

13. St. Lawrence

This station was not updated in CRA (2015) because it is an active IDF station and was updated by EC. The EC IDF V2.3 (2015) curve is reproduced below, with the addition of the 20-year return period.

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 LAWRENCE						NL		8403619		
Latitude: 46 55'N		Longitude: 55 23'W		Elevation/Altitude: 48			m			
Years/Années : 1969 - 2013				# Years/Années :		33				
=====										

Table 1 : Annual Maximum (mm)/Maximum annuel (mm)										

	Year	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
	Année									
EC-IDF	1969	4.6	7.1	8.4	11.7	15.7	23.4	54.6	62.7	66.5
EC-IDF	1970	5.1	9.7	11.7	14.0	26.2	38.1	61.0	83.8	104.9
EC-IDF	1971	3.6	5.6	7.1	13.7	18.3	19.8	30.0	40.4	49.5
EC-IDF	1972	6.1	10.7	10.9	16.3	21.3	37.1	52.1	59.2	66.3
EC-IDF	1973	4.8	8.4	11.7	14.2	22.9	33.0	59.7	63.2	76.5
EC-IDF	1974	5.1	9.4	14.2	21.1	34.0	50.3	64.5	72.9	74.4
EC-IDF	1975	5.3	8.1	8.9	13.2	17.8	26.4	49.5	74.7	84.8
EC-IDF	1976	5.8	6.9	7.6	10.2	12.4	21.6	36.8	43.7	43.7
EC-IDF	1977	5.3	7.9	9.1	11.4	21.8	25.7	57.9	71.1	71.1
EC-IDF	1978	4.8	9.6	12.6	20.9	25.5	33.7	68.3	72.0	78.7
EC-IDF	1979	8.2	13.7	17.3	26.0	34.2	43.8	75.2	79.2	79.6
EC-IDF	1980	4.2	8.2	9.0	13.0	17.3	25.1	34.6	41.9	49.6
EC-IDF	1981	5.8	6.3	6.9	8.7	13.7	17.9	32.4	46.1	54.5
EC-IDF	1982	6.0	11.3	13.7	18.5	19.3	27.9	39.2	61.6	76.7
EC-IDF	1983	7.8	11.8	14.1	19.7	27.4	40.4	76.7	89.9	98.6
EC-IDF	1984	4.8	9.0	11.3	17.7	31.9	40.6	65.0	67.7	101.5
EC-IDF	1985	5.8	6.7	7.5	11.0	14.2	27.6	47.0	54.2	54.4
EC-IDF	1986	7.4	9.3	9.3	9.3	13.3	18.9	44.0	52.0	71.9
EC-IDF	1987	4.4	7.6	10.9	18.4	32.2	49.8	62.8	62.8	62.8
EC-IDF	1988	5.4	6.5	7.6	14.0	22.2	29.2	55.5	80.5	92.8
EC-IDF	1989	5.0	7.3	9.2	14.0	22.5	42.2	66.0	71.1	71.1
EC-IDF	1990	5.6	7.3	10.3	18.3	31.6	42.0	47.9	56.8	67.6
EC-IDF	1991	5.7	6.8	8.6	14.8	22.3	30.7	52.6	53.8	53.8
EC-IDF	1992	9.9	12.2	12.9	16.1	24.6	33.4	39.2	71.4	97.2
EC-IDF	1993	8.1	16.2	20.2	26.3	30.3	33.4	45.7	54.6	55.2
EC-IDF	1994	4.7	6.8	9.9	12.7	25.1	38.3	53.8	58.2	85.0
EC-IDF	1995	5.2	6.7	9.6	19.1	32.7	58.0	95.5	111.5	116.1
EC-IDF	1996	5.0	7.9	9.9	14.7	22.0	27.6	37.1	48.8	58.2
EC-IDF	2007	6.0	12.0	18.0	28.8	28.8	32.4	64.9	81.4	107.6
EC-IDF	2008	4.6	9.0	11.4	17.0	23.0	27.2	34.4	51.8	61.6
EC-IDF	2009	6.4	9.0	10.8	21.0	24.4	45.2	65.8	71.2	71.2
EC-IDF	2012	3.8	6.6	9.6	15.8	28.2	41.4	62.0	71.4	76.8
EC-IDF	2013	7.0	14.0	20.4	29.8	41.0	42.2	48.6	63.2	64.2

