1,5

Although October started drier than usual, considerable rain fell between mid-October and December, shifting the cumulated rain curve above the average until January, at which point the curves followed the same path. Like many parts of north-western Europe, the month of December was colder than usual in Denmark, with temperature drops two standard deviations below the long-term average by the end of the month. However, minimal damage to the crops is expected thanks to abundant snowfall during this period.

A similar drop in temperatures was observed in the third week of February, which was also accompanied by a significant snow blanket protecting the crops throughout the country (with particularly deep snow cover of over 20 cm in the north-west of Midtjylland and west of Nordjylland). Overall, the consequences of colder temperatures for the crop are reflected in a cumulated active temperature curve which is significantly lower than the average, meaning that winter crops entered dormancy with less biomass than usual. Although this may have some consequences for proper regrowth during spring if more sub-optimal conditions are encountered, at this early stage it is premature to draw other conclusions for yield forecasting other than by looking at the trend over previous years.

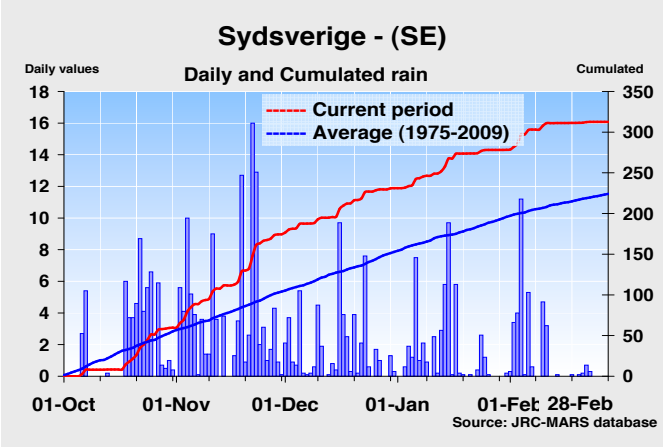




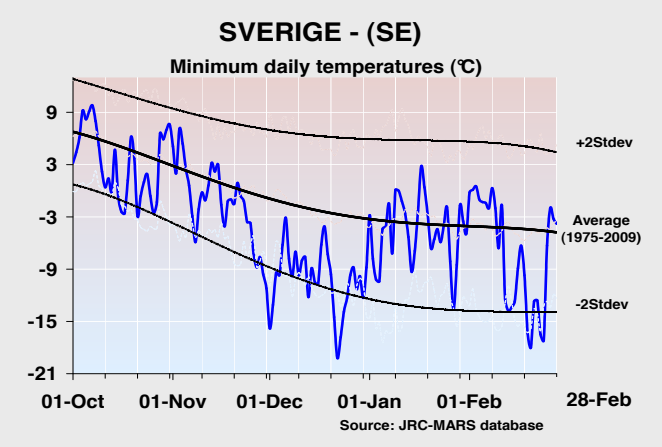
SWEDEN – Uneasy start for winter crops because of cold and wet conditions

SWEDEN					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	5,4	**5,9**	5,9	+10,1	+1,3
winter barley	4,6	**5,2**	5,2	+12,3	+0,6
rapeseed	2,6	**2,9**	2,7	+12,5	+6,7

The period from mid-October to end-December was marked by heavy precipitations in southern Sweden, resulting in a cumulated curve above the long-term average from November onwards, which may have hampered the proper development of the root system for winter crops. Lower temperatures than the average were observed from mid-October to early November, reducing the number of growing degree days and thus the amount of biomass that the winter crops could accumulate before dormancy. The onset of dormancy itself arrived earlier than usual.



December was particularly cold, with minimum daily temperatures more than 30% below the long-term average. Crops are expected to have been protected given the snowfall. However, there is a risk of frost damage in Småland med öarna and to a lesser extent in Östra Mellansverige. Cumulated solar radiation was close to the average during most of the period with a small drop below the average in January. Overall, the conditions at the beginning of the season seem slightly sub-optimal but this may not have any impact on the final yield if growing conditions are good during spring. Therefore, at this early stage, the high uncertainty leaves no other option but to base the crop yield forecast on the trend of the previous years, which puts them higher than in 2010.



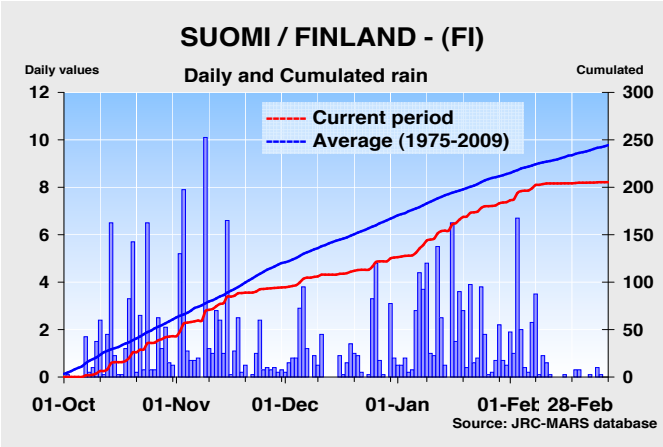
FINLAND – Mild November and January, cold December and February

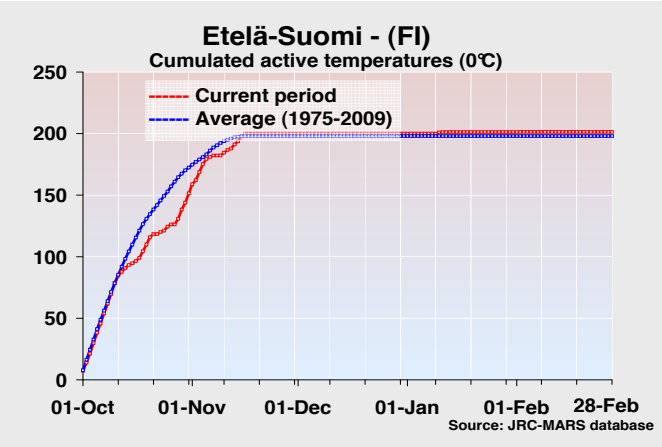
FINLAND					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,4	**3,7**	3,7	+7,5	-0,6
rapeseed	1,3	**1,3**	1,4	+5,5	-4,4

October was colder than usual, mainly in southern Finland, and was followed by a mild November. The end of November brought temperatures significantly below the seasonal average. These cold conditions persisted until early January, when more seasonal temperatures followed. January can be considered a mild month. In mid-February another drop in temperatures, below the normal range of variation, was recorded (in the south below -28 °C, in the centre below -32 °C). Cumulated solar radiation was in line with the seasonal average, in February slightly above the average.

Cumulated precipitation was slightly below the average (since October by 16%). The early sharp frosts (November/December) were accompanied by scarce precipitation, and the lack of snow cover, especially in Pohjois-Suomi, may have caused biomass frost injury. Rainfall in November was below the seasonal range, but in the south it was average. December was slightly drier than usual, in eastern Finland by as much as 30 mm. January was average in the south, whereas the central part experienced higher precipitation (at least 30 mm). In February southern Finland recorded average precipitation whereas the other areas were below the seasonal range. Nevertheless, during the sharp frosts in February thick snow cover protected plants against frost kill. It should also ensure post-winter water supplies in the soils.

The current crop yield forecasts are based on the trend.



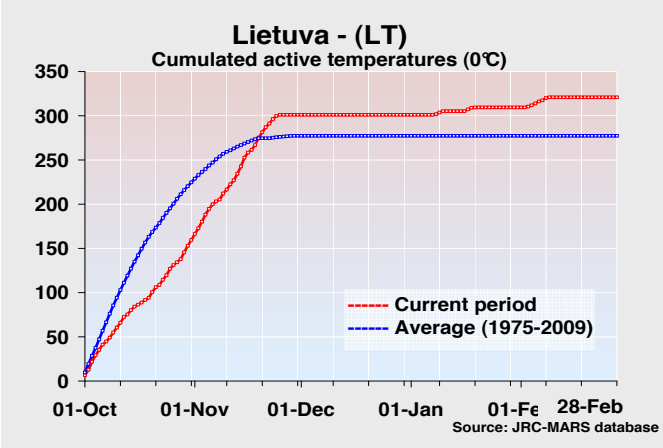


Baltic countries

LITHUANIA – A mild and wet November followed by a cold winter

LITHUANIA	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,3	**3,6**	3,6	+9,1	+0,0
winter barley	2,5	**3,1**	3,1	+25,9	+0,0
rapeseed	1,7	**1,8**	1,8	+1,8	+0,0

Cumulated active temperatures (Tbase = 0 °C) and solar radiation since October show a slight surplus compared with the seasonal values. November was warmer than usual (especially in the eastern part of the country). December started with a sudden drop in temperature and snowfalls, which were sparse at the beginning. From early January until mid-February mild temperatures were recorded, at times with large daily amplitudes. Since mid-February sharp frosts, even harsher than in December (minimum temperature below -20 °C) have again been recorded.



