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Memorandum - Note de service

To/À	Mr. Doug Cuthbert Manager, Sciences Divisions Meteorological Service of Canada – Ontario Region Burlington, Ontario	***Prepared by/ Préparé par:***	DF
		Security/ Sécurité:	UNCLASSIFIED
From/ De	Mr. Peter Yee Manager, Great Lakes - St. Lawrence Regulation Office, Meteorological Service of Canada – Ontario Region Cornwall, Ontario	***File/ Dossier:***	2222
		Date:	June 27, 2002

Subject/ Objet:

GREAT LAKES WATER LEVELS INFORMATION

The June 2002 water supplies to the Great Lakes basins were above average except for Lakes Superior and Erie, which were slightly below average. During June, Lake Superior's level rose 7 cm as compared to the average 8 cm for the month. Lakes Michigan-Huron and St. Clair rose 9 cm and 6 cm, respectively, which were more than average. Lake Erie fell 3 cm during June as oppose to its normal 1 cm rise. Lake Ontario's level fell 1 cm, its average change in June. Present levels on all the Great Lakes are higher than those one year ago, except for Lake Superior which is about the same as last year. Lakes Superior, Michigan-Huron, St. Clair, and Erie are below average. Lake Ontario's level is above average. Levels on all the Great Lakes were above chart datum during June, and are expected to remain above chart datum in July. The present levels of Lakes St. Clair, Erie, and Ontario are likely at their peak for this year, whereas further rises in the levels of the upper Great Lakes are expected in July.

The following table compares the levels of the lakes to their long-term averages and last year's levels.

GREAT LAKES WATER LEVELS

Lake	June Monthly Mean Level		Beginning of July Level	
	Compared to Monthly Average (1918-2001)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918-2001)	Compared to One Year Ago
Superior	16 cm below	2 cm below	16 cm below	1 cm below
Michigan-Huron	30 cm below	23 cm above	27 cm below	26 cm above
St. Clair	8 cm below	21 cm above	7 cm below	20 cm above
Erie	same	23 cm above	2 cm below	22 cm above
Ontario	28 cm above	33 cm above	27 cm above	31 cm above

(Note: Complete precipitation reports for June are not yet available, but are expected early next week. They will be sent separately once available.) Figures 1 and 2 show the difference from average of the water supplies received in each of the Great Lakes for the past 3 and 6 months, respectively.

The outflow from Lake Superior will be about 2230 m^3/s in July, an increase from the 2140 m^3/s outflow in June. The July flow is slightly less than the long-term average outflow for July.

The daily outflows from Lake Ontario during last month averaged 8150 m^3/s, about 109 percent of the June (1918-2001) average. Since May 18, the outflow has been more than the amount specified by the regulation plan (except for June 15 to 21, when the outflow was as specified by the regulation plan to reduce the risk of flooding on Lake St. Louis). The over-discharge will continue until all the water reserved on Lake Ontario due to previous deviations from the regulation plan is released from Lake Ontario. Currently, the amount of this reserve is about 4 cm..

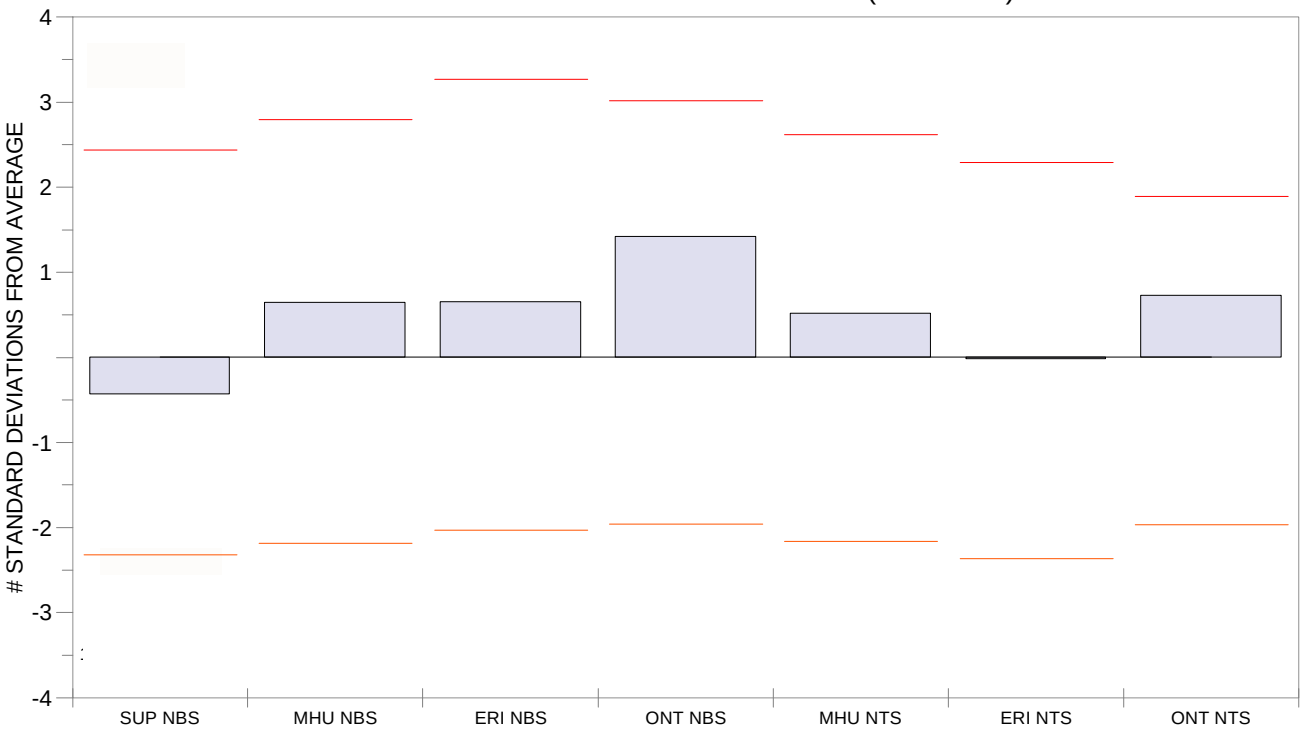
Montreal Harbour's daily levels in June averaged 6.99 m, 144 cm above chart datum and 25 cm higher than the long-term average (1967-2001) for June. Last month's level was 143 cm above the June 2001 level. The outflow from the Ottawa River was above average (1962-1999) during June. The most probable supplies forecast indicates that the harbour's monthly mean level will decline in July as compared to June, remain above average (1967-2001) and above chart datum.

