



Statistiek van de extreme neerslag voor de Belgische gemeenten

Sint-Laureins (NIS 43014)

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 | 7.6 | 10.9 | 13.4 | 15.0 | 16.1 | 17.0 | 17.7 | 18.9 | 19.9 | 21.7 | 23.1 | 26.6 |
| 20 min | 11.0 | 15.8 | 19.4 | 21.6 | 23.2 | 24.5 | 25.6 | 27.3 | 28.7 | 31.3 | 33.3 | 38.3 |
| 30 min | 13.0 | 18.9 | 23.3 | 26.0 | 28.0 | 29.5 | 30.8 | 33.0 | 34.7 | 37.9 | 40.2 | 46.3 |
| 1 u | 16.2 | 22.6 | 27.5 | 30.4 | 32.5 | 34.3 | 35.7 | 38.0 | 39.8 | 43.3 | 45.9 | 52.5 |
| 2 u | 19.3 | 26.7 | 32.1 | 35.4 | 37.8 | 39.7 | 41.3 | 43.9 | 46.0 | 49.9 | 52.8 | 60.1 |
| 3 u | 21.5 | 29.5 | 35.5 | 39.1 | 41.8 | 43.9 | 45.6 | 48.5 | 50.7 | 55.0 | 58.1 | 66.2 |
| 6 u | 25.9 | 34.2 | 40.4 | 44.1 | 46.8 | 48.9 | 50.7 | 53.6 | 55.9 | 60.3 | 63.5 | 71.6 |
| 12 u | 31.6 | 41.5 | 48.9 | 53.3 | 56.5 | 59.1 | 61.2 | 64.6 | 67.4 | 72.5 | 76.3 | 86.0 |
| 1 d | 38.3 | 49.8 | 58.0 | 62.9 | 66.4 | 69.2 | 71.5 | 75.2 | 78.1 | 83.6 | 87.5 | 97.5 |
| 2 d | 48.5 | 62.1 | 71.7 | 77.3 | 81.3 | 84.5 | 87.1 | 91.2 | 94.5 | 100.5 | 104.8 | 115.6 |
| 3 d | 51.5 | 66.0 | 76.1 | 81.9 | 86.0 | 89.2 | 91.9 | 96.1 | 99.4 | 105.5 | 109.9 | 120.7 |
| 4 d | 56.0 | 71.4 | 82.0 | 88.1 | 92.4 | 95.8 | 98.5 | 102.9 | 106.3 | 112.6 | 117.1 | 128.1 |
| 5 d | 63.5 | 80.2 | 91.5 | 98.0 | 102.6 | 106.2 | 109.1 | 113.7 | 117.3 | 123.9 | 128.6 | 140.1 |
| 7 d | 73.1 | 91.2 | 103.3 | 110.2 | 115.1 | 118.9 | 121.9 | 126.8 | 130.6 | 137.4 | 142.3 | 154.2 |
| 10 d | 86.9 | 107.2 | 120.7 | 128.3 | 133.6 | 137.8 | 141.1 | 146.4 | 150.4 | 157.8 | 163.1 | 175.7 |
| 15 d | 105.3 | 129.0 | 144.5 | 153.1 | 159.2 | 163.8 | 167.6 | 173.5 | 178.1 | 186.3 | 192.1 | 205.9 |
| 20 d | 122.7 | 150.2 | 168.1 | 178.1 | 185.0 | 190.3 | 194.5 | 201.2 | 206.4 | 215.6 | 222.1 | 237.6 |
| 25 d | 130.7 | 160.0 | 178.9 | 189.3 | 196.5 | 202.1 | 206.5 | 213.5 | 218.9 | 228.5 | 235.2 | 251.1 |
| 30 d | 152.9 | 184.4 | 204.5 | 215.6 | 223.3 | 229.2 | 233.9 | 241.3 | 246.9 | 257.0 | 264.0 | 280.6 |

