

# JRC MARS Bulletin global outlook 2017

## Crop monitoring European neighbourhood

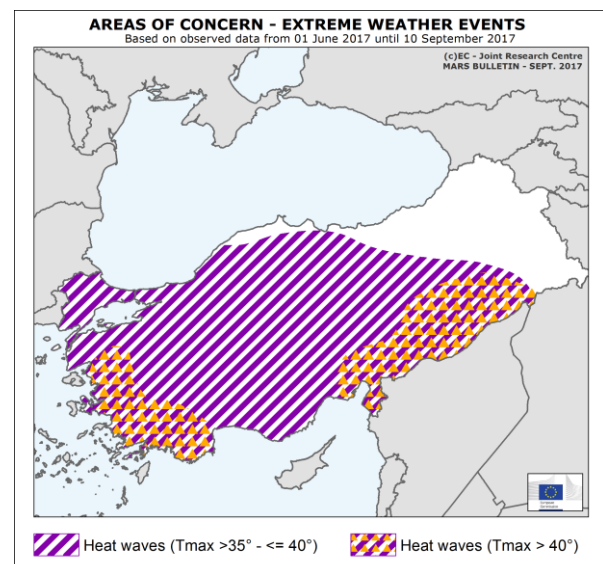
### Turkey

September 2017

## Irrigation mitigated hot weather impact

*Yield forecasts remain favourable in spite of a very hot summer. Wheat yields are forecast 5% above the five-year average, while barley yields, still above the five-year average (+8%), have been revised downwards compared to our June Bulletin. The yield forecast for summer crops remains above the five-year average, but sugar beet yields have been revised downwards, slightly below 2016 values.*

In **central Turkey** (Ankara, Konya, Kirikkale, Kayseri), winter crop development was delayed up to one month because of late sowing and a cold winter. In early June, crop biomass accumulation was back to average, and well-distributed rainfall favoured crop flowering. In late June, temperatures rose and shortened the grain-filling period. The impact was not significant with regard to wheat, but was more marked for barley. Winter crops matured in early July and, by the end of that month, harvesting was complete. Repeated heatwaves in July and August concerned mostly summer crops, but, thanks to irrigation, there was no negative impact. In **Aegean regions** (Adana), the maize season started earlier than usual and biomass accumulation was favourable. In July and August, when maximum



temperatures peaked, heat stress was mitigated by irrigation and no significant crop damage was observed. In **south-eastern regions** (Sanliurfa, Mardin), wheat and barley were harvested in June after a favourable spring. Maize was sown in June and was constantly irrigated during summer to prevent wilting and heat stress. As high temperatures persisted, irrigation is still needed in September, when maize is flowering.

#### Table of contents:

1. Meteorological overview
2. Crop conditions
3. Remote sensing
4. Crop yield forecasts
5. Atlas

Covers the period from 1 June 2017 until 10 September 2017

#### Turkey yield forecasts - September 2017 Bulletin

Country	Crop	Yield (t/ha)				
		Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
Turkey	wheat	2.69	2.71	2.85	+5.8	+5.1
	barley	2.63	2.48	2.69	+2.3	+8.3
	grain maize	8.83	9.42	9.81	+11	+4.2
	sugar beets	57.6	60.5	59.7	+3.6	-1.3

Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 10 kg  
 Sources: 2011-2015 data come from Turkish Statistical Institute (TurkStat) and ESTAT DB  
 2016 yields come from Turkish Statistical Institute  
 2017 area copied from data of year 2016 published by Turkish Statistical Institute  
 2017 yields come from the MARS Crop Yield Forecasting System (CGMS output up to 10/09/2017)

# 1. Meteorological overview

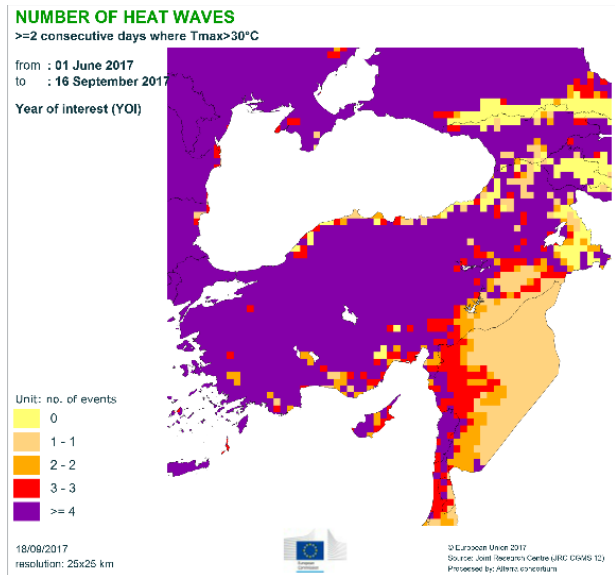
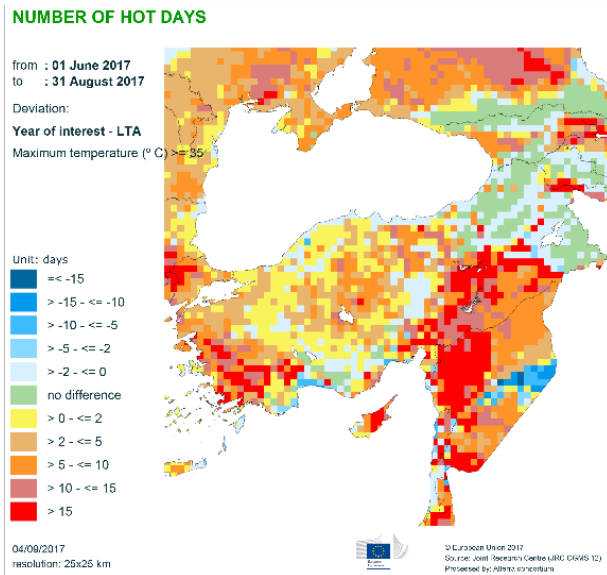
Summer was hotter than average with four to six heatwaves from late June to the end of August and maximum temperatures above 40°C. Maximum temperatures in late August and early September remained hotter than average, especially in the southern Aegean and south-eastern regions. The weather in August and September was dry, in line with the seasonal average.

