



Statistiek van de extreme neerslag voor de Belgische gemeenten

Chaudfontaine (NIS 62022)

1. Geschatte neerslaghoeveelheid voor een neerslagduur van 10 minuten tot 30 dagen (rijen) en een terugkeerperiode van 2 tot 200 jaar (kolommen). Eenheid: mm.

| Duur | Terugkeerperiode (jaren) | | | | | | | | | | | |
|--------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.8 | 11.2 | 13.7 | 15.2 | 16.4 | 17.3 | 18.1 | 19.3 | 20.3 | 22.1 | 23.5 | 27.1 |
| 20 min | 11.4 | 16.4 | 20.1 | 22.4 | 24.1 | 25.4 | 26.5 | 28.3 | 29.8 | 32.5 | 34.6 | 39.8 |
| 30 min | 13.4 | 19.4 | 24.0 | 26.7 | 28.8 | 30.4 | 31.7 | 33.9 | 35.6 | 38.9 | 41.4 | 47.6 |
| 1 u | 16.6 | 23.4 | 28.5 | 31.6 | 33.9 | 35.7 | 37.2 | 39.6 | 41.5 | 45.2 | 47.9 | 54.8 |
| 2 u | 20.0 | 27.7 | 33.4 | 36.9 | 39.4 | 41.5 | 43.1 | 45.9 | 48.1 | 52.2 | 55.2 | 62.9 |
| 3 u | 22.2 | 30.5 | 36.7 | 40.5 | 43.2 | 45.4 | 47.2 | 50.2 | 52.5 | 56.9 | 60.2 | 68.5 |
| 6 u | 26.9 | 35.2 | 41.5 | 45.2 | 47.9 | 50.1 | 51.9 | 54.9 | 57.2 | 61.6 | 64.8 | 73.1 |
| 12 u | 32.9 | 42.9 | 50.3 | 54.8 | 58.0 | 60.6 | 62.7 | 66.2 | 68.9 | 74.1 | 77.9 | 87.6 |
| 1 d | 40.6 | 52.1 | 60.5 | 65.4 | 69.0 | 71.8 | 74.1 | 77.9 | 80.8 | 86.3 | 90.4 | 100.5 |
| 2 d | 52.1 | 66.3 | 76.2 | 82.0 | 86.1 | 89.4 | 92.1 | 96.4 | 99.7 | 106.0 | 110.5 | 121.6 |
| 3 d | 56.0 | 71.2 | 81.7 | 87.8 | 92.1 | 95.5 | 98.3 | 102.8 | 106.2 | 112.6 | 117.2 | 128.5 |
| 4 d | 61.1 | 77.4 | 88.5 | 94.9 | 99.5 | 103.1 | 106.0 | 110.6 | 114.2 | 120.8 | 125.5 | 137.1 |
| 5 d | 69.4 | 87.2 | 99.3 | 106.2 | 111.1 | 114.9 | 118.0 | 123.0 | 126.8 | 133.8 | 138.8 | 151.1 |
| 7 d | 80.3 | 99.6 | 112.5 | 119.9 | 125.1 | 129.2 | 132.4 | 137.6 | 141.6 | 149.0 | 154.2 | 166.8 |
| 10 d | 96.0 | 118.3 | 133.0 | 141.4 | 147.3 | 151.8 | 155.5 | 161.2 | 165.7 | 173.8 | 179.6 | 193.4 |
| 15 d | 116.5 | 142.3 | 159.3 | 168.8 | 175.4 | 180.5 | 184.6 | 191.1 | 196.0 | 205.0 | 211.4 | 226.5 |
| 20 d | 135.7 | 166.0 | 185.6 | 196.6 | 204.2 | 210.0 | 214.7 | 222.1 | 227.7 | 237.9 | 245.0 | 262.0 |
| 25 d | 145.3 | 177.5 | 198.2 | 209.7 | 217.6 | 223.7 | 228.6 | 236.2 | 242.1 | 252.6 | 260.0 | 277.4 |
| 30 d | 169.1 | 203.3 | 225.2 | 237.3 | 245.6 | 252.0 | 257.1 | 265.1 | 271.2 | 282.2 | 289.8 | 307.9 |

2. Geschatte neerslaghoeveelheid en standaardafwijking van deze schatting voor een neerslagduur van 10 minuten tot 30 dagen (rijen) en een terugkeerperiode van 2 tot 200 jaar (kolommen). Eenheid: mm.

