



Statistiek van de extreme neerslag voor de Belgische gemeenten

Florennes (NIS 93022)

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 | 15.3 | 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 | 26.6 | 28.4 | 29.8 | 32.6 | 34.6 | 39.8 |
| 30 min | 13.4 | 19.5 | 24.0 | 26.8 | 28.8 | 30.4 | 31.7 | 33.9 | 35.7 | 39.0 | 41.4 | 47.7 |
| 1 u | 16.6 | 23.5 | 28.5 | 31.6 | 33.9 | 35.7 | 37.2 | 39.6 | 41.6 | 45.3 | 48.0 | 54.9 |
| 2 u | 20.0 | 27.7 | 33.5 | 36.9 | 39.5 | 41.5 | 43.2 | 45.9 | 48.1 | 52.2 | 55.3 | 63.0 |
| 3 u | 22.2 | 30.6 | 36.8 | 40.5 | 43.3 | 45.5 | 47.3 | 50.2 | 52.6 | 57.0 | 60.3 | 68.6 |
| 6 u | 26.9 | 35.3 | 41.5 | 45.2 | 48.0 | 50.2 | 52.0 | 54.9 | 57.2 | 61.6 | 64.9 | 73.1 |
| 12 u | 33.0 | 43.0 | 50.4 | 54.8 | 58.0 | 60.6 | 62.8 | 66.2 | 69.0 | 74.2 | 78.0 | 87.7 |
| 1 d | 41.3 | 52.9 | 61.2 | 66.2 | 69.7 | 72.6 | 74.9 | 78.7 | 81.6 | 87.2 | 91.2 | 101.4 |
| 2 d | 53.3 | 67.5 | 77.5 | 83.4 | 87.6 | 90.9 | 93.6 | 97.9 | 101.3 | 107.6 | 112.2 | 123.4 |
| 3 d | 57.3 | 72.7 | 83.4 | 89.6 | 94.0 | 97.5 | 100.3 | 104.8 | 108.3 | 114.8 | 119.4 | 130.9 |
| 4 d | 62.6 | 79.2 | 90.5 | 97.0 | 101.7 | 105.3 | 108.2 | 112.9 | 116.6 | 123.3 | 128.1 | 139.9 |
| 5 d | 71.2 | 89.3 | 101.6 | 108.7 | 113.7 | 117.6 | 120.7 | 125.8 | 129.7 | 136.8 | 142.0 | 154.4 |
| 7 d | 82.5 | 102.1 | 115.4 | 122.9 | 128.2 | 132.3 | 135.6 | 140.9 | 145.0 | 152.5 | 157.8 | 170.7 |
| 10 d | 98.8 | 121.6 | 136.8 | 145.4 | 151.4 | 156.0 | 159.8 | 165.8 | 170.3 | 178.7 | 184.6 | 198.8 |
| 15 d | 119.8 | 146.4 | 163.8 | 173.5 | 180.3 | 185.5 | 189.8 | 196.4 | 201.5 | 210.7 | 217.2 | 232.8 |
| 20 d | 139.6 | 170.8 | 191.0 | 202.2 | 210.0 | 216.0 | 220.8 | 228.4 | 234.2 | 244.7 | 252.0 | 269.4 |
| 25 d | 149.8 | 182.8 | 204.1 | 215.8 | 224.0 | 230.2 | 235.3 | 243.1 | 249.2 | 260.0 | 267.5 | 285.5 |
| 30 d | 174.0 | 209.1 | 231.5 | 243.8 | 252.4 | 258.9 | 264.1 | 272.3 | 278.6 | 289.8 | 297.7 | 316.2 |

