



# KMA'S BRIEFING ON CLIMATE CHARACTERISTICS

(total 6 pages)

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## Monthly (November) and Seasonal (September-November) 2011 Climate Summary

- ◇ The temperature for November and the fall season were above-normal.
- ◇ The monthly amount of precipitation(102.8mm) was above-normal(26%) for November but the seasonal amount of precipitation(225.4mm) was below-normal(13%) for Fall season 2011.

- Climate features of November 2011 and the Fall 2011 (September-November 2011) and their long-term trends are analyzed using 45 meteorological stations in Korea (average of the mainland) during 1973-2011 (1908-2011 for Seoul).
- **The climatological features in November 2011 can be described as follows:**
  - o Korea (whole nation)
    - The mean temperature (11.0 °C), the mean maximum temperature (15.9 °C) and the mean minimum temperature (6.8 °C) were 3.4 °C, 2.3 °C and 4.3 °C above-normal, respectively.
    - The value of daily range higher than 10 °C in this November(11.5 days) was 6 days less than that of the normal.
    - The monthly average amount of precipitation (102.8 mm) was 226% of normal.
    - The monthly average of rainy days (10.4 days) was 3.3 days more than that of the normal.
    - The monthly average of sunshine duration (128.4 hours) was 77% of normal.
  - o Seoul
    - The mean temperature (10.7 °C), the mean maximum temperature (14.7 °C) and the mean minimum temperature (7.2 °C) were 3.5 °C, 3.1 °C and 4.0 °C above-normal, respectively.
    - The value with daily range higher than 10 °C in this month (3.0 days) was 5.4 days less than that of normal.

- The monthly amount of precipitation (55.7 mm) was 106% of normal.
- The number of rainy days (11.0 days) was 2.3 days more than that of normal.
- The total of sunshine duration (129.5 hours) was 85% of normal.

**□ The climatological characteristics of Fall 2011 (September-November) were as follows:**

o Korea (whole nation)

- The mean temperature (15.3 °C), the mean maximum temperature (20.8 °C) and the mean minimum temperature (10.7 °C) were 1.2 °C, 0.7°C and 1.5 °C above-normal, respectively.
- The value of daily range higher than 10.0 °C during 2011 Fall (46.1 days) was 6.8 days smaller than that of the normal.
- The monthly average amount of precipitation (225.4 mm) was 87% of normal.
- The monthly average of rainy days (24.2 days) was 2.4 days more than that of the normal.
- The monthly average of sunshine duration (510.0 hours) was 95% of normal.

o Seoul

- The mean temperature (15.6 °C), the mean maximum temperature (20.2 °C) and the mean minimum temperature (11.5 °C) were 1.2 °C, 1.1 °C and 1.2 °C above-normal, respectively.
- The value with daily range higher than 10 °C during 2011 Fall (28.0 days) was 4.9 days less than that of normal.
- The monthly amount of precipitation (113.8 mm) was 42% of normal.
- The number of rainy days (20.0 days) was 4.1 days less than that of normal.
- The total of sunshine duration (525.2 hours) was 99% of normal.

**□ Long-term November and Fall climate trends**

- o The mean temperatures for November and Fall 2000's in Korea were 0.7°C higher compared with the 1970's. The minimum temperatures for the 2000's were 0.5°C (November) and 1.0°C (Fall) higher compared with the corresponding values for the 1970's, exhibiting an increasing trend.
- o The precipitation amounts for November 2000's in Korea was (7.4 mm) less than the corresponding values for the 1970's. but amounts during the fall season was (33.7 mm) more than the corresponding values for the 1970's.

※ Normal: average from 1981 to 2010.

