

17. Mary's Harbour 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 1-hr and 6-hr data from two nearby stations: Mary's Harbour and Mary's Harbour A. The IDF curve increased for most durations, but decreased for the 24-hr duration during the update (Table 17.1).

Table 17.1 Differences Between IDF Curves for Mary's Harbour 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	1.2 (0.1)	0.8 (0.1)	0.5 (0.1)	0.3 (0.0)	0.1 (0.0)	0.0 (0.0)
2-hr	2.3 (0.3)	2.2 (0.4)	2.2 (0.4)	2.2 (0.4)	2.2 (0.5)	2.2 (0.5)
6-hr	-2.6 (-0.7)	0.6 (0.2)	2.1 (0.7)	3.7 (1.4)	4.7 (1.9)	5.5 (2.4)
12-hr	4.1 (1.3)	7.5 (3.0)	9.0 (4.2)	10.5 (5.6)	11.4 (6.6)	12.1 (7.7)
24-hr	3.0 (1.2)	-0.3 (-0.2)	-1.7 (-1.0)	-2.9 (-2.2)	-3.6 (-3.0)	-4.2 (-3.8)

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

```

=====
MARY'S HARBOUR A                               NL           8502591
Updated with 6-hr data measured at Mary's Harbour (850B5R1): 1996-2013
Updated with 1-hr data measured at Mary's Harbour A (8502592): 2014
Latitude: 52 18'N   Longitude: 55 50'W   Elevation/Altitude: 10           m
Years/Années : 1983 - 2014           # Years/Années : 12
=====
*****

```

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* 1983    3.4   4.0   4.4   6.4  10.0  11.9  21.7  25.6  25.7
*EC-IDF* 1984    3.9   4.3   5.3   6.0   7.2  11.6  20.7  29.0  38.8
*EC-IDF* 1985    1.8   2.7   3.5   6.2  10.8  13.0  32.7  42.2  43.3
*EC-IDF* 1986    4.6   4.6   4.6   5.7   6.2   8.4  16.5  17.2  21.2
*EC-IDF* 1987    2.5   3.9   4.9   6.8   9.4  12.5  22.7  28.4  35.0
*EC-IDF* 1988    3.9   5.3   5.5   8.4  10.0  12.3  23.3  34.5  51.6
*EC-IDF* 1989    4.0   6.2   7.0   7.5  11.6  13.2  21.9  30.6  31.6
*EC-IDF* 1990    2.1   3.5   5.1   9.9  11.0  18.4  33.4  36.2  49.1
*EC-IDF* 1991    3.8   3.8   3.8   6.8   8.6  15.4  22.7  29.0  29.0
*EC-IDF* 1993    2.0   4.0   5.0   7.0  10.8  20.4  33.2  55.0  78.0
*EC-IDF* 1994    2.5   4.6   6.7   8.4  10.5  14.6  28.6  38.1  45.9
*EC-IDF* 1995    1.1   1.5   2.1   3.7   6.7  13.2  29.9  38.5  57.7
*UPDATE* 1996    NM     NM     NM     NM     NM     NM    23.0  30.0  43.0
*UPDATE* 1997    NM     NM     NM     NM     NM     NM    25.0  32.0  35.8
*UPDATE* 1998    NM     NM     NM     NM     NM     NM    39.0  50.0  66.0
*UPDATE* 1999    NM     NM     NM     NM     NM     NM    18.0  28.0  28.0
*UPDATE* 2000    NM     NM     NM     NM     NM     NM    15.0  21.0  22.6
*UPDATE* 2001    NM     NM     NM     NM     NM     NM    23.0  40.0  44.0
*UPDATE* 2002    NM     NM     NM     NM     NM     NM    19.0  26.0  35.0
*UPDATE* 2003    NM     NM     NM     NM     NM     NM    27.0  39.0  43.0
*UPDATE* 2004    NM     NM     NM     NM     NM     NM    20.0  29.0  31.0
*UPDATE* 2005    NM     NM     NM     NM     NM     NM    27.0  38.0  54.0
*UPDATE* 2008    NM     NM     NM     NM     NM     NM    35.0  66.0  74.5
*UPDATE* 2009    NM     NM     NM     NM     NM     NM    20.0  35.0  44.0
*UPDATE* 2010    NM     NM     NM     NM     NM     NM    25.0  35.0  43.0
*UPDATE* 2011    NM     NM     NM     NM     NM     NM    16.0  21.0  36.0
*UPDATE* 2012    NM     NM     NM     NM     NM     NM    34.0  58.0  58.5
*UPDATE* 2013    NM     NM     NM     NM     NM     NM    19.0  24.0  36.0
*UPDATE* 2014    NM     NM     NM     NM    10.8  17.8  35.8  48.2  50.9
-----
# Yrs.      12     12     12     12     13     13     29     29     29
Années
Mean        3.0     4.0     4.8     6.9     9.5    14.1    25.1    35.3    43.2
Moyenne
Std. Dev.   1.1     1.2     1.3     1.6     1.8     3.2     6.6    11.4    14.3
Écart-type
Skew.      -0.17   -0.40   -0.30   -0.05   -0.89   0.51    0.48    0.95    0.76
Dissymétrie
Kurtosis    2.56    5.03    4.37    4.77    3.11    3.81    2.47    4.03    3.61

