

Short Duration Rainfall Intensity-Duration-Frequency Data
 Données sur l'intensité, la durée et la fréquence des chutes
 de pluie de courte durée

Gumbel - Method of moments/Méthode des moments

2014/12/21

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KINDERSLEY A                               SK           4043900
Latitude:  51 31'N   Longitude: 109 11'W   Elevation/Altitude: 693      m
Years/Années : 1966 - 2013           # Years/Années :      47
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Table 1 : Annual Maximum (mm)/Maximum annuel (mm)

Year Année	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
1966	3.0	6.1	7.9	11.7	13.2	17.5	18.5	26.4	27.9
1967	5.3	10.2	12.2	14.7	15.2	15.5	17.8	18.8	18.8
1968	4.6	8.1	9.7	16.3	18.3	20.3	22.9	29.2	41.9
1969	5.3	6.3	6.3	6.6	9.1	15.5	19.0	24.1	24.6
1970	6.1	9.1	10.4	10.9	12.2	14.5	17.3	22.6	22.6
1971	23.4	30.5	32.0	33.5	35.6	37.6	45.0	46.2	51.3
1972	4.6	6.3	6.9	7.9	10.2	13.7	24.9	32.0	42.7
1973	10.2	13.2	17.0	22.6	22.6	31.7	48.3	50.5	56.6
1974	9.9	11.7	11.7	12.4	13.0	21.6	26.9	31.0	42.4
1975	5.8	7.9	10.7	14.2	14.5	14.5	17.5	25.9	26.9
1976	2.8	3.8	4.8	8.1	15.0	20.8	25.4	39.4	46.7
1977	3.6	5.3	6.6	9.1	14.0	19.8	26.7	36.3	40.6
1978	4.8	6.4	9.6	12.7	12.7	12.8	12.8	12.8	18.0
1979	6.0	6.7	8.1	9.9	14.4	19.2	19.8	19.8	19.8
1980	10.7	14.8	15.8	15.8	16.1	17.2	17.2	27.3	30.4
1981	5.3	6.6	7.7	10.1	12.1	13.2	15.3	17.3	24.7
1982	5.5	5.9	5.9	5.9	8.3	12.5	16.5	17.2	17.2
1983	6.2	9.0	11.5	13.1	17.5	25.9	40.7	64.7	82.9
1984	5.8	9.4	11.2	16.2	17.8	18.0	19.7	22.5	27.9
1985	5.7	8.5	9.6	9.9	12.8	13.1	19.2	19.9	23.0
1986	2.7	3.1	4.5	9.0	9.6	11.2	18.3	19.2	25.4
1987	3.5	6.9	7.3	9.5	9.5	9.5	15.4	15.4	17.0
1988	12.9	15.5	16.5	28.4	39.7	45.7	47.2	47.2	53.4
1989	5.7	11.4	12.0	13.9	16.3	16.4	16.4	26.0	34.4
1990	6.0	8.0	10.0	15.4	16.2	20.7	21.2	22.4	22.4
1991	5.8	9.6	11.6	13.2	21.4	32.0	-99.9	-99.9	77.2
1992	1.6	2.4	3.3	5.0	8.0	10.0	13.8	16.6	22.2
1993	6.1	10.1	15.1	21.2	22.4	23.2	29.6	34.9	41.9
1994	2.6	2.6	3.2	4.2	6.3	10.7	18.2	19.6	29.0
1995	9.6	13.4	18.7	19.6	22.0	24.2	24.2	24.2	31.3
1996	5.0	9.5	11.8	12.7	12.7	17.8	25.8	25.8	25.8
1997	8.7	17.4	25.3	27.4	30.0	33.0	33.4	33.4	33.4
1998	9.7	12.1	17.5	25.1	33.1	35.0	37.3	49.4	64.9
1999	3.4	5.4	7.7	9.2	10.9	15.9	26.6	36.7	55.2
2000	6.6	8.8	10.9	13.1	13.1	15.5	30.7	35.7	38.0

Year Année	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
2001	2.1	4.0	6.0	6.2	6.2	7.6	10.9	12.2	15.8
2002	4.2	6.1	6.6	10.7	15.1	25.5	47.2	52.8	53.2
2003	6.0	8.6	10.7	17.6	23.5	24.4	24.4	24.5	24.5
2004	-99.9	-99.9	-99.9	-99.9	-99.9	-99.9	27.0	27.0	32.0
2005	5.1	9.9	11.1	16.1	19.3	20.3	45.7	64.4	85.3
2006	10.9	15.3	17.2	19.6	21.6	22.9	26.4	26.8	29.9
2007	8.6	9.7	9.9	11.2	12.8	13.2	16.2	20.0	27.9
2008	3.9	7.8	8.3	8.7	8.9	12.8	16.8	20.6	23.1
2009	7.0	12.1	16.1	27.2	28.6	30.4	35.8	44.4	45.4
2010	8.8	12.9	16.9	17.1	25.8	26.8	37.9	46.3	52.3
2011	6.0	8.8	10.9	15.3	17.4	17.4	25.5	32.9	32.9
2012	4.6	6.0	6.9	8.4	9.0	12.0	24.0	32.0	33.8
2013	12.3	15.7	16.8	25.7	32.7	36.4	36.4	36.4	36.4

