



Statistiques des précipitations extrêmes des communes belges

Hensies (INS 53039)

1. Niveau de retour estimé pour une durée de précipitations de 10 minutes à 30 jours (lignes) et une période de retour de 2 à 200 années (colonnes). Unités : mm.

| Durée | Période de retour (années) | | | | | | | | | | | |
|--------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.6 | 10.9 | 13.4 | 14.9 | 16.0 | 16.9 | 17.7 | 18.9 | 19.8 | 21.7 | 23.0 | 26.5 |
| 20 min | 10.9 | 15.7 | 19.3 | 21.5 | 23.1 | 24.3 | 25.4 | 27.1 | 28.5 | 31.1 | 33.1 | 38.0 |
| 30 min | 12.9 | 18.8 | 23.2 | 25.9 | 27.8 | 29.4 | 30.7 | 32.8 | 34.5 | 37.7 | 40.0 | 46.1 |
| 1 h | 16.1 | 22.5 | 27.3 | 30.2 | 32.3 | 34.0 | 35.4 | 37.7 | 39.6 | 43.0 | 45.6 | 52.1 |
| 2 h | 19.2 | 26.5 | 31.9 | 35.2 | 37.5 | 39.4 | 41.0 | 43.6 | 45.7 | 49.5 | 52.4 | 59.7 |
| 3 h | 21.3 | 29.3 | 35.3 | 38.9 | 41.5 | 43.6 | 45.3 | 48.2 | 50.4 | 54.7 | 57.8 | 65.8 |
| 6 h | 25.8 | 34.0 | 40.2 | 43.9 | 46.6 | 48.7 | 50.5 | 53.4 | 55.7 | 60.0 | 63.2 | 71.4 |
| 12 h | 31.4 | 41.3 | 48.6 | 53.0 | 56.3 | 58.8 | 60.9 | 64.4 | 67.1 | 72.3 | 76.0 | 85.7 |
| 1 j | 38.3 | 49.7 | 57.9 | 62.8 | 66.3 | 69.1 | 71.4 | 75.1 | 78.0 | 83.5 | 87.5 | 97.5 |
| 2 j | 48.4 | 62.1 | 71.6 | 77.2 | 81.2 | 84.4 | 87.0 | 91.1 | 94.3 | 100.3 | 104.7 | 115.5 |
| 3 j | 51.5 | 65.9 | 75.9 | 81.8 | 85.9 | 89.1 | 91.8 | 96.0 | 99.3 | 105.4 | 109.7 | 120.5 |
| 4 j | 55.9 | 71.3 | 81.9 | 87.9 | 92.3 | 95.6 | 98.4 | 102.8 | 106.2 | 112.4 | 116.9 | 127.9 |
| 5 j | 63.4 | 80.0 | 91.4 | 97.9 | 102.5 | 106.0 | 108.9 | 113.6 | 117.2 | 123.7 | 128.4 | 139.9 |
| 7 j | 73.0 | 91.0 | 103.1 | 110.0 | 114.9 | 118.7 | 121.7 | 126.6 | 130.3 | 137.2 | 142.1 | 153.9 |
| 10 j | 86.8 | 107.0 | 120.4 | 128.0 | 133.4 | 137.5 | 140.8 | 146.1 | 150.1 | 157.5 | 162.7 | 175.3 |
| 15 j | 105.1 | 128.7 | 144.2 | 152.8 | 158.9 | 163.5 | 167.3 | 173.2 | 177.7 | 185.9 | 191.7 | 205.5 |
| 20 j | 122.4 | 149.9 | 167.8 | 177.7 | 184.6 | 189.9 | 194.1 | 200.8 | 206.0 | 215.2 | 221.7 | 237.1 |
| 25 j | 130.4 | 159.6 | 178.5 | 188.9 | 196.1 | 201.6 | 206.1 | 213.1 | 218.4 | 228.0 | 234.7 | 250.6 |
| 30 j | 152.5 | 184.0 | 204.1 | 215.2 | 222.9 | 228.7 | 233.4 | 240.8 | 246.4 | 256.5 | 263.5 | 280.1 |

2. Niveau de retour estimé et écart-type de l'estimation pour une durée de précipitations de 10 minutes à 30 jours (lignes) et une période de retour de 2 à 200 années (colonnes). Unités : mm.