*-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
                    yr/ans  yr/ans  yr/ans  yr/ans  yr/ans  yr/ans  yr/ans  Années
*EC-IDF* 5 min      2.8     3.8     4.4     5.0     5.2     5.8     6.4     12
*EC-IDF* 10 min     3.8     4.9     5.6     6.3     6.5     7.1     7.8     12
*EC-IDF* 15 min     4.6     5.8     6.6     7.3     7.5     8.3     9.0     12
*EC-IDF* 30 min     6.6     8.0     8.9     9.8     10.1    11.0    11.8    12
*UPDATE* 1 h       9.2     10.8    11.8    12.8    13.1    14.1    15.1    13
*UPDATE* 2 h      13.5    16.4    18.3    20.1    20.7    22.5    24.2    13
*UPDATE* 6 h      24.0    29.9    33.7    37.4    38.6    42.2    45.8    29
*UPDATE* 12 h     33.4    43.6    50.3    56.7    58.7    65.0    71.2    29
*UPDATE* 24 h     40.8    53.4    61.8    69.8    72.3    80.1    87.9    29

* 6-hr and 1-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	33.4	45.1	52.8	60.2	62.6	69.8	77.0	12
	+/- 6.9	+/- 11.6	+/- 15.6	+/- 19.7	+/- 21.0	+/- 25.2	+/- 29.3	12
EC-IDF 10 min	23.0	29.3	33.5	37.5	38.8	42.7	46.6	12
	+/- 3.7	+/- 6.2	+/- 8.4	+/- 10.7	+/- 11.4	+/- 13.6	+/- 15.8	12
EC-IDF 15 min	18.4	23.1	26.2	29.2	30.2	33.1	36.0	12
	+/- 2.8	+/- 4.7	+/- 6.3	+/- 7.9	+/- 8.5	+/- 10.2	+/- 11.8	12
EC-IDF 30 min	13.3	16.1	17.9	19.7	20.2	21.9	23.7	12
	+/- 1.6	+/- 2.7	+/- 3.7	+/- 4.7	+/- 5.0	+/- 6.0	+/- 7.0	12
UPDATE 1 h	9.2	10.8	11.8	12.8	13.1	14.1	15.1	13
	+/- 0.9	+/- 1.5	+/- 2.0	+/- 2.6	+/- 2.7	+/- 3.3	+/- 3.8	13
UPDATE 2 h	6.8	8.2	9.1	10.0	10.3	11.2	12.1	13
	+/- 0.8	+/- 1.4	+/- 1.8	+/- 2.3	+/- 2.5	+/- 3.0	+/- 3.5	13
UPDATE 6 h	4.0	5.0	5.6	6.2	6.4	7.0	7.6	29
	+/- 0.4	+/- 0.6	+/- 0.8	+/- 1.1	+/- 1.1	+/- 1.3	+/- 1.6	29
UPDATE 12 h	2.8	3.6	4.2	4.7	4.9	5.4	5.9	29
	+/- 0.3	+/- 0.5	+/- 0.7	+/- 0.9	+/- 1.0	+/- 1.2	+/- 1.4	29
UPDATE 24 h	1.7	2.2	2.6	2.9	3.0	3.3	3.7	29
	+/- 0.2	+/- 0.3	+/- 0.5	+/- 0.6	+/- 0.6	+/- 0.7	+/- 0.8	29

