



Climatology

30/01/2012

Information on the climate in Luxembourg in 2011

Station: Luxembourg/Findel (WMO 06590, 376 m, a.s.l.)

Reference period: WMO normal period 1961 to 1990

1. Air temperature

Anomalies with respect to 2011

For the third time in station history the anomaly of the annual mean air temperature relative to the reference period from 1961 to 1990 exceeded plus 2.0 K. 2011 was the warmest year (10.6 °C) with data ever recorded by the Meteorological Service of Luxembourg at the Findel-Airport station since 1947. The number of 32 summer days was higher than normal and due to the large number of cloudy days during summer the number of hot days was below the long-term normal. On the other hand the number of days with frost (53), ice (7), and ground frost (66) in 2011 were considerably below the normal.

Anomalies with respect to seasons

Due to a significant number of persisting high-pressure systems and records for sunshine duration seasonal mean air temperatures at the Findel-Airport station were unusually high in spring (11.8 °C), resulting in the second-warmest spring on record, only slightly topped by spring 2007. The seasonal average was 4 K higher than the normal. Autumn mean air temperatures were 2 K above the normal, the third-warmest autumn on record (10.8 °C), only exceeded by 2005 and 2006. The winter 2010/2011 showed mean air temperatures on average (0.7 °C). Summer mean air temperatures in 2011 were at 16.7 °C, deviating by only plus 0.6 K from the normal.

Anomalies with respect to single months

In 2011 all months except for July were above the 1961-1990 normal. Daily mean maximum temperatures showed positive deviations in all month, but were suppressed in July as a result of the marked overcast conditions. The air temperature in July at an average of 15.9 °C deviated by minus 1.0 K. April 2011 was characterized by mean air temperatures of 13.3 °C, deviating by plus 5.8 K from the normal. Thus, April 2011 was the second-warmest April on record at the Findel-Airport in Luxembourg.

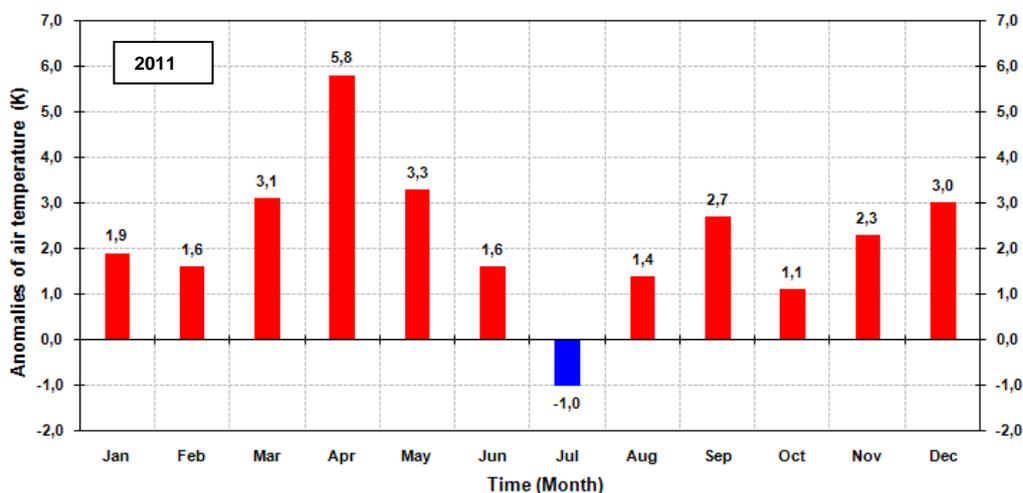


Fig. 1: Anomalies of mean monthly air temperatures (K) relative to the WMO normal period of 1961 to 1990 at Luxembourg/Findel (WMO 06590, 376 m, a.s.l.) in 2011.



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Table 1: Mean monthly and annual air temperatures (°C) as well as anomalies (K) relative to the WMO normal period of 1961 to 1990 at Luxembourg/Findel (WMO 06590, 376 m, a.s.l.) in 2011.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Air temperatures (°C)	1.9	2.7	7.1	13.3	15.1	16.5	15.9	17.8	16.1	10.2	6.1	4.0	10.6
Normals (1961-1990)	0.0	1.1	4.0	7.5	11.8	14.9	16.9	16.4	13.4	9.1	3.8	1.0	8.3
Anomalies (K)	1.9	1,6	3.1	5.8	3.3	1.6	-1.0	1.4	2.7	1.1	2.3	3.0	2.3

Extremes and peculiarities

Since the start of records in 1947 new highest daily maximum temperatures have been recorded in autumn. The highest absolute maximum air temperature of 26.0 °C has been recorded on the 2nd of October, followed by another extreme temperature record on November 6 with 18.4 °C. May 2011 showed the highest mean maximum temperature with 21.1 °C since 1947 being 4.4 K higher than climatological normal.