Precipitation in October was slightly below the seasonal range; in November mainly the western part of Lithuania obtained more rainfall than usual (up to +50 mm). In December precipitation was slightly above the seasonal average. In January the north-eastern part of the country experienced precipitation slightly higher than usual, whereas in central and northern areas it was lower than usual. Precipitation in February was seasonal.

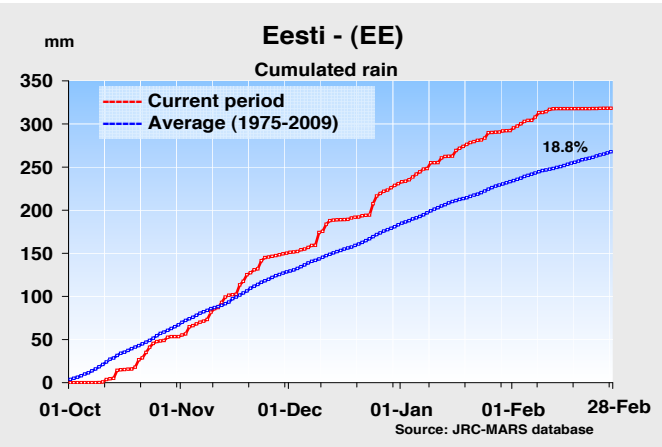
The frost events in December and the rapid drop in temperatures in February may have created a risk of winter kill but only locally in areas not sufficiently protected by snow cover.

The current crop yield forecasts are based on the five-year average.

ESTONIA – Mild January; December and February cooler than usual

ESTONIA	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	2,7	**3**	3	+9,2	+0,0
rapeseed	1,4	**1,5**	1,5	+8,5	-2,4

Cumulated active temperatures (Tbase = 0 °C) in Estonia in October were slightly lower than usual, whereas November was warmer, mainly in eastern parts of the country. In the last ten days of November temperatures dropped sharply, the lowest value being recorded on 29 November (minimum temperature below -20 °C). Cold weather persisted until early January, when the mild period started, with maximum temperatures slightly above 0 °C. The mild period with frequent temperature fluctuations continued until the middle of February, when more than one week with sharp frosts occurred (minimum



temperatures below -25 °C). Between 15 and 25 February both minimum and maximum daily values were below the normal range of variation.

The seasonal accumulation of solar radiation over the whole period is positive. Cumulated precipitation since October exceeded the seasonal value by 50% in the south-east, whereas it was average in the west of the country. In November and December precipitation was above average, mainly in the south. January was seasonal, but in February western areas received less precipitation than usual. Snow cover persisted throughout the period. In the south of the country the frost may have had a negative impact on biomass at the end of November, with only a thin snow cover present.

The current crop yield forecasts are based on the trend.

LATVIA – After a warm November, severe frosts in December and February

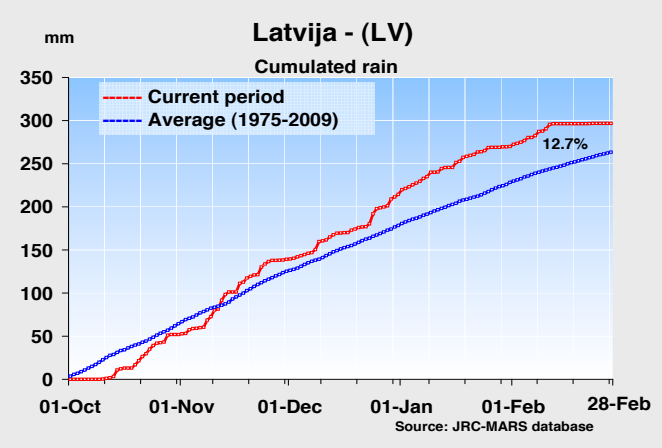
LATVIA					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,3	**3,4**	3,4	+4,5	+0,0
rapeseed	2,1	**2,1**	2,1	-3,4	+0,0

In Latvia cumulated active temperatures (Tbase = 0 °C) in the period under analysis were slightly lower than usual. In November solar radiation was above the seasonal range, mainly in the eastern areas. The mild November ended abruptly with a sharp drop in temperatures, below the normal variation range. Cold weather persisted throughout December and until early January, when the mild weather started. Such conditions with frequent temperature fluctuations were recorded until mid-February. Then again a steep drop in temperatures occurred with a sharp frost. Eastern and southern areas, which had earlier experienced temperatures above the long-term average, were more sensitive to negative frost impact on plants.

Compared with the long-term average, temperatures in February were those that dropped furthest below the seasonal average.

Rainfalls in October were slightly below the seasonal range. In November and December Latvia had precipitation above the normal seasonal value. January and February were mostly average. Scarce precipitation was recorded at the end of February.

The current crop yield forecasts are based on the trend.



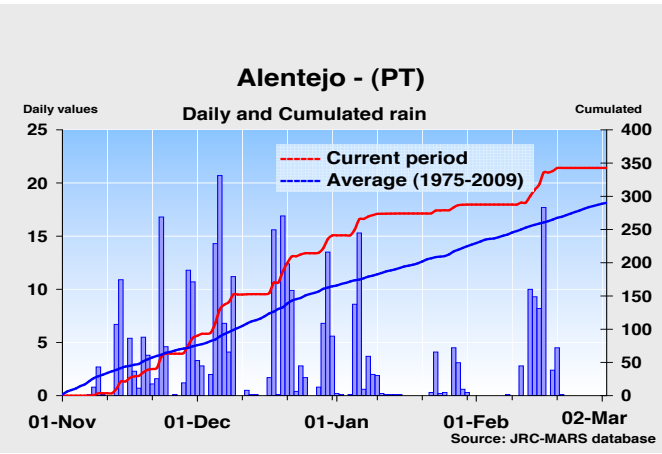
Mediterranean countries

PORTUGAL – Rainfall accumulation higher than the long-term average; crop development close to seasonal values

PORTUGAL					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	2,8	**2,2**	2,2	-21,3	-1,2
winter barley	1,6	**2,0**	2,0	+28,3	+1,1

The humid winter experienced throughout the Atlantic basin of southern Europe brought above-average precipitation across the whole country. Most of the rainfall was concentrated during the months of November and December in the Alentejo region (+40% compared to the same months in the period 1975-2009), but without large water supplies in January and the first two weeks of February.

Temperatures remained close to the long-term average, as did the cumulated incoming radiation, translating into crop leaf area development very close to the historical simulated values.

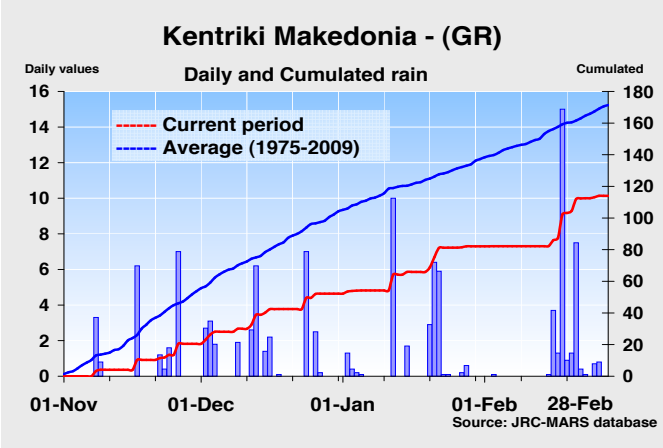


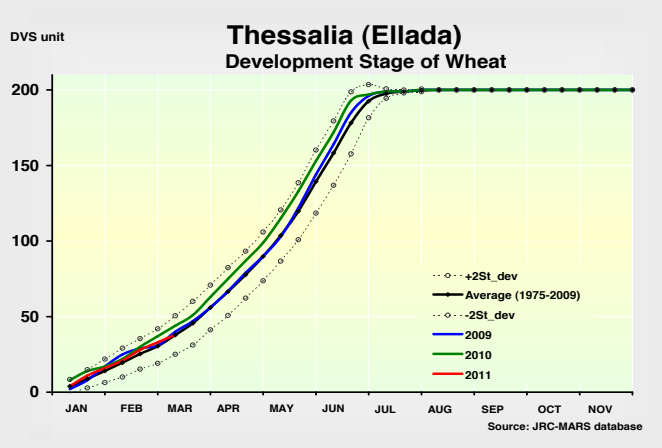
GREECE – Despite the drier conditions a good season is predicted.

