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Division	Meteorological Resources Division
Contact	LEE Jae-Won
Phone/email	+82-2-2181-0882/ 2seun@korea.kr
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Monthly (November) and Seasonal (Fall : September-November) 2013 Climate Summary

◇ The mean temperature (7.1 ℃) of November 2013 nationwide is nearly normal and the monthly precipitation (57.4 mm) is above normal.

◇ The mean temperature (14.6 ℃) and precipitation (231.1 mm) of Fall 2013 nationwide are nearly normal.

☐ Climate features and long-term trends of November and Fall 2013 have been analyzed with the data collected at the 45 meteorological stations throughout Korea (national average) from 1973 to 2013 (1908-2013 for Seoul).

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

☐ **The climatic characteristics of November 2013 are described as follows:**

o For Korea (whole country),

 - The mean temperature (7.1 ℃), the mean maximum temperature (12.6 ℃) and the mean minimum temperature (2.4 ℃) were 0.5 ℃, 1.0 ℃ and 0.1 ℃ below normals, respectively.

 - The nationally-averaged precipitation was 57.4 mm, which was 126.5% of normal. The number of the days of rain was 10.8 days, which was 3.7 days more than normal.

   ※ First day of snow
   : Ulleungdo(Nov. 11), Daegwallyeong, Sangju, Mokpo(Nov. 17), Cheorwon, Seoul, Dajeon, Tongyeon(Nov. 18), Incheon, Jeju, Gosan(Nov. 19), Dongducheon, Chuncheon, Andong(Nov. 25), Sokcho, Pohang, Yeosu(Nov. 27)

 - The total number of the hours of sunshine was 194.3 hours, which was 115.9% of normal.

o For Seoul,

 - The mean temperature (6.2 ℃), the mean maximum temperature (10.7 ℃), the mean minimum temperature (2.1 ℃) were 1.0 ℃, 0.9 ℃, 1.1 ℃ below normals, respectively.

 - The amount of precipitation was 46.8 mm, which was 89.1% of normal.

 - The number of the days of rain was 12.0 days, which is 3.3 days larger than normal.

   ※ First day of snow in 2013 is Nov. 18 (normal : Nov. 21, 2012 : Nov. 13).

 - The total number of the hours of sunshine was 188.0 hours, which was 122.7% of normal.

☐ **The climatic characteristics of Fall 2013 are described as follows:**
 o For Korea (whole country),
  - The mean temperature (14.6 ℃), the mean maximum temperature (20.2 ℃) and the mean minimum temperature (9.9 ℃) were 0.5 ℃, 0.1 ℃ and 0.7 ℃ above normals, respectively.
  - The nationally-averaged precipitation was 231.1 mm, which was 90.4% of normal. The number of the days of rain was 26.5 days, which was 4.7 days more than normal.
  - The total number of the hours of sunshine was 605.9 hours, which was 112.5% of normal.
 o For Seoul,
  - The mean temperature (14.6 ℃) and the mean maximum temperature (19.3 ℃) were 0.2 ℃, 0.2 ℃ above normals and the mean minimum temperature (10.3 ℃) was same as normal.
  - The amount of precipitation was 198.8 mm, which was 72.7% of normal, which was nearly normal.
  - The number of the days of rain was 25.0 days, which is 0.9 days more than normal.
  - The total number of the hours of sunshine was 628.9 hours, which was 119.0% of normal.