The recent observed and forecasted ranges of monthly levels on the Great Lakes are shown in the attached figures and tables.

This information has been prepared under the auspices of the International Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data by the Great Lakes - St. Lawrence Regulation Office, Environment Canada, and the Detroit District, U.S. Army Corps of Engineers.

PY/
cc e-mail list

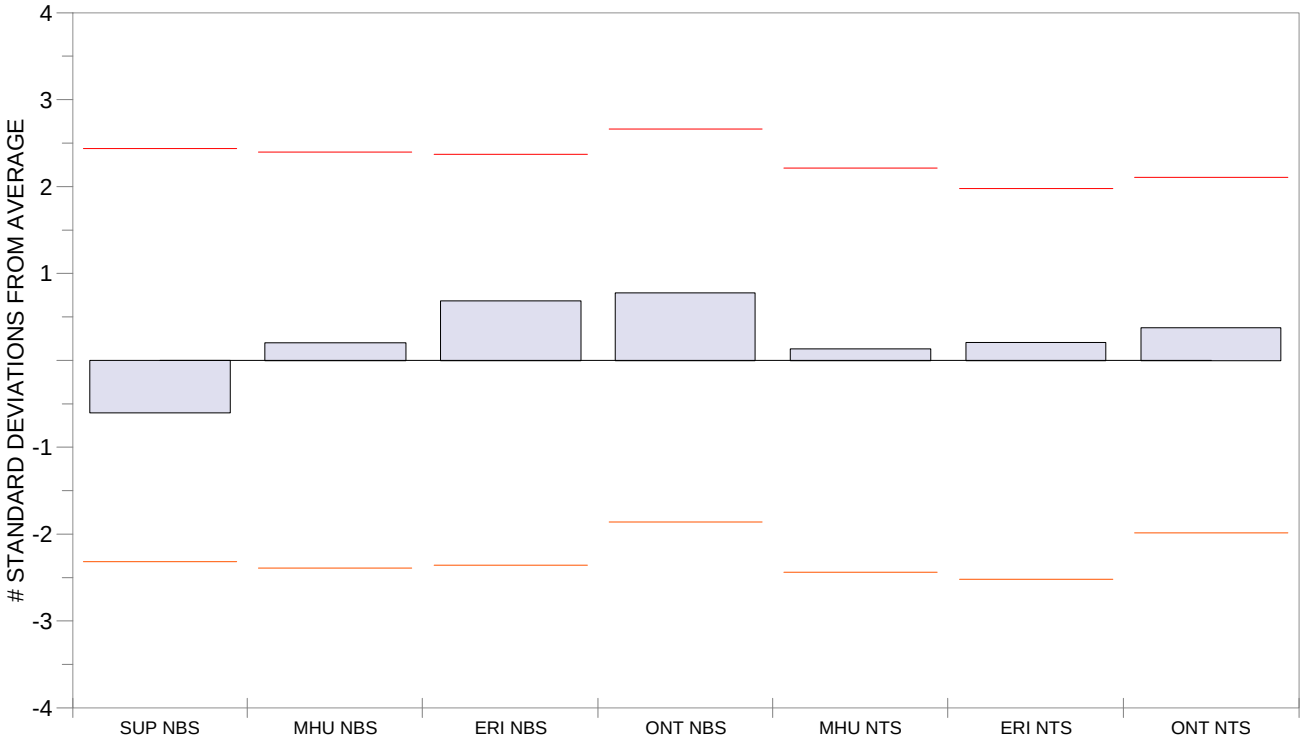
FIGURE 1: 3 MONTH AVERAGE NET BASIN SUPPLIES & NET TOTAL SUPPLIES
APR 2002 TO JUN 2002 - COMPARED TO APR-JUN AVERAGE (1918-2001)