GREECE					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	2,7	**2,9**	2,7	+5,9	+4,4
durum wheat	2,4	**2,7**	2,4	+12,1	+11,4
winter barley	2,8	**2,6**	2,4	-7,4	+7,0

The thermal sum exceeded the LTA by 20-30% due to very high temperatures in November (often more than twice the standard deviation, i.e. 25.2 °C on 10 November) and, with the exception of a short drop in the second half of December, due to higher-than-average temperatures during the rest of the season. Even if the cumulated precipitation values are lower than the average, the temporal distribution of the rainy days allowed satisfactory canopy development. However, some precipitation is needed in the next few weeks in order to create a positive environment for the spring tillering.

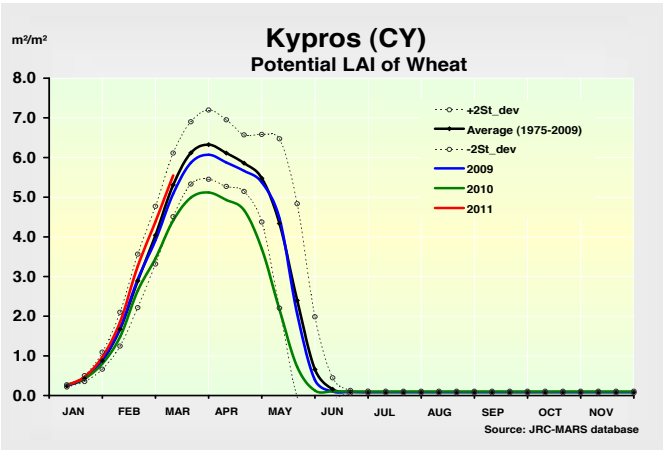
Winter wheat is ending the tillering stage in some of the continental regions while in the southern part of the country it has already entered into heading. The simulated crop indicators at this development stage and the information coming from remote sensing confirm the good expectations, so that the crop yield of winter cereals is forecast at above the five-year average. Nevertheless, large uncertainty is associated with this figure because it is strongly dependent upon the trend of soil moisture values.





CYPRUS – Mild conditions in conjunction with adequate water supply point to optimal development of the canopy

CYPRUS					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
durum wheat	1,7	**1,6**	1,6	-3,6	+1,3
barley	0,6	**1,1**	1	+77,0	+5,1



Both minimum and maximum daily temperatures stayed above the long-term average for almost the entire period of analysis, increasing the thermal sum above the average. This in conjunction with good irradiance levels led to a slight advance in crop development. Moreover, even if not abundant, rainfall was well distributed, providing adequate water supply to winter crops and supporting optimal canopy development.

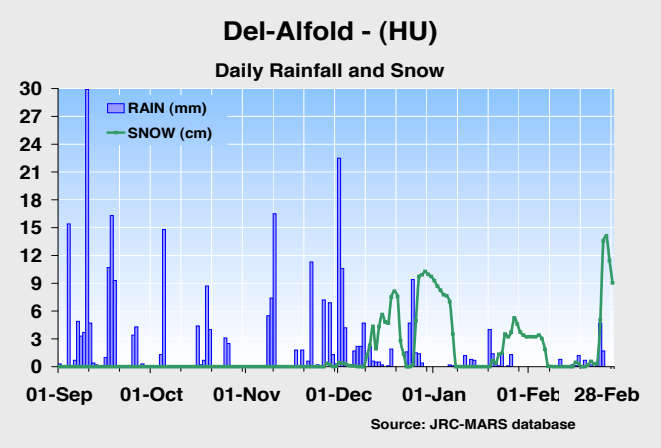
Central and Eastern Europe

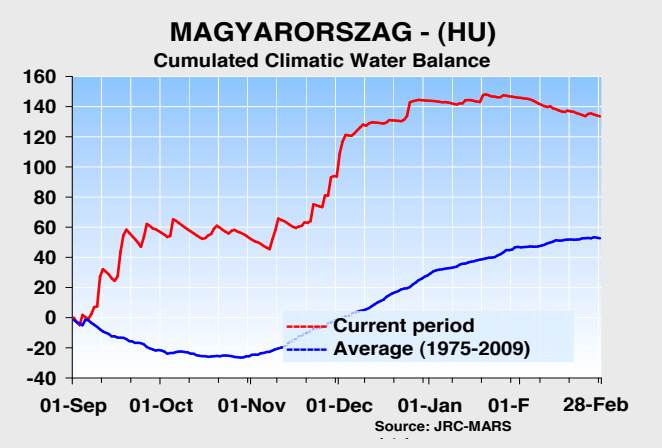
HUNGARY – Over-wet soils

HUNGARY					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,7	**4,1**	4	+10,0	+1,3
durum wheat	3,3	**4,1**	3,8	+24,2	+8,0
winter barley	3,6	**3,9**	3,9	+9,3	+0,5
rapeseed	2,2	**2,4**	2,3	+13,3	+5,4

The precipitation sum of October 2010 was elow the climatological average, but due to the very rainy September the wet soil conditions hampered harvesting, the preparation of soils and sowing works. The area sown with winter cereals can be estimated to be 5-10% smaller than planned. The quality of the seed-bed provided suitable conditions for sprouting, but the status of plant stands is weaker than in previous years. The mild temperature conditions in November were favourable for preparing the winter crops for the dormancy period and compensating for the postponed sowing, but biomass accumulation remained unsatisfactory. The weather turned rainy after 8 November.

Although the cumulated November and December rain just moderately exceeded the average, the water excess caused very serious waterlogging and flooding on heavy soils east of the Danube, mostly in the Dél-Alföld and Észak-Alföld regions. In the first days of 2011 the area of arable land covered by water exceeded 250 000 ha and the over-wet area extended to nearly 700 000 ha. The situation improved from mid-January thanks to the low precipitation input of the current year. A significant additional reduction (5-10%) in acreage of winter cereals is imaginable. This winter was slightly colder than usual, but due to the lack of extremely low temperatures no winter frost kill is expected.



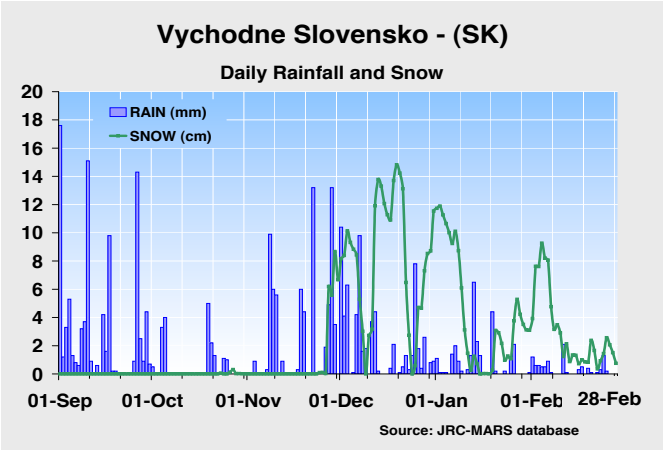


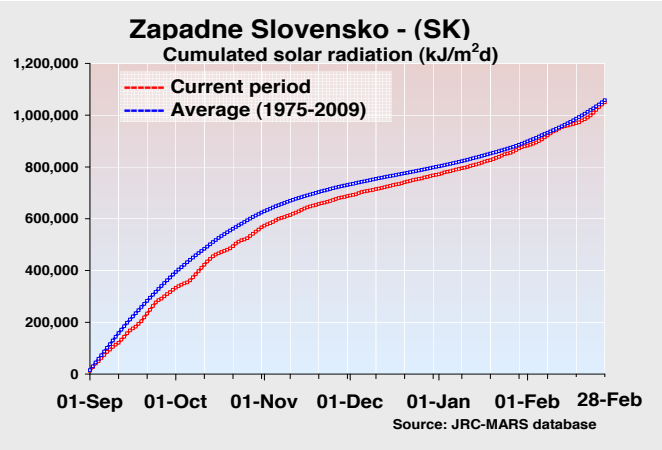
SLOVAKIA – Below-average crop conditions before wintering

SLOVAKIA					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,5	**3,9**	4	+10,7	-3,3
durum wheat	3,5	**4,4**	4,3	+25,9	+2,7
winter barley	3,1	**3,5**	3,6	+10,9	-2,7
rapeseed	2,0	**2,5**	2,2	+21,7	+11,1

In Slovakia field preparation and sowing of winter crops was difficult due to rain in September and saturated upper soil layers. The low quality of the seed-bed led to uneven germination and sprouting in several places. In Slovakia the mean temperature in October and November was identical: +7.1 °C. Thanks to a mild November the cumulated active temperature reached the climatological mean up until the end of the month. On the whole, the bad soil and cold thermal conditions and low irradiance levels led to slightly inadequate development of winter crops, since the biomass accumulation lagged behind the time. Oil rape-seed may have been the most adversely affected crop with gappy fields.

