KMA BRIEFING ON
CLIMATE CHARACTERISTICS

(6 pages total)

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Release	10 December 2010

November and Fall (September-November) 2010

◇ The mean temperature for November and the fall season were similar to normal.

◇ The mean precipitation for November and the fall season were 23% and 122%, respectively, of the normal values.

□ The climate characteristics for November and fall, and their long-term trends are analyzed based on observations from 60 meteorological stations across Korea (national average) for the period of 1973-2009 (1908-2009 for Seoul).

□ **The climatological characteristics of November 2010 can be described as follows:**

o For Korea,

- The mean temperature (7.1℃) and the mean minimum temperature (1.5℃) were 0.4℃ and 1.0℃ lower than normal, respectively, while the mean maximum temperature (13.6℃) was 0.2℃ higher than normal.

- The amount of precipitation (12.0mm) was 23% of the normal value, and is the lowest rainfall amount on record since 1973.

- The average number of rainy days (4.8 days) was 2.9 days fewer than normal.

o For Seoul,

- The mean temperature (6.5℃), the mean maximum temperature (11.3℃) and the mean minimum temperature (2.5℃) were 0.4℃, 0.2℃ and 0.4℃ lower than normal, respectively.

- The amount of precipitation (10.9mm) accounted for 21% of the normal precipitation.

- The average number of rainy days (7.9 days) was 2 days fewer than normal.

☐ **The climatological characteristics of the fall season (September, October, and November) in 2010 can be described as follows:**

o For Korea,
  - The mean (14.5℃), mean maximum (20.4℃), and mean minimum (9.8℃) temperatures were 0.5℃, 0.5℃ and 0.8℃ higher than normal, respectively.
  - The amount of precipitation (314.7mm) was 122% of the normal value.
  - The average number of rainy days (24.1 days) was 1.7 days more than normal.
o For Seoul,
  - The mean (14.3℃) and mean minimum (10.5℃) temperatures were 0.3℃ and 0.7℃ higher than normal, respectively, while the mean maximum temperature (18.9℃) was similar to normal.
  - The amount of precipitation (708.0mm) was 295% of the normal value, and was the highest rainfall amount on record since 1908.
  - The average number of rainy days (25.0 days) was 0.7 days more than normal.

☐ **Long-term trend of November and fall climate**
o Korea's mean, mean maximum, and mean minimum temperatures of the fall seasons from 2001 to 2010 were 0.7℃, 0.6℃ and 1.0℃ higher than the corresponding values in the 1970's, respectively.
o For Seoul, the mean minimum temperature for November from 2001 to 2010 was higher than that in the 1920's (by 0.9℃) and 1970's (by 3.9℃).
o For Korea, foggy days during the fall seasons between 2001 and 2010 decreased by 1.9 days relative to the 1970's; however, for Seoul, the figures are 4.3 days less than those in the 1970's.

※ Normal: Average from 1971 to 2000.
※ National average refers to averages of observations from 60 meteorological stations from 1973.
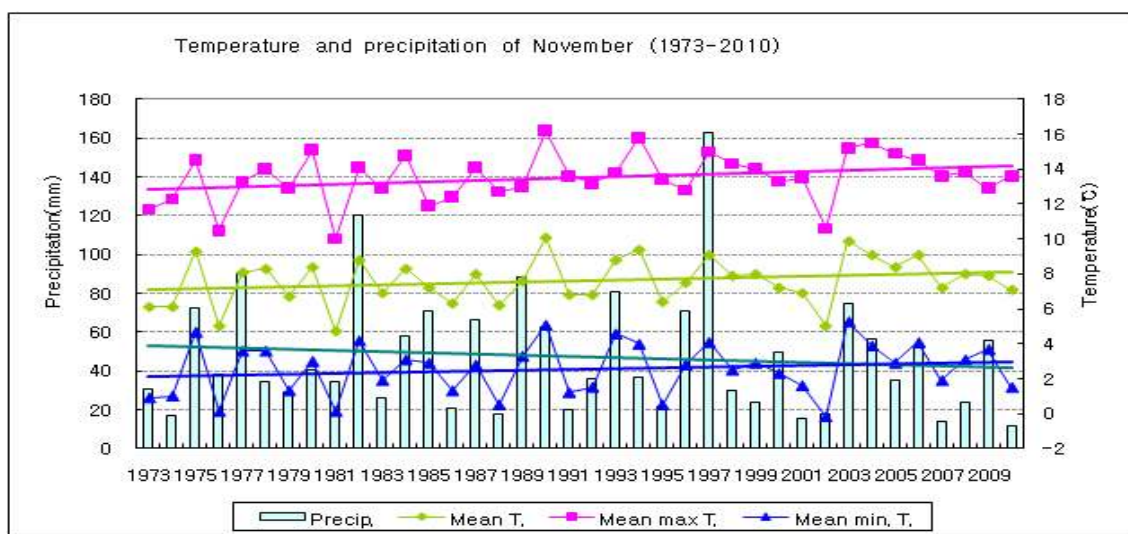※ In Seoul, data are analyzed from 1908.
※ 1920s: Average from 1921 to 1930
※ 1970s: Average from 1973 to 1980
※ 2000s: Average from 2001 to 2009