1 STANDARD DEVIATION (m3/s):

SUP NBS	MHU NBS	ERI NBS	ONT NBS	MHU NTS	ERI NTS	ONT NTS
1241	1535	476	517	1719	759	1027

FIGURE 2: 6 MONTH AVERAGE NET BASIN SUPPLIES & NET TOTAL SUPPLIES
JAN 2002 TO JUN 2002 - COMPARED TO JAN-JUN AVERAGE (1918-2001)



1 STANDARD DEVIATION (m3/s):

SUP NBS	MHU NBS	ERI NBS	ONT NBS	MHU NTS	ERI NTS	ONT NTS
620	1053	346	350	1211	776	949

GREAT LAKES WATER LEVELS

COMPARISON OF PAST, PRESENT, AND PROBABLE FUTURE LEVELS
(Referred to metres, International Great Lakes Datum 1985)

Location	Monthly Water Level JUN 2001	Monthly Water Level MAY 2002	Monthly Water Level JUN 2002	Probable Levels JUL 2002
Lake Superior	183.33	183.26	183.31	183.38
Lake Huron	176.06	176.19	176.29	176.36
Lake St. Clair	174.89	175.03	175.10	175.06
Lake Erie	174.10	174.31	174.33	174.28
Lake Ontario	74.99	75.22	75.32	75.22
Montreal Harbour at Jetty No.1	5.56	7.17	6.99	6.65

GREAT LAKES WATER LEVELS FORECAST

Forecast Beginning 1 JULY 2002
Monthly Mean Water Level IGLD 1985 (m above Chart Datum IGLD 1985)
For Exceedence Probability Shown

LAKE SUPERIOR

MONTH	5%	MOST PROBABLE	95%
JULY	183.40 (0.20)	183.38 (0.18)	183.36 (0.16)
AUGUST	183.48 (0.28)	183.42 (0.22)	183.36 (0.16)
SEPTEMBER	183.54 (0.34)	183.42 (0.22)	183.33 (0.13)
OCTOBER	183.56 (0.36)	183.40 (0.20)	183.29 (0.09)
NOVEMBER	183.53 (0.33)	183.38 (0.18)	183.23 (0.03)
DECEMBER	183.48 (0.28)	183.31 (0.11)	183.16 (-0.04)

(CHART DATUM 183.20 IGLD 1985)

LAKE HURON

MONTH	5%	MOST PROBABLE	95%
JULY	176.38 (0.38)	176.36 (0.36)	176.32 (0.32)
AUGUST	176.41 (0.41)	176.36 (0.36)	176.28 (0.28)
SEPTEMBER	176.40 (0.40)	176.34 (0.34)	176.21 (0.21)
OCTOBER	176.39 (0.39)	176.30 (0.30)	176.12 (0.12)
NOVEMBER	176.36 (0.36)	176.24 (0.24)	176.03 (0.03)
DECEMBER	176.36 (0.36)	176.20 (0.20)	175.95 (-0.05)

(CHART DATUM 176.00 IGLD 1985)

LAKE ST. CLAIR

MONTH	5%	MOST PROBABLE	95%
JULY	175.12 (0.72)	175.06 (0.66)	175.02 (0.62)
AUGUST	175.10 (0.70)	175.02 (0.62)	174.94 (0.54)
SEPTEMBER	175.06 (0.66)	174.96 (0.56)	174.83 (0.43)
OCTOBER	175.02 (0.62)	174.90 (0.50)	174.72 (0.32)
NOVEMBER	174.99 (0.59)	174.86 (0.46)	174.63 (0.23)
DECEMBER	175.02 (0.62)	174.88 (0.48)	174.57 (0.17)

(CHART DATUM 174.40 IGLD 1985)

MONTH	5%	MOST PROBABLE	95%

LAKE ERIE
****

JULY	174.32 (0.82)	174.28 (0.78)	174.24 (0.74)
AUGUST	174.29 (0.79)	174.20 (0.70)	174.12 (0.62)
SEPTEMBER	174.22 (0.72)	174.10 (0.60)	173.98 (0.48)
OCTOBER	174.16 (0.66)	174.00 (0.50)	173.84 (0.34)
NOVEMBER	174.12 (0.62)	173.96 (0.46)	173.74 (0.24)
DECEMBER	174.16 (0.66)	173.96 (0.46)	173.68 (0.18)

(CHART DATUM 173.50 IGLD 1985)

LAKE ONTARIO
****

JULY	75.28 (1.08)	75.22 (1.02)	75.18 (0.98)
AUGUST	75.10 (0.90)	74.99 (0.79)	74.91 (0.71)
SEPTEMBER	74.88 (0.68)	74.78 (0.58)	74.69 (0.49)
OCTOBER	74.72 (0.52)	74.62 (0.42)	74.51 (0.31)
NOVEMBER	74.63 (0.43)	74.50 (0.30)	74.36 (0.16)
DECEMBER	74.60 (0.40)	74.46 (0.26)	74.26 (0.06)

