



KMA'S BRIEFING ON CLIMATE CHARACTERISTICS

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Monthly (July) 2012 Climate Summary

◇ Above normal in mean temperature, mean maximum temperature, mean minimum temperature, near normal in precipitation for July 2012 nationwide

※ The mean temperature, the maximum temperature, the minimum temperature, the amount of precipitation at some stations were the highest on monthly record.

□ Climate features of July 2012 and their long-term trends are analyzed using 45 meteorological stations in Korea (the national average) during 1973-2012 (1908-2012 for Seoul).

※ Normal : average from 1981 to 2010.

□ **The climatological characteristics in July 2012 can be described as follows:**

o For Korea (whole nation),

- The mean temperature (25.5 °C) and the mean maximum temperature (29.7 °C) and the mean minimum temperature (22.0 °C) were above-normal. In addition the mean maximum temperature at July 2012 is above those, the mean temperature and the mean minimum temperature are near those in 2011.
- The nationally averaged precipitation (287.4 mm) was 99% of normal, the days of rain (13.9 days) was 0.5 days below-normal. In addition, nationally averaged precipitation and days of rain in June 2012 were 204.1 mm and 5.5 days significantly smaller than those in 2011
- The total of sunshine duration (164.0 hours) was 111% of normal. And, sunshine duration at July 2012 are 19.8 hours longer than those in 2011.

o For Seoul,

- The mean temperature (25.4 °C), the mean maximum temperature (29.0 °C), and the mean minimum (22.4 °C) were above-normal. Also, the mean and maximum temperature at July 2012 are 0.8-1.0 °C higher than those, the mean minimum temperature was near those in 2011.
- The monthly amount of precipitation (448.9 mm) was 114% of normal, the days of rain (17.0 days) was 0.7 days above-normal. In addition, the monthly amount of precipitation, and the days of rain in July 2012 were 682.1 mm and 4.0 days significantly smaller than those in 2011.
- The total of sunshine duration (144.0 hours) was 120% of normal. And, sunshine duration at June 2012 are 63.6 hours longer than those in 2011.

- ※ Updated in monthly temperature and precipitation extremes (up to the fifth ranked)
 - o Temperature extremes (warm extremes)
 - The mean temperature (10 stations) : Munsan 28.5 °C, Uiseong 30.0 °C and so on
 - The maximum temperature (5 stations) : Heuksando 32.7 °C, Gosan 33.3 °C and so on
 - The minimum temperature (8 stations) : Baengnyeongdo 25.2 °C, Daegu 27.8 °C and so on
 - o Precipitation extremes (increased intensity)
 - Daily precipitation (13stations) : Wonju 255.5mm, Yeongwol 173.5 mm and so on
 - 1-hour precipitation (12 stations) : Yeongcheon 41.5 mm and so on
 - 10-minutes precipitation (12 stations) : Geochang 22.0 mm and so on

□ **Long-term trend of July climate**

- o For Korea (whole nation),
 - National mean, mean maximum, and mean minimum temperatures of July 2000s (2001-2010) were near than those of the 1970s.
National mean, mean maximum, mean minimum temperatures of July 2012 were higher than those of the 2000s.
 - Nationally averaged precipitation, and days of rain in July 2000s were 111.1 mm and 2.2 day larger than those of the 1970s, respectively. But, nationally averaged precipitation and days of rain in June 2012 were 51.7 mm and 2.0 day smaller than those of the 2000s.
 - Nationally total of sunshine duration of July 2000s was 41.5 hours less than those of the 1970s. Nationally total of sunshine duration of July 2012 was 40.2 hours longer than those of the 2000s.
- o For Seoul,
 - The mean temperature of July 2000s was near those, the mean maximum temperature was smaller, the mean minimum temperatures was higher than those of the 1910s.
The mean, mean maximum, mean minimum temperatures of July 2012 were higher than those of the 2000s.
 - The monthly amount of precipitation, and days of rain in July 2000s were 162.4 mm and 2.7 day larger than those of the 1910s, respectively. And, the monthly amount of precipitation, and days of rain in July 2012 were 39.7 mm and 0.6 day smaller than those of the 2000s.
 - The total of sunshine duration of July 2000s was 120.8 hours less than those of the 1910s. The total of sunshine duration of July 2012 was 61.2 hours longer than those of the 2000s.