☐ **Long-term trend of November and Fall 2013 climate**
 o For Korea (whole country),
  - The national mean temperatures of November and Fall 2000s (2001-2010) are 0.7 ℃ above those of the same month and season of 1970s.
  - The nationally-averaged precipitation of November 2000s (2001-2010) are 7.4 mm less than that of the same month of 1970s and that of Fall 2000s (2001-2010) are 33.7 mm more than that of the same season of 1970s.
  - The number of the days of rain of November and Fall 2000s are 1.3 days, 0.5 days less than those of the same month and season of 1970s.
  - The total sunshine of November 2000s (2001-2010) is 2.5 hours more than that of the same month and that of Fall 2000s are 27.1 hours less than that of the same season of 1970s, respectively.
 o For Seoul,
  - The mean temperatures of November and Fall 2000s (2001-2010) are 0.8 ℃, 1.0 ℃ above those of the same month and season of 1970s.
  - The precipitation of November 2000s (2001-2010) are 1.5 mm less than that of the same month of 1970s and that of Fall 2000s (2001-2010) are 100.8 mm more than that of the same season of 1970s.
  - The number of the days of rain of November and Fall 2000s are 1.0 days, 0.7 days less than those of the same month and season of 1970s, respectively.
  - The total sunshine of November 2000s (2001-2010) is 6.0 hours more than that of the same month and that of Fall 2000s are 24.0 hours less than that of the same season of 1970s, respectively.
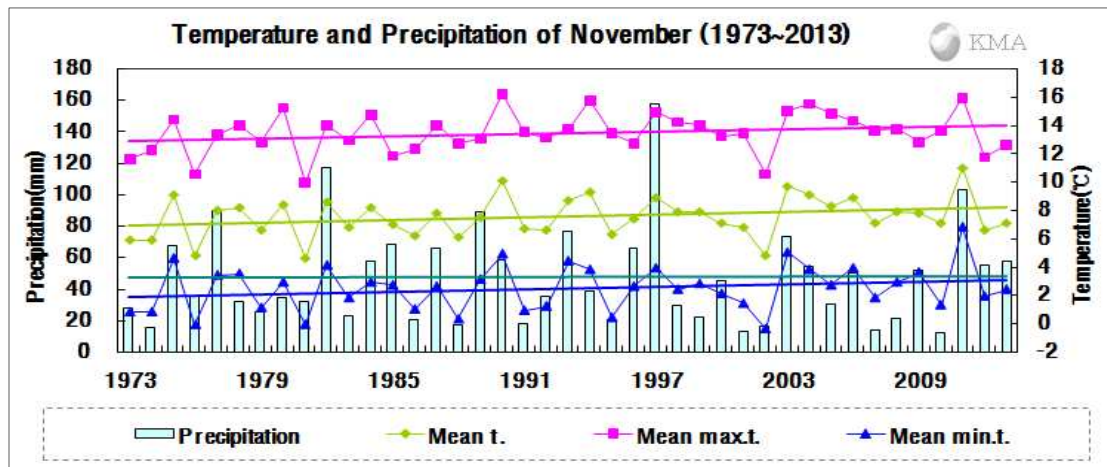
Fig 1. Temperatures (mean, mean maximum, and mean minimum) and precipitation in South Korea during November (1973-2013).

□ Average values of meteorological elements across Korea during November (1973-2013)

Elements (whole country)	Nov. 2013(a)	Nov. 2012(b)	Normals of Nov. (1981-2010) (c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (℃)	7.1	6.6	7.6	0.5	-0.5	
Mean maximum temp. (℃)	12.6	11.7	13.6	0.9	-1.0	
Mean minimum temp. (℃)	2.4	1.9	2.5	0.5	-0.1	
Precipitation (mm)	57.4	55.5	46.7	1.9 (106.4)	10.7 (126.5)	
Days of rain (day)	10.8	11	7.1	-0.2	3.7	
Sunshine duration (hour)	194.3	177.9	167.6	16.4 (109.2)	26.7 (115.9)	fifth longest
Mean cloud amount (1/10)	4.0	4.7	4.1	-0.7	-0.1	
Days of minimum temperature less than 0℃(day)	9.9	10.4	9.7	-0.5	0.2	
Days of daily temperature range greater than 10℃(day)	15.1	13.6	17.5	1.5	-2.4	
Days of snow (day)	3.8	1.1	1.2	2.7	2.6	second largest