The lack of frosts hampered the appropriate hardening of cereals and preparation for winter. In the last days of November the weather turned cold suddenly and the daily minimum temperatures dropped to between -13 °C and -17 °C on 5 December. The cold weather continued until 7 January and returned from 23 January until 5 February. Fortunately, the adequate snow cover prevented frost kill in all cases this winter. The current water balance decidedly shows a significant surplus (+40 to +120 mm), which was gained from September until the end of the year. The over-wet soil along the Hungarian border may complicate the forthcoming spring field works.





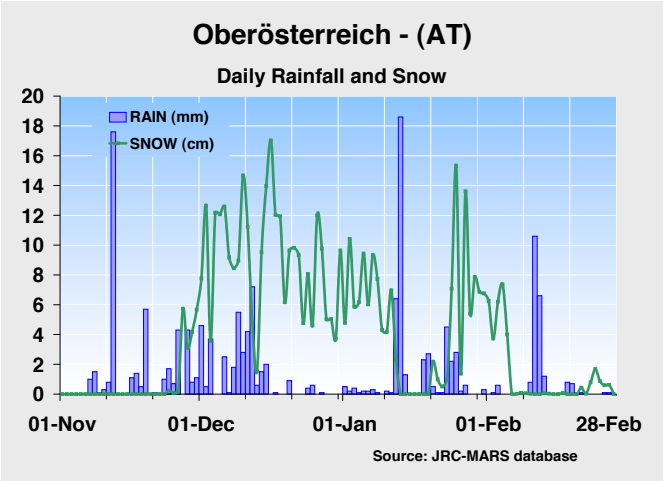
AUSTRIA – Despite the drop in temperatures at the end of February, the former mild conditions allowed optimal vegetative restart

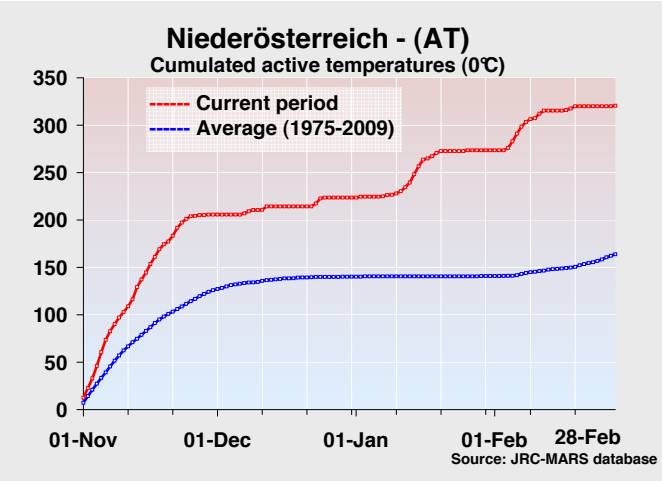
AUSTRIA					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	5,0	**5,2**	5,1	+3,4	+2,1
durum wheat	4,5	**4,5**	4,4	-0,1	+3,0
winter barley	5,4	**5,5**	5,5	+2,5	+1,1
rapeseed	3,2	**3,1**	3,1	-2,5	-0,2

Despite the abrupt arrival of wintry conditions with heavy snowfall and very low temperatures around the beginning of December, the thermal sum at the end of 2010 was higher than the long-term average due to the extremely mild conditions in November: both maximum and minimum temperatures stayed above the average for almost the whole month. As a consequence, even if crops started winter dormancy slightly in advance, the cumulated biomass seems to be in line with the average. Moreover, given the reduced amount of rainfall in November (the cumulated values are 15% below the LTA in both Niederösterreich and Oberösterreich) the risk of rooting systems being underdeveloped is low.

The first 20 days of February were marked by higher-than-average temperatures and satisfactory levels of irradiance, which boosted the vegetative restart of winter crops.

Winter rapeseed is still in the emergence phase while winter wheat has entered partially into the tillering stage. The drop in temperatures observed in the last ten days of February slowed crop development slightly and might have caused frost damage in some isolated cases due to the reduced snow depth. Drier than usual conditions persisted during the whole winter, leading to an average cumulated rainfall deficit of 30%. As a consequence, even if soil moisture values are still adequate for the current conditions, some rain is needed within the next few weeks in order to maintain the optimal conditions predicted.





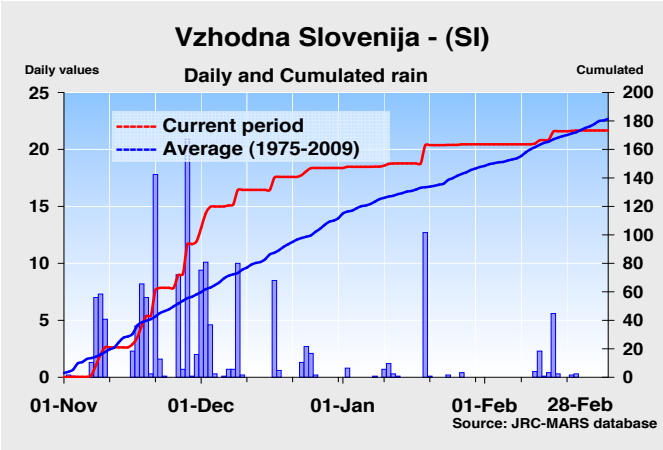
SLOVENIA – Despite unfavourable conditions at sowing a good season can be expected

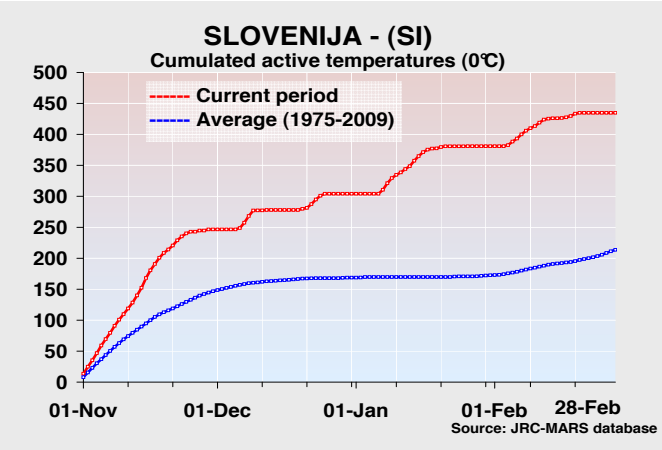
SLOVENIA					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	4,8	**4,4**	4,3	-7,2	+2,3
winter barley	4,2	**3,9**	3,8	-7,2	+2,6

The whole period of analysis was marked by a wide fluctuation in temperatures (e.g. daily maximum temperature went from -3.8 °C on 4 January to 14.3 °C on 9 January). In the main, however, temperatures were higher than average, leading to a surplus in thermal accumulation which is now twice the long-term average. Rainfall was abundant in November and December, leading to cumulated values above the average in the whole country even if in the eastern part precipitations became scarcer starting from the beginning of 2011. Low temperatures and a large amount of precipitation in September 2010 slowed the ripening and harvest of previous crops (especially maize), delaying the sowing of winter crops.

This in conjunction with a reduced amount of irradiance may have reduced the biomass accumulation before the winter dormancy started.