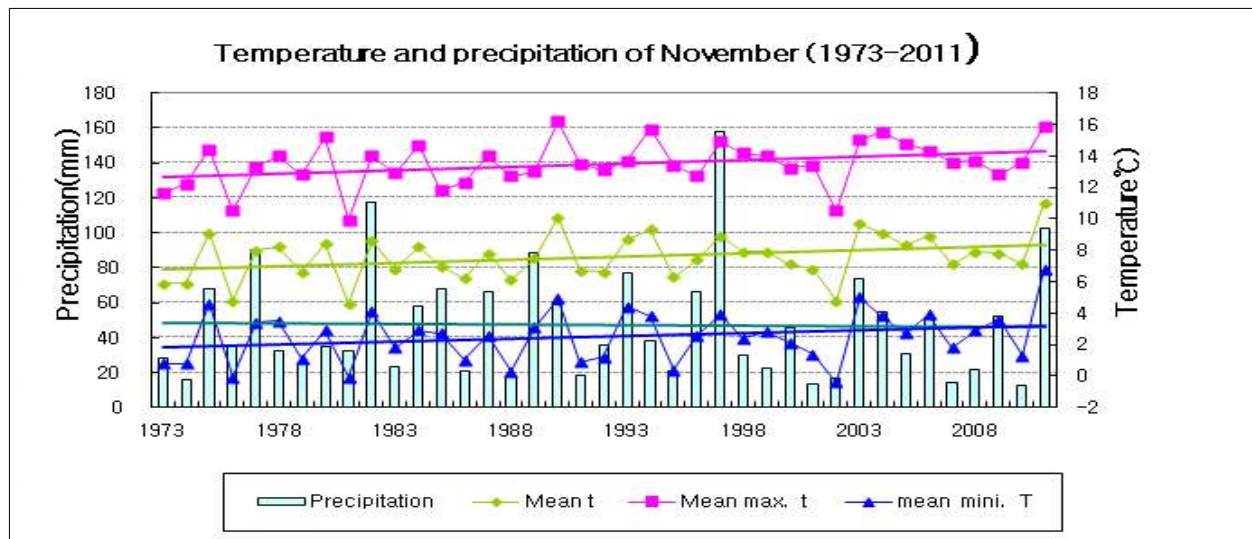
※ National average indicates average values of 45 meteorological stations starting from 1973.

※ In Seoul, data are analyzed from 1908.

※ 1970's: average from 1973 to 1980

※ 2000's: average from 2001 to 2010

## Appendix 1. November 2011 climate



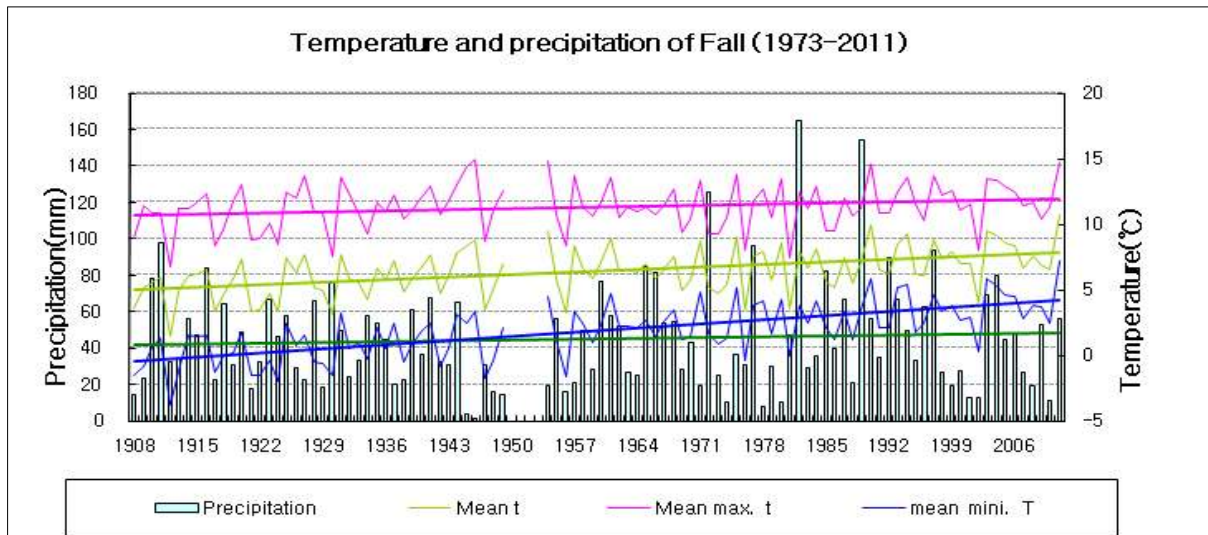
**Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in South Korea during November 1973-2011.**

