**Supplemental material**

**Article title: A critical review on variation in pH and chemical characteristics of rainwater during 1982 - 2018 in 24 cities in China**

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**Table S1.** **Rainwater data of different cities in China (pH in unit and volume-weighted mean concentration of ion in µeq/L ).**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Province** | **City** | **n** | **pH** | **K+** | **Na+** | **Ca2+** | **Mg2+** | **NH4+** | **Cl-** | **NO3-** | **SO42-** | **Year** | **References** |
| **Henan** | **Zhengzhou city** | - a | 6.1 | - | - | 760.0 | 383.2 | 185.0 | 34.3 | 46.3 | 508.4 | 1991 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 6.2 | - | - | 480.0 | 366.8 | 134.4 | 57.1 | 15.3 | 354.0 | 1992 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 6.5 | - | - | 1620.0 | 482.0 | 251.1 | 40.0 | 60.6 | 454.0 | 1993 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 6.7 | - | - | 980.8 | 359.2 | 160.2 | 32.7 | 31.1 | 766.4 | 1994 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 6.4 | - | - | 1480.0 | 788.4 | 210.0 | 68.9 | 33.5 | 940.4 | 1995 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 6.1 | - | - | 1305.6 | 1620.4 | 485.6 | 238.7 | 45.1 | 1165.6 | 1996 | Sun, 1998 |
| **Henan** | **Zhengzhou city** | - | 5.8 | 30.0 | 66.5 | 314.6 | 300.4 | 219.1 | 224.6 | 43.4 | 312.2 | 2002 | Guo et al., 2008 |
| **Henan** | **Zhengzhou city** | - | 5.4 | 27.2 | 55.7 | 346.8 | 37.4 | 177.7 | 259.2 | 91.3 | 351.0 | 2003 | Guo et al., 2008 |
| **Henan** | **Zhengzhou city** | - | 5.4 | 30.4 | 75.3 | 306.4 | 37.6 | 183.5 | 427.3 | 116.3 | 346.2 | 2004 | Guo et al., 2008 |
| **Henan** | **Zhengzhou city** | - | 5.5 | 69.7 | 155.4 | 501.6 | 56.4 | 208.5 | 733.4 | 86.3 | 374.4 | 2005 | Guo et al., 2008 |
| **Henan** | **Anyang city** | - | 6.7 | 28.3 | 32.6 | 668.2 | 129.3 | 144.6 | 90.0 | 143.8 | 856.1 | 2006 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.1 | 31.6 | 47.8 | 847.7 | 95.3 | 244.1 | 54.5 | 103.5 | 514.9 | 2007 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.1 | 10.4 | 29.3 | 350.1 | 53.4 | 237.0 | 66.4 | 93.5 | 396.0 | 2008 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.1 | 6.4 | 20.1 | 351.9 | 41.0 | 187.0 | 76.3 | 57.0 | 318.7 | 2009 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.1 | 16.7 | 19.5 | 761.8 | 45.9 | 162.6 | 107.6 | 38.0 | 302.5 | 2010 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.0 | 12.8 | 47.5 | 541.7 | 32.7 | 163.8 | 89.0 | 98.8 | 417.8 | 2011 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.0 | 7.9 | 54.8 | 536.2 | 20.5 | 123.4 | 39.5 | 84.1 | 277.5 | 2012 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 6.9 | 22.6 | 86.6 | 696.3 | 63.9 | 162.0 | 74.7 | 89.0 | 272.1 | 2013 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.1 | 15.3 | 39.4 | 863.8 | 54.0 | 166.9 | 83.8 | 138.1 | 259.9 | 2014 | Zhao et al., 2017 |
| **Henan** | **Anyang city** | - | 7.4 | 13.2 | 30.2 | 719.3 | 74.8 | 170.5 | 70.9 | 125.7 | 263.2 | 2015 | Zhao et al., 2017 |
