

19. Wabush Lake A

This station was updated in CRA (2015). The updated IDF curve from CRA (2015) is reproduced below, with the addition of the 20-year return period.

This IDF curve was updated using 6-hr data from Wabush Lake A. The IDF curve increased during the update (Table 19.1).

Table 19.1 Differences Between IDF Curves for Wabush Lake A

Percent Difference in Precipitation Amount (%) (Difference in Precipitation Amount (mm))						
Duration	Return Period (years)					
	2	5	10	25	50	100
5-min	N/A	N/A	N/A	N/A	N/A	N/A
10-min	N/A	N/A	N/A	N/A	N/A	N/A
15-min	N/A	N/A	N/A	N/A	N/A	N/A
30-min	N/A	N/A	N/A	N/A	N/A	N/A
1-hr	N/A	N/A	N/A	N/A	N/A	N/A
2-hr	N/A	N/A	N/A	N/A	N/A	N/A
6-hr	2.1 (0.4)	1.2 (0.3)	0.7 (0.2)	0.3 (0.1)	0.1 (0.0)	-0.1 (-0.1)
12-hr	2.3 (0.6)	3.2 (1.1)	3.7 (1.4)	4.1 (1.8)	4.4 (2.1)	4.6 (2.4)
24-hr	2.6 (0.9)	2.5 (1.1)	2.5 (1.2)	2.5 (1.4)	2.5 (1.5)	2.5 (1.7)

Notes:

Red numbers indicate that the updated IDF curve is lower than the EC-IDF V2.3 IDF curve for that duration and return period.

Bold numbers indicate changes greater than 5 percent.

Office of Climate Change and Energy Efficiency

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

2015/10/30

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WABUSH LAKE A NL 8504175
Updated with 6-hour data measured at Wabush Lake A (8504175): 2004-2012

Latitude: 52 56'N Longitude: 66 52'W Elevation/Altitude: 551 m
Years/Années : 1974 - 2012 # Years/Années : 25

