



MONTHLY CLIMATE REVIEW OVER KOREA (total 7 pages)

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August and Summer(June–August) 2016 Climate Summary

- ◇ The nationwide mean temperature (26.7 °C) in August 2016 was 1.6 °C above normal and the nationally-averaged precipitation (76.2 mm) was 27.7 % of normal.
- ◇ The nationwide mean temperature (24.8°C) in Summer 2016 was 1.2 °C above normal and the nationally-averaged precipitation (445.7 mm) was 61.6 % of normal.

- Climate features and long-term trends in August and Summer 2016 were analyzed with the data collected at the 45 meteorological stations throughout Korea (national average) from 1973 to 2016 (1908-2016 for Seoul).

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

□ The climatic characteristics in August 2015

o Korea (as a whole),

- The mean temperature (26.7 °C), the mean maximum temperature (32.0 °C), and the mean minimum temperature (22.5 °C) were 1.6 °C, 2.2 °C, and 1.0°C above normal.
- The nationally-averaged precipitation was 76.2 mm, which was 27.7 % of normal. The number of rainy days was 8.2, which was 1.8 days less than normal.
- The total number of hours of sunshine was 250.1, which was 144.0 % of normal.

o Seoul,

- The mean temperature (28.0 °C), the mean maximum temperature (32.6 °C), and the mean minimum temperature (24.5 °C) were 2.3 °C, 3.0 °C, 2.1 °C above normal, respectively.
- The amount of precipitation was 67.1 mm, which was 18.4 % of normal.

- The number of rainy days was 11.0, which was 3.6 days less than normal.
- The total number of hours of sunshine was 236.1, which was 154.8 % of normal.

□ Long-term¹⁾ trend in August 2016 climate

o Korea (as a whole),

- The national mean temperatures in August in the 2000s (2001-2010) was 0.4 °C above that of in the 1970s (1973-1980).
- The nationally-averaged precipitation in August in the 2000s was 58.8 mm more than that of in the 1970s.
- The number of rainy days in August in the 2000s was 2.4 days more than that of in the 1970s.
- The total sunshine hours in August in the 2000s was 30.2 hours less than that of in the 1970s.

o Seoul,

- The mean temperatures in August in the 2000s (2001-2010) was 0.9 °C above that of in the 1970s (1971-1980).
- The precipitation in August in the 2000s was 48.5 mm more than that of in the 1970s.
- The number of rainy days in August in the 2000s was 2.4 days more than that of in the 1970s.
- The total sunshine hours in August in the 2000s was 8.5 hours less than that of in the 1970s.

□ The climatic characteristics in Summer 2015

o Korea (as a whole),

- The mean temperature (24.8 °C), the mean maximum temperature (29.7 °C) and the mean minimum temperature (20.9 °C) were 1.2 °C, 1.3 °C, 1.2 °C above normal, respectively.
- The nationally-averaged precipitation was 445.7 mm, which was 61.6 % of normal. The number of rainy days was 31.5, which was 2.3 days less than normal.

¹⁾ 2000s : 2001~2010 / 1970s of Korea(Seoul) : 1973~1980(1971~1980)

- The total number of hours of sunshine was 610.5, which was 112.6 % of normal.

o Seoul,

- The mean temperature (25.9 °C), the mean maximum temperature (30.4 °C) and the mean minimum temperature (22.4 °C) were 1.6 °C, 2.0 °C, 1.6 °C above normal, respectively.
- The amount of precipitation was 479.7 mm, which was 53.8 % of normal.
- The number of rainy days was 36.0, which was 4.8 days less than normal.
- The total number of hours of sunshine was 626.2, which was 137.7 % of normal.

□ **Long-term²⁾ trend in Summer 2016 climate**

o Korea (as a whole),

- The national mean temperatures in Summer in the 2000s (2001-2010) was 0.3 °C above that of in the 1970s (1973-1980).
- The nationally-averaged precipitation in Summer in the 2000s was 154.2 mm more than that of in the 1970s.
- The number of rainy days in Summer in the 2000s was 3.3 days more than that of in the 1970s.
- The total sunshine hours in Summer in the 2000s was 84.3 hours less than that of in the 1970s.

o Seoul,

- The mean temperatures in Summer in the 2000s (2001-2010) was 0.6 °C above that of in the 1970s (1971-1980).
- The precipitation in Summer in the 2000s was 248.8 mm more than that of in the 1970s.
- The number of rainy days in Summer in the 2000s was 4.5 days more than that of in the 1970s.
- The total sunshine hours in Summer in the 2000s was 57.9 hours less than that of in the 1970s.