| **Shaanxi** | **Xi'an city** | - | 6.1 | 42.9 | 149.7 | 1137.3 | 104.8 | 281.1 | 69.5 | 143.0 | 792.7 | 2001 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.0 | 47.9 | 212.4 | 975.0 | 131.5 | 251.6 | 306.6 | 125.8 | 1516.0 | 2002 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.1 | 20.6 | 74.8 | 541.0 | 69.8 | 171.9 | 89.0 | 67.7 | 419.8 | 2003 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.2 | 39.7 | 63.8 | 745.9 | 90.8 | 178.6 | 91.6 | 135.5 | 641.4 | 2004 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 5.6 | 12.7 | 26.4 | 288.1 | 37.3 | 72.7 | 42.3 | 15.5 | 355.7 | 2005 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 5.8 | 28.5 | 49.0 | 952.4 | 84.6 | 268.9 | 61.2 | 126.0 | 971.4 | 2006 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 5.6 | 23.4 | 50.9 | 349.6 | 36.5 | 144.3 | 122.6 | 75.0 | 446.2 | 2007 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.4 | 17.7 | 30.2 | 650.5 | 99.8 | 179.2 | 57.6 | 24.7 | 403.5 | 2008 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.6 | 11.8 | 20.0 | 479.6 | 37.5 | 226.4 | 32.9 | 78.3 | 328.6 | 2009 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.7 | 10.9 | 14.7 | 426.4 | 32.1 | 178.5 | 27.5 | 62.4 | 272.7 | 2010 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 5.6 | 15.3 | 16.3 | 211.6 | 30.1 | 91.2 | 12.6 | 26.4 | 336.1 | 2011 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | - | 6.3 | 3.9 | 4.2 | 110.3 | 8.0 | 75.9 | 13.9 | 17.1 | 249.2 | 2012 | Song et al., 2013 |
| **Shaanxi** | **Xi'an city** | 37 | 6.5 | 18.7 | 10.4 | 207.1 | 30.2 | 175.7 | 20.8 | 54.7 | 163.5 | 2015 | Wang et al., 2018 |
| **Liaoning** | **Dalian city** | 114 | 7.9 | - | 630.4 | 505.0 | 56.7 | - | 760.6 | 51.6 | 377.1 | 1984-1985 | Lu et al., 1987 |
| **Liaoning** | **Dalian city** | 453 | 7.6 | 52.6 | 162.7 | 968.1 | 123.8 | 164.5 | 92.9 | 63.5 | 517.8 | 1991-1995 | Xie et al., 1998 |
| **Liaoning** | **Dalian city** | 23 | 4.8 | 8.2 | 45.7 | 68.5 | 16.3 | 120.6 | 76.1 | 60.8 | 209.4 | 2007-2008 | Liu and Wang, 2011 |
| **Liaoning** | **Dalian city** | - | 4.9 | 6.8 | 34.6 | 68.2 | 24.5 | 385.3 | 51.9 | 127.7 | 320.3 | 2009 | Chen, 2013 |
| **Liaoning** | **Dalian city** | 68 | 4.9 | 10.0 | 33.3 | 139.5 | 22.1 | 92.8 | 42.7 | 72.6 | 206.2 | 2011 | Ji,2012 |
| **Liaoning** | **Anshan city** | - | 7.0 | 30.3 | 91.3 | 571.5 | 164.2 | 175.6 | 82.0 | 207.9 | 490.2 | 2011 | Zhao, 2015 |
| **Liaoning** | **Anshan city** | - | 7.3 | 6.2 | 22.2 | 41.5 | 39.2 | 70.6 | 21.4 | 11.5 | 136.0 | 2012 | Zhao, 2015 |
| **Liaoning** | **Anshan city** | - | 6.4 | 9.2 | 17.0 | 133.5 | 47.5 | 160.6 | 38.0 | 33.4 | 281.7 | 2013 | Zhao, 2015 |
| **Liaoning** | **Anshan city** | - | 6.3 | 20.5 | 40.0 | 127.0 | 100.8 | 143.3 | 38.0 | 148.6 | 249.2 | 2014 | Zhao, 2015 |
| **Shandong** | **Qingdao city** | 60 | 4.7 | 5.4 | 71.7 | 217.0 | 33.3 | 64.4 | 47.0 | 39.0 | 144.6 | 1997 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 107 | 4.7 | 7.2 | 28.7 | 164.0 | 15.8 | 68.3 | 57.8 | 28.2 | 142.5 | 1998 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 66 | 5.1 | 11.3 | 40.9 | 177.5 | 20.0 | 65.6 | 45.9 | 26.0 | 125.0 | 1999 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 94 | 5.7 | 10.3 | 174.4 | 116.0 | 62.5 | 54.4 | 82.0 | 33.1 | 167.9 | 2000 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 80 | 5.9 | 14.1 | 55.2 | 107.5 | 26.7 | 63.3 | 79.4 | 40.8 | 159.0 | 2001 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 72 | 5.1 | 12.8 | 66.5 | 146.0 | 44.2 | 98.9 | 76.3 | 48.1 | 179.4 | 2002 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 123 | 5.7 | 10.5 | 69.6 | 271.5 | 49.2 | 63.3 | 86.5 | 37.7 | 204.0 | 2003 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 92 | 5.6 | 18.0 | 51.7 | 259.0 | 51.7 | 87.8 | 89.6 | 51.8 | 335.4 | 2004 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 72 | 5.7 | 10.0 | 120.0 | 148.5 | 51.7 | 61.7 | 85.9 | 32.1 | 227.9 | 2005 | Wei, 2008 |
