

10. St. Albans

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 1-hr data from Long Pond Intake (Hydro station). The IDF curve decreased during the update (Table 10.1), with some significant decreases in the 24-hr duration. Where there are decreases greater than 5 percent, users should exercise caution when using the updated IDF curve, or use the EC IDF curve.

Table 10.1 Differences Between IDF Curves for St. Albans

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	-0.9 (-0.4)	-1.2 (-0.6)	-1.3 (-0.8)	-1.5 (-0.9)	-1.6 (-1.1)	-1.7 (-1.2)
12-hr	-2.0 (-1.3)	-2.8 (-2.2)	-3.1 (-2.7)	-3.5 (-3.4)	-3.7 (-4.0)	-3.9 (-4.5)
24-hr	-3.4 (-2.9)	-4.3 (-4.8)	-4.7 (-6.0)	-5.1 (-7.6)	-5.3 (-8.8)	-5.4 (-9.9)
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

ST ALBANS NL 8403290
Updated with 1-hr data measured at Long Pond Intake (Hydro): 2009-2014

Latitude: 47 52'N Longitude: 55 51'W Elevation/Altitude: 13 m
Years/Années : 1969 - 2014 # Years/Années : 14

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 1969	4.6	7.6	11.4	18.0	21.1	33.3	56.1	63.8	72.1
EC-IDF 1970	3.8	4.8	6.3	9.9	14.7	26.2	42.7	54.4	65.8
EC-IDF 1971	5.6	6.9	7.6	10.7	13.7	24.6	60.5	93.0	93.7
EC-IDF 1972	4.1	6.9	8.6	15.0	21.3	29.2	46.7	65.8	67.6
EC-IDF 1973	7.4	9.4	12.2	16.3	26.7	35.8	54.4	85.1	141.0
EC-IDF 1974	3.6	5.8	7.6	10.9	15.7	25.9	44.2	45.2	46.5
EC-IDF 1975	5.1	8.9	9.7	12.2	14.7	22.4	43.7	53.1	76.2
EC-IDF 1976	4.3	7.9	8.6	11.2	17.3	30.2	43.9	64.5	117.9
EC-IDF 1978	6.9	11.0	14.9	17.0	22.4	25.4	53.0	81.2	89.6
EC-IDF 1979	4.8	7.1	8.5	14.4	18.9	26.9	38.7	51.7	71.2
EC-IDF 1980	4.0	6.2	7.5	12.5	16.5	25.4	54.6	76.3	82.0
EC-IDF 1981	6.5	9.2	10.5	12.1	19.4	28.4	48.5	77.9	105.4
EC-IDF 1982	4.7	6.5	8.8	11.8	13.9	20.6	41.7	49.8	59.2
EC-IDF 1983	1.6	3.2	4.6	9.0	14.5	24.4	53.4	83.8	147.6
UPDATE 2009	NM	NM	NM	NM	NM	NM	39.3	48.0	59.4
UPDATE 2010	NM	NM	NM	NM	NM	NM	51.1	61.5	78.5
UPDATE 2013	NM	NM	NM	NM	NM	NM	44.4	73.3	95.7
UPDATE 2014	NM	NM	NM	NM	NM	NM	51.9	60.8	61.7

# Yrs. Années	14	14	14	14	14	14	18	18	18
Mean Moyenne	4.8	7.2	9.1	12.9	17.9	27.0	48.3	66.1	85.1
Std. Dev. Écart-type	1.5	2.0	2.6	2.8	3.9	4.1	6.3	14.4	27.9
Skew. Dissymétrie	-0.08	-0.11	0.66	0.56	0.90	0.72	0.20	0.27	1.04
Kurtosis	4.22	3.91	4.51	2.86	3.81	4.07	2.47	2.40	3.93

