

## Monthly (April) 2013 Climate Summary

$\diamond$ The minimum temperature $\left(4.4{ }^{\circ} \mathrm{C}\right)$ for April 2013 nationwide was the second lowest, the mean temperature $\left(10.3{ }^{\circ} \mathrm{C}\right)$ and the maximum temperature $\left(16.4{ }^{\circ} \mathrm{C}\right)$ were the third lowest on a record extending back to 1973.

The nationally-averaged precipitation ( 75.5 mm ) was nearly normal.
$\square$ Climate features and long-term trends of April 2013 are analyzed by using 45 meteorological stations in Korea (the national average) from 1973 to 2012 (1908-2012 for Seoul).
※ Normal : average from 1981 to 2010.

## The climatological characteristics in April 2013 can be described as follows:

o For Korea (whole nation),

- The mean temperature $\left(10.3{ }^{\circ} \mathrm{C}\right)$, the mean maximum temperature $\left(16.4{ }^{\circ} \mathrm{C}\right)$ and the mean minimum temperature $\left(4.4{ }^{\circ} \mathrm{C}\right)$ were $-1.9{ }^{\circ} \mathrm{C},-2.2{ }^{\circ} \mathrm{C},-1.6{ }^{\circ} \mathrm{C}$ lower than normals. The days of daily minimum temperature less than $0{ }^{\circ} \mathrm{C}$ were 3.2 days, which are 0.9 days above normal.
※ Updated in daily temperature extremes during April (5th lowest ranked)
- The averaged temperature : Baengnyeongdo (first, $2.6{ }^{\circ}$ ) , Sangu (first, $3.3^{\circ} \mathrm{C}$ ) and so on 4 stations
- The minimum temperature : Sangju (first, $6.6{ }^{\circ} \mathrm{C}$ ), Jindo (first, $5.2{ }^{\circ} \mathrm{C}$ ) and so on 28 stations
- The nationally-averaged precipitation was 75.5 mm , which is $97 \%$ nearly normal. The days of rain ( 10.3 days) were 2.5 days larger than normal.
- Total hours of sunshine were 218.5 hours, which is $102 \%$ nearly normal.
- Asian dust days were 0.0 days, which are 2.4 days less than normal.
o For Seoul,
- The mean temperature $\left(10.0{ }^{\circ} \mathrm{C}\right)$, the mean maximum temperature $\left(15.0{ }^{\circ} \mathrm{C}\right)$ and the mean minimum temperature $\left(5.7{ }^{\circ} \mathrm{C}\right)$ were lower than normals, $2.5{ }^{\circ} \mathrm{C}, 2.8{ }^{\circ} \mathrm{C}, 2.1{ }^{\circ} \mathrm{C}$ respectively. The days of daily minimum temperature less than $0{ }^{\circ} \mathrm{C}$ were 0.0 days, which are nearly normal.
- The amount of precipitation was 71.7 mm , which is $111 \%$ nearly normal. The days of rain were 15.0 days, which are 7.2 days above normal.
- Total hours of sunshine were 213.2 hours, which is $104 \%$ nearly normal.
- Asian dust days were 0.0 days, which are 3.3 days less than normal.


## Long-term trend of April 2013 climate

o For Korea (whole nation),

- National mean temperature of April 2000s (2001-2010) was higher than $0.5{ }^{\circ} \mathrm{C}$ that of the 1970s. The days of daily minimum temperature less than $0{ }^{\circ} \mathrm{C}$ in April 2000s were less than 0.4 days those of the 1970s.
- The Nationally-averaged precipitation in April 2000s was less than 46.9 mm that of the 1970s. And the days of rain in April 2000s were less than 1.2 days those of 1970s.
- Total hours of sunshine in April 2000s were less than 7.3 hours those of the 1970s.
o For Seoul,
- The mean temperature of April 2000s (2001-2010) was higher than $1.0{ }^{\circ} \mathrm{C}$ that of the 1970s. The days of daily minimum temperature less than $0{ }^{\circ} \mathrm{C}$ in April 2000s were less than 1.2 days those of the 1970s.
- The amount of precipitation in April 2000s were less than 37.5 mm those of the 1970s and the days of rain in April 2000s were less than 0.6 days those of 1970s.
- Total hours of sunshine in April 2000s were less than 16.8 hours those of the 1970s.