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 | 7.6 | 10.9 | 13.4 | 15.0 | 16.1 | 17.0 | 17.7 | 18.9 | 19.9 | 21.7 | 23.1 | 26.6 |
| | 0.2 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.7 | 2.0 | 2.7 |
| 20 min | 11.0 | 15.8 | 19.4 | 21.6 | 23.2 | 24.5 | 25.6 | 27.3 | 28.7 | 31.3 | 33.3 | 38.3 |
| | 0.4 | 0.6 | 0.8 | 1.0 | 1.2 | 1.4 | 1.5 | 1.7 | 1.9 | 2.4 | 2.7 | 3.7 |
| 30 min | 13.0 | 18.9 | 23.3 | 26.0 | 28.0 | 29.5 | 30.8 | 33.0 | 34.7 | 37.9 | 40.2 | 46.3 |
| | 0.4 | 0.6 | 0.9 | 1.1 | 1.2 | 1.3 | 1.5 | 1.7 | 1.8 | 2.2 | 2.5 | 3.3 |
| 1 u | 16.2 | 22.6 | 27.5 | 30.4 | 32.5 | 34.3 | 35.7 | 38.0 | 39.8 | 43.3 | 45.9 | 52.5 |
| | 0.5 | 0.8 | 1.1 | 1.4 | 1.6 | 1.8 | 2.0 | 2.3 | 2.5 | 3.0 | 3.5 | 4.7 |
| 2 u | 19.3 | 26.7 | 32.1 | 35.4 | 37.8 | 39.7 | 41.3 | 43.9 | 46.0 | 49.9 | 52.8 | 60.1 |
| | 0.6 | 1.0 | 1.3 | 1.6 | 1.9 | 2.1 | 2.3 | 2.6 | 2.9 | 3.5 | 3.9 | 5.3 |
| 3 u | 21.5 | 29.5 | 35.5 | 39.1 | 41.8 | 43.9 | 45.6 | 48.5 | 50.7 | 55.0 | 58.1 | 66.2 |
| | 0.7 | 1.0 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.3 | 3.7 | 4.9 |
| 6 u | 25.9 | 34.2 | 40.4 | 44.1 | 46.8 | 48.9 | 50.7 | 53.6 | 55.9 | 60.3 | 63.5 | 71.6 |
| | 0.9 | 1.1 | 1.4 | 1.7 | 2.0 | 2.3 | 2.5 | 2.9 | 3.3 | 4.0 | 4.6 | 6.3 |
| 12 u | 31.6 | 41.5 | 48.9 | 53.3 | 56.5 | 59.1 | 61.2 | 64.6 | 67.4 | 72.5 | 76.3 | 86.0 |
| | 1.2 | 1.5 | 2.0 | 2.4 | 2.7 | 3.1 | 3.4 | 3.9 | 4.3 | 5.3 | 6.1 | 8.3 |
| 1 d | 38.3 | 49.8 | 58.0 | 62.9 | 66.4 | 69.2 | 71.5 | 75.2 | 78.1 | 83.6 | 87.5 | 97.5 |
| | 1.4 | 1.6 | 1.9 | 2.2 | 2.4 | 2.5 | 2.7 | 3.0 | 3.2 | 3.7 | 4.1 | 5.2 |
| 2 d | 48.5 | 62.1 | 71.7 | 77.3 | 81.3 | 84.5 | 87.1 | 91.2 | 94.5 | 100.5 | 104.8 | 115.6 |
| | 2.1 | 2.7 | 3.3 | 3.8 | 4.2 | 4.5 | 4.8 | 5.3 | 5.7 | 6.5 | 7.2 | 9.0 |
| 3 d | 51.5 | 66.0 | 76.1 | 81.9 | 86.0 | 89.2 | 91.9 | 96.1 | 99.4 | 105.5 | 109.9 | 120.7 |
| | 2.6 | 3.3 | 4.0 | 4.5 | 4.9 | 5.2 | 5.5 | 6.0 | 6.4 | 7.2 | 7.9 | 9.6 |