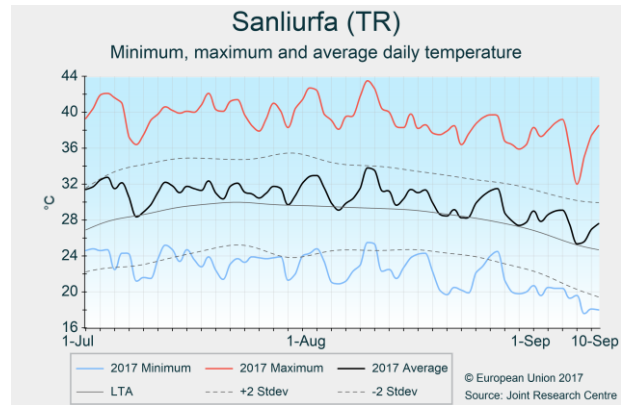
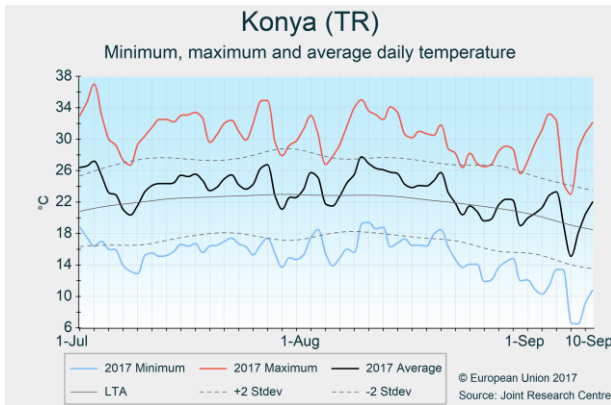
In western Anatolia and in the Aegean regions **June** was initially **wet** (50 mm cumulative rain) and relatively mild. Weather conditions changed around 20 June when, following a significant drop, temperatures increased to around 30°C. At the beginning of July, a country-wide **heatwave** with maximum temperatures of around 35°C was recorded for a few consecutive days. After 10 July two other heatwaves occurred, with less intensity ( $T_{max} < 35^{\circ}C$ ). In south-eastern regions, the heatwaves brought even higher temperatures. During **August**, hot weather continued with two to three **heatwaves** that kept maximum temperatures between 30°C and **35°C** in most of the country. In western Anatolia sparse rainfall resulted in some welcome cooling, especially during the first 10 days of August, while

eastern Anatolia, the Aegean and south-eastern regions remained dry in August.

In Anatolia, starting from 15 August, some unusually rainy days occurred (20-40 mm cumulative rainfall); temperatures decreased, but remained above the seasonal average.

In **September**, temperatures increased again, and some days the maximum temperature was above **30°C**. In the Adana region, the weather remained hotter and drier than average, but there were only few days with maximum temperatures above 35°C. In the **eastern regions** of *Sanliurfa* and *Mardin*, late August and early September were hot with a total of 10 days with maximum temperatures above **40°C**.





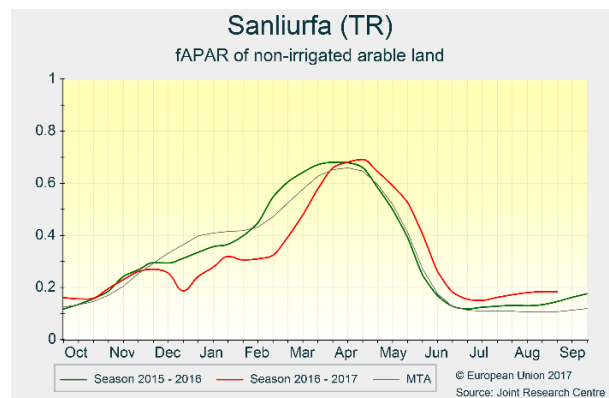
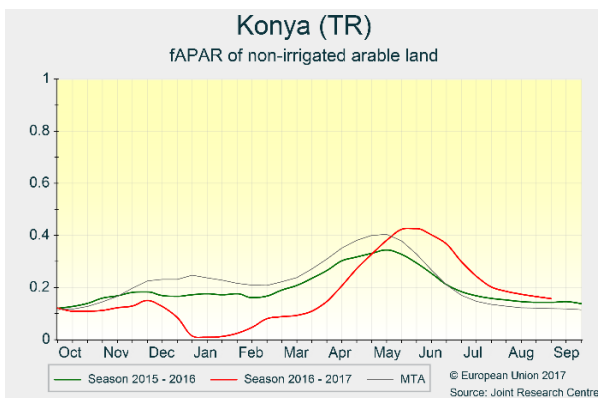
## 2. Crop conditions