* 6-hr and 1-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	12.5	15.9	18.2	20.4	21.1	23.2	25.3
Std. Dev. /Écart-type (RR)	10.7	14.3	16.7	19.0	19.7	21.9	24.2
Std. Error/Erreur-type	0.3	1.4	2.3	3.1	3.4	4.2	5.0
Coefficient (A)	9.4	11.8	13.4	14.9	15.4	16.8	18.3
Exponent/Exposant (B)	-0.508	-0.508	-0.508	-0.508	-0.508	-0.508	-0.508
Mean % Error/% erreur moyenne	3.3	4.8	6.0	6.8	7.1	7.7	8.4

Short Duration Rainfall Intensity-Duration-Frequency Data

Données sur l'intensité, la durée et la fréquence des chutes de pluie de courte durée

MARY'S HARBOUR A

NL
8502591

EC Data /
Données d'EC
1983-1995

Updated Data /
Données actualisées
1996-2014

Mary's Harbour
850B5R1 & Mary's
Harbour A 8502592
12 years/ans

Latitude
52° 18' N
Longitude:
55° 50' W
Elevation/Altitude:
10 m

Return Periods/
Périodes de retour
Years/ans
100
50
25
20
10
5
2

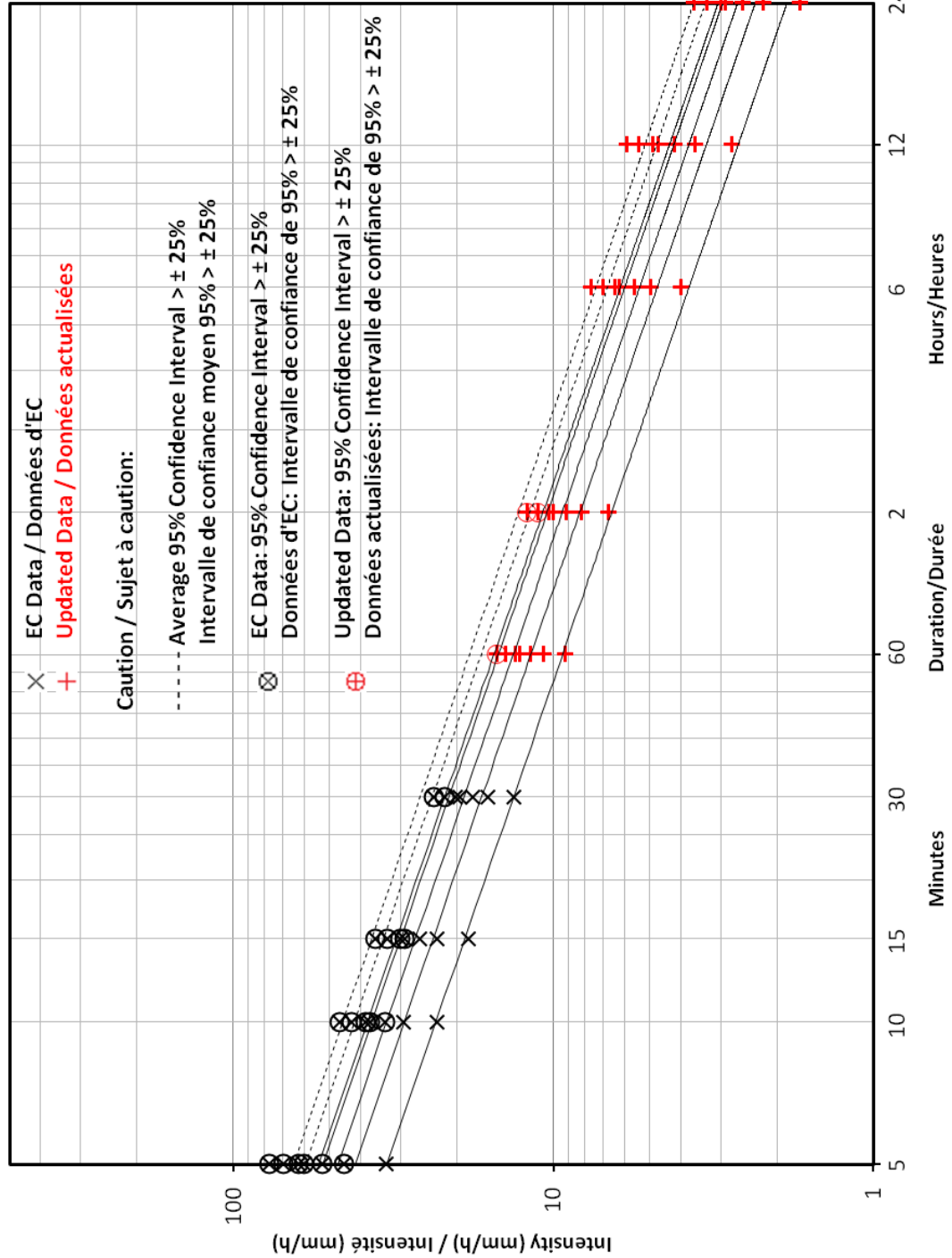


Figure 17.1 Mary's Harbour A IDF Curve - Updated

Quantile-Quantile : MARY'S HARBOUR A, NL 8502591

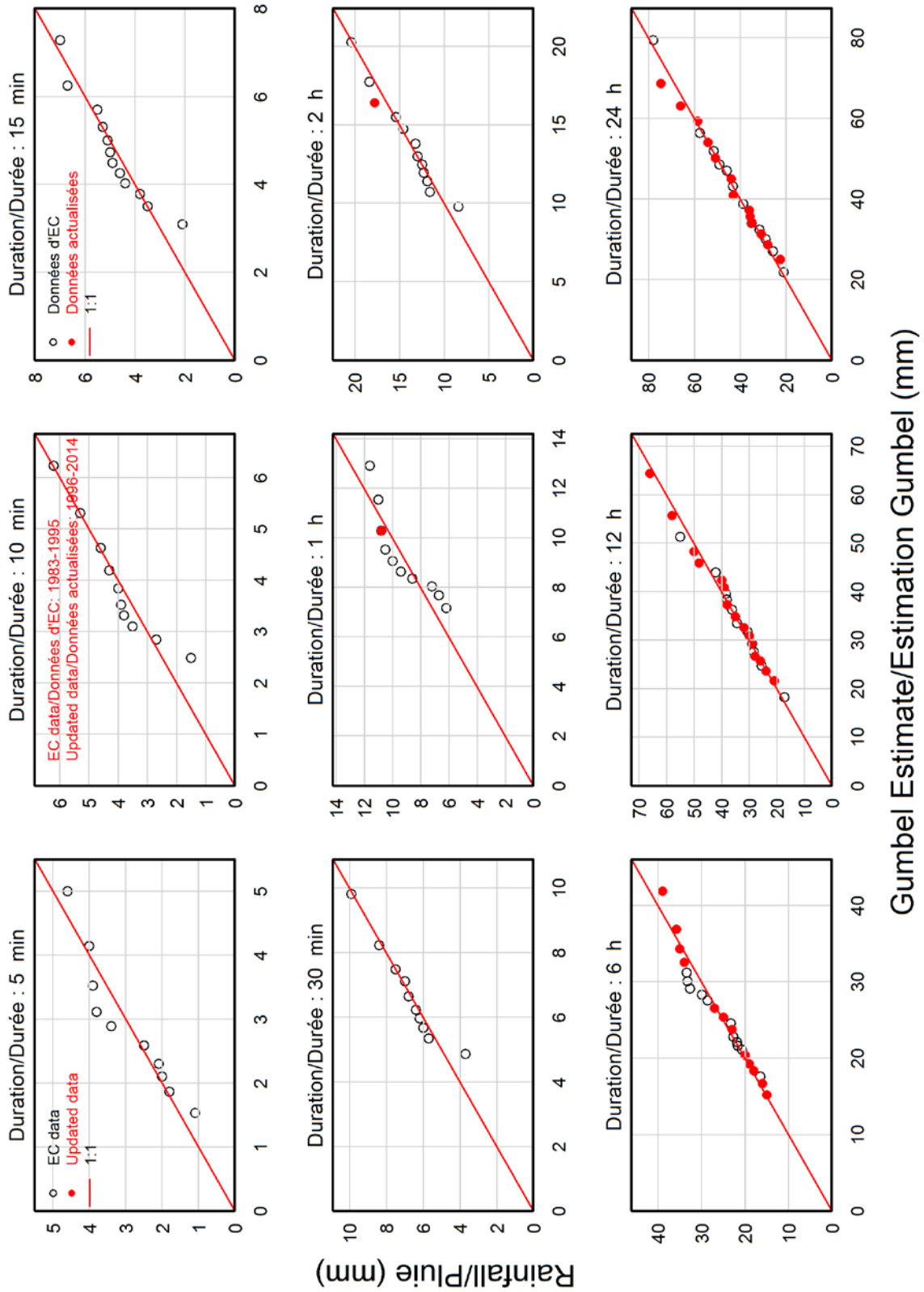
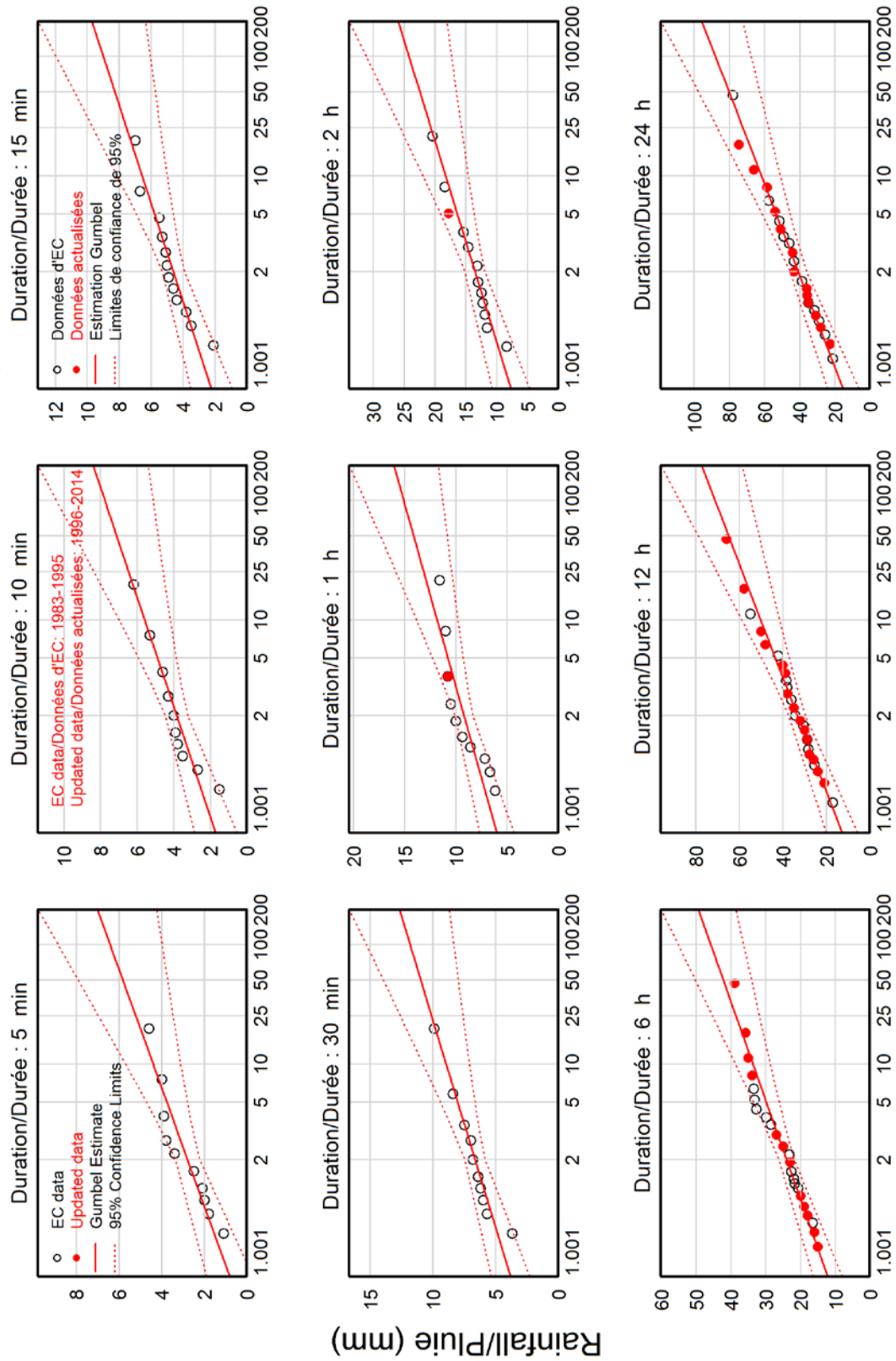