2) 2000s : 2001~2010 / 1970s of Korea(Seoul) : 1973~1980(1971~1980)

Appendix 1 Climate features of August 2016 (Nationwide)

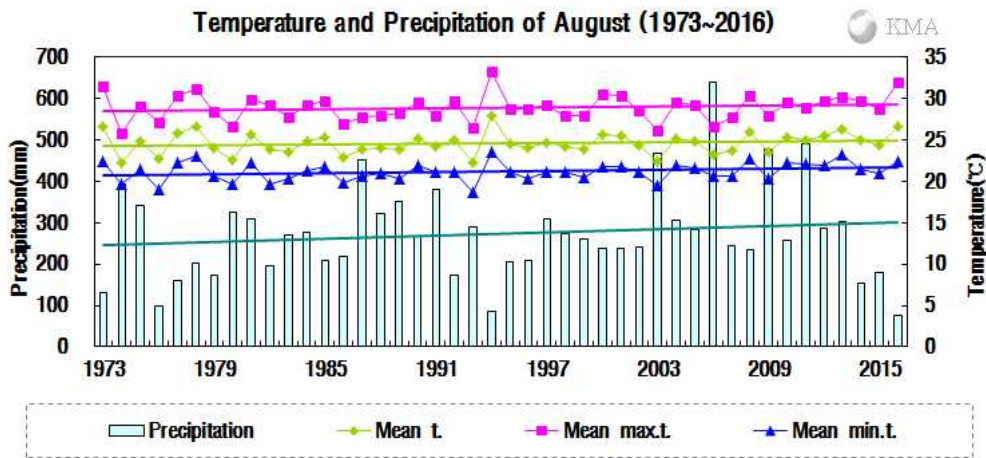


Fig 1. Temperatures (mean, mean maximum and mean minimum) and precipitation in South Korea during August (1973–2016).

□ The nationwide average value of meteorological element during August (1973–2016)

Elements (whole country)	August 2016(a)	August 2015(b)	Normals of August (1981-2010)(c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (°C)	26.7	25.2	25.1	1.5	1.6	the 4th
Mean maximum temp. (°C)	32.0	30.2	29.8	1.8	2.2	the 2nd
Mean minimum temp. (°C)	22.5	21.4	21.5	1.1	1.0	-
Precipitation (mm)	76.2	111.3	274.9	-35.1	-198.7	the 1st lowest
Days of rain (day)	8.2	10.0	13.2	-1.8	-5.0	the 2nd lowest
Sunshine duration (hour)	250.1	207.9	173.7	42.2	76.4	the 1st
Mean cloud amount (1/10)	4.2	5.7	6.1	-1.5	-1.9	the 1st lowest
Precipitation more than 80mm/day(day)	0.1	0.2	0.7	-0.1	-0.6	minimum days rank 5th
Days of maximum temperature more than 33°C(day)	16.7	5.9	5.3	10.8	11.4	the 1st

□ The nationwide average value of meteorological element during August in 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)	Precipitation more than 80mm/day (day)	Days of maximum temperature more than 33°C(day)
1973-1980(a)	24.8	29.5	21	221.6	11.7	187.1	6.1	0.5	4.1
1981-1990(b)	25.3	30.1	21.5	240.2	12.1	191.8	6.0	0.6	5.6
1991-2000(c)	24.9	29.5	21.3	303.9	13.4	172.3	6.0	0.9	4.6
2001-2010(d)	25.2	29.7	21.7	280.4	14.1	156.9	6.3	0.7	5.7
2016(e)	26.7	32.0	22.5	76.2	8.2	250.1	4.2	0.1	16.7
d-a	0.4	0.2	0.7	58.8	2.4	-30.2	0.2	0.2	1.6
d-b	-0.1	-0.4	0.2	40.2	2.0	-34.9	0.3	0.1	0.1
d-c	0.3	0.2	0.4	-23.5	0.7	-15.4	0.3	-0.2	1.1
e-d	1.5	2.4	0.8	-204.2	-5.9	93.2	-2.1	-0.6	11