| Durée | Période de retour (années) | | | | | | | | | | | |
|--------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.6 | 10.9 | 13.4 | 14.9 | 16.0 | 16.9 | 17.7 | 18.9 | 19.8 | 21.7 | 23.0 | 26.5 |
| | 0.2 | 0.4 | 0.6 | 0.7 | 0.9 | 1.0 | 1.1 | 1.2 | 1.4 | 1.7 | 2.0 | 2.7 |
| 20 min | 10.9 | 15.7 | 19.3 | 21.5 | 23.1 | 24.3 | 25.4 | 27.1 | 28.5 | 31.1 | 33.1 | 38.0 |
| | 0.4 | 0.7 | 1.0 | 1.2 | 1.4 | 1.5 | 1.7 | 1.9 | 2.1 | 2.5 | 2.8 | 3.8 |
| 30 min | 12.9 | 18.8 | 23.2 | 25.9 | 27.8 | 29.4 | 30.7 | 32.8 | 34.5 | 37.7 | 40.0 | 46.1 |
| | 0.5 | 0.8 | 1.0 | 1.2 | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.4 | 2.6 | 3.4 |
| 1 h | 16.1 | 22.5 | 27.3 | 30.2 | 32.3 | 34.0 | 35.4 | 37.7 | 39.6 | 43.0 | 45.6 | 52.1 |
| | 0.6 | 1.0 | 1.4 | 1.7 | 1.9 | 2.1 | 2.3 | 2.6 | 2.8 | 3.4 | 3.8 | 5.0 |
| 2 h | 19.2 | 26.5 | 31.9 | 35.2 | 37.5 | 39.4 | 41.0 | 43.6 | 45.7 | 49.5 | 52.4 | 59.7 |
| | 0.8 | 1.3 | 1.7 | 2.0 | 2.3 | 2.5 | 2.7 | 3.0 | 3.3 | 3.9 | 4.3 | 5.7 |
| 3 h | 21.3 | 29.3 | 35.3 | 38.9 | 41.5 | 43.6 | 45.3 | 48.2 | 50.4 | 54.7 | 57.8 | 65.8 |
| | 0.9 | 1.3 | 1.7 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.1 | 3.6 | 4.0 | 5.2 |
| 6 h | 25.8 | 34.0 | 40.2 | 43.9 | 46.6 | 48.7 | 50.5 | 53.4 | 55.7 | 60.0 | 63.2 | 71.4 |
| | 1.1 | 1.4 | 1.7 | 2.0 | 2.2 | 2.5 | 2.7 | 3.1 | 3.4 | 4.1 | 4.7 | 6.4 |
| 12 h | 31.4 | 41.3 | 48.6 | 53.0 | 56.3 | 58.8 | 60.9 | 64.4 | 67.1 | 72.3 | 76.0 | 85.7 |
| | 1.6 | 1.8 | 2.3 | 2.6 | 3.0 | 3.3 | 3.6 | 4.1 | 4.5 | 5.4 | 6.2 | 8.4 |
| 1 j | 38.3 | 49.7 | 57.9 | 62.8 | 66.3 | 69.1 | 71.4 | 75.1 | 78.0 | 83.5 | 87.5 | 97.5 |
| | 2.0 | 2.2 | 2.5 | 2.7 | 2.9 | 3.0 | 3.2 | 3.4 | 3.6 | 4.1 | 4.4 | 5.5 |
| 2 j | 48.4 | 62.1 | 71.6 | 77.2 | 81.2 | 84.4 | 87.0 | 91.1 | 94.3 | 100.3 | 104.7 | 115.5 |
| | 3.1 | 3.7 | 4.3 | 4.7 | 5.1 | 5.4 | 5.7 | 6.2 | 6.6 | 7.4 | 8.0 | 9.8 |
| 3 j | 51.5 | 65.9 | 75.9 | 81.8 | 85.9 | 89.1 | 91.8 | 96.0 | 99.3 | 105.4 | 109.7 | 120.5 |
| | 3.9 | 4.7 | 5.4 | 5.9 | 6.3 | 6.6 | 6.9 | 7.4 | 7.8 | 8.5 | 9.2 | 10.8 |
| 4 j | 55.9 | 71.3 | 81.9 | 87.9 | 92.3 | 95.6 | 98.4 | 102.8 | 106.2 | 112.4 | 116.9 | 127.9 |
| | 4.5 | 5.3 | 6.0 | 6.4 | 6.8 | 7.1 | 7.3 | 7.7 | 8.0 | 8.7 | 9.2 | 10.6 |
| 5 j | 63.4 | 80.0 | 91.4 | 97.9 | 102.5 | 106.0 | 108.9 | 113.6 | 117.2 | 123.7 | 128.4 | 139.9 |
| | 5.1 | 6.2 | 7.0 | 7.4 | 7.8 | 8.1 | 8.3 | 8.8 | 9.1 | 9.8 | 10.3 | 11.6 |
| 7 j | 73.0 | 91.0 | 103.1 | 110.0 | 114.9 | 118.7 | 121.7 | 126.6 | 130.3 | 137.2 | 142.1 | 153.9 |
| | 6.2 | 7.4 | 8.2 | 8.6 | 9.0 | 9.3 | 9.5 | 9.9 | 10.2 | 10.8 | 11.3 | 12.4 |
| 10 j | 86.8 | 107.0 | 120.4 | 128.0 | 133.4 | 137.5 | 140.8 | 146.1 | 150.1 | 157.5 | 162.7 | 175.3 |
| | 7.8 | 9.6 | 10.8 | 11.5 | 12.0 | 12.4 | 12.7 | 13.3 | 13.7 | 14.5 | 15.0 | 16.5 |
| 15 j | 105.1 | 128.7 | 144.2 | 152.8 | 158.9 | 163.5 | 167.3 | 173.2 | 177.7 | 185.9 | 191.7 | 205.5 |
| | 9.6 | 11.6 | 12.9 | 13.6 | 14.1 | 14.5 | 14.8 | 15.3 | 15.7 | 16.4 | 17.0 | 18.2 |
| 20 j | 122.4 | 149.9 | 167.8 | 177.7 | 184.6 | 189.9 | 194.1 | 200.8 | 206.0 | 215.2 | 221.7 | 237.1 |
| | 11.3 | 13.7 | 15.3 | 16.2 | 16.8 | 17.3 | 17.7 | 18.3 | 18.8 | 19.7 | 20.3 | 21.9 |
| 25 j | 130.4 | 159.6 | 178.5 | 188.9 | 196.1 | 201.6 | 206.1 | 213.1 | 218.4 | 228.0 | 234.7 | 250.6 |
| | 12.7 | 15.3 | 17.0 | 18.1 | 18.8 | 19.4 | 19.8 | 20.6 | 21.2 | 22.3 | 23.1 | 25.1 |
| 30 j | 152.5 | 184.0 | 204.1 | 215.2 | 222.9 | 228.7 | 233.4 | 240.8 | 246.4 | 256.5 | 263.5 | 280.1 |
| | 14.0 | 16.6 | 18.4 | 19.5 | 20.3 | 20.9 | 21.4 | 22.3 | 23.0 | 24.2 | 25.2 | 27.6 |

