



# KMA'S BRIEFING ON CLIMATE CHARACTERISTICS

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## Monthly (February 2012) and Seasonal (winter 2011) Climate Summary

- ◇ **Significantly below normal in temperature and precipitation, near normal in sunshine duration for February 2012 nationwide.**
- ◇ **Below normal in temperature and significantly below normal in precipitation, near normal in sunshine duration for winter 2011 nationwide**

□ Climate characteristics of February 2012 and the winter 2011 (December 2011 through February 2012) and its 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 February 2012 can be described as follows:**

- o For Korea (whole nation),
  - The mean temperature (-0.8°C) was 1.9°C below-normal, making it the fifth lowest February value in a record extending back to 1973.
  - The mean maximum temperature (4.7°C) and the mean minimum temperature (-5.7°C) were 2.1°C and 1.9°C below-normal, respectively.
  - The nationally averaged precipitation (10.4 mm) was 24% of normal, making it the fifth lowest February value since record keeping began in 1973.
  - The average days of rainy (5.2 days) had 1.3 less days compared to normal.
  - The mean sunshine duration ratio (108%) was near-normal.
- o For Seoul,
  - The mean temperature (-2.0°C), the mean maximum temperature (3.0°C), and the mean minimum (-6.0°C) were 2.4°C, 1.7°C and 2.6°C below-normal, respectively.
  - The monthly amount of precipitation (0.8 mm) was 3.2% of normal, ranking the second lowest value since record keeping began in 1908.
  - Days of rainy (4.0 days) had 1.8 less days compared to normal.

- The mean sunshine duration ratio (138%) was significantly above normal, which was the fourth highest since 1908.

**□ The climatological characteristics in the winter 2011 (December 2011 through February 2012) can be described as follows:**

o Korea (whole nation),

- The mean temperature ( $-0.4^{\circ}\text{C}$ ) and the mean maximum temperature ( $4.6^{\circ}\text{C}$ ) and the mean minimum temperature ( $-5.0^{\circ}\text{C}$ ) were  $1.0^{\circ}\text{C}$  and  $1.5^{\circ}\text{C}$  and  $0.9^{\circ}\text{C}$  below-normal, respectively.
- The nationally averaged precipitation (45.7 mm) was 47% of normal, ranking the fourth lowest value since record keeping began in 1973.
- The average days of rainy (18.4 days) had 1.4 less days compared to normal.
- The sunshine duration (535.2 hr) was 104% of normal.

o For Seoul,

- The mean temperature ( $-1.9^{\circ}\text{C}$ ), the mean maximum temperature ( $2.4^{\circ}\text{C}$ ), and mean minimum ( $-5.5^{\circ}\text{C}$ ) were  $1.5^{\circ}\text{C}$ ,  $1.2^{\circ}\text{C}$  and  $1.4^{\circ}\text{C}$  below-normal, respectively.
- The rainfall total for the winter period(14.6mm) was 22% of normal, ranking the second lowest since record keeping began in 1908.
- The average days of rainy (16.0 days) had 3.7 less days compared to normal.
- The Sunshine duration(611.0hr) was 129% of normal, ranking the third highest seasonal(winter) value.

**□ Long-term trend of February and the winter climate**

- o National mean, mean maximum, and mean minimum temperatures of February 2000s (2001-2010) were  $1.6^{\circ}\text{C}$ ,  $1.8^{\circ}\text{C}$ , and  $1.4^{\circ}\text{C}$  higher than those of the 1970s, respectively.
- o For Seoul, days with minimum temperature below  $-10^{\circ}\text{C}$  (1.0 days), days with maximum temperature below  $0^{\circ}\text{C}$  (4.0 days) of the February 2000s (2001-2010) were 4.6 and 3.9 days less than those of the 1960s, respectively.
- o National mean, mean maximum, and mean minimum temperatures of winter 2000s (2001-2010) were  $1.2^{\circ}\text{C}$  higher than those of the 1970s
- o Nationally averaged precipitation (89.8 mm) of the winter 2000s (2001-2010) was 2.4mm less than those of the 1970s. for Seoul, the figures (63.0 cm) was 11.9 mm less than those of the 1970s.