*-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	4.5	5.9	6.7	7.6	7.8	8.7	9.5	14
EC-IDF 10 min	6.9	8.7	9.9	11.0	11.3	12.4	13.5	14
EC-IDF 15 min	8.6	10.9	12.4	13.9	14.3	15.8	17.2	14
EC-IDF 30 min	12.5	14.9	16.5	18.1	18.6	20.1	21.6	14
EC-IDF 1 h	17.3	20.7	23.0	25.2	25.8	28.0	30.1	14
EC-IDF 2 h	26.4	30.0	32.4	34.7	35.4	37.6	39.8	14
UPDATE 6 h	47.2	52.8	56.5	60.1	61.2	64.6	68.1	18
UPDATE 12 h	63.7	76.4	84.8	92.9	95.5	103.4	111.2	18
UPDATE 24 h	80.5	105.2	121.5	137.2	142.2	157.5	172.7	18

* 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 Années
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	
EC-IDF 5 min	54.5	70.3	80.8	90.8	94.0	103.8	113.5	14
	+/- 8.6	+/- 14.5	+/- 19.6	+/- 24.7	+/- 26.4	+/- 31.6	+/- 36.8	14
EC-IDF 10 min	41.5	52.1	59.1	65.9	68.0	74.6	81.2	14
	+/- 5.8	+/- 9.7	+/- 13.1	+/- 16.6	+/- 17.7	+/- 21.2	+/- 24.7	14
EC-IDF 15 min	34.5	43.7	49.7	55.5	57.4	63.0	68.7	14

	+/-	5.0 +/-	8.4 +/-	11.3 +/-	14.3 +/-	15.3 +/-	18.3 +/-	21.3	14
EC-IDF	30 min	24.9	29.8	33.1	36.2	37.2	40.2	43.2	14
	+/-	2.7 +/-	4.5 +/-	6.1 +/-	7.6 +/-	8.2 +/-	9.8 +/-	11.4	14
EC-IDF	1 h	17.3	20.7	23.0	25.2	25.8	28.0	30.1	14
	+/-	1.9 +/-	3.1 +/-	4.2 +/-	5.4 +/-	5.7 +/-	6.8 +/-	8.0	14
EC-IDF	2 h	13.2	15.0	16.2	17.3	17.7	18.8	19.9	14
	+/-	1.0 +/-	1.6 +/-	2.2 +/-	2.8 +/-	3.0 +/-	3.6 +/-	4.2	14
UPDATE	6 h	7.9	8.8	9.4	10.0	10.2	10.8	11.3	18
	+/-	0.4 +/-	0.8 +/-	1.0 +/-	1.3 +/-	1.4 +/-	1.6 +/-	1.9	18
UPDATE	12 h	5.3	6.4	7.1	7.7	8.0	8.6	9.3	18
	+/-	0.5 +/-	0.9 +/-	1.2 +/-	1.5 +/-	1.6 +/-	1.9 +/-	2.2	18
UPDATE	24 h	3.4	4.4	5.1	5.7	5.9	6.6	7.2	18
	+/-	0.5 +/-	0.8 +/-	1.1 +/-	1.4 +/-	1.5 +/-	1.8 +/-	2.1	18
* 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	22.5	27.9	31.5	34.9	36.0	39.4	42.7
Std. Dev. /Écart-type (RR)	17.8	23.0	26.5	29.8	30.9	34.2	37.4
Std. Error/Erreur-type	1.4	1.0	1.2	1.6	1.7	2.3	2.8
Coefficient (A)	17.4	21.2	23.7	26.1	26.9	29.2	31.5
Exponent/Exposant (B)	-0.485	-0.493	-0.497	-0.500	-0.501	-0.504	-0.506
Mean % Error/% erreur moyenne	4.1	1.6	2.9	4.2	4.6	5.8	6.8