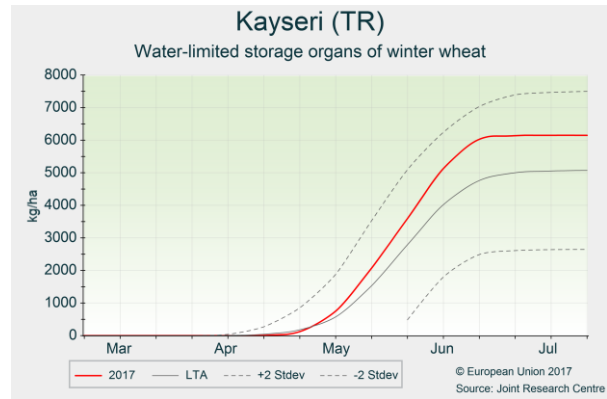
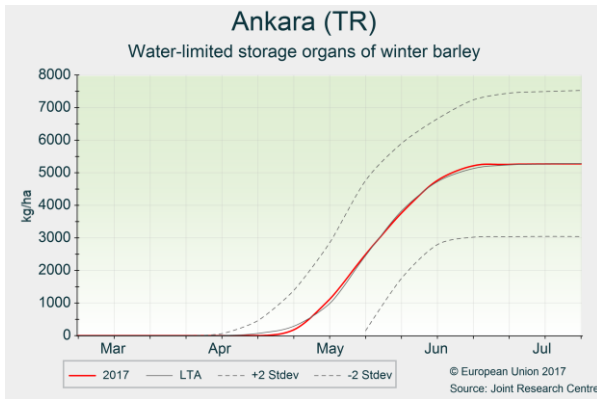
### 2.1 Winter crops

The initial delays in winter crop development were partially overcome in June. Heatwaves in late June and July shortened the grain-filling period, with negative effects on yields, mostly in eastern Anatolia and in the barley-growing regions of central Anatolia. In south-eastern Turkey, the winter crop season was favourable. Harvest was concluded at the beginning of July in south-eastern Turkey and at the end of July in central and western Turkey. Compared to our last Bulletin, the yield forecast has been maintained for wheat, whereas it has been revised downwards for barley.

In *Anatolia*, well-distributed rainfall at the beginning of June favoured winter crop flowering, which occurred — later than usual — at the very beginning of the month in western *Anatolia* (e.g. *Konya*) and around 15 June in *Kayseri* and neighbouring regions. In western *Anatolia*, winter crop development was average, and grain-filling started in June, favoured by good soil moisture conditions. However, in all the main Anatolian producing regions, high temperatures in late June and early July resulted in an unfavourable shortening of the grain-filling period of both wheat and barley. The effect was more pronounced in eastern regions where crops were still at the beginning of the grain-filling stage and for the Anatolian barley-growing regions (e.g. *Ankara*), which were already suffering from a rain deficit during spring.

The main central and western producing regions suffered only slightly with little damage to final yields, as crops were almost mature at the onset of the hot conditions. Harvesting activities started around 15 July and, by the end of that month, harvesting was complete. An exception were irrigated winter crops in the central Anatolian provinces, where flowering occurred in July and harvesting in mid-August; here, irrigation mitigated the heat stress on crops. In south-eastern provinces, which are particularly important for durum wheat production (*Sanliurfa*), high temperatures in early June ( $T_{max} > 30^{\circ}C$ ) coincided with the start of the ripening phase. The hot weather conditions during grain filling and/or ripening led to early harvesting: in early July.





## 2.2 Summer crops

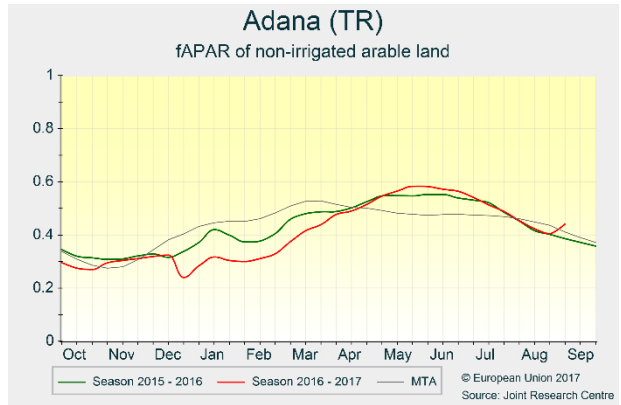
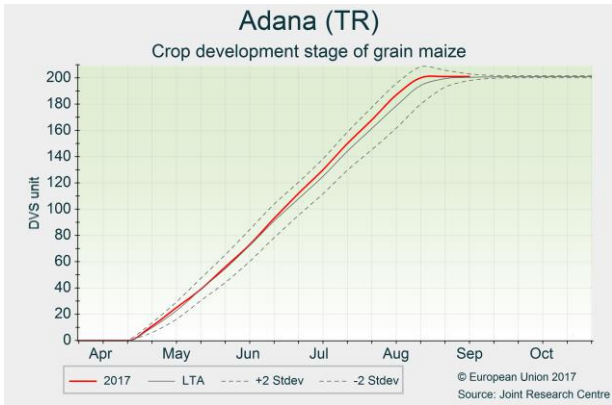
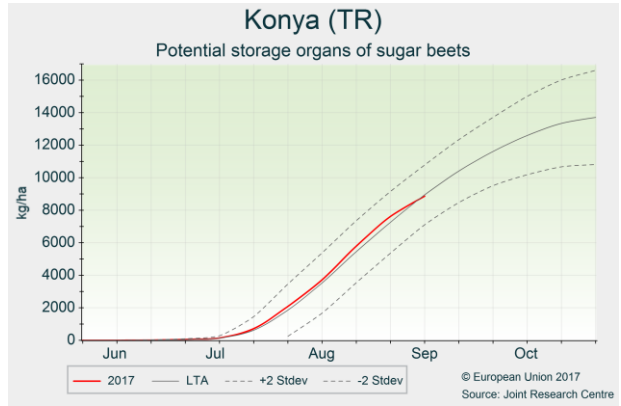
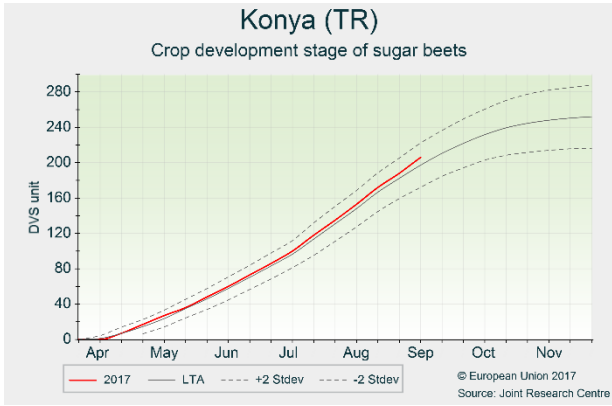
The very hot summer is likely to have had marginal impact on summer crops thanks to the mitigation provided by irrigation. Maize matured in late August in the important producing regions of Adana and Konya and yield expectations are favourable. In south-eastern regions, maize development is around average, while presenting above average biomass accumulation. Sugar beet conditions are generally around average, but locally crops have suffered from hot and dry weather, especially where irrigation was inadequate.

