

PIÈCE JOINTE A
COURBES INTENSITÉ-DURÉE-FRÉQUENCE (IDF)

ATMOSPHERIC ENVIRONMENT SERVICE
 SERVICE DE L'ENVIRONNEMENT ATMOSPHERIQUE

RAINFALL INTENSITY-DURATION FREQUENCY VALUES
 INTENSITE, DUREE ET FREQUENCE DES PLUIES

GUMBEL - METHOD OF MOMENTS/METHODE DES MOMENTS - 1990

TABLE 2 RIMOUSKI QUE 7056480

LATITUDE 4827 LONGITUDE 6831 ELEVATION/ALTITUDE 33 M

RETURN PERIOD RAINFALL AMOUNTS (MM)
 PERIODE DE RETOUR QUANTITIES DE PLUIE (MM)

DURATION	2	5	10	25	50	100	# YEARS
DUREE	YR/ANS	YR/ANS	YR/ANS	YR/ANS	YR/ANS	YR/ANS	ANNEES
5 MIN	5.4	7.9	9.6	11.6	13.2	14.7	20
10 MIN	7.4	10.6	12.7	15.3	17.2	19.2	20
15 MIN	9.1	12.7	15.2	18.2	20.5	22.7	20
30 MIN	13.3	19.4	23.5	28.5	32.3	36.1	20
1 H	17.4	23.8	28.1	33.6	37.6	41.6	21
2 H	21.8	30.5	36.3	43.6	49.0	54.3	22
6 H	30.9	41.8	49.1	58.3	65.1	71.9	22
12 H	36.6	50.1	59.1	70.4	78.8	87.2	22
24 H	41.6	56.2	66.0	78.2	87.4	96.4	22

RETURN PERIOD RAINFALL RATES (MM/HR)-95% CONFIDENCE' LIMITS
 INTENSITE DE LA PLUIE PAR PERIODE DE RETOUR (MM/H)-LIMITES DE CONFIANCE DE 95%

DURATION	2 YR/ANS	5 YR/ANS	10 YR/ANS	25 YR/ANS	50 YR/ANS	100 YR/ANS
DUREE						
5 MIN	65.0	94.8	114.7	139.7	158.2	176.6
	+/- 13.6	+/- 22.9	+/- 31.0	+/- 41.7	+/- 49.9	+/- 58.2
10 MIN	44.6	63.5	76.0	91.7	103.4	115.1
	+/- 8.6	+/- 14.5	+/- 19.5	+/- 26.3	+/- 31.5	+/- 36.7
15 MIN	36.4	50.9	60.6	72.8	81.9	90.9
	+/- 6.6	+/- 11.2	+/- 15.1	+/- 20.4	+/- 24.4	+/- 28.4
30 MIN	26.7	38.8	46.9	57.1	64.6	72.2
	+/- 5.5	+/- 9.3	+/- 12.6	+/- 17.0	+/- 20.3	+/- 23.7
1 H	17.4	23.8	28.1	33.6	37.6	41.6
	+/- 2.9	+/- 4.8	+/- 6.6	+/- 8.8	+/- 10.6	+/- 12.3
2 H	10.9	15.2	18.1	21.8	24.5	27.2
	+/- 1.9	+/- 3.2	+/- 4.3	+/- 5.8	+/- 6.9	+/- 8.1
6 H	5.1	7.0	8.2	9.7	10.9	12.0
	+/- 0.8	+/- 1.3	+/- 1.8	+/- 2.4	+/- 2.9	+/- 3.4
12 H	3.1	4.2	4.9	5.9	6.6	7.3
	+/- 0.5	+/- 0.8	+/- 1.1	+/- 1.5	+/- 1.8	+/- 2.1
24 H	1.7	2.3	2.7	3.3	3.6	4.0
	+/- 0.3	+/- 0.4	+/- 0.6	+/- 0.8	+/- 1.0	+/- 1.1

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GUMBEL - METHOD OF MOMENTS/METHODE DES MOMENTS - 1990

TABLE 3 RIMOUSKI QUE 7056480

LATITUDE 4827 LONGITUDE 6831 ELEVATION/ALTITUDE 33 M

INTERPOLATION EQUATION / EQUATION D'INTERPOLATION: $R = A * T ** B$
 R = RAINFALL RATE / INTENSITE DE LA PLUIE (MM /HR)
 T = TIME IN HOURS / TEMPS EN HEURES