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

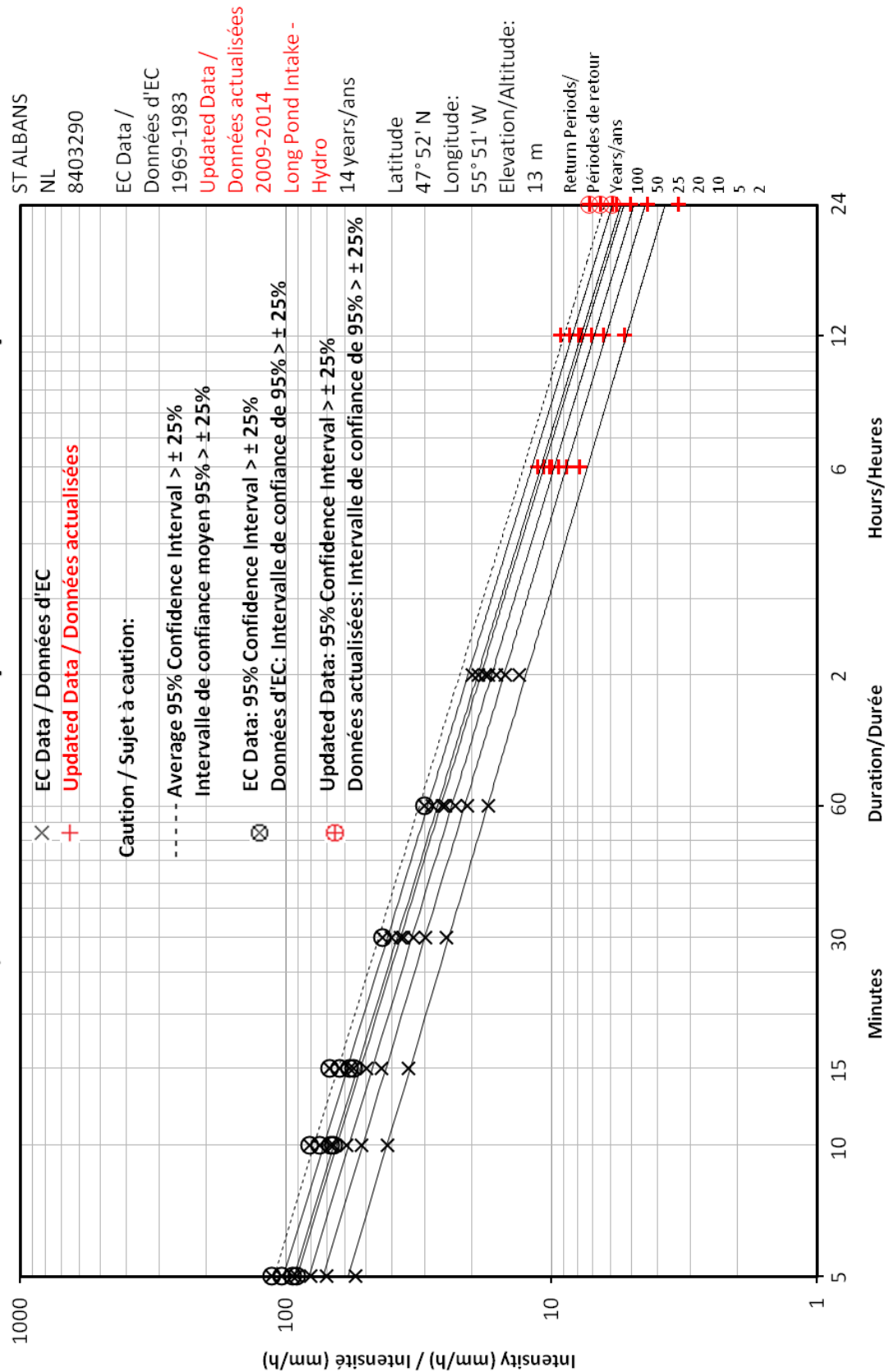