The maize-growing regions in central and south-western Turkey experienced wetter than usual conditions at the beginning of June and very high temperatures at the end of the month. Such conditions encouraged optimal development of the maize canopy until flowering, which occurred at the end of June in the *Adana* region and at the beginning of July in the *Konya* region. While the wet weather was positive for sugar beet canopy development, it may have favoured also the spread of pests and diseases. In July, maize flowered under unfavourable hot conditions due to the repeated heatwaves. In *Konya*, in southern Aegean regions (*Adana*) and in western Aegean regions (*Manisa*) irrigation in July and August was fundamental to mitigate heat stress ( $T_{max} > 35^{\circ}\text{C}$ ) in both maize and sugar beet. Towards the end of August, most of the irrigated maize matured without significant impacts of the heat stress. In *Adana*, maize harvesting is now proceeding well under favourable weather conditions. In *Konya*, sugar beet development is at average or slightly advanced, and harvesting is likely to

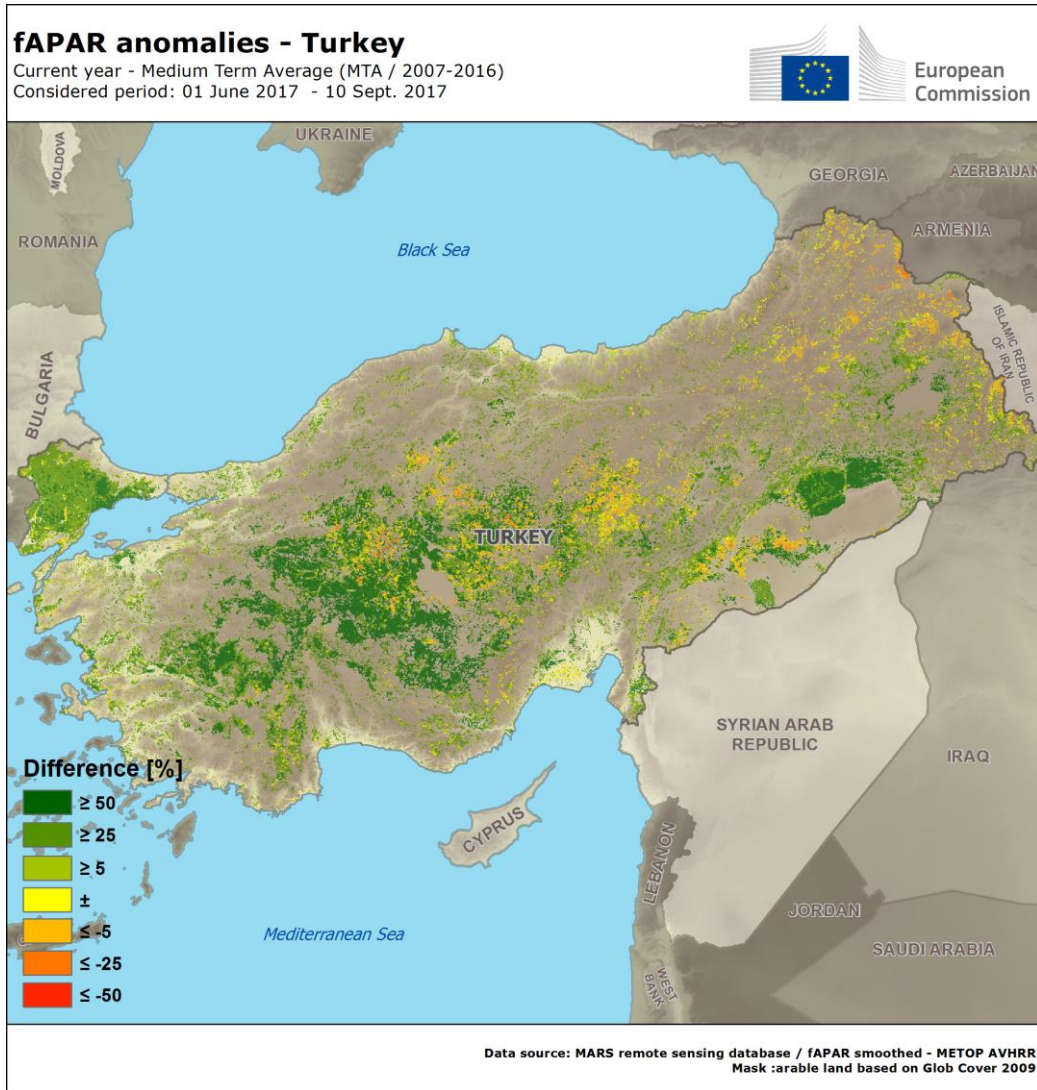
start at the beginning of October. There are some concerns about sugar beet quality and quantity in the other regions of central Anatolia, where irrigation infrastructures are less developed.

In *south-eastern Turkey*, where maize is cultivated in a double-cropping regime, planting took place at the end of June. Irrigation was extensively used to avoid wilting during the summer months, and maize biomass accumulation is now significantly above the average (*Sanliurfa*). In September, maize flowering started under hot weather conditions. At the moment of analysis, there is no concern about shortages of water for irrigation, even though reservoir levels have decreased significantly during the summer.