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 | 15.3 | 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 | 26.6 | 28.4 | 29.8 | 32.6 | 34.6 | 39.8 |
| | 0.4 | 0.6 | 0.9 | 1.1 | 1.3 | 1.4 | 1.6 | 1.9 | 2.1 | 2.5 | 2.9 | 4.0 |
| 30 min | 13.4 | 19.5 | 24.0 | 26.8 | 28.8 | 30.4 | 31.7 | 33.9 | 35.7 | 39.0 | 41.4 | 47.7 |
| | 0.4 | 0.6 | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 | 1.6 | 1.7 | 2.1 | 2.3 | 3.1 |
| 1 u | 16.6 | 23.5 | 28.5 | 31.6 | 33.9 | 35.7 | 37.2 | 39.6 | 41.6 | 45.3 | 48.0 | 54.9 |
| | 0.5 | 0.7 | 1.1 | 1.3 | 1.5 | 1.7 | 1.9 | 2.2 | 2.5 | 3.0 | 3.4 | 4.6 |
| 2 u | 20.0 | 27.7 | 33.5 | 36.9 | 39.5 | 41.5 | 43.2 | 45.9 | 48.1 | 52.2 | 55.3 | 63.0 |
| | 0.6 | 0.9 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.4 | 3.9 | 5.2 |
| 3 u | 22.2 | 30.6 | 36.8 | 40.5 | 43.3 | 45.5 | 47.3 | 50.2 | 52.6 | 57.0 | 60.3 | 68.6 |
| | 0.7 | 0.9 | 1.3 | 1.5 | 1.7 | 1.9 | 2.1 | 2.4 | 2.6 | 3.1 | 3.6 | 4.8 |
| 6 u | 26.9 | 35.3 | 41.5 | 45.2 | 48.0 | 50.2 | 52.0 | 54.9 | 57.2 | 61.6 | 64.9 | 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 | 33.0 | 43.0 | 50.4 | 54.8 | 58.0 | 60.6 | 62.8 | 66.2 | 69.0 | 74.2 | 78.0 | 87.7 |
| | 1.0 | 1.3 | 1.8 | 2.3 | 2.6 | 3.0 | 3.3 | 3.8 | 4.3 | 5.3 | 6.1 | 8.3 |
| 1 d | 41.3 | 52.9 | 61.2 | 66.2 | 69.7 | 72.6 | 74.9 | 78.7 | 81.6 | 87.2 | 91.2 | 101.4 |
| | 1.1 | 1.3 | 1.6 | 1.8 | 2.0 | 2.1 | 2.3 | 2.5 | 2.8 | 3.2 | 3.6 | 4.7 |
| 2 d | 53.3 | 67.5 | 77.5 | 83.4 | 87.6 | 90.9 | 93.6 | 97.9 | 101.3 | 107.6 | 112.2 | 123.4 |
| | 1.6 | 2.1 | 2.7 | 3.1 | 3.5 | 3.8 | 4.1 | 4.5 | 4.9 | 5.8 | 6.4 | 8.2 |
| 3 d | 57.3 | 72.7 | 83.4 | 89.6 | 94.0 | 97.5 | 100.3 | 104.8 | 108.3 | 114.8 | 119.4 | 130.9 |
| | 2.0 | 2.6 | 3.3 | 3.7 | 4.1 | 4.4 | 4.7 | 5.2 | 5.6 | 6.4 | 7.0 | 8.8 |
| 4 d | 62.6 | 79.2 | 90.5 | 97.0 | 101.7 | 105.3 | 108.2 | 112.9 | 116.6 | 123.3 | 128.1 | 139.9 |
| | 2.3 | 2.9 | 3.5 | 3.9 | 4.2 | 4.4 | 4.7 | 5.1 | 5.4 | 6.1 | 6.6 | 8.0 |
| 5 d | 71.2 | 89.3 | 101.6 | 108.7 | 113.7 | 117.6 | 120.7 | 125.8 | 129.7 | 136.8 | 142.0 | 154.4 |
| | 2.7 | 3.4 | 4.0 | 4.4 | 4.7 | 5.0 | 5.2 | 5.6 | 5.9 | 6.5 | 7.0 | 8.4 |
| 7 d | 82.5 | 102.1 | 115.4 | 122.9 | 128.2 | 132.3 | 135.6 | 140.9 | 145.0 | 152.5 | 157.8 | 170.7 |
| | 3.2 | 3.9 | 4.4 | 4.8 | 5.0 | 5.2 | 5.4 | 5.8 | 6.0 | 6.6 | 7.0 | 8.1 |
| 10 d | 98.8 | 121.6 | 136.8 | 145.4 | 151.4 | 156.0 | 159.8 | 165.8 | 170.3 | 178.7 | 184.6 | 198.8 |
| | 4.1 | 5.1 | 5.8 | 6.3 | 6.6 | 6.9 | 7.1 | 7.5 | 7.8 | 8.5 | 8.9 | 10.3 |
| 15 d | 119.8 | 146.4 | 163.8 | 173.5 | 180.3 | 185.5 | 189.8 | 196.4 | 201.5 | 210.7 | 217.2 | 232.8 |
| | 5.0 | 6.1 | 6.8 | 7.3 | 7.6 | 7.8 | 8.0 | 8.3 | 8.6 | 9.0 | 9.4 | 10.3 |
| 20 d | 139.6 | 170.8 | 191.0 | 202.2 | 210.0 | 216.0 | 220.8 | 228.4 | 234.2 | 244.7 | 252.0 | 269.4 |
| | 5.9 | 7.3 | 8.2 | 8.7 | 9.0 | 9.3 | 9.5 | 9.9 | 10.2 | 10.8 | 11.2 | 12.4 |
| 25 d | 149.8 | 182.8 | 204.1 | 215.8 | 224.0 | 230.2 | 235.3 | 243.1 | 249.2 | 260.0 | 267.5 | 285.5 |
| | 6.6 | 8.2 | 9.4 | 10.2 | 10.7 | 11.2 | 11.5 | 12.2 | 12.7 | 13.7 | 14.4 | 16.4 |
| 30 d | 174.0 | 209.1 | 231.5 | 243.8 | 252.4 | 258.9 | 264.1 | 272.3 | 278.6 | 289.8 | 297.7 | 316.2 |
| | 7.2 | 8.9 | 10.3 | 11.2 | 11.8 | 12.4 | 12.9 | 13.7 | 14.3 | 15.6 | 16.5 | 19.1 |