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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
EC-IDF	1974	6.6	10.4	13.5	21.1	26.2	28.4	32.0	32.0	35.3
EC-IDF	1975	4.6	5.8	6.1	6.9	8.1	11.9	20.8	24.6	34.3
EC-IDF	1976	2.8	3.8	5.1	9.7	12.2	16.5	21.8	25.9	35.6
EC-IDF	1977	2.5	3.6	4.3	6.1	10.2	16.5	18.8	37.1	38.1
EC-IDF	1978	8.1	11.1	11.8	15.9	21.2	24.6	26.6	31.6	41.9
EC-IDF	1979	2.7	4.2	5.8	8.8	10.8	17.2	25.5	34.3	39.4
EC-IDF	1980	4.2	7.6	10.6	16.4	21.2	27.8	32.6	42.2	43.2
EC-IDF	1981	3.9	4.9	6.0	11.6	17.5	21.2	27.3	38.6	62.0
EC-IDF	1982	4.8	4.8	5.2	10.2	11.2	12.8	19.9	34.8	46.6
EC-IDF	1983	-99.9	-99.9	-99.9	-99.9	13.3	17.7	20.0	22.9	26.2
EC-IDF	1984	7.7	14.5	18.3	20.0	24.9	25.2	29.4	35.6	43.3
EC-IDF	1985	3.2	5.3	7.2	10.6	11.7	12.4	17.2	24.8	24.8
EC-IDF	1986	4.0	4.9	5.3	6.2	6.4	11.9	18.4	23.7	33.0
EC-IDF	1987	2.2	3.7	4.5	5.6	9.0	10.4	16.5	24.0	33.0
EC-IDF	1988	4.7	5.7	6.0	6.7	8.9	12.5	17.7	23.2	29.2
EC-IDF	1989	3.9	6.8	7.3	10.0	14.5	17.4	21.0	27.7	34.2
EC-IDF	1990	-99.9	-99.9	-99.9	-99.9	7.7	11.8	25.4	38.3	59.1
EC-IDF	1991	2.8	4.0	5.5	9.1	10.5	20.2	36.6	45.6	46.2
EC-IDF	1993	10.4	12.8	15.3	20.3	25.3	25.9	26.7	26.9	33.9
EC-IDF	1994	2.9	4.1	4.8	6.0	6.6	7.1	9.2	14.5	19.7
EC-IDF	1995	3.0	5.2	6.2	6.8	8.7	12.7	12.9	17.6	27.6
EC-IDF	1996	7.6	7.6	7.6	8.6	8.6	9.6	17.3	23.2	27.4
EC-IDF	1997	3.2	4.3	5.3	7.7	9.2	10.3	19.8	34.7	41.1
EC-IDF	1998	1.2	2.1	2.7	4.1	6.5	8.2	13.7	21.2	25.5
EC-IDF	2000	8.1	10.7	11.1	11.1	11.1	11.1	17.0	25.0	31.4
EC-IDF	2001	4.0	4.8	5.8	6.7	6.7	7.7	15.4	19.8	26.6
EC-IDF	2003	4.5	6.7	9.8	16.7	17.6	17.9	28.6	30.2	31.2
UPDATE	2004	NM	NM	NM	NM	NM	NM	29.0	37.0	38.0
UPDATE	2005	NM	NM	NM	NM	NM	NM	15.0	24.0	32.0
UPDATE	2006	NM	NM	NM	NM	NM	NM	20.0	28.0	30.6
UPDATE	2007	NM	NM	NM	NM	NM	NM	19.0	29.0	34.0
UPDATE	2008	NM	NM	NM	NM	NM	NM	19.0	21.0	36.0
UPDATE	2009	NM	NM	NM	NM	NM	NM	22.0	26.0	43.0
UPDATE	2010	NM	NM	NM	NM	NM	NM	33.0	53.0	66.0
UPDATE	2011	NM	NM	NM	NM	NM	NM	31.0	40.0	44.0
UPDATE	2012	NM	NM	NM	NM	NM	NM	23.0	28.0	33.0
# Yrs.	25	25	25	25	27	27	36	36	36	
Années										
Mean	4.5	6.4	7.6	10.5	12.8	15.8	22.2	29.6	36.8	
Moyenne										
Std. Dev.	2.3	3.2	3.8	5.0	6.1	6.3	6.5	8.3	10.2	
Écart-type										
Skew.	1.04	1.23	1.40	0.98	1.07	0.64	0.36	0.72	1.19	
Dissymétrie										
Kurtosis	3.72	4.01	4.69	3.11	3.23	2.62	2.70	3.67	4.86	

*-99.9 Indicates Missing Data/Données manquantes

* NM Indicates No Measurements/Aucunes mesures

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

Duration/Durée	2	5	10	20	25	50	100	#Years Années
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	
EC-IDF	5 min	4.2	6.2	7.5	8.8	9.2	10.4	25
EC-IDF	10 min	5.9	8.7	10.5	12.3	12.8	14.6	25
EC-IDF	15 min	7.0	10.4	12.6	14.7	15.4	17.5	25
EC-IDF	30 min	9.7	14.1	17.0	19.8	20.7	23.5	25
EC-IDF	1 h	11.8	17.2	20.8	24.2	25.3	28.7	27
EC-IDF	2 h	14.8	20.4	24.1	27.6	28.7	32.2	27
UPDATE	6 h	21.1	26.8	30.6	34.2	35.4	38.9	36
UPDATE	12 h	28.2	35.6	40.4	45.1	46.6	51.1	36
UPDATE	24 h	35.2	44.1	50.1	55.8	57.6	63.2	36

