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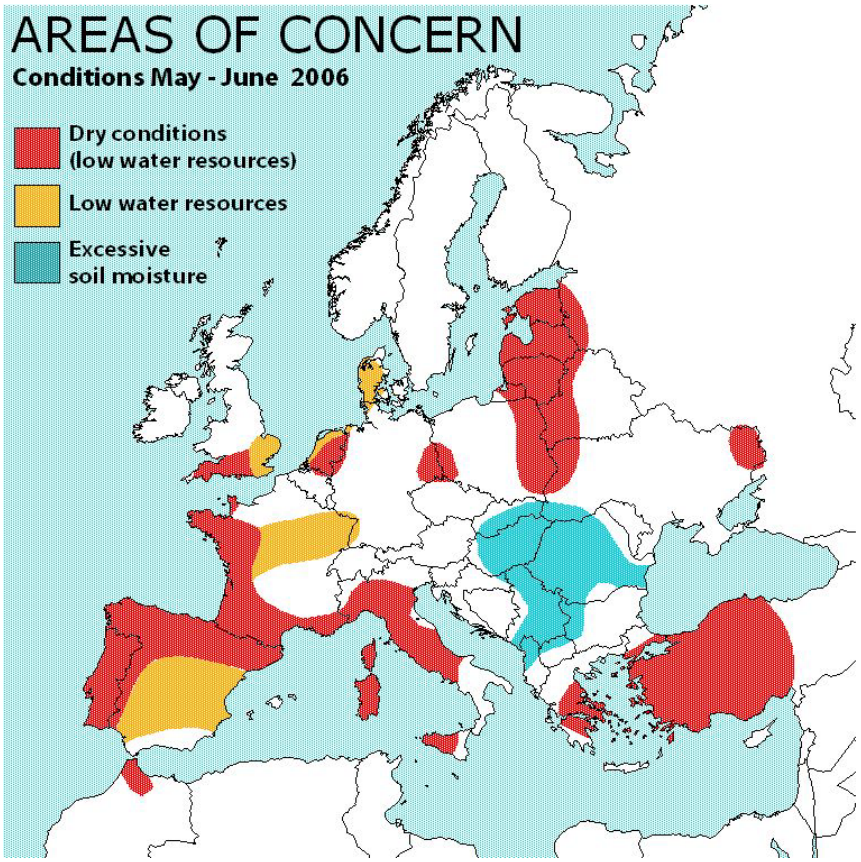
Drought hits again but European cereal production is guaranteed



Contents

1. Crop yield forecasts

EU crop yield levels are suffering this year from similar conditions to 2005, though to a lesser extent. Dry conditions and hot temperatures have again had an impact on water resources in the affected areas. The geographic extent could spread, and crop yield impact worsen, if the drought continues. Impact on irrigation would additionally affect grain maize as well as sugar beet and potatoes.

With respect to the 2001-2005 averages, for soft wheat, winter barley and maize the Commission forecasts a potential yield increase respectively of 4.3%, 2.3% and 3.0%; for durum wheat the forecast is for a potential yield decrease of -2.3%; for spring barley a potential decrease of -4.4%.

MARS crop yield estimates for EU25

Figures updated as of 27th June 2006

		% difference compared to	
	Yield 2006**	2005	Average(2001-2005)
Cereals (total)	**5,1**	1,9	1,6
Total wheat	**5,6**	2,7	5,1
Soft wheat	**6,1**	2,5	4,3
Durum wheat	**2,5**	0,6	-2,3
Total barley	**4,2**	3,8	-1,3
Winter barley	**5,3**	1,9	2,3
Spring barley	**3,6**	4,7	-4,4
Grain Maize	**8,2**	-2,1	3,0
Other cereals	**3,0**	2,7	1,7
Rape Seed	**3,2**	0,1	8,4
Sunflower	**1,9**	-0,4	4,5
Sugar Beet	**59,8**	2,8	6,2
Potato	**30,0**	1,2	6,4

*Data sources: **MARS-STAT/JRC*
Yield: figures expressed in t/ha and rounded to 100 kg

Total Wheat (soft and durum varieties): despite the areas affected by drought this year the EU25 yield is expected to be higher than average by 5.0%. This amount is also an increase of 2.7% when compared with last year's average result.

The resulting EU wheat production could be increased by about two megatonnes (Mt) compared with 2005. However, some regions will still have below average production as a consequence of the effects of this year's late spring drought, i.e. Spain, southern France (where durum wheat will be especially affected), Italy (especially Sardinia, Sicily and north-western regions) and some areas in Portugal.

Total Barley (including winter and spring varieties): the yield is expected to be reduced by 1.3% compared to the average. The final production at EU level will be lower than average by 1.5% (about one Mt below average). The spring varieties were the most affected by adverse climatic conditions, including a late season due to late sowings and cooler temperatures in central countries, and drought affecting Spanish areas.

Grain Maize: at the moment the yield decrease is only about 2.0% at EU level as compared to last year. which, combined with area decreases, will result in production being lowered by at least three Mt. However, the impact of low water reserves in some of the main productive basins of the EU (south-west France and northern Italy) could cause drastic reductions if there is not enough rainfall in the next weeks. In these areas the situation appears in some cases worse than in 2005.

2. Agrometeorological overview (10 May – 30 June 2006)

Two anomalous hot waves in May and June; persistent dry spells (especially in June) in Mediterranean countries, FR, Baltic basin, north and east DE; higher than seasonal winter crops water requirement

2.1 AIR TEMPERATURES

Following the progressive increase of temperatures occurred since the second half of April, the first half of **May** was characterized by higher than seasonal temperatures in the northern and western areas whilst more seasonal conditions occurred in southern areas. In Finland, Benelux and Central Spain were recorded the

highest anomalies in the active temperatures accumulation: 60-70 GDD, equivalent to +30/50% compared to the LTA.
In the second half of the month the general configuration was inverted and colder air blew from the North bringing rainy events and more seasonal temperatures in the northern territories, while warmer conditions resumed in the Mediterranean countries. Those conditions remained up to the second decade of **June** when, in advance compared to the season, the general synoptic air circulation assumed a typical summer configuration: a persistent and stable high pressure system covering the majority of Europe. A new increase of temperatures was recorded in the whole continent: except in some areas in Spain and Portugal practically everywhere the maximum temperatures were on average 5-7°C above the seasonal values and in some cases even 10-11°C (Central and southern Italy, Sicily, Benelux, Denmark, west Germany, Scotland, Poland, Baltic's States, Bosnia, Croatia and Tunisia). Extreme high temperatures above 40°C were recorded in the last decade of June only in Apulia (Italy) and Andalucia (Spain).
Thanks to those hot waves the accumulated delays in the winter crops in the northern and eastern EU was practically recovered (except central-north Germany), while accelerated the development of spring-summer crops.

2.2 RAIN, EVAPOTRANSPIRATION AND CLIMATIC WATER BALANCE

As a whole, the EU territory, except the eastern part, received a reduced amount of **rain** as compared to the LTA. The rain deficit was particularly severe and persistent in the whole large Mediterranean stripe, including also west France, as well as in the Baltic basin. In this area, on average, the deficit was around 40-50 mm, but in some cases (e.g.: Baltic's states, north Portugal, Greece) more severe deficits were recorded. Extremely anomalous conditions occurred in northern Spain, southern and western France, northern and central Italy, where more than 100 mm of rain was lacking. In these areas the impact both on winter crops and spring-summer crops (anticipated irrigation and reduced water reservoirs) were significant.
Opposite conditions were recorded in eastern EU countries very abundant rain was recorded. In particular in Austria (+52% compared with LTA), southern Czech Rep. (+81%, the wettest year since 1975), northern Hungary (+82%, the wettest year since 1975), Romania (+41%, also some flooding was reported) and eastern Bulgaria (+52%).
The **potential evapotranspiration** was influenced both by the high temperatures and by the high solar radiation occurred in concomitance with the hot waves. Spain, Portugal, southern France, southern Italy, Sardinia, southern Germany, The Netherland, eastern UK, Poland, central Greece and Turkey were the areas with the highest anomalies compared to the LTA: in average the accumulated higher than seasonal water demand was estimable in 30-40 mm but with peaks above 70-80 mm.

COUNTRY/REGION	Rainfall deficit (mm) May-June 2006	Ranking since 1975 (32 years)	Climatic Water Balance deficit (mm) May-June 2006	Ranking since 1975 (32 years)
ITALY	**-40.9**	**3rd worst year (after 1993 and 2003)**	**-58.4**	**3rd worst year (after 2003 and 2005)**
North-West	**-99.1**	**The worst year overall**	**-119.7**	**3rd worst year (after 2003 and 2005)**
Friuli Venezia-Giulia	-107.8	5th worst year	-129.3	5th worst year
Emilia Romagna	-50.5	6th worst year	-63.0	6th worst year
Tuscany	**-67.0**	**The worst year overall**	**-83.3**	**2nd worst year (only 2003 was drier)**
Lazio	**-59.6**	**The worst year overall**	**-75.4**	**2nd worst year (only 2003 was drier)**
Sardinia	**-29.8**	**2nd worst year (only 1983 was dryer)**	**-92.2**	**The worst year overall**
SPAIN	-28.6	8th worst year	-61.7	5th worst year
Cataluna	**-78.4**	**The worst year overall**	**-100.9**	**The worst year overall**
Asturias	**-102.2**	**2nd worst year (only 1976 was dryer)**	**-117.1**	**2nd worst year (only 1976 was dryer)**
Cantabria	-44.0	7th worst year	-62.8	5th worst year
Aragon	-28.7	8th worst year	-52.5	5th worst year
PORTUGAL	-28.0	10th worst year	-61.2	5th worst year
Centro	-52.7	5th worst year	-90.9	4th worst year
Alentejo	-24.5	10th worst year	-53.9	7th worst year
BALTIC Countries				
Estonia	**-42.2**	**3rd worst year (after 1988 and 1992)**	-51.9	4th worst year
Latvia	-44.1	5th worst year	-58.5	5th worst year
Lithuania	-47.2	4th worst year	**-63.2**	**3rd worst year (after 1979 and 1992)**
FRANCE	-19.5	12th worst year	-30.9	10th worst year
Provence-Alpes-Cote d'Azur	-58.5	4th worst year	**-95.6**	**2nd worst year (only 1986 was dryer)**
Languedoc-Roussillon	**-74.7**	**3rd worst year (after 1986 and 1989)**	**-116.3**	**3rd worst year (after 1976 and 1989)**
Midi Pyrénées	-56.1	10th worst year	-99.3	4th worst year
Aquitaine	-41.9	9th worst year	-69.3	8th worst year
Limousin	-61.6	6th worst year	-86.2	6th worst year
Poitou Charentes	-38.6	9th worst year	-56.6	7th worst year
Pays de Loire	-34.4	7th worst year	-42.3	6th worst year
Bretagne	**-55.5**	**3rd worst year (after 1976 and 1989)**	**-61.6**	**3rd worst year (after 1976 and 1989)**
Rhone Alpes	-40.0	8th worst year	-64.8	7th worst year

Consequently, due to the rain deficit and relative higher evapotranspiration, the **climatic water balance** presented in the above mentioned dry areas significant deficit values.
In consideration of the higher evapotranspiration and of the advanced and critical reproductive stages of developments of the winter crops (in "flowering" and "ripening" the "crop coefficient" is between 1 and 1.2), those likely suffered by insufficient water requirements with reduction of the potential filling of grains.

2.3 WEATHER FORECAST FOR NEXT DAYS (JULY 4 -13)

TEMPERATURES: progressive increase up to the 11th, then light reduction; high probability of warm anomaly in northern Germany, Scandinavia and Baltic basin.

From today up to the 11th, a very large high pressure system will interest the whole continent and an African air mass will lightly blow northward, determining a warm anomaly tomorrow and the day after in northern latitudes (Fig.1a/1b). Very likely the maximum daily values will be above the 30° C not only in the Mediterranean basin but also in the Baltic basin (Fig.2).

In the following days (Fig.5 and 6), the temperatures will increase even more progressively and in many southern areas (Spain and France) the maximum values will be above the 35°C threshold, with possible heat stress on active crops.

RAIN: still dry in the Mediterranean Basin, as well as in Central, Eastern Countries and Northern Sea. Few beneficial rain in FR (except southern and north-west) and DE.

In the next 10 days, two rainy waves will cross the continent. The first one, between tomorrow and the day after, will bring beneficial water in France, Benelux and western Germany. The second, between the 12th and the 13th of July will still interest France, northern Germany and Sweden.

Unfortunately, no significant water supply will be likely brought in the areas already suffering for drought: Mediterranean basin, Central and Eastern Countries and Northern Sea.

As possible areas of concern for crop water limitation will be considered also the areas close to the English Channel, which received in the previous period a reduced amount of rain.

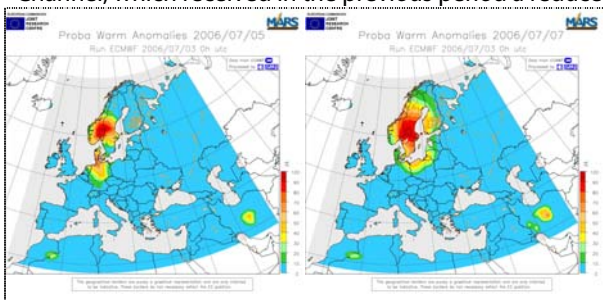


Fig.1a

Fig.1b

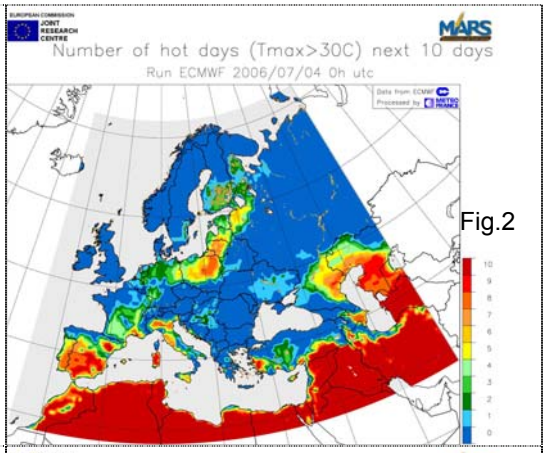
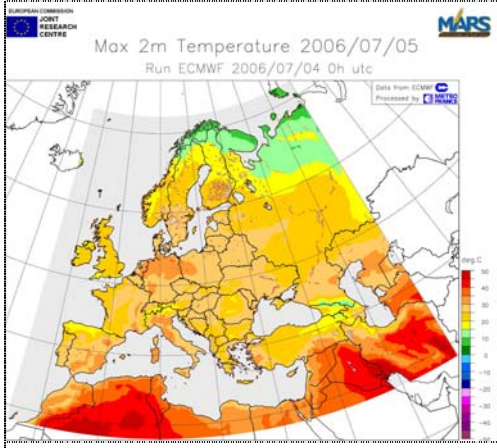


Fig.2



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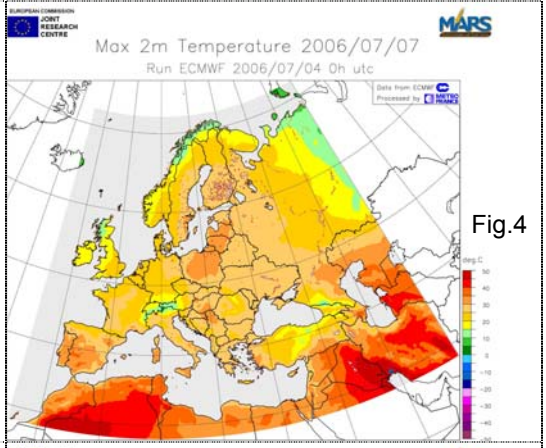


Fig.4

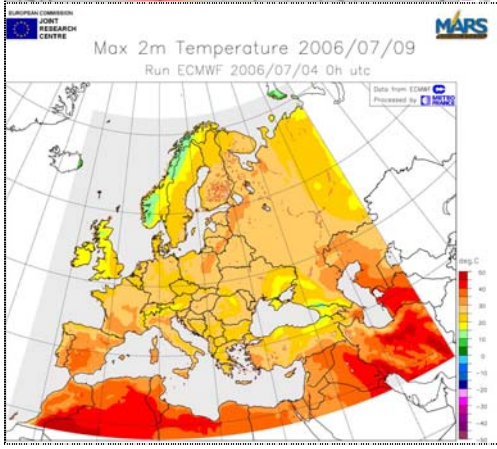


Fig.5

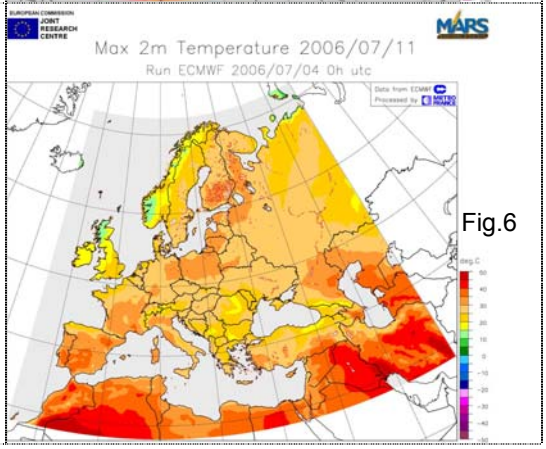


Fig.6

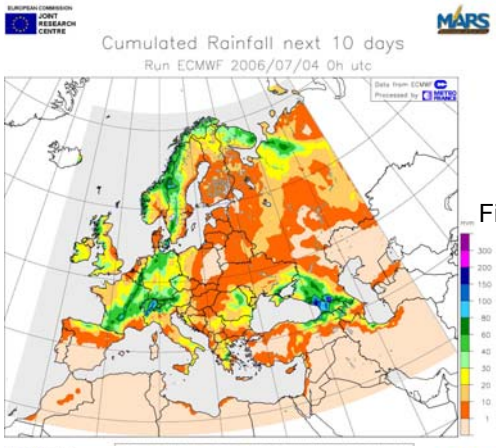


Fig.1

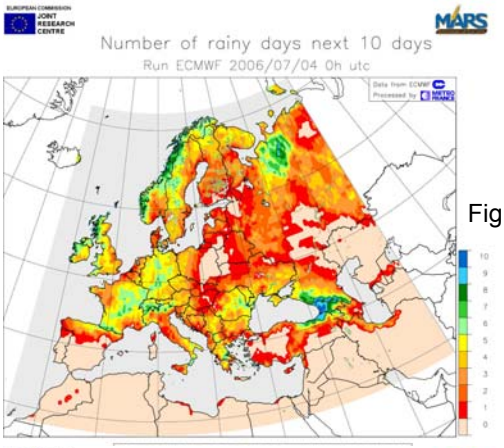


Fig.2

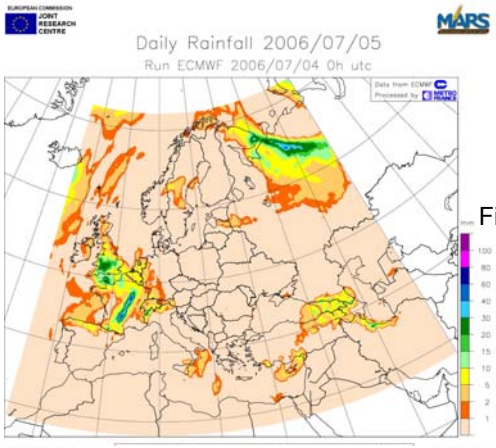


Fig.3

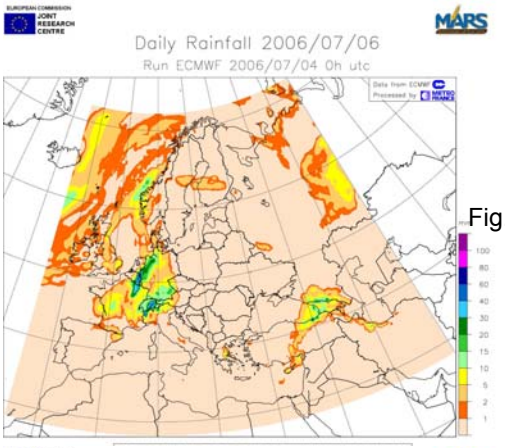


Fig.4

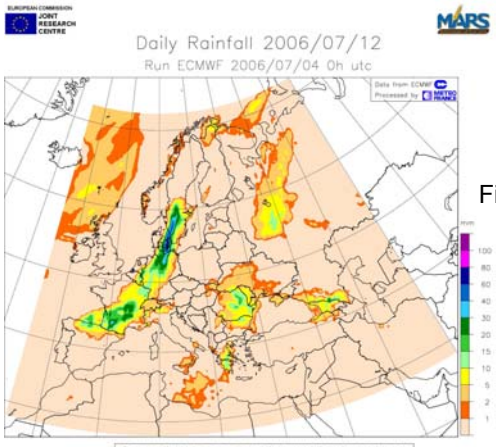


Fig.5

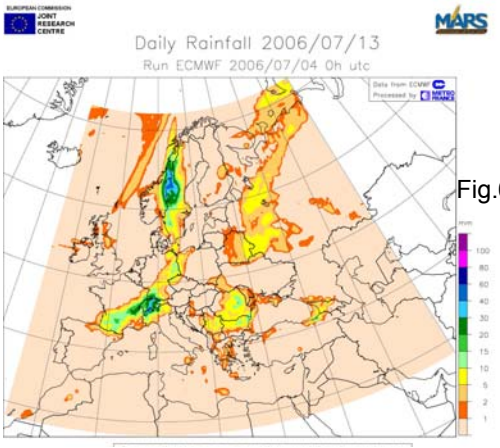


Fig.6

3. Highlights by region of interest

EU-25

FRANCE: dry spell installation

The soft wheat conditions are still considered better than last year in the main areas of production also the crop keeps a good yield potential of 7.6 t/ha(+5.5% compared to 2005). The soil moisture being at a critical level the next precipitations will be determinant for the final yield elaboration as well as the duration and intensity of the on-going heat wave. On the contrary, most of the durum wheat being in the driest areas in southern France, the yield forecast was reduced to 4.2t/ha (-12.6% compared to 2005, -9% to average). Rapeseed yield is forecasted at 3.6t/ha close to 2005 level (-2.1%). The spring barley is still in favourable areas also the yield potential is still high with 6.6t/ha. However further