| Duur | Terugkeerperiode (jaren) | | | | | | | | | | | |
|--------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.8 | 11.2 | 13.7 | 15.2 | 16.4 | 17.3 | 18.1 | 19.3 | 20.3 | 22.1 | 23.5 | 27.1 |
| | 0.2 | 0.4 | 0.6 | 0.7 | 0.9 | 1.0 | 1.1 | 1.3 | 1.4 | 1.8 | 2.0 | 2.8 |
| 20 min | 11.4 | 16.4 | 20.1 | 22.4 | 24.1 | 25.4 | 26.5 | 28.3 | 29.8 | 32.5 | 34.6 | 39.8 |
| | 0.4 | 0.6 | 0.9 | 1.1 | 1.3 | 1.5 | 1.6 | 1.9 | 2.1 | 2.5 | 2.9 | 4.0 |
| 30 min | 13.4 | 19.4 | 24.0 | 26.7 | 28.8 | 30.4 | 31.7 | 33.9 | 35.6 | 38.9 | 41.4 | 47.6 |
| | 0.4 | 0.6 | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 | 1.6 | 1.7 | 2.1 | 2.4 | 3.1 |
| 1 u | 16.6 | 23.4 | 28.5 | 31.6 | 33.9 | 35.7 | 37.2 | 39.6 | 41.5 | 45.2 | 47.9 | 54.8 |
| | 0.5 | 0.8 | 1.1 | 1.3 | 1.6 | 1.7 | 1.9 | 2.2 | 2.5 | 3.0 | 3.4 | 4.7 |
| 2 u | 20.0 | 27.7 | 33.4 | 36.9 | 39.4 | 41.5 | 43.1 | 45.9 | 48.1 | 52.2 | 55.2 | 62.9 |
| | 0.6 | 0.9 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.4 | 3.9 | 5.3 |
| 3 u | 22.2 | 30.5 | 36.7 | 40.5 | 43.2 | 45.4 | 47.2 | 50.2 | 52.5 | 56.9 | 60.2 | 68.5 |
| | 0.7 | 1.0 | 1.3 | 1.5 | 1.8 | 1.9 | 2.1 | 2.4 | 2.7 | 3.2 | 3.6 | 4.8 |
| 6 u | 26.9 | 35.2 | 41.5 | 45.2 | 47.9 | 50.1 | 51.9 | 54.9 | 57.2 | 61.6 | 64.8 | 73.1 |
| | 0.8 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.4 | 2.8 | 3.2 | 3.9 | 4.5 | 6.2 |
| 12 u | 32.9 | 42.9 | 50.3 | 54.8 | 58.0 | 60.6 | 62.7 | 66.2 | 68.9 | 74.1 | 77.9 | 87.6 |
| | 1.0 | 1.4 | 1.8 | 2.3 | 2.7 | 3.0 | 3.3 | 3.9 | 4.3 | 5.3 | 6.1 | 8.3 |
| 1 d | 40.6 | 52.1 | 60.5 | 65.4 | 69.0 | 71.8 | 74.1 | 77.9 | 80.8 | 86.3 | 90.4 | 100.5 |
| | 1.1 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.3 | 2.6 | 2.8 | 3.3 | 3.7 | 4.8 |
| 2 d | 52.1 | 66.3 | 76.2 | 82.0 | 86.1 | 89.4 | 92.1 | 96.4 | 99.7 | 106.0 | 110.5 | 121.6 |
| | 1.7 | 2.2 | 2.8 | 3.2 | 3.6 | 3.9 | 4.2 | 4.7 | 5.1 | 5.9 | 6.5 | 8.3 |
| 3 d | 56.0 | 71.2 | 81.7 | 87.8 | 92.1 | 95.5 | 98.3 | 102.8 | 106.2 | 112.6 | 117.2 | 128.5 |
| | 2.1 | 2.7 | 3.4 | 3.9 | 4.2 | 4.6 | 4.8 | 5.3 | 5.7 | 6.5 | 7.2 | 8.9 |
| 4 d | 61.1 | 77.4 | 88.5 | 94.9 | 99.5 | 103.1 | 106.0 | 110.6 | 114.2 | 120.8 | 125.5 | 137.1 |
| | 2.5 | 3.0 | 3.6 | 4.0 | 4.3 | 4.6 | 4.8 | 5.2 | 5.5 | 6.2 | 6.7 | 8.1 |
| 5 d | 69.4 | 87.2 | 99.3 | 106.2 | 111.1 | 114.9 | 118.0 | 123.0 | 126.8 | 133.8 | 138.8 | 151.1 |
| | 2.8 | 3.5 | 4.1 | 4.5 | 4.8 | 5.1 | 5.3 | 5.7 | 6.0 | 6.6 | 7.1 | 8.5 |
| 7 d | 80.3 | 99.6 | 112.5 | 119.9 | 125.1 | 129.2 | 132.4 | 137.6 | 141.6 | 149.0 | 154.2 | 166.8 |
| | 3.4 | 4.1 | 4.6 | 4.9 | 5.2 | 5.4 | 5.6 | 5.9 | 6.2 | 6.7 | 7.1 | 8.3 |
| 10 d | 96.0 | 118.3 | 133.0 | 141.4 | 147.3 | 151.8 | 155.5 | 161.2 | 165.7 | 173.8 | 179.6 | 193.4 |
| | 4.3 | 5.3 | 6.0 | 6.5 | 6.8 | 7.1 | 7.3 | 7.7 | 8.0 | 8.7 | 9.2 | 10.4 |
| 15 d | 116.5 | 142.3 | 159.3 | 168.8 | 175.4 | 180.5 | 184.6 | 191.1 | 196.0 | 205.0 | 211.4 | 226.5 |
| | 5.2 | 6.4 | 7.1 | 7.6 | 7.9 | 8.1 | 8.3 | 8.6 | 8.9 | 9.3 | 9.7 | 10.6 |
| 20 d | 135.7 | 166.0 | 185.6 | 196.6 | 204.2 | 210.0 | 214.7 | 222.1 | 227.7 | 237.9 | 245.0 | 262.0 |
| | 6.2 | 7.6 | 8.5 | 9.0 | 9.4 | 9.7 | 9.9 | 10.3 | 10.6 | 11.2 | 11.6 | 12.8 |
| 25 d | 145.3 | 177.5 | 198.2 | 209.7 | 217.6 | 223.7 | 228.6 | 236.2 | 242.1 | 252.6 | 260.0 | 277.4 |
| | 6.9 | 8.6 | 9.7 | 10.5 | 11.0 | 11.5 | 11.9 | 12.5 | 13.0 | 14.0 | 14.7 | 16.6 |
| 30 d | 169.1 | 203.3 | 225.2 | 237.3 | 245.6 | 252.0 | 257.1 | 265.1 | 271.2 | 282.2 | 289.8 | 307.9 |
| | 7.6 | 9.3 | 10.7 | 11.5 | 12.2 | 12.8 | 13.2 | 14.0 | 14.7 | 15.9 | 16.9 | 19.3 |

