International Niagara Board of Control
Ninety Ninth Semi-Annual Progress Report
to the
International Joint Commission

Covering the Period March 20 through September 17, 2002

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COVER: **Lisa Bourget and Russ Trowbridge of the International Joint Commission's Washington office prepare for an aerial tour of the Niagara River and Welland Ship Canal on May 8, 2002 (IJC photograph).**

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ENCLOSURES

INTERNET SITES

International Niagara Board of Control	http://huron.lre.usace.army.mil/ijc/niagara.html
International Joint Commission	http://www.ijc.org/
Lake Erie-Niagara River Ice Boom	http://www.iceboom.nypa.gov

INTERNATIONAL NIAGARA BOARD OF CONTROL

Burlington, Ontario
Cincinnati, Ohio

September 17, 2002

International Joint Commission
Ottawa, Ontario
Washington, D.C.

Commissioners:

1. GENERAL

The International Niagara Board of Control (Board) submits its Ninety Ninth Semi-Annual Progress Report, covering the period March 20 through September 17, 2002.

2. ITEMS OF INTEREST

For the months of March through August 2002, the level of Lake Erie was at or below its long-term average. Precipitation on the Lake Erie basin was below average for the period. Lakes Michigan and Huron remained well below their long-term average levels during this period. This resulted in continued lower than average inflows to Lake Erie from upstream. Lake Erie outflows to the Niagara River averaged slightly below average.

The Power Entities (Ontario Power Generation Inc. (OPG) and the New York Power Authority (NYPA)) complied with the Board's 1993 Directive for regulation of Chippawa-Grass Island Pool water levels throughout the reporting period.

Operations of the International Niagara Control Works were altered twice during the reporting period to assist police recovery/rescue operations.

The New York Power Authority is seeking a new license from the Federal Energy Regulatory Commission to continue operating the Niagara Power Project.

The Buffalo and Fort Erie Public Bridge Authority Expansion Project have fifty nine proposals put forward as the result of public workshops held under the Bi-National Integrated Environmental Process. Through a screening process, currently being development through public workshops, a few alternatives with the greatest potential to achieve the project's goals and objectives will be identified. This will lead to selection of a preferred alternative.

The U.S. Secretary of the International Joint Commission and three staff members from the Commission's U.S. Section toured the Niagara River and Welland Ship Canal via helicopter on May 8, 2002. Aerial support was provided by the United States Coast Guard.

3. LAKE LEVELS

All elevations in this report are referenced to International Great Lakes Datum 1985. The values are expressed in metric units, with approximate English units (in parentheses) for information purposes only. The monthly lake level data are based on a network of four gauges to better represent the average level of the lake.

During the months of March through August 2002, the level of Lake Erie was at or below its long-term average. The level of the lake started the period 4 centimetres (1.6 inches) below average. It peaked in June with a mean of 174.33 metres (571.95 feet), which is equal to the long-term average for the month. In August the level was at 174.16 metres (571.39 feet), or 10 centimetres (3.9 inches) below average. Recorded water level data for the period March through August 2002 and departures from long-term averages are shown in Table 1 and depicted graphically on Figure 1.

The Lake Erie basin received approximately 44 centimetres (17.3 inches) of precipitation during the period March through August 2002. The period of record (1900–1996) average over this six-month period is 48.5 centimetres (19.1 inches). Precipitation over the six-month period was about 9% below average. Precipitation was steadily above average through May. This contributed to the lake's rise to average levels in the spring. Three months of below average precipitation during the summer months caused the lake level to decline faster than normal and levels dropped below the long-term average. Precipitation data for the period March through August 2002 and departures from long-term averages are shown in Table 2 and depicted graphically on Figure 2.

Lakes Michigan and Huron remained well below their long-term average levels during this period. As a result, inflows to Lake Erie from the upstream lakes continued to be lower than average. Inflows from the upper lakes for the six-month period March through August 2002 were about 4% below the long-term average.

Water supplied to Lake Erie from its local drainage basin (net basin supply) reflected the precipitation during the period. Net basin supplies were above average in April and May and below average in June, July and August, as was precipitation. In March supplies were below average, even though precipitation was above average. Normally melting snow

from the previous winter contributes to the supply to the lake in the early spring, but the 2001-2002 winter was relatively warm and little snow contributed to the runoff in the spring. Net basin supplies for the period March through August 2002, are depicted in Figure 3.

The water level on Lake Erie naturally affects the outflow into the Niagara River, as does the amount of flow retardation in the river due to ice and weeds. Like the water level of the lake, the outflows fluctuated around the average during much of the period. The flows in the Niagara River are graphically depicted in Figure 4 and summarized in Section 6.

The September 2002 water level forecast indicates that the level of Lake Erie is expected to remain below its long-term average during the next six months.

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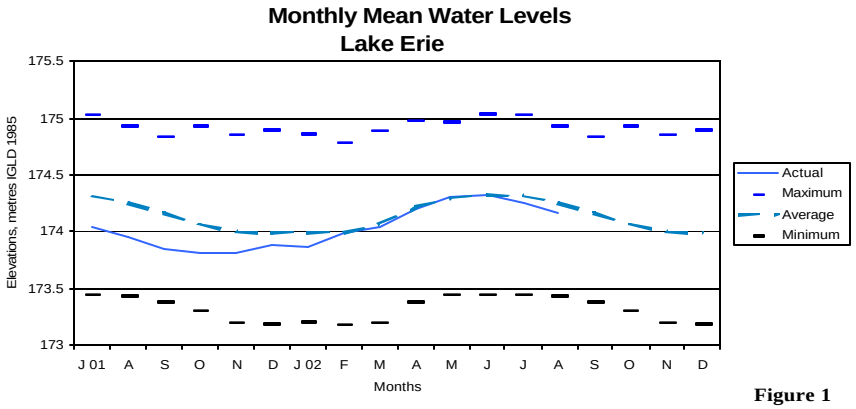


Figure 1

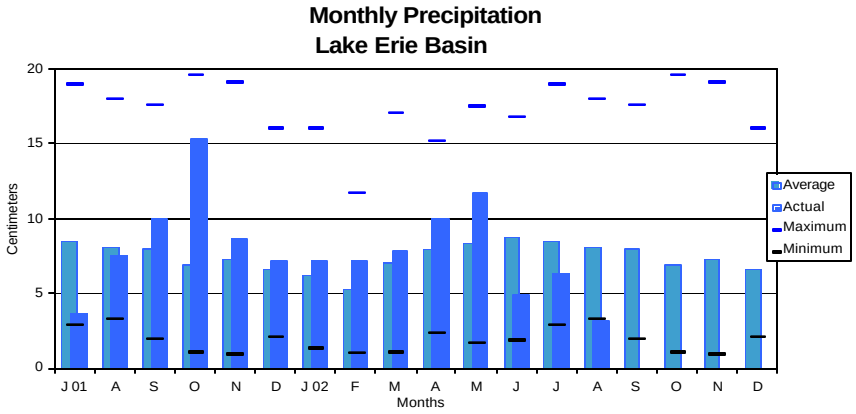


Figure 2

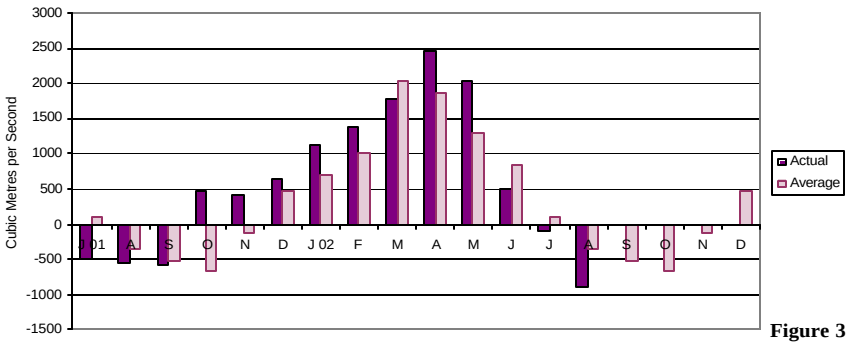


Figure 3

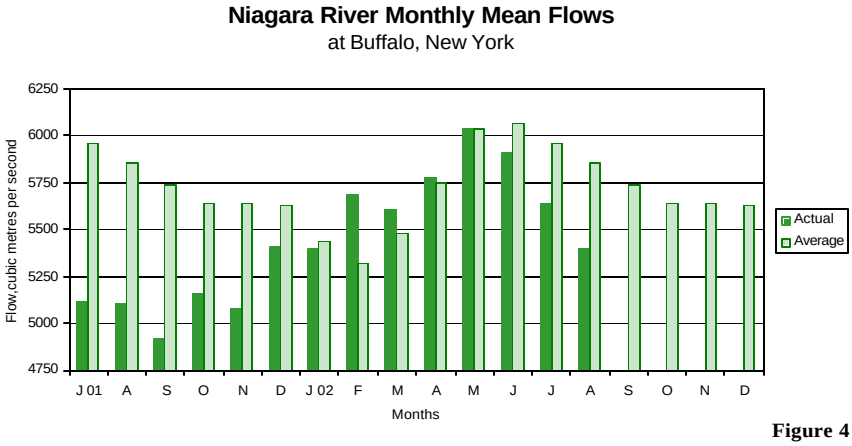


Figure 4

4. OPERATION AND MAINTENANCE OF THE CHIPPAWA-GRASS ISLAND POOL CONTROL STRUCTURE

The water level in the Chippawa-Grass Island Pool is regulated in accordance with the Board's 1993 Directive. The Directive requires that the Power Entities operate the Chippawa-Grass Island Pool (Pool) control structure to ensure the maintenance of an operational long-term average pool level of 171.16 metres (561.55 feet) to ameliorate adverse high or low water levels in the pool. The Directive also establishes certain tolerances for the pool's level as measured at the Material Dock gauge. The Power Entities complied with the Board's Directive throughout the reporting period.

The accumulated deviation of the pool's level from March 1, 1973 through August 31, 2002 was 0.78 metre-month (2.56 foot-months) above the long-term average elevation. The maximum permissible accumulated deviation is 0.91 metre-month (3.00 foot-months).

Tolerances for regulation of the Chippawa-Grass Island Pool levels were suspended for April 13 and July 14, as the result of police recovery/rescue operations (see Section 5).

Replacement of gate seals, concrete repairs to the gate apron and a major overhaul of the hydraulic system of Gate 3 were completed in September 2001. Although available for service, the gate was to be used as a last choice due to a defective piston seal. This additional work was completed in May 2002. Overhaul of the seals and cylinders of gate 17 began in May and was completed in August of 2002.

Recorded daily Material Dock water levels covering the period March 1 through August 31, 2002 are shown in Enclosure 1. The locations of the water level gauges on the Niagara River are shown in Enclosure 2.