3. Intervalle de confiance à 95% de la période de retour estimée pour une durée de précipitations de 10 minutes à 30 jours (lignes) et une période de retour de 2 à 200 années (colonnes). Unités : mm.

| Durée | Période de retour (années) | | | | | | | | | | | |
|--------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 200 |
| 10 min | 7.1 | 10.1 | 12.3 | 13.5 | 14.4 | 15.0 | 15.6 | 16.4 | 17.1 | 18.3 | 19.1 | 21.2 |
| | 8.1 | 11.7 | 14.5 | 16.3 | 17.7 | 18.8 | 19.7 | 21.3 | 22.6 | 25.0 | 26.9 | 31.8 |
| 20 min | 10.1 | 14.3 | 17.4 | 19.1 | 20.4 | 21.4 | 22.2 | 23.4 | 24.4 | 26.2 | 27.5 | 30.5 |
| | 11.8 | 17.1 | 21.2 | 23.8 | 25.7 | 27.3 | 28.6 | 30.8 | 32.6 | 36.1 | 38.6 | 45.5 |
| 30 min | 11.9 | 17.3 | 21.2 | 23.5 | 25.1 | 26.4 | 27.5 | 29.2 | 30.6 | 33.1 | 34.9 | 39.3 |
| | 14.0 | 20.3 | 25.2 | 28.2 | 30.5 | 32.3 | 33.9 | 36.4 | 38.4 | 42.3 | 45.2 | 52.8 |
| 1 h | 14.9 | 20.5 | 24.5 | 26.9 | 28.6 | 29.9 | 30.9 | 32.6 | 34.0 | 36.4 | 38.1 | 42.3 |
| | 17.3 | 24.5 | 30.0 | 33.5 | 36.1 | 38.1 | 39.9 | 42.8 | 45.1 | 49.6 | 53.0 | 61.9 |
| 2 h | 17.7 | 24.0 | 28.6 | 31.2 | 33.1 | 34.6 | 35.8 | 37.7 | 39.2 | 41.9 | 43.8 | 48.5 |
| | 20.8 | 28.9 | 35.2 | 39.1 | 42.0 | 44.3 | 46.3 | 49.5 | 52.1 | 57.1 | 60.9 | 70.8 |
| 3 h | 19.5 | 26.8 | 32.0 | 35.1 | 37.2 | 39.0 | 40.4 | 42.6 | 44.3 | 47.6 | 49.9 | 55.5 |
| | 23.1 | 31.9 | 38.6 | 42.7 | 45.8 | 48.3 | 50.3 | 53.7 | 56.5 | 61.8 | 65.7 | 76.0 |
| 6 h | 23.6 | 31.4 | 36.9 | 40.0 | 42.2 | 43.9 | 45.2 | 47.3 | 49.0 | 51.9 | 53.9 | 58.8 |
| | 28.0 | 36.7 | 43.5 | 47.7 | 50.9 | 53.6 | 55.8 | 59.4 | 62.4 | 68.2 | 72.5 | 83.9 |
| 12 h | 28.3 | 37.7 | 44.2 | 47.9 | 50.4 | 52.4 | 53.9 | 56.4 | 58.3 | 61.6 | 63.9 | 69.3 |
| | 34.4 | 44.9 | 53.1 | 58.2 | 62.1 | 65.3 | 67.9 | 72.4 | 76.0 | 82.9 | 88.2 | 102.1 |
| 1 j | 34.4 | 45.4 | 53.1 | 57.6 | 60.7 | 63.2 | 65.2 | 68.5 | 71.0 | 75.5 | 78.8 | 86.8 |
| | 42.2 | 54.0 | 62.8 | 68.0 | 71.9 | 75.0 | 77.6 | 81.8 | 85.1 | 91.5 | 96.2 | 108.2 |
