Supplementary Material

**Appendix**

The identified onset and ending dates, precipitation amount of Meiyu and Huang-Huai rainy seasons during 1957-2020 in SYA, YHA, NHA are listed in Table A1.

**Table A1** Dates and precipitation of Meiyu and Huang-Huai rainy seasons during 1957-2020 in SYA, YHA, and NHA

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | Date of the rainy season | Precipitation/mm | Year | Date of the rainy season | Precipitation/mm | Year | Date of the rainy season | Precipitation /mm |
| SYA | YHA | NHA | SYA | YHA | NHA | SYA | YHA | NHA |
| 1957 | 6.20-7.09 | 299.9 | 203.4 | 90.9 |  | 7.03-7.11 | 0.9 | 36.3 | 120.8 |  | 7.13-8.02 | 206.7 | 121.0 | 96.3 |
|  | 7.10-7.25 | 0.0 | 25.3 | 210.0 |  | 7.12-7.17 | 110.8 | 27.7 | 5.3 |  | 8.03-8.18 | 18.6 | 90.6 | 182.7 |
|  | 7.26-8.13 | 216.0 | 155.7 | 40.4 |  | 7.18-7.25 | 30.1 | 82.9 | 89.5 | 1999 | 6.07-7.20 | 1022.4 | 303.9 | 171.9 |
|  | 8.14-8.18 | 0.3 | 24.1 | 24.0 | 1978 | 6.08-6.23 | 45.4 | 33.4 | 15.1 | 2000 | 6.20-6.29 | 85.2 | 75.5 | 309.9 |
| 1958 | 6.22-6.29 | 10.5 | 33.3 | 54.1 |  | 6.24-7.07 | 2.0 | 60.4 | 113.2 |  | 6.30-7.16 | 14.9 | 11.0 | 147.6 |
|  | 6.30-7.14 | 22.5 | 50.4 | 202.9 | 1979 | 6.19-7.23 | 364.1 | 320.4 | 366.8 | 2001 | 6.09-6.26 | 195.3 | 68.1 | 66.8 |
| 1959 | 6.16-7.06 | 203.8 | 77.5 | 53.4 |  | 7.24-7.26 | 8.7 | 15.8 | 41.0 |  | 6.27-7.01 | 0.1 | 4.2 | 8.5 |
|  | 7.07-7.26 | 53.7 | 28.6 | 58.4 | 1980 | 6.06-7.21 | 412.4 | 493.5 | 256.2 | 2002 | 6.18-7.07 | 257.1 | 198.9 | 128.4 |
| 1960 | 6.07-6.29 | 231.0 | 252.1 | 147.7 |  | 7.22-7.29 | 0.5 | 4.8 | 30.9 |  | 7.08-7.27 | 130.7 | 116.4 | 226.6 |
|  | 6.30-7.19 | 40.0 | 128.3 | 113.0 | 1981 | 6.19-7.02 | 247.1 | 100.4 | 119.4 | 2003 | 6.20-7.12 | 220.2 | 513.3 | 392.7 |
| 1961 | 6.07-6.15 | 142.2 | 89.2 | 12.0 |  | 7.03-7.15 | 200.3 | 124.0 | 20.4 |  | 7.13-7.31 | 55.7 | 40.9 | 113.2 |
|  | 6.16-7.14 | 16.1 | 82.0 | 145.4 | 1982 | 7.09-7.27 | 198.9 | 368.0 | 284.6 | 2004 | 6.14-7.14 | 314.6 | 230.7 | 141.4 |
| 1962 | 6.14-7.09 | 165.2 | 258.7 | 175.0 | 1983 | 6.09-7.17 | 705.4 | 357.9 | 169.9 |  | 7.15-7.27 | 1.6 | 10.7 | 179.4 |