STATISTICS STATISTIQUES	2 YR ANS	5 YR ANS	10 YR ANS	25 YR ANS	50 YR ANS	100 YR ANS
MEAN OF R MOYENNE DE R	23.4	33.4	40.0	48.3	54.5	60.7
STD. DEV. R ECART-TYPE	21.6	31.5	38.0	46.3	52.4	58.4
STD. ERROR ERREUR STANDARD	3.9	5.5	6.6	8.0	9.1	10.1
COEFF. (A) COEFFICIENT (A)	15.2	21.4	25.4	30.6	34.4	38.1
EXPONENT (B) EXPOSANT (B)	-0.636	-0.649	-0.653	-0.658	-0.660	-0.662
MEAN % ERROR % D'ERREUR	8.9	8.9	9.0	9.0	9.0	9.0

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RAINFALL INTENSITY-DURATION FREQUENCY VALUES
INTENSITE, DUREE ET FREQUENCE DES PLUIES

DATA INTEGRATION DIVISION
LA DIVISION DU TRAITEMENT DES DONNEES

GUMBEL - METHOD OF MOMENTS/METHODE DES MOMENTS - 1990

TABLE 1 RIMOUSKI QUE 7056480

LATITUDE 4827 LONGITUDE 6831 ELEVATION/ALTITUDE 33 M

YEAR 5 MIN 10 MIN 15 MIN 30 MIN 1 H 2 H 6 H 12 H 24 H
ANNEE

1964	10.4	15.0	17.3	26.2	29.2	31.7	35.1	46.7	73.9
1966	6.6	12.2	15.5	21.1	27.7	35.6	37.3	37.3	37.3
1967	5.1	5.8	6.9	8.9	13.0	15.0	23.4	24.1	27.2
1968	3.6	5.6	7.6	10.7	10.9	13.7	18.0	19.8	20.1
1971	2.3	3.6	5.1	8.4	16.5	25.9	50.0	69.6	75.2
1972	4.1	6.1	6.6	8.1	11.9	16.5	37.6	65.3	74.2
1973	5.1	9.7	12.2	13.5	16.3	21.8	29.7	45.7	47.2
1974	10.9	11.7	13.0	23.6	27.2	32.3	32.8	37.8	47.5
1975	10.7	13.7	17.0	28.7	34.8	54.4	66.8	66.8	66.8
1976	7.9	9.9	11.2	20.8	21.6	23.9	27.9	34.0	43.4
1977	8.1	9.9	11.4	13.0	15.0	19.3	30.5	30.5	31.0
1978	4.3	5.6	5.6	5.6	8.6	13.9	22.7	27.1	36.4
1979	9.5	11.9	13.1	20.2	28.3	28.6	34.3	37.1	38.4
1980	3.3	3.9	5.9	9.8	11.7	19.0	43.3	47.3	48.8
1981	-99.9	-99.9	-99.9	-99.9	24.0	35.7	55.3	62.5	63.4
1982	2.1	3.0	3.9	5.8	10.4	14.7	23.2	25.3	26.4
1983	2.8	4.8	6.8	11.8	18.1	21.8	24.7	24.7	34.6
1984	6.2	8.8	12.9	19.0	19.0	19.2	21.9	24.7	37.2
1985	4.8	7.7	10.0	11.0	13.6	20.8	39.3	39.3	39.3
1986	4.2	5.8	7.0	12.8	15.5	16.0	28.1	42.6	43.6
1989	-99.9	-99.9	-99.9	-99.9	-99.9	13.4	15.9	22.4	23.2
1990	5.5	5.7	6.3	10.2	16.4	21.2	25.8	30.6	39.0

NOTE: -99.9 INDICATES MSG DATA
DONNEES MANQUANTES

# YRS.	20	20	20	20	21	22	22	22	22
ANNEES									
MEAN	5.9	8.0	9.8	14.5	18.6	23.4	32.9	39.1	44.3
MOYENNE									
STD. DEV.	2.8	3.6	4.1	6.9	7.3	9.9	12.4	15.3	16.6
ECART-TYPE									
SKEW	0.59	0.44	0.44	0.68	0.70	1.63	1.18	0.79	0.71
DISSYMETRIE									
KURTOSIS	2.58	2.47	2.38	2.72	2.86	6.56	4.72	2.93	2.91
KURTOSIS									

WARNING / AVERTISSEMENT

YEAR 1975 HAD VALUE GREATER THAN 100 YEAR STORM.