### □ Average values of meteorological elements in Korea during November (1973-2011)

statistics for climate elements (national)	November 2010	November 2011(a)	normals of November (1981-2010)(b)	a-b	rank since 1973 (within 5th)
mean temperature (°C)	7.1	11.0	7.6	3.4	the first highest
mean maximum t (°C)	13.6	15.9	13.6	2.3	the second highest
mean minimum t (°C)	1.3	6.8	2.5	4.3	the first highest
range of daily temperature (≥10°C)	20.8	11.5	17.5	-6	the third lowest
amount of precipitation (mm)	12.2	102.8	46.7	56.1(226%)	the third highest
days of rainy	4.8	10.4	7.1	3.3	-
Sunshine duration (hr)	202.5	128.4	167.6	-39.2(77%)	the third lowest

### □ Average values of meteorological elements in Korea during November for each decade (1973-2010)

year	mean temp (°C)	mean max. temp. (°C)	mean min. temp. (°C)	range of daily temperature (≥10°C)	amount of rain (mm)	days of rainy	sunshine duration (hr)
1973-1980(a)	7.1	13.0	2.1	16.9	41.3	7.5	167.5
1981-1990(b)	7.3	13.2	2.3	16.6	55.1	7.8	165.8
1991-2000(c)	7.7	13.8	2.5	18.2	51.2	7.3	166.9
2001-2010(d)	7.8	13.7	2.6	17.7	33.9	6.2	170.0
d-a	0.7	0.7	0.5	0.8	-7.4	-1.3	2.5
d-b	0.5	0.5	0.3	1.1	-21.2	-1.6	4.2
d-c	0.1	-0.1	0.1	-0.5	-17.3	-1.1	3.1



**Fig. 2. Temperatures (mean, mean maximum, and mean minimum) and precipitation in Seoul during November 1908-2011**

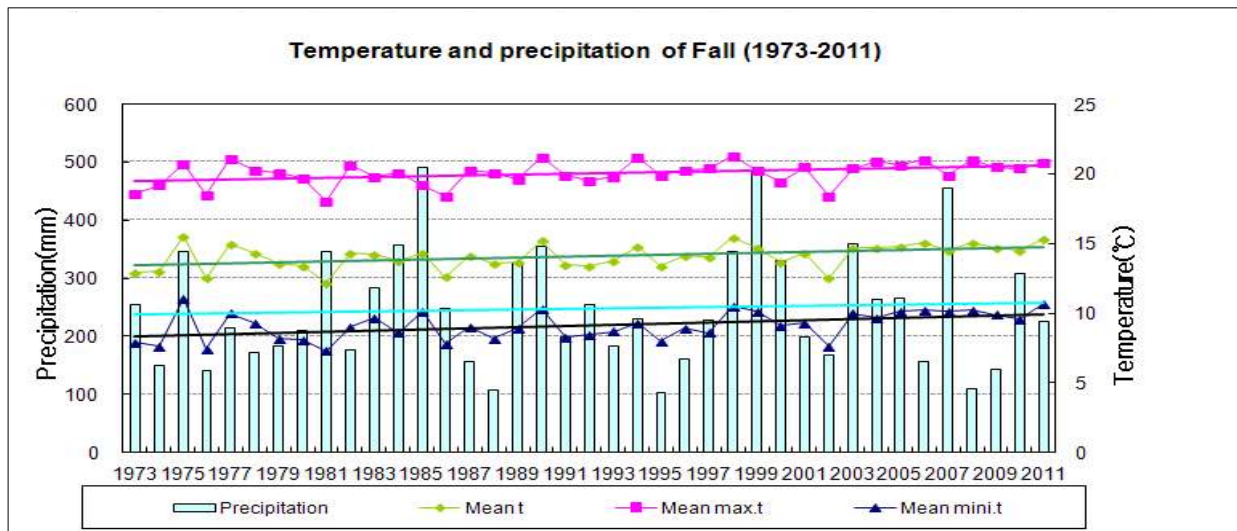
**□ Average values of meteorological elements in Seoul during November (1908-2011)**