* 6-hr data were used for the update: shorter durations were not updated

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	20	25	50	100	#Years	
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années	
EC-IDF 5 min	50.1	74.1	90.1	105.4	110.2	125.2	140.0	25	
	+/- 9.8	+/- 16.5	+/- 22.3	+/- 28.2	+/- 30.1	+/- 36.0	+/- 41.9	25	
EC-IDF 10 min	35.1	51.9	63.0	73.7	77.0	87.4	97.8	25	
	+/- 6.8	+/- 11.5	+/- 15.5	+/- 19.6	+/- 20.9	+/- 25.1	+/- 29.2	25	
EC-IDF 15 min	28.1	41.5	50.4	59.0	61.7	70.0	78.3	25	
	+/- 5.5	+/- 9.2	+/- 12.5	+/- 15.7	+/- 16.8	+/- 20.1	+/- 23.4	25	
EC-IDF 30 min	19.4	28.2	34.1	39.7	41.4	46.9	52.4	25	
	+/- 3.6	+/- 6.1	+/- 8.2	+/- 10.3	+/- 11.0	+/- 13.2	+/- 15.4	25	
EC-IDF 1 h	11.8	17.2	20.8	24.2	25.3	28.7	32.0	27	
	+/- 2.1	+/- 3.6	+/- 4.8	+/- 6.1	+/- 6.5	+/- 7.8	+/- 9.1	27	
EC-IDF 2 h	7.4	10.2	12.0	13.8	14.4	16.1	17.8	27	
	+/- 1.1	+/- 1.8	+/- 2.5	+/- 3.1	+/- 3.4	+/- 4.0	+/- 4.7	27	
UPDATE 6 h	3.5	4.5	5.1	5.7	5.9	6.5	7.1	36	
	+/- 0.3	+/- 0.5	+/- 0.7	+/- 0.9	+/- 1.0	+/- 1.2	+/- 1.4	36	
UPDATE 12 h	2.4	3.0	3.4	3.8	3.9	4.3	4.6	36	
	+/- 0.2	+/- 0.3	+/- 0.5	+/- 0.6	+/- 0.6	+/- 0.8	+/- 0.9	36	
UPDATE 24 h	1.5	1.8	2.1	2.3	2.4	2.6	2.9	36	
	+/- 0.1	+/- 0.2	+/- 0.3	+/- 0.4	+/- 0.4	+/- 0.5	+/- 0.5	36	
* 6-hr data were used for the update: shorter durations were not updated									

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	20	25	50	100	
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	
Mean of RR/Moyenne de RR	17.7	25.8	31.2	36.4	38.0	43.1	48.1	
Std. Dev. /Écart-type (RR)	17.0	25.3	30.9	36.2	37.9	43.1	48.3	
Std. Error/Erreur-type	2.0	4.0	5.3	6.7	7.1	8.4	9.8	
Coefficient (A)	11.4	15.9	18.8	21.7	22.6	25.3	28.1	
Exponent/Exposant (B)	-0.635	-0.670	-0.685	-0.695	-0.698	-0.706	-0.712	
Mean % Error/% erreur moyenne	3.7	5.4	6.2	6.8	6.9	7.3	7.6	