## Appendix 1 Climate Features in April 2013



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

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

| Elements (National) <br> average | April <br> $2013(\mathrm{a})$ | April <br> $2012(\mathrm{~b})$ | Nomals of <br> April <br> $(1981-2010)(\mathrm{c})$ | a-b | a-c | Rank since 1973 <br> (within 5th) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mean temperature $\left({ }^{\circ} \mathrm{C}\right)$ | 10.3 | 12.6 | 12.2 | -2.3 | -1.9 | the third lowest |
| Mean maximum temp. $\left.{ }^{\circ} \mathrm{C}\right)$ | 16.4 | 18.8 | 18.6 | -2.4 | -2.2 | the third lowest |
| Mean minimum temp. $\left({ }^{\circ} \mathrm{C}\right)$ | 4.4 | 6.7 | 6.0 | -2.3 | -1.6 | the second lowest |
| Amount of precipitation (mm) | 75.5 | 131.3 | 78.5 | -55.8 | $-3.0(97 \%)$ | - |
| Days of rain (day) | 10.3 | 9.6 | 7.8 | 0.7 | 2.5 | - |
| Sunshine duration (hour) | 218.5 | 215.7 | 213.6 | 2.8 | $4.9(102 \%)$ | - |
| Mean cloud amount $(1 / 10)$ | 4.8 | 4.6 | 4.7 | 0.2 | 0.1 | - |
| Days of minimum <br> temperature less than 0 ${ }^{\circ} \mathrm{C}($ day $)$ | 3.2 | 2.4 | 2.3 | 0.8 | 0.9 | - |
| Asian dust days(day) | 0.0 | 0.1 | 2.4 | -0.1 | -2.4 | - |

$\square$ Average values of meteorological elements across Korea during April for each decade (1973~2010)

| Year | Mean <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Mean <br> max. <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Mean <br> min. <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Amount of <br> precipitation <br> $(\mathrm{mm})$ | Days of <br> rain <br> $($ day $)$ | Sunshine <br> duration <br> (hour $)$ | Mean <br> cloud <br> amount <br> $(1 / 10))$ | Days of <br> minimum <br> temperature less <br> than $0{ }^{\circ} \mathrm{C}($ day $)$ | Asian dust <br> days(day $)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $1973-1980(\mathrm{a})$ | 11.8 | 17.7 | 6.0 | 132.5 | 9.2 | 210.4 | 5.3 | 2.1 | 1.5 |
| $1981-199(\mathrm{~b})$ | 12.0 | 18.5 | 5.8 | 73.8 | 8.1 | 220.2 | 4.9 | 2.2 | 1.4 |
| $1991-2000(\mathrm{c})$ | 12.2 | 18.8 | 6.0 | 76.0 | 7.4 | 217.6 | 4.5 | 3.1 | 3.0 |
| $2001-2010(\mathrm{~d})$ | 12.3 | 18.7 | 6.3 | 85.6 | 8.0 | 203.1 | 4.6 | 1.7 | 2.8 |
| $2013(\mathrm{e})$ | 10.3 | 16.4 | 4.4 | 75.5 | 10.3 | 218.5 | 4.8 | 3.2 | 0.0 |
| d-a | 0.5 | 1.0 | 0.3 | -46.9 | -1.2 | -7.3 | -0.7 | -0.4 | 1.3 |
| d-b | 0.3 | 0.2 | 0.5 | 11.8 | -0.1 | -17.1 | -0.3 | -0.5 | 1.4 |
| d-c | 0.1 | -0.1 | 0.3 | 9.6 | 0.6 | -14.5 | 0.1 | -1.4 | -0.2 |
| e-d | -2.0 | -2.3 | -1.9 | -10.1 | 2.3 | 15.4 | 0.2 | 1.5 | -2.8 |