5. FLOWS OVER NIAGARA FALLS

During the tourist season daylight hours, the required minimum Niagara Falls flow is 2832 cubic metres per second (m^3/s) (100,000 cubic feet per second (cfs)). At night and during the winter months, the required minimum Falls flow is 1416 m^3/s (50,000 cfs). The operation of the Chippawa-Grass Island Pool control structure, in conjunction with power diversion operations, ensures sufficient flow over the Falls to meet the requirements of the Niagara Treaty of 1950.

Falls flows were recorded as below minimum Treaty requirements for two hours on April 13, 2002. This was the result of operations by the New York State Parks Police to retrieve a body from above the Falls on the U.S. side of the river. The water level in the vicinity of the recovery site was lowered to assist in the effort and resulted in Falls flows recorded at 11:00 E.D.T. as 450 m^3/s (15,890 cfs) and at 12:00 as 321 m^3/s (11,340 cfs) below the required 2832 m^3/s (100,000 cfs) minimum.

At the request of the New York State Parks Police, on July 14, 2002, the operator of the International Niagara Control Works raised the water level upstream of the Falls to assist in the rescue of a disabled boat that had become stranded on the shoal in the Chippawa-Grass Island Pool. The New York Power Authority and Ontario Power Generation adjusted diversions to assist in raising and holding the Chippawa-Grass Island Pool level steady during this operation.

A Falls flow violation occurred not during the recovery of the stranded vessel, but rather as the result of further actions taken to rescue a Niagara Regional Police boat that had become disabled during the recovery of the first vessel. Falls flow was recorded as

423 m^3/s (14,940 cfs) below the Treaty minimum of 2832 m^3/s (100,000 cfs) for the hour ending 21:00 E.S.T.

Falls flows met or exceeded minimum Treaty requirements at all other times during the reporting period. The recorded daily flows over Niagara Falls, covering the period March 1 through August 31, 2002 are shown in Enclosure 3.

6. DIVERSIONS AND FLOW AT QUEENSTON

Diversion of water from the Niagara River for power purposes is governed by the terms and conditions of the 1950 Niagara Treaty. The Treaty prohibits the diversion of Niagara River water that would reduce the flow over Niagara Falls to below the amounts specified for scenic purposes.

The high head hydro power plants, OPG's Sir Adam Beck 1 and 2 in Canada and NYPA's Niagara Power Project in the United States, withdraw water from the Chippawa-Grass Island Pool above Niagara Falls and discharge it into the lower Niagara River at Queenston, Ontario and Lewiston, New York, respectively.

During the period March 1 through August 31, 2002, diversion flows for the Sir Adam Beck 1 and 2 plants averaged a total of 1589 m^3/s (56,120 cfs) and those by the Niagara Power Project averaged 1872 m^3/s (66,110 cfs).

The low head hydro power plant, Canadian Niagara Power's (CNP) Rankin Plant, diverts water from the Cascades, just upstream of the Horseshoe Falls, and discharges it into the Maid-of-the-Mist Pool. Since the operating efficiency of this older plant is much lower than those of the high head plants, water that is available for power generation is

normally dispatched on a priority basis to the high head plants, with the excess being directed to the low head installation.

During the period March 1 through August 31, 2002, diversion flow for the CNP Rankin plant averaged 1 m^3/s (40 cfs).

The Ontario Power Generating Station, located on the Canadian shore, downstream of the Horseshoe Falls, was taken out of service on November 26, 1999.

The average flow from Lake Erie to the Welland Canal for the period March 1 through July 31, 2002, was 248 m^3/s (8,760 cfs) compared to 250 m^3/s (8,830 cfs) for the same period one year ago. Diversion from the canal to OPG's DeCew Generating Stations averaged 195 m^3/s (6,890 cfs) for the period March 1 through August 31, 2002.

Records of Niagara River diversions for power generation covering the period March 1 through August 31, 2002 are shown in Enclosure 4.

The monthly average Niagara River flows at Queenston, Ontario for the period March 1 through August 31, 2002 were:

March	5708 m^3/s	(201,580 cfs)
April	5902 m^3/s	(208,430 cfs)
May	6086 m^3/s	(214,920 cfs)
June	5897 m^3/s	(208,250 cfs)
July	5647 m^3/s	(199,420 cfs)
August	5417 m^3/s	(191,300 cfs)

During this period, the flow at Queenston averaged 5776 m^3/s (203,980 cfs). Flows averaged 5286 m^3/s (186,670cfs) during the previous year for the period March 1 through August 31, 2001 with the monthly averages ranging between 5114 m^3/s (180,600 cfs) and 5466 m^3/s (193,030 cfs).

7. GAUGING STATIONS

The Niagara River gauges used to monitor the Chippawa-Grass Island Pool levels and flows over Niagara Falls are Slater's Point, Material Dock, American Falls and Ashland Avenue gauges (see Enclosure 2). All gauges required for the operation of the Chippawa-Grass Island Pool control structure were in operation during the reporting period.

Both the U. S. National Oceanic and Atmospheric Administration (NOAA) and the Power Entities operate water level gauges at the Ashland Avenue location. Subject to continuing comparison checks of the water level data from both instruments by the International Niagara Committee (INC), the Power Entities' gauge is used for officially recording water levels used in determining the flows over Niagara Falls. Comparison of water level readings from both gauges showed that they were within acceptable INC tolerances throughout the reporting period.

NYPA is continuing its effort to assess possible measures that might be used to stabilize the riverbank near the Ashland Avenue gauge. A bathymetric survey was completed in 2001 and NYPA is conducting an engineering feasibility study. From this study, preliminary designs, material requirements, the construction feasibility, and costs for several alternatives will be developed. After this preliminary evaluation of possible mitigating measures is completed, NYPA will meet with OPG to discuss the costs and

benefits. Based on those discussions, a decision will be made about whether and when any remedial work should be undertaken to ensure the long-term operation of the gauge.

NYPA finished construction of an enclosure for the Intake Gauge site in January with upgrading of the gauge completed in May 2002. Later this year, upgrading of both the American Falls and LaSalle gauges will be completed along with a new enclosure for the LaSalle gauge.

8. FLOW MEASUREMENTS IN THE NIAGARA RIVER AND WELLAND SHIP CANAL

Discharge measurements are regularly scheduled in the Niagara River and Welland Canal as part of a program to verify the gauge ratings used to determine flows in these channels for water level management. The present schedule calls for measurements at the International Railway Bridge Section in May 2003, the Cableway (Ashland rating) Section and the Welland Supply Weir in 2004 and at the American Falls Section in 2005. All measurements will be obtained through joint efforts of the United States Army Corps of Engineers and Environment Canada.

A draft report has been prepared for the Welland Canal measurement program that was conducted in 2001. The Board's Working Committee is currently reviewing the report.

In April, June and September 2002, additional Acoustic Doppler Current Profiler (ADCP) measurements were taken at the Cableway Section on the lower Niagara River. These measurements were made while the power plants operated normally, and will be used to help evaluate the feasibility of using ADCP as the preferred methodology for making measurements at the Cableway Section.

9. **POWER PLANTS**

a) New York Power Authority

Eight of the thirteen units at the Robert Moses Niagara Power Plant have been upgraded. Upgrading of Unit 11 began in January 2002 with an anticipated return to commercial service in November 2002. Unit 7 will be the next upgraded with the schedule calling for a December 2002 start with completion in September 2003.

On August 2, 2001, NYPA filed a formal notice of intent (NOI) with the U.S. Federal Energy Regulatory Commission (FERC) that it will seek a new license to continue operating the Niagara Power Project. The current license expires August 31, 2007.

On March 6, 2002, NYPA's request to use Alternative Licensing Procedures (ALP) for the Niagara Project was filed with FERC. A Niagara re-licensing website has been launched at: http://niagara.nypa.gov

On July 15, 2002, FERC issued a letter order approving NYPA's request to use alternative licensing procedures for the re-licensing of the Niagara Project. NYPA's ALP is structured around the cooperative scoping of an Applicant Prepared Environmental Assessment with all interested stakeholders.

b) Ontario Power Generation

To date, eleven of the sixteen units at the Sir Adam Beck II Generating Station have been rehabilitated. The most recent upgrade was on Unit 11, with work beginning in October 2001 and completed in July 2002. Currently, work is proceeding on Unit 12. This

began in April 2002, with an expected completion November 2002. The next unit to be upgraded will be Unit 21. Work is expected to begin in October 2002, with anticipated completion in June 2003.

The upgrades and expansions by the Power Entities will not affect the regulation of the Chippawa-Grass Island Pool water levels as governed by the International Niagara Board of Control's Directive. In addition, they will not require any modifications to other rules or regulations (such as the 1950 Niagara Treaty) relating to the diversion of water for operation of the projects.

10. **PEACE BRIDGE**

The Buffalo and Fort Erie Public Bridge Authority (PBA) have undertaken a Bi-National Integrated Environmental Process. This is a planning process, with emphasis on public involvement, to consider capacity expansion of the Peace Bridge, U.S. Plaza and improvement of the connecting roadway system. It includes consultation with federal, state, provincial and local agencies regarding environmental screening/assessments as well as public meetings and workshops on a number of bridge-related issues.

The preliminary schedule proposes up to two years for the planning and environmental review, a further two years for design, permits and related work, and then up to four years of construction.

Architects and designers on the Peace Bridge Expansion Project's consultant team visited Buffalo and Fort Erie in June for a site tour, lectures and meetings with elected officials, business leaders and the Bi-national Civic Advisory Committee. This provided an

opportunity for the team to increase its understanding of the architectural, historical and business character of the region, and the significance of the project to the community.

As a result of public input, around fifty new ideas (in addition to the original proposals of the late 1990s) will be considered. A Modified Draft Scoping Document, which responds to comments and ideas submitted by the public and Involved Agencies, was issued in August 2002. Completion of this document concludes Scoping Step 1 of the Bi-National Integrated Environmental Process. Step 2, the Alternative Screening Process will involve a series of Public Collaborative Workshops. Four of these will be held over the period mid-September to early December, 2002.

The objective is to screen, with public involvement, the alternatives from 59 down to a few with the greatest potential to achieve the project's goals and objectives. This is planned for completion in February 2003. Selection of a preferred alternative will follow, hopefully by late 2003, with final approval by mid-2004.

PBA consultants are currently conducting environmental studies that involve traffic, air quality, noise and birds. These studies will help determine what, if any, mitigation measures will be necessary in these areas.

11. MEETING WITH THE PUBLIC

In accordance with the Commission's requirements, the Board held an annual meeting with the public the evening of September 16, 2002 in Niagara Falls, New York. Information on current and projected Great Lakes levels, the current Public Bridge Authority undertaking and the operation of the Lake Erie-Niagara River Ice Boom were provided. There were 2 members of the public in attendance.

12. MEMBERSHIP OF THE BOARD

The membership of the Board remains unchanged. On August 29, 2002, LTC Jeffrey M. Hall replaced LTC Glen R. DeWillie as the U.S. Chair of the International Niagara Working Committee. LTC DeWillie retired from the United States Army Corps of Engineers and accepted a position with the Susquehanna River Basin Commission.