| 4 d | 56.0 | 71.4 | 82.0 | 88.1 | 92.4 | 95.8 | 98.5 | 102.9 | 106.3 | 112.6 | 117.1 | 128.1 |
| | 3.0 | 3.7 | 4.3 | 4.7 | 5.0 | 5.3 | 5.5 | 5.9 | 6.3 | 6.9 | 7.5 | 8.9 |
| 5 d | 63.5 | 80.2 | 91.5 | 98.0 | 102.6 | 106.2 | 109.1 | 113.7 | 117.3 | 123.9 | 128.6 | 140.1 |
| | 3.5 | 4.3 | 4.9 | 5.3 | 5.6 | 5.9 | 6.1 | 6.5 | 6.8 | 7.4 | 7.9 | 9.2 |
| 7 d | 73.1 | 91.2 | 103.3 | 110.2 | 115.1 | 118.9 | 121.9 | 126.8 | 130.6 | 137.4 | 142.3 | 154.2 |
| | 4.2 | 5.0 | 5.6 | 6.0 | 6.3 | 6.5 | 6.7 | 7.1 | 7.4 | 7.9 | 8.3 | 9.5 |
| 10 d | 86.9 | 107.2 | 120.7 | 128.3 | 133.6 | 137.8 | 141.1 | 146.4 | 150.4 | 157.8 | 163.1 | 175.7 |
| | 5.3 | 6.5 | 7.4 | 7.9 | 8.3 | 8.6 | 8.8 | 9.2 | 9.6 | 10.2 | 10.7 | 12.0 |
| 15 d | 105.3 | 129.0 | 144.5 | 153.1 | 159.2 | 163.8 | 167.6 | 173.5 | 178.1 | 186.3 | 192.1 | 205.9 |
| | 6.5 | 7.9 | 8.8 | 9.3 | 9.6 | 9.9 | 10.1 | 10.5 | 10.8 | 11.3 | 11.7 | 12.6 |
| 20 d | 122.7 | 150.2 | 168.1 | 178.1 | 185.0 | 190.3 | 194.5 | 201.2 | 206.4 | 215.6 | 222.1 | 237.6 |
| | 7.6 | 9.3 | 10.4 | 11.1 | 11.5 | 11.8 | 12.1 | 12.6 | 12.9 | 13.6 | 14.1 | 15.3 |
| 25 d | 130.7 | 160.0 | 178.9 | 189.3 | 196.5 | 202.1 | 206.5 | 213.5 | 218.9 | 228.5 | 235.2 | 251.1 |
| | 8.6 | 10.4 | 11.8 | 12.5 | 13.1 | 13.6 | 14.0 | 14.6 | 15.1 | 16.1 | 16.8 | 18.6 |
| 30 d | 152.9 | 184.4 | 204.5 | 215.6 | 223.3 | 229.2 | 233.9 | 241.3 | 246.9 | 257.0 | 264.0 | 280.6 |
| | 9.5 | 11.4 | 12.9 | 13.8 | 14.5 | 15.0 | 15.5 | 16.3 | 16.9 | 18.1 | 19.1 | 21.4 |

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 | 7.2 | 10.3 | 12.4 | 13.6 | 14.5 | 15.1 | 15.7 | 16.5 | 17.2 | 18.4 | 19.3 | 21.3 |
| | 8.1 | 11.6 | 14.5 | 16.3 | 17.7 | 18.8 | 19.7 | 21.3 | 22.6 | 25.0 | 26.9 | 31.9 |
| 20 min | 10.3 | 14.7 | 17.8 | 19.6 | 20.8 | 21.8 | 22.6 | 23.9 | 24.9 | 26.7 | 28.0 | 31.0 |
| | 11.7 | 16.9 | 21.0 | 23.6 | 25.6 | 27.2 | 28.5 | 30.7 | 32.5 | 36.0 | 38.6 | 45.5 |
| 30 min | 12.2 | 17.7 | 21.6 | 23.9 | 25.6 | 26.9 | 28.0 | 29.7 | 31.1 | 33.6 | 35.4 | 39.9 |