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

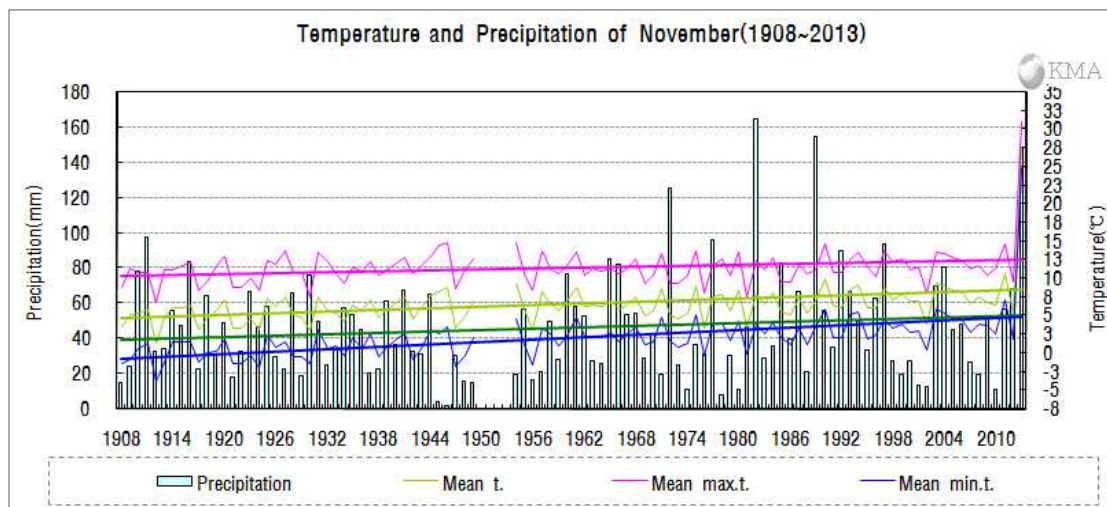| Year	Mean temp. (℃)	Mean max. temp. (℃)	Mean min. temp. (℃)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	Days of minimum temperature less than 0℃(day)	Days of daily temperature range greater than 10℃(day)	Days of snow (day)
1973-1980(a)	7.1	13.0	2.1	41.3	7.5	167.5	4.2	10.7	16.9	1.6
1981-1990(b)	7.3	13.1	2.3	55.1	7.8	165.8	4.4	10.3	16.6	1.2
1991-2000(c)	7.7	13.8	2.5	51.2	7.3	166.9	4.0	9.6	18.2	1.3
2001-2010(d)	7.8	13.7	2.6	33.9	6.2	170.0	3.9	9.3	17.7	1.1
2013(e)	7.1	12.6	2.4	57.4	10.8	194.3	4.0	9.9	15.1	3.8
d-a	0.7	0.7	0.5	-7.4	-1.3	2.5	-0.3	-1.4	0.8	-0.5
d-b	0.5	0.6	0.3	-21.2	-1.6	4.2	-0.5	-1.0	1.1	-0.1
d-c	0.1	-0.1	0.1	-17.3	-1.1	3.1	-0.1	-0.3	-0.5	-0.2
e-d	-0.7	-1.1	-0.2	23.5	4.6	24.3	0.1	0.6	-2.6	2.7

Fig 2. Temperatures (mean, mean maximum, and mean minimum) and precipitation in Seoul during November (1908–2013).

☐ Average values of meteorological elements in Seoul during November (1973-2013)

Elements (Seoul)	Nov. 2013(a)	Nov. 2012(b)	Normals of Nov. (1981-2010)(c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (℃)	6.2	5.5	7.2	0.7	-1.0	
Mean maximum temp. (℃)	10.7	9.5	11.6	1.2	-0.9	
Mean minimum temp. (℃)	2.1	1.8	3.2	0.3	-1.1	
Precipitation (mm)	46.8	67.8	52.5	-21.0 (69.0)	-5.7 (89.1)	
Days of rain (day)	12.0	13.0	8.7	-1.0	3.3	
Sunshine duration (hour)	188.0	181.1	153.2	6.9 (103.8)	34.8 (122.7)	
Mean cloud amount (1/10)	3.9	4.5	4.1	-0.6	-0.2	
Days of minimum temperature less than 0℃(day)	14.0	13.0	7.3	1.0	6.7	
Days of daily temperature range greater than 10℃(day)	9.0	5.0	8.4	4.0	0.6	
Days of snow (day)	4.0	4.0	2.1	0.0	1.9	