| 2 j | 42.4 | 54.8 | 63.2 | 67.9 | 71.2 | 73.8 | 75.8 | 79.0 | 81.5 | 85.9 | 89.0 | 96.3 |
| | 54.5 | 69.3 | 80.1 | 86.5 | 91.3 | 95.0 | 98.1 | 103.2 | 107.2 | 114.8 | 120.4 | 134.6 |
| 3 j | 43.9 | 56.7 | 65.4 | 70.2 | 73.6 | 76.2 | 78.3 | 81.6 | 84.1 | 88.6 | 91.8 | 99.3 |
| | 59.0 | 75.1 | 86.5 | 93.3 | 98.2 | 102.1 | 105.3 | 110.4 | 114.5 | 122.1 | 127.7 | 141.7 |
| 4 j | 47.1 | 60.9 | 70.1 | 75.3 | 79.0 | 81.8 | 84.1 | 87.6 | 90.4 | 95.4 | 98.8 | 107.1 |
| | 64.6 | 81.7 | 93.6 | 100.6 | 105.6 | 109.5 | 112.7 | 117.9 | 121.9 | 129.5 | 135.0 | 148.7 |
| 5 j | 53.4 | 67.9 | 77.7 | 83.3 | 87.2 | 90.1 | 92.6 | 96.4 | 99.3 | 104.6 | 108.3 | 117.2 |
| | 73.5 | 92.1 | 105.0 | 112.4 | 117.7 | 121.9 | 125.3 | 130.7 | 135.0 | 142.9 | 148.5 | 162.6 |
| 7 j | 60.7 | 76.6 | 87.2 | 93.1 | 97.3 | 100.5 | 103.1 | 107.2 | 110.3 | 116.0 | 120.0 | 129.5 |
| | 85.2 | 105.4 | 119.1 | 127.0 | 132.5 | 136.8 | 140.4 | 146.0 | 150.4 | 158.4 | 164.2 | 178.3 |
| 10 j | 71.4 | 88.2 | 99.3 | 105.5 | 109.9 | 113.2 | 115.9 | 120.1 | 123.3 | 129.2 | 133.3 | 142.9 |
| | 102.1 | 125.8 | 141.6 | 150.6 | 156.9 | 161.8 | 165.8 | 172.0 | 176.9 | 185.9 | 192.2 | 207.7 |
| 15 j | 86.2 | 106.0 | 118.9 | 126.1 | 131.2 | 135.1 | 138.2 | 143.1 | 146.9 | 153.7 | 158.5 | 169.8 |
| | 124.0 | 151.4 | 169.4 | 179.5 | 186.6 | 192.0 | 196.3 | 203.2 | 208.5 | 218.1 | 224.9 | 241.2 |
| 20 j | 100.3 | 123.0 | 137.7 | 145.9 | 151.6 | 156.0 | 159.5 | 164.9 | 169.1 | 176.6 | 181.9 | 194.2 |
| | 144.5 | 176.8 | 197.8 | 209.4 | 217.5 | 223.8 | 228.8 | 236.7 | 242.8 | 253.8 | 261.5 | 280.0 |
| 25 j | 105.5 | 129.7 | 145.1 | 153.5 | 159.3 | 163.7 | 167.3 | 172.7 | 176.9 | 184.3 | 189.4 | 201.3 |
| | 155.2 | 189.6 | 211.9 | 224.3 | 232.9 | 239.6 | 245.0 | 253.4 | 259.9 | 271.6 | 279.9 | 299.8 |
| 30 j | 125.1 | 151.5 | 168.0 | 177.0 | 183.1 | 187.7 | 191.4 | 197.1 | 201.4 | 209.0 | 214.1 | 226.0 |
| | 180.0 | 216.6 | 240.2 | 253.4 | 262.6 | 269.7 | 275.5 | 284.5 | 291.4 | 304.0 | 312.9 | 334.2 |