Appendix 2 Climate features of August 2016 (Seoul)

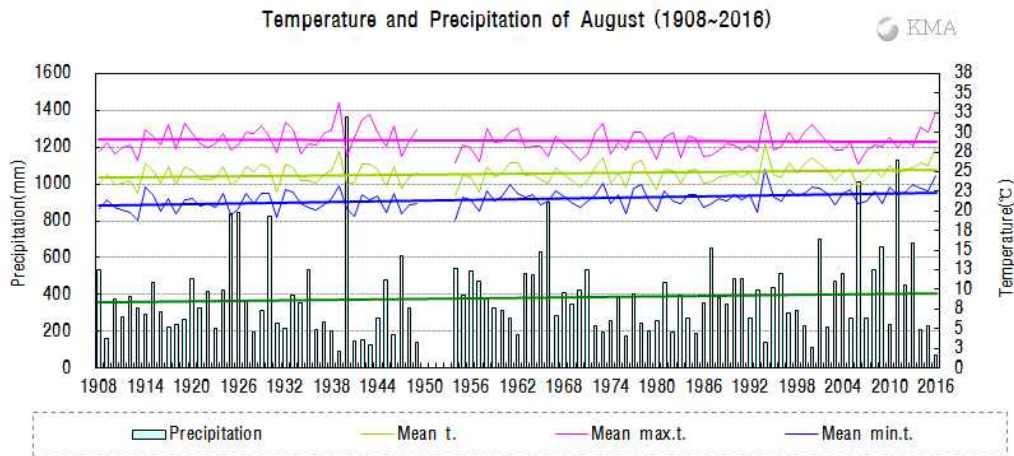


Fig. 2. Temperatures (mean, mean maximum and mean minimum) and precipitation in Seoul during August (1908-2016).

□ The average value of meteorological element during August in Seoul (1908-2016)

Elements (Seoul)	August 2016(a)	August 2015(b)	Normals of August (1981-2010)(c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (°C)	28.0	26.3	25.7	1.7	2.3	the 1st
Mean maximum temp. (°C)	32.6	30.8	29.6	1.8	3.0	the 4th
Mean minimum temp. (°C)	24.5	22.8	22.4	1.7	2.1	the 2nd
Precipitation (mm)	67.1	72.9	364.2	-5.8	-297.1	-
Days of rain (day)	11.0	10.0	14.6	1.0	-3.6	-
Sunshine duration (hour)	236.1	207.0	152.5	29.1	83.6	-
Mean cloud amount (1/10)	4.6	5.6	6.4	-1.0	-1.8	-
Precipitation more than 80mm/day(day)	0.0	0.0	1.2	0.0	-1.2	-
Days of maximum temperature more than 33°C(day)	20.0	3.0	4.0	17.0	16.0	the 3rd

□ The average value of meteorological element during August in Seoul in 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)	Days of maximum temperature more than 33°C(day)
1911-1920(a)	25.0	30.0	21.1	274.5	12.4	227.5	6.4	4.5
1921-1930	25.8	31.0	21.9	275.8	13.2	218.7	6.7	8.4
1931-1940(b)	25.1	30.1	21.7	239.5	15.0	186.8	7.5	6.7
1941-1949	25.6	31.2	21.8	226.7	12.6	230.8	6.5	10.0
1954-1960	25.2	30.2	21.7	174.0	11.0	188.5	6.4	6.6
1961-1970	25.7	29.9	22.6	276.8	14.9	145.0	7.1	3.5
1971-1980(c)	24.8	29.0	21.6	311.2	13.4	136.7	6.8	2.1
1981-1990	25.6	29.7	22.3	293.7	14.2	167.0	6.6	4.4
1991-2000	25.7	29.8	22.4	439.1	13.9	162.3	6.3	4.3
2001-2010(d)	25.7	29.5	22.6	359.7	15.8	128.2	6.4	3.2
2016(e)	28.0	32.6	24.5	67.1	11.0	236.1	4.6	20.0
d-a	0.7	-0.5	1.5	85.2	3.4	-99.3	0.0	-1.3
d-b	0.6	-0.6	0.9	120.2	0.8	-58.6	-1.1	-3.5
d-c	0.9	0.5	1.0	48.5	2.4	-8.5	-0.4	1.1
e-d	2.3	3.1	1.9	-292.6	-4.8	107.9	-1.8	16.8