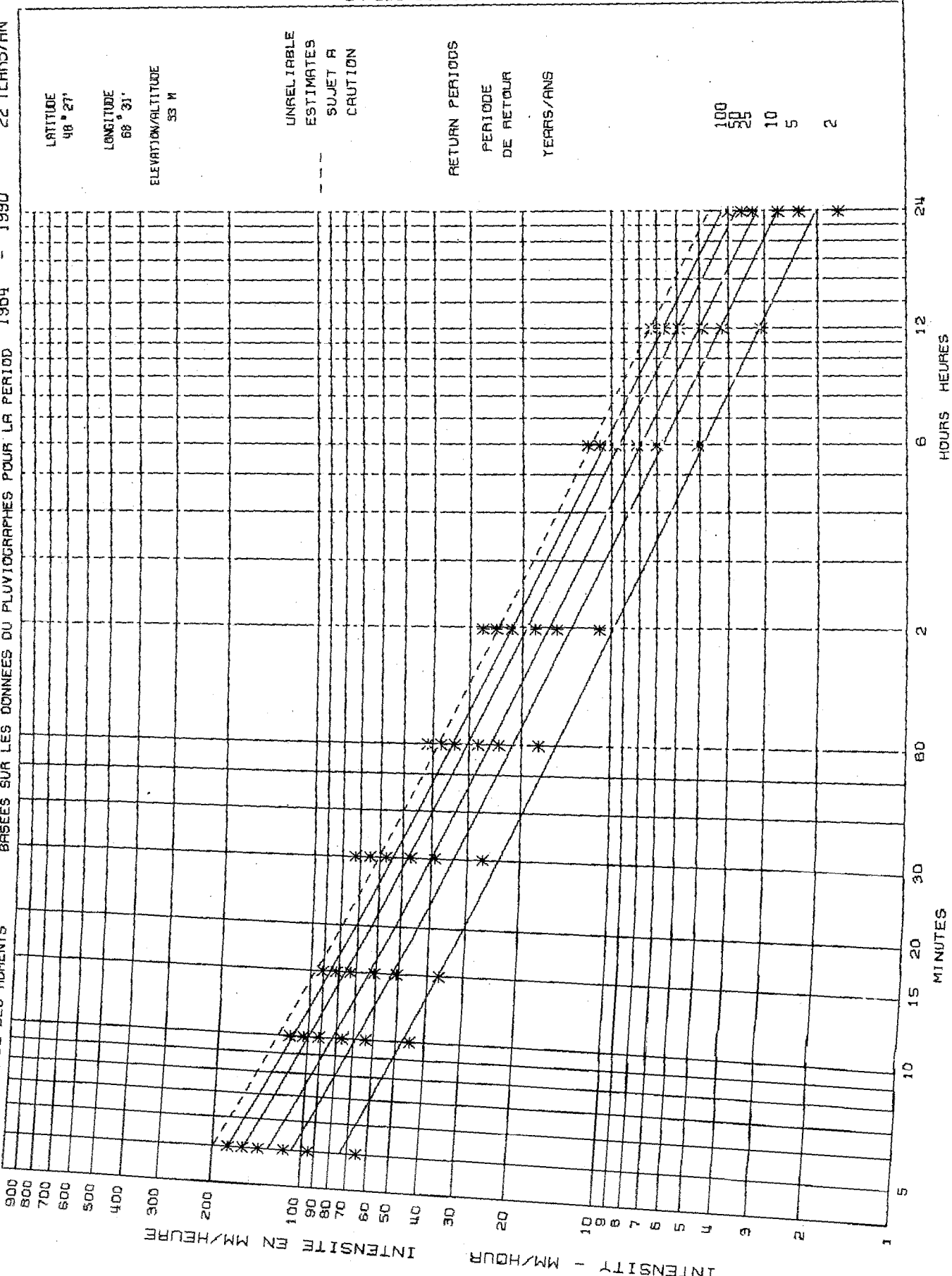
EN 1975 L'INTENSITE DE LA PLUIE A DE PASSE