Fig. 1. Temperatures (mean, mean maximum, and mean minimum) and precipitation in South Korea for November (1973-2010)

Temperature and precipitation of November (1973-2010)

□ Average values of meteorological elements for Korea (1973-2010)

Elements (National) average	November 2010 (a)	Nov. normals (1971-2000) (b)	a - b	Ranking since 1973 (up to 5th)
Mean temperature (℃)	7.1	7.5	-0.4	-
Mean maximum t (℃)	13.6	13.4	0.2	-
Mean minimum t (℃)	1.5	2.5	-1.0	-
Amount of precipitation (mm)	12.0	52.2	-40.2(23%)	Lowest
Rainy days	4.8	7.7	-2.9	4th lowest
Foggy days	2.4	2.7	-0.3	-

□ Averages of meteorological elements for Korea by decade (1973-2010)

Year	Mean t (℃)	Mean Maximum t (℃)	Mean Minimum t (℃)	Precipit-ation (mm)	Rainy days	Foggy days
1973-1980 (a)	7.3	13.0	2.3	44.0	7.7	2.5
1981-1990 (b)	7.4	13.2	2.5	56.6	7.9	2.9
1991-2000 (c)	7.8	13.9	2.6	53.1	7.4	2.7
2001-2010 (d)	7.9	13.8	2.8	35.6	6.4	2.1
d - a	0.6	0.8	0.5	-8.4	-1.3	-0.4
d - b	0.5	0.6	0.3	-21.0	-1.5	-0.8
d - c	0.1	-0.1	0.2	-17.5	-1.0	-0.6

Fig. 2. Temperatures (mean, mean maximum, and mean minimum) and precipitation for Seoul (1908-2010)

Temperature and precipitation of November (1908-2010)
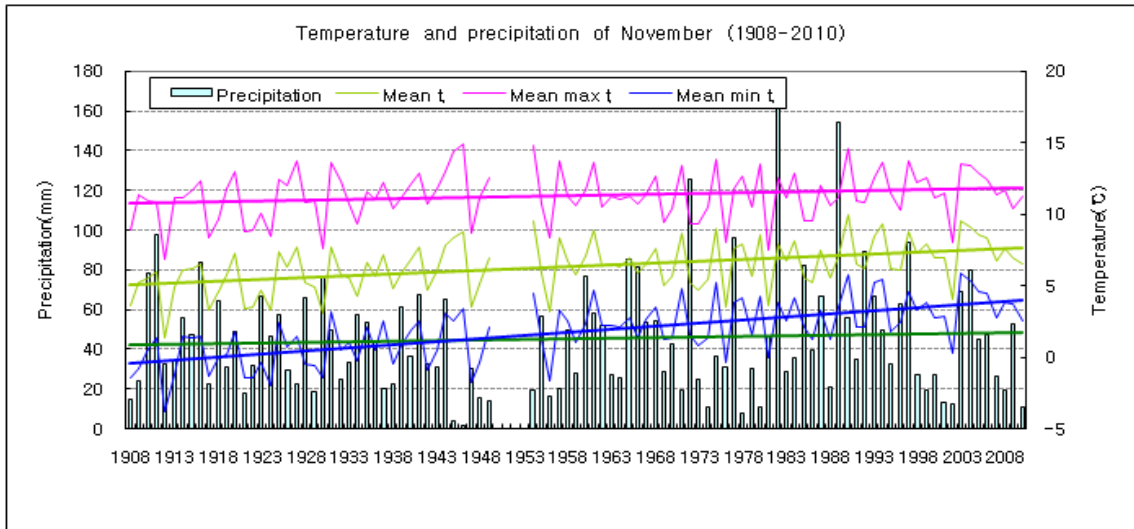
□ Average values of meteorological elements for Seoul in November (1908-2010)

