



Statistiek van de extreme neerslag voor de Belgische gemeenten

Estaimpuis (NIS 57027)

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 | 7.5 | 10.8 | 13.3 | 14.8 | 15.9 | 16.7 | 17.5 | 18.7 | 19.6 | 21.4 | 22.8 | 26.2 |
| 20 min | 10.8 | 15.4 | 18.9 | 21.1 | 22.6 | 23.9 | 24.9 | 26.6 | 27.9 | 30.5 | 32.4 | 37.2 |
| 30 min | 12.7 | 18.5 | 22.8 | 25.5 | 27.4 | 28.9 | 30.2 | 32.3 | 34.0 | 37.1 | 39.4 | 45.4 |
| 1 u | 15.8 | 22.1 | 26.7 | 29.5 | 31.6 | 33.3 | 34.6 | 36.9 | 38.7 | 42.0 | 44.5 | 50.9 |
| 2 u | 18.9 | 25.9 | 31.2 | 34.4 | 36.7 | 38.5 | 40.1 | 42.6 | 44.6 | 48.3 | 51.1 | 58.2 |
| 3 u | 20.9 | 28.8 | 34.6 | 38.2 | 40.7 | 42.8 | 44.5 | 47.3 | 49.5 | 53.6 | 56.7 | 64.5 |
| 6 u | 25.3 | 33.5 | 39.6 | 43.3 | 45.9 | 48.1 | 49.9 | 52.7 | 55.0 | 59.3 | 62.5 | 70.6 |
| 12 u | 30.7 | 40.6 | 47.9 | 52.3 | 55.5 | 58.0 | 60.1 | 63.6 | 66.3 | 71.4 | 75.2 | 84.8 |
| 1 d | 37.4 | 48.8 | 57.0 | 61.9 | 65.4 | 68.1 | 70.4 | 74.1 | 77.0 | 82.5 | 86.4 | 96.4 |
| 2 d | 47.1 | 60.5 | 70.0 | 75.5 | 79.5 | 82.6 | 85.1 | 89.2 | 92.4 | 98.3 | 102.6 | 113.2 |
| 3 d | 49.8 | 64.0 | 73.9 | 79.6 | 83.6 | 86.8 | 89.4 | 93.5 | 96.8 | 102.7 | 107.0 | 117.6 |
| 4 d | 54.0 | 69.1 | 79.4 | 85.4 | 89.6 | 92.9 | 95.6 | 99.9 | 103.3 | 109.4 | 113.8 | 124.5 |
| 5 d | 61.2 | 77.5 | 88.5 | 94.8 | 99.3 | 102.8 | 105.6 | 110.1 | 113.6 | 120.1 | 124.6 | 135.8 |
| 7 d | 70.3 | 87.9 | 99.7 | 106.4 | 111.2 | 114.9 | 117.8 | 122.6 | 126.2 | 132.9 | 137.7 | 149.2 |
| 10 d | 83.4 | 102.9 | 115.9 | 123.2 | 128.3 | 132.3 | 135.5 | 140.6 | 144.5 | 151.6 | 156.6 | 168.7 |
| 15 d | 101.0 | 123.8 | 138.7 | 147.0 | 152.9 | 157.3 | 161.0 | 166.7 | 171.1 | 179.0 | 184.6 | 197.9 |
| 20 d | 117.6 | 144.1 | 161.3 | 170.8 | 177.5 | 182.5 | 186.7 | 193.1 | 198.0 | 206.9 | 213.2 | 228.0 |
| 25 d | 124.9 | 153.2 | 171.3 | 181.4 | 188.3 | 193.6 | 197.9 | 204.6 | 209.8 | 219.0 | 225.5 | 240.8 |
| 30 d | 146.5 | 177.0 | 196.5 | 207.2 | 214.6 | 220.3 | 224.8 | 231.9 | 237.4 | 247.1 | 253.9 | 270.0 |