Appendix 1. Climate features in July 2012

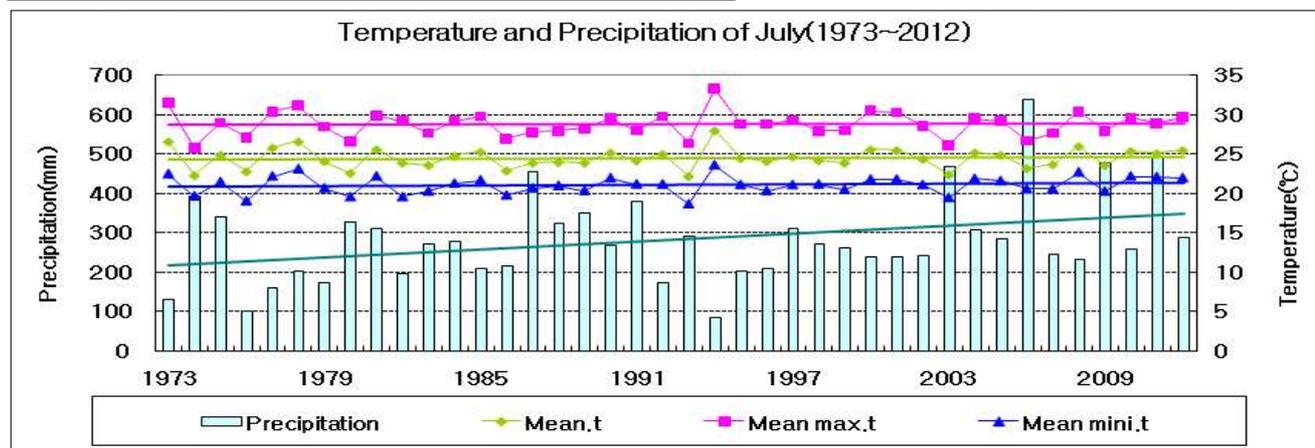


Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in South Korea during July 1973-2012.

□ Average values of meteorological elements across Korea during July (1973-2011)

Elements (National) average	July 2012 (a)	July 2011 (b)	Normals of July (1981-2010) (c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (°C)	25.5	25.1	24.5	0.4	1.0	
Mean maximum t (°C)	29.7	28.9	28.8	0.8	0.9	
Mean minimum t (°C)	22.0	22.1	21.1	-0.1	0.9	
Amount of precipitation(mm)	287.4	491.5	289.7	-204.1	-2.3(99%)	
Days of rain(day)	13.9	19.4	14.4	-5.5	-0.5	
Sunshine duration(hour)	164.0	114.2	147.9	49.8	16.1	
Days of maximum temperature greater than 30°C(day)	14.8	12.5	12.5	2.3	2.3	
Days of amount of precipitation greater than 30mm/hour(day)	0.8	1.4	0.7	-0.6	0.1	
Days of amount of precipitation greater than 80mm/day(day)	0.6	1.5	0.7	-0.9	-0.1	

□ 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)	Amount of rain (mm)	Days of rain (day)	Sunshine duration (hour)	Days of maximum temperature greater than 30°C (day)	Days of amount of precipitation greater than 30mm/hour (day)	Days of amount of precipitation greater than 80mm/day (day)
1973-1980(a)	24.5	28.8	21.0	228.0	13.7	165.3	12.7	0.4	0.4
1981-1990(b)	24.3	28.6	20.9	287.5	14.3	157.1	12.1	0.6	0.6
1991-2000(c)	24.7	29.1	21.1	242.5	12.9	163.0	13.3	0.5	0.6
2001-2010(d)	24.4	28.6	21.2	339.1	15.9	123.8	12.1	0.9	0.9
2012(e)	25.5	29.7	22.0	287.4	13.9	164.0	14.8	0.8	0.6
d-a	-0.1	-0.2	0.2	111.1	2.2	-41.5	-0.6	0.5	0.5
d-b	0.1	0.0	0.3	51.6	1.6	-33.3	0.0	0.3	0.3
d-c	-0.3	-0.5	0.1	96.6	3.0	-39.2	-1.2	0.4	0.3
e-d	1.1	1.1	0.8	-51.7	-2.0	40.2	2.7	-0.1	-0.3