13. ATTENDANCE AT BOARD MEETINGS

The Board met once during this reporting period. The meeting was held on September 17, 2002 in Burlington, Ontario. Colonel Mark Roncoli acted on behalf of Brigadier General Steven Hawkins who was unable to attend. All other Board Members were in attendance.

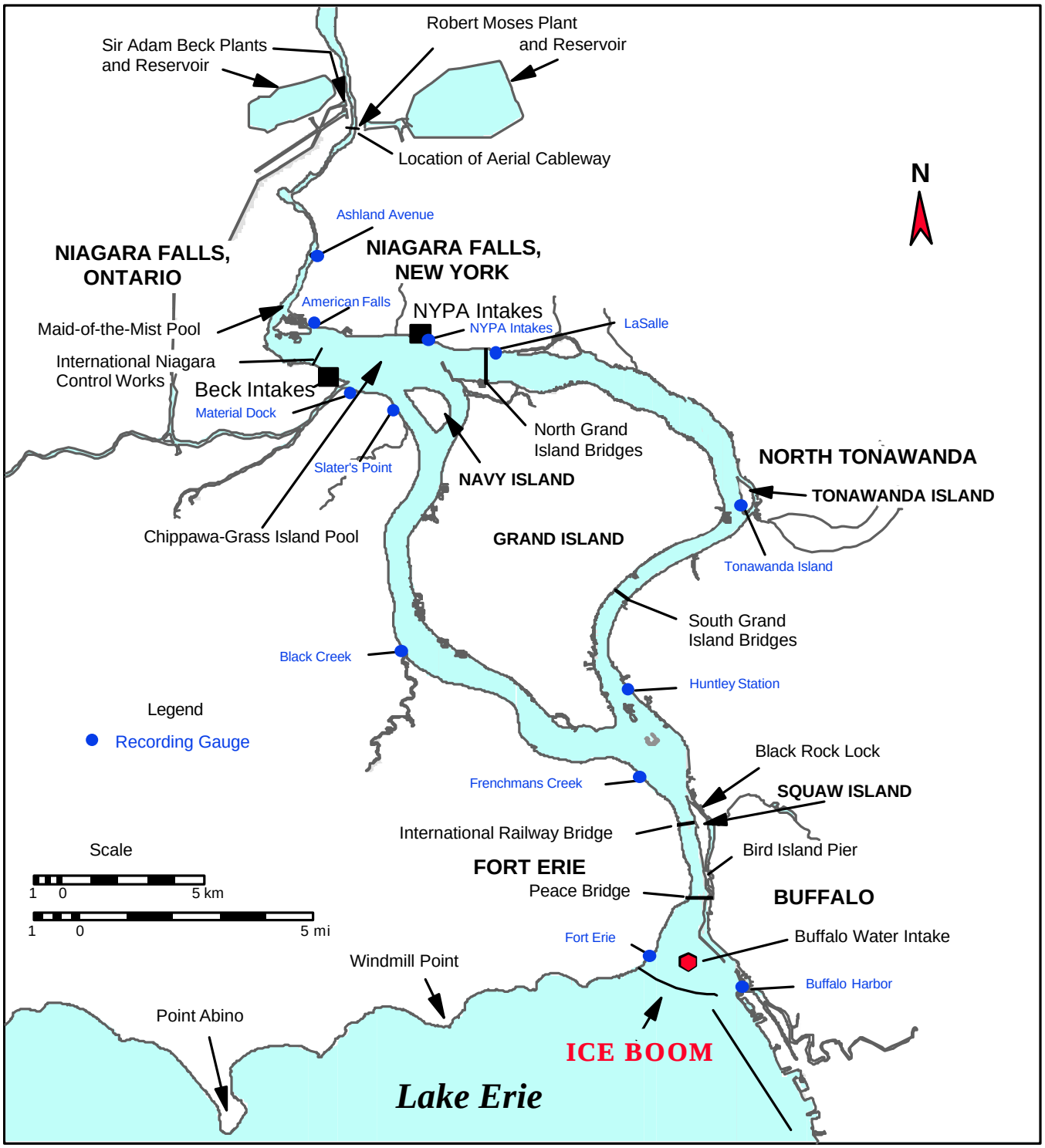
Respectfully Submitted,

DOUG CUTHBERT
Chair, Canadian Section

BRIGADIER GENERAL STEVEN R. HAWKINS
Chair, United States Section

DAVID de LAUNAY
Member, Canadian Section

CONSTANTINE G. TJOUMAS
Member, United States Section

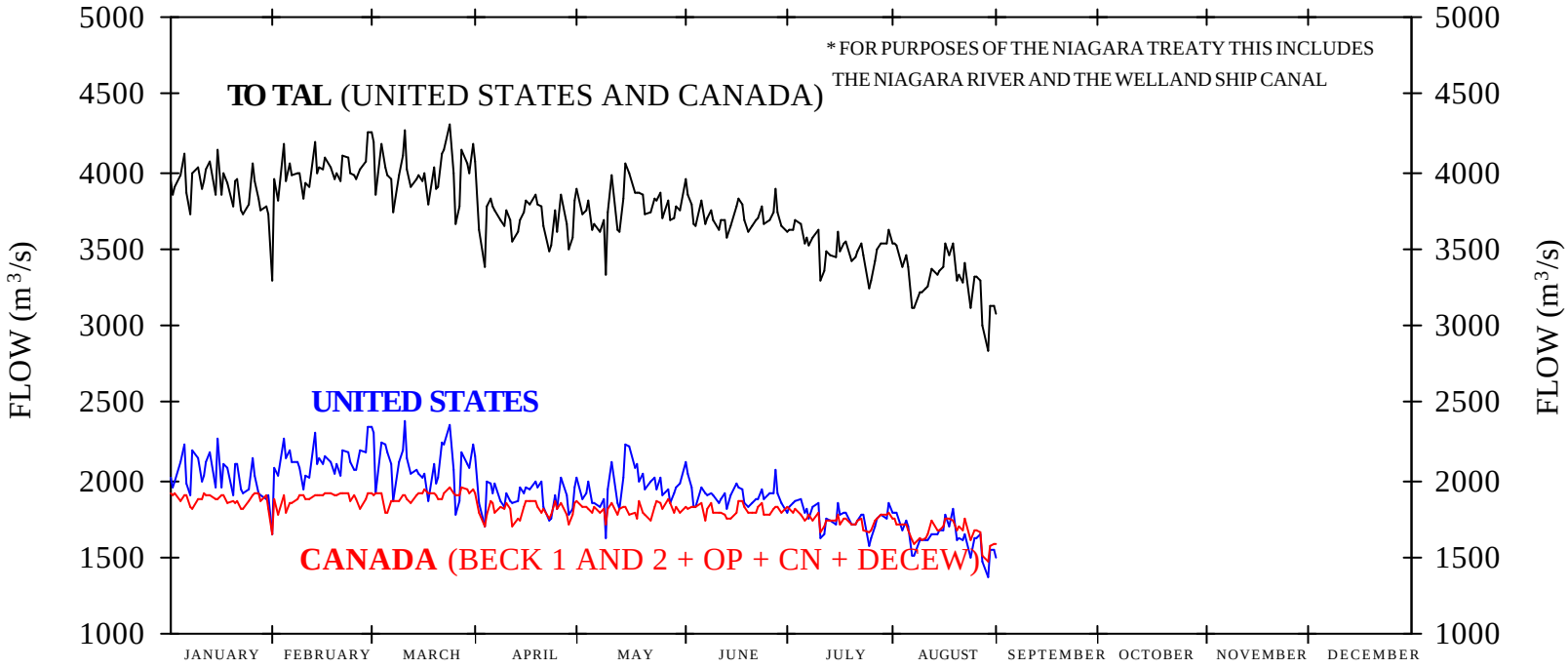

Sir Adam Beck Plants
and Reservoir
Robert Moses Plant
and Reservoir
Location of Aerial Cableway
N
Ashland Avenue
NIAGARA FALLS,
ONTARIO
NIAGARA FALLS,
NEW YORK
American Falls
NYPA Intakes
NYPA Intakes
LaSalle
Maid-of-the-Mist Pool
International Niagara
Control Works
Beck Intakes
Material Dock
North Grand
Island Bridges
NORTH TONAWANDA
TONAWANDA ISLAND
Slater's Point
NAVY ISLAND
Chippawa-Grass Island Pool
GRAND ISLAND
Tonawanda Island
South Grand
Island Bridges
Black Creek
Huntley Station
Legend
Recording Gauge
Black Rock Lock
Frenchmans Creek
SQUAW ISLAND
International Railway Bridge
Bird Island Pier
Scale
FORT ERIE
Peace Bridge
BUFFALO
1 0 5 km
1 0 5 mi
Fort Erie
Buffalo Water Intake
Windmill Point
Buffalo Harbor
Point Abino
ICE BOOM
Lake Erie

ENCLOSURE 2

DAILY DIVERSIONS OF NIAGARA RIVER WATER* FOR POWER PURPOSES

IN CUBIC METRES PER SECOND (m^3/s)

2002

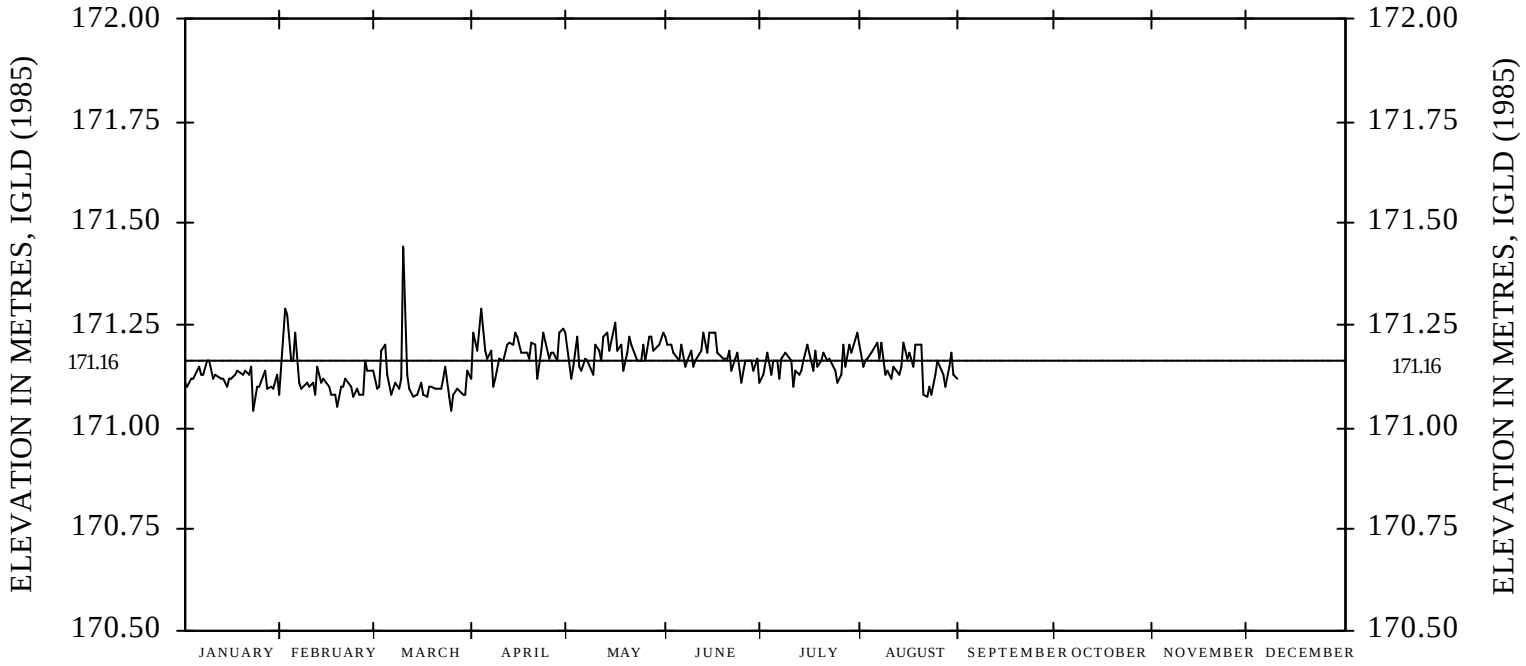


ENCLOSURE 4

NIAGARA RIVER DAILY MEAN LEVEL AT MATERIAL DOCK GAUGE

NOTE: LONG-TERM MEAN STAGE = 171.16 METRES, IGLD (1985)