	# Yrs.	33	33	33	33	33	33	33	33	33
	Années									
	Mean	5.7	9.0	11.2	16.7	24.2	34.1	53.9	65.0	74.1

Moyenne									
Std. Dev.	1.4	2.5	3.5	5.3	6.9	9.8	14.7	15.1	18.4
Écart-type									
Skew.	1.25	1.14	1.28	0.89	0.25	0.36	0.51	0.76	0.54
Dissymétrie									
Kurtosis	4.95	4.05	4.37	3.62	2.90	2.90	3.70	4.56	2.83

*-99.9 Indicates Missing Data/Données manquantes

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
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
EC-IDF 5 min	5.5	6.7	7.5	8.2	8.5	9.2	10.0	33
EC-IDF 10 min	8.5	10.8	12.3	13.7	14.1	15.5	16.9	33
EC-IDF 15 min	10.6	13.8	15.8	17.8	18.5	20.4	22.3	33
EC-IDF 30 min	15.8	20.5	23.7	26.7	27.6	30.5	33.4	33
EC-IDF 1 h	23.0	29.2	33.2	37.1	38.4	42.2	45.9	33
EC-IDF 2 h	32.5	41.1	46.8	52.3	54.1	59.4	64.7	33
EC-IDF 6 h	51.5	64.5	73.1	81.3	84.0	92.0	100.0	33
EC-IDF 12 h	62.5	75.9	84.7	93.2	95.9	104.2	112.5	33
EC-IDF 24 h	71.0	87.3	98.1	108.5	111.7	121.9	131.9	33

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	65.4	79.9	89.5	98.7	101.6	110.6	119.5	33
	+/- 5.1	+/- 8.6	+/- 11.7	+/- 14.7	+/- 15.7	+/- 18.8	+/- 21.9	33
EC-IDF 10 min	51.2	64.7	73.6	82.2	84.9	93.2	101.5	33
	+/- 4.8	+/- 8.0	+/- 10.9	+/- 13.7	+/- 14.6	+/- 17.5	+/- 20.4	33
EC-IDF 15 min	42.6	55.1	63.4	71.3	73.8	81.6	89.2	33
	+/- 4.4	+/- 7.5	+/- 10.1	+/- 12.7	+/- 13.6	+/- 16.2	+/- 18.9	33
EC-IDF 30 min	31.7	41.1	47.3	53.3	55.2	61.1	66.9	33
	+/- 3.3	+/- 5.6	+/- 7.6	+/- 9.6	+/- 10.3	+/- 12.3	+/- 14.3	33
EC-IDF 1 h	23.0	29.2	33.2	37.1	38.4	42.2	45.9	33
	+/- 2.2	+/- 3.7	+/- 4.9	+/- 6.2	+/- 6.7	+/- 8.0	+/- 9.3	33
EC-IDF 2 h	16.2	20.6	23.4	26.2	27.0	29.7	32.4	33
	+/- 1.5	+/- 2.6	+/- 3.5	+/- 4.4	+/- 4.7	+/- 5.6	+/- 6.5	33
EC-IDF 6 h	8.6	10.8	12.2	13.6	14.0	15.3	16.7	33
	+/- 0.8	+/- 1.3	+/- 1.7	+/- 2.2	+/- 2.4	+/- 2.8	+/- 3.3	33
EC-IDF 12 h	5.2	6.3	7.1	7.8	8.0	8.7	9.4	33
	+/- 0.4	+/- 0.7	+/- 0.9	+/- 1.1	+/- 1.2	+/- 1.5	+/- 1.7	33
EC-IDF 24 h	3.0	3.6	4.1	4.5	4.7	5.1	5.5	33
	+/- 0.2	+/- 0.4	+/- 0.5	+/- 0.7	+/- 0.7	+/- 0.9	+/- 1.0	33