Despite this gap at the beginning of the growing season the restart of the vegetative phase occurred without any problems. Winter wheat and barley are almost ending the tillering stage. Soil moisture, at the moment only slightly higher than the average, could rise significantly when snow melts, causing heavy soils and making accessibility to the field difficult for machinery.



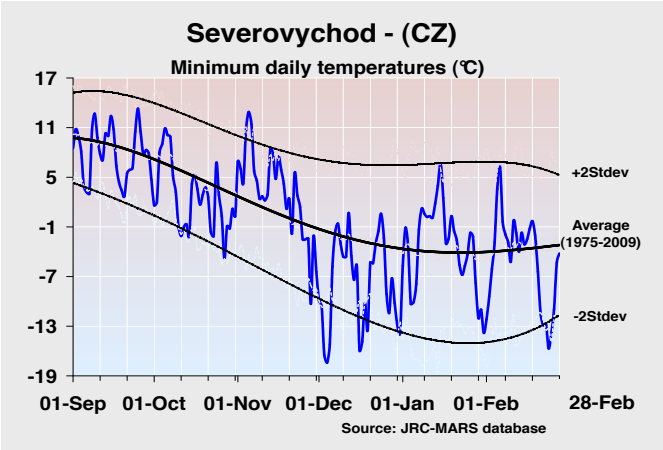


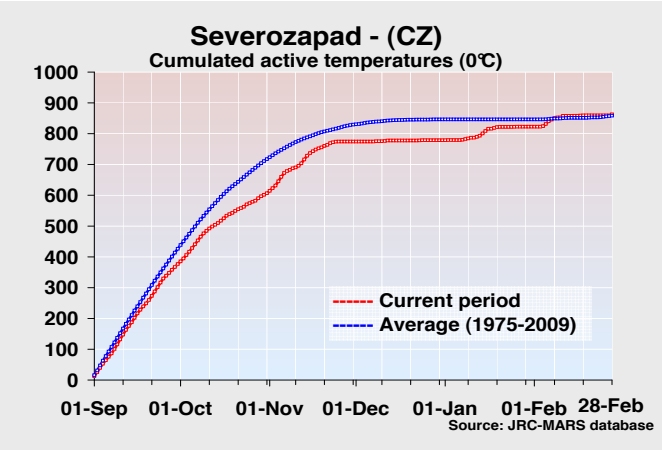
CZECH REPUBLIC – Cold winter with lasting snow cover

CZECH REPUBLIC					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	5,1	**5,3**	5,1	+3,6	+2,9
winter barley	4,5	**4,6**	4,5	+1,0	+0,6
rapeseed	2,9	**3,1**	3	+7,8	+3,1

The below-average thermal conditions were unfavourable for winter crops to accumulate biomass and develop deep root systems before the dormancy period. The cumulated active temperature values (T base = 0 °C) indicate a deficiency in the western part of the Czech Republic. Additionally the harsh winter weather arrived untimely, on 27 November, first with strong frosts and later with snowfalls. The thick snow cover and the low temperatures halted the crop growth at a slightly premature stage. The winter crops started winter dormancy at an earlier stage and with a less developed status than usual. In this cold December the maximum and minimum temperatures hardly exceeded the climatological average.

Moreover, several days dropped to extreme lows, remaining 10 °C below normal values. Generally 10-20 cm of snow cover protected the crops against the severe frost until the end of February, so that no winter frost kill is expected. The precipitation tendency decreased from mid-January and the cumulated precipitation fell to the regular values until the end of the winter. In January and February the temperature followed the general course with adverse high temporal variability. The current crop yield forecasts are based on the statistical trend. Due to the difficult wintering conditions the general status of winter crops can be evaluated as a little weaker than usual in most of the crop areas.



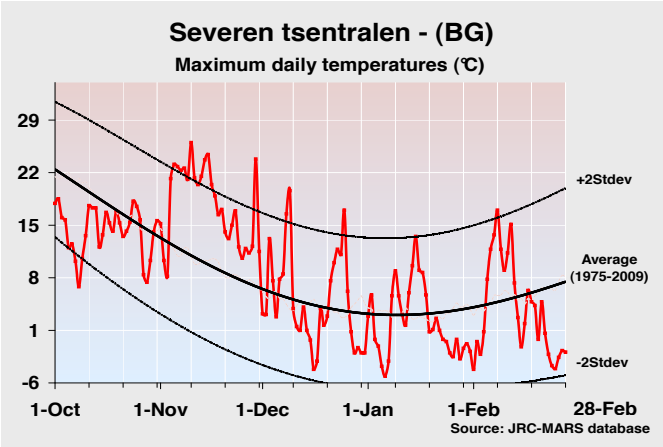


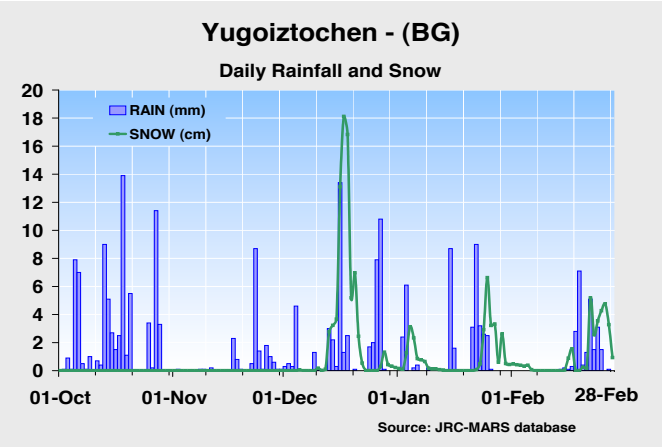
BULGARIA – Prolonged winter after a mild autumn

BULGARIA	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	3,7	**3,7**	3,5	-1,0	+3,9
winter barley	3,2	**3,2**	3,2	+2,3	+2,7
rapeseed	2,5	**2,2**	2,2	-13,0	+0,4

In September 2010, dry soil moisture conditions hampered the field preparation works and sowing of winter cereals. In October rainfall returned to Bulgaria and provided a 25-50 mm precipitation surplus over the long-term average for germination. The cumulated active temperature values did not reach the average, thus delaying sprouting. The retarded development of winter crops led to inadequate biomass accumulation in this time-period. Fortunately the extremely warm November and first ten days in December compensated partly for the crop growth deficiency. The maximum daily temperature often exceeded +15 °C and some days even reached +20 °C. The cumulated active temperature indicated +200 degree days extra over the average.

Winter arrived on 10 December with cold and snow. The thick and persistent snow cover as well as the frequent temperature changes were unfavourable and a stress factor for the plants. The first half of February proved fairly warm and initiated the de-hardening of winter cereals, but the returning cold and snowy period halted the premature development. The temporal distribution of cumulated winter rain followed the usual course in central and eastern Bulgaria and provided average water supply. In the western regions the precipitation sum deviated by +25 to +50% from the LTA. The general conditions of winter crops can be rated 'average', but with significant spatial differences across the country.



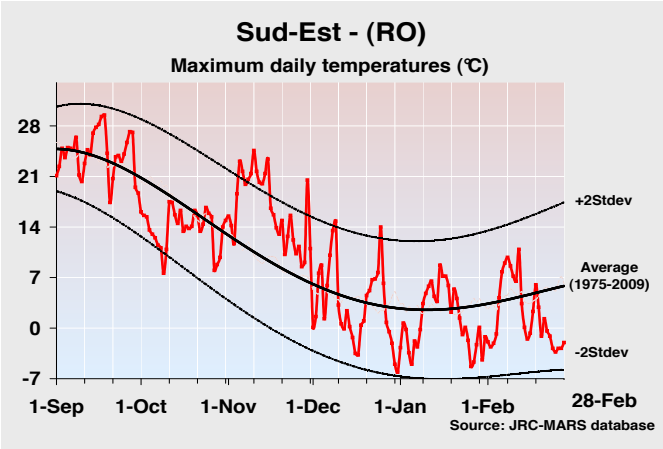


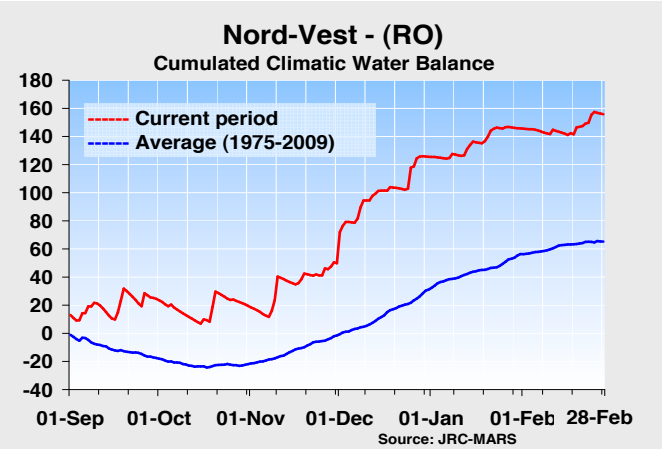
ROMANIA – Average expectations for winter crops