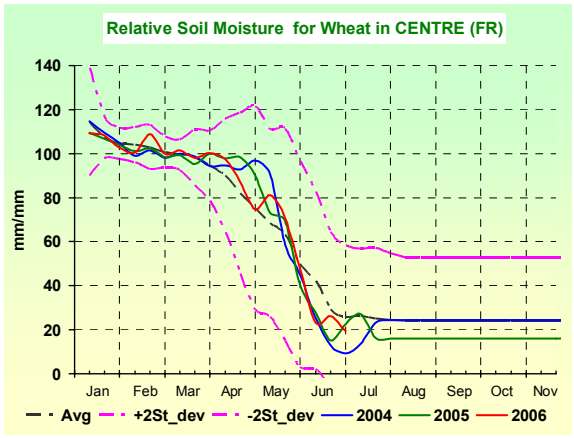
precipitations and lower maximal temperature will be necessary to keep this potential. Maize yield is foreseen at a good level of 8.5t/ha.

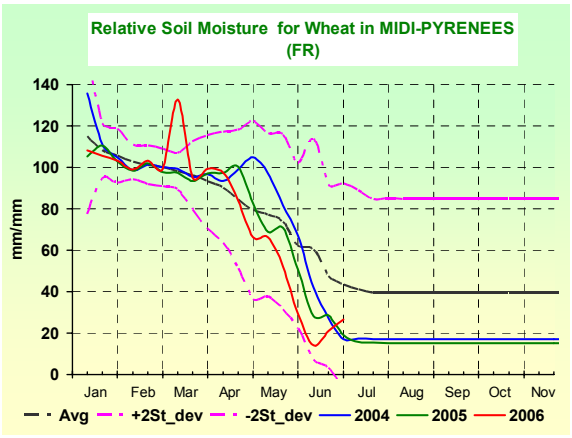
Higher than average during the first two decades of May the temperature went down at the end of the month, beginning of June with minimum around 5°C for most of the country. From the 2nd decade of June most of the territory experienced a heat wave with temperatures above the seasonal values. Maximum temperatures reached 30°C for the major part of the territory. These conditions boosted the crops growth that caught up their development delay. Some crops at ripening or maturity stage could have suffered from consecutive days with extreme temperatures particularly in the Mediterranean zone, south western and in the Centre.

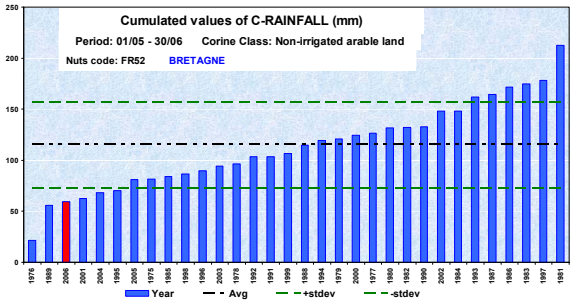
A dry spell took place northward from the Mediterranean area at the beginning of May to the whole country at the beginning of June. However areas in Nord Pas de Calais and Franche comté experienced heavy rainfalls from 150 to 200mm. From the second decade of June significant precipitations benefited to Normandy, Centre, Auvergne, Midi Pyrénées and to a less extend to Rhone Alpes. They contributed to partially replenish the soil moisture and reduced the drought impact. Some regions experienced one of the driest spells: from the 2nd to the 4th worst period for the last 32 years like in Languedoc Roussillon, Provence-Alpes Cote d'Azur, Midi Pyrénées and Poitou Charentes and Bretagne. The low precipitations in conjunction with the high temperatures made the climatic water balance even worse.

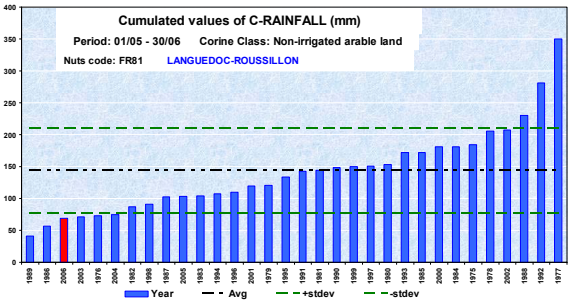
COUNTRY/REGION	Rainfall deficit (mm) May-June	Ranking since 1975 (32 years)	Climatic Water Balance (mm) May-June	Ranking since 1975 (32 years)
FRANCE	-19.5	12th worst year	-30.9	10th worst year
Provence-Alpes-Cote d'Azur	**-58.5**	**4th worst year**	**-95.6**	**2nd worst year**
Languedoc-Roussillon	**-74.7**	**3rd worst year**	**-116.28**	**3rd worst year**
Midi Pyrénées	-56.1	9th worst year	**-99.33**	**4th worst year**
Aquitaine	-41.9	9th worst year	-69.27	8th worst year
Limousin	-61.6	6th worst year	-86.24	6th worst year
Poitou Charentes	-38.6	9th worst year	-56.65	7th worst year
Centre	-16.0	13th worst year	-25.32	10th worst year
Pays de Loire	-34.4	7th worst year	-42.3	6th worst year
Bretagne	**-55.5**	**3rd worst year (after 1976, 1989)**	**-61.6**	**3rd worst year**
Rhone Alpes	40.0	8th worst year	-64.8	7th worst year

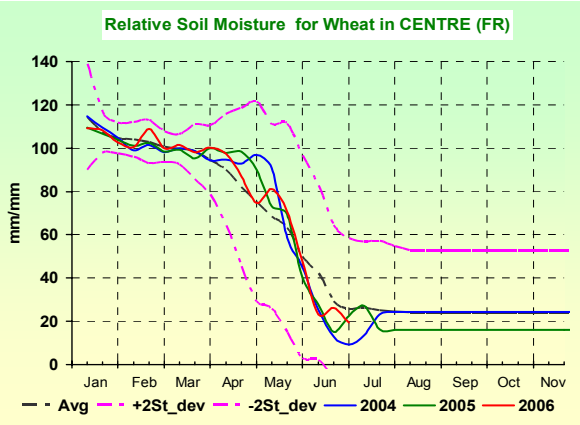
The soil moisture for most of the crops was far below the seasonal value in western, south western and southern regions. Within these areas some regions showed very low soil moisture below 10% like in Southern Rhones Alpes, PACA, Languedoc Roussillon, Poitou Charente and Bretagne. The crops at ripening and maturity phase should have suffered from this situation.

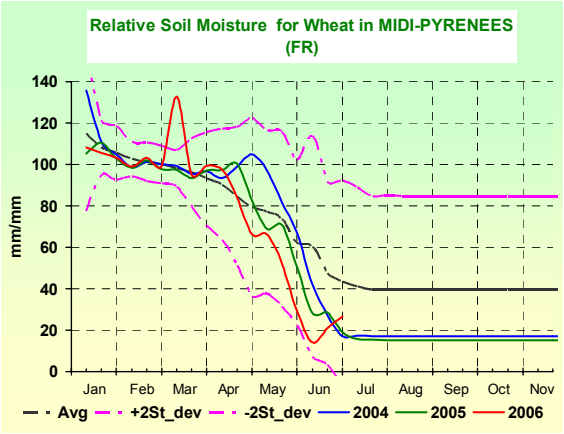


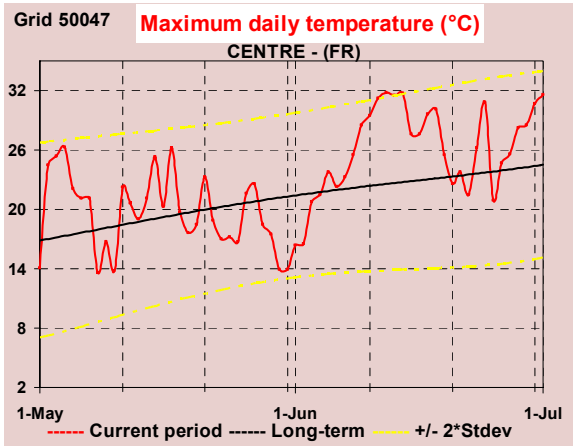


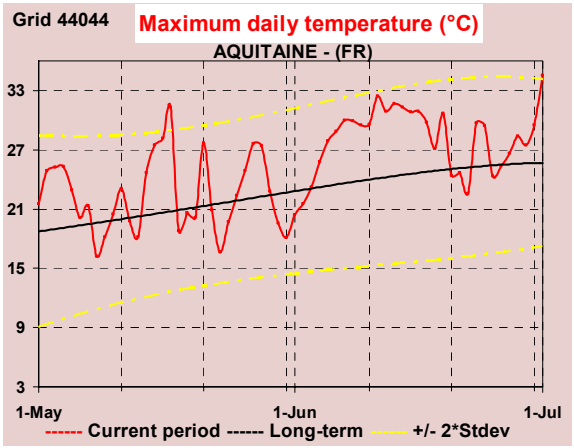












GERMANY: good conditions

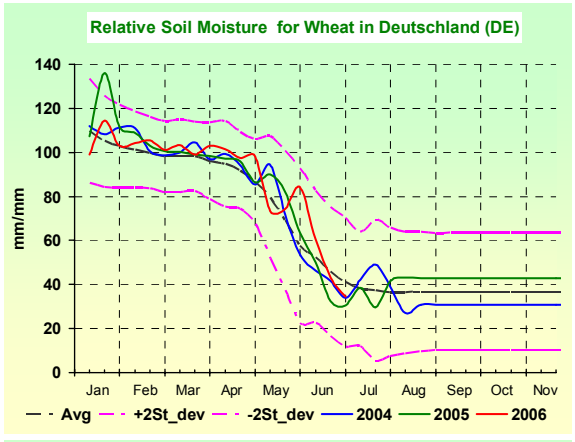
The winter wheat is still forecasted at 7.9t/ha better than the average (+7.4%) due to the good spring temperature and soil moisture conditions.

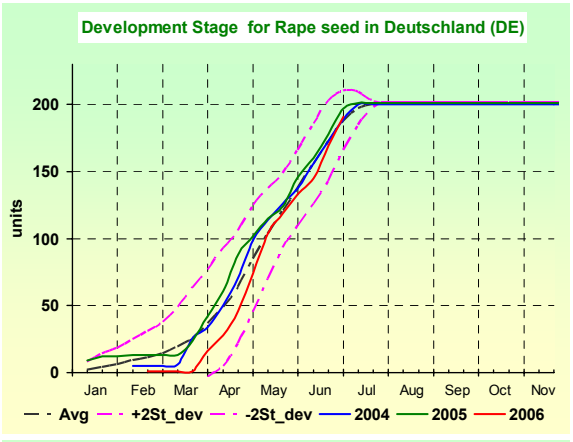
For rape seed the conditions are favourable and the model CGMS proposed a slight increase of yield with 3.9t/ha(+3.5% average). The spring barley forecast is better than the average by 5.9% with 6.0t/ha. Despite the initial late sowing the high temperatures contributed to catch up this delay within good soil moisture condition.

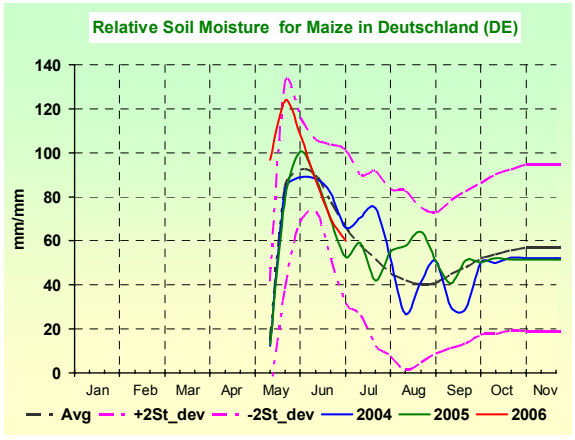
The country recorded higher temperatures than average during the two first decades of May which contributed to catch up the crops' delay. The temperature went down during the last part of May and beginning of June particularly on the eastern part with minima close to 0°C hindering the biomass production. From the 2nd decade of June the temperatures became higher than the seasonal value, again boosting the crops' growth.

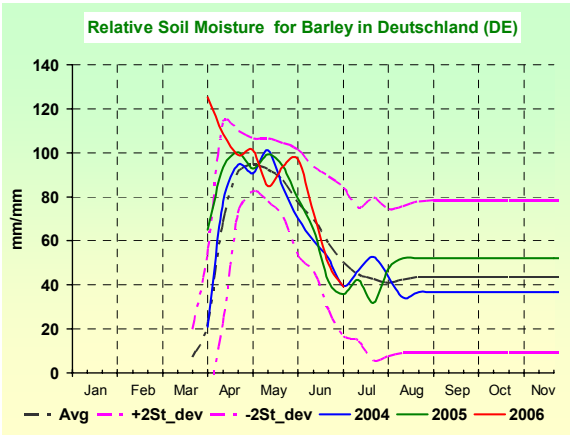
Several peaks with maximum temperatures around 30°C were recorded in June in the eastern and south western areas and should not have affected the crops (non sensitive at this stage).

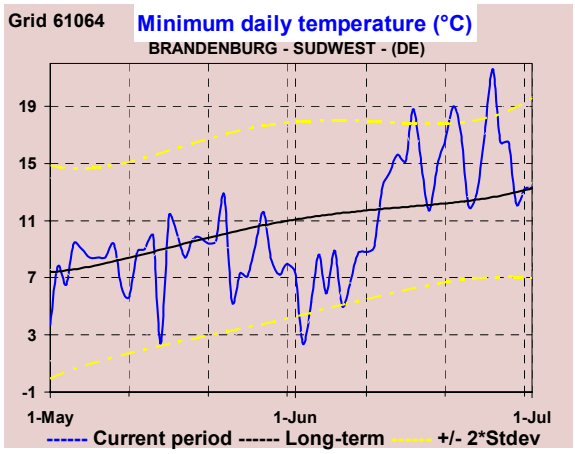
The rainfalls were abundant during the two last decades of May (>+30% LTA). Precipitations in June were lower than average for northern, eastern and western borders. Thanks to the high soil moisture level from May the crops did not suffer. However to face the crop water increasing needs in conjunction with a possible heat wave extension further rainfall will be necessary to keep the full yield potential.

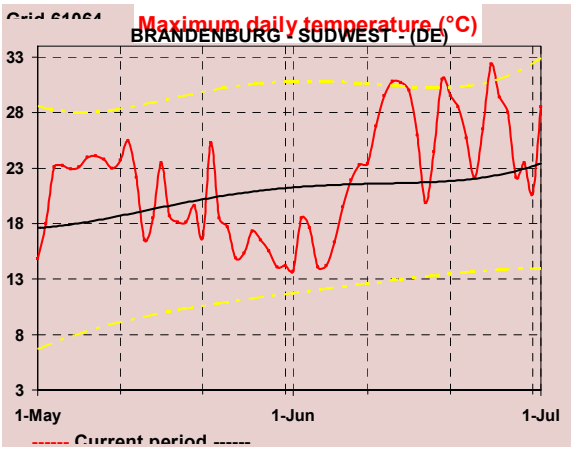












AUSTRIA: wet conditions still persisting

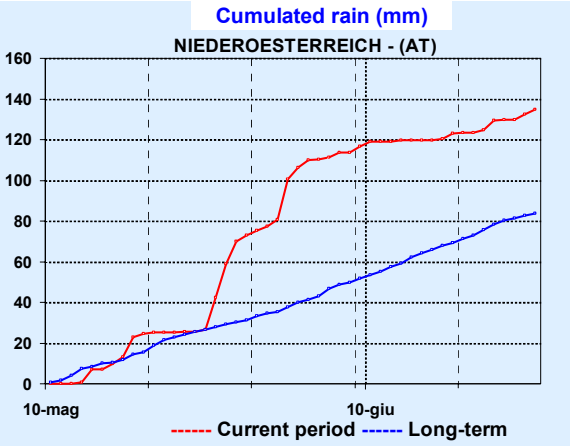
Winter crops' yield forecasts are 5.38 t/ha for soft wheat, 4.86 t/ha for durum wheat, 5.4 t/ha for winter barley, 3.21 t/ha for rapeseed. These are higher than average, respectively by +4.3 %, +17.6 %, +4.5 %, +22.7 %. Except for spring barley where the expected yield (4.04 t/ha) is very close to that recorded for 2005, summer crops are projected to lower yields than the last year: 9.78 for grain maize (-5.2 %), 68.5 t/ha for sugar beets (-3.3 %), 2.67 t/ha for sunflower (-0.4 %), 31.69 t/ha (-7.9 %).

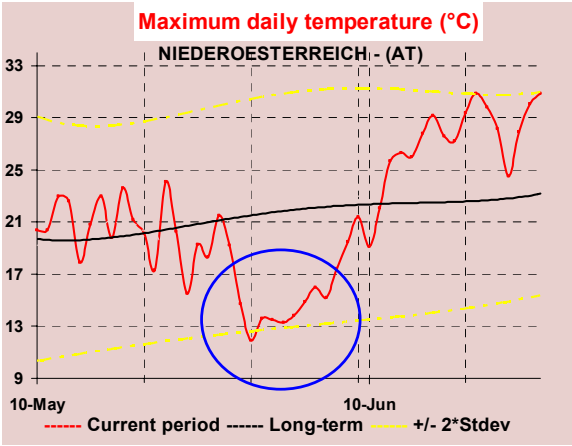
Rainfall decidedly above the average between the end of May and the beginning of June increased the soil moisture and was accompanied by a cold wave which slightly increased the delay in development. A strictly related aspect is the low level of irradiance recorded in the same period. This delay was almost recovered in the last weeks after a cold first part of the season.

