



NATIONAL CLIMATE REVIEW

IN KMA

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Monthly (July) 2013 Climate Summary

- ◇ The mean temperature (26.3 °C) for July 2013 nationwide was the fourth warmest and the minimum temperature (23.2 °C) was the second warmest on a record extending back to 1973.
- ◇ The monthly amount of precipitation (302.0 mm) was nearly normal.

- Climate features and long-term trends of July 2013 have been analyzed with the data collected at the 45 meteorological stations throughout Korea (national average) from 1973 to 2013 (1908-2013 for Seoul).

※ Normal: Average value of climatic element data collected from 1981 to 2010

- **The climatic characteristics of July 2013 are described as follows:**

- o For Korea (whole country),

- The mean temperature (26.3 °C), the mean maximum temperature (30.2 °C) and the mean minimum temperature (23.2 °C) were 1.8 °C, 1.4 °C and 2.1 °C above normals, respectively.
- The nationally-averaged precipitation was 302.0 mm, which was 101% of normal. The number of the days of rain was 16.3 days, which was 1.9 days more than normal.
- The total number of the hours of sunshine was 150.9 hours, which was 3.0 hours more than normal, which was nearly normal.

- o For Seoul,

- The mean temperature (25.5 °C) and the mean minimum temperature (23.4 °C) were 0.6 °C and 1.5 °C higher than normals, respectively. The mean maximum temperature (28.3 °C) was 0.3 °C lower than normal.
- The amount of precipitation was 676.2 mm, which was 171% of normal, which was more than normal.
- The number of the days of rain was 25.0 days, which is 8.7 days more than normal.
- The total number of the hours of sunshine was 101.0 hours, which was 84% of normal.

□ **Long-term trend of July 2013 climate**

o For Korea (whole country),

- National mean temperatures of July 2000s (2001-2010) was 0.1 °C less than that of the same month of 1970s.
- The nationally-averaged precipitation of July 2000s was 111.1 mm more than that of the same month of 1970s.
- The number of the days of rain of July 2000s was 2.2 days more than that of the same month of 1970s.
- The total number of the hours of sunshine in July 2000s was 41.5 hours less than that of the same month of 1970s.

o For Seoul,

- The mean temperatures of July 2000s (2001-2010) was 0.1 °C higher than that of the same month of 1970s.
- The precipitation of July 2000s was 200.4 mm more than that of the same month of 1970s.
- The number of the days of rain in July 2000s was 2.4 days more than that of the same month of 1970s.
- The total number of the hours of sunshine in July 2000s was 31.9 hours less than that of the same month of 1970s.

Appendix 1 Climate features in July 2013(Nation)