| **Shandong** | **Qingdao city** | 73 | 5.6 | 18.2 | 60.4 | 123.0 | 29.2 | 147.2 | 85.9 | 59.7 | 353.8 | 2006 | Wei, 2008 |
| - | **Chongqing city** | - | 4.1 | 7.4 | 51.4 | 110.0 | 48.3 | 106.0 | 15.0 | 31.6 | 307.0 | 1982-1984 | Zhao et al., 1988 |
| - | **Chongqing city** | 126 | 4.1 | 17.0 | 17.0 | 125.0 | 31.0 | 123.0 | 30.0 | 23.0 | 299.0 | 1998-1999 | Wei et al., 2005 |
| - | **Chongqing city** | 171 | 5.5 | 12.7 | 27.0 | 114.4 | 29.1 | 126.6 | 25.3 | 43.7 | 258.3 | 2000-2009 | Zhao et al., 2013 |
| - | **Chongqing city** | - | 5.7 | 71.3 | 72.6 | 23.5 | 80.0 | 70.6 | 63.9 | 48.4 | 165.0 | 2011 | Song et al., 2017 |
| - | **Chongqing city** | - | 5.9 | 111.3 | 32.6 | 82.5 | 26.7 | 34.4 | 35.2 | 41.1 | 207.7 | 2012 | Song et al., 2017 |
| - | **Chongqing city** | - | 6.6 | 16.2 | 35.2 | 179.5 | 22.5 | 45.0 | 35.2 | 12.4 | 179.2 | 2013 | Song et al., 2017 |
| - | **Chongqing city** | - | 6.1 | 6.7 | 14.8 | 59.5 | 17.5 | 47.2 | 11.6 | 10.2 | 116.9 | 2014 | Song et al., 2017 |
| - | **Chongqing city** | - | 6.4 | 6.4 | 8.3 | 74.0 | 14.2 | 48.3 | 7.6 | 9.4 | 109.2 | 2015 | Song et al., 2017 |
| **Sichuan** | **Chengdu city** | 56 | 4.4 | 20.8 | 22.6 | 192.0 | 33.2 | 250.7 | 42.3 | 30.4 | 431.5 | 1989 | Lei et al., 1997 |
| **Sichuan** | **Chengdu city** | - | 4.9 | 15.0 | 8.0 | 152.4 | 15.6 | 119.6 | 59.5 | 22.4 | 203.2 | 1995 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 4.9 | 17.7 | 27.0 | 182.8 | 18.0 | 166.2 | 35.8 | 30.1 | 296.6 | 1996 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 4.5 | 16.3 | 9.0 | 133.4 | 32.4 | 142.8 | 28.5 | 24.3 | 214.8 | 1997 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 4.9 | 24.1 | 16.6 | 124.0 | 12.8 | 199.4 | 26.5 | 29.9 | 217.6 | 1998 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 5.8 | 27.5 | 10.2 | 213.2 | 34.8 | 284.2 | 19.3 | 59.5 | 385.8 | 1999 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 5.6 | 90.8 | 35.4 | 307.2 | 36.0 | 160.7 | 38.6 | 63.6 | 376.0 | 2000 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 5.3 | 19.0 | 25.0 | 490.1 | 23.5 | 190.4 | 35.2 | 86.1 | 269.3 | 2001 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 4.4 | 48.8 | 36.0 | 288.9 | 49.9 | 147.9 | 64.2 | 67.9 | 329.7 | 2002 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | - | 4.9 | 21.3 | 9.7 | 278.3 | 27.8 | 150.5 | 42.4 | 87.0 | 327.3 | 2003 | Mei et al., 2005 |
| **Sichuan** | **Chengdu city** | 44 | 5.1 | 6.6 | 1.4 | 196.6 | 16.2 | 150.5 | 8.9 | 156.2 | 212.8 | 2008 | Wang and Han, 2011 |
| **Sichuan** | **Leshan city** | - | 5.4 | 19.4 | 77.6 | 134.3 | 19.0 | 177.0 | 25.8 | 46.2 | 163.2 | 2006 | Zheng, 2012 |
| **Sichuan** | **Leshan city** | - | 5.3 | 36.1 | 30.7 | 228.0 | 31.2 | 277.6 | 38.9 | 134.2 | 251.6 | 2007 | Zheng, 2012 |
| **Sichuan** | **Leshan city** | - | 5.1 | 31.4 | 61.7 | 216.7 | 32.3 | 196.5 | 50.5 | 174.1 | 347.3 | 2008 | Zheng, 2012 |