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 | 7.5 | 10.8 | 13.3 | 14.8 | 15.9 | 16.7 | 17.5 | 18.7 | 19.6 | 21.4 | 22.8 | 26.2 |
| | 0.2 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.7 | 1.9 | 2.7 |
| 20 min | 10.8 | 15.4 | 18.9 | 21.1 | 22.6 | 23.9 | 24.9 | 26.6 | 27.9 | 30.5 | 32.4 | 37.2 |
| | 0.4 | 0.6 | 0.8 | 1.0 | 1.2 | 1.3 | 1.5 | 1.7 | 1.9 | 2.3 | 2.6 | 3.5 |
| 30 min | 12.7 | 18.5 | 22.8 | 25.5 | 27.4 | 28.9 | 30.2 | 32.3 | 34.0 | 37.1 | 39.4 | 45.4 |
| | 0.4 | 0.7 | 0.9 | 1.1 | 1.3 | 1.4 | 1.6 | 1.8 | 1.9 | 2.3 | 2.6 | 3.4 |
| 1 u | 15.8 | 22.1 | 26.7 | 29.5 | 31.6 | 33.3 | 34.6 | 36.9 | 38.7 | 42.0 | 44.5 | 50.9 |
| | 0.5 | 0.9 | 1.2 | 1.5 | 1.7 | 1.9 | 2.1 | 2.4 | 2.6 | 3.1 | 3.6 | 4.7 |
| 2 u | 18.9 | 25.9 | 31.2 | 34.4 | 36.7 | 38.5 | 40.1 | 42.6 | 44.6 | 48.3 | 51.1 | 58.2 |
| | 0.6 | 1.0 | 1.4 | 1.7 | 2.0 | 2.2 | 2.4 | 2.7 | 3.0 | 3.6 | 4.0 | 5.3 |
| 3 u | 20.9 | 28.8 | 34.6 | 38.2 | 40.7 | 42.8 | 44.5 | 47.3 | 49.5 | 53.6 | 56.7 | 64.5 |
| | 0.8 | 1.1 | 1.5 | 1.7 | 2.0 | 2.2 | 2.3 | 2.7 | 2.9 | 3.4 | 3.9 | 5.0 |
| 6 u | 25.3 | 33.5 | 39.6 | 43.3 | 45.9 | 48.1 | 49.9 | 52.7 | 55.0 | 59.3 | 62.5 | 70.6 |
| | 0.9 | 1.2 | 1.6 | 1.9 | 2.2 | 2.4 | 2.6 | 3.0 | 3.4 | 4.1 | 4.7 | 6.4 |
| 12 u | 30.7 | 40.6 | 47.9 | 52.3 | 55.5 | 58.0 | 60.1 | 63.6 | 66.3 | 71.4 | 75.2 | 84.8 |
| | 1.3 | 1.6 | 2.1 | 2.5 | 2.8 | 3.2 | 3.5 | 4.0 | 4.4 | 5.4 | 6.1 | 8.3 |
| 1 d | 37.4 | 48.8 | 57.0 | 61.9 | 65.4 | 68.1 | 70.4 | 74.1 | 77.0 | 82.5 | 86.4 | 96.4 |
| | 1.5 | 1.8 | 2.1 | 2.3 | 2.5 | 2.7 | 2.9 | 3.1 | 3.4 | 3.9 | 4.2 | 5.3 |
| 2 d | 47.1 | 60.5 | 70.0 | 75.5 | 79.5 | 82.6 | 85.1 | 89.2 | 92.4 | 98.3 | 102.6 | 113.2 |
| | 2.3 | 2.9 | 3.6 | 4.1 | 4.4 | 4.8 | 5.1 | 5.6 | 6.0 | 6.9 | 7.5 | 9.4 |
| 3 d | 49.8 | 64.0 | 73.9 | 79.6 | 83.6 | 86.8 | 89.4 | 93.5 | 96.8 | 102.7 | 107.0 | 117.6 |
| | 2.9 | 3.6 | 4.3 | 4.8 | 5.2 | 5.6 | 5.9 | 6.4 | 6.8 | 7.6 | 8.2 | 10.0 |