CELLE POUR UNE PERIODE DE RETOUR DE 100 ANS

DATA/LA VALEUR = 54.4 100 YEAR/ANNEE = 54.3

NOTE: -99.9 INDICATES LESS THAN 10 YEARS OF DATA AVAILABLE
INDIQUE MOINS DE 10 ANNEES DE DONNEES DISPONIBLES

DONNEES SUR L'INTENSITE, LA DUREE ET LA FREQUENCE DES CHUTES DE PLUJE DE COURTE DUREE A TIMOUCIKI
 SHORT DURATION RAINFALL INTENSITY-DURATION FREQUENCY DATA AT TIMOUCIKI
 GUMBEL-METHOD OF MOMENTS
 BASEES SUR LES DONNEES DE PLUVIOMETRIQUES POUR LA PERIODE 1964 - 1990
 BASED ON RECORDING RAIN GAUGE DATA FOR THE PERIOD-
 1964 - 1990
 22 YEARS/AN



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 ATMOSPHERIC ENVIRONMENT SERVICE - ENVIRONNEMENT CANADA
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GUMBEL - METHOD OF MOMENTS/METHODE DES MOMENTS - 1990

TABLE 2 RIVIERE DU LOUP QUE 7056615

LATITUDE 4748 LONGITUDE 6933 ELEVATION/ALTITUDE 146 M

RETURN PERIOD RAINFALL AMOUNTS (MM)
 PERIODE DE RETOUR QUANTITIES DE PLUIE (MM)

DURATION	2	5	10	25	50	100	# YEARS
DUREE	YR/ANS	YR/ANS	YR/ANS	YR/ANS	YR/ANS	YR/ANS	ANNEES
5 MIN	6.3	8.1	9.3	10.8	11.9	13.0	10
10 MIN	9.9	13.1	15.3	18.0	20.0	22.0	10
15 MIN	11.1	14.4	16.6	19.4	21.4	23.5	10
30 MIN	13.4	17.4	20.1	23.5	26.0	28.4	10
1 H	16.6	22.1	25.7	30.2	33.6	37.0	10
2 H	19.6	24.6	28.0	32.3	35.4	38.5	10
6 H	28.1	36.2	41.6	48.4	53.4	58.4	10
12 H	36.3	45.4	51.5	59.1	64.7	70.4	10
24 H	44.8	55.3	62.2	70.9	77.4	83.8	10

RETURN PERIOD RAINFALL RATES (MM/HR)-95% CONFIDENCE' LIMITS
 INTENSITE DE LA PLUIE PAR PERIODE DE RETOUR (MM/H)-LIMITES DE CONFIANCE DE 95%

DURATION	2 YR/ANS	5 YR/ANS	10 YR/ANS	25 YR/ANS	50 YR/ANS	100 YR/ANS
DUREE						
5 MIN	76.1	97.5	111.7	129.7	143.0	156.2
	+/- 13.8	+/- 23.3	+/- 31.4	+/- 42.4	+/- 50.7	+/- 59.1
10 MIN	59.1	78.7	91.7	108.0	120.2	132.2
	+/- 12.6	+/- 21.2	+/- 28.7	+/- 38.7	+/- 46.2	+/- 53.9
15 MIN	44.6	57.8	66.5	77.5	85.7	93.8
	+/- 8.5	+/- 14.3	+/- 19.3	+/- 26.0	+/- 31.2	+/- 36.3
30 MIN	26.8	34.8	40.2	46.9	51.9	56.9
	+/- 5.2	+/- 8.7	+/- 11.8	+/- 15.9	+/- 19.0	+/- 22.2
1 H	16.6	22.1	25.7	30.2	33.6	37.0
	+/- 3.5	+/- 5.9	+/- 8.0	+/- 10.7	+/- 12.9	+/- 15.0
2 H	9.8	12.3	14.0	16.1	17.7	19.3
	+/- 1.6	+/- 2.7	+/- 3.7	+/- 5.0	+/- 6.0	+/- 7.0
6 H	4.7	6.0	6.9	8.1	8.9	9.7
	+/- 0.9	+/- 1.5	+/- 2.0	+/- 2.7	+/- 3.2	+/- 3.7
12 H	3.0	3.8	4.3	4.9	5.4	5.9
	+/- 0.5	+/- 0.8	+/- 1.1	+/- 1.5	+/- 1.8	+/- 2.1
24 H	1.9	2.3	2.6	3.0	3.2	3.5
	+/- 0.3	+/- 0.5	+/- 0.6	+/- 0.9	+/- 1.0	+/- 1.2

