



Statistiques des précipitations extrêmes des communes belges

Sivry-Rance (INS 56088)

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 | 8.0 | 11.4 | 14.0 | 15.6 | 16.8 | 17.7 | 18.5 | 19.7 | 20.7 | 22.6 | 24.0 | 27.7 |
| 20 min | 11.8 | 17.0 | 20.9 | 23.3 | 25.1 | 26.5 | 27.7 | 29.6 | 31.1 | 34.0 | 36.1 | 41.5 |
| 30 min | 13.8 | 20.1 | 24.8 | 27.6 | 29.7 | 31.4 | 32.8 | 35.0 | 36.8 | 40.2 | 42.7 | 49.2 |
| 1 h | 17.2 | 24.4 | 29.8 | 33.0 | 35.4 | 37.3 | 38.9 | 41.5 | 43.6 | 47.4 | 50.3 | 57.6 |
| 2 h | 20.8 | 29.0 | 35.0 | 38.7 | 41.4 | 43.5 | 45.3 | 48.2 | 50.5 | 54.8 | 58.1 | 66.2 |
| 3 h | 23.1 | 31.8 | 38.2 | 42.1 | 45.0 | 47.2 | 49.1 | 52.2 | 54.6 | 59.2 | 62.6 | 71.3 |
| 6 h | 28.0 | 36.5 | 42.8 | 46.6 | 49.3 | 51.5 | 53.4 | 56.4 | 58.7 | 63.2 | 66.5 | 74.8 |
| 12 h | 34.5 | 44.6 | 52.0 | 56.5 | 59.8 | 62.4 | 64.5 | 68.0 | 70.8 | 76.0 | 79.8 | 89.6 |
| 1 j | 43.1 | 54.8 | 63.2 | 68.2 | 71.9 | 74.7 | 77.1 | 80.9 | 83.9 | 89.4 | 93.5 | 103.8 |
| 2 j | 56.2 | 70.9 | 81.2 | 87.2 | 91.5 | 94.9 | 97.7 | 102.2 | 105.7 | 112.1 | 116.8 | 128.4 |
| 3 j | 60.9 | 76.9 | 88.0 | 94.4 | 99.0 | 102.6 | 105.5 | 110.2 | 113.8 | 120.6 | 125.4 | 137.3 |
| 4 j | 66.8 | 84.0 | 95.8 | 102.6 | 107.5 | 111.2 | 114.3 | 119.2 | 123.0 | 130.0 | 135.0 | 147.3 |
| 5 j | 76.0 | 95.0 | 107.9 | 115.3 | 120.6 | 124.7 | 128.0 | 133.3 | 137.4 | 144.9 | 150.3 | 163.4 |
| 7 j | 88.4 | 109.0 | 122.9 | 130.8 | 136.4 | 140.7 | 144.2 | 149.7 | 154.0 | 161.9 | 167.5 | 181.0 |
| 10 j | 106.1 | 130.6 | 146.9 | 156.1 | 162.5 | 167.5 | 171.5 | 177.9 | 182.8 | 191.7 | 198.1 | 213.3 |
| 15 j | 128.9 | 157.3 | 175.9 | 186.3 | 193.5 | 199.1 | 203.6 | 210.7 | 216.2 | 226.0 | 233.0 | 249.6 |
| 20 j | 150.3 | 183.6 | 205.3 | 217.3 | 225.7 | 232.1 | 237.3 | 245.4 | 251.6 | 262.8 | 270.7 | 289.4 |
| 25 j | 161.7 | 197.1 | 219.9 | 232.5 | 241.2 | 247.9 | 253.3 | 261.7 | 268.1 | 279.7 | 287.8 | 307.0 |
| 30 j | 187.2 | 224.5 | 248.3 | 261.5 | 270.6 | 277.5 | 283.1 | 291.8 | 298.5 | 310.4 | 318.7 | 338.4 |