|  | 6.10-7.25 | 31.2 | 35.4 | 65.9 |  | 7.18-8.01 | 0.0 | 87.0 | 175.3 | 2005 | 6.25-7.14 | 213.2 | 214.1 | 225.1 |
| 1963 | 6.16-7.12 | 185.5 | 177.1 | 187.7 | 1984 | 6.04-7.06 | 402.8 | 226.9 | 140.2 |  | 7.15-7.17 | 12.4 | 10.5 | 58.8 |
|  | 7.13-8.08 | 107.4 | 150.4 | 316.0 |  | 7.07-7.28 | 101.8 | 75.7 | 236.3 | 2006 | 6.21-7.11 | 248.0 | 228.1 | 320.9 |
| 1964 | 6.18-7.01 | 291.9 | 81.8 | 38.1 | 1985 | 6.22-7.05 | 167.8 | 88.0 | 28.1 |  | 7.12-7.23 | 44.5 | 92.7 | 42.4 |
|  | 7.02-7.17 | 5.3 | 0.3 | 22.5 |  | 7.06-7.17 | 14.2 | 115.5 | 112.8 | 2007 | 6.13-7.28 | 277.9 | 354.9 | 549.5 |
|  | 7.18-7.21 | 54.6 | 32.7 | 25.0 |  | 7.18-7.26 | 76.2 | 68.8 | 22.2 |  | 7.29-8.08 | 22.5 | 41.2 | 63.4 |
| 1965 | 6.18-7.07 | 127.4 | 58.2 | 191.5 | 1986 | 6.15-7.09 | 408.4 | 179.7 | 58.7 | 2008 | 6.04-7.04 | 281.0 | 158.1 | 98.4 |
|  | 7.08-8.05 | 98.4 | 199.7 | 478.7 |  | 7.10-7.28 | 45.8 | 170.0 | 149.9 |  | 7.05-7.27 | 109.7 | 153.3 | 225.7 |
| 1966 | 6.16-7.12 | 429.6 | 161.8 | 66.9 | 1987 | 6.29-7.31 | 314.4 | 289.4 | 208.7 | 2009 | 6.17-7.05 | 178.1 | 112.5 | 77.4 |
|  | 7.13-7.29 | 6.7 | 9.0 | 129.2 |  | 8.01-8.07 | 22.5 | 29.9 | 38.8 |  | 7.06-7.23 | 142.7 | 126.3 | 194.6 |
| 1967 | 6.15-7.05 | 208.6 | 62.9 | 210.7 | 1988 | 6.11-6.29 | 256.9 | 89.4 | 9.3 |  | 7.24-7.31 | 135.5 | 45.6 | 12.3 |
|  | 7.06-7.24 | 14.4 | 23.5 | 52.9 |  | 6.30-7.31 | 8.9 | 161.2 | 204.7 |  | 8.01-8.04 | 16.0 | 8.8 | 2.6 |
| 1968 | 6.23-7.20 | 169.3 | 327.7 | 311.8 | 1989 | 6.03-7.09 | 423.0 | 355.4 | 279.2 | 2010 | 6.20-7.15 | 466.6 | 224.5 | 40.1 |
| 1969 | 6.23-7.17 | 570.4 | 417.4 | 164.7 |  | 7.10-7.17 | 7.4 | 25.5 | 90.6 |  | 7.16-7.24 | 40.5 | 70.9 | 88.6 |
|  | 7.18-7.24 | 5.0 | 17.6 | 138.5 | 1990 | 6.14-7.02 | 214.9 | 136.4 | 113.7 | 2011 | 5.27-7.20 | 710.1 | 388.7 | 160.6 |
| 1970 | 6.17-7.22 | 461.3 | 247.4 | 189.5 |  | 7.03-7.29 | 31.7 | 88.7 | 199.1 |  | 7.21-8.03 | 66.0 | 115.2 | 63.0 |
|  | 7.23-7.28 | 5.5 | 16.1 | 45.9 | 1991 | 5.18-7.12 | 677.3 | 955.0 | 497.6 | 2012 | 6.26-6.28 | 57.1 | 48.4 | 2.8 |
| 1971 | 6.09-6.26 | 130.1 | 201.2 | 169.1 |  | 7.13-7.17 | 2.5 | 4.8 | 15.1 |  | 6.29-7.08 | 8.4 | 48.1 | 209.6 |