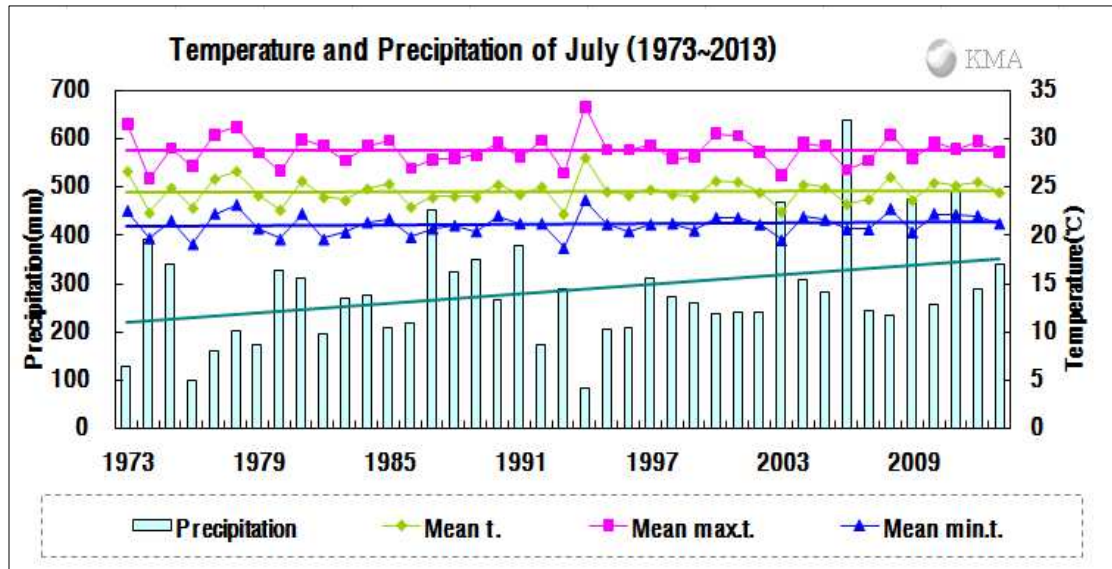


Fig 1. Temperatures (mean, mean maximum, and mean minimum), and prediction in South Korea during July (1973~2013).

□ Average values of meteorological elements across Korea during July (1973~2013)

Elements (whole country)	July 2013(a)	July 2012(b)	Normals of July (1981-2010) (c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (°C)	26.3	25.5	24.5	0.8	1.8	fourth warmest
Mean maximum temp. (°C)	30.2	29.7	28.8	0.5	1.4	
Mean minimum temp. (°C)	23.2	22.0	21.1	1.2	2.1	seconde warmest
Precipitation (mm)	302.0	287.4	289.7	14.6(106)	12.3(101)	
Days of rain (day)	16.3	13.9	14.4	2.4	1.9	
Sunshine duration (hour)	150.9	164	147.9	-13.1(92)	3.0(102)	
Mean cloud amount (1/10)	7.5	7.1	7.1	0.4	0.4	
maximum temperature more than 33°C(day)	4.9	6.1	3.9	-1.2	1.0	
precipitation more than 80mm/day(day)	0.6	0.6	0.7	0.0	-0.1	
precipitation more than 30mm/hour(day)	0.7	0.8	0.7	-0.1	0.0	

□ Average values of meteorological elements across Korea during July for each decade (1973~2010)

Year	Mean temp. (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	max. t more than 33°C (day)	prep. more than 80mm/day (day)	prep. more than 30mm/hour (day)
1973-1980(a)	24.5	28.8	21.0	228.0	13.7	165.3	6.9	4.1	0.4	0.4
1981-1990(b)	24.3	28.6	20.9	287.5	14.3	157.1	7.2	3.6	0.6	0.6
1991-2000(c)	24.7	29.1	21.1	242.5	12.9	163	6.8	4.7	0.6	0.5
2001-2010(d)	24.4	28.6	21.2	339.1	15.9	123.8	7.3	3.4	0.9	0.9
2013(e)	26.3	30.2	23.2	302.0	16.3	150.9	7.5	4.9	0.6	0.7
d-a	-0.1	-0.2	0.2	111.1	2.2	-41.5	0.4	-0.7	0.5	0.5
d-b	0.1	0.0	0.3	51.6	1.6	-33.3	0.1	-0.2	0.3	0.3
d-c	-0.3	-0.5	0.1	96.6	3.0	-39.2	0.5	-1.3	0.3	0.4
e-d	1.9	1.6	2.0	-37.1	0.4	27.1	0.2	1.5	-0.3	-0.2

Appendix 2 Climate features in July 2013(Seoul)