About a 1-decade delay is simulated for **soft wheat**, currently in the first part of the flowering stage. A soil moisture excess is simulated for the last decade of May and the first half of June. Anyway, both simulated biomass and leaf area index values are higher than the norm.

Rapeseed is maturing with only a few days delay with respect to the average under high soil moisture which reached extraordinary levels during the first decade of June.

Spring crops: after having delayed spring sowings, the soil water content excess could have caused problems to young plants because of insufficient aeration in the root zone.





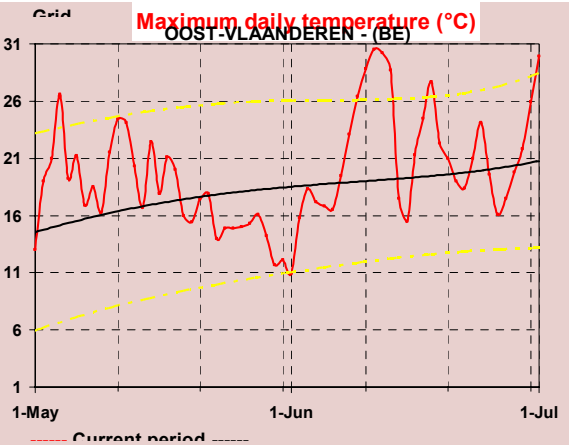
BELGIUM and THE NETHERLANDS: optimal conditions

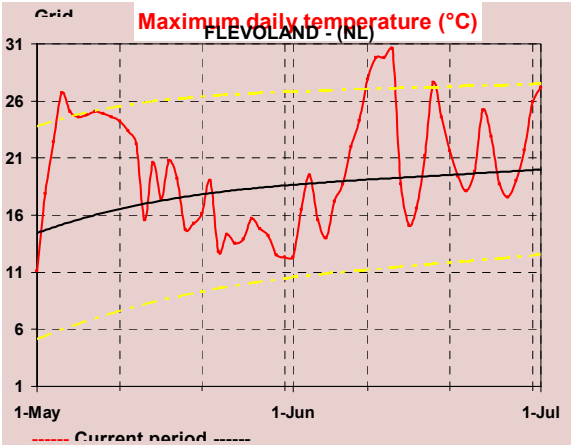
For Belgium the Winter wheat yield forecast remained at 8.9t/ha considering that the conditions were still optimum. For the Netherlands the scenario analysis proposed the same previous forecast of 8.9t/ha. The Netherland being within drier conditions than Belgium, further rainfall would be necessary to keep this potential.

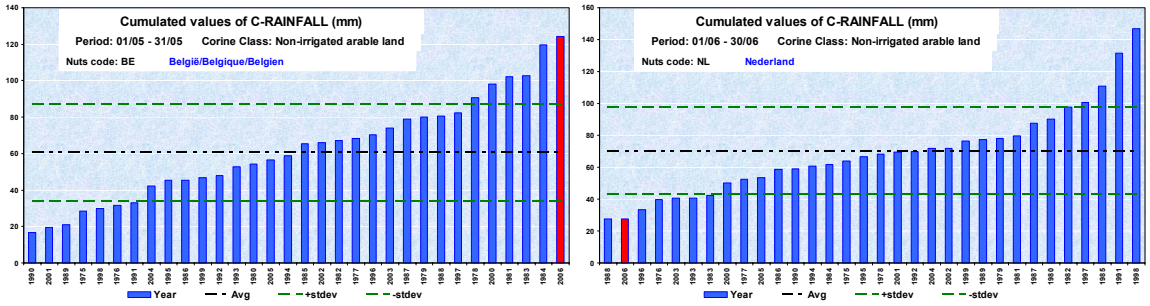
The two first decades recorded higher temperatures than average followed by two colder decades that hampered the crop development. From the second decade of June the temperature increased above average. The two countries experienced a heat spell with around 30°C maximum temperature that should not have affected the crops at non sensitive stage.

Belgium and Netherlands received higher precipitation than seasonal values during the last two decades of May. Over 130 mm were recorded in the Liege and Luxembourg areas and could have locally caused some excess moisture and soil erosion. On the contrary June was lower than average particularly in the Netherlands. For Belgium the soil moisture was so high that the crops did not suffer. For the Netherlands further rainfall will be necessary to allow and optimum grain filling.

Potato, sugar beet and maize should continue their development under normal conditions.







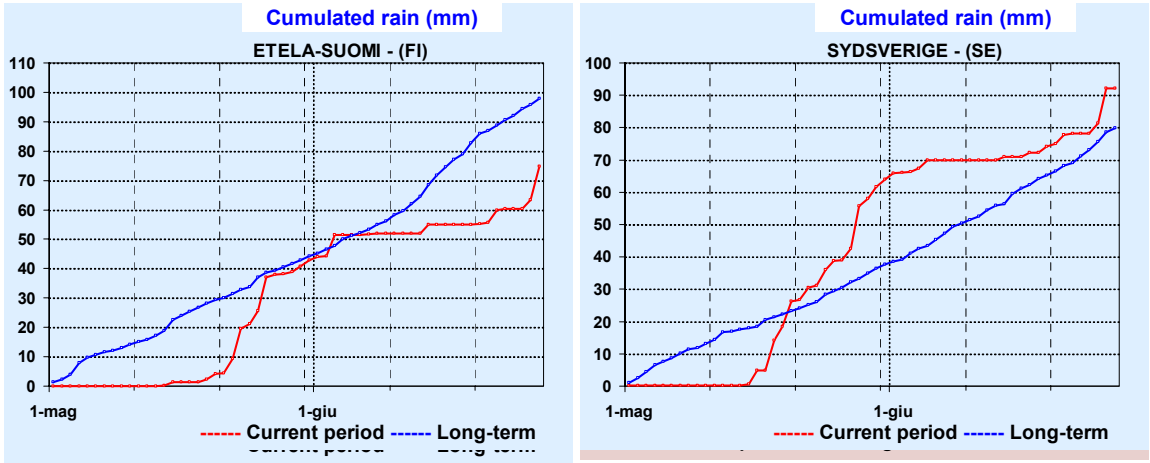
DENMARK, SWEDEN and FINLAND: two warmer waves in May and June, quite wet May, slightly drier June

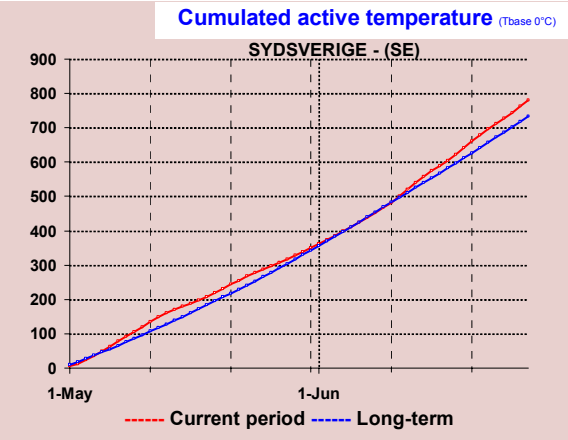
At the moment, in Denmark no relevant changes are estimated about final results compared to the previous bulletin. The expected yields are: soft wheat 7.43 t/ha (+2.8% compared to 2005) and rapeseed at 3.10 t/ha (+1.3%), barley at 5.34 t/ha (-0.7% compared to 2005, but +2.1% compared to the previous 5-years average). In Sweden: soft wheat 6.24 t/ha (-1.7% compared to 2005) and barley at 4.18 t/ha (-1.9%). In Finland the yield forecasts for soft wheat are revised slightly downward at 3.48 t/ha (-6.6% compared to 2005, but +0.9% compared to the previous 5-years average).

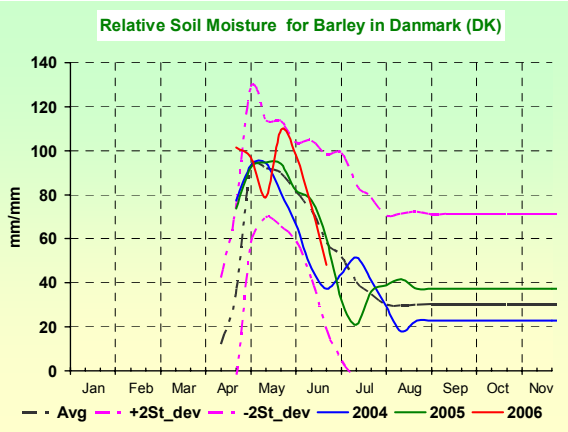
In May and June, all of the northern latitudes of Europe were crossed by two fast and unseasonable hot waves (at mid May, 24-25°C maximum daily values were recorded and in June 29-30°C, more than 10°C above the seasonal temperatures), spaced by a colder than seasonal one. However, at the end of June, the accumulation of "**active temperatures**" was only slightly above the seasonal value (+5%). Similarly, the active crops did not present a significant reaction and the delay in the development accumulated in the previous months, was approximately still present at the end of June.

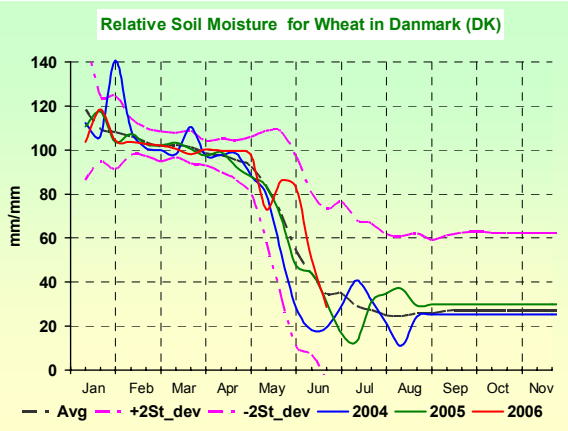
The **rainfall** was concentrated during the cold period and was particularly abundant during the last decade of May in Denmark and Sweden. Some new significant rainy events were recorded at the end of June. As a whole, the cumulated values were in general within the seasonal average.

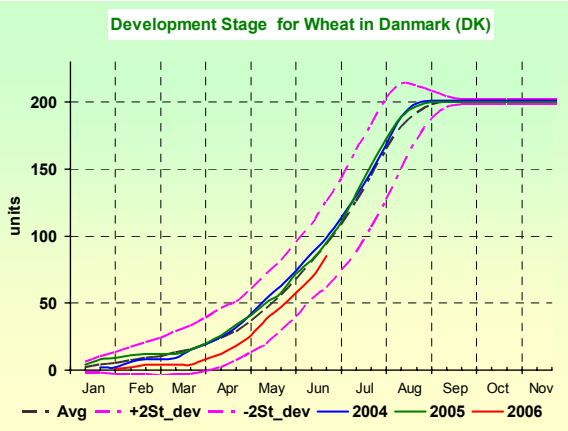
The persistent rain in May coupled with mild temperatures increased the risk of diseases and reduced the efficiency of the crop protection actions.









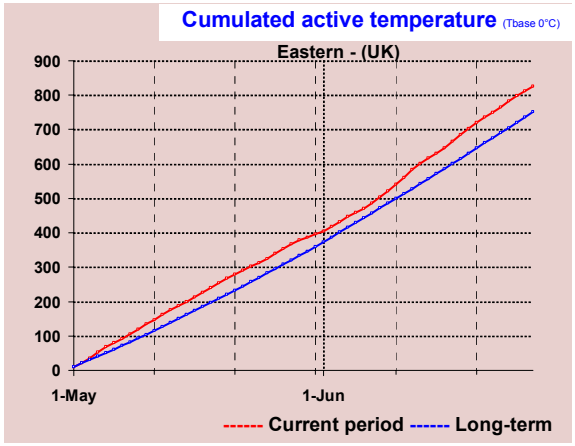


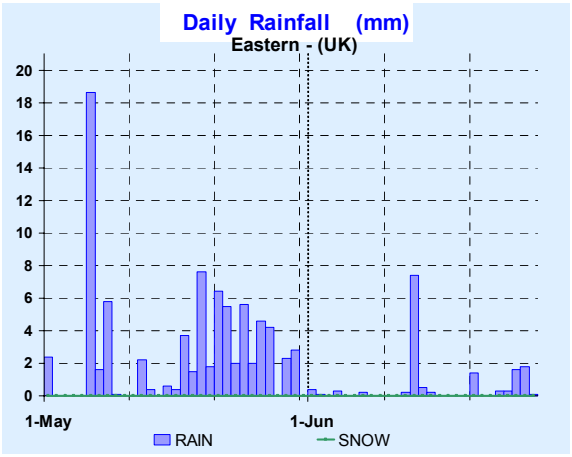
UK and REPUBLIC of IRELAND: warmer and very wet in May, unseasonably warmer and extremely dry in June

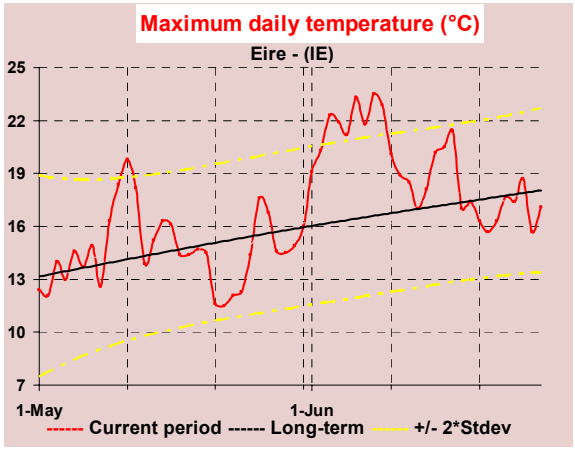
The general sub-optimal conditions recorded induce a downward revision of the forecasted yields in UK and Ireland. For soft wheat, respectively, at 7.83 t/ha, (-2.1% as compared to 2005) and 9.45 t/ha (+12.2 % compared to 2005, but +6.6 % compared to the previous 5-year average). As regards barley it is expected in UK 5.69 t/ha (-2.9% compared to 2005, but -0.2% compared to the previous 5-year average) and in Ireland at 6.73 t/ha (+8.0 %). Rapeseed yield is expected at 2.83 t/ha (-11.7%) and sugar beet at 59.27 t/ha (+3.4%) in UK. Potato at 41.89 t/ha (-1.0%) in UK and 36.65 t/ha (-7.4% compared to 2005).

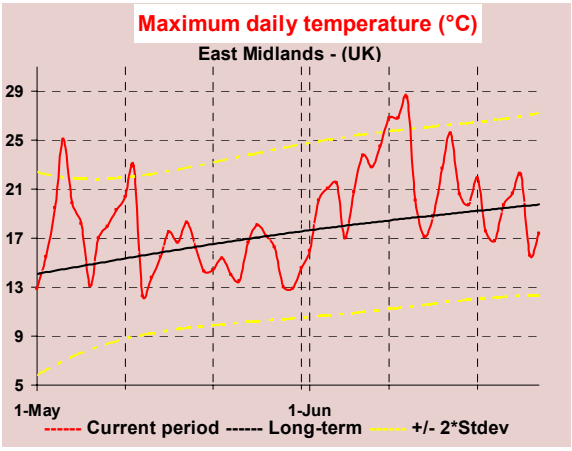
During the whole period the **active temperatures** were above the average and at the end of June the thermal surplus was estimated around 80-90° GDD. All the crops reacted and the development delays accumulated in the previous months (mainly, March and partially April) were completely recovered and even over-passed. Both in the first half of May and June some cases of anomalously high maximum temperatures (8-10°C above the average) were recorded: at mid June in East Anglia temperatures above 30°C were recorded. The **rain** was practically concentrated in May and mainly in the second half of the month, whilst in June it was negligible. In May on average, in the main agricultural areas, 80-90 mm of rain were recorded, equivalent to +80/90% of LTA. On the contrary, in June only 20% of the expected rain was registered (eg. to 10-20 mm).

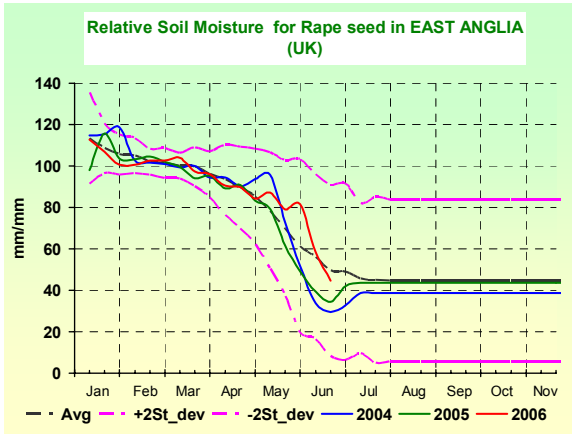
The wet and warm conditions in May were favourable to fungal infection, interfered with the crop protection activities (delay or reduced protection and efficiency) and increased the deep soil nitrogen leaching.

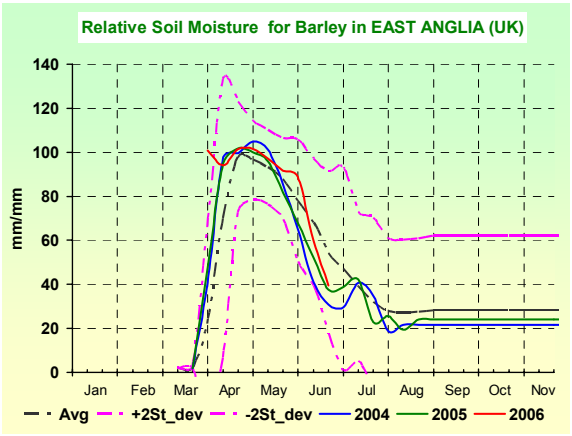












ITALY: fluctuating temperatures, still dryer than seasonal in the centre, north-west and main Islands

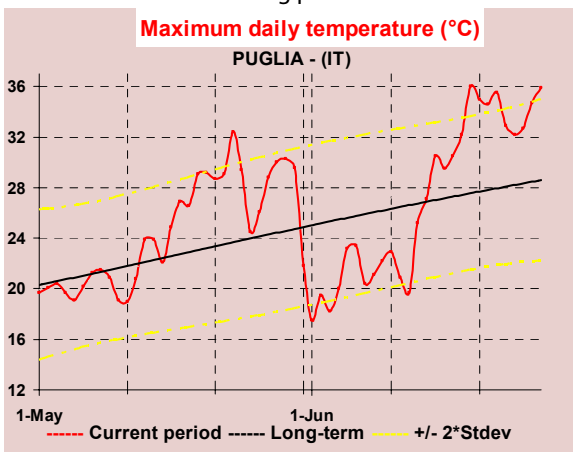
Compared to the last bulletin the soft wheat forecast is revised downward at 4.99 t/ha (-8.4% compared to 2005 and +2.4% than last 5-year average), durum wheat is even more decreased at 2.61 t/ha (-10.3% compared to 2005 and +1.4% compared to the last 5-year average). The barley yield forecast is decreased at 3.61 t/ha (-4.8% compared to 2005).