3. 95%-betrouwbaarheidsinterval van de geschatte neerslaghoeveelheid voor een neerslagduur van 10 minuten tot 30 dagen (rijen) en een terugkeerperiode van 2 tot 200 jaar (kolommen). Eenheid: mm.

| Duur | Terugkeerperiode (jaren) | | | | | | | | | | | |
|--------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.4 | 10.4 | 12.6 | 13.8 | 14.7 | 15.4 | 15.9 | 16.8 | 17.5 | 18.7 | 19.6 | 21.6 |
| | 8.2 | 11.9 | 14.8 | 16.7 | 18.1 | 19.2 | 20.2 | 21.8 | 23.1 | 25.6 | 27.5 | 32.5 |
| 20 min | 10.7 | 15.2 | 18.4 | 20.3 | 21.6 | 22.6 | 23.4 | 24.7 | 25.7 | 27.5 | 28.9 | 32.0 |
| | 12.1 | 17.5 | 21.8 | 24.5 | 26.6 | 28.3 | 29.7 | 32.0 | 33.9 | 37.5 | 40.3 | 47.5 |
| 30 min | 12.5 | 18.2 | 22.3 | 24.8 | 26.5 | 27.9 | 29.0 | 30.8 | 32.2 | 34.9 | 36.8 | 41.5 |
| | 14.2 | 20.7 | 25.6 | 28.7 | 31.0 | 32.9 | 34.4 | 37.0 | 39.1 | 43.0 | 46.0 | 53.8 |
| 1 u | 15.7 | 22.0 | 26.4 | 29.0 | 30.8 | 32.2 | 33.4 | 35.2 | 36.7 | 39.3 | 41.2 | 45.7 |
| | 17.6 | 24.9 | 30.6 | 34.2 | 36.9 | 39.1 | 40.9 | 43.9 | 46.4 | 51.1 | 54.6 | 64.0 |
| 2 u | 18.9 | 26.0 | 31.0 | 33.9 | 36.0 | 37.6 | 38.9 | 40.9 | 42.6 | 45.5 | 47.6 | 52.6 |
| | 21.1 | 29.4 | 35.9 | 39.9 | 42.9 | 45.4 | 47.4 | 50.8 | 53.6 | 58.8 | 62.8 | 73.2 |
| 3 u | 20.9 | 28.7 | 34.2 | 37.5 | 39.8 | 41.6 | 43.1 | 45.5 | 47.3 | 50.7 | 53.2 | 59.2 |
| | 23.5 | 32.4 | 39.3 | 43.5 | 46.7 | 49.2 | 51.4 | 54.9 | 57.7 | 63.1 | 67.2 | 77.9 |
| 6 u | 25.3 | 33.3 | 38.8 | 42.0 | 44.2 | 45.9 | 47.2 | 49.4 | 51.0 | 53.9 | 56.0 | 60.9 |
| | 28.4 | 37.2 | 44.1 | 48.4 | 51.7 | 54.4 | 56.6 | 60.4 | 63.4 | 69.2 | 73.6 | 85.3 |
| 12 u | 30.9 | 40.3 | 46.7 | 50.3 | 52.8 | 54.7 | 56.2 | 58.6 | 60.5 | 63.7 | 66.0 | 71.3 |
| | 35.0 | 45.6 | 53.9 | 59.2 | 63.2 | 66.5 | 69.2 | 73.7 | 77.4 | 84.5 | 89.9 | 104.0 |
| 1 d | 38.4 | 49.5 | 57.3 | 61.8 | 65.0 | 67.5 | 69.5 | 72.7 | 75.2 | 79.8 | 83.1 | 91.2 |
| | 42.8 | 54.8 | 63.6 | 69.0 | 72.9 | 76.1 | 78.7 | 83.0 | 86.4 | 92.8 | 97.6 | 109.8 |