| 4 d | 54.0 | 69.1 | 79.4 | 85.4 | 89.6 | 92.9 | 95.6 | 99.9 | 103.3 | 109.4 | 113.8 | 124.5 |
| | 3.3 | 4.0 | 4.7 | 5.1 | 5.4 | 5.7 | 5.9 | 6.3 | 6.7 | 7.4 | 7.9 | 9.3 |
| 5 d | 61.2 | 77.5 | 88.5 | 94.8 | 99.3 | 102.8 | 105.6 | 110.1 | 113.6 | 120.1 | 124.6 | 135.8 |
| | 3.8 | 4.6 | 5.3 | 5.7 | 6.1 | 6.3 | 6.6 | 6.9 | 7.3 | 7.9 | 8.4 | 9.7 |
| 7 d | 70.3 | 87.9 | 99.7 | 106.4 | 111.2 | 114.9 | 117.8 | 122.6 | 126.2 | 132.9 | 137.7 | 149.2 |
| | 4.6 | 5.5 | 6.1 | 6.5 | 6.9 | 7.1 | 7.3 | 7.7 | 8.0 | 8.5 | 9.0 | 10.1 |
| 10 d | 83.4 | 102.9 | 115.9 | 123.2 | 128.3 | 132.3 | 135.5 | 140.6 | 144.5 | 151.6 | 156.6 | 168.7 |
| | 5.8 | 7.1 | 8.0 | 8.6 | 9.0 | 9.3 | 9.6 | 10.0 | 10.4 | 11.1 | 11.6 | 12.9 |
| 15 d | 101.0 | 123.8 | 138.7 | 147.0 | 152.9 | 157.3 | 161.0 | 166.7 | 171.1 | 179.0 | 184.6 | 197.9 |
| | 7.1 | 8.6 | 9.5 | 10.1 | 10.5 | 10.8 | 11.0 | 11.4 | 11.7 | 12.3 | 12.7 | 13.7 |
| 20 d | 117.6 | 144.1 | 161.3 | 170.8 | 177.5 | 182.5 | 186.7 | 193.1 | 198.0 | 206.9 | 213.2 | 228.0 |
| | 8.3 | 10.2 | 11.4 | 12.0 | 12.5 | 12.9 | 13.2 | 13.7 | 14.1 | 14.8 | 15.3 | 16.6 |
| 25 d | 124.9 | 153.2 | 171.3 | 181.4 | 188.3 | 193.6 | 197.9 | 204.6 | 209.8 | 219.0 | 225.5 | 240.8 |
| | 9.3 | 11.3 | 12.7 | 13.6 | 14.2 | 14.6 | 15.0 | 15.7 | 16.2 | 17.2 | 17.9 | 19.8 |
| 30 d | 146.5 | 177.0 | 196.5 | 207.2 | 214.6 | 220.3 | 224.8 | 231.9 | 237.4 | 247.1 | 253.9 | 270.0 |
| | 10.3 | 12.4 | 13.9 | 14.9 | 15.6 | 16.1 | 16.6 | 17.4 | 18.0 | 19.3 | 20.2 | 22.6 |

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 | 7.1 | 10.1 | 12.2 | 13.4 | 14.3 | 14.9 | 15.5 | 16.3 | 17.0 | 18.2 | 19.0 | 21.0 |
| | 8.0 | 11.5 | 14.3 | 16.1 | 17.5 | 18.6 | 19.5 | 21.0 | 22.3 | 24.7 | 26.6 | 31.4 |
| 20 min | 10.0 | 14.3 | 17.3 | 19.0 | 20.3 | 21.2 | 22.0 | 23.3 | 24.3 | 26.0 | 27.3 | 30.3 |
| | 11.5 | 16.6 | 20.6 | 23.1 | 24.9 | 26.5 | 27.8 | 29.9 | 31.6 | 35.0 | 37.5 | 44.2 |
| 30 min | 11.9 | 17.2 | 21.0 | 23.2 | 24.9 | 26.1 | 27.2 | 28.8 | 30.1 | 32.6 | 34.3 | 38.7 |