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

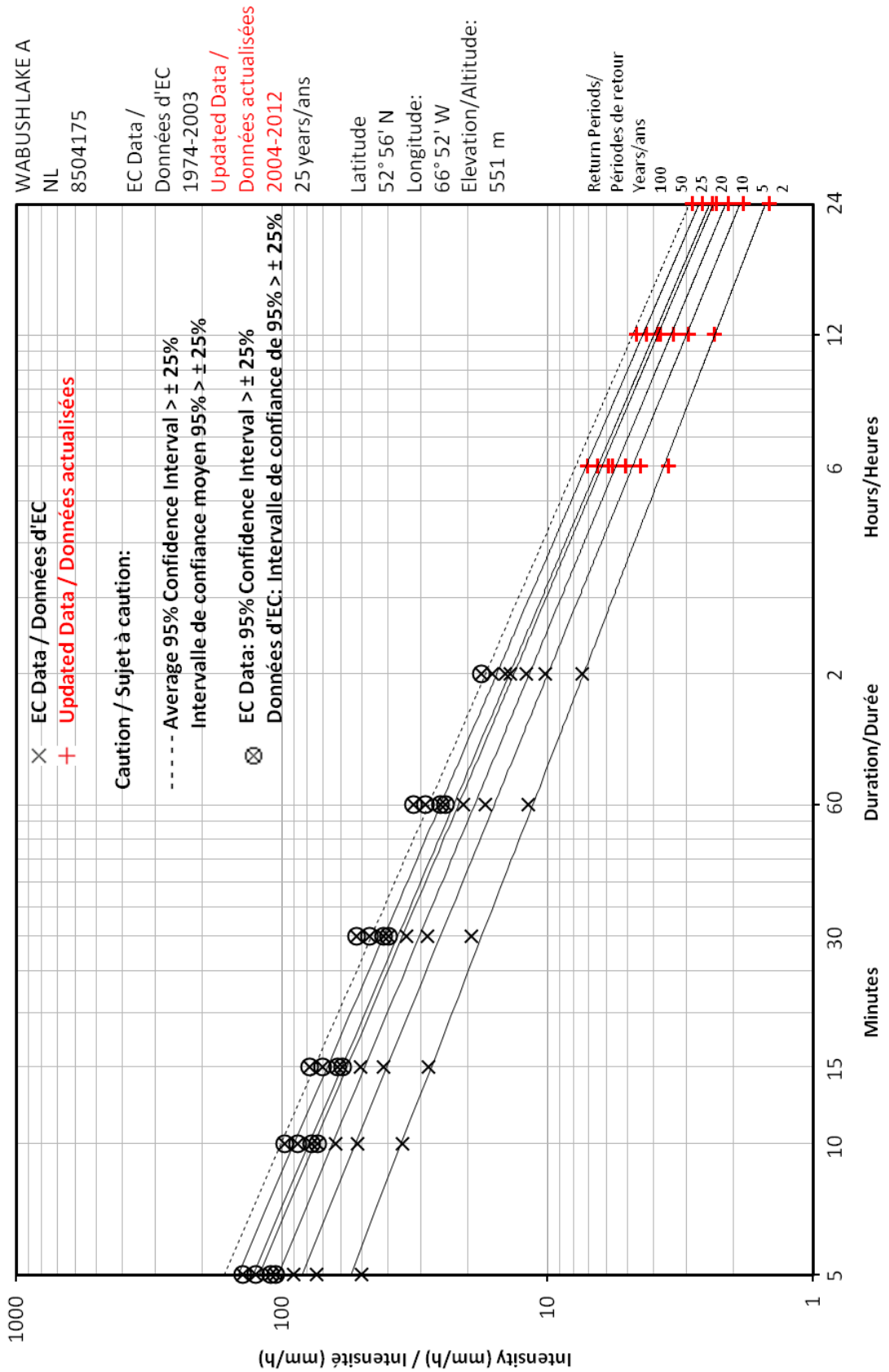