Figure 10.1 St. Albans IDF Curve - Updated

Quantile-Quantile : ST ALBANS, NL 8403290

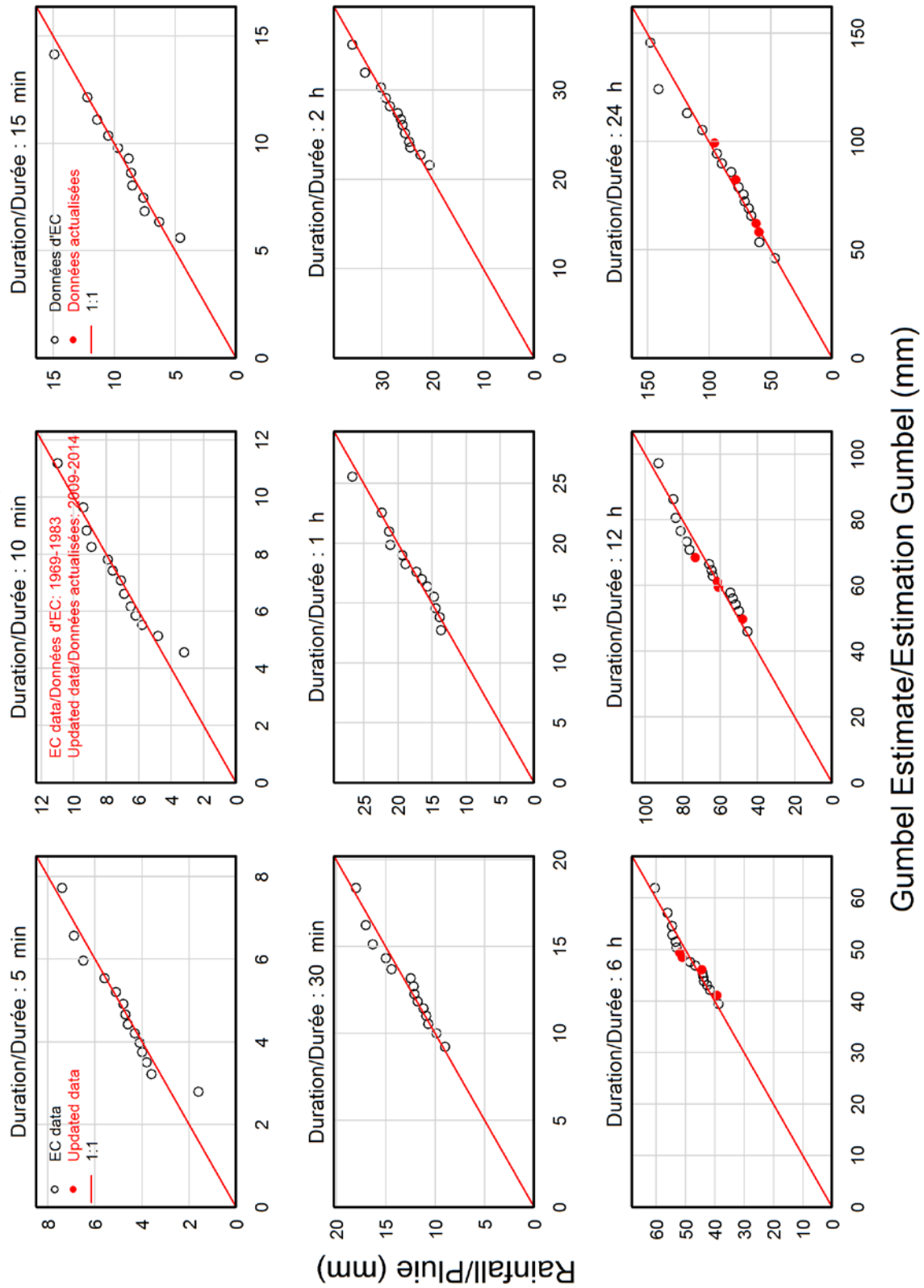
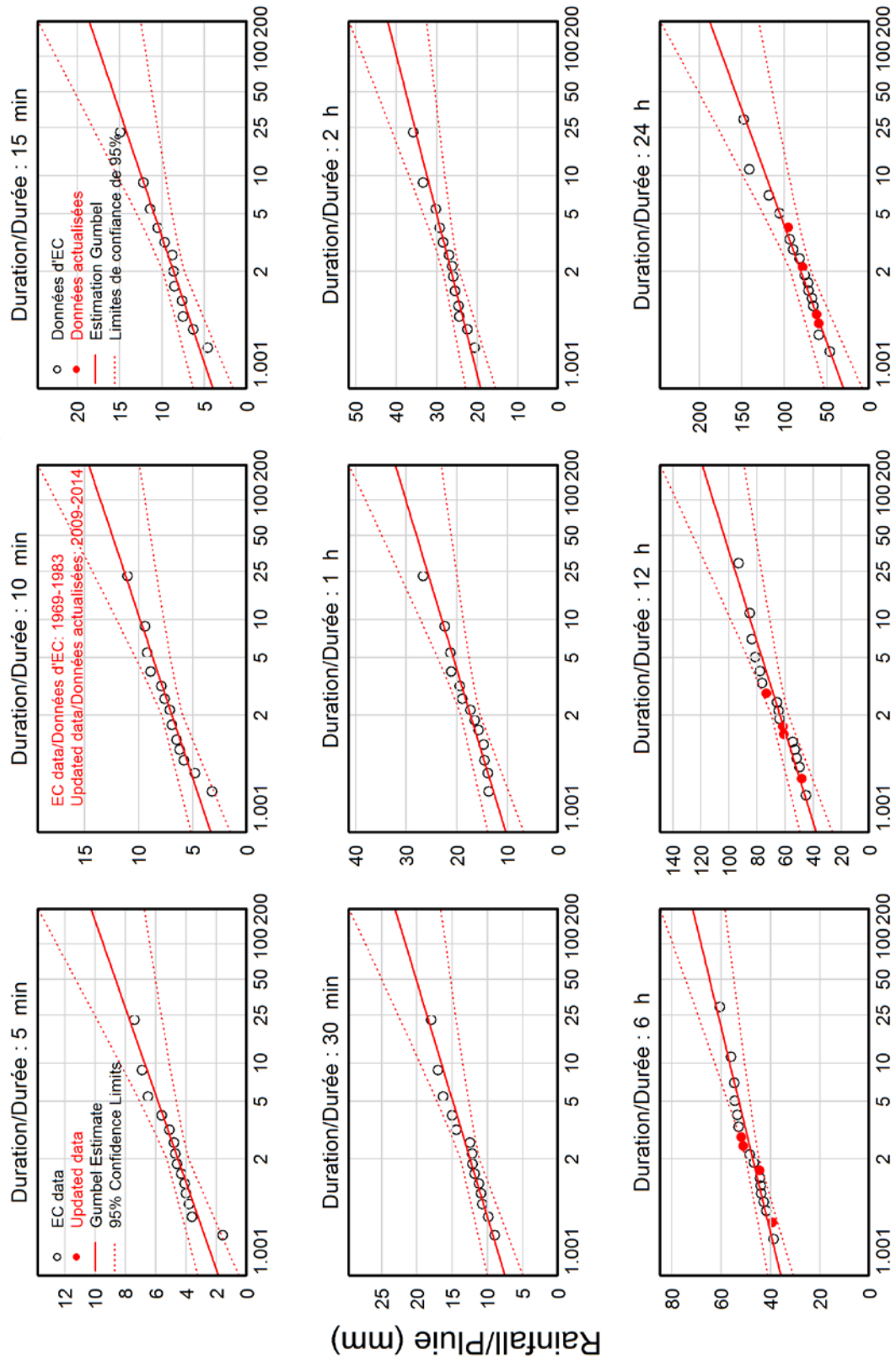