Figure 17.2 Mary's Harbour A Quantile-Quantile Plot – Updated

Return Level/Niveau de retour : MARY'S HARBOUR A, NL 8502591



Return Period/Période de retour (years/années)

Figure 17.3 Mary's Harbour A Return Level Plot - Updated

Trend/Tendance : MARY'S HARBOUR A, NL 8502591

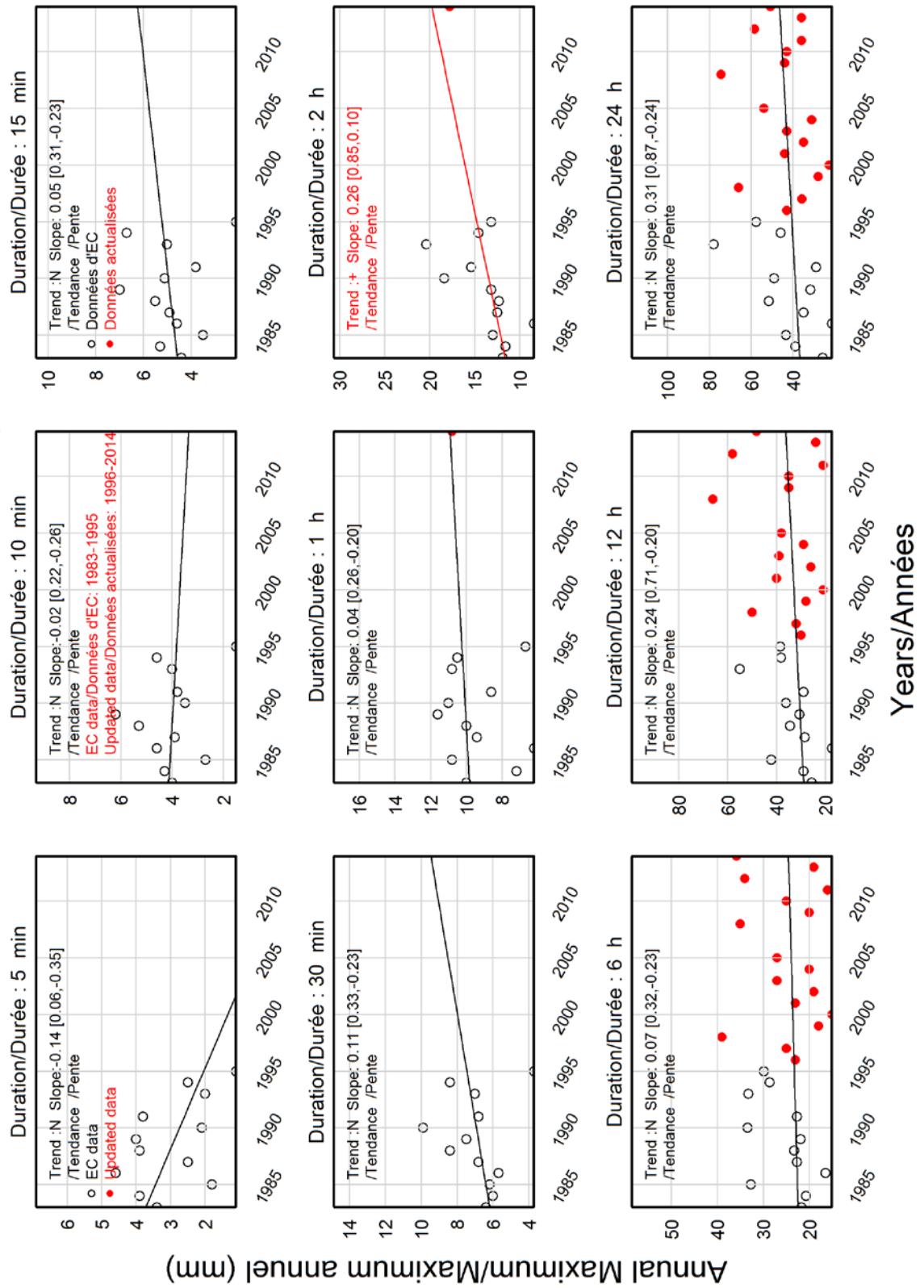


Figure 17.4 Mary's Harbour A Trend Plot - Updated