Grain maize yield expectations remain above last year's (+4%) and the five-year average (+11%), whereas the sugar beet yield forecast has been revised slightly downwards to slightly below the historical trend (but above the five-year average).



### 3. Remote sensing map



## 4. Crop yield forecasts

### Turkey yield forecasts - September 2017 Bulletin

Country	Crop	Yield (t/ha)				
		Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
Turkey	wheat	2.69	2.71	<b>2.85</b>	+5.8	+5.1
	barley	2.63	2.48	<b>2.69</b>	+2.3	+8.3
	grain maize	8.83	9.42	<b>9.81</b>	+11	+4.2
	sugar beets	57.6	60.5	<b>59.7</b>	+3.6	-1.3

Note: Yields are forecast for crops with more than 10000 ha per country; figures are rounded to 10 kg

Sources: 2011-2015 data come from Turkish Statistical Institute (TurkStat) and ESTAT DB

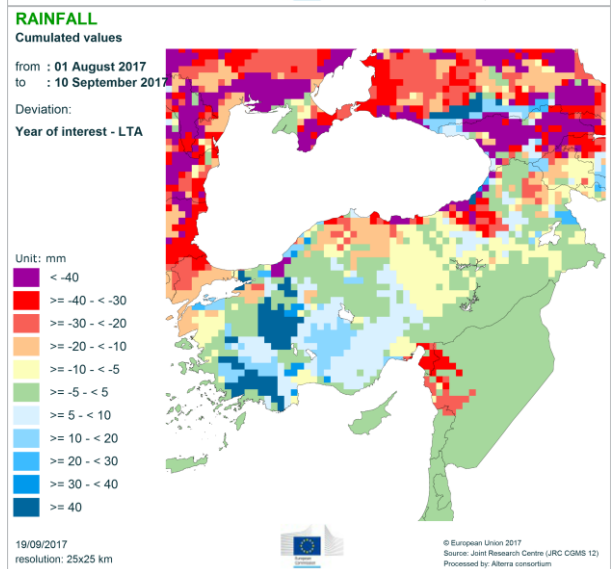
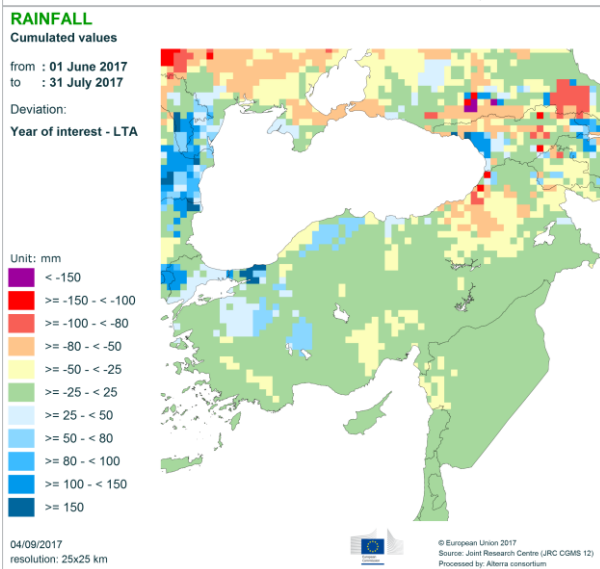
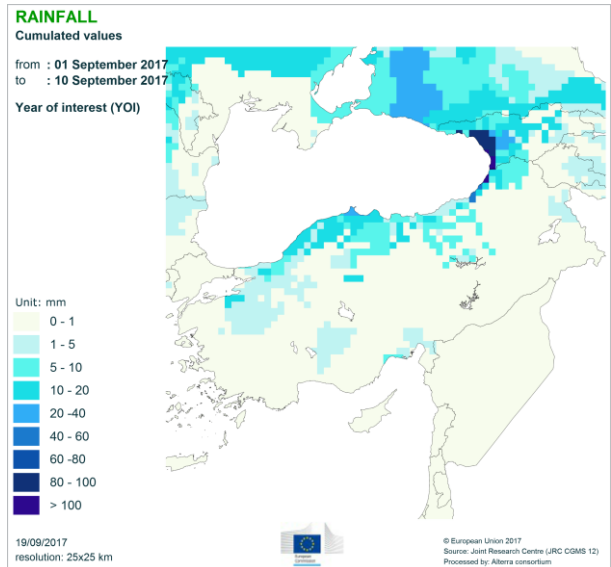
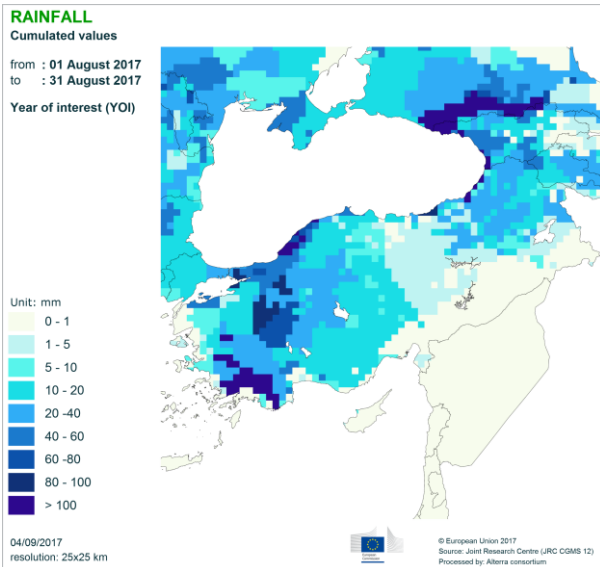
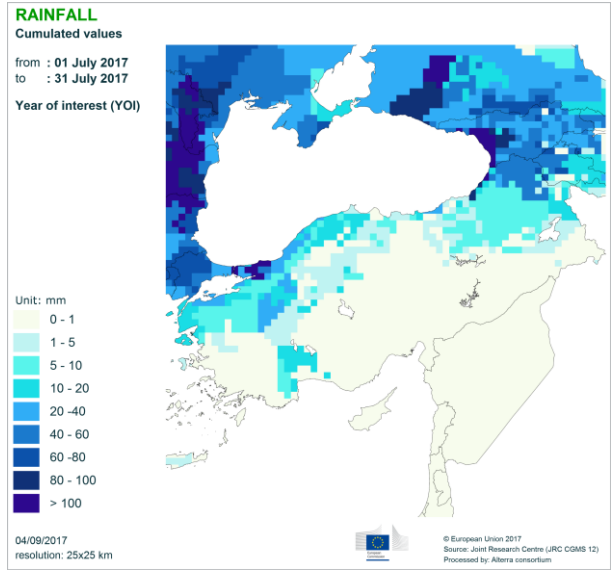
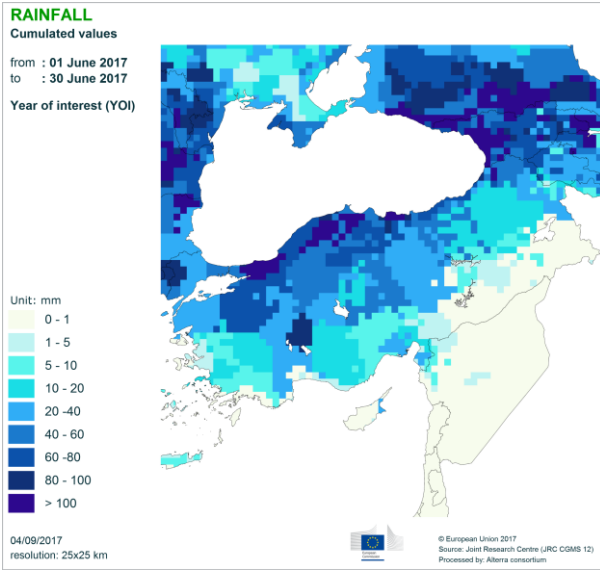
2016 yields come from Turkish Statistical Institute