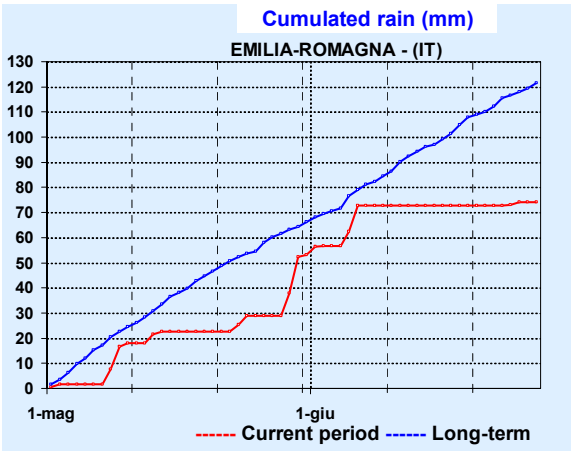
As a whole, the period was characterized by large **temperature** fluctuations and in May two significant thermal anomalies occurred: up to the third decade the temperatures progressively increased reaching around the 22nd – 24th unseasonable high values (e.g.: in Sicily values above 33°C were recorded), but this heat wave was followed by a very cold one and the temperatures dropped drastically by 12-14 °C (largely below the seasonal average). Again in June the temperatures rapidly increased and at the end of the month they were again above the normal range of variation: on the whole in Italy the maximum temperatures were

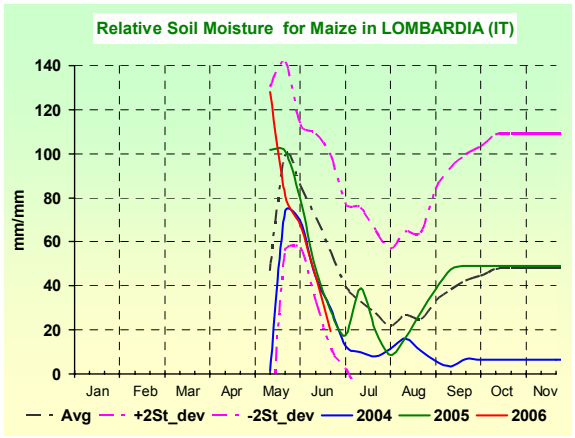
COUNTRY/REGION	Rainfall deficit (mm)	Ranking since 1975 (32 years)	Climatic Water Balance deficit (mm)	Ranking since 1975 (32 years)
ITALY	-52.0	3rd worst year (after 1992 and 2003)	-68.3	2nd worst year (only 2003 was drier)
North-West	-116.0	2nd worst year (only 2003 was dryer)	-136.6	2nd worst year (only 2003 was drier)
Friuli Venezia-Giulia	-129.0	3rd worst year (after 1993 and 2003)	-147.3	4th worst year
Emilia Romagna	-66.3	6th worst year	-72.7	6th worst year
Tuscany	-99.4	The worst year overall	-115.8	2nd worst year (only 2003 was drier)
Lazio	-89.4	The worst year overall	-106.8	The worst year overall
Sardinia	-56.5	2nd worst year (only 1983 was dryer)	-134.6	The worst year overall

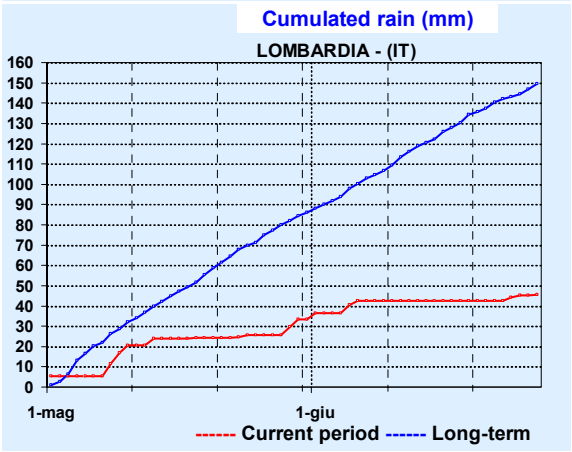
above 30°C and in Apulia and Sicily even around 36-37°C (8-10°C above the seasonal average).
In the majority of the territory (except Apulia, Basilicata and Calabria), both in May and June, the **rain** was largely below the normal (in average the rain deficit is estimable around 40-50 mm). The larger deficits were present in the centre, north-west and main islands.

The reduced rain water supply and the unfavourable thermal conditions determined a reduction of the potential yield both for the winter crops, which accelerated the maturity and anticipated the senescence, and for summer crops which faced stressing conditions.
In particular, for **soft wheat,** the reduced soil water content occurred (especially from mid May) was concomitant to the critical stage of "flowering" and "grain filling". Consequently, according to the geographical distribution to the rain deficits the yield was depressed.
The **durum wheat** faced optimal or sub-optimal soil water reservoirs only in Apulia but definitively too dry in all the others areas of cultivation (Sicily, Sardinia and Molise). In those areas the yield depletion was larger than the good results obtainable in Apulia.
Like the others winter crops, **rape seed**, mainly cultivated in central Italy (Tuscany and Umbria), unfortunately faced persistent dry conditions which likely compromised the final results. For the **spring crops** (mainly maize, sunflower, sugar beet) cultivated in the irrigated areas, anticipated irrigation interventions were necessary and considering the limited water reservoirs available for irrigation, the future rain supply will be decisive for the final yield success. In the rainfed spring crops areas (mainly Alpine foothill areas) due to the dry conditions very likely the plants suffered and the damages occurred will be hardly recovered in the remaining part of the season.





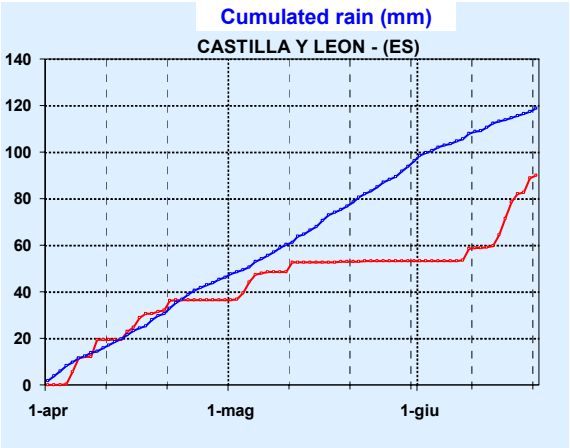


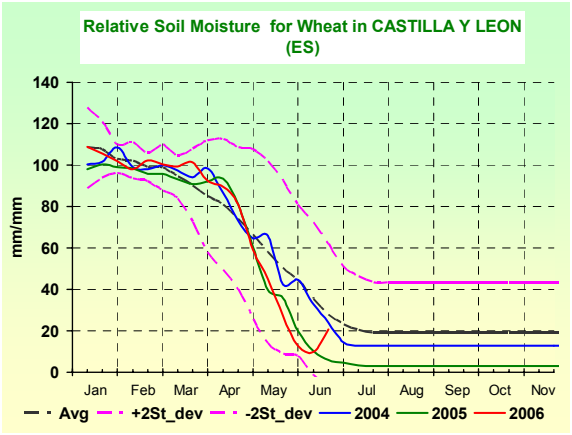


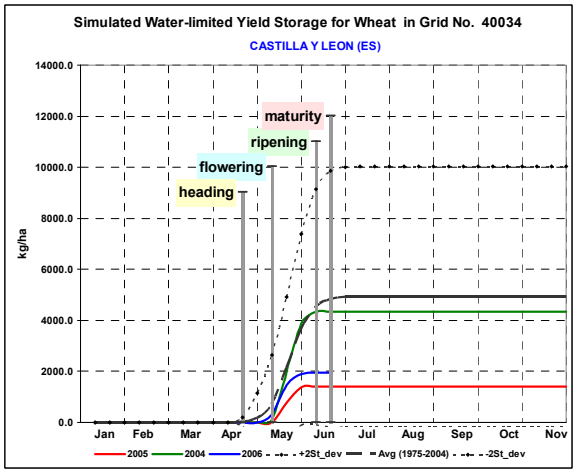
SPAIN and PORTUGAL: drought during May was partially compensated by sufficient rain in June

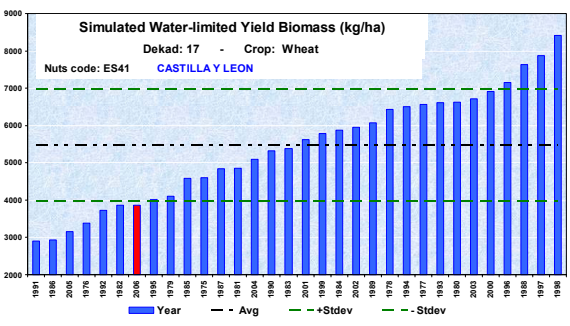
The month of May was characterized by a significant lack of rain, affecting winter cereal in their most vulnerable phases. Rain in June was not sufficient to recover the losses. A yield of 2.58 t/ha is expected for soft wheat in Spain, higher than in 2005 but still 11% below LTA. For durum wheat is estimated a yield of 1.49 t/ha, on the same level as in 2005. Winter and spring barley show the same trend, an improvement on 2005 but still below the LTA. The overall trend for Portugal reports a fully recovery on 2005 and forecasts for winter cereals are on average levels. Expectations are positive for summer crops.

The deterioration of weather conditions in April continued for the whole month of May. Between the first decade of May and the beginning of June, the cumulated rainfall over most north-western Spain and in Portugal was even below the corresponding period in 2005 with the exception of southern Spain. As for Portugal, there had been sufficient rain in March and April so the May drought was less relevant. Precipitation took an upturn in the second decade of June and rains were reported over most of the Iberian Peninsula. Winter cereals are at present in the late maturity phases and near to harvest almost every where. Spring barley is still ripening and due to the higher temperatures in May is slightly anticipated. The period of most intense drought during May combined with higher than average temperatures, affected cereals during flowering and ripening and eventually when the rain picked up, it was probably too late to make up for the damage. However, the overall season, though reporting significant losses, was still better than 2005. Grain maize in Castilla Y Leon as well as other summer corps such as sunflower in Andalucía, were only marginally affected by the May drought and took advantage of the June rains. A normal to positive outcome is expected for these crops at present.







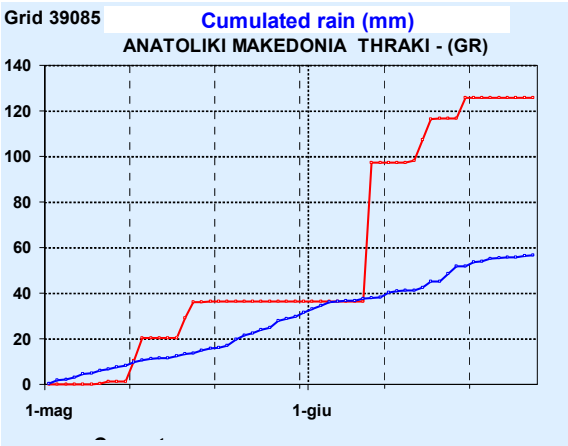


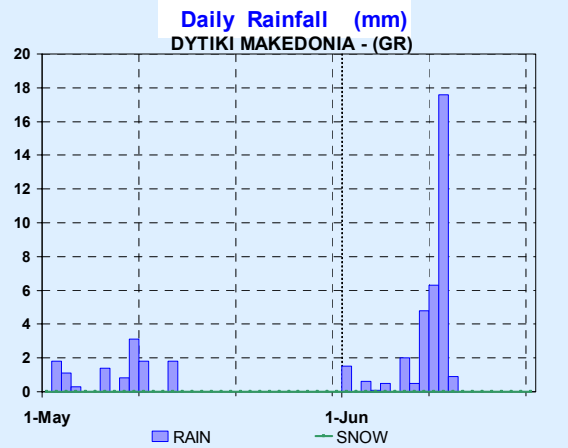
GREECE: after the dry spell in May, rains in June favoured the final development stages of winter crops

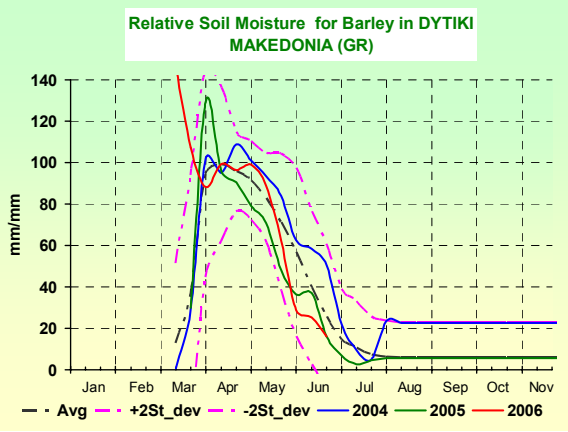
Abundant rains in June allowed a recovery after the May dry spell and an improvement in production expectations. Soft wheat is expected to yield 2.76 t/ha (+2% on 2005) while the forecast for durum wheat is 2.19 t/ha (+ 9% on 2005). Barley, delayed on the other cereals, was more affected by the drought in May and is expected to yield 2.27 t/ha with a reduction of 5 % on 2005, but still above the LTA by 6%.

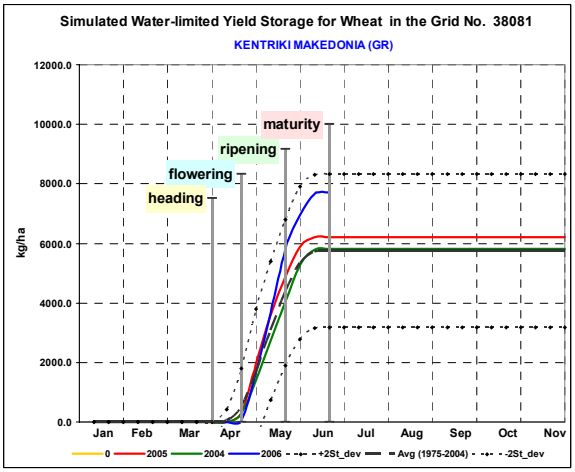
The month of May was characterized by reduced precipitation, with less than 14 mm of cumulated rain over most of Greece. The situation improved significantly at the beginning of June and though a certain shortage persisted in Thessalia and in the south of the Peloponnesus, the main cereal production areas of the north and north-east reported good rain with a relative recovery in the available soil moisture. Durum wheat, which is mainly cultivated in the north-east, reached maturity at the end of June. Soft wheat with a wider diffusion across northern Greece is still ripening and the same can be said for barley. The rains in June combined with lower than average temperatures found the winter cereals in their final stages of development and this allowed a certain recovery from the unfavourable conditions experienced during May.

Grain maize which, like other summer crops, has some diffusion also in the centre of the country reached the heading phase and, though mainly under irrigation, could have been negatively affected by the local moisture shortages. The same considerations can be made for sugar beet while for potatoes, present mostly in the north-east, a good outcome is expected.





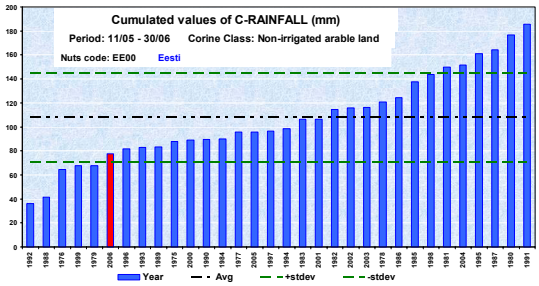


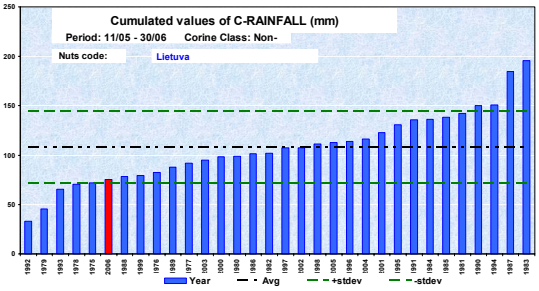


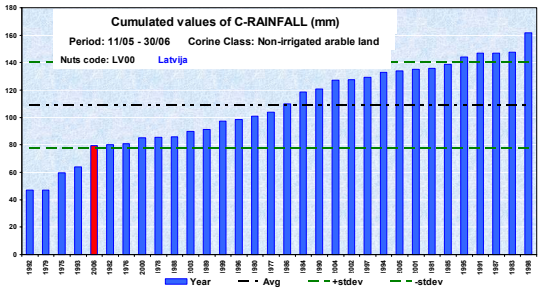
ESTONIA, LATVIA and LITHUANIA: continued dry period

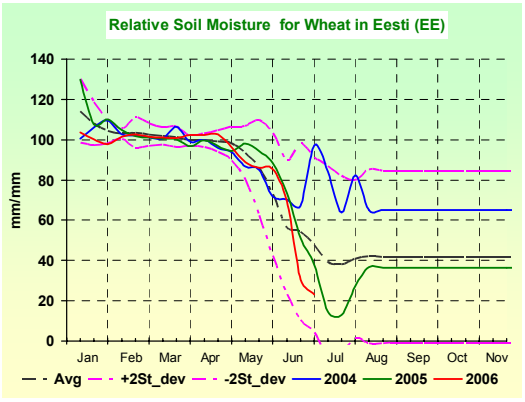
The forecasted yields for Estonia are: 2.7 t/ha (+9% difference as compared with the average of the last 5 years) for wheat (total) and 2.0 t/ha (-5.4% from last 5 year average) for barley (total). The forecasted figures for Latvia are: 3.3 t/ha (+7.4% from last 5 year average) for wheat (total) and 2.2 t/ha (+7.1% from last 5 year average) for barley (total). In the case of Lithuania the expected values are: 3.8 t/ha (4.4% from last 5 year average) for wheat (total) and 2.8 t/ha (4% from last 5 year average) for barley (total).

The temperature of the considered period was close to normal and so was the global solar radiation except for central Latvia and some small area from Lithuania where it was higher than normal (>+10 to +17%). The second decade of June brought unusual hot maximum temperatures: 28.5°C in Estonia, and above 29.3°C in Latvia and Lithuania. The received precipitation was below long term average and so was the climatic water balance, the cumulated precipitation from the beginning of the year was the lowest from the last 32 years. The low intensity rain received (0.8 – 8 mm/day) almost daily in the last half of May and beginning of June postponed but not prevented a sharp drop of the relative soil moisture simulated for winter crops which at the end of the considered period was far below long term level. The impact on simulated water limited biomass is not yet visible. Incidence of usual diseases may change due to dryness (a positive effect may be expected in this sense).







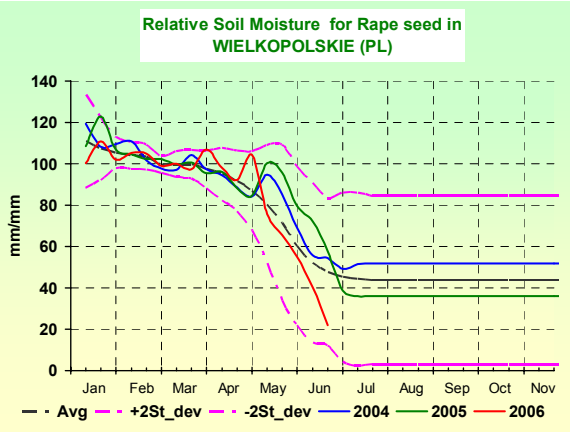


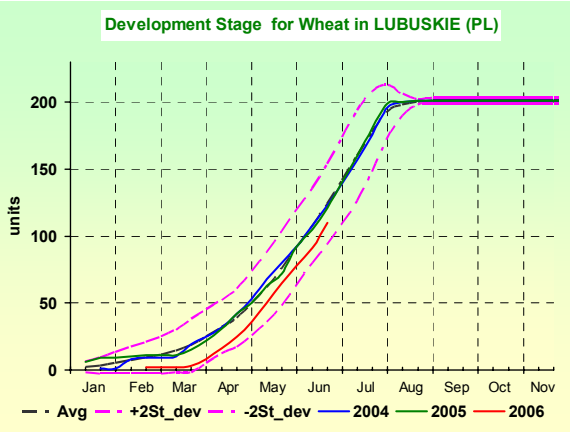
POLAND: a good year is depicted

Except for spring barley (2.98 t/ha, -3.9 % compared to the average) which was sown with a delay in the eastern half of the country, a good potential is shown for Poland. Forecasts are 3.86 t/ha for soft wheat (+1.5 % with respect to the 5-year average), 3.6 t/ha for winter barley (+0.7 %), 2.71 t/ha for rapeseed (+12.2 %), 5.85 t/ha for grain maize (+1 %), 43.96 t/ha for sugar beets (+7.2 %) and 18.92 t/ha for potato (+4.2 %).

Slightly below average rainfall in the western and central regions (especially Dolnoslaskie and Lubuskie) is explaining the below-average soil moisture simulated for this part of the Country for most of the crops. A cold wave was recorded during the first decade of June.

Soft wheat and barley are entering the flowering stage with about a 1-week delay for the former, which has only partially recovered the delay accumulated in the first part of the season. Rapeseed is completing its cycle according to the average: the delay evidenced in the previous analysis has been completely recovered. Some light water stresses could verify for spring crops in the western part of the country, while barley is probably affected by delay in sowing in the eastern regions.