| | 13.9 | 20.2 | 25.0 | 28.1 | 30.3 | 32.1 | 33.7 | 36.2 | 38.2 | 42.1 | 45.1 | 52.7 |
| 1 u | 15.2 | 21.1 | 25.2 | 27.7 | 29.4 | 30.7 | 31.8 | 33.5 | 34.9 | 37.4 | 39.1 | 43.4 |
| | 17.1 | 24.2 | 29.7 | 33.1 | 35.7 | 37.8 | 39.6 | 42.4 | 44.8 | 49.3 | 52.7 | 61.6 |
| 2 u | 18.2 | 24.8 | 29.5 | 32.2 | 34.2 | 35.7 | 36.9 | 38.8 | 40.4 | 43.1 | 45.1 | 49.8 |
| | 20.5 | 28.5 | 34.7 | 38.6 | 41.5 | 43.8 | 45.8 | 49.0 | 51.7 | 56.7 | 60.5 | 70.5 |
| 3 u | 20.0 | 27.5 | 32.8 | 35.9 | 38.1 | 39.9 | 41.3 | 43.5 | 45.3 | 48.6 | 50.9 | 56.6 |
| | 22.9 | 31.5 | 38.2 | 42.3 | 45.4 | 47.9 | 50.0 | 53.4 | 56.1 | 61.4 | 65.4 | 75.7 |
| 6 u | 24.2 | 32.1 | 37.5 | 40.6 | 42.8 | 44.5 | 45.8 | 47.9 | 49.5 | 52.4 | 54.5 | 59.3 |
| | 27.6 | 36.3 | 43.2 | 47.5 | 50.7 | 53.4 | 55.6 | 59.3 | 62.3 | 68.1 | 72.5 | 84.0 |
| 12 u | 29.3 | 38.6 | 45.0 | 48.6 | 51.2 | 53.1 | 54.6 | 57.0 | 58.9 | 62.1 | 64.4 | 69.7 |
| | 33.9 | 44.5 | 52.7 | 57.9 | 61.9 | 65.1 | 67.8 | 72.3 | 75.9 | 82.9 | 88.2 | 102.2 |
| 1 d | 35.6 | 46.5 | 54.2 | 58.6 | 61.8 | 64.2 | 66.2 | 69.4 | 71.8 | 76.3 | 79.6 | 87.4 |
| | 41.1 | 53.0 | 61.7 | 67.1 | 71.0 | 74.1 | 76.7 | 81.0 | 84.4 | 90.8 | 95.5 | 107.6 |
| 2 d | 44.3 | 56.9 | 65.2 | 69.9 | 73.2 | 75.7 | 77.7 | 80.9 | 83.3 | 87.6 | 90.7 | 97.9 |
| | 52.7 | 67.4 | 78.2 | 84.7 | 89.5 | 93.3 | 96.4 | 101.6 | 105.6 | 113.3 | 118.9 | 133.3 |
| 3 d | 46.4 | 59.5 | 68.2 | 73.0 | 76.4 | 79.0 | 81.1 | 84.3 | 86.8 | 91.3 | 94.4 | 101.8 |
| | 56.7 | 72.6 | 83.9 | 90.7 | 95.6 | 99.5 | 102.7 | 107.9 | 112.0 | 119.7 | 125.3 | 139.5 |
| 4 d | 50.0 | 64.1 | 73.5 | 78.8 | 82.5 | 85.4 | 87.7 | 91.3 | 94.0 | 99.0 | 102.4 | 110.7 |
| | 62.0 | 78.7 | 90.4 | 97.3 | 102.3 | 106.2 | 109.4 | 114.6 | 118.6 | 126.2 | 131.7 | 145.5 |
| 5 d | 56.7 | 71.8 | 81.9 | 87.6 | 91.6 | 94.7 | 97.1 | 101.0 | 104.0 | 109.4 | 113.1 | 122.0 |
| | 70.4 | 88.6 | 101.1 | 108.4 | 113.6 | 117.7 | 121.1 | 126.5 | 130.7 | 138.5 | 144.2 | 158.2 |
| 7 d | 64.8 | 81.3 | 92.3 | 98.5 | 102.8 | 106.1 | 108.7 | 112.9 | 116.1 | 121.9 | 126.0 | 135.6 |