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 | 21.7 |
| | 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 | 27.6 | 28.9 | 32.0 |
| | 12.1 | 17.5 | 21.8 | 24.6 | 26.6 | 28.3 | 29.7 | 32.0 | 33.9 | 37.6 | 40.3 | 47.6 |
| 30 min | 12.6 | 18.3 | 22.4 | 24.8 | 26.6 | 27.9 | 29.1 | 30.9 | 32.3 | 34.9 | 36.8 | 41.6 |
| | 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 | 26.5 | 29.1 | 30.9 | 32.3 | 33.5 | 35.3 | 36.8 | 39.4 | 41.3 | 45.8 |
| | 17.6 | 24.9 | 30.6 | 34.2 | 36.9 | 39.1 | 40.9 | 43.9 | 46.4 | 51.1 | 54.7 | 64.0 |
| 2 u | 18.9 | 26.0 | 31.1 | 34.0 | 36.1 | 37.7 | 39.0 | 41.0 | 42.7 | 45.6 | 47.7 | 52.7 |
| | 21.1 | 29.4 | 35.9 | 39.9 | 42.9 | 45.4 | 47.4 | 50.8 | 53.6 | 58.8 | 62.8 | 73.3 |
| 3 u | 20.9 | 28.7 | 34.3 | 37.6 | 39.9 | 41.7 | 43.2 | 45.6 | 47.4 | 50.8 | 53.3 | 59.3 |
| | 23.5 | 32.4 | 39.3 | 43.5 | 46.7 | 49.2 | 51.4 | 54.9 | 57.7 | 63.2 | 67.2 | 77.9 |
| 6 u | 25.4 | 33.4 | 38.9 | 42.1 | 44.2 | 45.9 | 47.3 | 49.4 | 51.0 | 54.0 | 56.1 | 60.9 |
| | 28.4 | 37.2 | 44.1 | 48.4 | 51.7 | 54.4 | 56.7 | 60.4 | 63.4 | 69.3 | 73.7 | 85.3 |
| 12 u | 31.0 | 40.4 | 46.8 | 50.4 | 52.9 | 54.8 | 56.3 | 58.7 | 60.5 | 63.8 | 66.1 | 71.4 |
| | 35.0 | 45.6 | 53.9 | 59.2 | 63.2 | 66.5 | 69.2 | 73.8 | 77.4 | 84.5 | 89.9 | 104.0 |
| 1 d | 39.2 | 50.3 | 58.2 | 62.7 | 65.9 | 68.4 | 70.4 | 73.7 | 76.2 | 80.8 | 84.2 | 92.2 |
| | 43.4 | 55.4 | 64.3 | 69.6 | 73.6 | 76.7 | 79.4 | 83.6 | 87.1 | 93.5 | 98.3 | 110.5 |
| 2 d | 50.1 | 63.4 | 72.3 | 77.3 | 80.8 | 83.5 | 85.7 | 89.0 | 91.7 | 96.3 | 99.6 | 107.4 |
| | 56.4 | 71.6 | 82.8 | 89.5 | 94.4 | 98.3 | 101.6 | 106.8 | 111.0 | 118.9 | 124.7 | 139.5 |
| 3 d | 53.3 | 67.6 | 77.0 | 82.3 | 85.9 | 88.7 | 91.0 | 94.6 | 97.3 | 102.2 | 105.6 | 113.7 |
| | 61.3 | 77.9 | 89.8 | 96.9 | 102.1 | 106.2 | 109.5 | 115.0 | 119.3 | 127.3 | 133.2 | 148.1 |
| 4 d | 58.1 | 73.4 | 83.7 | 89.5 | 93.5 | 96.6 | 99.1 | 103.0 | 106.0 | 111.4 | 115.2 | 124.2 |
| | 67.2 | 84.9 | 97.3 | 104.6 | 109.9 | 114.0 | 117.4 | 122.9 | 127.2 | 135.2 | 141.0 | 155.6 |
| 5 d | 65.9 | 82.6 | 93.8 | 100.1 | 104.5 | 107.8 | 110.6 | 114.8 | 118.1 | 124.0 | 128.1 | 137.9 |
| | 76.5 | 95.9 | 109.4 | 117.3 | 122.9 | 127.3 | 130.9 | 136.7 | 141.2 | 149.7 | 155.8 | 171.0 |
| 7 d | 76.1 | 94.5 | 106.7 | 113.6 | 118.3 | 122.0 | 125.0 | 129.6 | 133.2 | 139.6 | 144.1 | 154.8 |
| | 88.9 | 109.8 | 124.0 | 132.2 | 138.0 | 142.6 | 146.3 | 152.2 | 156.8 | 165.3 | 171.4 | 186.5 |
| 10 d | 90.7 | 111.7 | 125.4 | 133.1 | 138.5 | 142.6 | 145.9 | 151.1 | 155.0 | 162.1 | 167.0 | 178.7 |
| | 106.8 | 131.6 | 148.2 | 157.6 | 164.3 | 169.5 | 173.7 | 180.5 | 185.7 | 195.3 | 202.1 | 218.9 |
| 15 d | 110.0 | 134.4 | 150.4 | 159.3 | 165.5 | 170.2 | 174.1 | 180.1 | 184.7 | 193.0 | 198.8 | 212.6 |
| | 129.6 | 158.4 | 177.2 | 187.8 | 195.2 | 200.8 | 205.4 | 212.7 | 218.3 | 228.4 | 235.6 | 253.0 |
| 20 d | 128.0 | 156.5 | 175.0 | 185.2 | 192.3 | 197.7 | 202.1 | 208.9 | 214.1 | 223.5 | 229.9 | 245.1 |
| | 151.2 | 185.0 | 206.9 | 219.2 | 227.7 | 234.2 | 239.5 | 247.8 | 254.3 | 265.8 | 274.0 | 293.7 |
| 25 d | 136.8 | 166.7 | 185.6 | 195.9 | 203.0 | 208.4 | 212.6 | 219.3 | 224.3 | 233.1 | 239.2 | 253.3 |
| | 162.7 | 198.9 | 222.5 | 235.7 | 245.0 | 252.1 | 257.9 | 267.0 | 274.0 | 286.8 | 295.8 | 317.6 |
| 30 d | 159.9 | 191.6 | 211.3 | 222.0 | 229.2 | 234.6 | 238.9 | 245.5 | 250.5 | 259.3 | 265.3 | 278.8 |
| | 188.0 | 226.5 | 251.6 | 265.7 | 275.6 | 283.2 | 289.4 | 299.1 | 306.7 | 320.4 | 330.1 | 353.5 |