| 2 d | 48.8 | 62.0 | 70.8 | 75.7 | 79.1 | 81.8 | 83.9 | 87.2 | 89.8 | 94.4 | 97.6 | 105.3 |
| | 55.5 | 70.6 | 81.6 | 88.3 | 93.2 | 97.0 | 100.3 | 105.5 | 109.7 | 117.5 | 123.3 | 138.0 |
| 3 d | 51.8 | 65.8 | 75.1 | 80.2 | 83.8 | 86.6 | 88.8 | 92.3 | 95.0 | 99.8 | 103.1 | 111.1 |
| | 60.2 | 76.5 | 88.3 | 95.3 | 100.4 | 104.5 | 107.8 | 113.2 | 117.5 | 125.4 | 131.3 | 145.9 |
| 4 d | 56.3 | 71.4 | 81.5 | 87.1 | 91.1 | 94.1 | 96.6 | 100.4 | 103.4 | 108.7 | 112.4 | 121.2 |
| | 65.9 | 83.3 | 95.6 | 102.8 | 107.9 | 112.0 | 115.4 | 120.8 | 125.0 | 132.9 | 138.7 | 153.1 |
| 5 d | 63.8 | 80.3 | 91.2 | 97.4 | 101.7 | 105.0 | 107.7 | 111.8 | 115.1 | 120.8 | 124.9 | 134.5 |
| | 74.9 | 94.1 | 107.3 | 115.0 | 120.5 | 124.8 | 128.4 | 134.1 | 138.5 | 146.8 | 152.8 | 167.7 |
| 7 d | 73.6 | 91.6 | 103.6 | 110.3 | 114.9 | 118.5 | 121.5 | 126.0 | 129.5 | 135.8 | 140.2 | 150.6 |
| | 87.0 | 107.6 | 121.5 | 129.6 | 135.3 | 139.8 | 143.4 | 149.2 | 153.8 | 162.1 | 168.2 | 183.0 |
| 10 d | 87.6 | 107.9 | 121.2 | 128.7 | 133.9 | 137.9 | 141.1 | 146.1 | 149.9 | 156.8 | 161.6 | 172.9 |
| | 104.4 | 128.6 | 144.9 | 154.1 | 160.6 | 165.7 | 169.8 | 176.4 | 181.5 | 190.8 | 197.5 | 213.9 |
| 15 d | 106.2 | 129.8 | 145.3 | 153.9 | 160.0 | 164.6 | 168.3 | 174.2 | 178.7 | 186.7 | 192.4 | 205.8 |
| | 126.7 | 154.8 | 173.3 | 183.6 | 190.8 | 196.4 | 200.9 | 207.9 | 213.4 | 223.3 | 230.3 | 247.2 |
| 20 d | 123.5 | 151.1 | 169.0 | 178.9 | 185.8 | 191.0 | 195.2 | 201.8 | 206.9 | 215.9 | 222.2 | 237.0 |
| | 147.8 | 180.9 | 202.3 | 214.3 | 222.6 | 229.0 | 234.1 | 242.3 | 248.5 | 259.9 | 267.9 | 287.1 |
| 25 d | 131.7 | 160.7 | 179.1 | 189.1 | 196.0 | 201.2 | 205.3 | 211.8 | 216.6 | 225.3 | 231.2 | 244.8 |
| | 158.9 | 194.3 | 217.3 | 230.2 | 239.2 | 246.2 | 251.8 | 260.7 | 267.5 | 280.0 | 288.8 | 310.0 |
| 30 d | 154.2 | 185.1 | 204.3 | 214.6 | 221.6 | 226.9 | 231.1 | 237.6 | 242.5 | 251.0 | 256.8 | 270.0 |
| | 183.9 | 221.5 | 246.1 | 259.9 | 269.5 | 277.0 | 283.1 | 292.6 | 300.0 | 313.4 | 322.9 | 345.8 |