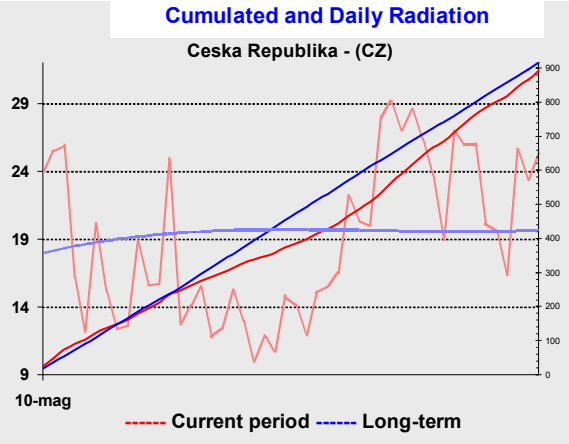


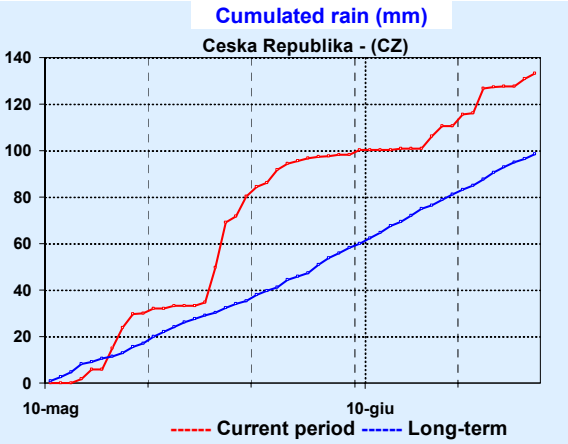


CZECH REPUBLIC: spring barley penalized by delayed sowing

Soft wheat and winter barley are expected respectively at 4.94 t/ha and 4.2 t/ha. Although higher than the 5-year average, these values are slightly lower than those recorded for 2005 (-2.2 % and -4.6 %). Rapeseed yield is foreseen to be lower than last year's one (2.62 t/ha, -9 %) and close to the average. Spring barley (3.59 t/ha, more than 10 % lower both than 2005 and than the average) is penalized by the delay in sowing caused by the soil moisture excess discussed in the previous bulletin. Such a

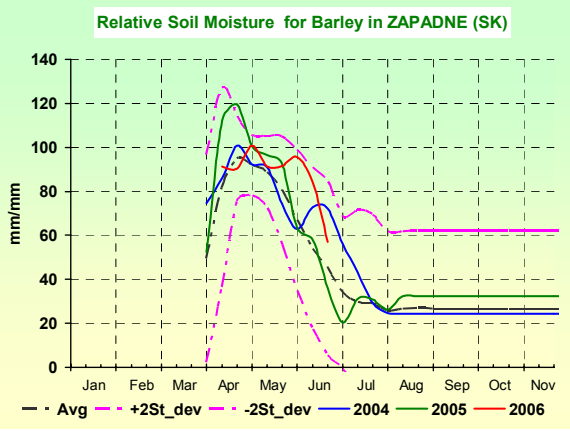
decrease is not forecasted for the other summer crops, especially grain maize (7.69 t/ha, +6.4 % compared to 2005), because their canonical sowing period is post-posed with respect to spring barley.
The cold wave which interested central European countries during the end of May – first decade of June, caused in this country levels of irradiance decidedly below the average while winter wheat and barley were in the heading stage. High soil water contents are simulated for the same period for most of the crops.
Soft wheat is at mid-flowering with about 1-week delay compared to the 5-year average. Precipitations are assuring more than sufficient water availability. Rapeseed is concluding its cycle according to the norm. Also in this case, soil moisture is supporting well the high transpiration requirements due to the high temperatures recorded since the 10th of June. Spring barley's development still presents the delay discussed in the previous analysis.

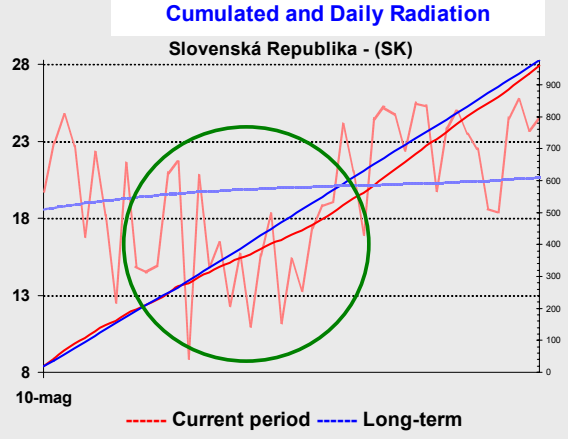




SLOVAK REPUBLIC: below 2005 year except for rapeseed

Not a good year for Slovak Republic: except for rapeseed (2.2 t/ha, +0.6 % compared to last year), the situation is forecasted to be worse than 2005. Decreases are expected to be 7.5 % for soft wheat (3.96 t/ha), 10.5 % for winter barley (3.19 t/ha), 10.4 % for spring barley (3.22 t/ha), 16.7 % for grain maize (5.86 t/ha), 16.3 % for sugar beets (43.88 t/ha), 4.4 % for sunflower (2.03 t/ha) and only 0.2 % for potato (15.49 t/ha).
The abundant rainfall of the last decade of May and of the first of June are assuring enough water for crops' requirements, despite the warm and relatively dry second part of June.
Soft wheat is at mid-flowering with a 1-week delay with respect to the norm. The crop could have been penalized by the low level of irradiance verified between the 20 of May and the 10 of June. Rapeseed is reaching maturity according to the average and the soil moisture is enough to avoid both water stress and excessively wet conditions. Barley was sown in delay because of the unfavourable conditions in the canonical sowing period and could have suffered the water excess in the western part of the country in the period between May and June.



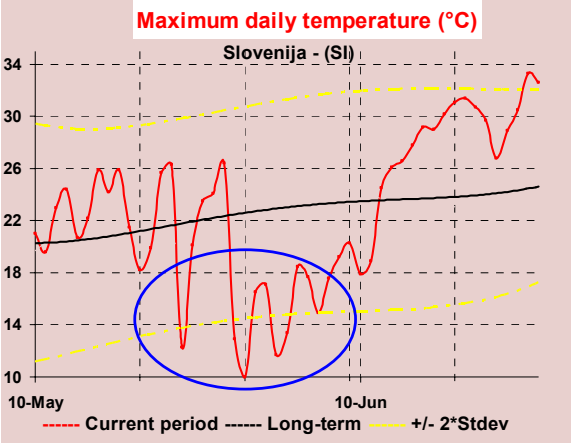


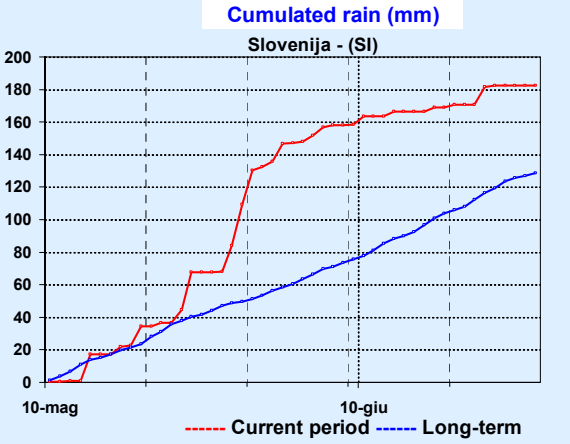
SLOVENIA: a cold wave invested the country at the beginning of June

A slight decrease in yield is expected compared to 2005, although the situation is always above the average: 4.67 t/ha for soft wheat (-0.7 % compared to the last year), 3.94 t/ha for winter barley (-0.6 %) and 8.03 t/ha for grain maize (-3.1 %).

Temperatures (especially the maximum) reached unusually low values in connection with the storm events which occurred during the last decade of May and the first days of June.

Soft wheat has started the ripening phase with something less than a 1-decade delay.

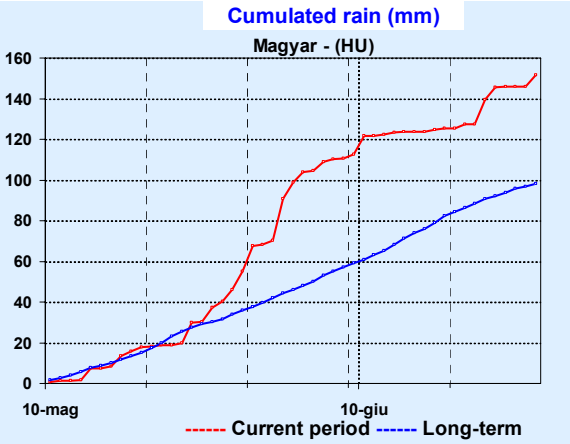


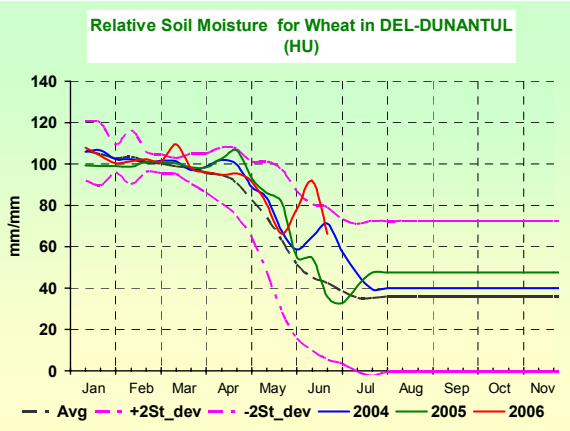


HUNGARY: confirmed the good potential for winter crops

Good potential shown for winter crops, which are promising to yield more both than the average and than 2005: 4.59 t/ha soft wheat (+2.2 % compared to the last year), 4.19 t/ha for winter barley (+4.7 %), 2.67 t/ha for rapeseed (+15.4 %).The situation depicted for summer crops is not so enthusiastic (except for maize (7.36 t/ha) which current forecast shows to reach 2005 record), although average values are generally exceeded. Forecasts are 3.02 t/ha (-14.1 % compared to 2005) for spring barley, 52.14 t/ha (-8.6 %) for sugar beets, 2.11 t/ha (-2.9 %) for sunflower and 24.16 t/ha (-6.7) for potato.

The abundant precipitations during the first decade of June could have caused few problems of soil moisture excess in the southern part of the country (Del-Dunantul). In the same period, dramatic decreases in temperature were recorded. Soft wheat is completing the flowering stage according to the average. Rapeseed, which is showing really a good potential, has completed its cycle. Spring barley has reached the mid-flowering stage under suboptimal conditions.



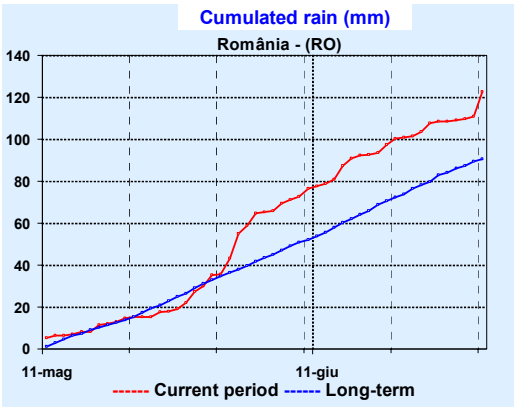


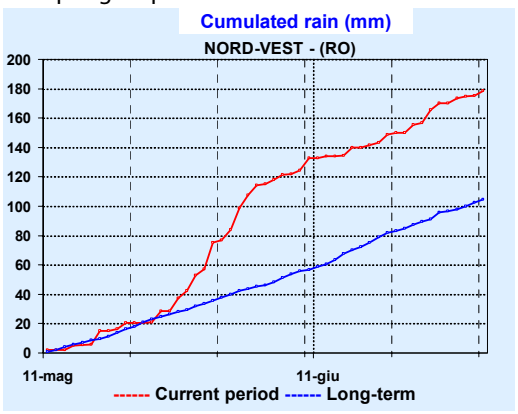
ROMANIA: the wetter than normal period continued

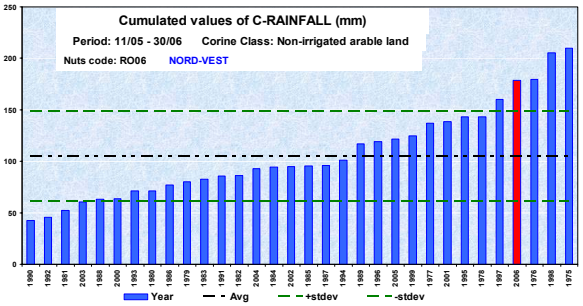
The forecasted yields (excluding the sown surfaces totally eliminated by frost) are: 3.1 t/ha (+20.8% as compared to average of previous 5 years) for wheat; 2.3 t/ha (-5.2%) for barley and 1.6 t/ha (38.4%) for oil seed rape.

The sum of active temperatures was close to long term average. The cumulated rain for the beginning of the considered period was close to normal. The rain received at the beginning of June made a higher than

normal monthly average. Some new local flood events could possibly occur in this period. Increased precipitation (compared with normal) was reported especially in north-western Romania.
The good level of the simulated yields for winter crops should be considered with caution because the impact of winter damages and the diseases favoured by the wetter weather are not taken into consideration. However, for wheat and rape seed there are still chances for a yield better than the average of the last 5 years (>+20%). The simulated water limited biomass for the spring crops is close to normal.



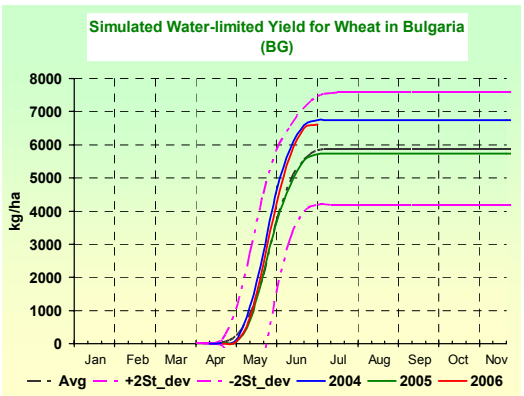


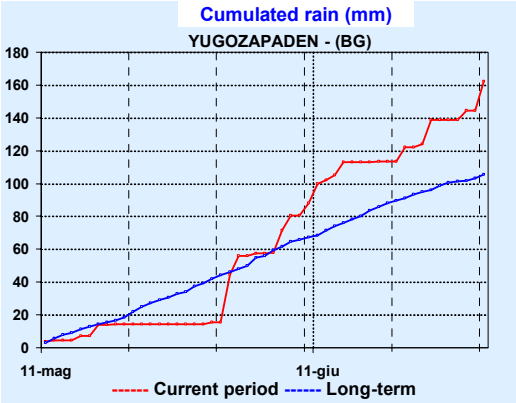


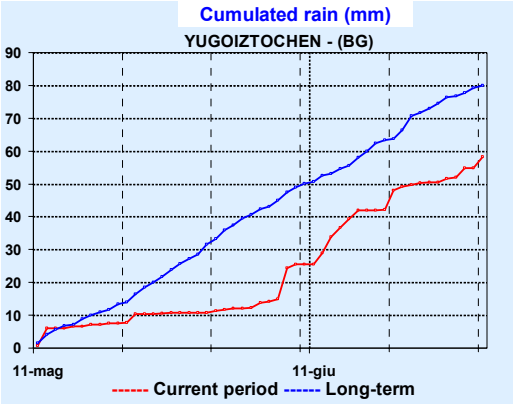
BULGARIA: drier than usual in eastern areas while wetter in west, but a good yield for winter crops is foreseen

The forecasted yields are: 3.3 t/ha (+8.2% as compared to the average of the last 5 years) for wheat and 3.0 t/ha (+4.3%) for barley.

The thermal resources available for winter crops (Tbase =0°C) were close to normal for the considered period. The rainfall received during this period was generally below the normal level except in western Bulgaria where the last half of the considered period was wetter than usual. The cumulated global solar radiation estimated for this period remained above the long term average. The development was close to normal for all the crops, with the exception of rape seed which achieved the maturity slightly in advance. In spite of the significant drop of soil moisture in the eastern areas, the simulated water limited yield of winter crops is above the long term level. The simulated water limited biomass for the spring crops is close or above the long term level, except level of biomass simulated for potato which is lower.







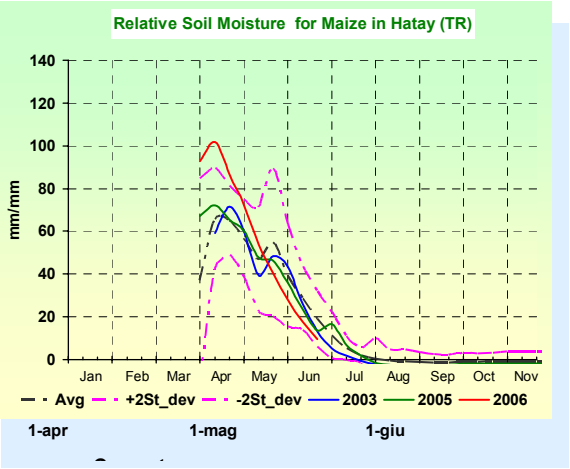
TURKEY: the beginning of the summer was characterized by a diffuse drought. A reduction of yield is then expected for winter cereals

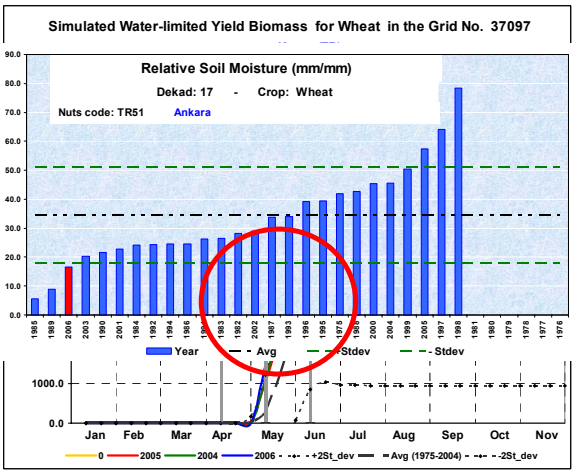
The drought that started in early May continued throughout June, with a higher intensity in the eastern regions of the country. These conditions, combined with heat waves in the central highlands, resulted in a decrease in yield expectations. For wheat the expected average yield is 2.12 t/ha (-5% on 2005). Barley is expected to yield 2.44 t/ha (-3% on 2005). Spring crops such as grain maize, cultivated mainly on the coastal areas, were also affected by the warm and dry weather. Grain maize is expected to yield around 4.77 t/ha (-21% on 2005 and -4% on the LTA).

The cold and wet weather that characterized the season up to early April delayed the development of wheat and barley. The increase in cumulated active temperatures in May allowed the recovery of a normal trend and most winter cereals started ripening during the first decade in June.

Overall precipitation, after the alternating dry and wet periods through April and May, was consistently reduced in June in most of the cereal producing areas of central and eastern Anatolia. In Western Turkey however, especially in Tekirdag, across the Bosporus and in the western Black Sea and the Aegean coast, rainfall levels were still adequate. These combined occurrences depressed the average yield expectations for both wheat and barley, especially as they were also associated with a few heat waves in the central highlands (Ankara) which further enhanced the negative effects of the ensuing drought.

In the main grain maize and spring crops production areas of the south-east and on the Mediterranean coast (Antalya, Adana and Hatay), rainfall remained significantly below average starting from early May and the production season is expected to be negatively affected.