2002



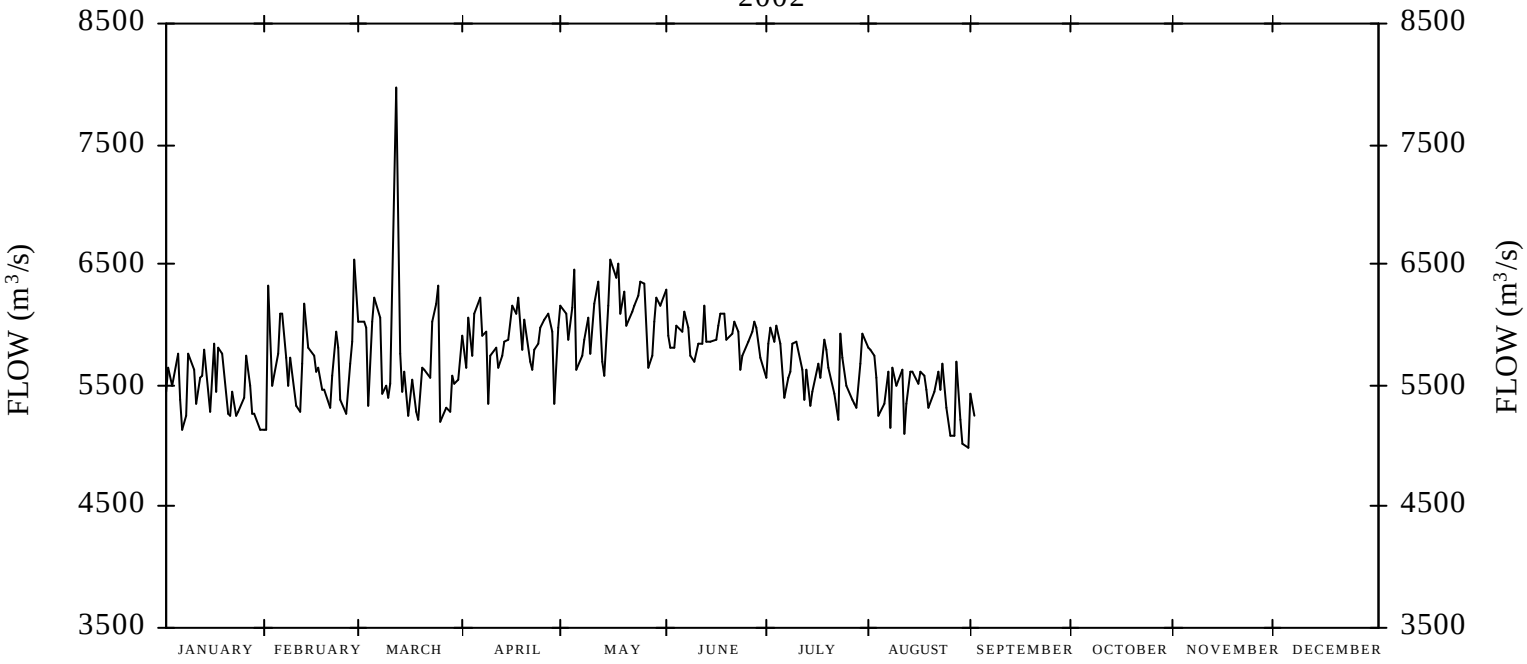
ENCLOSURE 1

DAILY NIAGARA RIVER FLOW AT QUEENSTON

FLOW AT ASHLAND AVENUE PLUS BECK 1 AND 2 AND NYPA DISCHARGES

IN CUBIC METRES PER SECOND (m^3/s)

2002



ENCLOSURE 3

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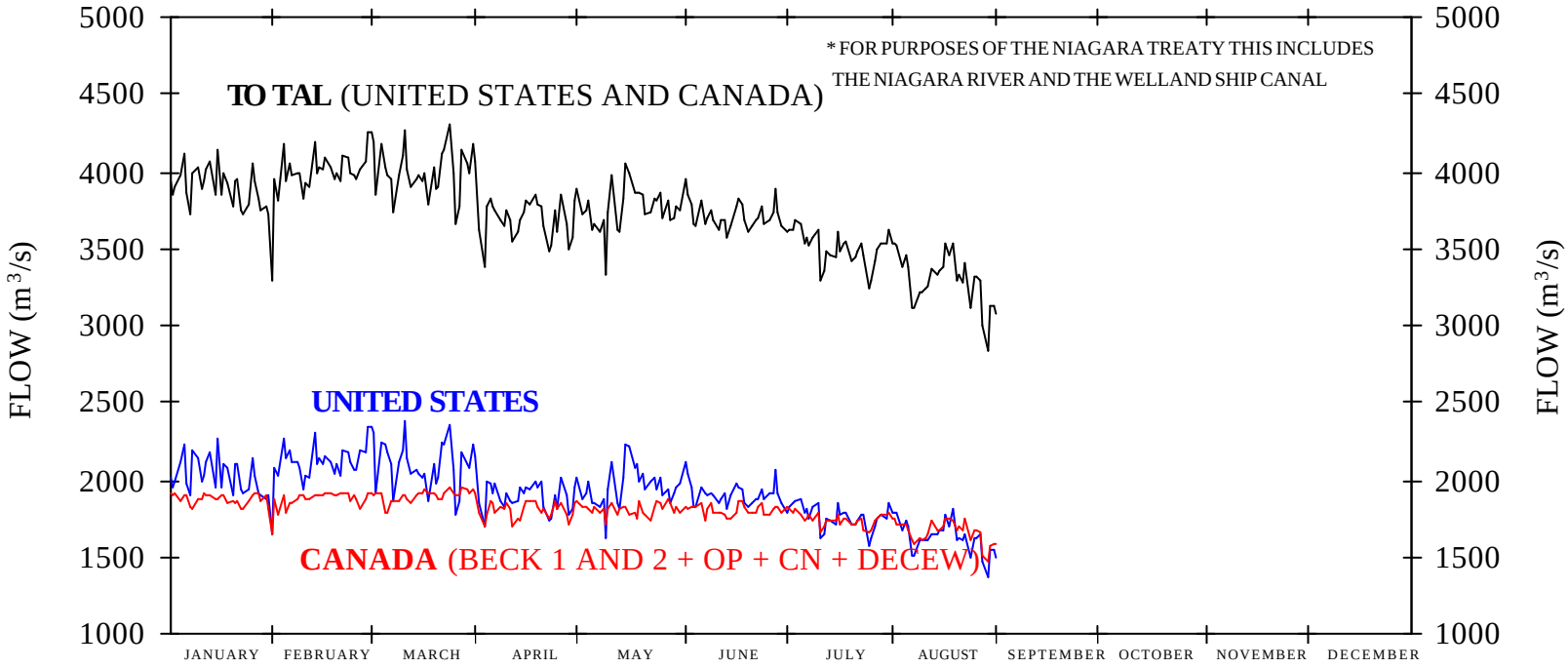

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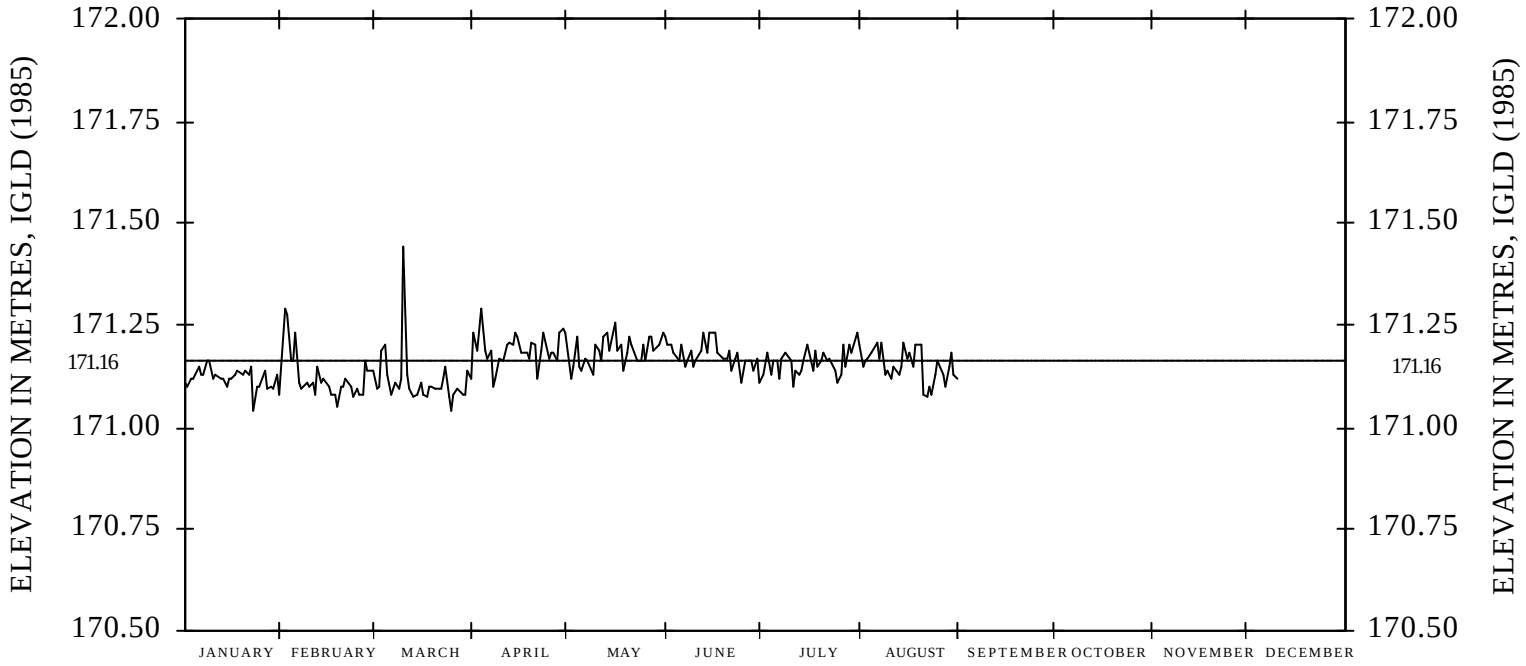