| | 81.4 | 101.0 | 114.3 | 122.0 | 127.4 | 131.7 | 135.2 | 140.7 | 145.0 | 152.9 | 158.6 | 172.7 |
| 10 d | 76.6 | 94.5 | 106.3 | 112.9 | 117.5 | 121.0 | 123.8 | 128.3 | 131.7 | 137.8 | 142.0 | 152.1 |
| | 97.3 | 120.0 | 135.1 | 143.7 | 149.8 | 154.5 | 158.4 | 164.5 | 169.2 | 177.9 | 184.1 | 199.3 |
| 15 d | 92.6 | 113.6 | 127.3 | 135.0 | 140.4 | 144.5 | 147.8 | 153.0 | 157.0 | 164.2 | 169.3 | 181.2 |
| | 118.0 | 144.4 | 161.6 | 171.3 | 178.0 | 183.2 | 187.4 | 194.0 | 199.1 | 208.4 | 214.9 | 230.7 |
| 20 d | 107.7 | 131.9 | 147.7 | 156.4 | 162.4 | 167.0 | 170.8 | 176.6 | 181.0 | 189.0 | 194.5 | 207.6 |
| | 137.6 | 168.5 | 188.6 | 199.7 | 207.5 | 213.5 | 218.3 | 225.9 | 231.7 | 242.3 | 249.7 | 267.6 |
| 25 d | 113.9 | 139.5 | 155.8 | 164.7 | 170.8 | 175.5 | 179.2 | 184.9 | 189.3 | 197.0 | 202.3 | 214.5 |
| | 147.4 | 180.4 | 201.9 | 213.9 | 222.3 | 228.7 | 233.9 | 242.1 | 248.5 | 259.9 | 268.1 | 287.6 |
| 30 d | 134.3 | 162.1 | 179.3 | 188.6 | 195.0 | 199.7 | 203.5 | 209.3 | 213.7 | 221.4 | 226.7 | 238.6 |
| | 171.4 | 206.7 | 229.7 | 242.6 | 251.7 | 258.6 | 264.3 | 273.2 | 280.0 | 292.5 | 301.4 | 322.7 |

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 | 133.7 | 0.4657 | 304.5 | 0.7213 | 52.8 | 0.5199 |
| 5 | 191.5 | 0.4651 | 471.5 | 0.7449 | 79.4 | 0.5401 |
| 10 | 233.5 | 0.4622 | 605.4 | 0.7582 | 103.3 | 0.5549 |
| 15 | 258.5 | 0.4601 | 690.4 | 0.7652 | 119.5 | 0.5636 |
| 20 | 276.7 | 0.4583 | 754.4 | 0.7700 | 132.2 | 0.5698 |
| 25 | 291.0 | 0.4569 | 806.3 | 0.7735 | 142.9 | 0.5746 |
| 30 | 302.9 | 0.4557 | 850.3 | 0.7764 | 152.1 | 0.5786 |
| 40 | 322.0 | 0.4537 | 922.9 | 0.7808 | 167.7 | 0.5848 |
| 50 | 337.2 | 0.4521 | 981.9 | 0.7842 | 180.8 | 0.5897 |
| 75 | 365.5 | 0.4491 | 1095.9 | 0.7902 | 207.0 | 0.5986 |
| 100 | 386.2 | 0.4468 | 1182.3 | 0.7944 | 227.5 | 0.6050 |
| 200 | 438.3 | 0.4411 | 1411.3 | 0.8043 | 285.1 | 0.6205 |

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.