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 | 141.7 | 0.4799 | 291.8 | 0.7044 | 50.6 | 0.5029 |
| 5 | 200.6 | 0.4745 | 457.4 | 0.7306 | 72.1 | 0.5182 |
| 10 | 243.2 | 0.4695 | 590.6 | 0.7451 | 91.4 | 0.5307 |
| 15 | 268.7 | 0.4664 | 675.3 | 0.7527 | 104.6 | 0.5383 |
| 20 | 287.1 | 0.4641 | 739.0 | 0.7578 | 114.9 | 0.5438 |
| 25 | 301.7 | 0.4622 | 790.8 | 0.7616 | 123.4 | 0.5481 |
| 30 | 313.7 | 0.4607 | 834.7 | 0.7647 | 130.9 | 0.5517 |
| 40 | 333.2 | 0.4582 | 907.1 | 0.7694 | 143.5 | 0.5574 |
| 50 | 348.5 | 0.4563 | 966.1 | 0.7730 | 154.0 | 0.5619 |
| 75 | 377.3 | 0.4526 | 1079.9 | 0.7793 | 174.9 | 0.5701 |
| 100 | 398.3 | 0.4500 | 1166.2 | 0.7838 | 191.4 | 0.5760 |
| 200 | 451.2 | 0.4435 | 1395.3 | 0.7942 | 237.4 | 0.5906 |

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.