ROMANIA					
	Yield t/ha				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
soft wheat	2,8	**2,7**	2,6	-5,4	+3,2
winter barley	2,9	**2,7**	2,7	-6,3	+1,9
rapeseed	1,6	**1,5**	1,5	-2,2	+4,4

Well distributed and sufficient precipitation supported the field works in September and October. Both minimum and maximum temperatures mostly remained below the average in October and that month was 2 °C or 3 °C colder than usual in Romania. The unfavourable thermal conditions postponed sprouting, and the development of winter cereals was slowed down and prolonged. November was positively warm with few occurrences of frost and high daily temperatures. In the mild and sunny weather the winter crops got the last chance to absorb nutrients and build up strength before winter. The lowest temperature values of the winter period were experienced in the second half of December and January, when the temperature dropped below -15 °C in several places, but the snow cover protected the crops, so that the risk of winter frost kill is low for all winter crops.

The main form of precipitation after 7 December was snow. The depth of snow cover reached 10-25 cm, but melted slowly after two weeks. The cumulated water balance for autumn and winter indicates a favourable +60-80 mm surplus over most important agricultural areas of the country. The precipitation proved to be too much in the Nord-Vest region, and in some places with heavy soils the water excess caused harmful inland flooding. Everywhere else the soil moisture content is adequate and the soils are well saturated. The crop status is judged between 'fair' and 'good' for most of the country.





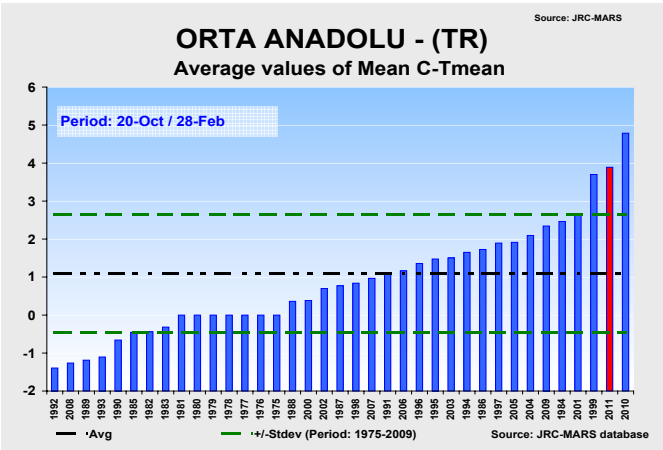
IV. Crop yield forecast in the EU-27 neighbourhood

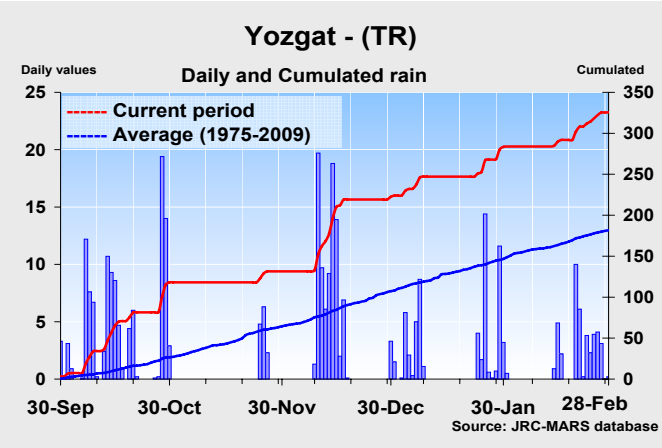
1. Black Sea

Turkey – Wet and hot period hastened winter crop development

TURKEY					
	Yield t/ha				
	2010	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
barley	-	2,3	2,3	-	-1,1
wheat	-	2,3	2,3	-	-1,8

The period observed between October and February was exceptionally warm in the main winter wheat regions: Bati Anadolu, Orta Anadolu and Guney Anadolu. Temperatures remained significantly higher than the LTA until February, when temperatures decreased and stabilised around the average. Concurrently the central part of the country experienced an unusually high amount of precipitation (+60% more in Yozgat, +35% in Konya). This significantly hastened crop development, which was almost three months in advance, reaching the tillering stage in December. This left the crops exposed to frost, but no clear impact was observed. The fAPAR curves derived from the SPOT-VGT satellite images confirmed unusual continuous biomass accumulation from October to December. The Sanliurfa region in the south-east experienced a long dry period, since the first rain occurred in the middle third of December. However, the rain was intensive and the cumulated rainfall was finally 30% lower than the LTA. Due to high temperatures normal vegetation growth is expected. In the western Bati Marmara region the weather conditions were close to the average. Temperatures fluctuated around the average but a warmer period was observed overall. As precipitation was sufficient normal or slightly advanced crop development was observed.



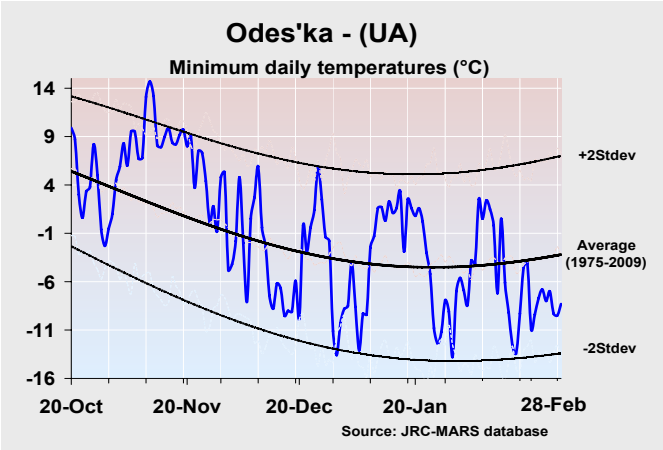


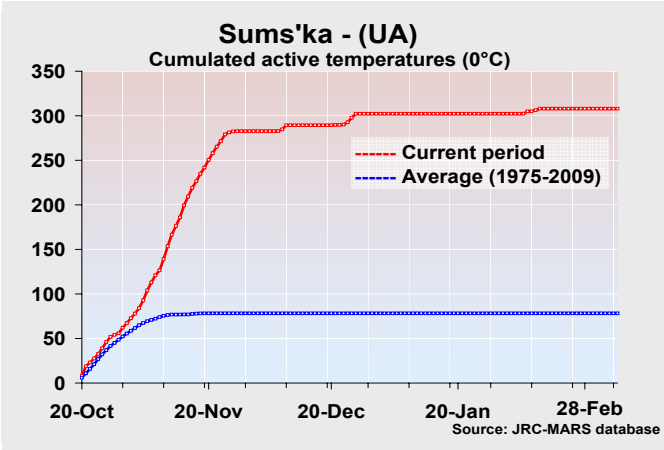
Ukraine – High temperature fluctuation, but favourable conditions for winter crops

UKRAINE					
	Yield t/ha				
	2010	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
barley	-	2,3	2,3	-	+0,8
wheat	-	2,8	2,9	-	-2,9

After favourable sowing conditions, Ukraine experienced a mild autumn and early winter with mean temperatures higher than the long-term average. December, January and February brought significant sudden drops in temperatures, in the first ten days of December in the northern regions and in January and February in the eastern regions, reaching -30 °C in Luhans'ka. Thanks to sufficient snow cover the frost impact is expected to be limited.

Favourable thermal conditions before winter dormancy came with a normal or slightly higher amount of precipitation. Soil moisture was close to the average and normal crop development was observed in most of the country. The development in the south-western regions may have been slightly more advanced than usual but growth has not restarted yet due to the snow coverage and low temperatures.