Figure 19.1 Wabush Lake A IDF Curve – Updated

Quantile-Quantile : WABUSH LAKE A, NL 8504175

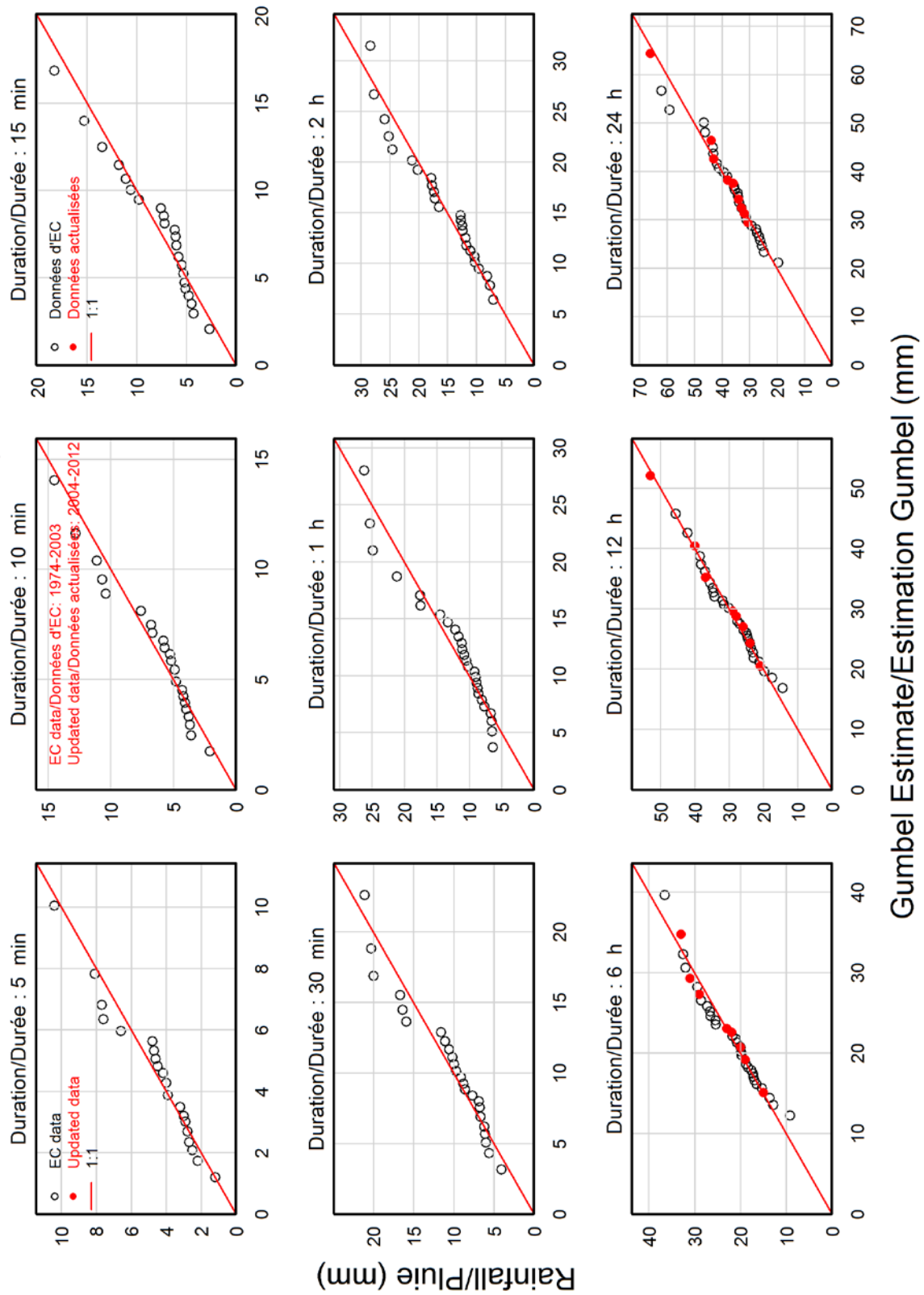
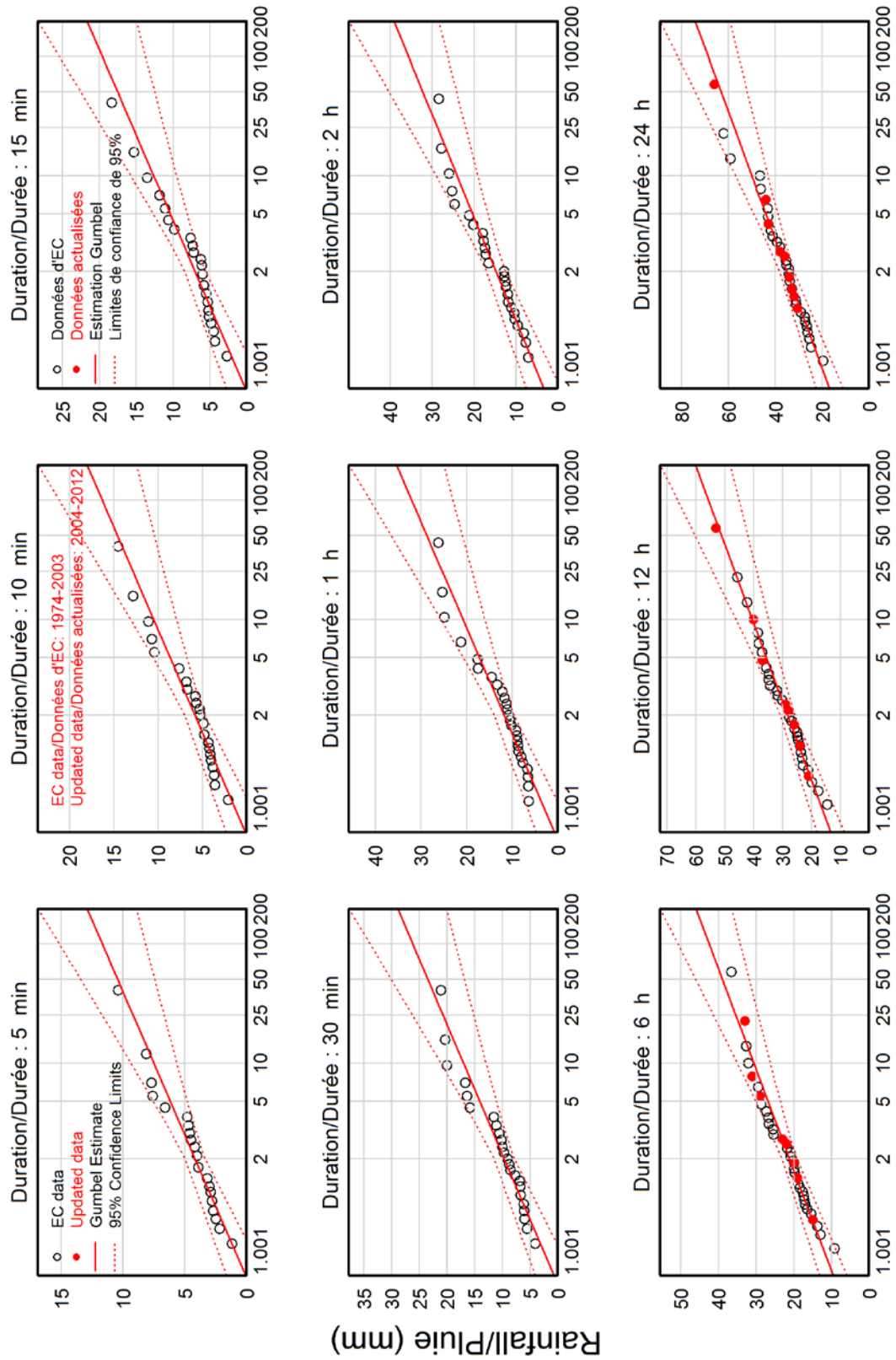