☐ Average values of meteorological elements in Seoul during November for each decade (1911-2010)

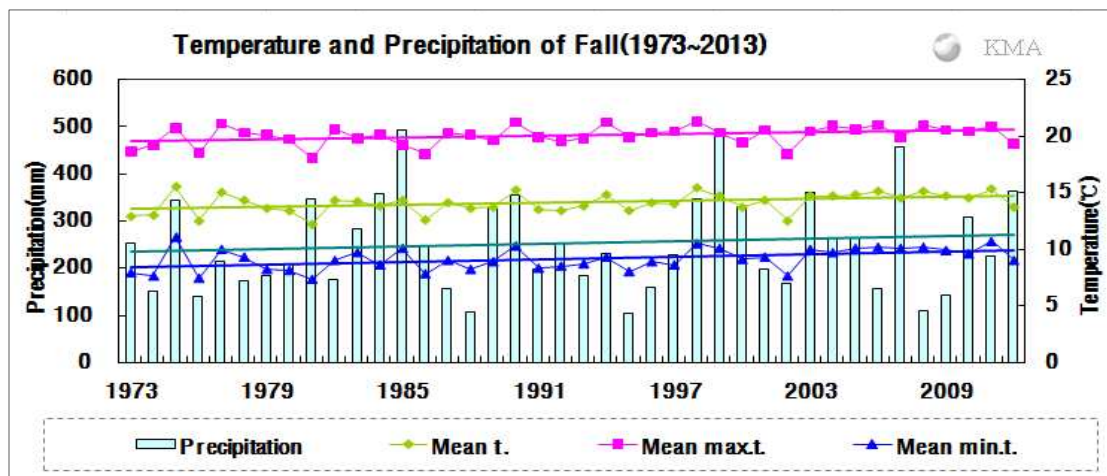| Year	Mean temp. (℃)	Mean max. temp. (℃)	Mean min. temp. (℃)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	Days of minimum temperature less than 0℃(day)	Days of daily temperature range greater than 10℃(day)	Days of snow (day)
1911-1920(a)	5.2	10.7	0.1	51.7	8.8	179.8	4.5	15.6	16.9	2.4
1921-1930	5.0	10.4	-0.3	43.2	9.6	176.6	4.3	16.0	16.5	3.5
1931-1940(b)	6.0	11.4	1.2	40.2	9.4	176.9	4.4	11.8	16.1	2.1
1941-1949	6.6	12.2	1.2	29.0	7.0	200.0	4.1	11.6	18.0	1.7
1954-1960	6.6	11.6	1.9	38.1	6.7	159.5	4.2	9.3	13.7	1.4
1961-1970	6.6	11.2	2.4	50.7	10.3	153.9	4.9	9.7	10.0	2.7
1971-1980(c)	6.6	11.3	2.7	39.1	9.1	141.8	4.5	9.9	8.8	2.4
1981-1990	6.7	11.2	2.7	69.6	9.6	156.9	4.4	8.6	8.5	1.9
1991-2000	7.4	11.9	3.3	50.4	8.3	155.1	4.0	6.5	10.6	2.2
2001-2010(d)	7.4	11.7	3.6	37.6	8.1	147.8	3.9	6.8	6.2	2.1
2013(e)	6.2	10.7	2.1	46.8	12.0	188.0	3.9	14.0	9.0	4.0
d-a	2.2	1.0	3.5	-14.1	-0.7	-32.0	-0.6	-8.8	-10.7	-0.3
d-b	1.4	0.3	2.4	-2.6	-1.3	-29.1	-0.5	-5.0	-9.9	0.0
d-c	0.8	0.4	0.9	-1.5	-1.0	6.0	-0.6	-3.1	-2.6	-0.3
e-d	-1.2	-1.0	-1.5	9.2	3.9	40.2	0.0	7.2	2.8	1.9

Fig 3. Temperatures (mean, mean maximum, and mean minimum) and precipitation in South Korea during Fall (1973–2013).