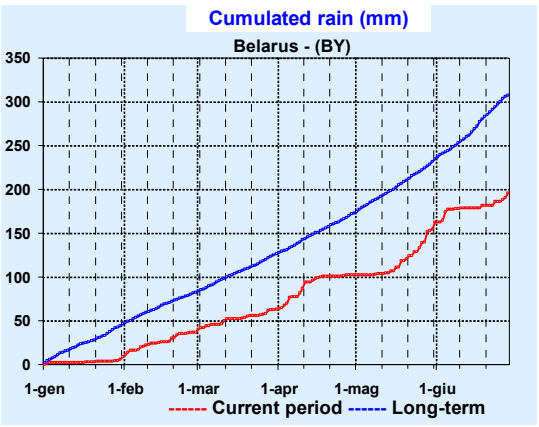


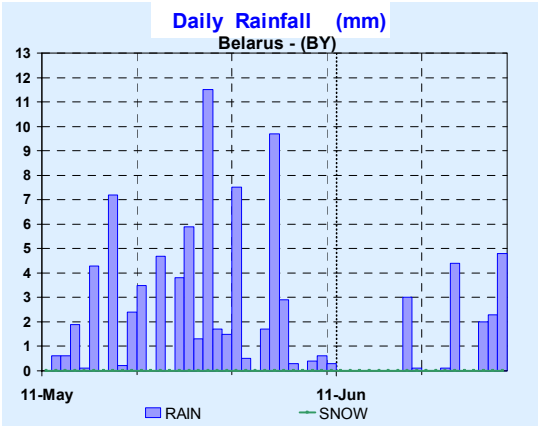
Eastern Countries and Russia

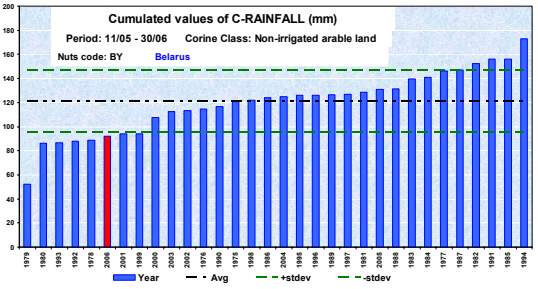
BELARUS: soil moisture increased at beginning of June

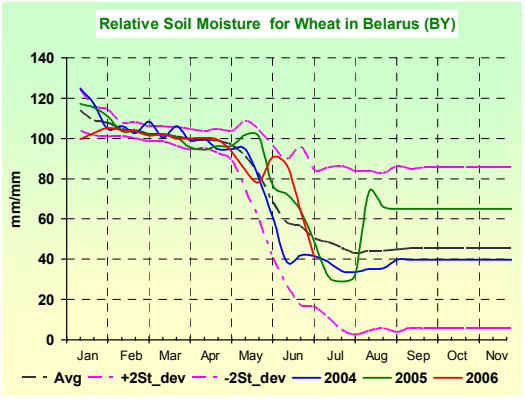
The level of cumulated rain in the first third of the considered period was close to normal, while at the end of May – beginning of June it was slightly wetter. Eventually the last two weeks were slightly drier than usual. The ranking of the year as the 6th driest year since 1975 remains unchanged. Around 11th June the accumulation of the thermal resources decreased with about 50 degree days below the long term average, but partially recovered at the end of June. The good level of solar radiation and the rainy days from the

beginning of June allowed a very good level of simulated water limited area index (LAI) (the 2nd since 1975) for winter wheat crops. A similar evolution of relative soil moisture was recorded for barley and rape seed. The increase in LAI was correlated with improved levels of simulated water limited biomass and the winter crops had a chance to recover from the previous dry period. However, the status of the crops remains vulnerable due to the new decrease of the relative soil moisture at the end of the considered period. The water limited biomass of maize is below long term level.









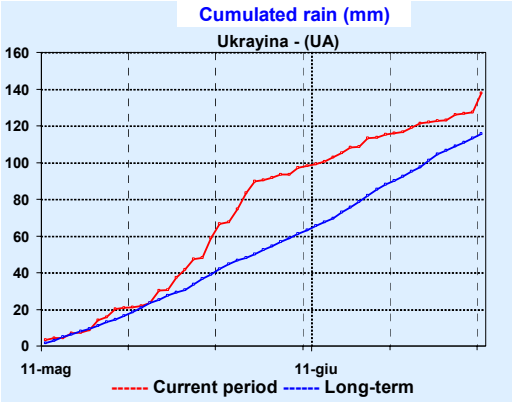
UKRAINE: high levels of soil humidity for most of the country

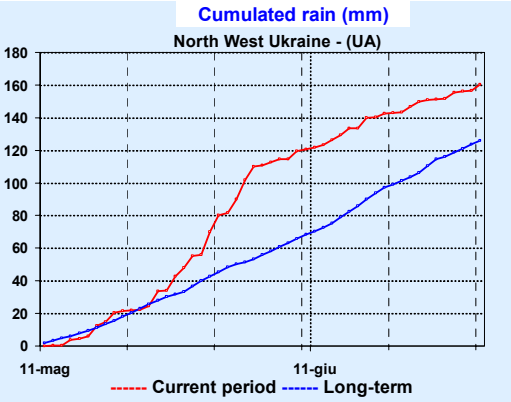
The forecasted yields (excluding the sown surfaces totally eliminated by frost) are: 2.6 t/ha (-3.6% as compared to the average yield of the last 5 years) for wheat; 2.1 t/ha (-7.1% from average yield of the last 5 years) for barley and 1.4 t/ha (+15.6% from average yield of the last 5 years) for oil seed rape.

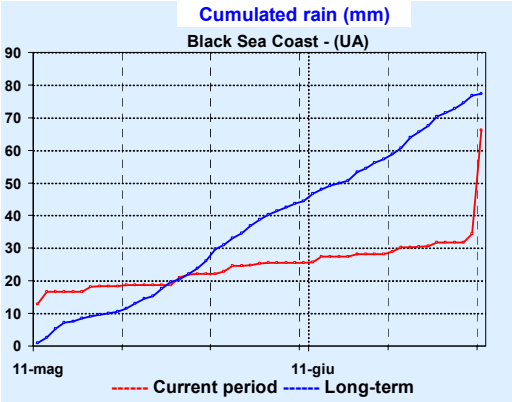
The accumulation of the thermal resources was in the normal range.

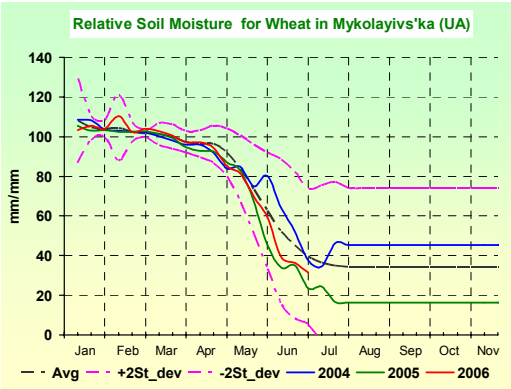
The water balance was positive in the western half of the country and negative in the east due to the rain distribution which was abundant-to-excessive in the northern-western parts and lower than long term average around the Black Sea and eastern areas. Here only the precipitations contributions from the first day (12.8 mm) and from the last day (32.8 mm) of the considered period reduced partially the soil water deficit (the maximum daily rainfall for the rest of the days was 3.8 mm). In spite of the poor precipitation, the global solar radiation received by eastern areas of Ukraine was -15% less than long term average due to cloud presence, the levels recorded for the rest of the country being close to long term average. The simulated relative moisture climbed or remained above long term level either due to precipitation received in this period or due to reserves from the previous period for most of the country, excepting Nikolayev and Odessa areas (with lower than usual levels of soil moisture). The simulated water limited yield is slightly below long term average), but a timely application of the treatments for diseases favoured by excess humidity may make the yield difference this year.

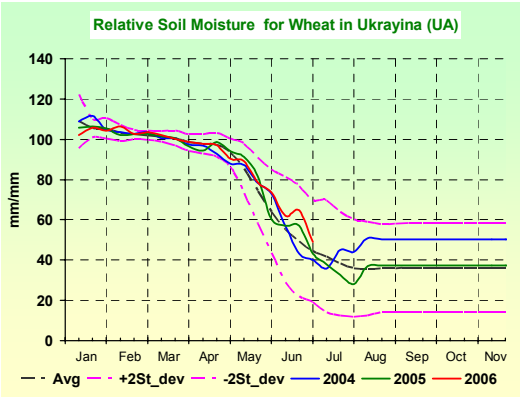
The simulated water limited biomass of the sunflower and maize was lower than usual for most of the country, except the central areas where it was close to (or slightly better in the case of the maize crops) the level expected for the simulated vegetation stage.

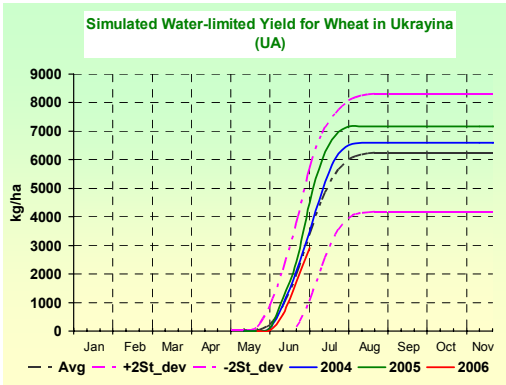












RUSSIA: dry spell in Central Russia and Urals region

The period under analysis is the time for winter crop maturing and harvesting, and the first stages of the summer crop development in all regions of the European Russia.

The air temperature during June 2006 was higher than normal, and higher than in previous year. In some regions of Central Russia and Urals region it was extreme for summer crop development.

The amount of precipitation was lower than normal in Central, and Volga regions of Russia and especially near the Urals mountains. As a result soil moisture content at the beginning of July 2006 was lower than normal practically everywhere, excluding Northern Caucasus region where it was close to normal.

Analysis of results of crop growth simulation demonstrates better than in previous year wheat status only in some regions of Northern Caucasus. The winter wheat status in other regions is likely to be worse than in the previous year with good yield.

Remote sensing indicators demonstrate worse vegetation status at the end of June 2006 compared with the previous season in the Urals region, and slightly better status for Northern Caucasus region.

As a result, the yield of winter crops seems to be lower by 15-20% than in previous year (due to unfavourable winter conditions and dry spell at the end of the season) practically everywhere, except some regions of Northern Caucasus, where it seems to be close to the previous season.

The meteorological conditions for summer crops were favourable in all regions, except the Central Russia, middle Volga, and Urals regions where low amounts of precipitation should delay crop development, which should lead to a decrease of summer crop yield in these regions.

Maghreb

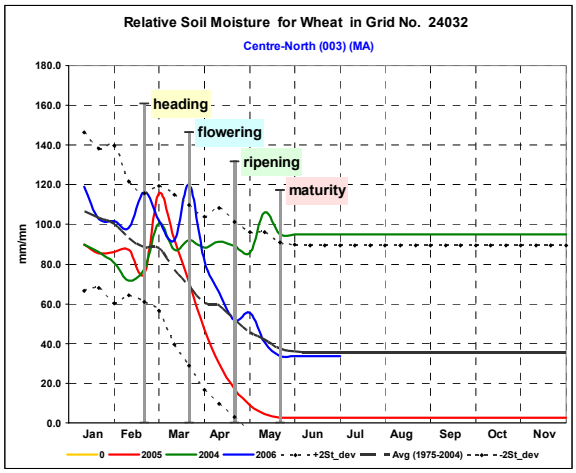
MOROCCO, TUNISIA and ALGERIA: a rather dry spring did not significantly affect yields

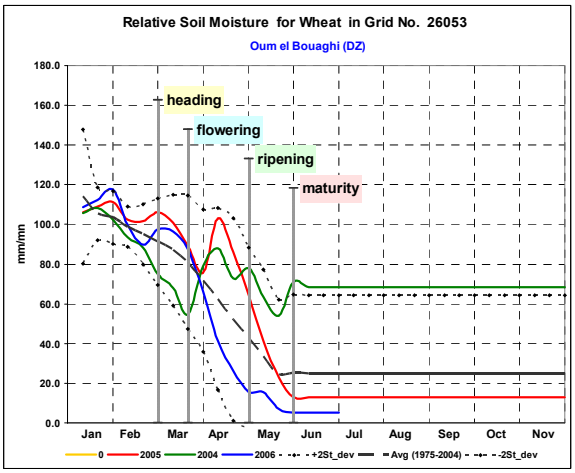
A cold and wet winter was followed by a dry spring which however did not significantly affect productivity. In Morocco wheat is expected to yield 1.42 t/ha (+38% on 2005 but -2% on the LTA). Barley is on 0.91 t/ha, double that in 2005. For Algeria the forecast is for 1.37 t/ha (-5% on 2005) while for Tunisia, wheat is expected to yield 1.74 t/ha (+6% on 2005 and -4% on the LTA). Barley with 0.92 t/ha, reports a reduction of 20% on 2005.

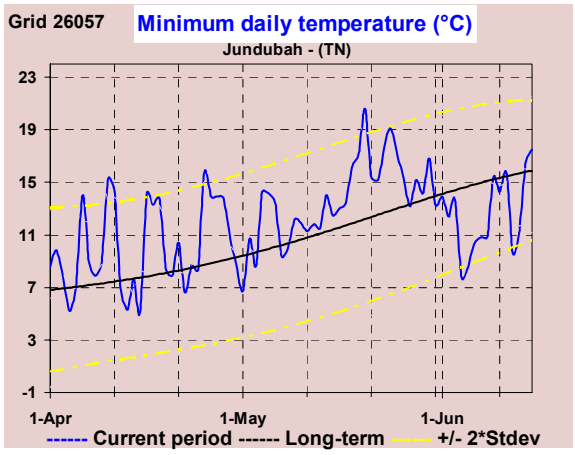
In Morocco, like most of the Maghreb following a wet March, there was a significant reduction of rainfall in April. Precipitation picked up again at the beginning of May but the season remained rather dry moving east into Algeria and Tunisia. The rain deficit that accumulated during April reduced the soil moisture availability for the crops, but not in such a measure to significantly affect the outcome of the season. The overall conditions in Morocco were certainly better than the droughty 2005 while in Algeria, that had experienced a fairly positive season in 2005, there was a reduction in yield but still above the norm for both wheat and barley. In Tunisia, though reduced, the precipitation was sufficient to assure an improvement on the 2005 season for winter wheat. Barley however, suffered more from the rain deficit in the area and it is expected a decrease of over 20% on 2005.

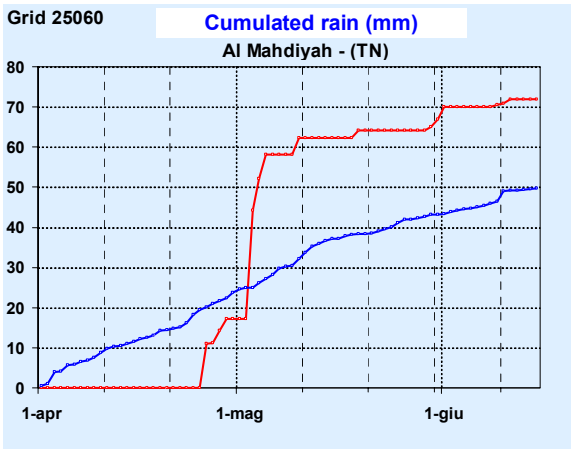
Almost everywhere across the Maghreb, the cold winter was followed by higher than average temperatures in April and May and this occurrence accelerated the development of winter cereals. Maturity was achieved at the end of May, with harvest in early June. No heat waves were reported in the most important cereal production areas

Grain maize, in Morocco, was affected by the climatic worsening in late spring and for this crop is expected a yield reduction even from the 2005 levels.

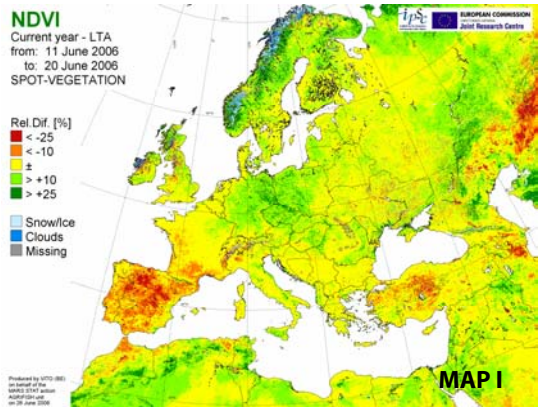


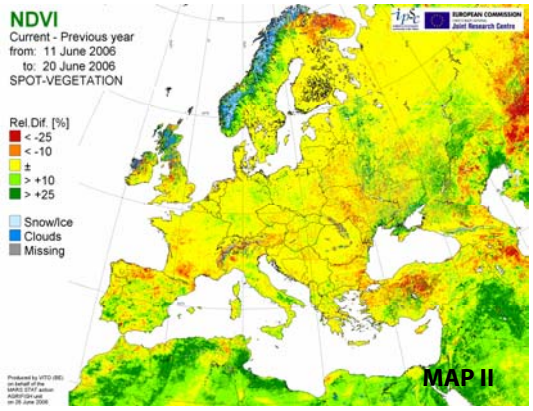






4. SPOT Vegetation satellite analysis





Map highlights: Recovery of the delayed vegetation development for Germany and Poland. Overall drought effects less severe compared to 2005 for Portugal and large parts of Spain and France.
The relative NDVI comparisons with the long term average (map I) and the previous year (map II) for the second decade of June allow evaluation of the vegetation development for the time of maximal biomass accumulation in Germany, Poland and the Baltic States. The delayed biomass accumulation caught up and the yield potential is in the same range or even better than last year (green colours map I). Despite this favourable situation NDVI values for eastern Poland didn't reach the potential of last year (orange / red map II).
For the Iberian Peninsula and parts of France the state of the entry into the senescence phase is reflected in the comparison maps. For huge parts of the main cultivation areas actual NDVI values are below the long term average but above the drought which occurred in 2005 (green and dark green colours map II). A disadvantageous advanced senescence phase occurs in Cataluna and Aragon, expressed by NDVI values lower than the last year. Moreover some areas in France like Midi Pyrenees are more affected than in 2005 in terms of duration of the maturity phase.

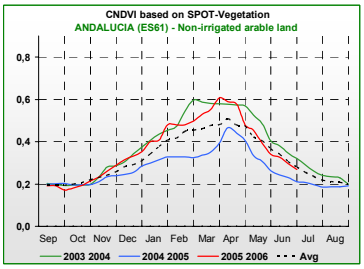
CNDVI profile highlights: Drought starts to be reflected in the profiles from France and Spain. Normal yield potential for Italy reached, less favourable for Sardinia. Germany caught up to normal crop development with good potential.
Crop development in **Andalucía (Spain)** entered the senescence phase. The profile shows an abrupt decrease and drops below the average. Yield expectations are diminished because of the shortened maturity phase, whereas vegetation boosting was well above the average. For **Aragon (Spain)** a shortened crop cycle can be detected, characterized by a fast crop growing and an early maturity phase dropping quickly below the average conjoining the drought profile from 2005.

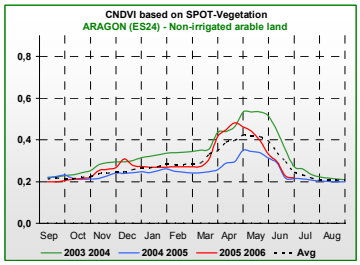
For the **Midi-Pyrenees (France)** the start of the season followed the average and was on time. Concerning the maximum biomass development and the associated senescence phase drought effects become now visible. Whereas the vegetation boost was delayed in 2005, 2006 is characterized by an advanced entering into the maturity phase and a decrease of the NDVI values. This will lower the yield potential. Looking at the profile of **Centre (France)** a delayed start of the season can be observed but biomass development caught up in April and cumulated around the average. The yield potential is quite good and should be similar to the previous years.

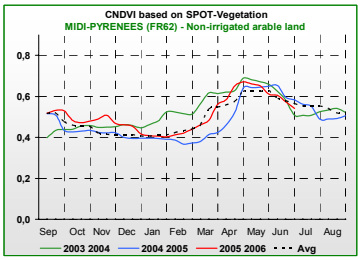
Vegetation growth in **Emilia-Romagna (Italy)** is similar to the previous years but with a delayed climax compared to 2005. The overall potential is good so far, but we see a sharp entry into the maturity phase. The more advanced season in **Sardinia (Italy)** shows a less favourable situation. It reveals a hampered start of the season below the average. This was combined by an early vegetation peak and a quick and sharp entry into the senescence phase corresponding to a shortened crop maturity and diminishing the yield potential.