2017 area copied from data of year 2016 published by Turkish Statistical Institute

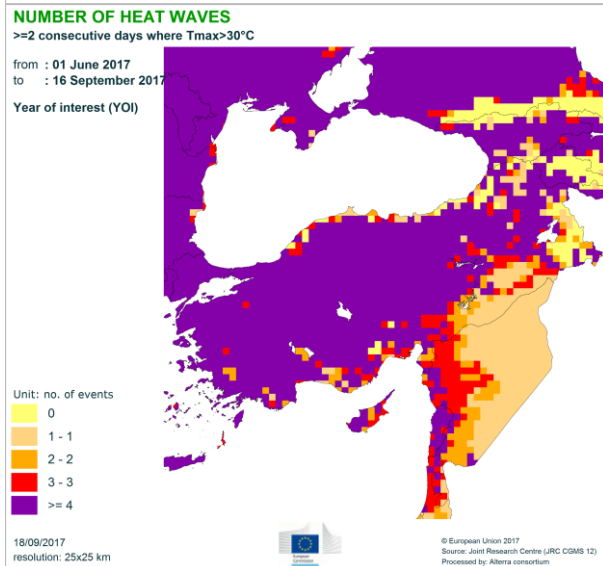
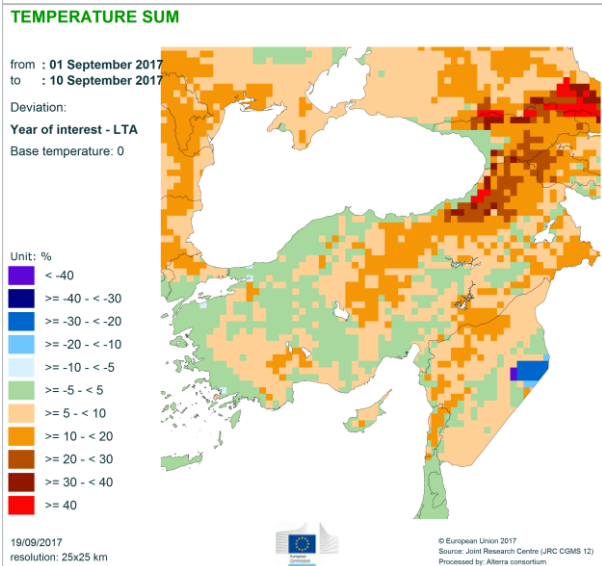
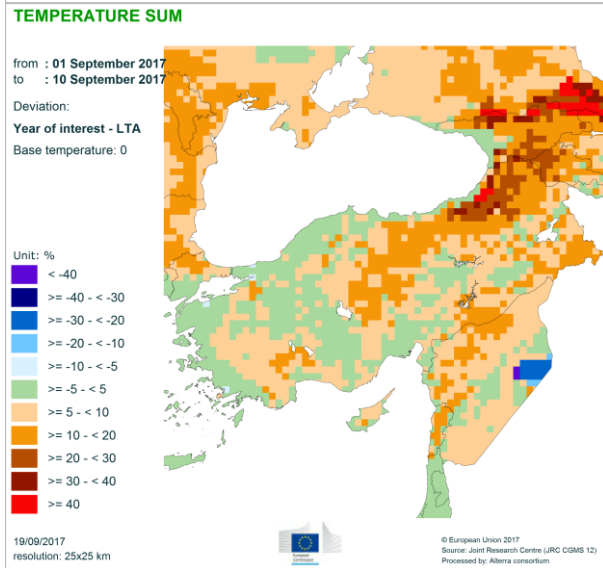
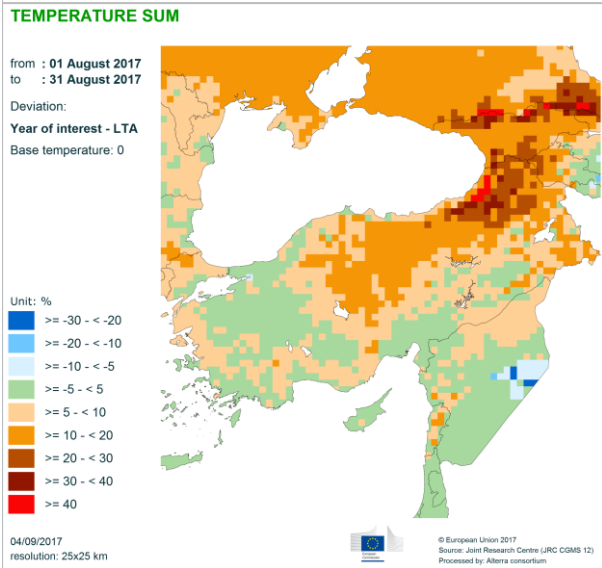
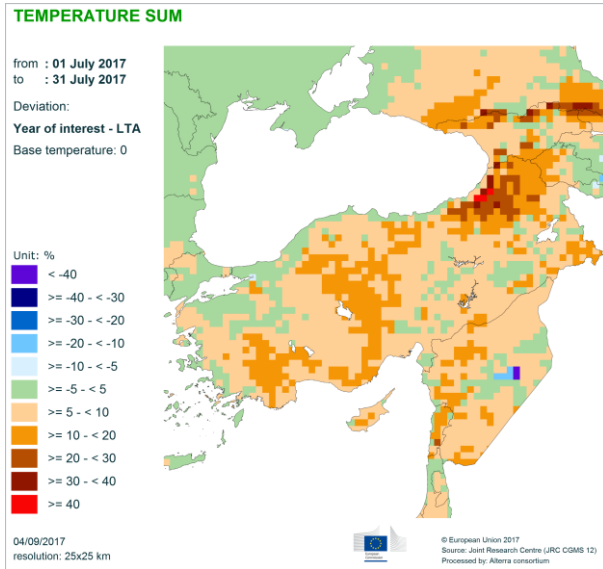
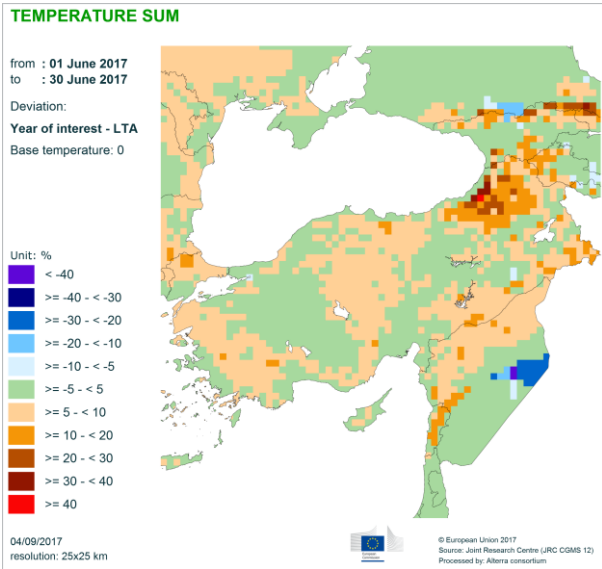
2017 yields come from the MARS Crop Yield Forecasting System (CGMS output up to 10/09/2017)