☐ Average values of meteorological elements across Korea during Fall (1973~2013)

Elements (whole country)	Fall 2013(a)	Fall 2012(b)	Normals of Fall (1981-2010) (c)	a-b	a-c	Rank since 1973 (within 5th)
Mean temperature (℃)	14.6	13.7	14.1	0.9	0.5	
Mean maximum temp. (℃)	20.2	19.3	20.1	0.9	0.1	
Mean minimum temp. (℃)	9.9	9.0	9.2	0.9	0.7	
Precipitation (mm)	231.1	363.5	259.7	-132.4 (66.3)	-28.6 (90.4)	
Days of rain (day)	26.5	26.6	21.8	-0.1	4.7	
Sunshine duration (hour)	605.9	593.9	538.5	12.0 (102.0)	67.4 (112.5)	the longest
Mean cloud amount (1/10)	4.4	4.7	4.6	-0.3	-0.2	
Days of minimum temperature less than 0℃(day)	10.1	10.6	10.7	-0.5	-0.6	
Days of daily temperature range greater than 10℃(day)	49.3	48.6	52.9	0.7	-3.6	
Days of snow (day)	3.8	1.1	1.2	2.7	2.6	second largest

☐ Average values of meteorological elements across Korea during Fall for each decade (1973~2010)

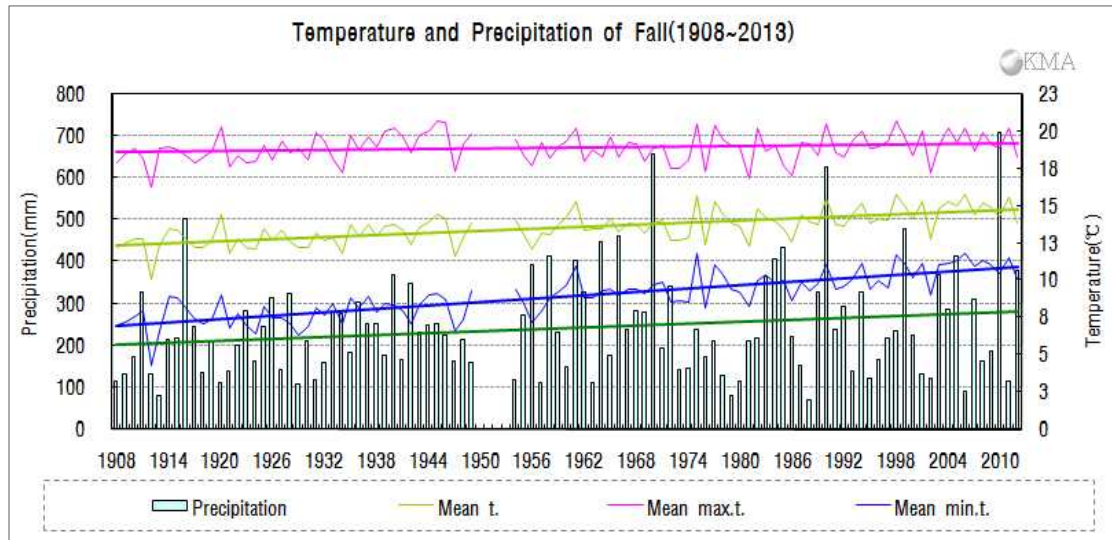| Year	Mean temp. (℃)	Mean max. temp. (℃)	Mean min. temp. (℃)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	Days of minimum temperature less than 0℃(day)	Days of daily temperature range greater than 10℃(day)	Days of snow (day)
1973-1980(a)	13.8	19.8	8.7	208.9	22.5	549.3	4.7	11.9	53.9	1.7
1981-1990(b)	13.8	19.8	8.9	284.6	22.8	544.3	4.8	11.5	52.2	1.3
1991-2000(c)	14.1	20.2	9.0	251.9	20.7	548.8	4.4	10.5	55.3	1.3
2001-2010(d)	14.5	20.4	9.7	242.6	22.0	522.2	4.6	10.0	51.1	1.1
2013(e)	14.6	20.2	9.9	231.1	26.5	605.9	4.4	10.1	49.3	3.8
d-a	0.7	0.6	1.0	33.7	-0.5	-27.1	-0.1	-1.9	-2.8	-0.6
d-b	0.7	0.6	0.8	-42.0	-0.8	-22.1	-0.2	-1.5	-1.1	-0.2
d-c	0.4	0.2	0.7	-9.3	1.3	-26.6	0.2	-0.5	-4.2	-0.2
e-d	0.1	-0.2	0.2	-11.5	4.5	83.7	-0.2	0.1	-1.8	2.7