Elements average (Seoul)	November 2010 (a)	Nov. normals (1971-2000) (b)	a - b	Ranking since 1908 (up to 5th)
Mean temperature (℃)	6.5	6.9	-0.4	-
Mean maximum t (℃)	11.3	11.5	-0.2	-
Mean minimum t (℃)	2.5	2.9	-0.4	-
Amount of precipitation (mm)	10.9	53.0	-42.1(21%)	-
Rainy days	7.0	9.0	-2.0	-
Foggy days	3.0	1.8	1.2	-

□ Meteorological elements for Seoul in November by decade (1911-2009)

Year	Mean t (℃)	Mean maximum t (℃)	Mean minimum t (℃)	Precipitation (mm)	Rainy days	Foggy days
1911-1920	5.2	10.7	0.1	51.7	8.8	-
1921-1930(a)	5.0	10.4	-0.3	43.2	9.6	-
1931-1940	6.0	11.4	1.2	40.2	9.4	-
1941-1950	6.6	12.2	1.2	28.9	6.9	-
1954-1960	6.6	11.6	1.9	38.1	6.7	-
1961-1970	6.6	11.2	2.4	50.7	10.3	2.1
1971-1980	6.6	11.3	2.7	39.1	9.1	2.9
1981-1990	6.7	11.2	2.7	69.6	9.6	1.3
1991-2000	7.4	11.9	3.3	50.4	8.3	1.3
2001-2010 (b)	7.4	11.7	3.6	37.6	8.1	1.3
b - a	2.4	1.3	3.9	-5.6	-1.5	-

Fig. 3. Temperatures (mean, mean maximum, and mean minimum), and precipitation for South Korea during the fall season (1973-2010)
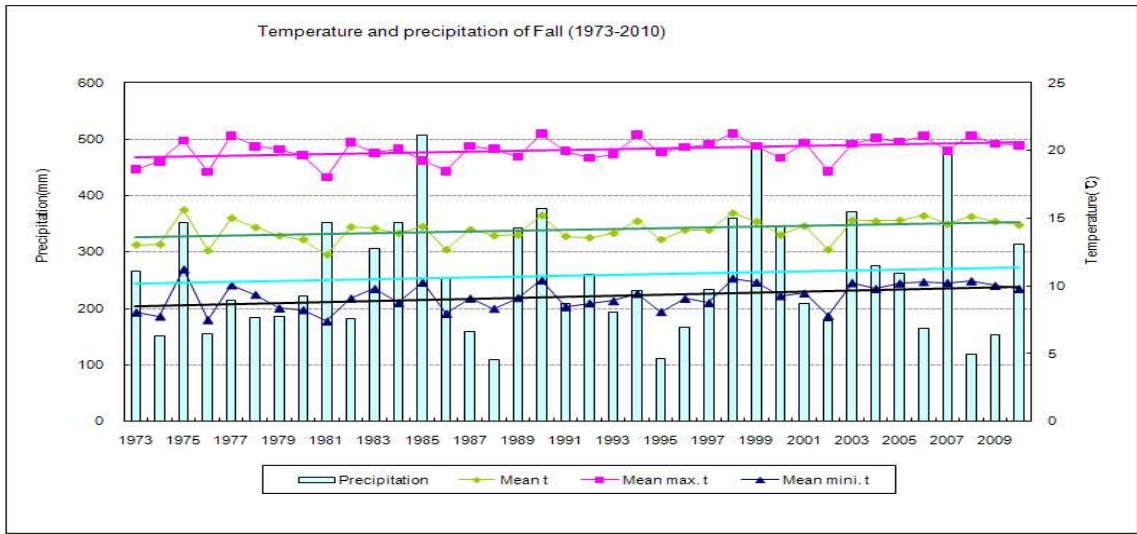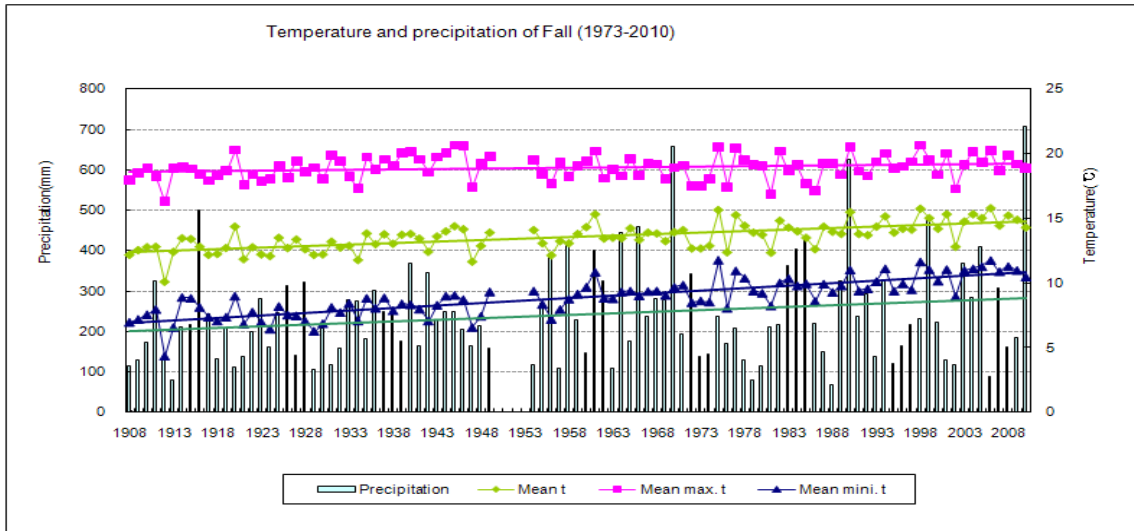