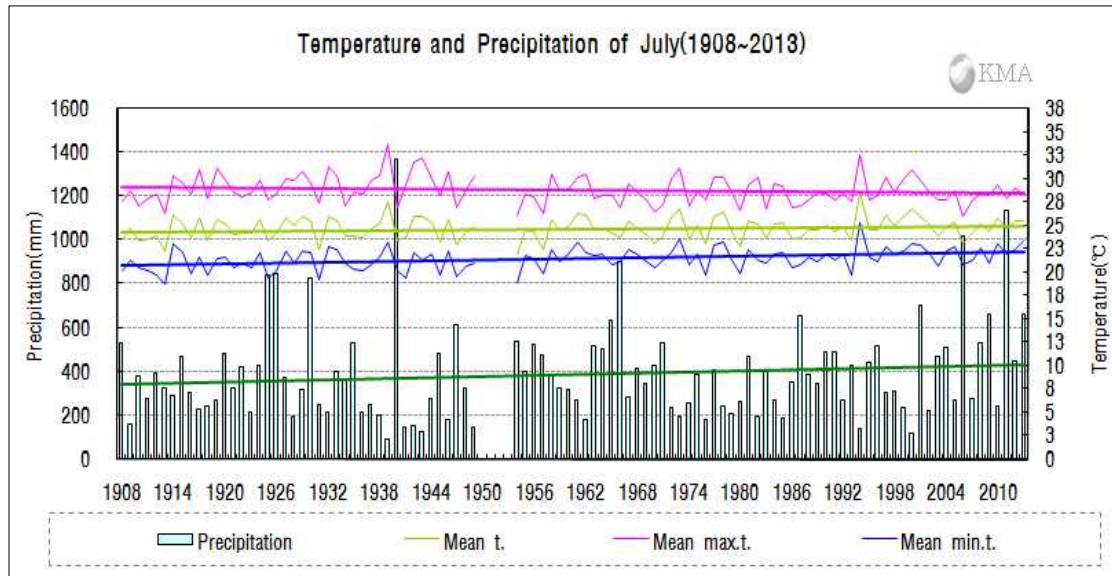


Fig 2. Temperatures (mean, mean maximum, and mean minimum), and prediction in Seoul during July (1908-2013).

□ Average values of meteorological elements across Seoul during July (1973~2013)

Elements (Seoul)	July 2013(a)	July 2012(b)	Normals of July (1981-2010)(c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (°C)	25.5	24.1	24.9	1.4	0.6	
Mean maximum temp. (°C)	28.3	29.7	28.6	-1.4	-0.3	
Mean minimum temp. (°C)	23.4	20.0	21.9	3.4	1.5	third warmest
Amount of precipitation (mm)	676.2	91.9	394.7	584.3(151)	281.5(171)	
Days of rain (day)	25.0	4.0	16.3	21.0	8.7	second largest
Sunshine duration (hour)	101.0	232.0	120.0	-131.0(44)	-19.0(84)	
Mean cloud amount (1/10)	8.5	5.4	7.4	3.1	1.1	
maximum temperature more than 30°C (day)	0.0	3.0	2.2	-3.0	-2.2	
precipitation more than 80mm/day(day)	2.0	0.0	1.2	2.0	0.8	
precipitation more than 30mm/hour(day)	4.0	0.0	1.1	4.0	2.9	third largest

□ Average values of meteorological elements across Seoul during July for each decade (1911-2010)

Year	Mean temp. (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	max. t more than 30°C (day)	prep. more than 80mm/day(day)	prep. more than 30mm/hour (day)
1911-1920(a)	24.4	29.1	20.8	326.2	14.9	203.6	7.3	3.7	0.9	0.0
1921-1930	24.7	29.2	21.2	477.0	17.4	169.0	8.0	3.3	1.5	0.0
1931-1940(b)	24.6	29.4	21.2	385.0	16.3	182.2	7.8	5.0	1.1	0.2
1941-1949	24.6	29.9	20.9	269.9	15.9	210.4	7.5	5.3	0.2	0.4
1954-1960	24.0	28.2	21.1	422.0	19.1	138.7	7.9	1.7	1.0	1.0
1961-1970	24.6	28.4	21.7	446.3	18.1	114.0	8.2	2.6	1.4	1.9
1971-1980(c)	24.7	28.8	21.7	288.2	15.2	114.7	7.5	2.8	0.5	0.6
1981-1990	24.6	28.4	21.5	372.8	16.5	135.0	7.6	1.8	1.1	0.8
1991-2000	25.4	29.2	22.2	322.7	14.7	142.3	7.0	3.8	0.9	1.0
2001-2010(d)	24.8	28.3	22.0	488.6	17.6	82.8	7.6	1.0	1.7	1.6
2013(e)	25.5	28.3	23.4	676.2	25.0	101.0	8.5	3.0	2.0	4.0
d-a	0.4	-0.8	1.2	162.4	2.7	-120.8	0.3	-2.7	0.8	1.6
d-b	0.2	-1.1	0.8	103.6	1.3	-99.4	-0.2	-4.0	0.6	1.4
d-c	0.1	-0.5	0.3	200.4	2.4	-31.9	0.1	-1.8	1.2	1.0
e-d	0.7	0.0	1.4	187.6	7.4	18.2	0.9	-1.0	0.3	2.4