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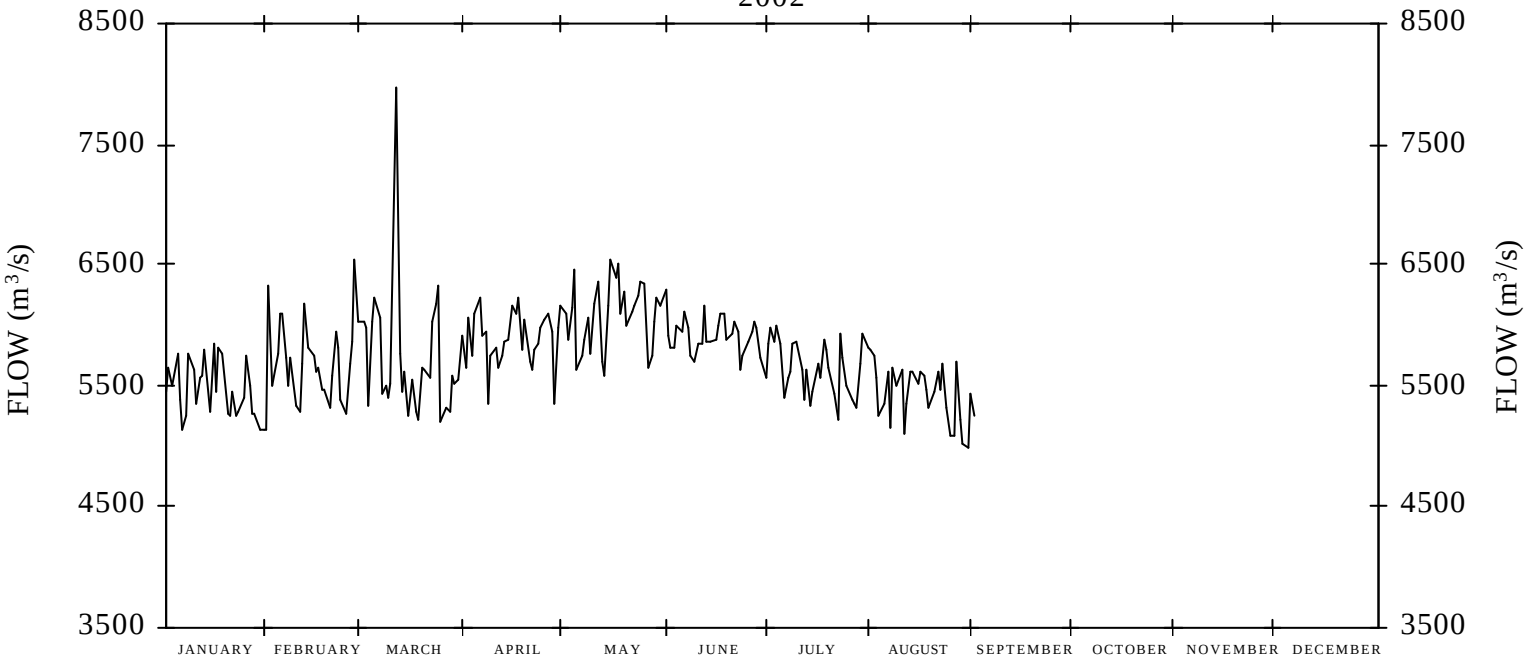

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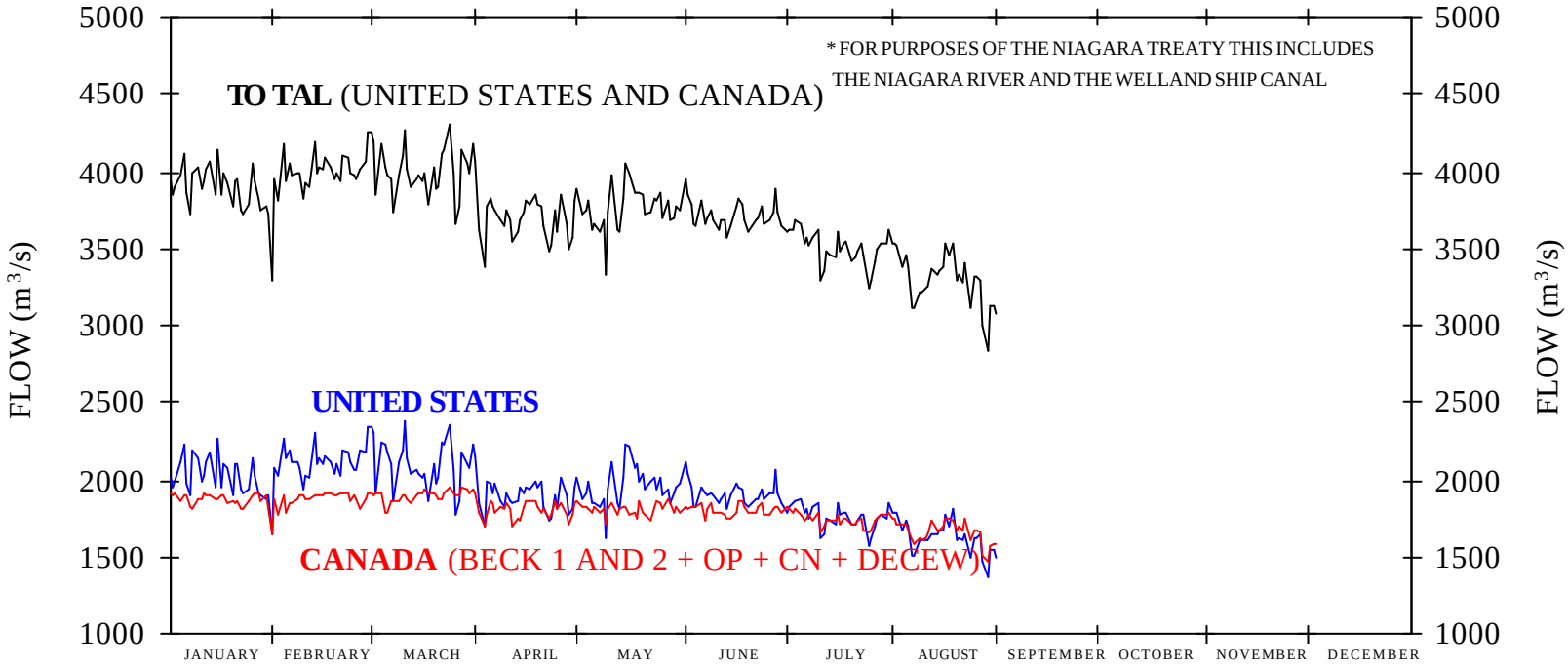

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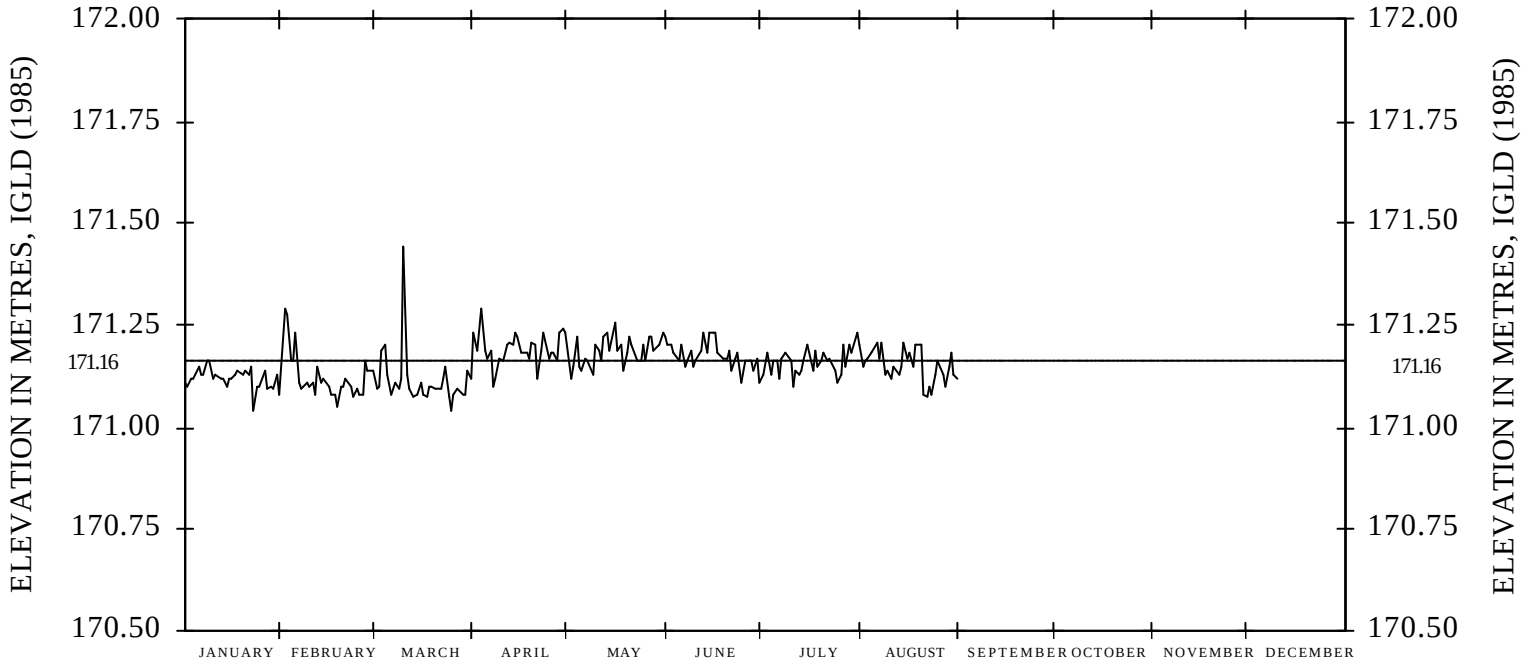