Figure 10.2 St. Albans Quantile-Quantile Plot - Updated

Return Level/Niveau de retour : ST ALBANS, NL 8403290



Return Period/Période de retour (years/années)

Figure 10.3 St. Albans Return Level Plot – Updated

Trend/Tendance : ST ALBANS, NL 8403290

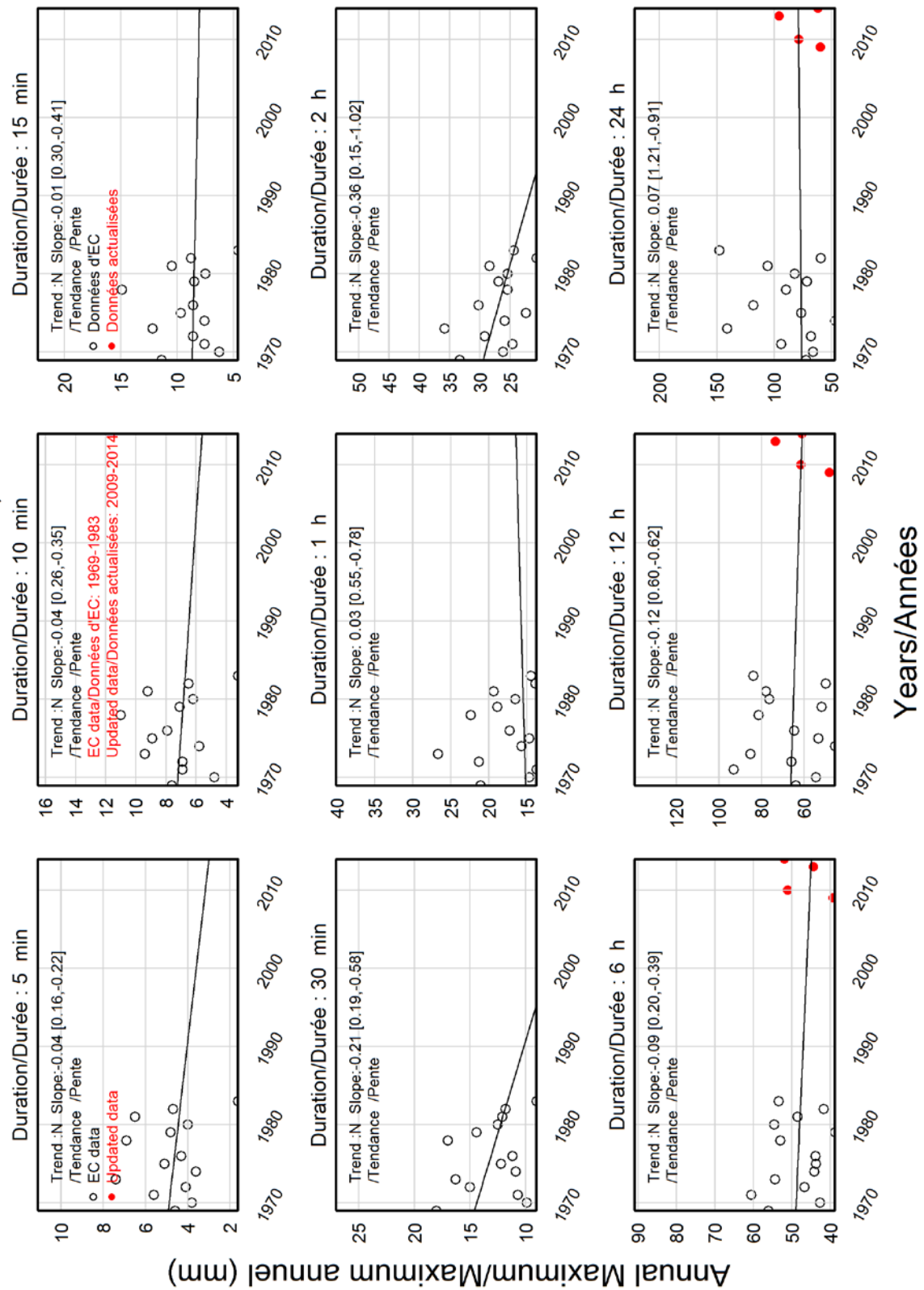


Figure 10.4 St. Albans Trend Plot – Updated