| **Sichuan** | **Meishan city** | - | 6.9 | 11.2 | 18.6 | 47.3 | 16.9 | 72.3 | 18.5 | 47.7 | 301.7 | 2009 | Li, 2015 |
| **Sichuan** | **Meishan city** | - | 6.3 | 41.3 | 24.8 | 211.0 | 27.7 | 94.9 | 18.3 | 54.7 | 269.9 | 2010 | Li, 2015 |
| **Sichuan** | **Meishan city** | - | 6.4 | 15.4 | 62.9 | 168.9 | 24.2 | 168.8 | 25.8 | 108.3 | 418.2 | 2011 | Li, 2015 |
| **Sichuan** | **Meishan city** | - | 6.4 | 10.5 | 21.5 | 351.1 | 48.3 | 124.9 | 29.2 | 102.3 | 444.1 | 2012 | Li, 2015 |
| **Sichuan** | **Meishan city** | - | 6.3 | 14.2 | 23.9 | 307.7 | 39.6 | 62.4 | 15.5 | 81.2 | 412.7 | 2013 | Li, 2015 |
| **Sichuan** | **Meishan city** | 165 | 6.7 | 16.3 | 25.7 | 363.5 | 54.3 | 136.1 | 29.7 | 76.3 | 188.4 | 2015 | Zhang, 2017 |
| **Jiangsu** | **Nanjing city** | - | 5.2 | 12.3 | 41.3 | 390.5 | 36.7 | 166.1 | 175.8 | 35.5 | 379.8 | 1992 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 4.9 | 10.3 | 11.3 | 245.0 | 20.8 | 155.0 | 77.2 | 31.0 | 226.7 | 1993 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.3 | 12.1 | 21.7 | 416.0 | 30.0 | 198.9 | 120.3 | 33.2 | 271.7 | 1994 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.4 | 18.2 | 23.9 | 450.0 | 34.2 | 255.0 | 295.8 | 37.3 | 354.8 | 1995 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.1 | 11.8 | 30.9 | 315.0 | 38.3 | 162.2 | 151.8 | 30.2 | 228.5 | 1996 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.1 | 13.3 | 18.7 | 258.0 | 30.8 | 218.9 | 207.3 | 49.0 | 253.3 | 1997 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.1 | 10.5 | 13.0 | 287.0 | 30.0 | 289.4 | 154.4 | 34.5 | 212.3 | 1998 | Tu, 1999 |
| **Jiangsu** | **Nanjing city** | - | 5.4 | 41.8 | 85.2 | 264.5 | 106.9 | 246.0 | 112.3 | 139.4 | 720.6 | 2005 | Zheng et al., 2007 |
| **Jiangsu** | **Nanjing city** | - | 6.0 | 62.5 | 99.6 | 468.2 | 112.4 | 219.0 | 83.8 | 114.7 | 503.6 | 2006 | Zheng et al., 2007 |
| **Jiangsu** | **Changzhou city** | 63 | 4.8 | - | - | 78.0 | - | 77.1 | - | 23.7 | 101.3 | 2007 | Yang et al., 2009 |
| **Jiangsu** | **Changzhou city** | - | 5.2 | 16.3 | 36.8 | 96.8 | 20.4 | 191.1 | 40.2 | 58.2 | 175.1 | 2009 | Wang et al., 2014 |
| **Jiangsu** | **Taizhou city** | - | 6.2 | 12.3 | 34.8 | 255.5 | 48.3 | 41.1 | 52.7 | 86.5 | 127.7 | 2011 | Xu, 2017 |
| **Jiangsu** | **Taizhou city** | - | 5.8 | 16.2 | 40.4 | 251.5 | 51.7 | 65.0 | 38.3 | 67.9 | 139.8 | 2012 | Xu, 2017 |
| **Jiangsu** | **Taizhou city** | - | 6.2 | 10.5 | 26.5 | 221.0 | 50.8 | 68.9 | 36.1 | 61.6 | 138.8 | 2013 | Xu, 2017 |
| **Jiangsu** | **Taizhou city** | - | 6.2 | 10.5 | 31.3 | 257.0 | 52.5 | 58.9 | 35.2 | 46.9 | 123.8 | 2014 | Xu, 2017 |
| **Jiangsu** | **Taizhou city** | - | 6.8 | 9.2 | 24.4 | 166.0 | 41.7 | 61.1 | 33.8 | 46.6 | 99.8 | 2015 | Xu, 2017 |
| **Hunan** | **Changsha city** | - | 3.8 | 22.4 | 49.5 | 297.0 | 18.1 | 72.1 | 10.7 | 20.7 | 333.5 | 1992 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.0 | 5.9 | 4.4 | 112.0 | 13.2 | 78.2 | 13.8 | 29.2 | 207.1 | 1993 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 2.8 | 7.3 | 6.7 | 103.0 | 18.1 | 99.2 | 11.6 | 26.6 | 233.3 | 1994 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 3.5 | 6.2 | 5.7 | 102.0 | 18.1 | 86.5 | 11.6 | 26.5 | 184.2 | 1995 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 3.4 | 3.6 | 2.2 | 106.0 | 9.9 | 63.2 | 37.2 | 26.9 | 145.0 | 1996 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 3.7 | 4.1 | 2.6 | 178.0 | 9.0 | 58.8 | 12.4 | 21.0 | 186.9 | 1997 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.7 | 3.6 | 3.0 | 211.0 | 8.2 | 65.4 | 6.8 | 20.5 | 132.9 | 1998 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.6 | 3.8 | 3.9 | 68.5 | 8.2 | 68.2 | 8.2 | 22.7 | 159.4 | 1999 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.7 | 5.4 | 7.0 | 95.4 | 9.9 | 63.2 | 12.4 | 22.7 | 143.1 | 2000 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.3 | 3.8 | 3.9 | 62.0 | 5.6 | 70.4 | 9.6 | 21.8 | 142.9 | 2001 | Jiang et al., 2003 |
| **Hunan** | **Changsha city** | - | 4.0 | 8.2 | 6.1 | 54.9 | 8.2 | 91.9 | 18.9 | 42.1 | 167.4 | 2004 | Liu and Chang, 2009 |
| **Hunan** | **Changsha city** | - | 4.0 | 9.7 | 10.9 | 38.4 | 4.9 | 88.1 | 15.8 | 26.9 | 103.1 | 2005 | Liu and Chang, 2009 |
| **Hunan** | **Changsha city** | - | 4.1 | 4.6 | 6.1 | 29.4 | 3.3 | 75.4 | 13.5 | 26.3 | 103.1 | 2006 | Liu and Chang, 2009 |
| **Hunan** | **Changsha city** | - | 4.0 | 7.2 | 4.8 | 34.9 | 4.9 | 112.5 | 20.6 | 43.1 | 151.4 | 2007 | Liu and Chang, 2009 |
| **Hunan** | **Changsha city** | - | 4.3 | 3.3 | 3.9 | 19.0 | 4.1 | 47.1 | 20.6 | 16.3 | 80.6 | 2008 | Liu and Chang, 2009 |
| **Hunan** | **Changsha city** | 24 | 4.8 | - | - | - | - | - | 17.3 | 69.7 | 76.4 | 2012-2013 | Yi et al., 2014 |
| - | **Beijing** | - | 6.7 | 38.2 | 77.4 | 760.0 | - | 224.4 | 59.1 | 81.0 | 337.5 | 1982 | Zhao et al., 1988 |
| - | **Beijing** | - | 6.1 | 24.0 | 29.0 | 148.0 | 21.0 | 134.0 | 26.0 | 54.0 | 180.0 | 1992 | Fujita et al., 2000 |
| - | **Beijing** | - | 5.8 | 24.0 | 55.0 | 459.0 | 71.0 | 159.0 | 72.0 | 123.0 | 417.0 | 1993 | Fujita et al., 2000 |
| - | **Beijing** | 8 | 4.9 | 17.9 | 31.4 | 27.5 | 8.6 | 49.9 | 12.9 | 23.3 | 85.7 | 1994 | Wang and Zhang,1997 |
| - | **Beijing** | - | 6.8 | 51.9 | 64.0 | 346.2 | 84.7 | 125.4 | 91.7 | 65.5 | 346.6 | 1995-1998 | Feng et al., 2001 |
| - | **Beijing** | 137 | 6.0 | 13.8 | 22.5 | 209.0 | 48.4 | 236.0 | 34.9 | 106.0 | 314.0 | 2001-2005 | Yang et al., 2012 |
| - | **Beijing** | 23 | 5.1 | 17.7 | 25.0 | 607.2 | 40.4 | 185.6 | 104.0 | 109.0 | 315.8 | 2006 | Xu and Han, 2009 |
| - | **Beijing** | 93 | 5.1 | - | - | - | - | - | - | - | - | 2007 | Yang et al., 2011 |
| - | **Beijing** | 43 | 5.3 | 6.7 | 8.5 | 291.0 | 38.5 | 179.0 | 67.8 | 139.0 | 270.0 | 2008 | Xu et al., 2012 |
| - | **Beijing** | 93 | 5.6 | - | - | - | - | - | - | - | - | 2009 | Yang et al., 2011 |
| - | **Beijing** | 128 | 5.0 | 13.2 | 26.3 | 182.2 | 34.3 | - | 121.9 | 147.6 | 279.0 | 2010-2013 | Zhu et al., 2016 |
| - | **Beijing** | - | 6.7 | 74.0 | 69.2 | 130.3 | 23.7 | 89.9 | 123.4 | 70.2 | 77.2 | 2017 | Xu et al., 2020 |
| - | **Beijing** | - | 6.8 | 38.0 | 49.3 | 152.4 | 42.3 | 62.7 | 76.8 | 49.1 | 55.4 | 2018 | Xu et al., 2020 |
| **Guangdong** | **Guangzhou** | - | 5.9 | - | - | 52.9 | - | 64.9 | 13.5 | 11.3 | 50.4 | 1983 | Xu, 1991 |
| **Guangdong** | **Guangzhou** | - | 5.5 | - | - | 43.6 | - | 92.0 | - | 7.1 | 147.6 | 1984 | Xu, 1991 |
| **Guangdong** | **Guangzhou** | - | 5.2 | 3.8 | 18.3 | 14.5 | 6.6 | 76.5 | 18.9 | 6.8 | 81.4 | 1985 | Xu, 1991 |
| **Guangdong** | **Guangzhou** | - | 4.9 | 1.7 | 4.4 | 8.3 | 0.9 | 61.0 | 5.9 | 7.4 | 43.1 | 1986 | Xu, 1991 |