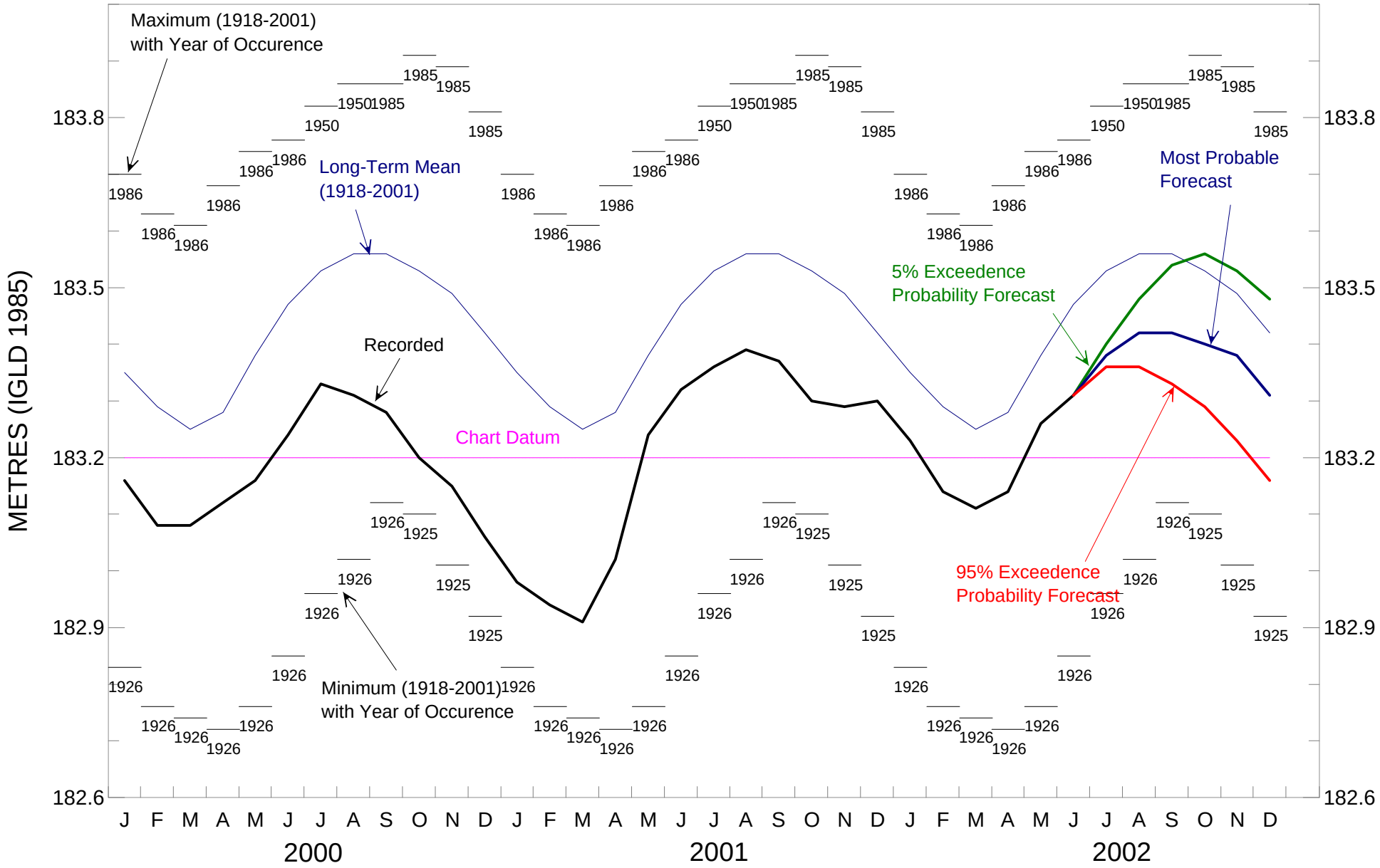
(CHART DATUM 74.20 IGLD 1985)