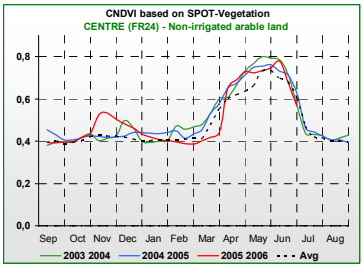
The profile of **Braunschweig (Germany)** shows the vegetation delay which characterized this spring in Germany due to low temperatures. Vegetation boost started mid April and reached a level well above the average with a good yield potential emphasised by the long-standing high level of biomass production. Similar development is found for **Denmark** but with an overall lower biomass activity.

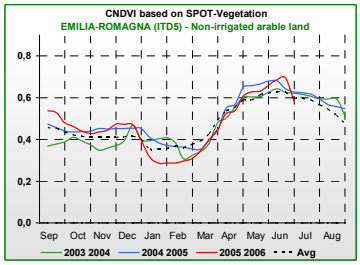
Adverse climatic conditions throughout the vegetation boost hampered the development for the profile shown for **Poland.** Vegetation growth started late for **Lubelskie** and remained below the average with a late maximum biomass accumulation, reducing yield expectations.

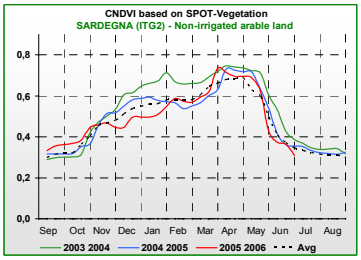


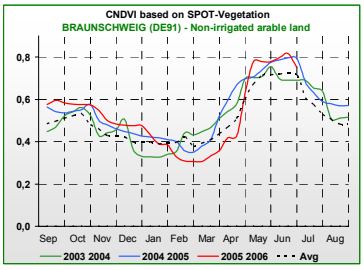


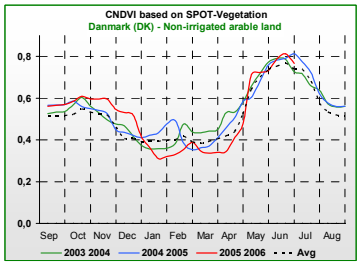


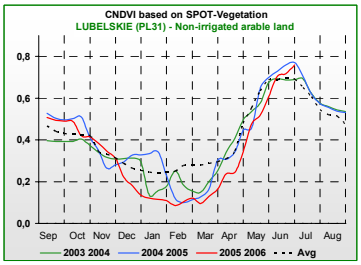






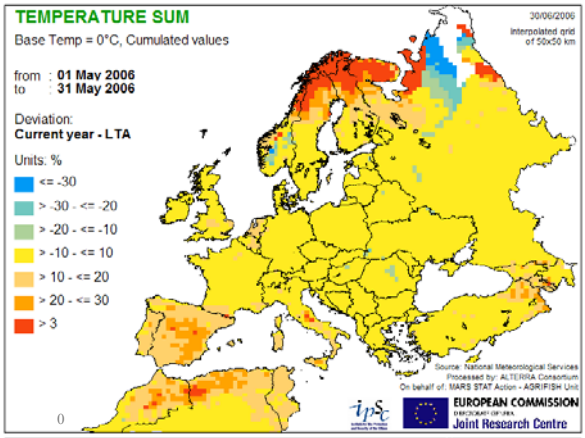


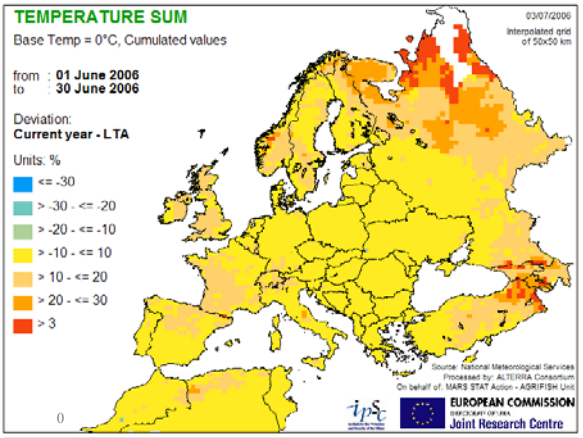


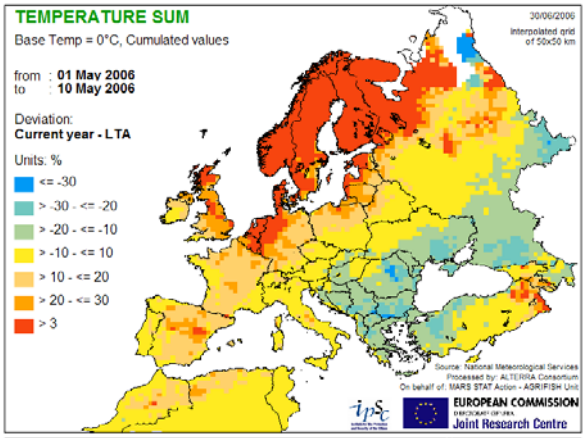


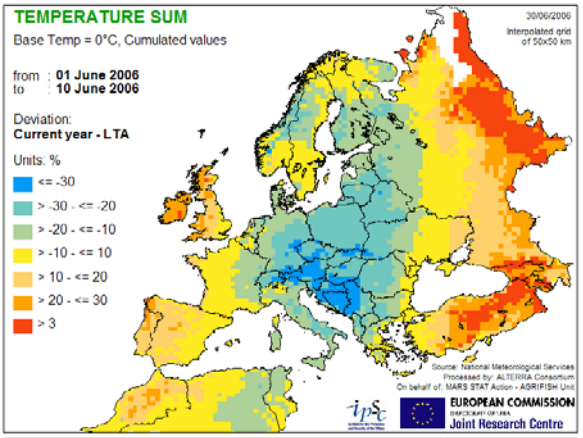
5- TEMPERATURE MAPS

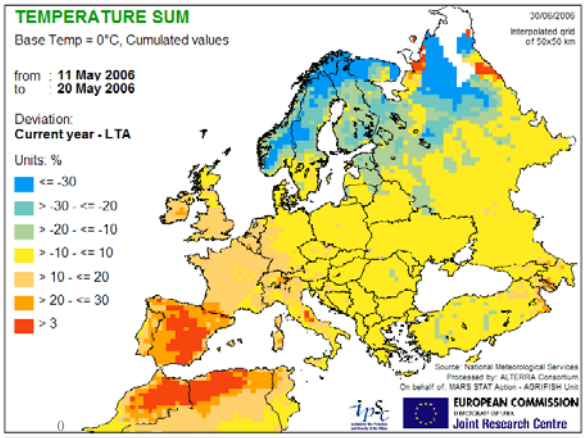
May 2006 | **June 2006**

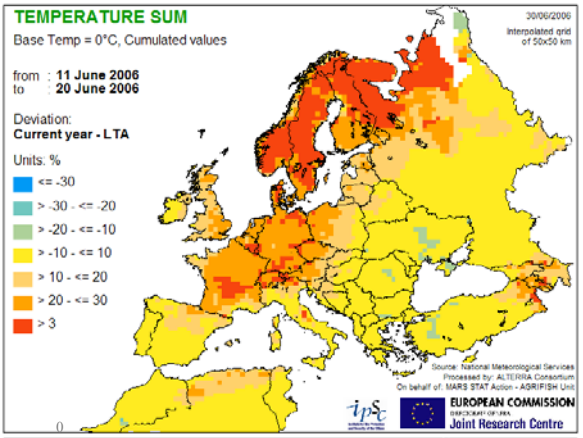


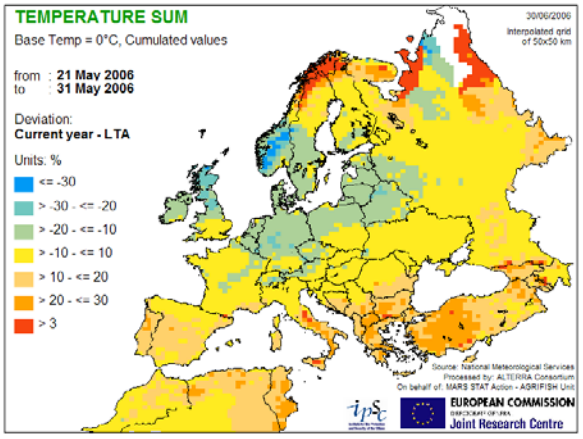


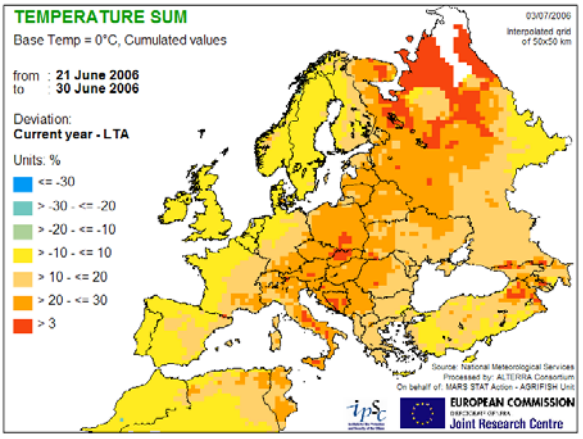




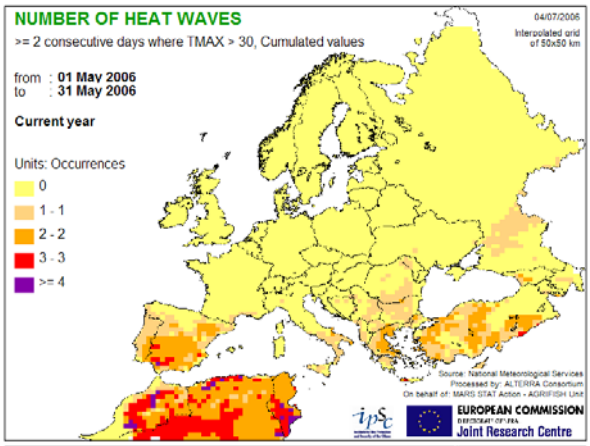


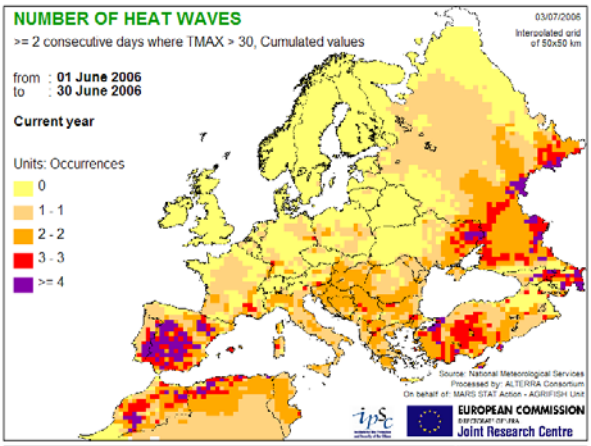


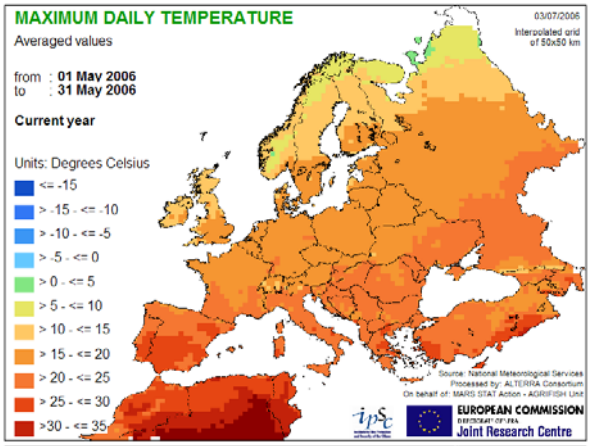


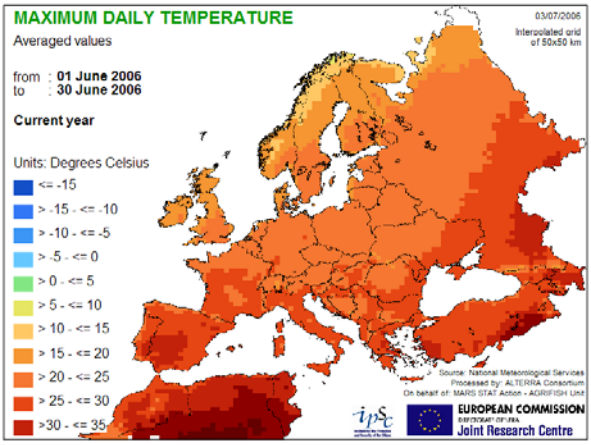


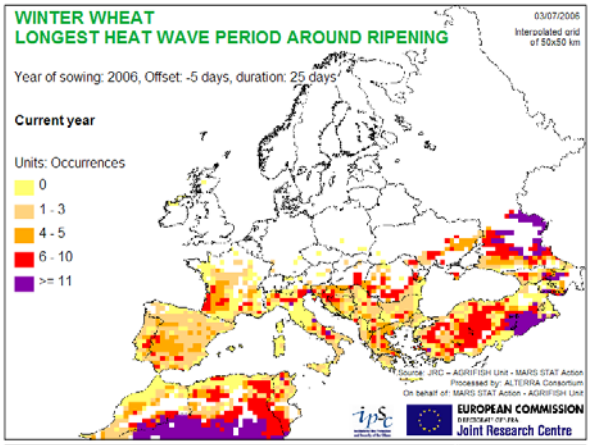
6-HEAT WAVES

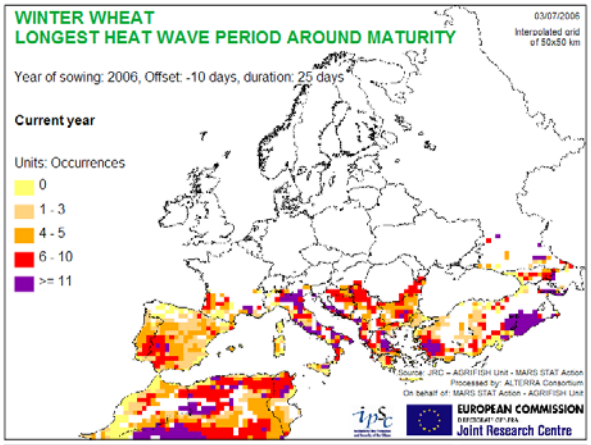

NUMBER OF HEAT WAVES
>= 2 consecutive days where TMAX > 30, Cumulated values
from : 01 May 2006
to : 31 May 2006
Current year
Units: Occurrences
0
1 - 1
2 - 2
3 - 3
>= 4
04/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

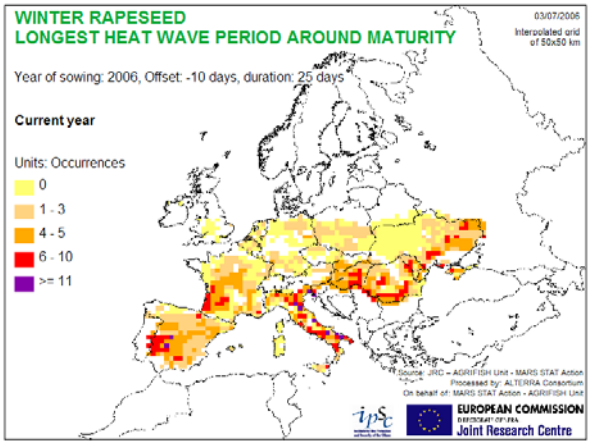

NUMBER OF HEAT WAVES
>= 2 consecutive days where TMAX > 30, Cumulated values
from : 01 June 2006
to : 30 June 2006
Current year
Units: Occurrences
0
1 - 1
2 - 2
3 - 3
>= 4
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

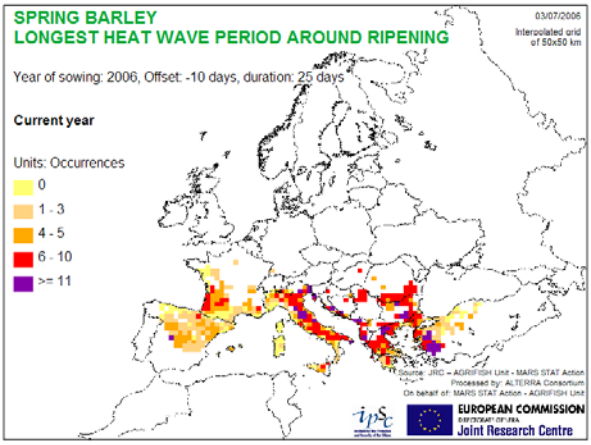

MAXIMUM DAILY TEMPERATURE
Averaged values
from : 01 May 2006
to : 31 May 2006
Current year
Units: Degrees Celsius
<= -15
> -15 - <= -10
> -10 - <= -5
> -5 - <= 0
> 0 - <= 5
> 5 - <= 10
> 10 - <= 15
> 15 - <= 20
> 20 - <= 25
> 25 - <= 30
>30 - <= 35
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre


MAXIMUM DAILY TEMPERATURE
Averaged values
from : 01 June 2006
to : 30 June 2006
Current year
Units: Degrees Celsius
<= -15
> -15 - <= -10
> -10 - <= -5
> -5 - <= 0
> 0 - <= 5
> 5 - <= 10
> 10 - <= 15
> 15 - <= 20
> 20 - <= 25
> 25 - <= 30
>30 - <= 35
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre


WINTER WHEAT
LONGEST HEAT WAVE PERIOD AROUND RIPENING
Year of sowing: 2006, Offset: -5 days, duration: 25 days
Current year
Units: Occurrences
0
1 - 3
4 - 5
6 - 10
>= 11
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

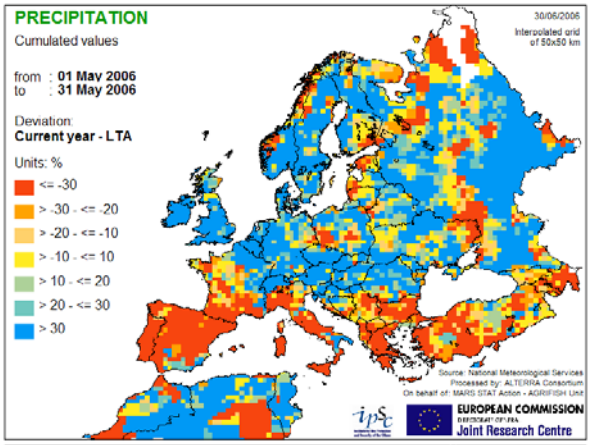

WINTER WHEAT
LONGEST HEAT WAVE PERIOD AROUND MATURITY
Year of sowing: 2006, Offset: -10 days, duration: 25 days
Current year
Units: Occurrences
0
1 - 3
4 - 5
6 - 10
>= 11
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

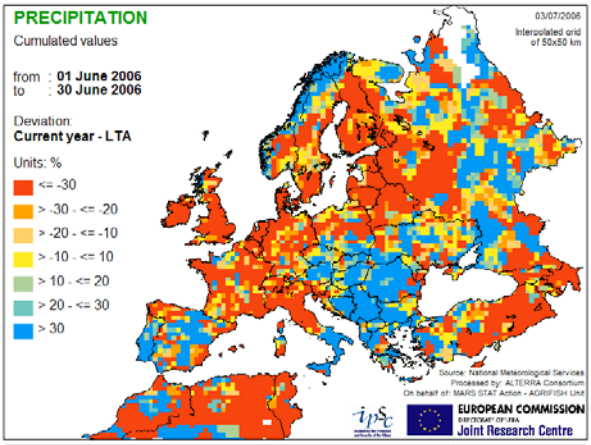

WINTER RAPESEED
LONGEST HEAT WAVE PERIOD AROUND MATURITY
Year of sowing: 2006, Offset: -10 days, duration: 25 days
Current year
Units: Occurrences
0
1 - 3
4 - 5
6 - 10
>= 11
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