|  | 6.27-7.11 | 46.3 | 98.0 | 94.7 | 1992 | 6.13-7.13 | 296.0 | 155.1 | 76.2 |  | 7.09-7.17 | 145.4 | 81.7 | 17.2 |
| 1972 | 6.19-7.04 | 114.0 | 262.1 | 257.5 |  | 7.14-7.22 | 6.0 | 35.8 | 78.3 | 2013 | 6.16-7.07 | 337.5 | 243.3 | 88.8 |
|  | 7.05-7.14 | 3.8 | 9.8 | 38.8 | 1993 | 6.12-7.29 | 511.1 | 270.4 | 189.0 |  | 7.08-8.03 | 20.0 | 63.3 | 177.1 |
| 1973 | 6.16-7.06 | 271.2 | 168.6 | 100.6 |  | 7.30-8.07 | 62.1 | 74.7 | 74.9 | 2014 | 6.20-7.17 | 489.9 | 219.8 | 42.1 |
|  | 7.07-7.18 | 59.1 | 81.6 | 128.3 | 1994 | 6.07-6.27 | 360.9 | 110.2 | 103.3 | 2015 | 6.07-7.26 | 617.6 | 483.7 | 303.1 |
|  | 7.19-7.28 | 62.9 | 35.8 | 28.8 |  | 6.28-7.03 | 0.1 | 1.6 | 6.4 | 2016 | 6.19-7.22 | 634.3 | 489.6 | 211.6 |
|  | 7.29-8.03 | 34.7 | 30.9 | 40.6 | 1995 | 6.20-7.07 | 401.6 | 178.4 | 84.3 | 2017 | 6.19-7.10 | 210.5 | 87.2 | 104.5 |
| 1974 | 6.09-7.19 | 502.4 | 217.7 | 96.3 |  | 7.08-7.27 | 34.1 | 59.4 | 170.9 |  | 7.11-7.20 | 1.7 | 1.5 | 44.6 |
|  | 7.20-8.14 | 72.7 | 243.1 | 310.3 | 1996 | 6.02-7.21 | 1019.2 | 561.1 | 513.1 | 2018 | 6.19-7.10 | 335.5 | 167.5 | 175.7 |
| 1975 | 6.16-7.16 | 419.0 | 335.7 | 183.2 |  | 7.22-7.27 | 3.6 | 0.0 | 20.6 | 2019 | 6.17-7.22 | 484.5 | 156.4 | 64.2 |
|  | 7.17-7.31 | 51.1 | 58.0 | 105.0 | 1997 | 6.30-7.15 | 200.1 | 141.2 | 64.7 |  | 7.23-8.02 | 3.8 | 20.3 | 171.6 |
| 1976 | 6.15-7.15 | 187.9 | 147.2 | 154.7 |  | 7.16-7.23 | 24.8 | 45.7 | 194.9 | 2020 | 6.09-7.28 | 987.0 | 935.5 | 526.6 |
|  | 7.16-7.22 | 4.0 | 0.8 | 12.8 | 1998 | 6.12-7.04 | 420.9 | 187.0 | 183.7 |  | 7.29-8.13 | 12.5 | 75.1 | 92.1 |
| 1977 | 6.09-7.02 | 355.6 | 52.1 | 16.3 |  | 7.05-7.12 | 1.9 | 0.1 | 8.2 | Average | 6.14-7.25 | 393.2 | 315.6 | 286.0 |

Note: the data in the table corresponding to the date of the rainy season column of a year are successively the onset and ending dates of the first period of Meiyu season, the first period of Huang-Huai rainy season, the second period of Meiyu season, and the second period of Huang-Huai rainy season; the number before and after “.” of “\*.\*\*” indicate the month and the date of rainy season, respectively.