statistics for climate elements (Seoul)	November 2010	November 2011(a)	normals of November (1981-2010) (b)	a-b	rank since 1908 (within 5th)
mean temperature (°C)	6.5	10.7	7.2	3.5	the first highest
mean maximum t (°C)	11.3	14.7	11.6	3.1	the third highest
mean minimum t (°C)	2.5	7.2	3.2	4	the first highest
range of daily temperature (≥10°C)	9	3	8.4	-5.4	the third lowest
amount of precipitation (mm)	10.9	55.7	52.5	3.2(106%)	-
days of rainy	7	11	8.7	2.3	-
Sunshine duration (hr)	180.3	129.5	153.2	-23.7(85%)	-

**□ Meteorological elements in Seoul during November for each decade (1911-2010)**

year	mean temp (°C)	mean max. temp. (°C)	mean min. temp. (°C)	range of daily temperature (≥10°C)	amount of rain (mm)	days of rainy	sunshine duration (hr)
1911-1920년	5.2	10.7	0.1	16.9	51.7	8.8	179.8
1921-1930년	5.0	10.4	-0.3	16.5	43.2	9.6	176.6
1931-1940년	6.0	11.4	1.2	16.1	40.2	9.4	176.9
1941-1950년	6.6	12.2	1.2	18.0	29.0	7.0	200.0
1954-1960년	6.6	11.6	1.9	13.7	38.1	6.7	159.5
1961-1970년	6.6	11.2	2.4	10.0	50.7	10.3	153.9
1971-1980년(a)	6.6	11.3	2.7	8.8	39.1	9.1	141.8
1981-1990년	6.7	11.2	2.7	8.5	69.6	9.6	156.9
1991-2000년	7.4	11.9	3.3	10.6	50.4	8.3	155.1
2001-2010년(b)	7.4	11.7	3.6	6.2	37.6	8.1	147.8
b-a	2.4	1.3	3.9	-10.3	-5.6	-1.5	-28.8

## Appendix 2. Fall, 2011 climate



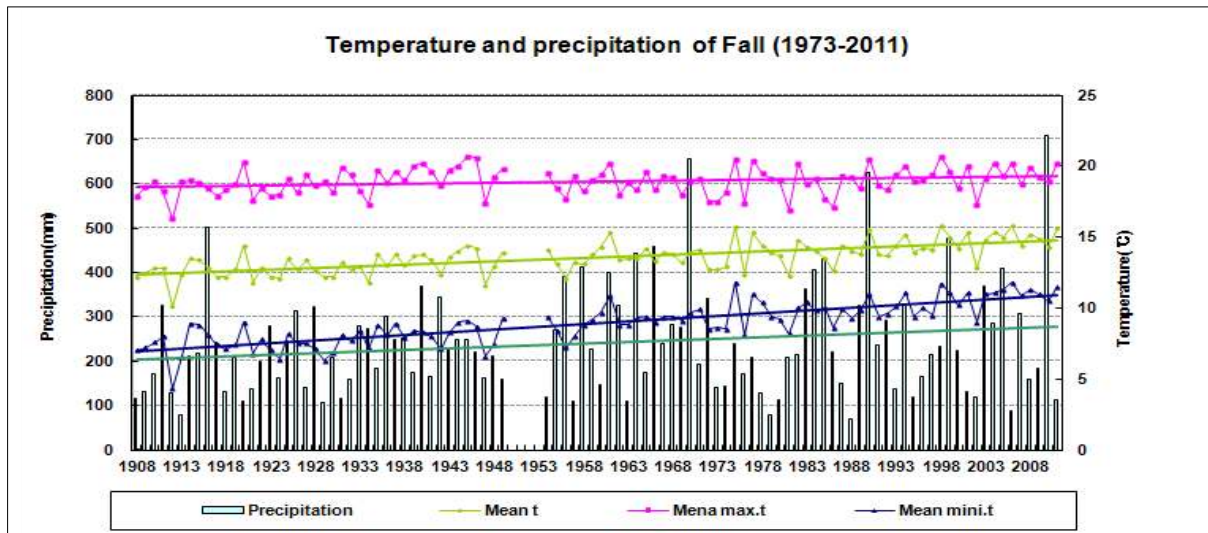
**Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in South Korea during the fall seasons(1973-2011)**