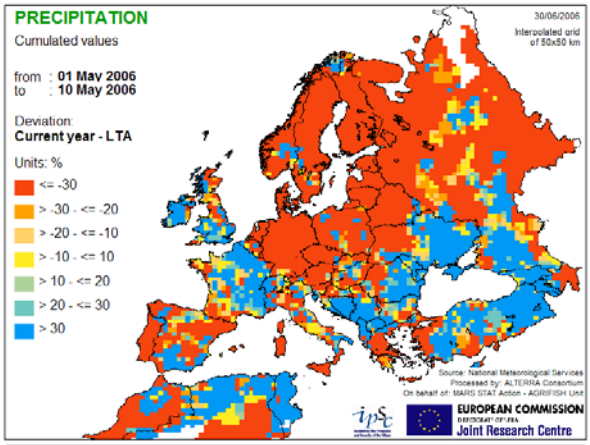

SPRING BARLEY
LONGEST HEAT WAVE PERIOD AROUND RIPENING
Year of sowing: 2006, Offset: -10 days, duration: 25 days
Current year
Units: Occurrences
0
1 - 3
4 - 5
6 - 10
>= 11
03/07/2006
Interpolated grid of 50x50 km
EUROPEAN COMMISSION
Joint Research Centre

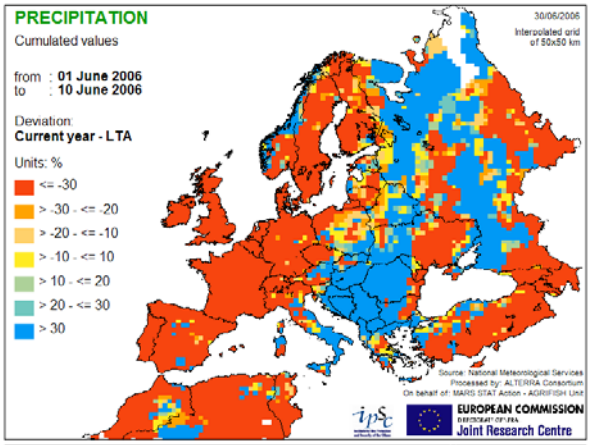
7- RAINFALL MAPS

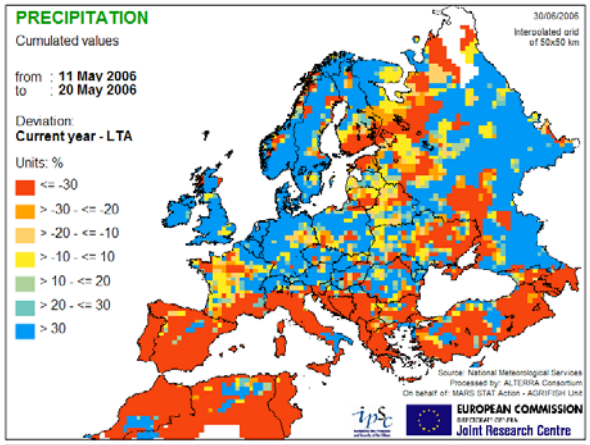
May 2006 | **June 2006**

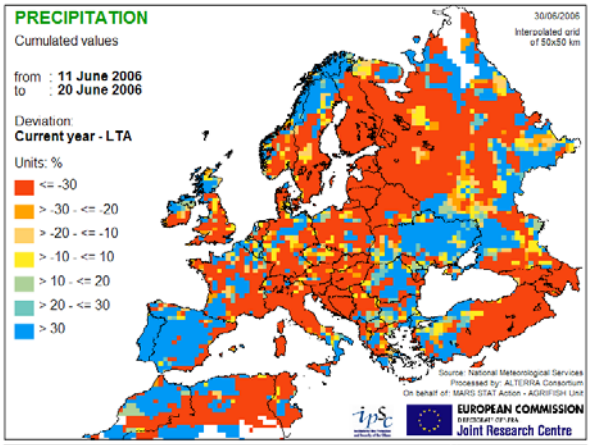


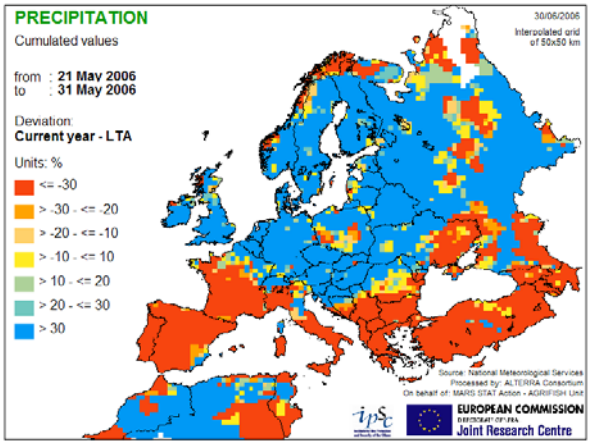


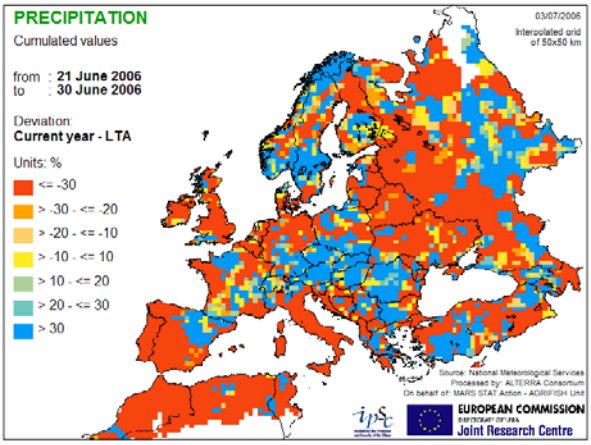




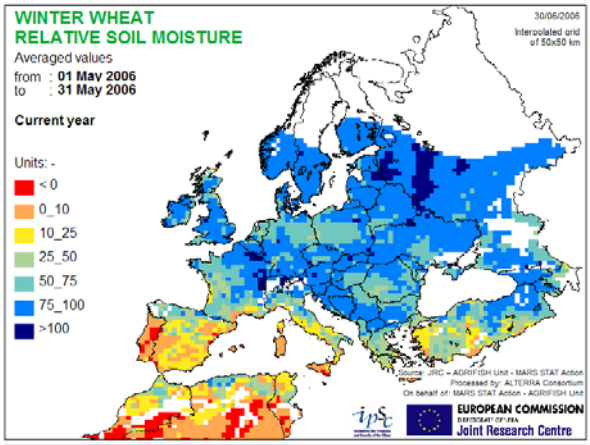


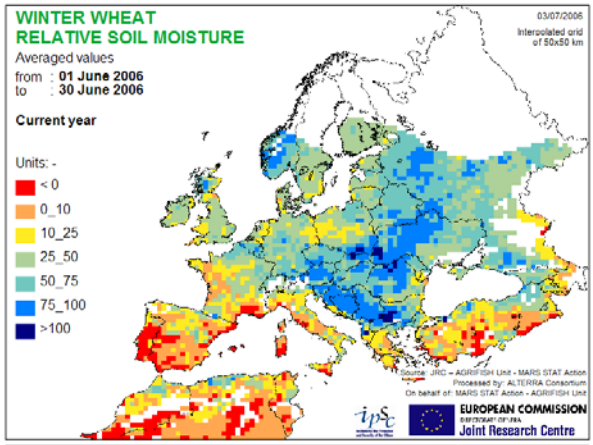


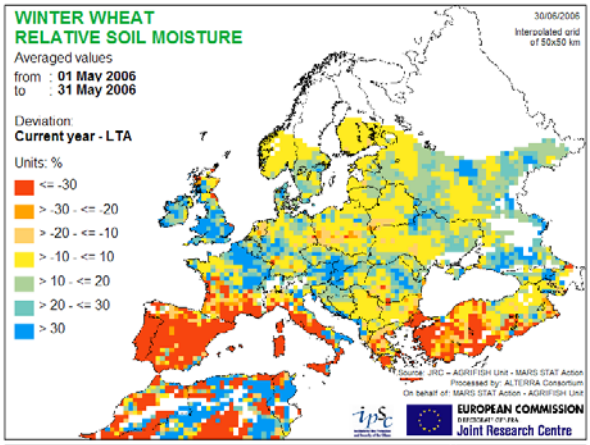


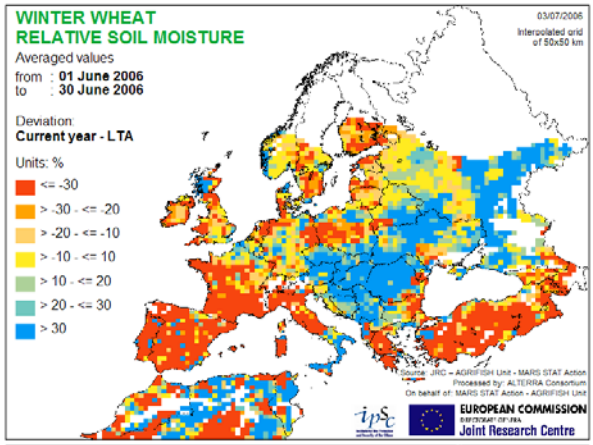


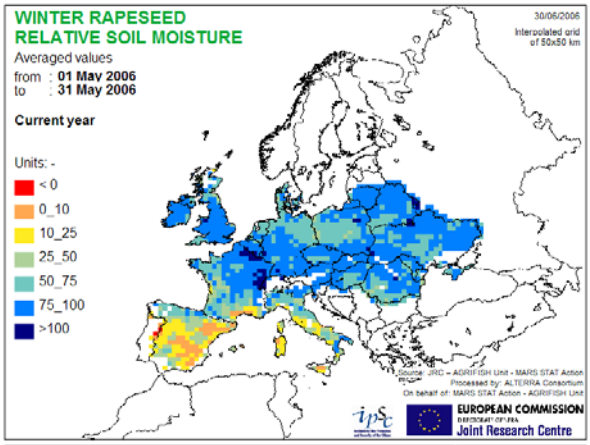
8- RELATIVE SOIL MOISTURE for WHEAT and RAPESEED

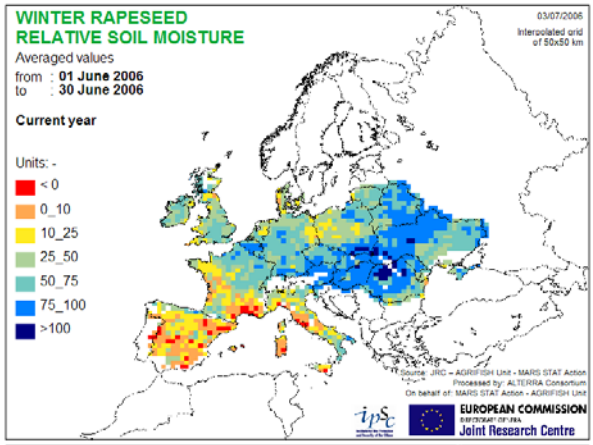


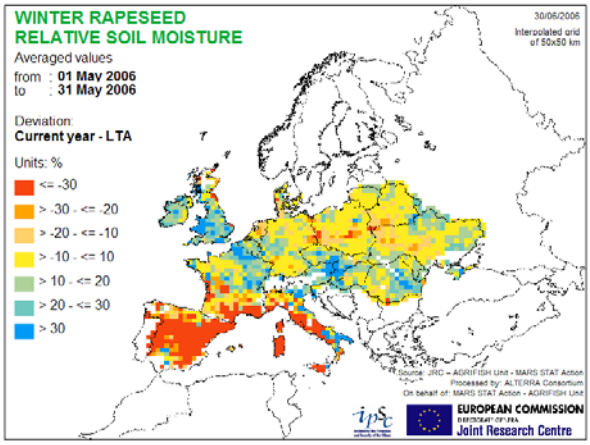


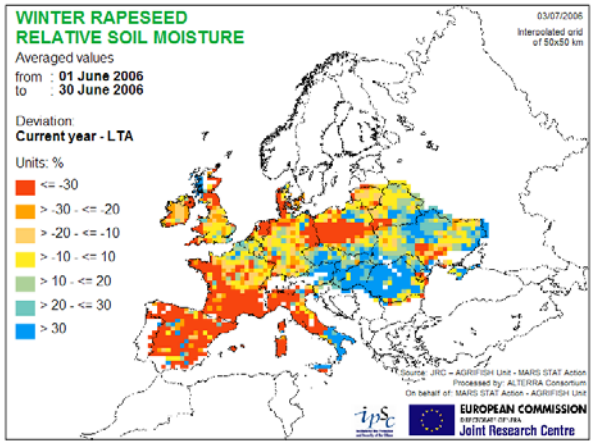




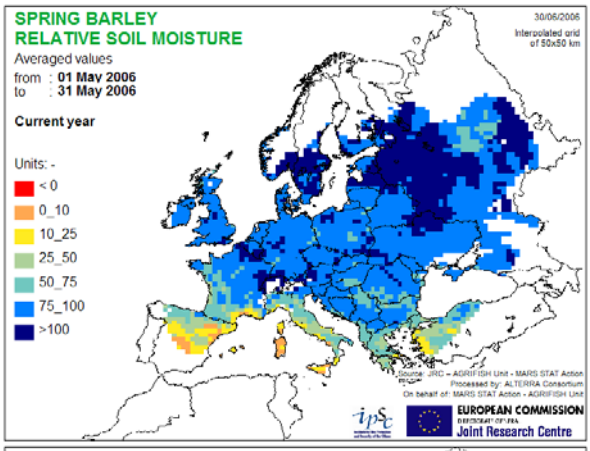


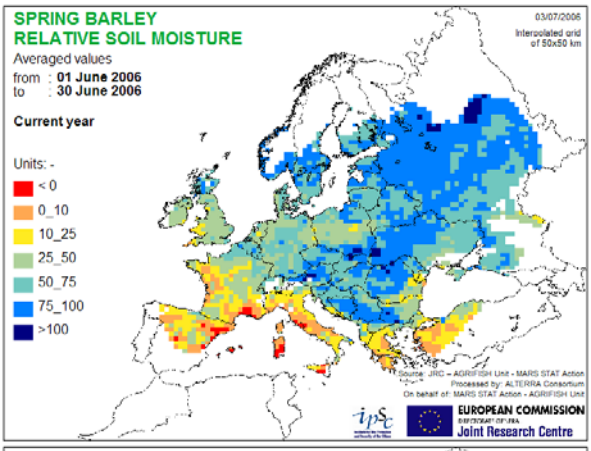


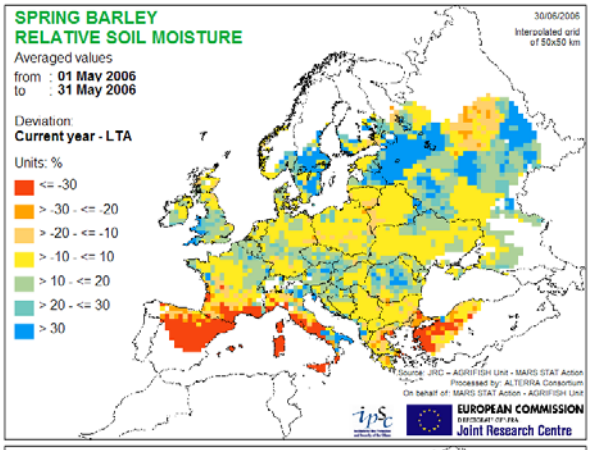


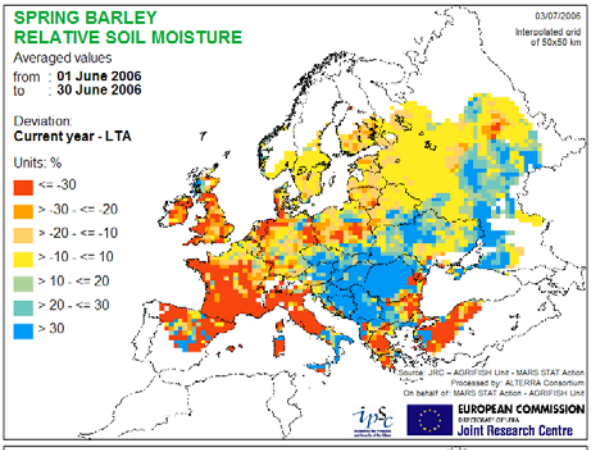


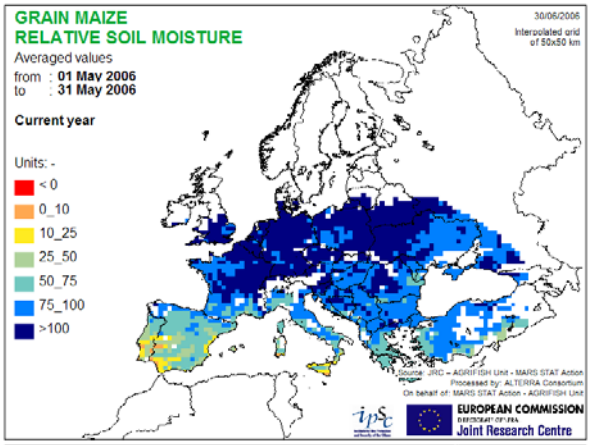
9- RELATIVE SOIL MOISTURE for BARLEY and MAIZE

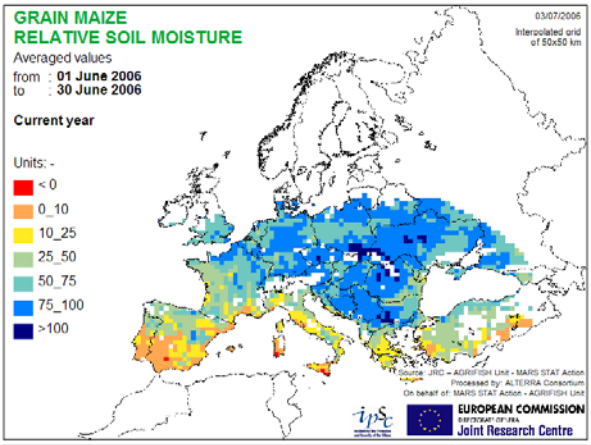


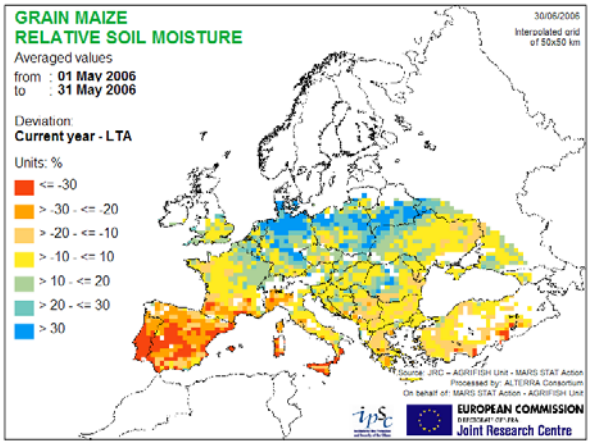


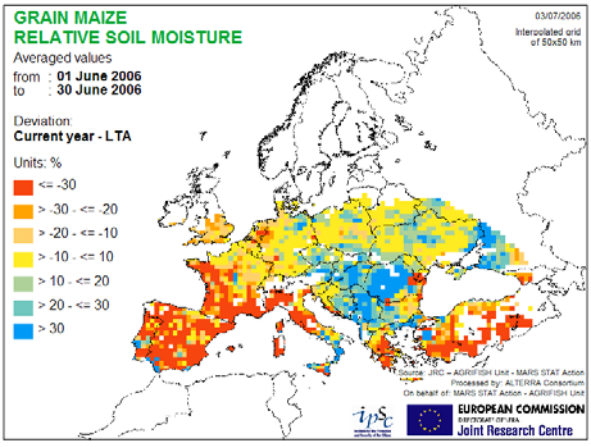












10- CROP DEVELOPMENT STAGE