Appendix 3 Climate features of Summer 2016 (Nationwide)

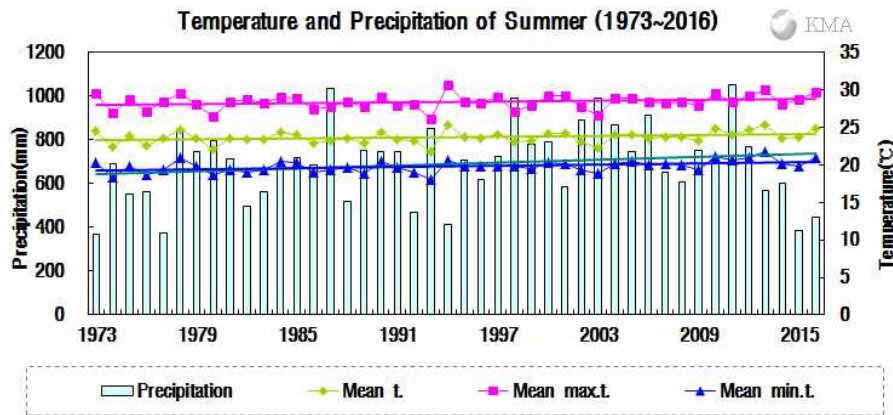


Fig 1. Temperatures (mean, mean maximum and mean minimum) and precipitation in South Korea during Summer (1973–2016).

□ The nationwide average value of meteorological element during Summer (1973–2016)

Elements (whole country)	Summer 2016(a)	Summer 2015(b)	Normals of Summer (1981-2010)(c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (°C)	24.8	23.7	23.6	1.1	1.2	the 4th
Mean maximum temp. (°C)	29.7	28.7	28.4	1.0	1.3	the 3rd
Mean minimum temp. (°C)	20.9	19.8	19.7	1.1	1.2	the 4th
Precipitation (mm)	445.7	387.1	723.2	58.6	-277.5	the 5th lowest
Days of rain (day)	31.5	33.8	37.3	-2.3	-5.8	-
Sunshine duration (hour)	610.5	550	542.3	60.5	68.2	-
Mean cloud amount (1/10)	5.7	6.5	6.5	-0.8	-0.8	the 2nd lowest
Precipitation more than 80mm/day(day)	0.8	0.6		0.2		-
Days of maximum temperature more than 33°C(day)	22.4	9.7	9.8	12.7	12.6	the 2nd

□ The nationwide average value of meteorological element during Summer in 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)	Precipitation more than 80mm/day (day)	Days of maximum temperature more than 33°C(day)
1973-1980(a)	23.4	28.1	19.5	616	36.5	538	6.6	1.2	8.5
1981-1990(b)	23.6	28.4	19.6	689.7	36.1	542.4	6.5	1.5	9.7
1991-2000(c)	23.5	28.3	19.7	709.7	36.1	512.8	6.4	1.8	10
2001-2010(d)	23.7	28.4	20	770.2	39.8	453.7	6.5	1.9	9.8
2016(e)	24.8	29.7	20.9	445.7	31.5	621.5	5.7	0.8	22.4
d-a	0.3	0.3	0.5	154.2	3.3	-84.3	-0.1	0.7	1.3
d-b	0.1	0	0.4	80.5	3.7	-88.7	0	0.4	0.1
d-c	0.2	0.1	0.3	60.5	3.7	-59.1	0.1	0.1	-0.2
e-d	1.1	1.3	0.9	-324.5	-8.3	167.8	-0.8	-1.1	12.6

Appendix 4 Climate features of Summer 2016 (Seoul)