## Appendix 1. February, 2012 climate

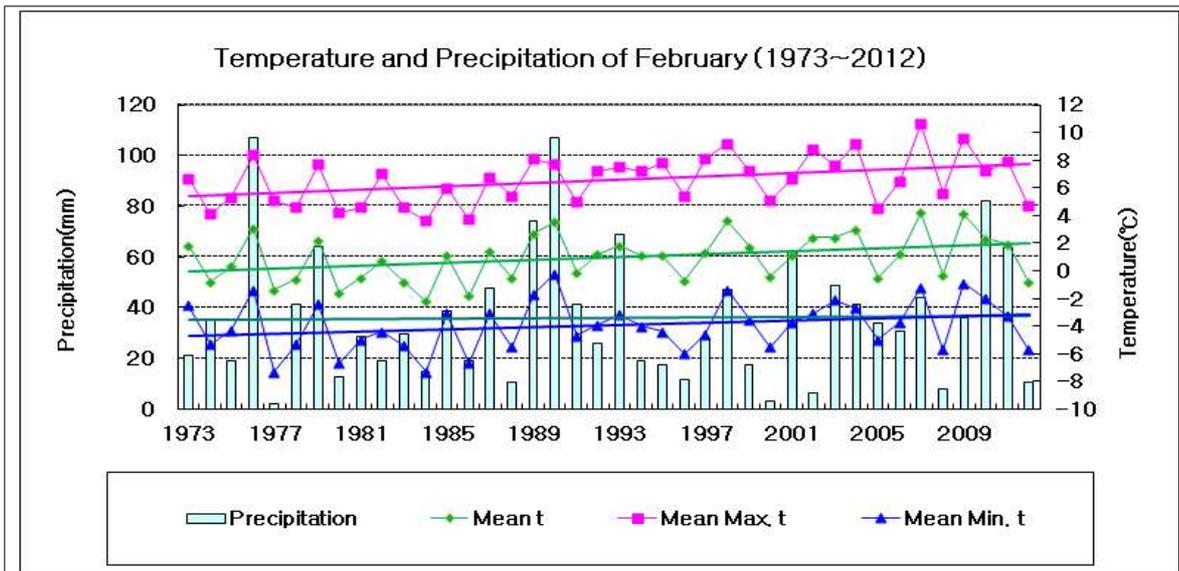


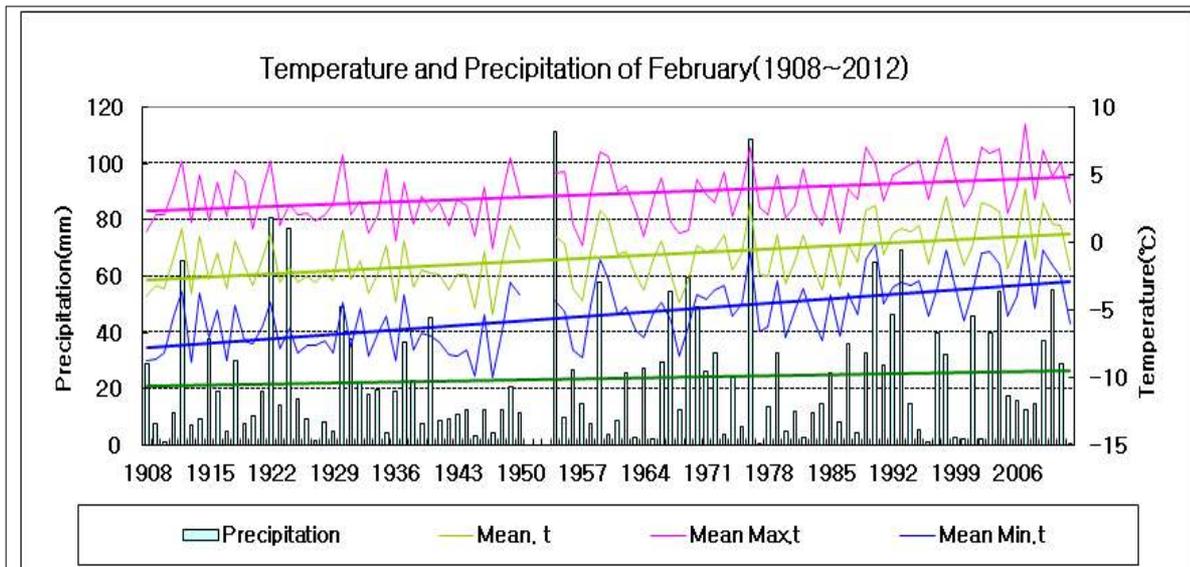
Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in South Korea during February 1973-2012.