| | 13.6 | 19.9 | 24.7 | 27.7 | 29.9 | 31.7 | 33.3 | 35.8 | 37.8 | 41.6 | 44.5 | 52.1 |
| 1 u | 14.8 | 20.4 | 24.3 | 26.6 | 28.3 | 29.5 | 30.6 | 32.2 | 33.5 | 35.9 | 37.5 | 41.6 |
| | 16.8 | 23.7 | 29.1 | 32.5 | 35.0 | 37.0 | 38.7 | 41.5 | 43.8 | 48.2 | 51.5 | 60.1 |
| 2 u | 17.6 | 23.9 | 28.4 | 31.0 | 32.8 | 34.2 | 35.4 | 37.3 | 38.7 | 41.3 | 43.2 | 47.7 |
| | 20.2 | 28.0 | 34.0 | 37.7 | 40.6 | 42.8 | 44.7 | 47.9 | 50.4 | 55.3 | 59.0 | 68.7 |
| 3 u | 19.4 | 26.6 | 31.7 | 34.7 | 36.9 | 38.5 | 39.9 | 42.1 | 43.8 | 46.9 | 49.1 | 54.6 |
| | 22.4 | 31.0 | 37.5 | 41.6 | 44.6 | 47.0 | 49.1 | 52.5 | 55.2 | 60.4 | 64.3 | 74.4 |
| 6 u | 23.5 | 31.2 | 36.5 | 39.6 | 41.7 | 43.3 | 44.7 | 46.8 | 48.4 | 51.2 | 53.2 | 58.0 |
| | 27.1 | 35.8 | 42.6 | 46.9 | 50.2 | 52.8 | 55.0 | 58.7 | 61.7 | 67.4 | 71.8 | 83.2 |
| 12 u | 28.1 | 37.4 | 43.8 | 47.4 | 49.9 | 51.8 | 53.4 | 55.8 | 57.6 | 60.9 | 63.2 | 68.5 |
| | 33.2 | 43.7 | 51.9 | 57.1 | 61.0 | 64.2 | 66.9 | 71.4 | 75.0 | 81.9 | 87.2 | 101.1 |
| 1 d | 34.5 | 45.3 | 52.9 | 57.3 | 60.4 | 62.9 | 64.8 | 68.0 | 70.4 | 74.9 | 78.1 | 85.9 |
| | 40.4 | 52.3 | 61.1 | 66.4 | 70.3 | 73.4 | 76.0 | 80.3 | 83.6 | 90.0 | 94.8 | 106.9 |
| 2 d | 42.5 | 54.8 | 63.0 | 67.6 | 70.7 | 73.2 | 75.2 | 78.2 | 80.6 | 84.9 | 87.8 | 94.9 |
| | 51.6 | 66.3 | 77.0 | 83.4 | 88.2 | 91.9 | 95.1 | 100.1 | 104.2 | 111.8 | 117.3 | 131.6 |
| 3 d | 44.2 | 56.9 | 65.4 | 70.1 | 73.4 | 75.9 | 77.9 | 81.1 | 83.5 | 87.8 | 90.9 | 98.1 |
| | 55.5 | 71.1 | 82.3 | 89.0 | 93.9 | 97.7 | 100.9 | 106.0 | 110.1 | 117.6 | 123.2 | 137.1 |
| 4 d | 47.5 | 61.2 | 70.3 | 75.4 | 79.0 | 81.8 | 84.0 | 87.5 | 90.2 | 95.0 | 98.3 | 106.3 |
| | 60.5 | 77.0 | 88.6 | 95.4 | 100.3 | 104.1 | 107.3 | 112.3 | 116.4 | 123.8 | 129.2 | 142.7 |
| 5 d | 53.8 | 68.4 | 78.1 | 83.6 | 87.4 | 90.4 | 92.8 | 96.5 | 99.4 | 104.6 | 108.2 | 116.8 |
| | 68.7 | 86.6 | 98.9 | 106.1 | 111.2 | 115.2 | 118.5 | 123.7 | 127.9 | 135.5 | 141.1 | 154.8 |
| 7 d | 61.3 | 77.1 | 87.7 | 93.6 | 97.8 | 100.9 | 103.5 | 107.5 | 110.6 | 116.2 | 120.1 | 129.4 |