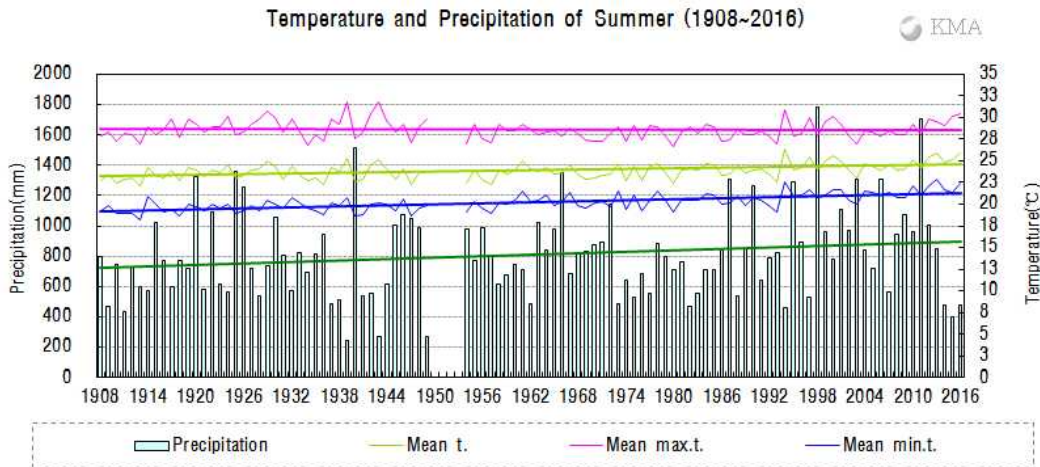


Fig 2. Temperatures (mean, mean maximum and mean minimum) and precipitation in Seoul during Summer (1908–2016).

□ The average value of meteorological element during Summer in Seoul (1908–2016)

Elements (Seoul)	Summer 2016(a)	Summer 2015(b)	Normals of Summer (1981-2010)(c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (°C)	25.9	25.2	24.3	0.7	1.6	the 2nd
Mean maximum temp. (°C)	30.4	30.1	28.4	0.3	2.0	
Mean minimum temp. (°C)	22.4	21.4	20.8	1.0	1.6	the 3rd
Precipitation (mm)	479.7	397.9	892.1	81.8(120.6%)	-412.4(53.8%)	
Days of rain (day)	36.0	35.0	40.8	1.0	-4.8	
Sunshine duration (hour)	626.2	641.2	454.6	-15.0(97.7%)	171.6(137.7%)	
Mean cloud amount (1/10)	5.7	6.1	6.6	-0.4	-0.9	
Precipitation more than 80mm/day(day)	2.0	1.0	2.6	1.0	-0.6	
Days of maximum temperature more than 33°C(day)	24.0	8.0	6.6	16.0	17.4	

□ The average value of meteorological element during summer in Seoul in 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)	Precipitation more than 80mm/day (day)	Days of maximum temperature more than 33°C(day)
1911-1920(a)	23.4	28.6	19.4	753.4	39.0	659.4	6.9	2.0	9.0
1921-1930	24.0	29.3	19.7	851.0	38.7	646.6	7.0	2.7	12.9
1931-1940(b)	23.5	28.7	19.8	740.6	41.3	590.6	7.4	1.6	11.8
1941-1949	23.8	29.4	19.8	678.1	39.6	682.0	6.8	1.4	17.0
1954-1960	23.3	28.2	19.8	703.2	35.7	354.9	7.1	1.5	6.7
1961-1970	23.9	28.3	20.4	857.7	44.1	452.8	7.3	2.2	6.6
1971-1980(c)	23.7	28.1	20.3	732.4	39.5	423.3	7.0	1.6	5.2
1981-1990	24.0	28.3	20.5	800.4	40.3	507.2	6.8	2.1	6.3
1991-2000	24.5	28.8	20.9	894.8	38.1	491.1	6.5	2.8	9.1
2001-2010(d)	24.3	28.3	21.1	981.2	44.0	365.4	6.7	0.7	4.3
2015(e)	25.9	30.4	22.4	479.7	36.0	626.2	5.7	2.0	24.0
d-a	0.9	-0.3	1.7	227.8	5.0	-294.0	-0.2	-1.3	-4.7
d-b	0.8	-0.4	1.3	240.6	2.7	-225.2	-0.7	-0.9	-7.5
d-c	0.6	0.2	0.8	248.8	4.5	-57.9	-0.3	-0.9	-0.9
e-d	1.6	2.1	1.3	-501.5	-8.0	260.8	-1.0	1.3	19.7