Fig 4. Temperatures (mean, mean maximum, and mean minimum) and precipitation in Seoul during Fall (1908–2013).

☐ Average values of meteorological elements in Seoul during Fall (1973~2013)

Elements (Seoul)	Fall 2013(a)	Fall 2012(b)	Normals of Fall (1981-2010)(c)	a-b	a-c	Rank since 1908 (within 5th)
Mean temperature (℃)	14.6	13.9	14.4	0.7	0.2	
Mean maximum temp. (℃)	19.3	18.3	19.1	1.0	0.2	
Mean minimum temp. (℃)	10.3	10.1	10.3	0.2	0.0	
Precipitation (mm)	198.8	379.1	273.6	-180.3 (52.4)	-74.8 (72.7)	
Days of rain (day)	25.0	30.0	24.1	-5.0	0.9	
Sunshine duration (hour)	628.9	607.3	528.3	21.6 (103.6)	100.6 (119.0)	
Mean cloud amount (1/10)	4.1	4.6	4.4	-0.5	-0.3	
Days of minimum temperature less than 0℃(day)	14.0	13.0	7.5	1.0	6.5	
Days of daily temperature range greater than 10℃(day)	37.0	23.0	32.9	14.0	4.1	
Days of snow (day)	4.0	4.0	2.1	0.0	1.9	

☐ Average values of meteorological elements in Seoul during Fall for each decade (1911-2010)

Year	Mean temp. (℃)	Mean max. temp. (℃)	Mean min. temp. (℃)	Prep. (mm)	Days of rain (day)	Sunshine duration (hour)	Mean cloud amount (1/10)	Days of minimum temperature less than 0℃(day)	Days of daily temperature range greater than 10℃(day)	Days of snow (day)
1911-1920(a)	12.7	18.5	7.6	215.9	26.3	625.7	5.0	16.9	56.3	2.4
1921-1930	12.6	18.4	7.2	211.6	24.7	619.5	4.7	17.7	58.0	3.5
1931-1940(b)	13.2	19.2	8.2	235.5	25.6	630.1	4.8	12.8	58.1	2.3
1941-1949	13.4	19.5	8.2	221.4	24.1	646.5	4.6	12.3	61.2	1.7
1954-1960	13.4	18.8	8.7	239.7	23.4	561.4	4.7	9.7	48.7	1.4
1961-1970	13.8	18.9	9.4	337.0	27.0	537.3	4.9	9.7	42.3	2.8
1971-1980(c)	13.8	18.8	9.5	175.5	24.8	510.7	4.7	10.1	38.7	2.5
1981-1990	13.9	18.7	9.7	301.8	23.7	556.4	4.8	8.9	35.4	2.0
1991-2000	14.4	19.2	10.2	242.6	24.4	541.7	4.3	6.7	37.2	2.3
2001-2010(d)	14.8	19.3	10.9	276.3	24.1	486.7	4.3	6.9	26.1	2.1
2013(e)	14.6	19.3	10.3	198.8	25.0	628.9	4.1	14.0	37.0	4.0
d-a	2.1	0.8	3.3	60.4	-2.2	-139.0	-0.7	-10.0	-30.2	-0.3
d-b	1.6	0.1	2.7	40.8	-1.5	-143.4	-0.5	-5.9	-32.0	-0.2
d-c	1.0	0.5	1.4	100.8	-0.7	-24.0	-0.4	-3.2	-12.6	-0.4
e-d	-0.2	0.0	-0.6	-77.5	0.9	142.2	-0.2	7.1	10.9	1.9