# Yrs. Années	47	47	47	47	47	47	47	47	48
Mean Moyenne	6.5	9.3	11.2	14.3	17.0	20.1	25.6	30.4	36.5
Std. Dev. Écart-type	3.7	4.8	5.5	6.8	7.9	8.5	10.2	12.7	16.9
Skew. Dissymétrie	2.34	1.97	1.47	0.96	1.11	1.02	0.88	0.98	1.28
Kurtosis	11.71	10.19	6.58	3.62	3.91	3.81	2.96	3.66	4.49

*-99.9 Indicates Missing Data/Données manquantes

Warning: annual maximum amount greater than 100-yr return period amount
 Avertissement : la quantité maximale annuelle excède la quantité pour une période de retour de 100 ans

Year/Année	Duration/Durée	Data/Données	100-yr/ans
1971	5 min	23.4	18.0
1971	10 min	30.5	24.3
1971	15 min	32.0	28.6

Table 2a : Return Period Rainfall Amounts (mm)
 Quantité de pluie (mm) par période de retour

Duration/Durée	2 yr/ans	5 yr/ans	10 yr/ans	25 yr/ans	50 yr/ans	100 yr/ans	#Years Années
5 min	5.9	9.1	11.3	14.0	16.0	18.0	47
10 min	8.6	12.8	15.6	19.1	21.7	24.3	47
15 min	10.3	15.2	18.4	22.5	25.6	28.6	47
30 min	13.2	19.2	23.1	28.1	31.8	35.5	47
1 h	15.6	22.7	27.3	33.2	37.5	41.8	47
2 h	18.7	26.2	31.2	37.4	42.1	46.7	47
6 h	23.9	32.9	38.9	46.4	51.9	57.5	47
12 h	28.3	39.6	47.1	56.5	63.4	70.4	47
24 h	33.7	48.6	58.5	71.0	80.2	89.4	48

Table 2b :

Return Period Rainfall Rates (mm/h) - 95% Confidence limits
 Intensité de la pluie (mm/h) par période de retour - Limites de confiance de 95%

Duration/Durée	2	5	10	25	50	100	#Years
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
5 min	70.4	109.4	135.2	167.8	192.1	216.1	47
	+/- 11.6	+/- 19.5	+/- 26.4	+/- 35.5	+/- 42.5	+/- 49.5	47
10 min	51.3	76.7	93.5	114.7	130.4	146.0	47
	+/- 7.5	+/- 12.7	+/- 17.1	+/- 23.1	+/- 27.6	+/- 32.2	47
15 min	41.3	60.9	73.8	90.1	102.2	114.3	47
	+/- 5.8	+/- 9.8	+/- 13.2	+/- 17.8	+/- 21.3	+/- 24.8	47
30 min	26.4	38.3	46.2	56.2	63.7	71.0	47
	+/- 3.5	+/- 6.0	+/- 8.1	+/- 10.9	+/- 13.0	+/- 15.2	47
1 h	15.6	22.7	27.3	33.2	37.5	41.8	47
	+/- 2.1	+/- 3.5	+/- 4.7	+/- 6.4	+/- 7.6	+/- 8.9	47
2 h	9.4	13.1	15.6	18.7	21.0	23.4	47
	+/- 1.1	+/- 1.9	+/- 2.5	+/- 3.4	+/- 4.1	+/- 4.8	47
6 h	4.0	5.5	6.5	7.7	8.7	9.6	47
	+/- 0.4	+/- 0.7	+/- 1.0	+/- 1.4	+/- 1.6	+/- 1.9	47
12 h	2.4	3.3	3.9	4.7	5.3	5.9	47
	+/- 0.3	+/- 0.5	+/- 0.6	+/- 0.9	+/- 1.0	+/- 1.2	47
24 h	1.4	2.0	2.4	3.0	3.3	3.7	48
	+/- 0.2	+/- 0.3	+/- 0.4	+/- 0.6	+/- 0.7	+/- 0.8	48

Table 3 : Interpolation Equation / Équation d'interpolation: $R = A \cdot T^B$

R = Interpolated Rainfall rate (mm/h)/Intensité interpolée de la pluie (mm/h)
 RR = Rainfall rate (mm/h) / Intensité de la pluie (mm/h)
 T = Rainfall duration (h) / Durée de la pluie (h)

Statistics/Statistiques	2	5	10	25	50	100
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans
Mean of RR/Moyenne de RR	24.7	36.9	44.9	55.1	62.7	70.2
Std. Dev. /Écart-type (RR)	24.7	37.9	46.7	57.9	66.1	74.3
Std. Error/Erreur-type	5.6	7.2	8.2	9.5	10.5	11.4
Coefficient (A)	14.4	21.0	25.3	30.7	34.8	38.8
Exponent/Exposant (B)	-0.712	-0.727	-0.732	-0.737	-0.740	-0.742
Mean % Error/% erreur moyenne	7.1	6.0	5.7	5.4	5.4	5.4