MONTREAL HARBOUR
****

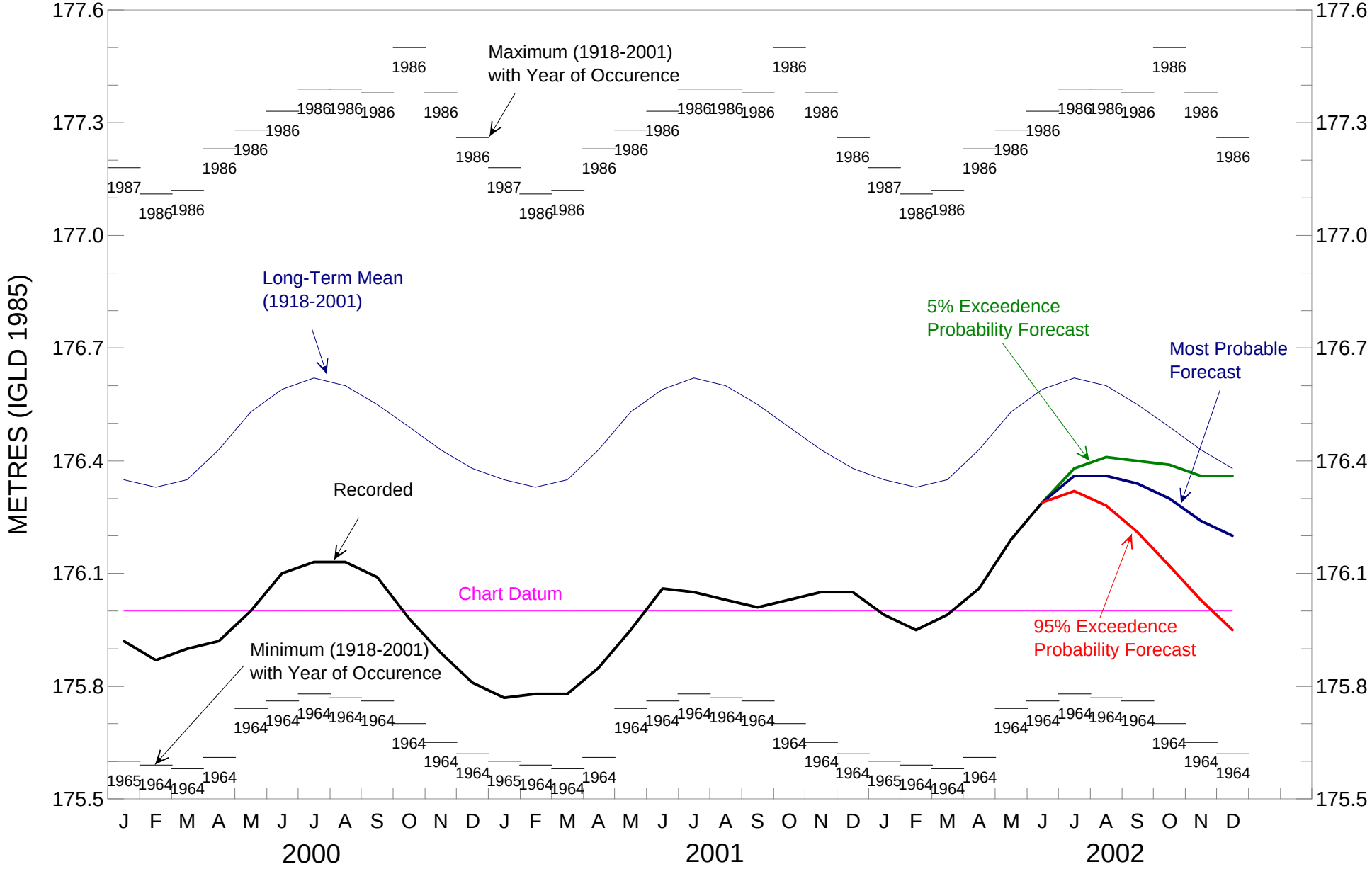
JULY	6.97 (1.42)	6.65 (1.10)	6.23 (0.68)
AUGUST	6.76 (1.21)	6.35 (0.80)	5.99 (0.44)
SEPTEMBER	6.53 (0.98)	6.06 (0.51)	5.73 (0.18)