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	27.4	34.6	39.3	43.8	45.3	49.7	54.1
Std. Dev. /Écart-type (RR)	21.9	27.3	30.9	34.4	35.4	38.8	42.2
Std. Error/Erreur-type	4.9	7.5	9.3	10.9	11.5	13.1	14.8

Coefficient (A)	20.3	25.5	29.0	32.3	33.3	36.6	39.8
Exponent/Exposant (B)	-0.538	-0.543	-0.546	-0.547	-0.548	-0.549	-0.550
Mean % Error/% erreur moyenne	10.2	11.7	12.5	13.2	13.3	13.8	14.2

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

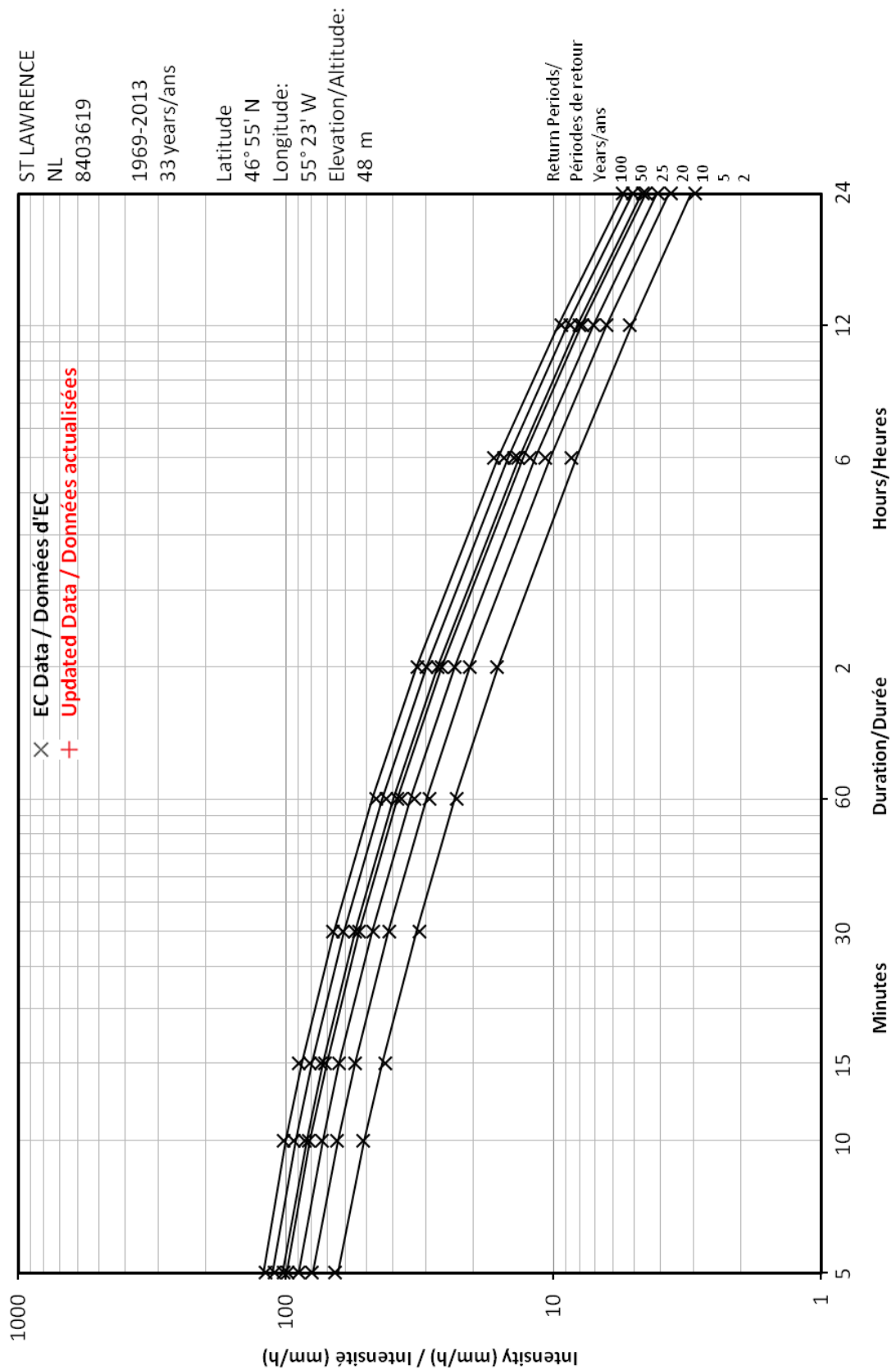


Figure 13.1 St. Lawrence IDF Curve – EC IDF V2.3

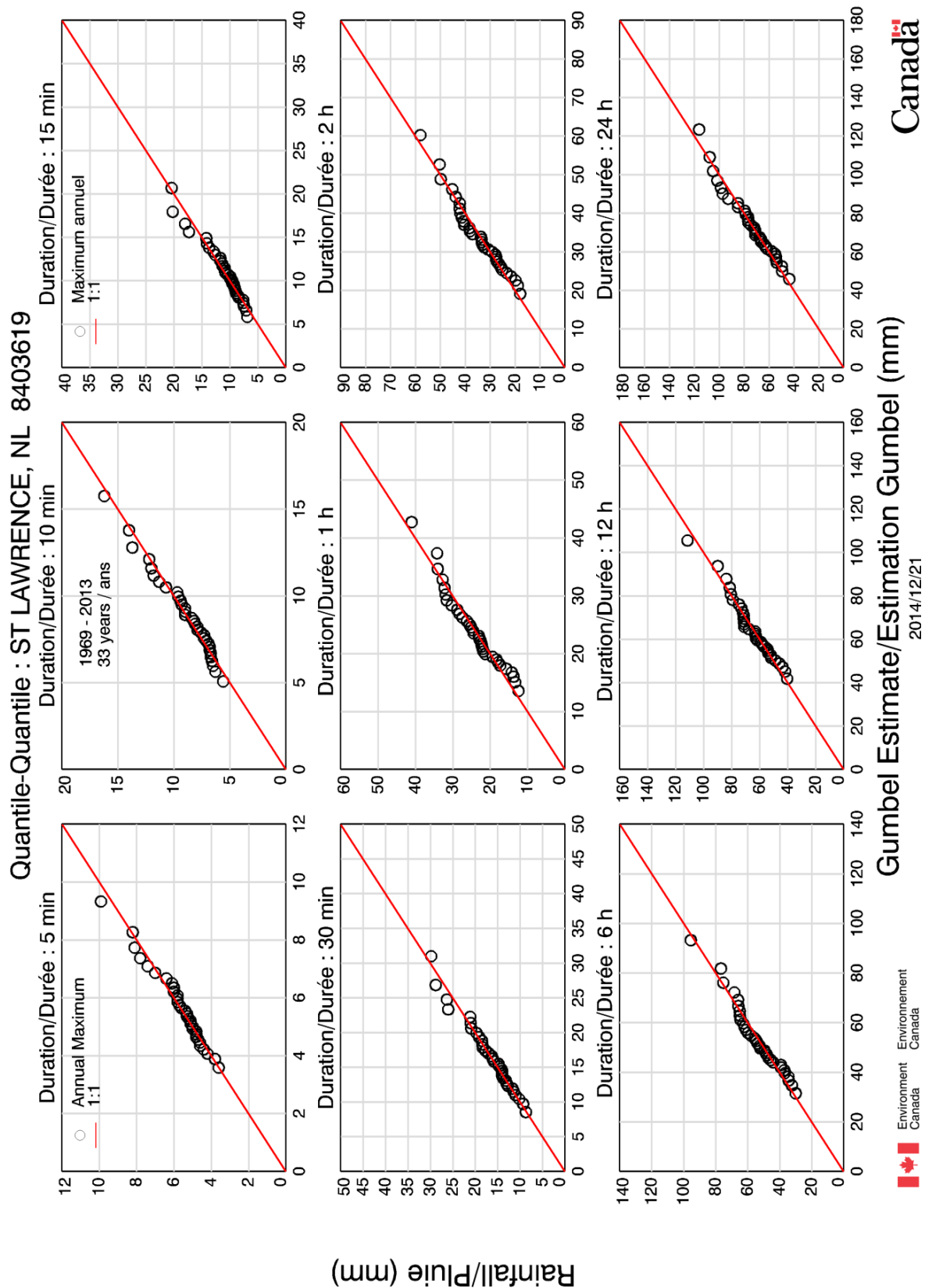


Figure 13.2 St. Lawrence Quantile-Quantile Plot – EC IDF V2.3