| **Guangdong** | **Guangzhou** | - | 5.0 | 2.6 | 12.2 | 15.0 | 3.3 | 86.7 | 16.9 | 11.0 | 55.8 | 1987 | Xu, 1991 |
| **Guangdong** | **Guangzhou** | - | 4.9 | 24.1 | 28.1 | 175.1 | 25.0 | 141.1 | 38.1 | 33.3 | 254.9 | 1988 | Qi and Wang, 1995 |
| **Guangdong** | **Guangzhou** | 61 | 4.4 | 24.6 | 34.5 | 22.0 | 3.4 | 128.6 | 42.1 | 48.9 | 40.6 | 1990 | Wu et al., 1994 |
| **Guangdong** | **Guangzhou** | - | 4.6 | 8.6 | 14.7 | 83.1 | 7.6 | 71.3 | 27.8 | 48.8 | 158.3 | 2001 | Liu and Xia, 2007 |
| **Guangdong** | **Guangzhou** | - | 4.4 | 15.1 | 75.3 | 82.8 | 11.1 | 75.3 | 38.8 | 45.4 | 146.6 | 2002 | Liu and Xia, 2007 |
| **Guangdong** | **Guangzhou** | - | 4.6 | 20.0 | 69.3 | 127.2 | 12.0 | 69.3 | 46.6 | 67.9 | 228.0 | 2003 | Liu and Xia, 2007 |
| **Guangdong** | **Guangzhou** | - | 4.5 | 7.7 | 61.1 | 100.2 | 8.3 | 61.1 | 46.9 | 72.2 | 185.1 | 2004 | Liu and Xia, 2007 |
| **Guangdong** | **Guangzhou** | - | 4.8 | 8.0 | 27.1 | 57.3 | 5.5 | 27.2 | 22.0 | 28.3 | 118.0 | 2005 | Xu and Wu, 2010 |
| **Guangdong** | **Guangzhou** | - | 4.9 | 4.5 | 11.0 | 47.0 | 4.4 | 19.7 | 16.0 | 21.2 | 52.4 | 2006 | Xu and Wu, 2010 |
| **Guangdong** | **Guangzhou** | - | 4.8 | 5.9 | 11.9 | 50.7 | 4.4 | 26.0 | 15.9 | 21.7 | 59.1 | 2007 | Xu and Wu, 2010 |
| **Guangdong** | **Guangzhou** | - | 4.9 | 18.5 | 5.2 | 50.0 | 3.4 | 20.7 | 28.0 | 17.4 | 52.3 | 2008 | Xu and Wu, 2010 |
| - | **Shanghai** | 66 | 4.7 | 6.7 | 12.6 | 71.2 | 9.0 | 92.5 | 21.8 | 9.7 | 113.7 | 1986 | Lei et al., 1997 |
| - | **Shanghai** | - | 5.4 | 30.0 | 48.7 | 356.0 | 65.0 | 144.4 | 70.7 | 34.8 | 376.7 | 1990 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.0 | 5.1 | 17.8 | 182.5 | 13.1 | 94.6 | 29.0 | 21.6 | 220.8 | 1991 | Sha et al., 2007 |
| - | **Shanghai** | - | 4.8 | 16.5 | 41.4 | 315.3 | 29.8 | 142.7 | 41.6 | 39.2 | 287.0 | 1992 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.1 | 10.1 | 42.1 | 298.8 | 24.1 | 120.1 | 49.9 | 26.9 | 274.6 | 1993 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.4 | 13.6 | 38.9 | 291.5 | 31.5 | 122.8 | 66.1 | 30.2 | 302.3 | 1994 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.3 | 37.3 | 35.3 | 214.1 | 25.9 | 115.3 | 43.5 | 30.8 | 251.4 | 1995 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.4 | 22.0 | 41.2 | 229.3 | 23.4 | 128.2 | 74.0 | 40.4 | 301.7 | 1996 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.7 | 15.4 | 31.6 | 194.2 | 26.2 | 145.4 | 62.1 | 50.5 | 374.4 | 1997 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.6 | 15.2 | 38.4 | 161.2 | 22.8 | 122.7 | 52.7 | 37.3 | 264.5 | 1998 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.6 | 22.2 | 35.0 | 124.9 | 20.8 | 136.3 | 57.8 | 39.8 | 256.4 | 1999 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.4 | 16.2 | 41.3 | 140.2 | 24.3 | 113.8 | 51.3 | 36.2 | 191.3 | 2000 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.4 | 20.5 | 89.8 | 193.2 | 33.7 | 103.7 | 72.1 | 40.5 | 253.1 | 2001 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.4 | 16.7 | 53.5 | 202.5 | 36.8 | 101.1 | 56.6 | 41.8 | 197.9 | 2002 | Sha et al., 2007 |
| - | **Shanghai** | - | 5.2 | 27.7 | 59.6 | 233.0 | 34.5 | 140.6 | 62.3 | 55.2 | 256.3 | 2003 | Sha et al., 2007 |
| - | **Shanghai** | - | 4.9 | 12.2 | 43.4 | 120.0 | 22.1 | 120.6 | 43.4 | 39.0 | 145.4 | 2004 | Sha et al., 2007 |