OCTOBER	6.64 (1.09)	5.95 (0.40)	5.44 (-0.11)
NOVEMBER	6.88 (1.33)	6.01 (0.46)	5.28 (-0.27)
DECEMBER	6.70 (1.15)	6.02 (0.47)	5.31 (-0.24)

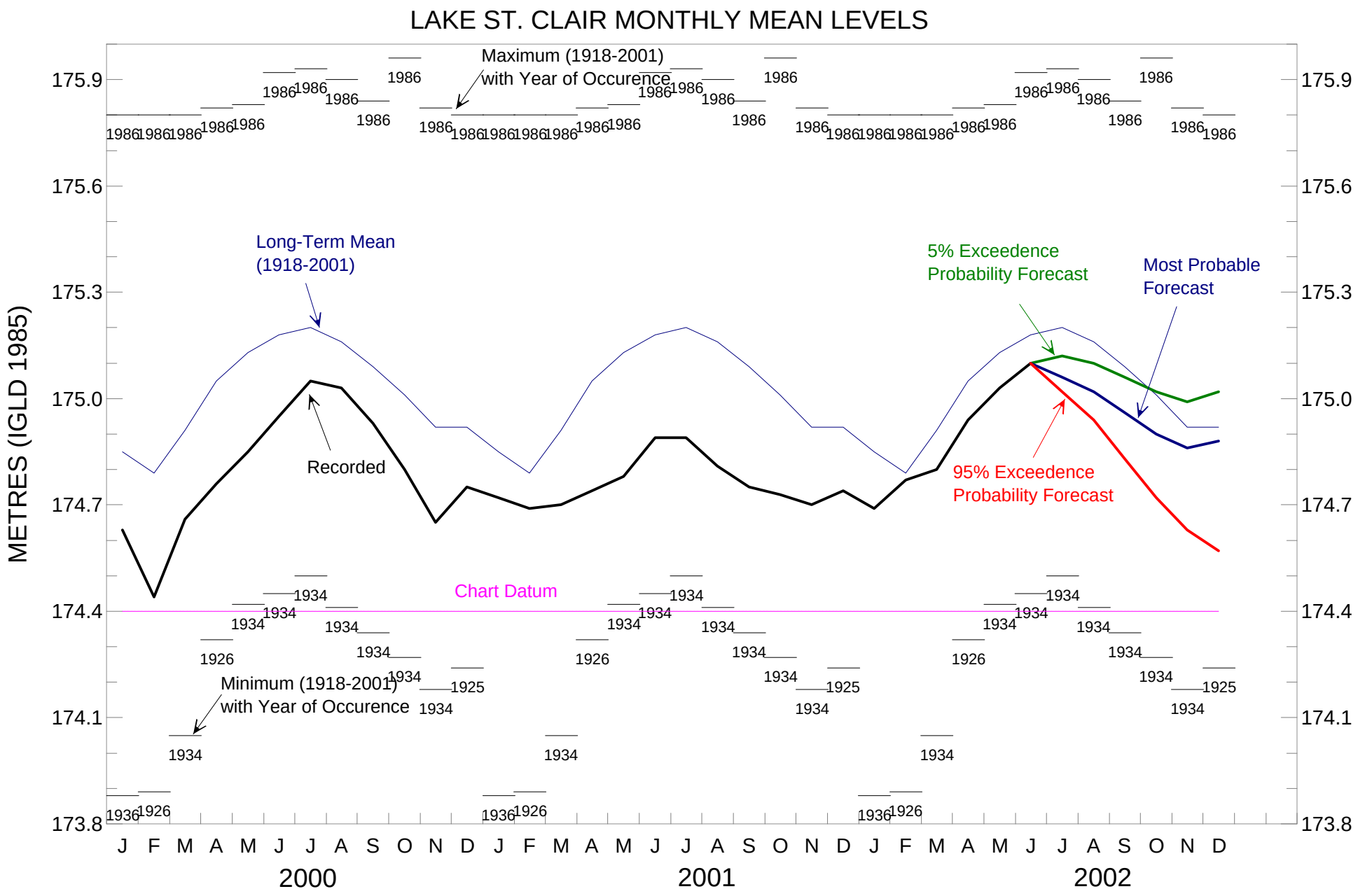
(CHART DATUM 5.55 IGLD 1985)