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

Elements (National) average	February 2011	February 2012(a)	Normals of February (1981-2010) (b)	a-b	rank since 1973 (within 5th)
Mean temperature (°C)	1.9	-0.8	1.1	-1.9	5 <sup>th</sup> lowest
Mean maximum t (°C)	7.9	4.7	6.8	-2.1	-
Mean minimum t (°C)	-3.3	-5.7	-3.8	-1.9	-
Days with min. temp.(<-10°C)	1.2	5.7	2.8	2.9	-
Days with max. temp.(< 0°C)	0.9	4.2	1.8	2.4	-
Amount of precipitation(mm)	63.5	10.4	35.5	-25.1(24%)	5 <sup>th</sup> lowest
Days of rainy	5.4	5.2	6.5	-1.3	-
Sunshine duration	165.6	185.6	171.9	13.7((108%))	

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

Year	Mean temp (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Days with min. temp. (<-10°C)	Days with max. temp. (< 0°C)	Amount of rain (mm)	Days of rainy
1973-1980 (a)	0.4	5.8	-4.4	4.0	4.0	38.1	7.1
1981-1990 (b)	0.4	5.7	-4.2	3.7	2.9	38.9	7.4
1991-2000 (c)	1.1	7.0	-4.1	2.7	1.2	28.4	5.9
2001-2010 (d)	2.0	7.6	-3.0	1.9	1.2	39.3	6.2
d-a	1.6	1.8	1.4	-2.1	-2.8	1.2	-0.9
d-b	1.6	1.9	1.2	-1.8	-1.7	0.4	-1.2
d-c	0.9	0.6	1.1	-0.8	0	10.9	0.3



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

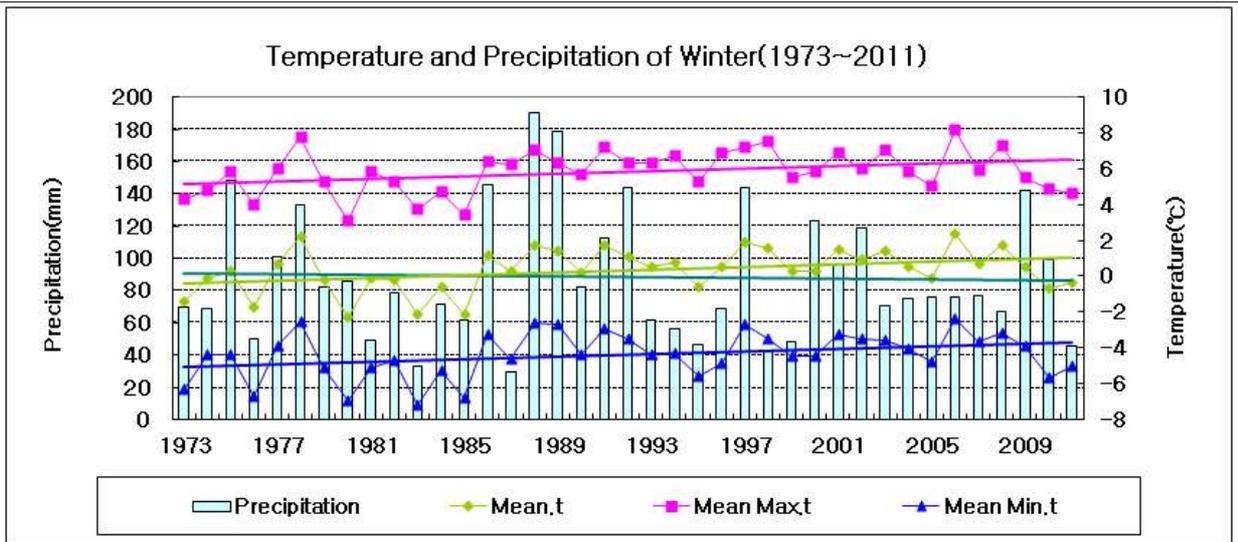
**□ Meteorological elements across Seoul during February(1908-2012)**