4. Estimation des coefficients de Montana.

Formule de Montana : intensité[mm/h] = $a \cdot \text{durée}[\text{min}]^{-b}$ pour une plage de durées

a_1, b_1 : durées < 25 min

a_2, b_2 : durées entre 25 min et 6000 min (= 100 h)

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

| Période de retour (années) | a_1 | b_1 | a_2 | b_2 | a_3 | b_3 |
|----------------------------|-------|--------|--------|--------|-------|--------|
| 2 | 134.4 | 0.4693 | 301.7 | 0.7205 | 52.7 | 0.5200 |
| 5 | 192.7 | 0.4691 | 466.7 | 0.7439 | 79.5 | 0.5405 |
| 10 | 235.0 | 0.4664 | 599.1 | 0.7572 | 103.5 | 0.5554 |
| 15 | 260.2 | 0.4644 | 683.1 | 0.7641 | 119.9 | 0.5641 |
| 20 | 278.5 | 0.4627 | 746.3 | 0.7689 | 132.7 | 0.5703 |
| 25 | 293.0 | 0.4613 | 797.6 | 0.7724 | 143.4 | 0.5752 |
| 30 | 305.0 | 0.4601 | 841.1 | 0.7753 | 152.7 | 0.5791 |
| 40 | 324.3 | 0.4582 | 912.8 | 0.7797 | 168.4 | 0.5854 |
| 50 | 339.5 | 0.4566 | 971.1 | 0.7831 | 181.6 | 0.5903 |
| 75 | 368.1 | 0.4536 | 1083.7 | 0.7891 | 207.9 | 0.5993 |
| 100 | 388.9 | 0.4513 | 1169.1 | 0.7932 | 228.7 | 0.6057 |
| 200 | 441.6 | 0.4457 | 1395.4 | 0.8031 | 286.6 | 0.6212 |

Références

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