□ Average values of meteorological elements during the fall season (1973-2010)

Elements (National) average	Fall 2009 (a)	Fall normals (1971-2000) (b)	a - b	Ranking since 1973 (up to 5th)
Mean temperature (℃)	14.5	14.0	0.5	-
Mean maximum t (℃)	20.4	19.9	0.5	-
Mean minimum t (℃)	9.8	9.0	0.8	-
Amount of precipitation (mm)	314.7	259.0	55.7(122%)	-
Rainy days	24.1	22.4	1.7	-
Foggy days	7.7	9.6	-1.9	-

□ Average values of meteorological elements during the fall season by decade (1973-2010)

Year	Mean t (℃)	Mean maximum t (℃)	Mean minimum t (℃)	Precipit-ation (mm)	Rainy days	Foggy days
1973-1980 (a)	13.9	19.8	8.8	216.6	23.0	9.3
1981-1990 (b)	13.9	19.8	9.0	294.4	23.1	9.9
1991-2000 (c)	14.2	20.2	9.2	259.9	21.0	9.4
2001-2010 (d)	14.6	20.4	9.8	253.3	20.4	7.4
d - a	0.7	0.6	1.0	36.7	-2.6	-1.9
d - b	0.7	0.6	0.8	-41.1	-2.7	-2.5
d - c	0.4	0.2	0.6	-6.6	-0.6	-2.0

Temperature and precipitation of Fall (1973-2010)

□ Average values of meteorological elements during the fall season across Seoul (1908-2010)

Elements (Seoul) average	Fall 2009 (a)	Normals of Fall (1971-2000) (b)	a - b	Ranking since 1908 (up to 5th)
mean temperature (℃)	14.3	14.0	0.3	-
mean maximum t (℃)	18.9	18.9	0	-
mean minimum t (℃)	10.5	9.8	0.7	-
amount of precipitation (mm)	708.0	239.9	468.1(295%)	Highest
rainy days	25.0	24.3	0.7	-
foggy days	3.0	3.9	-0.9	-

□ Meteorological elements for Seoul by decade (1911-2010)

Year	Mean t (℃)	Mean Maximum t (℃)	Mean Minimum t (℃)	Precipit-ation (mm)	Rainy days	Foggy days
1911-1920	12.6	18.5	7.6	215.9	26.3	-
1921-1930(a)	12.5	18.4	7.1	211.6	24.7	-
1931-1940	13.2	19.2	8.2	235.5	25.6	-
1941-1950	13.4	19.5	8.2	219.9	24.0	-
1954-1960	13.4	18.8	8.7	239.7	23.4	-
1961-1970	13.8	18.9	9.4	337.0	27.0	5.6
1971-1980	13.8	18.8	9.5	175.5	24.8	6.2
1981-1990	13.9	18.7	9.7	301.8	23.7	3.4
1991-2000	14.4	19.2	10.2	242.6	24.4	2.2
2001-2010 (b)	14.8	19.3	10.9	276.3	24.1	1.9
b - a	2.3	0.9	3.8	64.7	-0.6	-