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 | 8.0 | 11.4 | 14.0 | 15.6 | 16.8 | 17.7 | 18.5 | 19.7 | 20.7 | 22.6 | 24.0 | 27.7 |
| | 0.3 | 0.4 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 1.5 | 1.9 | 2.1 | 2.9 |
| 20 min | 11.8 | 17.0 | 20.9 | 23.3 | 25.1 | 26.5 | 27.7 | 29.6 | 31.1 | 34.0 | 36.1 | 41.5 |
| | 0.4 | 0.7 | 1.0 | 1.3 | 1.5 | 1.7 | 1.9 | 2.1 | 2.4 | 2.9 | 3.3 | 4.4 |
| 30 min | 13.8 | 20.1 | 24.8 | 27.6 | 29.7 | 31.4 | 32.8 | 35.0 | 36.8 | 40.2 | 42.7 | 49.2 |
| | 0.5 | 0.7 | 0.9 | 1.1 | 1.2 | 1.4 | 1.5 | 1.7 | 1.8 | 2.2 | 2.4 | 3.2 |
| 1 h | 17.2 | 24.4 | 29.8 | 33.0 | 35.4 | 37.3 | 38.9 | 41.5 | 43.6 | 47.4 | 50.3 | 57.6 |
| | 0.6 | 0.9 | 1.2 | 1.5 | 1.7 | 1.9 | 2.1 | 2.4 | 2.7 | 3.2 | 3.7 | 4.9 |
| 2 h | 20.8 | 29.0 | 35.0 | 38.7 | 41.4 | 43.5 | 45.3 | 48.2 | 50.5 | 54.8 | 58.1 | 66.2 |
| | 0.7 | 1.0 | 1.4 | 1.7 | 2.0 | 2.2 | 2.4 | 2.7 | 3.0 | 3.6 | 4.1 | 5.6 |
| 3 h | 23.1 | 31.8 | 38.2 | 42.1 | 45.0 | 47.2 | 49.1 | 52.2 | 54.6 | 59.2 | 62.6 | 71.3 |
| | 0.8 | 1.1 | 1.4 | 1.7 | 1.9 | 2.1 | 2.3 | 2.6 | 2.8 | 3.3 | 3.8 | 5.0 |
| 6 h | 28.0 | 36.5 | 42.8 | 46.6 | 49.3 | 51.5 | 53.4 | 56.4 | 58.7 | 63.2 | 66.5 | 74.8 |
| | 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 h | 34.5 | 44.6 | 52.0 | 56.5 | 59.8 | 62.4 | 64.5 | 68.0 | 70.8 | 76.0 | 79.8 | 89.6 |
| | 1.1 | 1.5 | 2.0 | 2.4 | 2.8 | 3.1 | 3.5 | 4.0 | 4.5 | 5.5 | 6.3 | 8.6 |
| 1 j | 43.1 | 54.8 | 63.2 | 68.2 | 71.9 | 74.7 | 77.1 | 80.9 | 83.9 | 89.4 | 93.5 | 103.8 |
| | 1.2 | 1.4 | 1.7 | 1.9 | 2.0 | 2.2 | 2.3 | 2.6 | 2.8 | 3.2 | 3.6 | 4.6 |
| 2 j | 56.2 | 70.9 | 81.2 | 87.2 | 91.5 | 94.9 | 97.7 | 102.2 | 105.7 | 112.1 | 116.8 | 128.4 |
| | 1.9 | 2.3 | 2.9 | 3.3 | 3.6 | 3.9 | 4.2 | 4.6 | 5.0 | 5.8 | 6.4 | 8.1 |
| 3 j | 60.9 | 76.9 | 88.0 | 94.4 | 99.0 | 102.6 | 105.5 | 110.2 | 113.8 | 120.6 | 125.4 | 137.3 |
| | 2.4 | 3.0 | 3.6 | 4.1 | 4.4 | 4.7 | 5.0 | 5.5 | 5.9 | 6.6 | 7.3 | 8.9 |