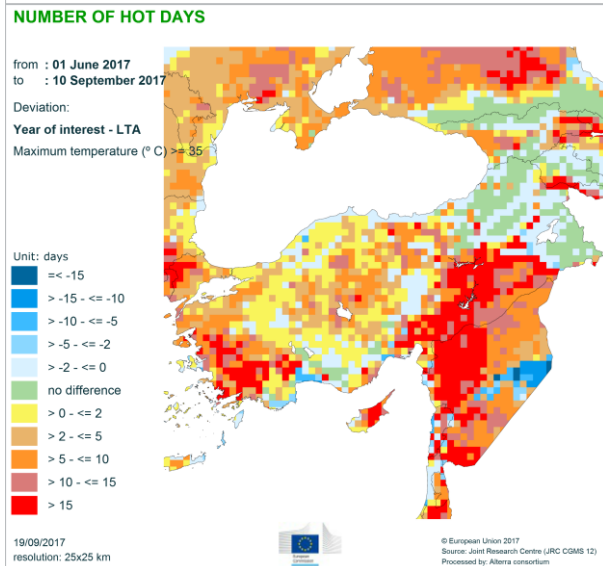
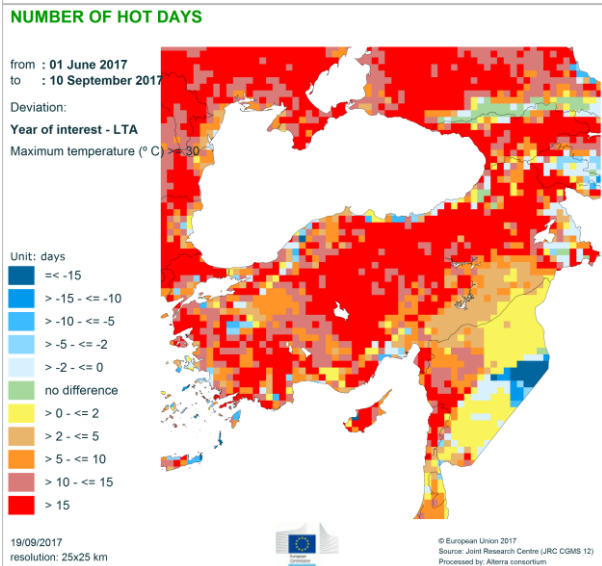
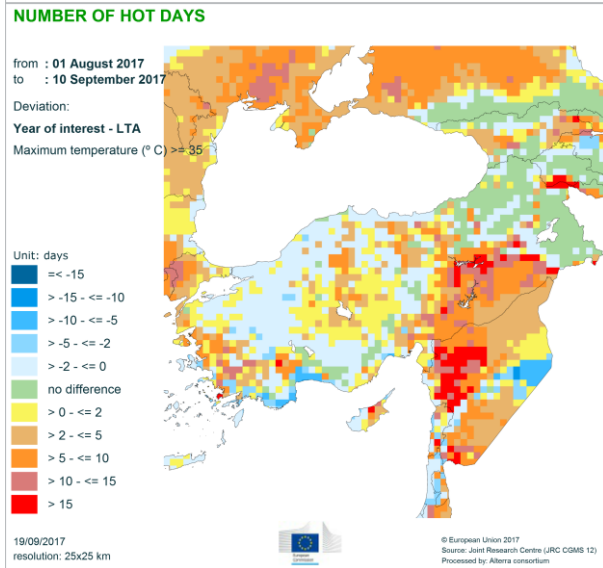
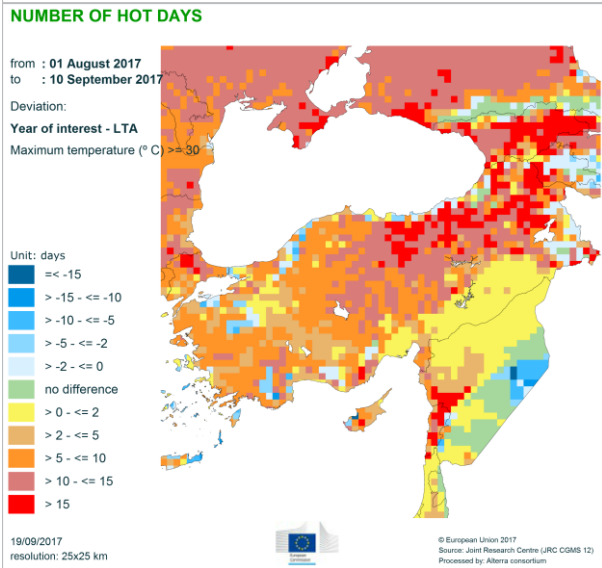
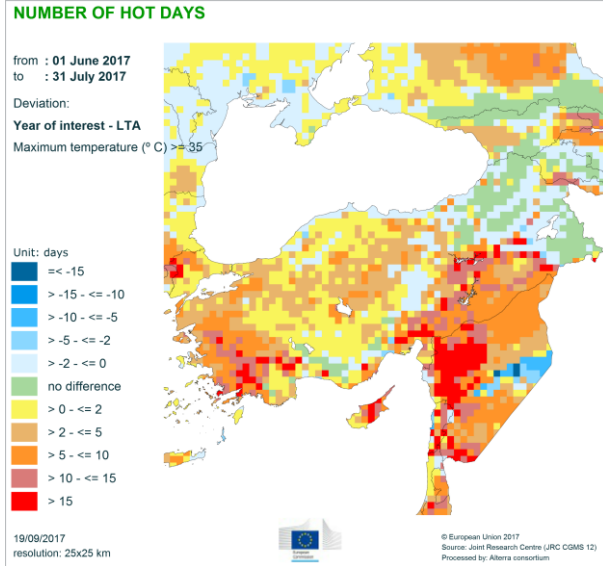
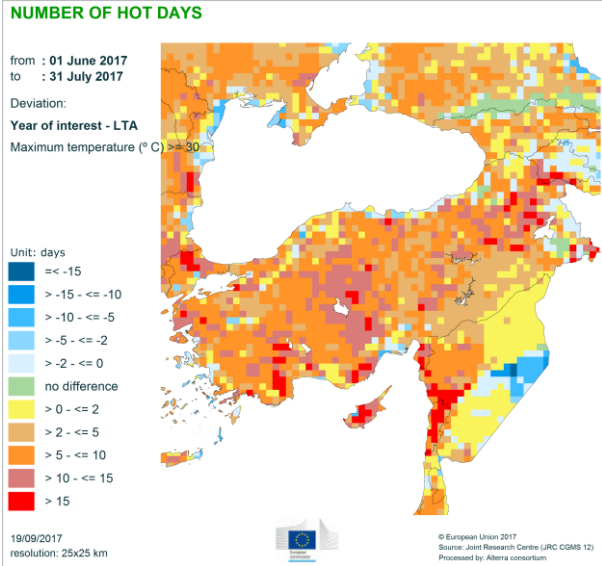


# 5. Atlas









The current [JRC MARS Bulletin – Crop monitoring European Neighbourhood](#) is an JRC - EC publication from AGRI4CAST (JRC/D5 unit – Directorate Sustainable Resources)

[MARS Bulletins](#) are available under:  
<https://ec.europa.eu/jrc/en/mars/bulletins>

#### Analysis and reports

L. Seguini, L. Nisini, L. Panarello

#### Reporting support

Prepress Projects

#### Edition

L. Seguini, M. Van den Berg, B. Baruth

#### Data production

AGRI4CAST – JRC D5-unit, ALTErrA (NL), MeteoGroup (NL), VITO (BE) and CMCC (IT)

#### Contact

JRC-D5 / AGRI4CAST  
[info-agri4cast@jrc.ec.europa.eu](mailto:info-agri4cast@jrc.ec.europa.eu)

MARS stands for Monitoring Agricultural Resources

#### Legal Notice:

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

#### Disclaimer:

The geographic borders are purely a graphical representation and are only intended to be indicative. The boundaries do not necessarily reflect the official EC position.

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



**Disclaimer:**  
The geographic borders and names are purely a graphical representation and are only intended to be indicative. They do not necessarily reflect the official EC position.