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INTERPOLATION EQUATION / EQUATION D'INTERPOLATION: $R = A * T ** B$

R = RAINFALL RATE / INTENSITE DE LA PLUIE (MM /HR)

T = TIME IN HOURS / TEMPS EN HEURES

STATISTICS STATISTIQUES	2 YR ANS	5 YR ANS	10 YR ANS	25 YR ANS	50 YR ANS	100 YR ANS
MEAN OF R MOYENNE DE R	26.9	35.0	40.4	47.1	52.1	57.1
STD. DEV. R ECART-TYPE	27.0	35.1	40.5	47.3	52.4	57.4
STD. ERROR ERREUR STANDARD	4.7	7.3	9.0	11.2	12.8	14.4
COEFF. (A) COEFFICIENT (A)	16.2	20.8	23.9	27.8	30.7	33.6
EXPONENT (B) EXPOSANT (B)	-0.678	-0.687	-0.691	-0.695	-0.697	-0.699
MEAN % ERROR % D'ERREUR	4.7	5.6	6.1	6.7	7.0	7.3

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TABLE 1 RIVIERE DU LOUP QUE 7056615

LATITUDE 4748 LONGITUDE 6933 ELEVATION/ALTITUDE 146 M

YEAR 5 MIN 10 MIN 15 MIN 30 MIN 1 H 2 H 6 H 12 H 24 H
 ANNEE

1968	6.1	7.6	7.9	7.9	11.2	16.5	27.7	35.3	39.4
1969	5.1	10.2	12.7	15.2	25.4	25.4	38.6	45.5	61.5
1970	5.8	9.4	11.9	16.3	19.6	24.9	26.4	37.6	47.2
1971	8.6	13.0	14.2	15.2	17.8	25.1	49.0	63.8	70.4
1972	8.1	16.0	16.5	16.5	16.5	17.3	21.1	30.5	39.1
1973	6.3	9.9	11.4	17.8	26.7	29.0	37.1	40.4	50.0
1976	11.2	17.0	18.3	22.1	23.6	23.6	24.1	32.8	48.0
1977	5.3	7.6	8.6	12.4	14.7	16.8	24.9	29.7	34.8
1978	4.9	6.6	7.5	7.8	8.7	11.5	19.4	30.9	32.4
1979	5.3	7.3	8.6	10.2	12.3	15.1	28.0	33.4	44.9
1980	-99.9	-99.9	-99.9	-99.9	-99.9	-99.9	-99.9	-99.9	-99.9

NOTE: -99.9 INDICATES MSG DATA
 DONNEES MANQUANTES

# YRS. ANNEES	10	10	10	10	10	10	10	10	10
MEAN MOYENNE	6.7	10.5	11.8	14.1	17.6	20.5	29.6	38.0	46.8
STD. DEV. ECART-TYPE	2.0	3.7	3.7	4.6	6.2	5.7	9.2	10.3	11.8
SKEW DISSYMETRIE	1.47	0.91	0.54	0.02	0.15	-0.08	1.15	2.02	0.92
KURTOSIS	5.47	3.49	3.20	3.51	2.84	2.68	4.70	8.02	4.38

NOTE: -99.9 INDICATES LESS THAN 10 YEARS OF DATA AVAILABLE
 INDIQUE MOINS DE 10 ANNEES DE DONNEES DISPONIBLES

ATMOSPHERIC ENVIRONMENT SERVICE - ENVIRONNEMENT CANADA
SERVICE DE L'ENVIRONNEMENT ATMOSPHERIQUE - ENVIRONNEMENT CANADA

PREPARED BY - PREPARE PAR LE

SHORT DURATION RAINFALL INTENSITY-DURATION FREQUENCY DATA FOR-
DONNEES SUR L'INTENSITE, LA DUREE ET LA FREQUENCE DES CHUTES DE PLUIE DE COURTE DUREE A RIVIERE DU LOUP
CUMBER-METHOD OF MOMENTS BASED ON RECORDING RAIN GAUGE DATA FOR THE PERIOD-
METHODE DES MOMENTS BASEES SUR LES DONNEES DU PLYVIOMETRES POUR LA PERIODE 1968 - 1980 11 YEARS/AN