| 4 j | 66.8 | 84.0 | 95.8 | 102.6 | 107.5 | 111.2 | 114.3 | 119.2 | 123.0 | 130.0 | 135.0 | 147.3 |
| | 2.7 | 3.4 | 3.9 | 4.3 | 4.7 | 4.9 | 5.2 | 5.5 | 5.9 | 6.5 | 7.0 | 8.5 |
| 5 j | 76.0 | 95.0 | 107.9 | 115.3 | 120.6 | 124.7 | 128.0 | 133.3 | 137.4 | 144.9 | 150.3 | 163.4 |
| | 3.1 | 3.9 | 4.6 | 5.0 | 5.4 | 5.6 | 5.9 | 6.3 | 6.6 | 7.3 | 7.8 | 9.2 |
| 7 j | 88.4 | 109.0 | 122.9 | 130.8 | 136.4 | 140.7 | 144.2 | 149.7 | 154.0 | 161.9 | 167.5 | 181.0 |
| | 3.8 | 4.5 | 5.1 | 5.5 | 5.8 | 6.1 | 6.3 | 6.6 | 6.9 | 7.4 | 7.9 | 9.0 |
| 10 j | 106.1 | 130.6 | 146.9 | 156.1 | 162.5 | 167.5 | 171.5 | 177.9 | 182.8 | 191.7 | 198.1 | 213.3 |
| | 4.8 | 5.9 | 6.8 | 7.3 | 7.7 | 8.0 | 8.3 | 8.7 | 9.1 | 9.8 | 10.3 | 11.7 |
| 15 j | 128.9 | 157.3 | 175.9 | 186.3 | 193.5 | 199.1 | 203.6 | 210.7 | 216.2 | 226.0 | 233.0 | 249.6 |
| | 5.8 | 7.1 | 8.0 | 8.5 | 8.9 | 9.2 | 9.4 | 9.8 | 10.1 | 10.6 | 11.0 | 12.1 |
| 20 j | 150.3 | 183.6 | 205.3 | 217.3 | 225.7 | 232.1 | 237.3 | 245.4 | 251.6 | 262.8 | 270.7 | 289.4 |
| | 6.9 | 8.4 | 9.5 | 10.1 | 10.5 | 10.8 | 11.1 | 11.6 | 11.9 | 12.6 | 13.0 | 14.3 |
| 25 j | 161.7 | 197.1 | 219.9 | 232.5 | 241.2 | 247.9 | 253.3 | 261.7 | 268.1 | 279.7 | 287.8 | 307.0 |
| | 7.7 | 9.5 | 10.9 | 11.7 | 12.3 | 12.8 | 13.2 | 13.9 | 14.5 | 15.5 | 16.3 | 18.4 |
| 30 j | 187.2 | 224.5 | 248.3 | 261.5 | 270.6 | 277.5 | 283.1 | 291.8 | 298.5 | 310.4 | 318.7 | 338.4 |
| | 8.3 | 10.2 | 11.7 | 12.6 | 13.3 | 13.9 | 14.4 | 15.2 | 15.8 | 17.1 | 18.1 | 20.6 |

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 | 7.5 | 10.6 | 12.7 | 14.0 | 14.9 | 15.6 | 16.1 | 17.0 | 17.7 | 19.0 | 19.8 | 21.9 |
| | 8.5 | 12.3 | 15.3 | 17.2 | 18.6 | 19.8 | 20.8 | 22.4 | 23.7 | 26.3 | 28.3 | 33.4 |
| 20 min | 11.0 | 15.6 | 18.9 | 20.8 | 22.1 | 23.2 | 24.0 | 25.4 | 26.4 | 28.3 | 29.6 | 32.9 |
| | 12.6 | 18.4 | 23.0 | 25.9 | 28.1 | 29.8 | 31.3 | 33.8 | 35.8 | 39.6 | 42.5 | 50.2 |
| 30 min | 12.9 | 18.7 | 22.9 | 25.5 | 27.3 | 28.7 | 29.9 | 31.8 | 33.2 | 36.0 | 38.0 | 43.0 |