| - | **Shanghai** | 76 | 4.5 | 14.9 | 50.1 | 204.0 | 29.6 | 80.7 | 58.3 | 49.8 | 199.6 | 2005 | Huang et al., 2008 |
| - | **Shanghai** | - | 4.8 | 2.3 | 22.5 | 47.4 | 6.7 | 108.4 | 19.7 | 31.4 | 101.6 | 2006 | Wang, 2012 |
| - | **Shanghai** | - | 4.5 | 4.0 | 44.8 | 47.1 | 15.0 | 106.7 | 53.5 | 43.1 | 122.2 | 2007 | Wang, 2012 |
| - | **Shanghai** | - | 4.5 | 4.3 | 11.8 | 43.7 | 7.3 | 116.5 | 19.3 | 48.8 | 117.5 | 2008 | Wang, 2012 |
| - | **Shanghai** | - | 4.5 | 2.5 | 11.1 | 32.5 | 5.8 | 87.6 | 14.1 | 46.7 | 89.5 | 2009 | Wang, 2012 |
| - | **Shanghai** | - | 4.6 | 2.0 | 9.5 | 36.7 | 5.9 | 93.5 | 13.8 | 45.0 | 88.2 | 2010 | Wang, 2012 |
| - | **Shanghai** | - | 4.8 | 5.0 | 22.0 | 59.9 | 11.5 | 104.4 | 26.4 | 64.2 | 116.6 | 2011 | Meng et al., 2019 |
| - | **Shanghai** | - | 4.7 | 3.7 | 13.7 | 28.2 | 7.6 | 53.1 | 17.7 | 30.1 | 61.1 | 2012 | Meng et al., 2019 |
| - | **Shanghai** | - | 4.8 | 2.7 | 18.8 | 39.5 | 11.8 | 62.0 | 22.7 | 41.4 | 70.9 | 2013 | Meng et al., 2019 |
| - | **Shanghai** | - | 4.9 | 4.6 | 17.7 | 34.3 | 9.8 | 58.0 | 27.1 | 31.6 | 70.4 | 2014 | Meng et al., 2019 |
| - | **Shanghai** | - | 5.2 | 3.1 | 13.7 | 34.1 | 7.3 | 54.7 | 17.3 | 30.9 | 55.4 | 2015 | Meng et al., 2019 |
| - | **Shanghai** | - | 5.3 | 3.2 | 15.6 | 32.4 | 7.1 | 68.2 | 19.2 | 41.1 | 59.9 | 2016 | Meng et al., 2019 |
| **Fujian** | **Nanping city** | 132 | 4.7 | 6.3 | 59.8 | 16.1 | 20.5 | 18.5 | 118.0 | 28.0 | 91.6 | 2011 | Zheng, 2016 |
| **Fujian** | **Nanping city** | 210 | 4.8 | 11.4 | 42.2 | 7.4 | 12.1 | 17.6 | 84.6 | 37.7 | 68.2 | 2012 | Zheng, 2016 |
| **Fujian** | **Nanping city** | 135 | 4.9 | 9.7 | 42.8 | 11.5 | 13.7 | 17.8 | 100.4 | 37.3 | 83.1 | 2013 | Zheng, 2016 |
| **Fujian** | **Nanping city** | 159 | 4.9 | 7.7 | 25.9 | 13.0 | 17.2 | 17.0 | 90.6 | 49.2 | 66.5 | 2014 | Zheng, 2016 |
| **Fujian** | **Nanping city** | 300 | 4.8 | 25.7 | 18.4 | 16.1 | 42.2 | 25.1 | 109.7 | 23.5 | 47.0 | 2015 | Zheng, 2016 |
| **Guangdong** | **Foshan city** | - | 4.5 | - | - | - | - | - | 26.1 | 17.0 | 107.2 | 2001 | Liu and Xia, 2007 |
| **Guangdong** | **Foshan city** | - | 4.5 | 65.6 | 34.2 | 77.4 | 12.1 | 75.3 | 75.6 | 30.3 | 144.2 | 2002 | Liu and Xia, 2007 |
| **Guangdong** | **Foshan city** | - | 4.5 | 10.0 | 26.4 | 101.9 | 11.6 | 93.9 | 22.4 | 33.6 | 166.0 | 2003 | Liu and Xia, 2007 |
| **Guangdong** | **Foshan city** | - | 4.6 | 23.3 | 50.0 | 189.5 | 22.5 | 66.7 | 55.1 | 49.5 | 209.0 | 2004 | Liu and Xia, 2007 |
| **Guangdong** | **Foshan city** | 429 | 4.5 | 15.1 | 111.7 | 125.5 | 19.2 | 47.8 | 44.2 | 33.6 | 179.8 | 2006 | Yao and Liang, 2012 |
| **Guangdong** | **Foshan city** | 354 | 4.6 | 16.4 | 36.1 | 85.5 | 23.3 | 70.6 | 42.0 | 42.3 | 178.1 | 2007 | Yao and Liang, 2012 |
| **Guangdong** | **Foshan city** | 442 | 4.5 | 13.6 | 21.3 | 72.0 | 16.7 | 49.4 | 34.7 | 40.2 | 137.3 | 2008 | Yao and Liang, 2012 |
| **Guangdong** | **Foshan city** | 360 | 4.4 | 18.0 | 20.0 | 68.0 | 18.3 | 76.1 | 37.8 | 42.7 | 125.4 | 2009 | Yao and Liang, 2012 |
| **Guangdong** | **Foshan city** | 404 | 4.3 | 8.7 | 18.7 | 73.5 | 19.2 | 62.8 | 27.3 | 64.4 | 115.4 | 2010 | Yao and Liang, 2012 |
| **Guangdong** | **Foshan city** | 65 | 5.1 | 3.6 | 11.3 | 21.5 | 5.8 | 47.8 | 12.4 | 32.4 | 41.5 | 2016 | Huang and Liang, 2017 |