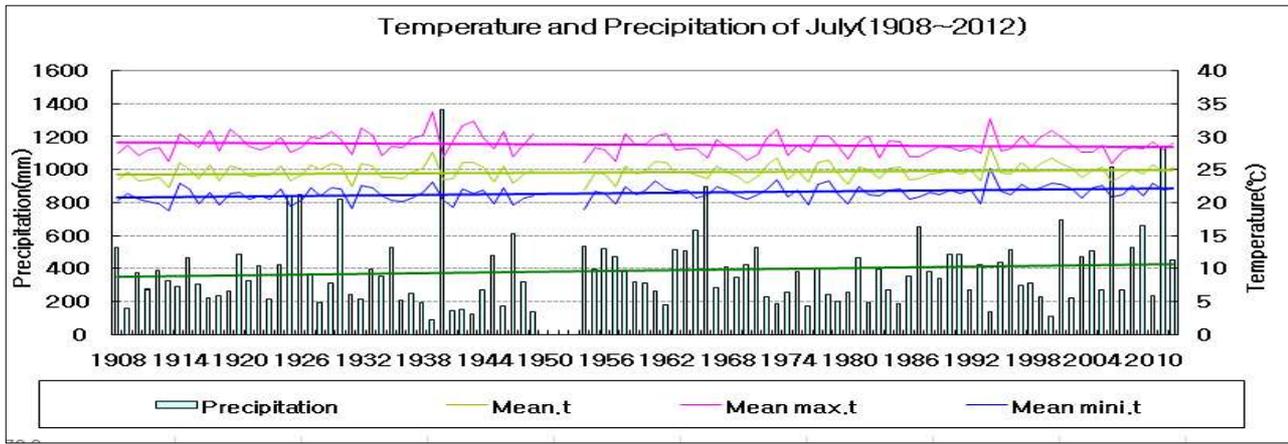


Fig. 2. Temperatures (mean, mean maximum, and mean minimum) and precipitation in Seoul during July 1908-2012

☐ Meteorological elements across Seoul during July (1908-2012)

Elements (National) average	July 2012 (a)	July 2011 (b)	Normals of July (1981-2010) (c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (°C)	25.4	24.6	24.9	0.8	0.5	
Mean maximum t (°C)	29.0	28.0	28.6	1.0	0.4	
Mean minimum t (°C)	22.4	22.0	21.9	0.4	0.5	
Amount of precipitation(mm)	448.9	1131.0	394.7	-682.1	54.2(114%)	
Days of rain(day)	17.0	21.0	16.3	-4.0	0.7	
Sunshine duration(hour)	144.0	80.4	120.0	63.6	24.0	
Days of maximum temperature greater than 30°C(day)	14.0	8.0	10.7	6.0	3.3	
Days of amount of precipitation greater than 30mm/hour(day)	2.0	4.0	1.1	-2.0	0.9	
Days of amount of precipitation greater than 80mm/day(day)	1.0	4.0	1.2	-3.0	-0.2	

☐ Meteorological elements across Seoul during July for each decade (1911-2012)

Year	Mean temp (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Amount of rain (mm)	Days of rain (day)	Sunshine duration (hour)	Days of maximum temperature greater than 30°C (day)	Days of amount of precipitation greater than 30mm/hour (day)	Days of amount of precipitation greater than 80mm/day (day)
1911-1920(a)	24.4	29.1	20.8	326.2	14.9	203.6	12.6	0.0	0.9
1921-1930	24.7	29.2	21.2	477.0	17.4	169.0	13.0	0.0	1.5
1931-1940(b)	24.6	29.4	21.2	385.0	16.3	182.2	13.2	0.2	1.1
1941-1949	24.6	29.9	20.9	269.9	15.9	210.4	15.3	0.4	0.2
1954-1960	24.0	28.2	21.1	422.0	19.1	138.7	10.6	1.0	1.0
1961-1970	24.6	28.4	21.7	446.3	18.1	114.0	10.0	1.9	1.4
1971-1980(b)	24.7	28.8	21.7	288.2	15.2	114.7	11.2	0.6	0.5
1981-1990	24.6	28.4	21.5	372.8	16.5	135.0	9.4	0.8	1.1
1991-2000	25.4	29.2	22.2	322.7	14.7	142.3	13.2	1.0	0.9
2001-2010(d)	24.8	28.3	22.0	488.6	17.6	82.8	9.5	1.6	1.7
2012(e)	25.4	29.0	22.4	448.9	17.0	144.0	14.0	2.0	1.0
d-a	0.4	-0.8	1.2	162.4	2.7	-120.8	-3.1	1.6	0.8
d-b	0.2	-1.1	0.8	103.6	1.3	-99.4	-3.7	1.4	0.6
d-c	0.1	-0.5	0.3	200.4	2.4	-31.9	-1.7	1.0	1.2
e-d	0.6	0.7	0.4	-39.7	-0.6	61.2	4.5	0.4	-0.7