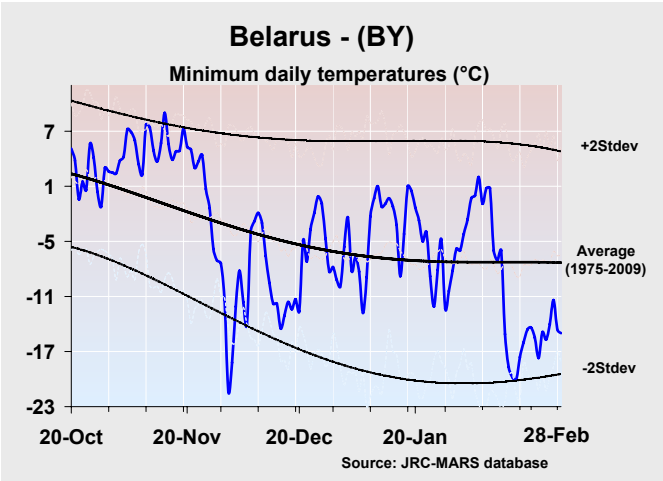


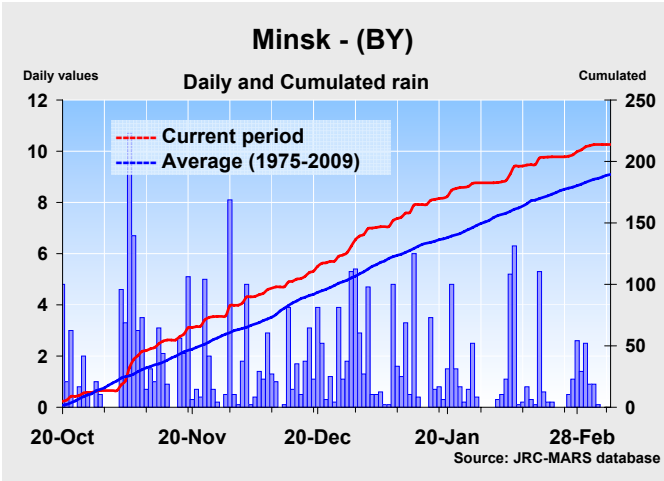
2. Eastern countries

Belarus – Favourable autumn conditions followed by possible frost impact

BELARUS					
	Yield t/ha				
	2010	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
barley	-	**3,2**	3,2	-	+1,3
wheat	-	**3,4**	3,4	-	+1,1

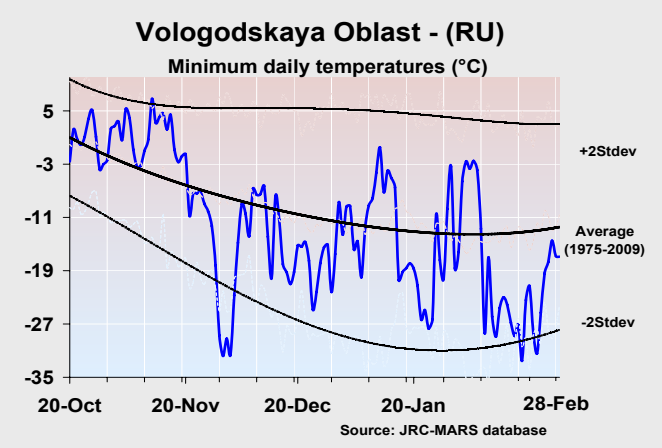
Winter crops started to grow after sowing, which was completed under favourable conditions. The beginning of autumn was mild with a sharp drop in temperature in the first ten days of October, when temperatures lower than -5 °C were measured. The frosty period was short, so that no significant loss was expected, and normal or slightly advanced development up to winter dormancy was observed. November brought mild temperatures to the whole country, but followed by sudden drops in temperatures down to -20 °C in the first 20 days of December. Temperatures in January were close to the long-time average and there was a temperature drop in the middle of February. In the period analysed the amount of precipitation was close to the average or slightly higher in the south-east. The snow cover started to form in the beginning of December and should have been sufficient to protect crops from significant frost losses.

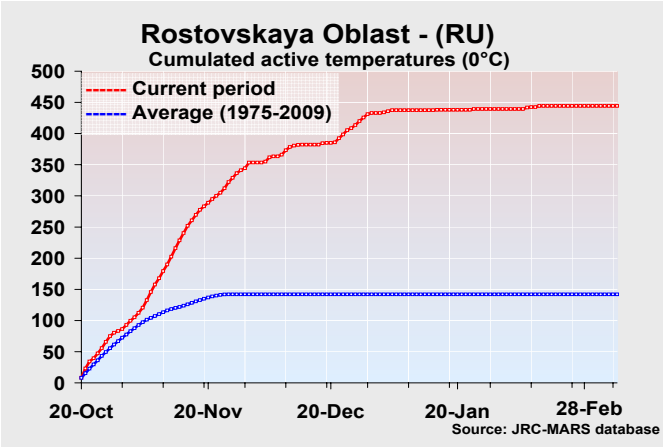


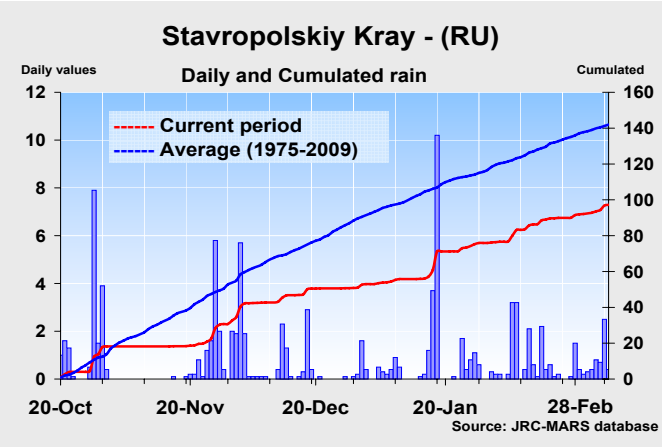


Russia – Difficult situation for winter crops — visible impact of severe drought in summer 2010 and possible frost damage

Severe drought in summer 2010 resulted in insufficient soil moisture and winter sowings were delayed or even abandoned. The period observed from October to the end of February was warmer than average, possibly speeding up crop growth before winter dormancy in the Volga District, where precipitation was 20% higher than average. The Southern District experienced dry months of October and November, resulting in cumulated precipitation as much as 30% lower than average in Stavropolskiy Kray. The first intensive frosts came at the end of November with -30 °C in Volgogradskaya Oblast and Orenburgskaya Oblast in the Volga District. A second frost onslaught occurred in mid-February, covering all of the agriculturally important Southern and Volga Districts. Temperatures below -30 °C were measured in both Volgogradskaya and Orenburgskaya Oblasts. Insufficient snow coverage did not protect crops and significant losses were expected, up to 30% in the Volga District.







3. The Maghreb

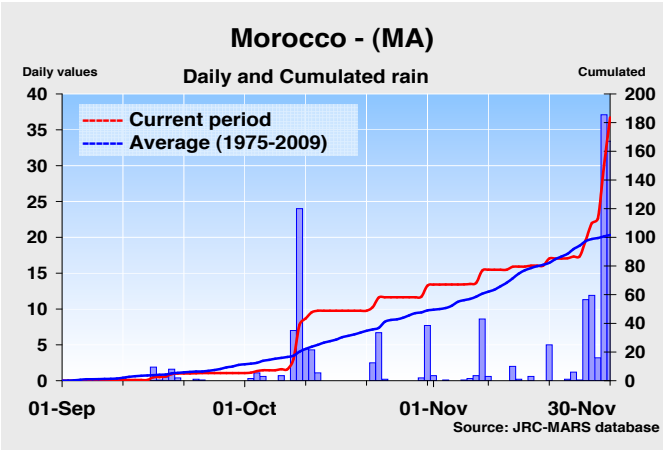
Morocco, Algeria, Tunisia – Good sowing conditions in general, crop development average