| | 79.3 | 98.6 | 111.7 | 119.3 | 124.6 | 128.8 | 132.2 | 137.6 | 141.9 | 149.7 | 155.3 | 169.1 |
| 10 d | 72.1 | 89.0 | 100.2 | 106.4 | 110.7 | 114.0 | 116.7 | 120.9 | 124.1 | 129.9 | 134.0 | 143.5 |
| | 94.7 | 116.8 | 131.6 | 140.0 | 145.9 | 150.5 | 154.3 | 160.2 | 164.8 | 173.3 | 179.3 | 194.0 |
| 15 d | 87.1 | 107.0 | 120.0 | 127.3 | 132.4 | 136.2 | 139.4 | 144.3 | 148.1 | 154.9 | 159.7 | 171.1 |
| | 114.8 | 140.5 | 157.4 | 166.8 | 173.4 | 178.4 | 182.6 | 189.0 | 194.0 | 203.0 | 209.4 | 224.7 |
| 20 d | 101.2 | 124.2 | 139.0 | 147.2 | 152.9 | 157.3 | 160.8 | 166.3 | 170.5 | 178.0 | 183.2 | 195.5 |
| | 133.9 | 164.0 | 183.5 | 194.4 | 202.0 | 207.8 | 212.5 | 219.9 | 225.6 | 235.9 | 243.2 | 260.6 |
| 25 d | 106.7 | 130.9 | 146.3 | 154.8 | 160.6 | 164.9 | 168.5 | 173.9 | 178.0 | 185.3 | 190.4 | 202.0 |
| | 143.2 | 175.4 | 196.3 | 207.9 | 216.1 | 222.3 | 227.4 | 235.4 | 241.6 | 252.7 | 260.6 | 279.5 |
| 30 d | 126.3 | 152.7 | 169.2 | 178.1 | 184.1 | 188.6 | 192.3 | 197.8 | 202.0 | 209.4 | 214.4 | 225.8 |
| | 166.8 | 201.3 | 223.7 | 236.3 | 245.1 | 251.9 | 257.4 | 266.1 | 272.8 | 284.9 | 293.5 | 314.2 |

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 | 133.2 | 0.4707 | 301.1 | 0.7240 | 53.5 | 0.5253 |
| 5 | 192.0 | 0.4726 | 463.7 | 0.7465 | 82.2 | 0.5476 |
| 10 | 234.6 | 0.4708 | 593.8 | 0.7592 | 108.0 | 0.5633 |
| 15 | 260.1 | 0.4691 | 676.4 | 0.7660 | 125.6 | 0.5725 |
| 20 | 278.6 | 0.4677 | 738.5 | 0.7706 | 139.4 | 0.5789 |
| 25 | 293.1 | 0.4665 | 788.9 | 0.7741 | 150.9 | 0.5839 |
| 30 | 305.2 | 0.4655 | 831.6 | 0.7768 | 160.9 | 0.5880 |
| 40 | 324.7 | 0.4637 | 902.1 | 0.7812 | 177.9 | 0.5945 |
| 50 | 340.1 | 0.4623 | 959.4 | 0.7844 | 192.1 | 0.5996 |
| 75 | 368.9 | 0.4595 | 1070.0 | 0.7903 | 220.5 | 0.6088 |
| 100 | 389.9 | 0.4574 | 1153.8 | 0.7944 | 242.9 | 0.6153 |
| 200 | 443.0 | 0.4520 | 1376.1 | 0.8041 | 305.6 | 0.6312 |

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.