Elements (Seoul)	February 2011	February 2012(a)	Normals of February (1981-2010) (b)	a-b	rank since 1908 (within 5th)
Mean temperature (°C)	1.2	-2.0	0.4	-2.4	-
Mean maximum t (°C)	5.9	3.0	4.7	-1.7	-
Mean minimum t (°C)	-2.5	-6.0	-3.4	-2.6	-
Days with min. temp.(<-10°C)	0	5.0	1.8	3.2	-
Days with max. temp.< 0°C)	3.0	8.0	4.2	3.8	-
Amount of precipitation(mm)	29.1	0.8	25.0	-24.2(3.2%)	2 <sup>nd</sup> lowest
Days of rainy	3.0	4.0	5.8	-1.8	-
Sunshine duration	166.6	224.9	163.3	61.6(138%)	4 <sup>th</sup> highest

**□ Meteorological elements across Seoul during February for each decade (1911-2010)**

Year	Mean temp (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Days with min. temp. (<-10°C)	Days with max. temp. (< 0°C)	Amount of rain (mm)	Days of rainy
1911-1920년	-1.5	3.5	-6.2	5.2	6.3	20.3	6.6
1921-1930년	-1.8	3.1	-6.8	7.9	7.5	28	6.1
1931-1940년	-2.2	2.5	-6.7	6.8	8	23.3	6
1941-1949년	-2.4	2.6	-7.4	9.3	8.4	10.5	5.1
1954-1960년	-0.6	4	-4.9	4.6	5.3	33.1	6.1
1961-1970년(a)	-1.8	2.7	-5.7	5.6	7.9	27.2	5.8
1971-1980년	-0.8	3.6	-4.4	3.3	6.2	25.2	6.5
1981-1990년	-0.6	3.7	-4.3	3.4	6.2	21.4	6
1991-2000년	0.4	4.9	-3.5	1.1	2.5	24.2	5.6
2001-2010년(b)	1.3	5.4	-2.3	1	4	29.5	5.7
b-a	3.1	2.7	3.4	-4.6	-3.9	2.3	-0.1

## Appendix 2. Winter, 2011 climate



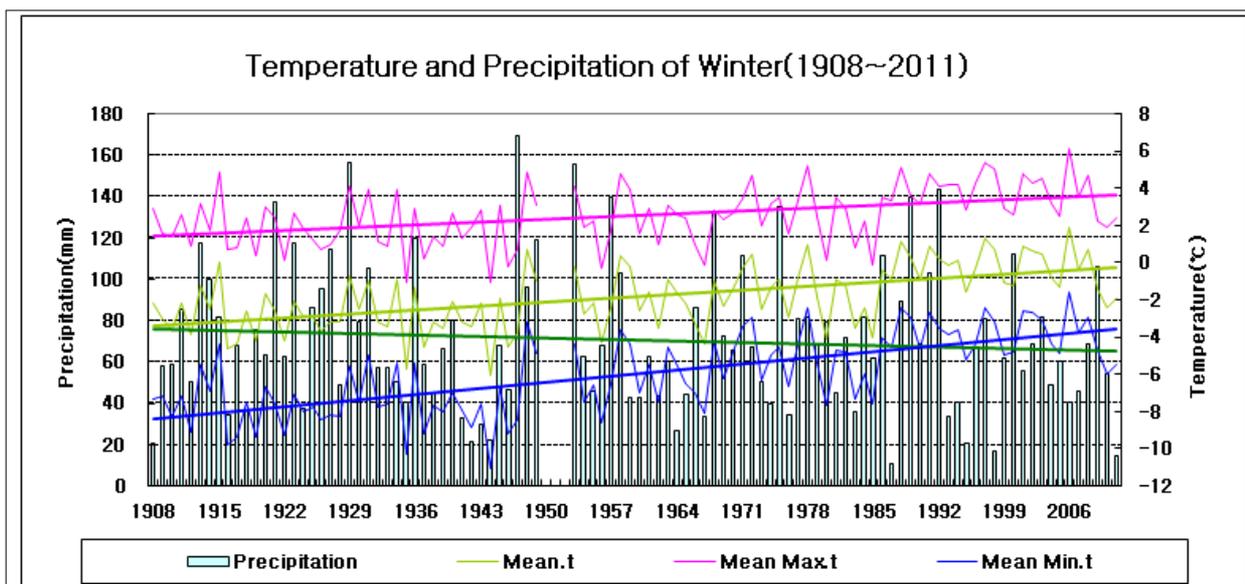
**Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in South Korea during the winter seasons(1973-2011)**