| | 14.8 | 21.5 | 26.6 | 29.8 | 32.1 | 34.0 | 35.6 | 38.3 | 40.4 | 44.4 | 47.5 | 55.4 |
| 1 h | 16.1 | 22.7 | 27.4 | 30.1 | 32.1 | 33.6 | 34.8 | 36.8 | 38.3 | 41.1 | 43.1 | 48.0 |
| | 18.3 | 26.1 | 32.2 | 36.0 | 38.8 | 41.1 | 43.0 | 46.2 | 48.8 | 53.7 | 57.5 | 67.3 |
| 2 h | 19.5 | 27.0 | 32.3 | 35.4 | 37.6 | 39.3 | 40.7 | 42.9 | 44.6 | 47.7 | 50.0 | 55.3 |
| | 22.1 | 30.9 | 37.8 | 42.0 | 45.2 | 47.8 | 50.0 | 53.5 | 56.4 | 62.0 | 66.2 | 77.1 |
| 3 h | 21.6 | 29.7 | 35.4 | 38.8 | 41.2 | 43.1 | 44.7 | 47.2 | 49.1 | 52.7 | 55.3 | 61.6 |
| | 24.6 | 33.9 | 41.0 | 45.5 | 48.7 | 51.4 | 53.6 | 57.2 | 60.2 | 65.8 | 70.0 | 81.0 |
| 6 h | 26.3 | 34.3 | 39.9 | 43.1 | 45.4 | 47.1 | 48.5 | 50.7 | 52.3 | 55.3 | 57.5 | 62.4 |
| | 29.7 | 38.6 | 45.6 | 50.0 | 53.3 | 56.0 | 58.3 | 62.0 | 65.1 | 71.0 | 75.5 | 87.2 |
| 12 h | 32.3 | 41.8 | 48.2 | 51.8 | 54.3 | 56.2 | 57.8 | 60.2 | 62.0 | 65.3 | 67.5 | 72.8 |
| | 36.7 | 47.5 | 55.9 | 61.2 | 65.3 | 68.5 | 71.3 | 75.9 | 79.6 | 86.7 | 92.2 | 106.4 |
| 1 j | 40.7 | 52.0 | 60.0 | 64.6 | 67.9 | 70.4 | 72.5 | 75.8 | 78.4 | 83.1 | 86.5 | 94.8 |
| | 45.6 | 57.6 | 66.5 | 71.9 | 75.8 | 79.0 | 81.6 | 85.9 | 89.3 | 95.7 | 100.5 | 112.7 |
| 2 j | 52.6 | 66.3 | 75.6 | 80.8 | 84.5 | 87.3 | 89.5 | 93.1 | 95.8 | 100.8 | 104.2 | 112.4 |
| | 59.9 | 75.5 | 86.8 | 93.6 | 98.6 | 102.6 | 105.9 | 111.2 | 115.5 | 123.5 | 129.3 | 144.3 |
| 3 j | 56.3 | 71.1 | 80.9 | 86.5 | 90.3 | 93.3 | 95.7 | 99.5 | 102.3 | 107.5 | 111.2 | 119.7 |
| | 65.6 | 82.8 | 95.1 | 102.4 | 107.7 | 111.9 | 115.3 | 120.9 | 125.3 | 133.6 | 139.6 | 154.8 |
| 4 j | 61.5 | 77.4 | 88.1 | 94.1 | 98.4 | 101.6 | 104.2 | 108.3 | 111.5 | 117.2 | 121.2 | 130.7 |
| | 72.1 | 90.6 | 103.6 | 111.1 | 116.6 | 120.9 | 124.4 | 130.1 | 134.5 | 142.8 | 148.8 | 163.9 |
| 5 j | 69.8 | 87.3 | 98.9 | 105.5 | 110.1 | 113.6 | 116.5 | 120.9 | 124.4 | 130.6 | 135.0 | 145.3 |
| | 82.1 | 102.7 | 116.9 | 125.2 | 131.1 | 135.7 | 139.6 | 145.6 | 150.4 | 159.2 | 165.6 | 181.5 |
| 7 j | 81.0 | 100.1 | 112.8 | 120.0 | 125.0 | 128.8 | 131.9 | 136.8 | 140.5 | 147.3 | 152.1 | 163.3 |