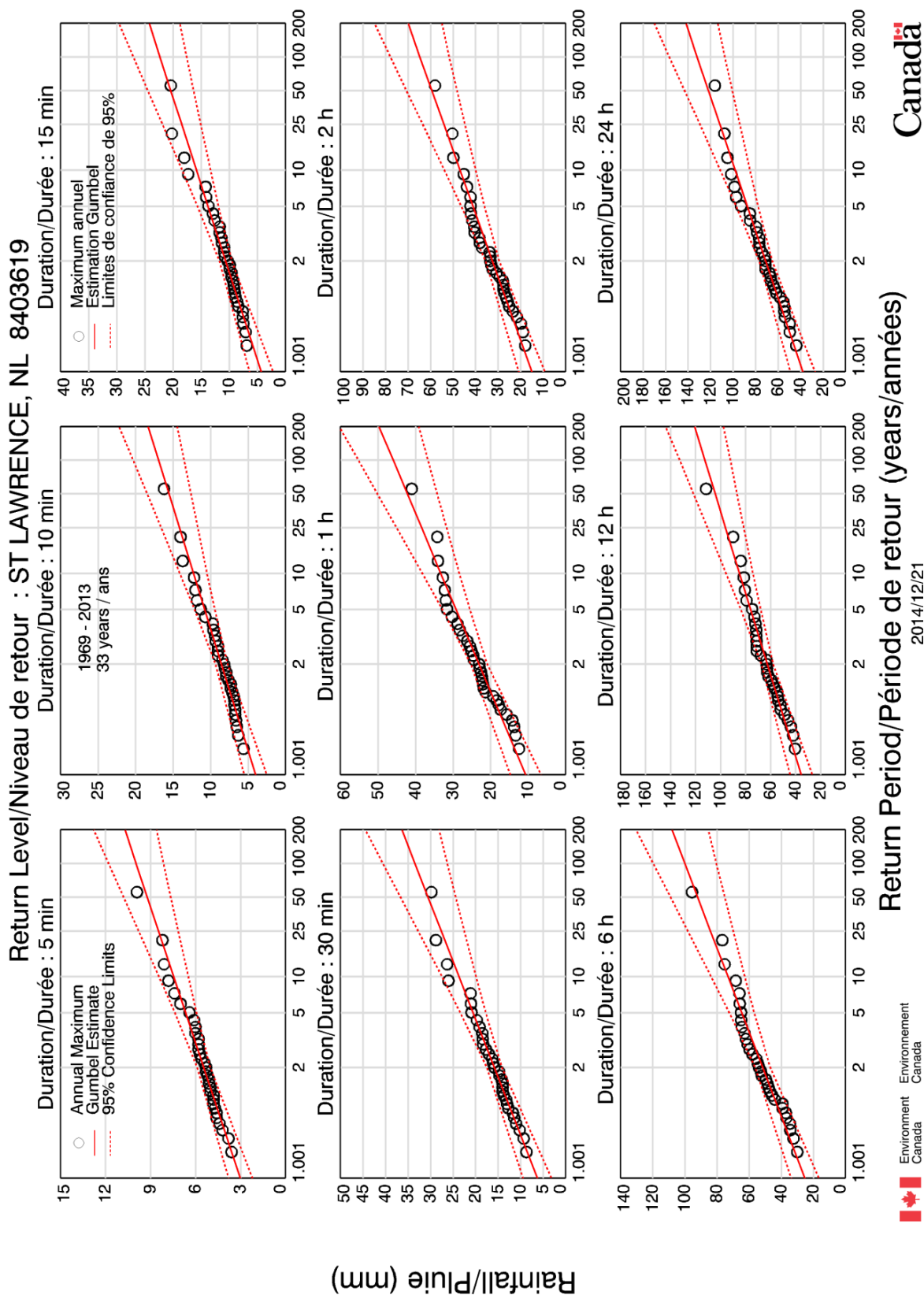


Figure 13.3 St. Lawrence Return Level Plot - EC IDF V2.3

Trend/Tendance : ST LAWRENCE, NL 8403619

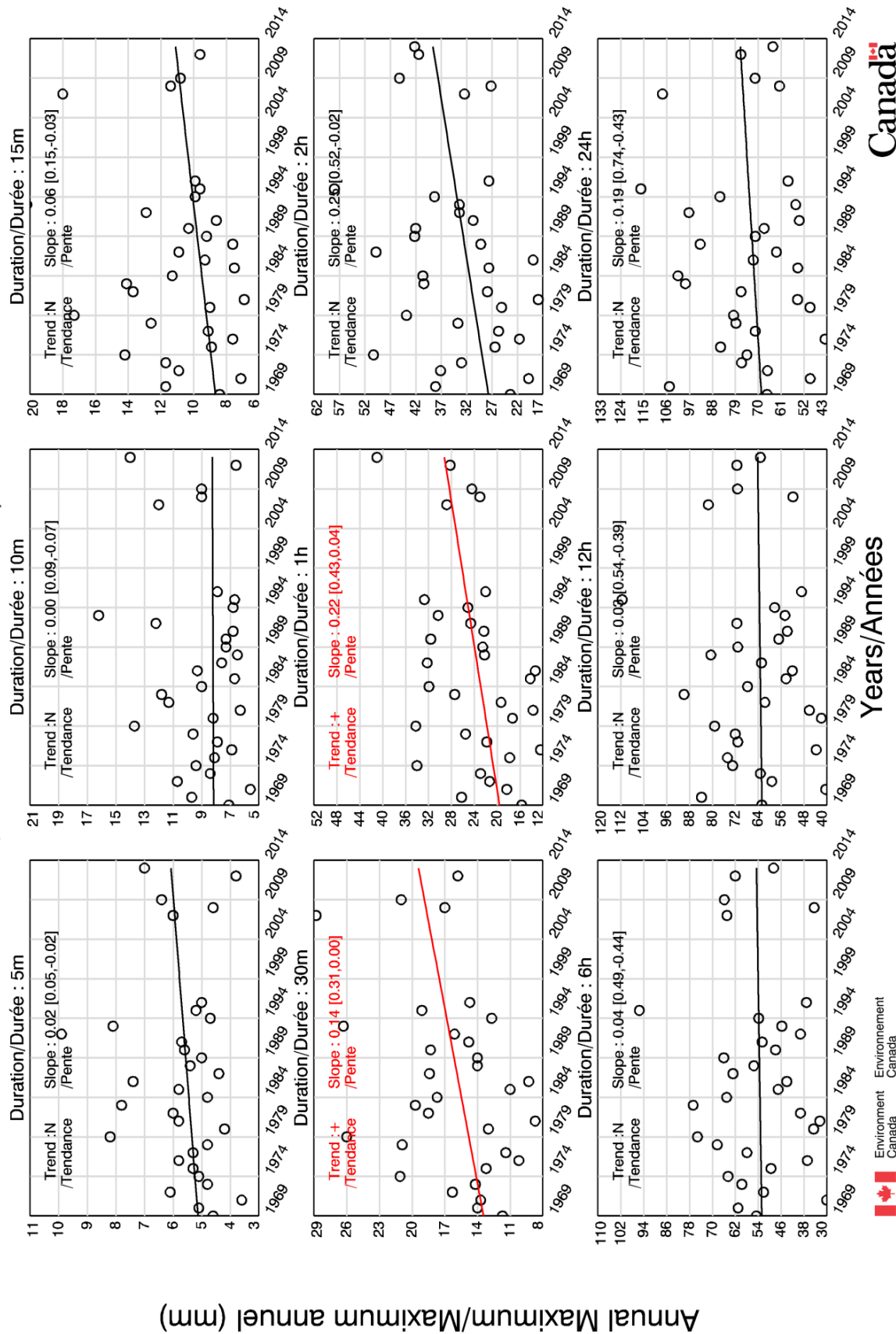


Figure 13.4 St. Lawrence Trend Plot – EC IDF V2.3