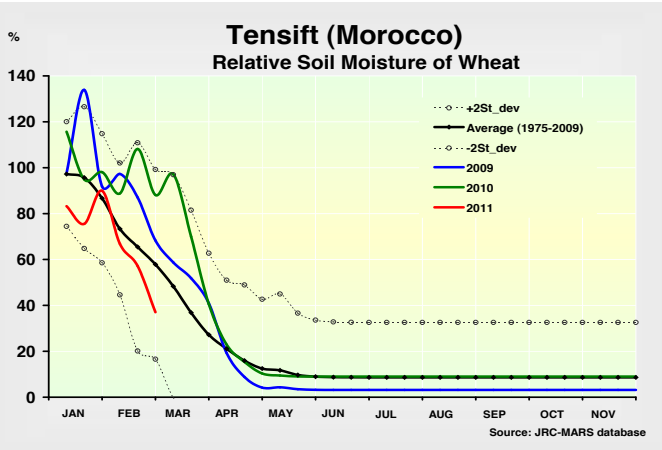
Barley	Yield t/ha				
	2010	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs
DZ	-	**1,4**	1,4	-	-2,0
MA	1.3*	**1,1**	1,1	-20,2	+0,9
TN	0.5''	**1,3**	1,1	+167,2	+11,7
Wheat	**2010**	**MARS 2011 forecasts**	**Avg 5yrs**	**%11/10**	**%11/5yrs**
DZ	-	**1,4**	1,4	-	+0,6
MA	1.7*	**1,5**	1,6	-14,4	-6,5
TN	1.2''	**1,6**	1,5	+42,6	+6,8

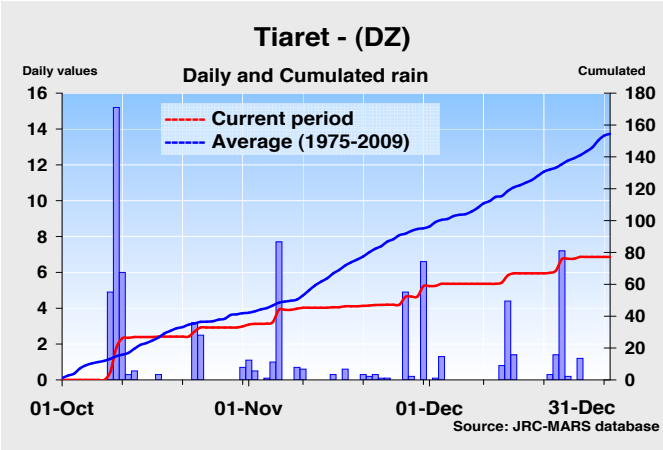
* from INRA-Morocco
''from CNCT-Tunisia
**same figure than 2010
***same figure than 2009

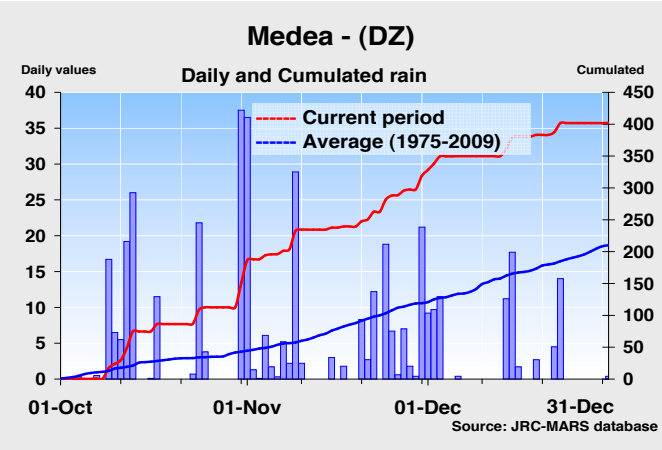
The meteorological conditions around the sowing period for cereals in the Maghreb were favourable overall in the three countries. The situation was particularly positive in terms of water supply and rainfall distribution during the autumn in **Morocco** in the main wheat and barley producing regions, namely Centre, Centre-Nord and Nord-Ouest. But the situation was less favourable in Tensift, important for barley production, where the relative soil moisture at the end of February was below the average, albeit remaining within the seasonal range of variation. Abundant rainfall occurred in Centre Nord during the middle third of February, combined with maximum temperatures higher than the normal range of variation. This could favour the emergence of diseases. The crop development stage for cereals is average in all regions, from Tensift to Oriental.

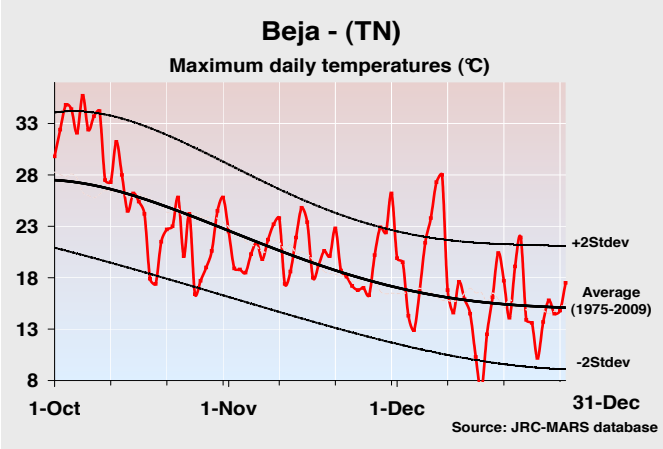
In **Algeria**, from west to east, the meteorological conditions were generally favourable for sowing during the autumn, with well distributed rain. Good levels of relative soil moisture were therefore reached, particularly in Médea (centre) and Sétif (east), with levels generally above the long-term average. In the western part of the country (Tiaret), soil moisture was slightly below the average at the end of February. In **Tunisia**, the main durum wheat producing regions (Le Kef, Kairouan, Kasserine and Siliana) received good water supply, as did Béja, where soft wheat is mostly present. Temperatures during autumn and winter were in most cases within the normal range of variation, despite a cold December compared to the average. These low temperatures could have a negative impact on the vegetative growth of cereals in Béja and Jendouba. In both countries, the meteorological conditions point to average cereals development.

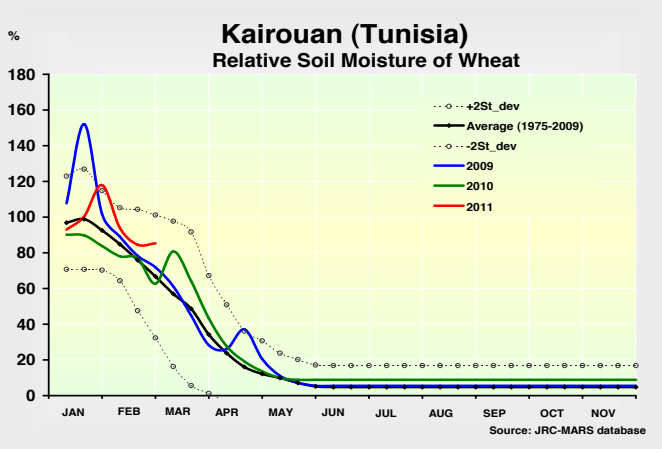












Abstract

The 1st printed **MARS* Bulletin** 2011 (Vol. 19, No. 2) covers meteorological and remote sensing analysis and crop yield forecasts in EU27 and the EU27 neighbourhood for the period 21 October 2010 to 28 February 2011.

MARS* stands for Monitoring Agricultural Resources.

Issues planned for 2011

08/02 Agrometeorological analysis and weather forecast Vol.19 No.1

08/03 Agromet. analysis, remote sensing and yield forecast Vol.19 No.2*

22/03 Agrometeorological analysis and weather forecast Vol.19 No.3

12/04 Crop yield forecast Vol.19 No.4

12/04 Agrometeorological analysis and weather forecast Vol.19 No.5

17/05 Agromet. analysis, remote sensing and yield forecast Vol.19 No.6*

14/06 Agrometeorological analysis and weather forecast Vol.19 No.7

28/06 Agromet. analysis, remote sensing and yield forecast Vol.19 No.8*

28/06 Pasture monitoring in Europe Vol.19 No.9

12/07 Agrometeorological analysis and weather forecast Vol.19 No.10

26/07 Agromet. analysis, remote sens. and yield forecast Vol.19 No.11*

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09/08 Agrometeorological analysis and weather forecast Vol.19 No.13

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04/10 Agrometeorological analysis and weather forecast Vol.19 No.17

04/10 Rice monitoring in Europe Vol.19 No.18

18/10 Pasture monitoring in Europe Vol.19 No.19

25/10 Crop yield forecast Vol.19 No.20

08/11 Agrometeorological analysis and weather forecast Vol.19 No.21

29/11 Agromet. analysis, remote sens. and yield forecast Vol.19 No.22*

13/12 Agrometeorological analysis and weather forecast Vol. 19 No.23

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Contributions

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