6/1/2011-8/1/2011:

Luxembourg experienced a sharp increase in air temperatures occurred in the beginning of January causing a rapid thaw of the snow cover and subsequently local flooding.

2. Precipitation amount

Anomalies with respect to 2011

After 5 subsequent years with positive anomalies the annual precipitation amount reached 704 mm in 2011. Annual rainfall was 20% lower than the long-term average of 875 mm (1961 to 1990).

Anomalies with respect to seasons

Seasonal precipitation amount in winter 2010/2011 amounted to 184 mm at Luxembourg Findel/Airport, deviating only little (minus 27 mm) from the long-term average normal of 211 mm (1961 to 1990). Due to the predominating high-pressure influence spring 2011 was outstanding dry in Luxembourg. In spring precipitation amount reached only 89 mm. The station at the Findel-Airport recorded the second-driest spring since 1947. The seasonal precipitation total was 58% lower than the 1961 to 1990 climatological normal (212 mm). Due to changeable weather conditions in summer 2011 seasonal precipitation amounted to 242 mm, about 109% of the long-term average total of 223 mm. After the dry spring Luxembourg was hit by an exceptionally dry autumn. Findel-Airport recorded the second-driest autumn since 1947. The station received only 86 mm. Consequently the precipitation total was only 38% of the normal (228 mm).

Anomalies with respect to single months

In 2011 all months with the exception of June, August, and December were characterized by a negative anomaly of monthly precipitation amount in respect to the long-term average precipitation totals at Luxembourg Findel-Airport. Since the start of records in 1947 November 2011 has been the driest



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November ever recorded (10 mm). Only about 11% of the long-term average (88 mm) has been reached in November 2011. The very dry November was followed by an unusually wet December. December 2011 turned out to be the third-wettest month since record start in 1947 (188 mm), only exceeded by December 1993 (232 mm) and December 1965 (196 mm). The monthly precipitation amount in December reached 235% of the long-term average of 80 mm (1961-1990).

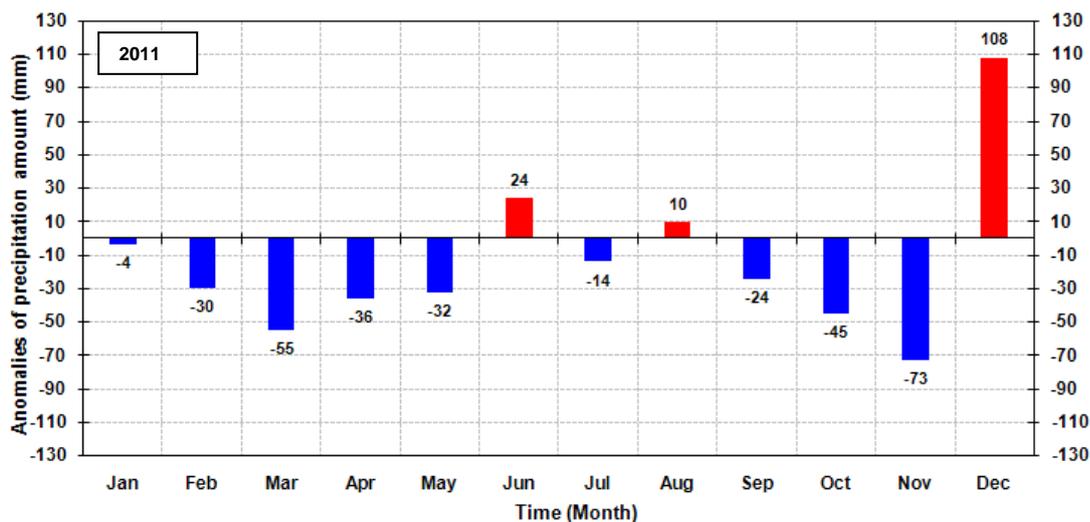


Fig. 2: Anomalies of monthly precipitation amount (mm) relative to the WMO normal period of 1961 to 1990 at Luxembourg/Findel (WMO 06590, 376 m, a.s.l.) in 2011.

Table 2: Monthly and annual precipitation amount (mm) as well as anomalies (mm) relative to the WMO normal period of 1961 to 1990 at Luxembourg/Findel (WMO 06590, 376 m, a.s.l.) in 2011.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation amount (mm)	67	32	15	25	49	106	54	82	46	30	10	188	704
Normals (1961-1990)	71	62	70	61	81	82	68	72	70	75	83	80	875
Anomalies (mm)	-4	-30	-55	-36	-32	24	-14	10	-24	-45	-73	108	-171

Extremes and peculiarities

Under the influence of a well-marked low-pressure system over central and northern Europe intensive rainfall occurred on December 4, 2011 over Luxembourg. Since record start in 1947, the highest 1-hour and 3-hour precipitation has been recorded for Findel-Airport with 15.0 mm/h, and 24.9 mm/3 hours respectively.