Figure 19.2 Wabush Lake A Quantile-Quantile Plot - Updated

Return Level/Niveau de retour : WABUSH LAKE A, NL 8504175



Return Period/Période de retour (years/années)

Figure 19.3 Wabush Lake A Return Level Plot – Updated

Trend/Tendance : WABUSH LAKE A, NL 8504175

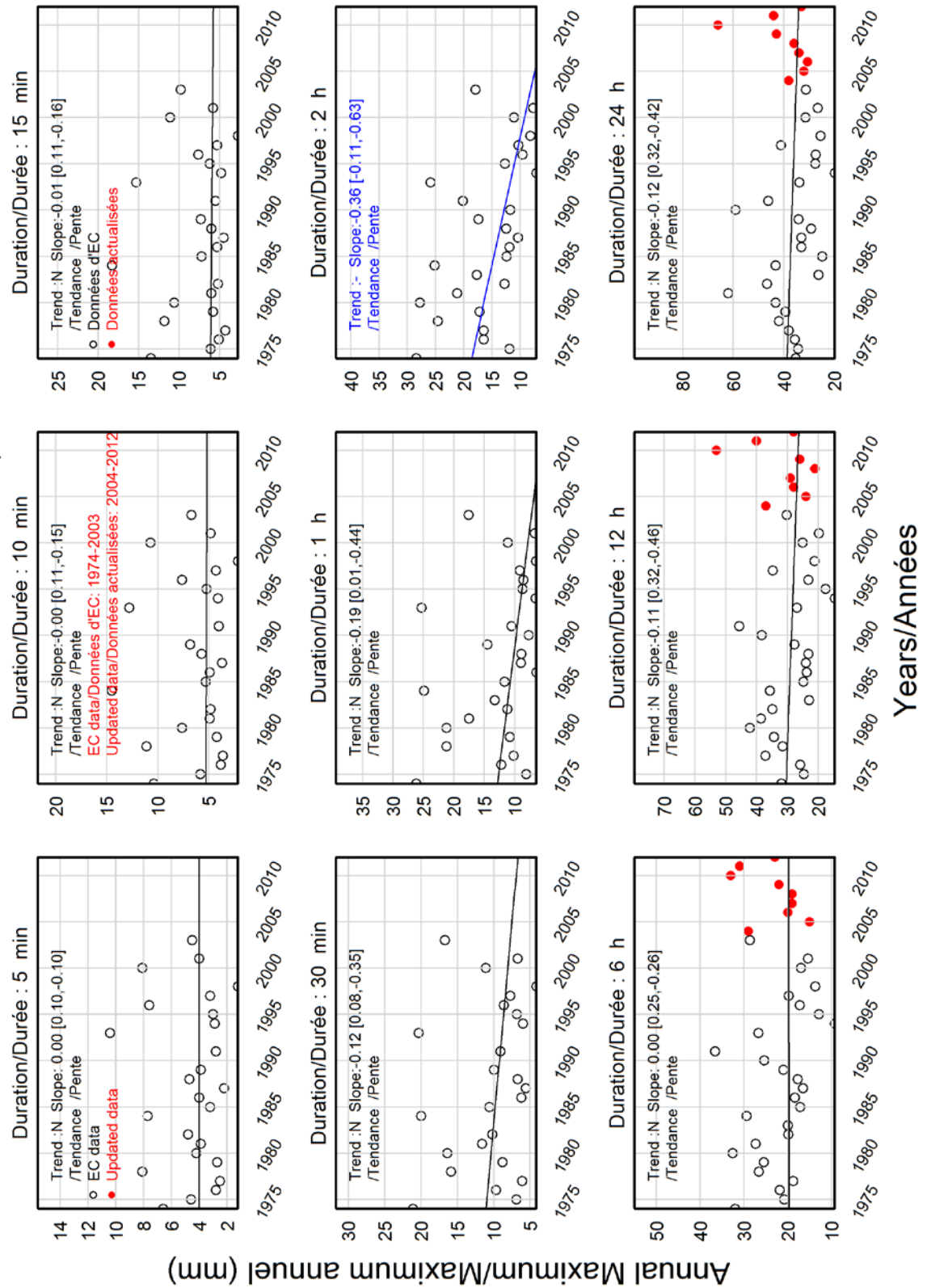


Figure 19.4 Wabush Lake A Trend Plot – Updated