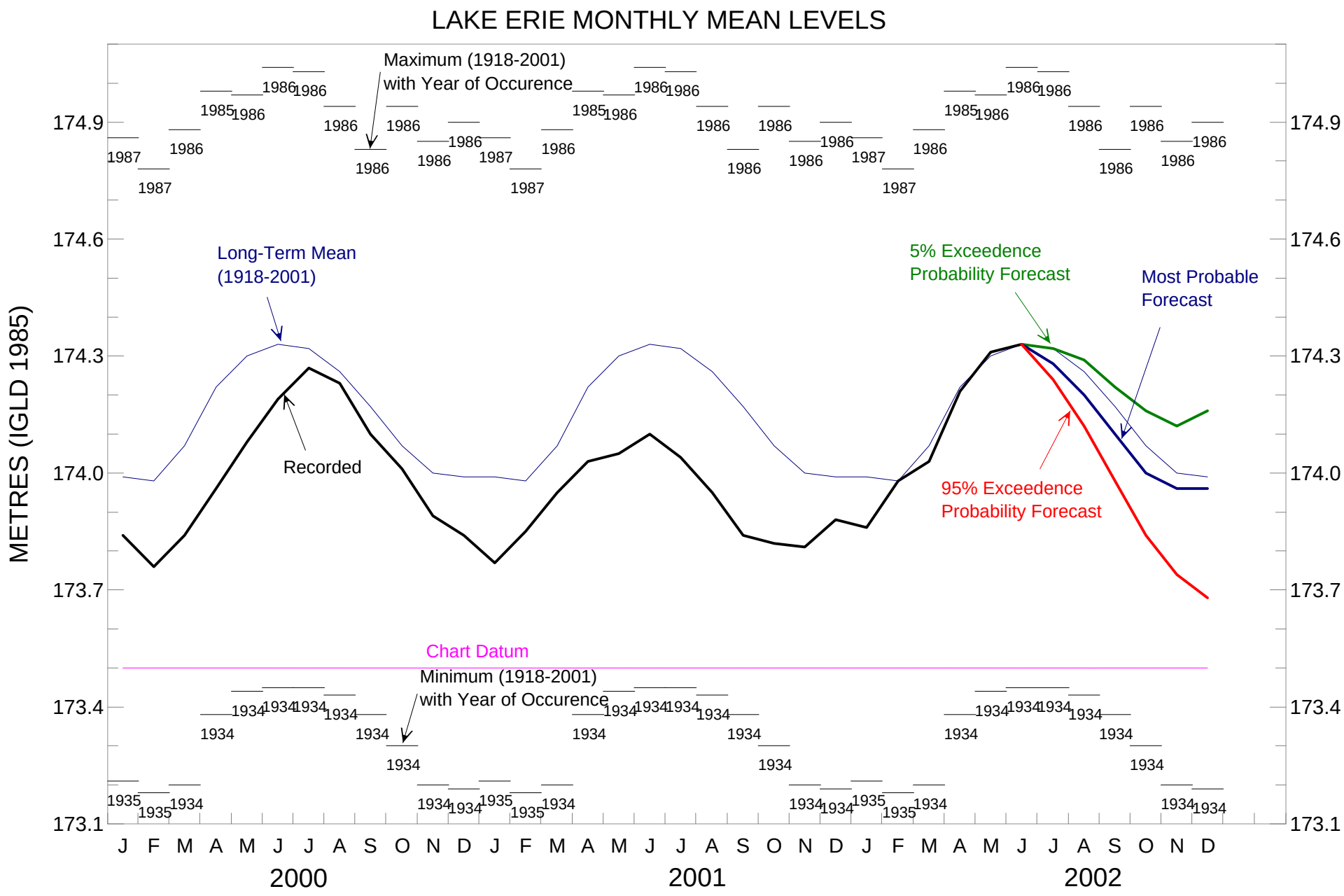
LAKE SUPERIOR MONTHLY MEAN LEVELS

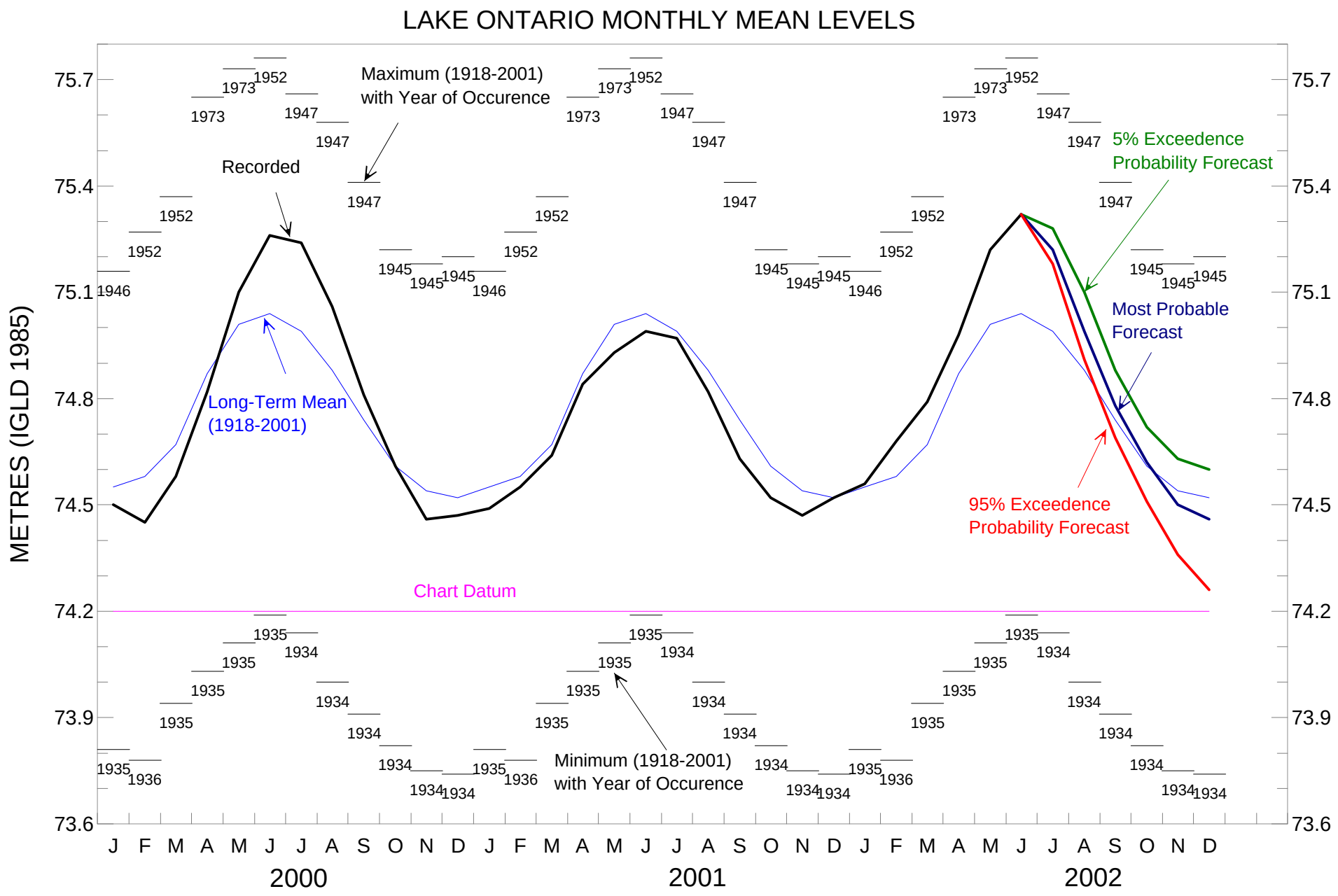


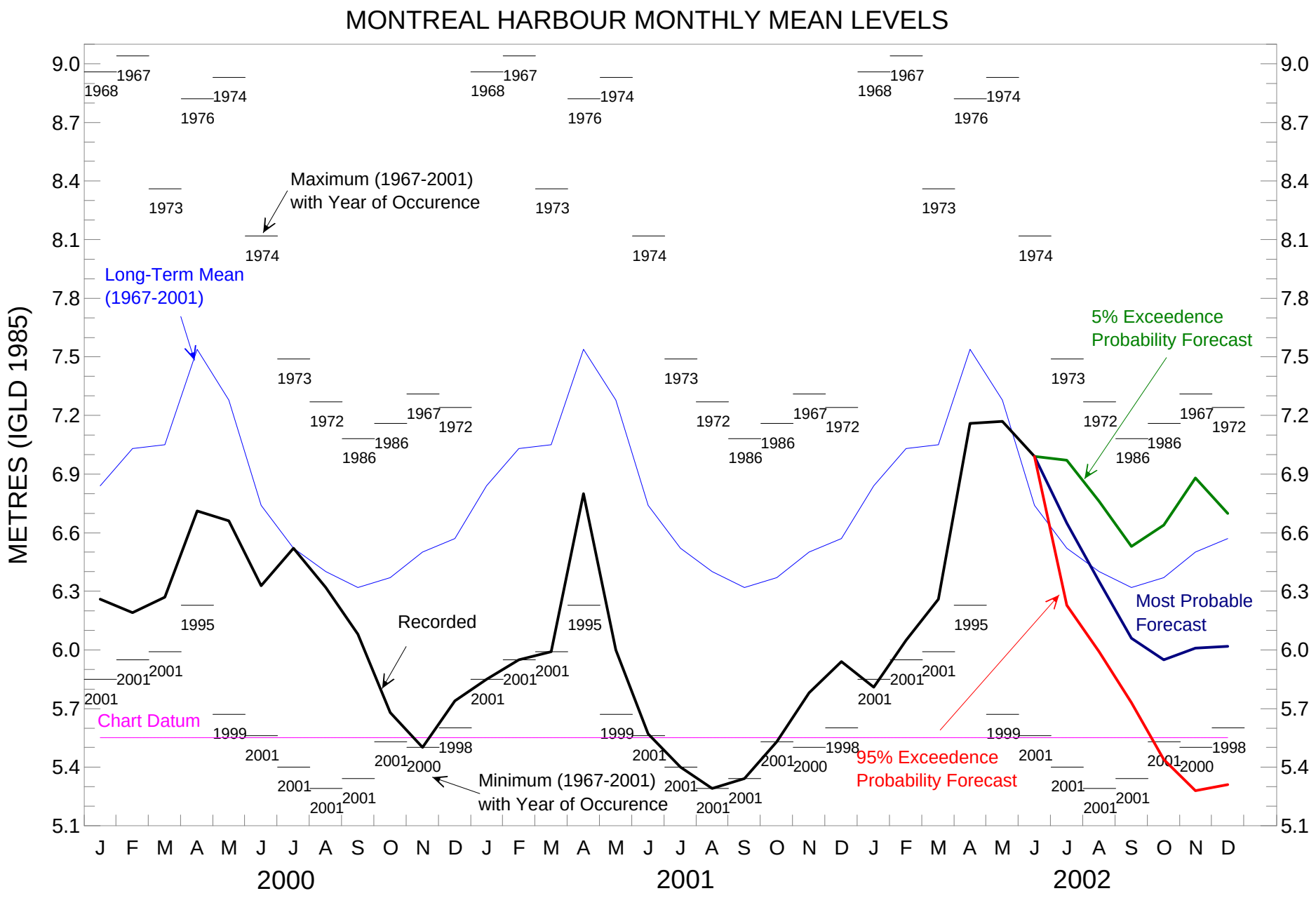
LAKES MICHIGAN-HURON MONTHLY MEAN LEVELS




LAKE ST. CLAIR MONTHLY MEAN LEVELS
METRES (IGLD 1985)
175.9
175.6
175.3
175.0
174.7
174.4
174.1
173.8
Maximum (1918-2001)
with Year of Occurence
Long-Term Mean
(1918-2001)
Recorded
5% Exceedence
Probability Forecast
Most Probable
Forecast
95% Exceedence
Probability Forecast
Chart Datum
Minimum (1918-2001)
with Year of Occurence
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
2000
2001
2002


LAKE ERIE MONTHLY MEAN LEVELS
METRES (IGLD 1985)
174.9
174.6
174.3
174.0
173.7
173.4
173.1
Maximum (1918-2001)
with Year of Occurence
Long-Term Mean
(1918-2001)
Recorded
5% Exceedence
Probability Forecast
Most Probable
Forecast
95% Exceedence
Probability Forecast
Chart Datum
Minimum (1918-2001)
with Year of Occurence
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
2000
2001
2002


LAKE ONTARIO MONTHLY MEAN LEVELS
METRES (IGLD 1985)
75.7
75.4
75.1
74.8
74.5
74.2
73.9
73.6
Maximum (1918-2001)
with Year of Occurence
Recorded
Long-Term Mean
(1918-2001)
Chart Datum
Minimum (1918-2001)
with Year of Occurence
5% Exceedence
Probability Forecast
Most Probable
Forecast
95% Exceedence
Probability Forecast
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
2000
2001
2002


MONTREAL HARBOUR MONTHLY MEAN LEVELS
METRES (IGLD 1985)
9.0
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6.0
5.7
5.4
5.1
Maximum (1967-2001)
with Year of Occurence
Long-Term Mean
(1967-2001)
5% Exceedence
Probability Forecast
Recorded
Most Probable
Forecast
Chart Datum
95% Exceedence
Probability Forecast
Minimum (1967-2001)
with Year of Occurence
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
2000
2001
2002