| **Guangxi** | **Guilin city** | - | 4.5 | 4.6 | 14.1 | 149.5 | 8.7 | 57.5 | 14.0 | 17.2 | 104.3 | 1989 | Qi and Wang, 1995 |
| **Guangxi** | **Guilin city** | - | 4.5 | 4.8 | 6.6 | 45.0 | 6.8 | 44.6 | 6.0 | 14.2 | 107.0 | 1994-1995 | Ning and Li, 1997 |
| **Guangxi** | **Guilin city** | 501 | 5.0 | 5.9 | 13.4 | 83.0 | 9.4 | 71.6 | 20.4 | 38.8 | 126.6 | 2008-2011 | Shi et al., 2015 |
| **Guangxi** | **Guilin city** | 44 | 4.7 | - | - | - | - | - | - | - | - | 2011 | Zhong et al., 2018 |
| **Guangxi** | **Guilin city** | - | 4.7 | - | - | - | - | - | - | - | - | 2012 | Zhong et al., 2018 |
| **Guangxi** | **Guilin city** | - | 5.0 | - | - | - | - | - | - | - | - | 2013 | Zhong et al., 2018 |
| **Guangxi** | **Guilin city** | - | 4.9 | - | - | - | - | - | - | - | - | 2014 | Zhong et al., 2018 |
| **Guangxi** | **Guilin city** | - | 5.2 | 17.1 | 29.0 | 125.9 | 14.4 | 45.3 | 33.3 | 40.8 | 125.0 | 2015 | Zhong et al., 2018 |
| **Guangxi** | **Nanning city** | - | 5.0 | 12.3 | 24.7 | 173.1 | 14.8 | 115.2 | 43.3 | 21.1 | 243.4 | 1988 | Qi and Wang, 1995 |
| **Guangxi** | **Nanning city** | - | 4.8 | 9.0 | 21.0 | 150.4 | 14.3 | 130.9 | 34.0 | 17.0 | 243.9 | 1989 | Qi and Wang, 1995 |
| **Guangxi** | **Nanning city** | - | 5.0 | 4.0 | 25.0 | 40.0 | 9.0 | 62.0 | 17.0 | 17.0 | 112.0 | 1992 | Fujita et al., 2000 |
| **Guangxi** | **Nanning city** | - | 5.2 | 12.1 | 23.0 | 295.4 | 31.7 | 193.2 | 142.6 | 39.6 | 241.8 | 1992-2003 | Tu et al.2005 |
| **Guangxi** | **Nanning city** | - | 6.5 | 3.5 | 12.2 | 199.1 | 9.2 | 48.4 | 13.6 | 19.8 | 59.5 | 2015 | Guo et al., 2017 |
| **Jiangxi** | **Yingtan city** | - | 4.9 | 6.0 | 7.1 | 19.9 | 2.7 | 35.8 | 61.4 | 10.2 | 77.3 | 2002 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.9 | 6.1 | 4.3 | 19.6 | 12.1 | 45.9 | 56.4 | 15.3 | 93.9 | 2003 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.5 | 6.2 | 3.8 | 30.0 | 11.4 | 42.5 | 7.8 | 21.9 | 118.3 | 2004 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.4 | 8.2 | 2.9 | 29.9 | 12.3 | 73.4 | 6.1 | 29.5 | 125.3 | 2005 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.4 | 4.7 | 2.9 | 46.2 | 8.2 | 89.6 | 6.1 | 26.4 | 141.2 | 2006 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.1 | 3.8 | 3.0 | 29.0 | 13.0 | 89.1 | 5.3 | 48.7 | 117.2 | 2007 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.1 | 2.3 | 1.3 | 9.9 | 4.1 | 100.3 | 4.0 | 38.0 | 182.0 | 2008 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.6 | 1.5 | 2.6 | 11.8 | 2.8 | 80.3 | 70.6 | 56.8 | 228.9 | 2009 | Wu, 2011 |
| **Jiangxi** | **Yingtan city** | - | 4.4 | 2.3 | 3.9 | 15.7 | 3.2 | 57.9 | 24.4 | 64.7 | 186.0 | 2010 | Wu, 2011 |
| **Jiangxi** | **Ji'an city** | 107 | 4.5 | 10.3 | 8.3 | 71.5 | 10.8 | 57.2 | 45.1 | 39.7 | 95.4 | 2011 | He, 2016 |
| **Jiangxi** | **Ji'an city** | 192 | 4.5 | 10.3 | 2.6 | 60.0 | 8.3 | 43.9 | 37.4 | 35.5 | 91.7 | 2012 | He, 2016 |
| **Jiangxi** | **Ji'an city** | 87 | 4.5 | 11.0 | 0.4 | 84.0 | 7.5 | 46.1 | 24.2 | 39.0 | 102.3 | 2013 | He, 2016 |
| **Jiangxi** | **Ji'an city** | 127 | 5.0 | 23.3 | 10.4 | 106.0 | 12.5 | 57.8 | 12.6 | 44.7 | 104.4 | 2014 | He, 2016 |
| **Jiangxi** | **Nanchang city** | 95 | 5.1 | 1.8 | 10.1 | 47.9 | 6.7 | 37.2 | 15.9 | 30.9 | 67.7 | 2015-2016 | Zheng et al., 2020 |

a No data

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