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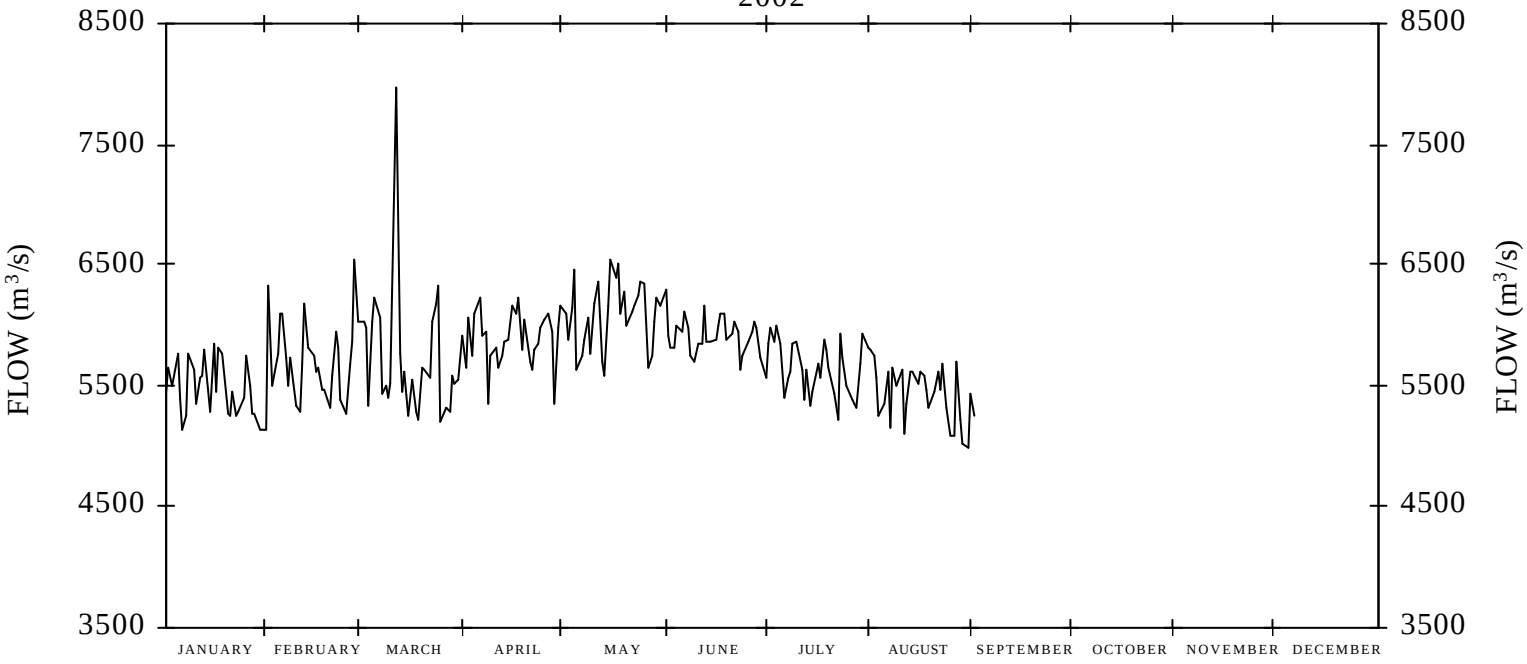

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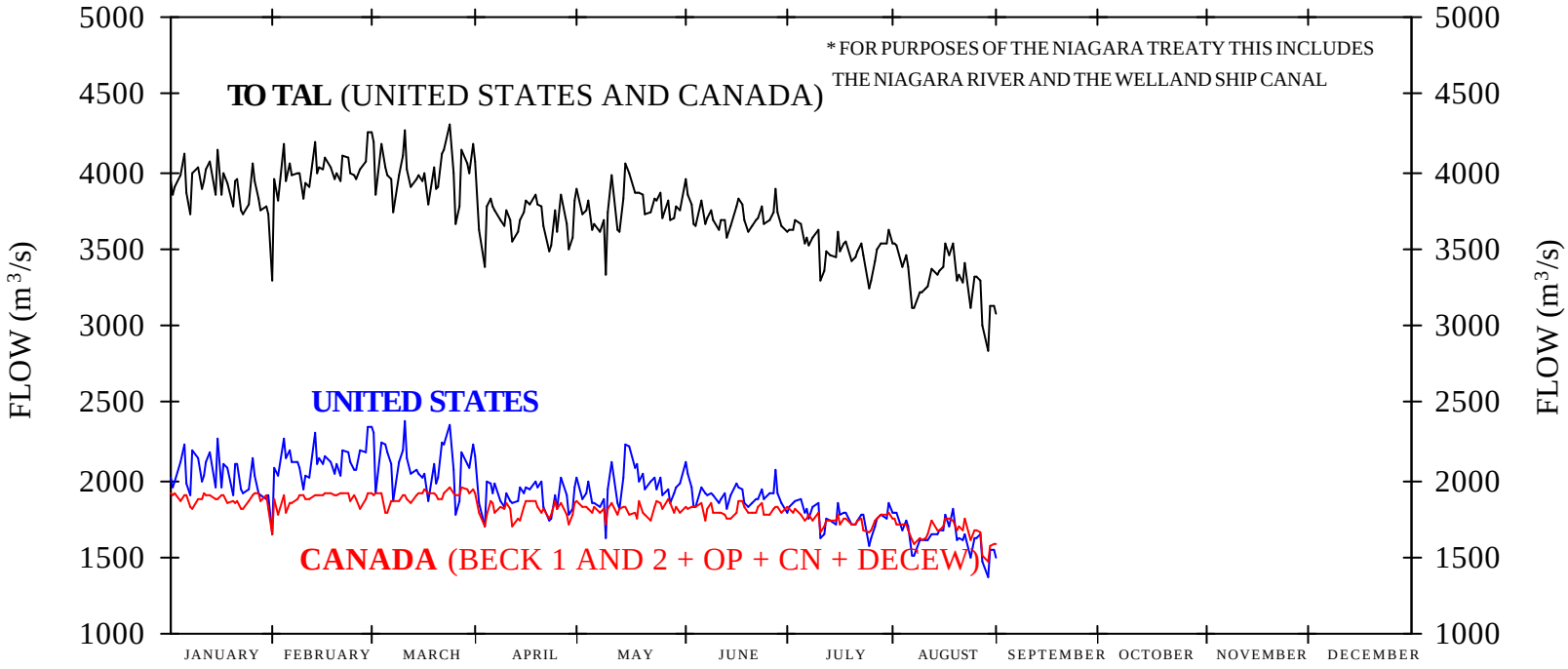

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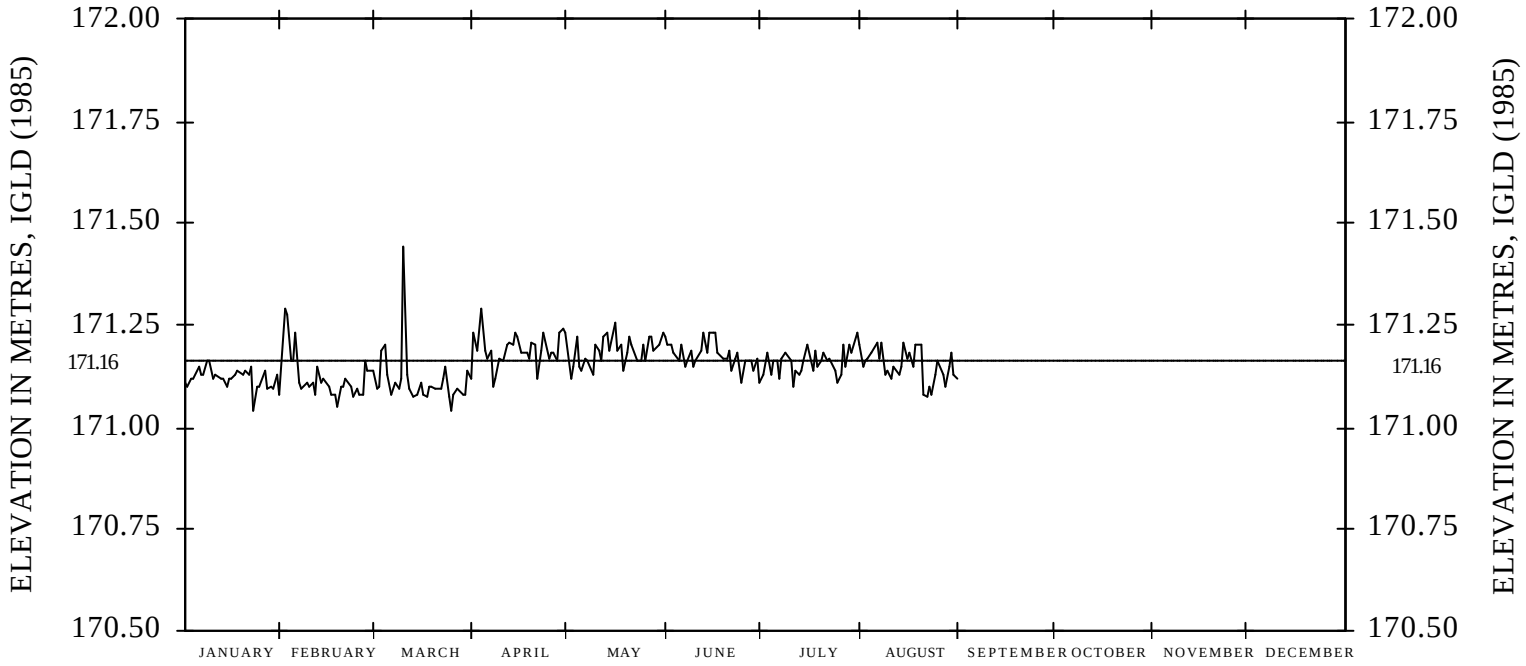