## Appendix 2 Climate Features in April 2013



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

Average values of meteorological elements across Seoul during April (1908-2013)

| Elements (Seoul) average | April <br> $2013(a)$ | April <br> $2012(b)$ | Nomals of <br> April <br> $(1981-2010)(c)$ | a-b | a-c | Rank since 1908 <br> (within 5th) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mean temperature ( ${ }^{\circ} \mathrm{C}$ ) | 10.0 | 12.3 | 12.5 | -2.3 | -2.5 | - |
| Mean maximum temp. $\left({ }^{\circ} \mathrm{C}\right)$ | 15.0 | 17.9 | 17.8 | -2.9 | -2.8 | - |
| Mean minimum temp. $\left({ }^{\circ} \mathrm{C}\right)$ | 5.7 | 7.8 | 7.8 | -2.1 | -2.1 | - |
| Amount of precipitation (mm) | 71.7 | 157.0 | 64.5 | -85.3 | $7.2(111 \%)$ | - |
| Days of rain (day) | 15.0 | 8.0 | 7.8 | 7.0 | 7.2 | the fourth largest |
| Sunshine duration (hour) | 213.2 | 212.5 | 205.0 | 0.7 | $8.2(104 \%)$ | - |
| Mean cloud amount (1/10) | 5.0 | 4.6 | 4.6 | 0.4 | 0.4 | - |
| Days of minimum <br> temperature less than 0 ${ }^{\circ} \mathrm{C}($ day $)$ | 0.0 | 0.0 | 0.1 | 0.0 | -0.1 | - |
| Asian dust days(day) | 0.0 | 0.0 | 3.3 | 0.0 | -3.3 | - |

$\square$ Average values of meteorological elements across Seoul during April for each decade (1911-2010)

| Year | Mean <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Mean <br> max. <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Mean <br> min. <br> temp. <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Amount of <br> precipitation <br> $(\mathrm{mm})$ | Days of <br> rain <br> (day) | Sunshine <br> duration <br> (hour) | Mean <br> cloud <br> amount <br> $(1 / 10))$ | Days of <br> minimum | Asian dust <br> demperature less <br> dans(day) $0{ }^{\circ} \mathrm{C}($ day $)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $1911-1920(\mathrm{a})$ | 10.2 | 16.5 | 4.8 | 84.6 | 9.7 | 232.1 | 5.7 | 1.4 | 0.9 |
| $1921-1930$ | 10.9 | 17.4 | 5.1 | 74.9 | 7.5 | 227.8 | 5.7 | 1.7 | 0.0 |
| $1931-1940(\mathrm{~b})$ | 10.1 | 16.3 | 5.0 | 76.1 | 7.6 | 226.2 | 5.7 | 2.3 | 0.0 |
| $1941-1949$ | 10.5 | 16.9 | 5.1 | 51.9 | 7.6 | 246 | 5.0 | 1.9 | 0.0 |
| $1954-1960$ | 10.6 | 16.4 | 5.9 | 80.3 | 8.9 | 207.3 | 5.3 | 1.1 | 0.6 |
| $1961-1970$ | 11.7 | 17.1 | 6.9 | 116.5 | 9.2 | 196.9 | 5.6 | 0.4 | 1.0 |
| $1971-1980(\mathrm{c})$ | 11.6 | 17.0 | 6.9 | 111.2 | 9.1 | 196.1 | 5.2 | 0.2 | 1.4 |
| $1981-1990$ | 12.1 | 17.8 | 7.2 | 53.2 | 7.2 | 222.8 | 4.8 | 0.0 | 1.6 |
| $1991-2000$ | 12.7 | 18.1 | 7.9 | 66.6 | 7.8 | 213.1 | 4.3 | 0.4 | 4.5 |
| $2001-2010(\mathrm{~d})$ | 12.6 | 17.6 | 8.2 | 73.7 | 8.5 | 179.3 | 4.6 | 0.0 | 3.9 |
| $2013(\mathrm{e})$ | 10.0 | 15.0 | 5.7 | 71.7 | 15.0 | 213.2 | 5.0 | 0.0 | 30.0 |
| d-a | 2.4 | 1.1 | 3.4 | -10.9 | -1.2 | -52.8 | -1.1 | -1.4 | 3.0 |
| d-b | 2.5 | 1.3 | 3.2 | -2.4 | 0.9 | -46.9 | -1.1 | -2.3 | 3.9 |
| d-c | 1.0 | 0.6 | 1.3 | -37.5 | -0.6 | -16.8 | -0.6 | -0.2 | 2.5 |
| e-d | -2.6 | -2.6 | -2.5 | -2.0 | 6.5 | 33.9 | 0.4 | 0.0 | 26.1 |

## Appendix 3 Meteorological Observation Network