### □ Average values of meteorological elements during the winter seasons (1973-2011)

Elements (National) average	Winter 2010	Winter 2011 (a)	Normals of Winter (1981-2010) (b)	a-b	rank since 1973 (within 5th)
Mean temperature (°C)	-0.7	-0.4	0.6	-1.0	-
Mean maximum t (°C)	4.9	4.6	6.1	-1.5	-
Mean minimum t (°C)	-5.7	-5.0	-4.1	-0.9	-
Amount of precipitation(mm)	98.7	45.7	88.5	-42.8(47%)	4 <sup>th</sup> lowest
Days of rainy	17.3	18.4	19.8	-1.4	-
Sunshine duration	550.8	535.2	513.5	21.7(104%)	

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

Year	Mean temp (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Amount of rain (mm)	Days of rainy	Sunshine duration (hr)
1973-1980 (a)	-0.3	5.1	-5	92.2	20.8	542.1
1981-1990 (b)	0	5.5	-4.7	91.9	21.5	525.3
1991-2000 (c)	0.8	6.5	-4.1	84.7	18.6	514.4
2001-2010 (d)	0.9	6.3	-3.8	89.8	19.0	509.2
d-a	1.2	1.2	1.2	-2.4	-1.8	-32.9
d-b	0.9	0.8	0.9	-2.1	-2.5	-16.1
d-c	0.1	-0.2	0.3	5.1	0.4	-5.2



**Fig. 1. Temperatures (mean, mean maximum, and mean minimum), and precipitation in Seoul during the winter seasons(1908-2011)**

**□ Meteorological elements during the winter seasons across Seoul (1908-2011)**

Elements (Seoul)	Winter 2010	Winter 2011(a)	Normals of Winter (1981-2010) (b)	a-b	rank since 1908 (within 5th)
Mean temperature (°C)	-2.4	-1.9	-0.4	-1.5	
Mean maximum t (°C)	1.9	2.4	3.6	-1.2	
Mean minimum t (°C)	-6.0	-5.5	-4.1	-1.4	
Amount of precipitation(mm)	54.1	14.6	67.9	-53.3(22%)	2nd lowest
Days of rainy	17.0	16.0	19.7	-3.7	
Sunshine duration	542.6	611.0	475.4	135.6(129%)	3rd highest

**□ Meteorological elements across Seoul for each decade (1911-2010)**

Year	Mean temp (°C)	Mean max. temp. (°C)	Mean min. temp. (°C)	Amount of rain (mm)	Days of rainy	Sunshine duration (hr)
1911-1920년	-2.7	2.1	-7.6	71.4	21.9	539.2
1921-1930년	-2.8	1.8	-7.8	93.5	22.7	498.2
1931-1940년	-2.9	1.7	-7.3	68.0	20.9	532.3
1941-1949년	-2.8	1.8	-7.5	67.2	21.0	556.6
1954-1960년	-2.0	2.3	-6.3	72.0	21.0	479.4
1961-1970년(a)	-2.2	2.1	-6.0	62.8	18.5	485.5
1971-1980년	-1.3	3.0	-4.8	74.9	21.2	454.1
1981-1990년	-1.3	2.8	-4.9	71.4	20.7	490.2
1991-2000년	-0.1	4.0	-3.8	68.0	19.6	465.4
2001-2010년(b)	-0.2	3.8	-3.7	63.0	18.6	477.4
b-a	2.0	1.7	2.3	0.2	0.1	-8.1