4. Schatting van de coëfficiënten van Montana.

Formule van Montana : intensiteit[mm/h] = $a \cdot \text{duur}[\text{min}]^{-b}$ voor verschillende tijdsduren

a_1, b_1 : duur < 25 min

a_2, b_2 : duur tussen 25 min en 6000 min (= 100 h)

a_3, b_3 : duur > 6000 min (= 100 h)

| Terugkeerperiode (jaren) | a_1 | b_1 | a_2 | b_2 | a_3 | b_3 |
|--------------------------|-------|--------|--------|--------|-------|--------|
| 2 | 138.8 | 0.4719 | 298.4 | 0.7096 | 51.1 | 0.5068 |
| 5 | 196.8 | 0.4671 | 466.9 | 0.7354 | 73.6 | 0.5230 |
| 10 | 238.9 | 0.4624 | 602.3 | 0.7497 | 93.8 | 0.5359 |
| 15 | 263.9 | 0.4594 | 688.4 | 0.7572 | 107.4 | 0.5437 |
| 20 | 282.1 | 0.4571 | 753.2 | 0.7622 | 118.2 | 0.5493 |
| 25 | 296.5 | 0.4553 | 805.8 | 0.7660 | 127.1 | 0.5537 |
| 30 | 308.4 | 0.4539 | 850.4 | 0.7690 | 134.9 | 0.5574 |
| 40 | 327.5 | 0.4515 | 924.0 | 0.7737 | 148.0 | 0.5632 |
| 50 | 342.7 | 0.4496 | 983.8 | 0.7772 | 159.0 | 0.5677 |
| 75 | 371.0 | 0.4460 | 1099.4 | 0.7835 | 180.9 | 0.5761 |
| 100 | 391.7 | 0.4434 | 1187.1 | 0.7879 | 198.1 | 0.5821 |
| 200 | 443.9 | 0.4370 | 1419.8 | 0.7982 | 246.2 | 0.5968 |

Referenties

Van de Vyver, H. (2012). Spatial regression models for extreme precipitation in Belgium, *Water Resour. Res.*, 48, W09549, doi :10.1029/2011WR011707.

Van de Vyver, H. (2013). Practical return level mapping for extreme precipitation in Belgium, RMI scientific and technical publication 062, 30 pages.

Disclaimer

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Zo niet, dan zijn de rechtbanken van het arrondissement Brussel bevoegd.