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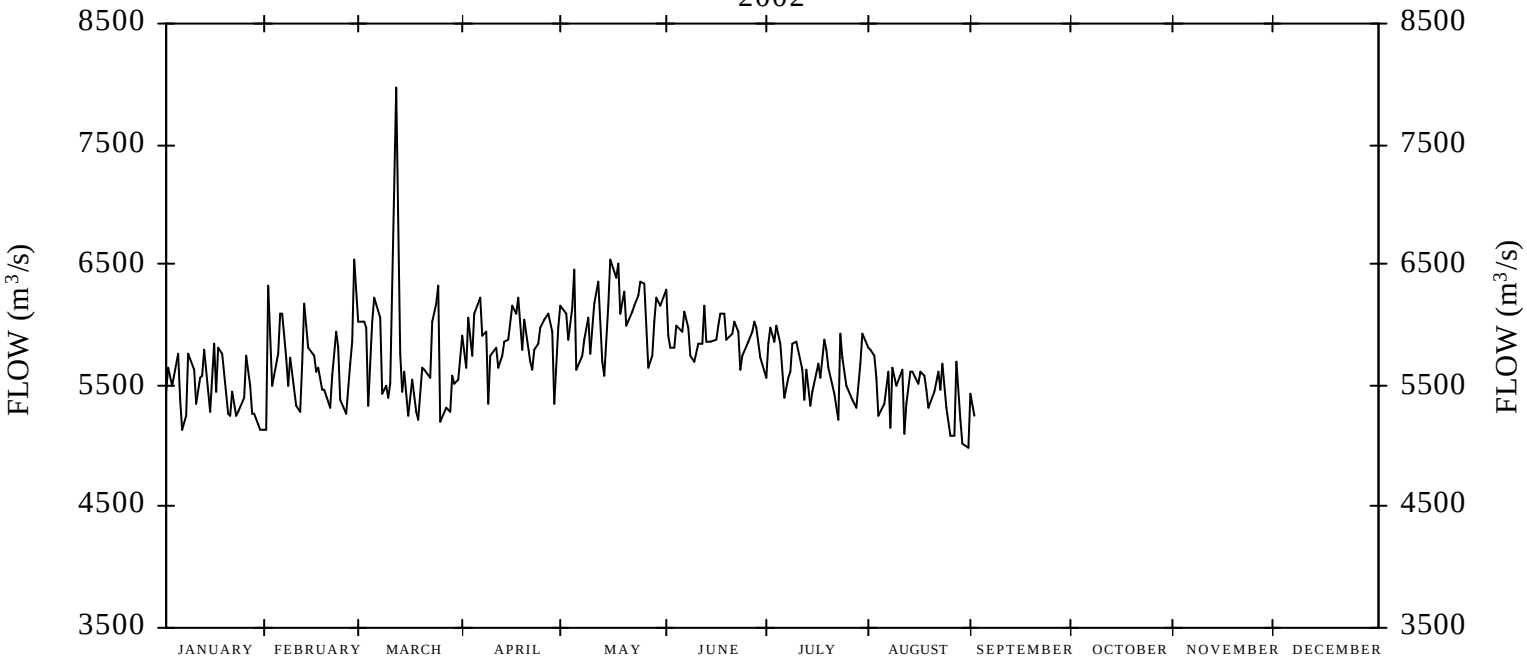

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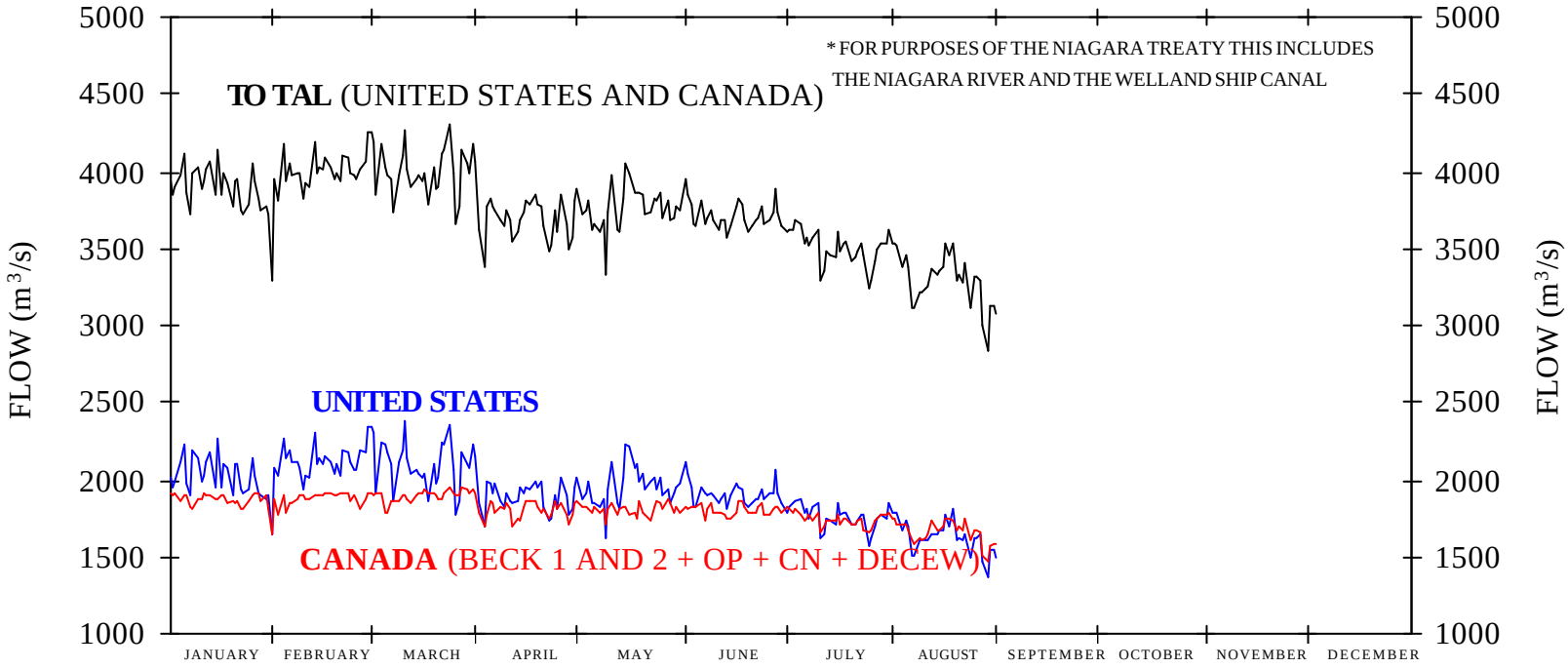

ENCLOSURE 4

NIAGARA RIVER DAILY MEAN LEVEL AT MATERIAL DOCK GAUGE

NOTE: LONG-TERM MEAN STAGE = 171.16 METRES, IGLD (1985)

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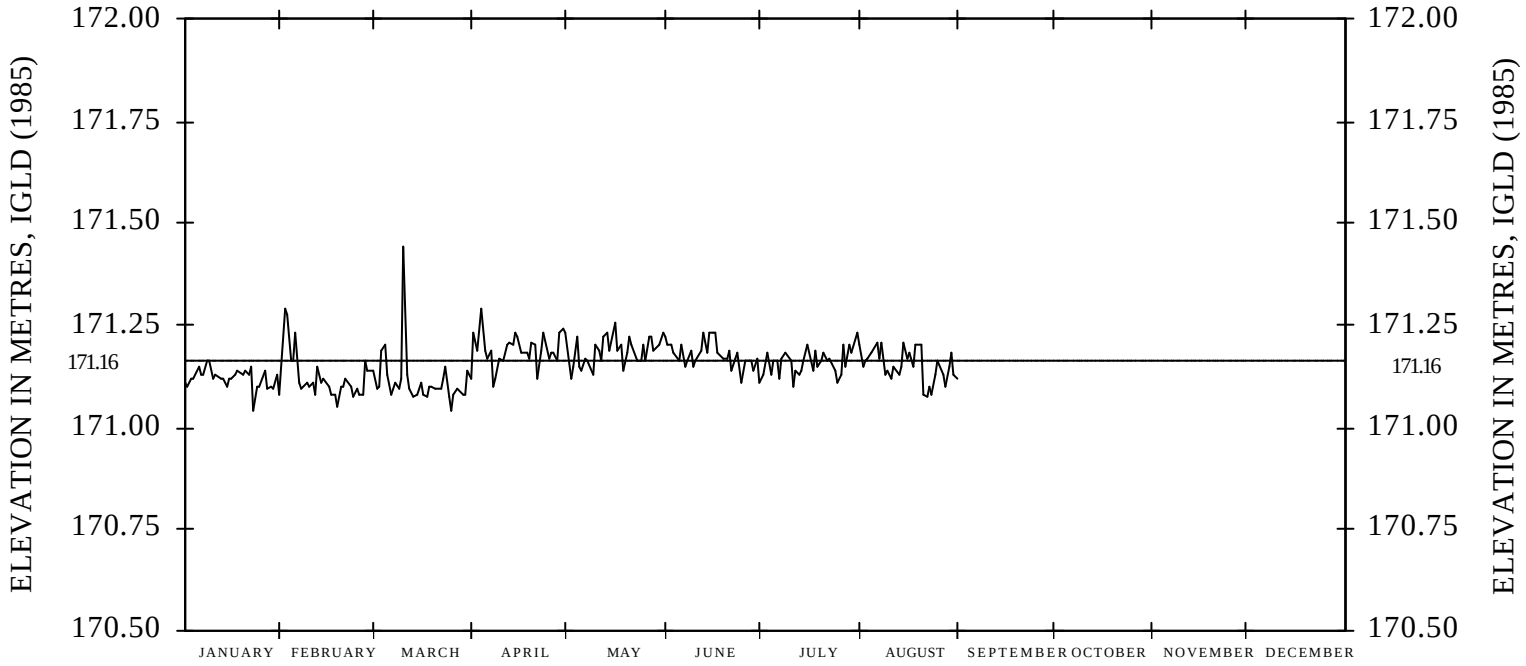

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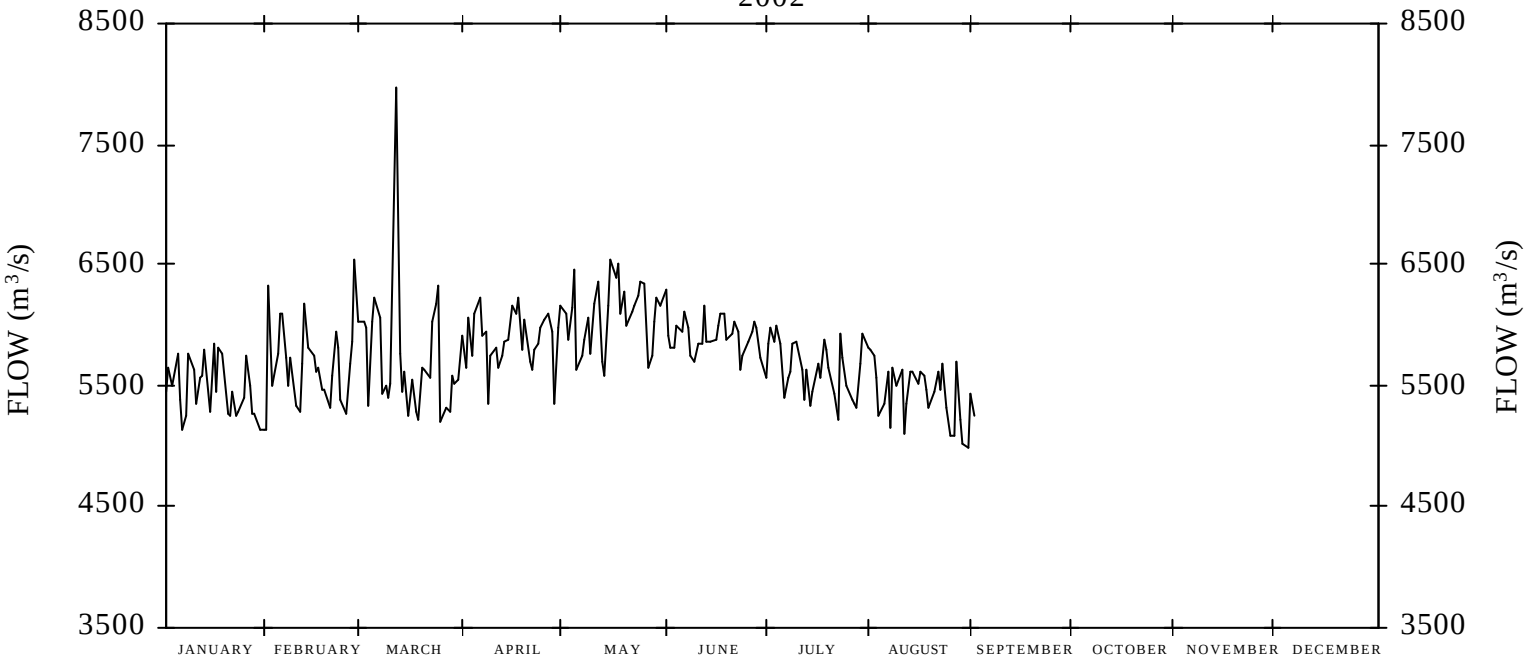