### □ Average values of meteorological elements in Korea during the fall seasons (1973-2011)

statistics for climate elements (national)	Fall 2010	Fall 2011(a)	normals of Fall (1981-2010)(b)	a-b	rank since 1973 (within 5th)
mean temperature (°C)	14.5	15.3	14.1	1.2	the third highest
mean maximum t (°C)	20.4	20.8	20.1	0.7	-
mean minimum t (°C)	9.6	10.7	9.2	1.5	the second highest
range of daily temperature ( $\geq 10^{\circ}\text{C}$ )	51.8	46.1	52.9	-6.8	the fourth lowest
amount of precipitation (mm)	307.6	225.4	259.0	-33.6(87%)	-
days of rainy	23.8	24.2	21.8	2.4	-
Sunshine duration (hr)	544.9	510.0	538.4	-28.4(95%)	-

### □ Average values of meteorological elements during the fall seasons for each decade (1973-2010)

year	mean temp (°C)	mean max. temp. (°C)	mean min. temp. (°C)	range of daily temperature ( $\geq 10^{\circ}\text{C}$ )	amount of rain (mm)	days of rainy	sunshine duration (hr)
1973-1980(a)	13.8	19.8	8.7	53.9	208.9	22.5	549.3
1981-1990(b)	13.8	19.7	8.9	52.2	284.6	22.8	544.3
1991-2000(c)	14.1	20.2	9.0	55.3	251.9	20.7	548.8
2001-2010(d)	14.5	20.4	9.7	51.1	242.6	22.0	522.2
d-a	0.7	0.6	1.0	-2.8	33.7	-0.5	-27.1
d-b	0.7	0.7	0.8	-1.1	-42.0	-0.8	-22.1
d-c	0.4	0.2	0.7	-4.2	-9.3	1.3	-26.6



**Fig. 2. Temperatures (mean, mean maximum, and mean minimum) and precipitation in Seoul during fall 1908-2011**

**□ Average values of meteorological elements in Seoul during fall (1908-2011)**

statistics for climate elements (Seoul)	Fall 2010	Fallr 2011(a)	normals of Fall(1981-2010) (b)	a-b	rank since 1908 (within 5th)
mean temperature (°C)	14.3	15.6	14.4	1.2	the fourth highest
mean maximum t (°C)	18.9	20.2	19.1	1.1	-
mean minimum t (°C)	10.5	11.5	10.3	1.2	the fourth highest
range of daily temperature (≥10°C)	26	28.0	32.9	-4.9	-
amount of precipitation (mm)	708	113.8	273.6	-159.8(42%)	-
days of rainy	25	20.0	24.1	-4.1	-
Sunshine duration (hr)	521.3	525.2	528.3	-3.1(99%)	-

**□ Meteorological elements in Seoul during fall for each decade (1911-2010)**

year	mean temp (°C)	mean max. temp. (°C)	mean min. temp. (°C)	range of daily temperature (≥10°C)	amount of rain (mm)	days of rainy	sunshine duration (hr)
1911-1920년	12.7	18.5	7.6	56.3	215.9	26.3	625.7
1921-1930년	12.6	18.4	7.2	58.0	211.6	24.7	619.5
1931-1940년	13.2	19.2	8.2	58.1	235.5	25.6	630.1
1941-1950년	13.4	19.5	8.2	61.2	221.4	24.1	646.5
1954-1960년	13.4	18.8	8.7	48.7	239.7	23.4	561.4
1961-1970년	13.8	18.9	9.4	42.3	337.0	27.0	537.3
1971-1980년(a)	13.8	18.8	9.5	38.7	175.5	24.8	510.7
1981-1990년	13.9	18.7	9.7	35.4	301.8	23.7	556.4
1991-2000년	14.4	19.2	10.2	37.2	242.6	24.4	541.7
2001-2010년(b)	14.8	19.3	10.9	26.1	276.3	24.1	486.7
b-a	2.2	0.9	3.7	-31.9	64.7	-0.6	-132.8