| | 95.7 | 117.9 | 133.0 | 141.6 | 147.8 | 152.5 | 156.5 | 162.7 | 167.5 | 176.5 | 182.9 | 198.7 |
| 10 j | 96.8 | 119.0 | 133.6 | 141.7 | 147.4 | 151.8 | 155.3 | 160.8 | 165.0 | 172.6 | 177.9 | 190.4 |
| | 115.5 | 142.3 | 160.2 | 170.4 | 177.6 | 183.2 | 187.8 | 195.0 | 200.6 | 210.9 | 218.2 | 236.2 |
| 15 j | 117.5 | 143.4 | 160.2 | 169.6 | 176.2 | 181.2 | 185.2 | 191.6 | 196.5 | 205.2 | 211.3 | 225.9 |
| | 140.3 | 171.2 | 191.5 | 203.0 | 210.9 | 217.0 | 222.0 | 229.8 | 235.9 | 246.8 | 254.6 | 273.3 |
| 20 j | 136.8 | 167.1 | 186.7 | 197.6 | 205.1 | 210.9 | 215.5 | 222.7 | 228.3 | 238.2 | 245.1 | 261.3 |
| | 163.7 | 200.2 | 223.9 | 237.1 | 246.3 | 253.3 | 259.1 | 268.0 | 274.9 | 287.4 | 296.3 | 317.5 |
| 25 j | 146.7 | 178.4 | 198.5 | 209.5 | 217.0 | 222.7 | 227.3 | 234.4 | 239.7 | 249.2 | 255.8 | 270.8 |
| | 176.7 | 215.7 | 241.2 | 255.4 | 265.4 | 273.0 | 279.2 | 289.0 | 296.5 | 310.2 | 319.8 | 343.1 |
| 30 j | 171.0 | 204.5 | 225.5 | 236.8 | 244.5 | 250.3 | 254.9 | 262.0 | 267.4 | 276.8 | 283.3 | 297.9 |
| | 203.4 | 244.5 | 271.2 | 286.2 | 296.6 | 304.7 | 311.3 | 321.6 | 329.5 | 344.0 | 354.2 | 378.9 |

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 | 143.7 | 0.4755 | 294.5 | 0.6985 | 50.0 | 0.4946 |
| 5 | 201.7 | 0.4664 | 465.7 | 0.7264 | 68.9 | 0.5067 |
| 10 | 243.6 | 0.4598 | 603.7 | 0.7417 | 86.0 | 0.5177 |
| 15 | 268.6 | 0.4559 | 691.5 | 0.7497 | 97.6 | 0.5246 |
| 20 | 286.8 | 0.4532 | 757.6 | 0.7550 | 106.6 | 0.5296 |
| 25 | 301.1 | 0.4510 | 811.3 | 0.7590 | 114.2 | 0.5336 |
| 30 | 313.0 | 0.4492 | 856.9 | 0.7622 | 120.8 | 0.5369 |
| 40 | 332.1 | 0.4464 | 932.0 | 0.7671 | 131.8 | 0.5422 |
| 50 | 347.2 | 0.4442 | 993.2 | 0.7708 | 141.1 | 0.5464 |
| 75 | 375.4 | 0.4402 | 1111.4 | 0.7774 | 159.5 | 0.5542 |
| 100 | 396.1 | 0.4373 | 1201.1 | 0.7819 | 174.0 | 0.5599 |
| 200 | 448.2 | 0.4302 | 1439.1 | 0.7926 | 214.3 | 0.5737 |

Références

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