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DAILY DIVERSIONS OF NIAGARA RIVER WATER* FOR POWER PURPOSES

IN CUBIC METRES PER SECOND (m^3/s)

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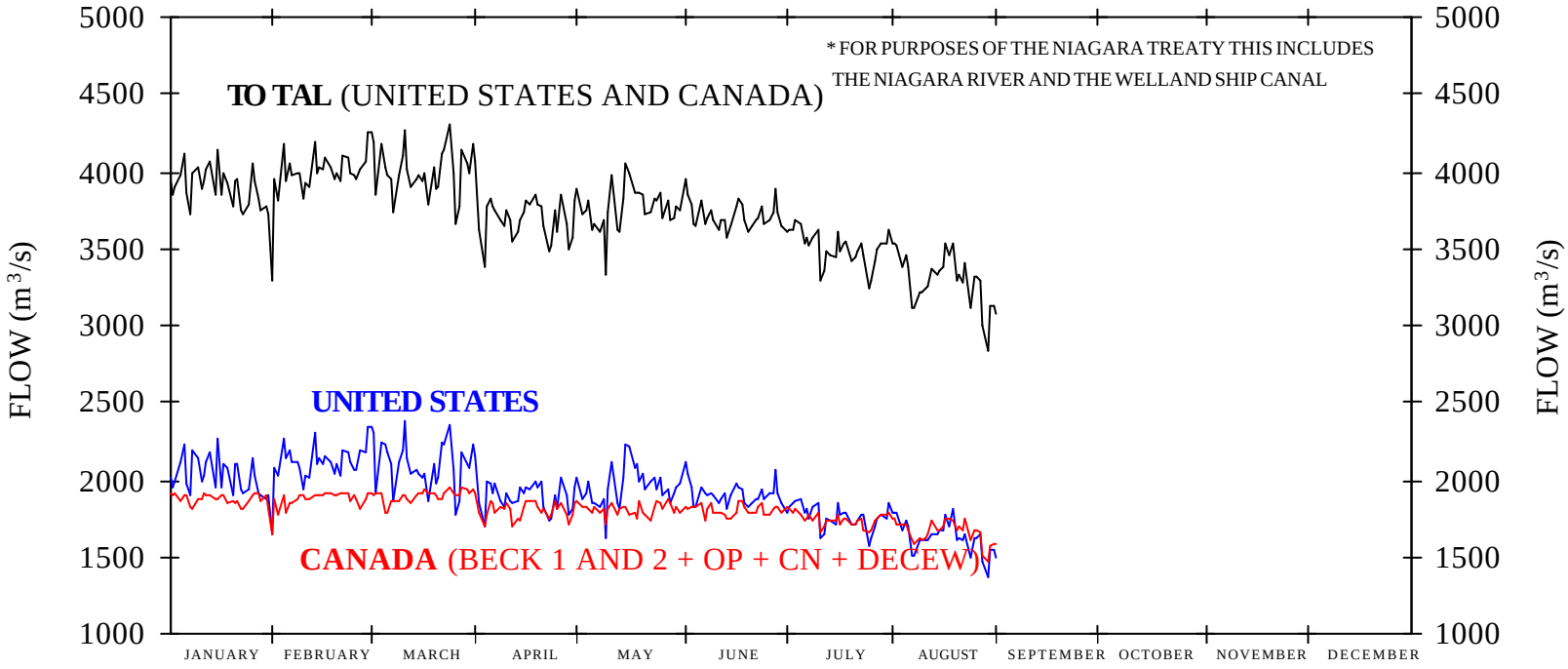

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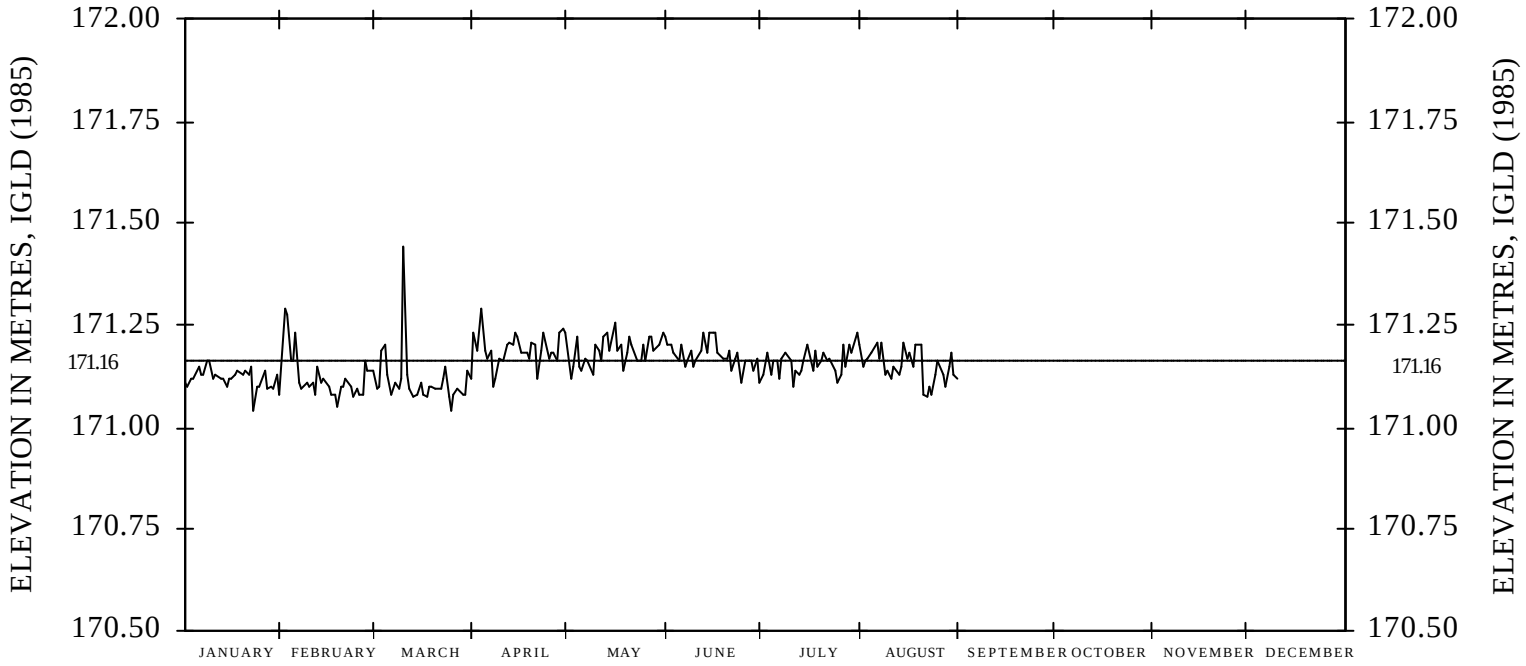

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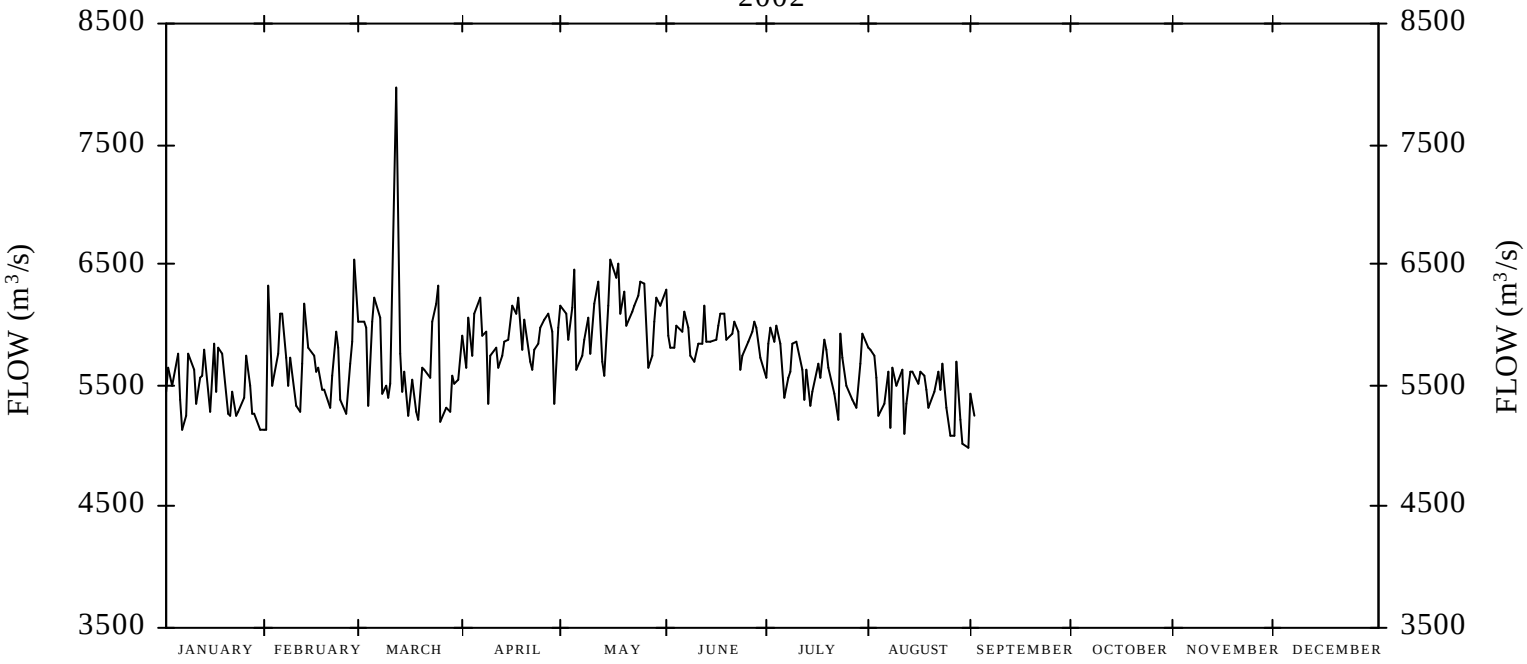

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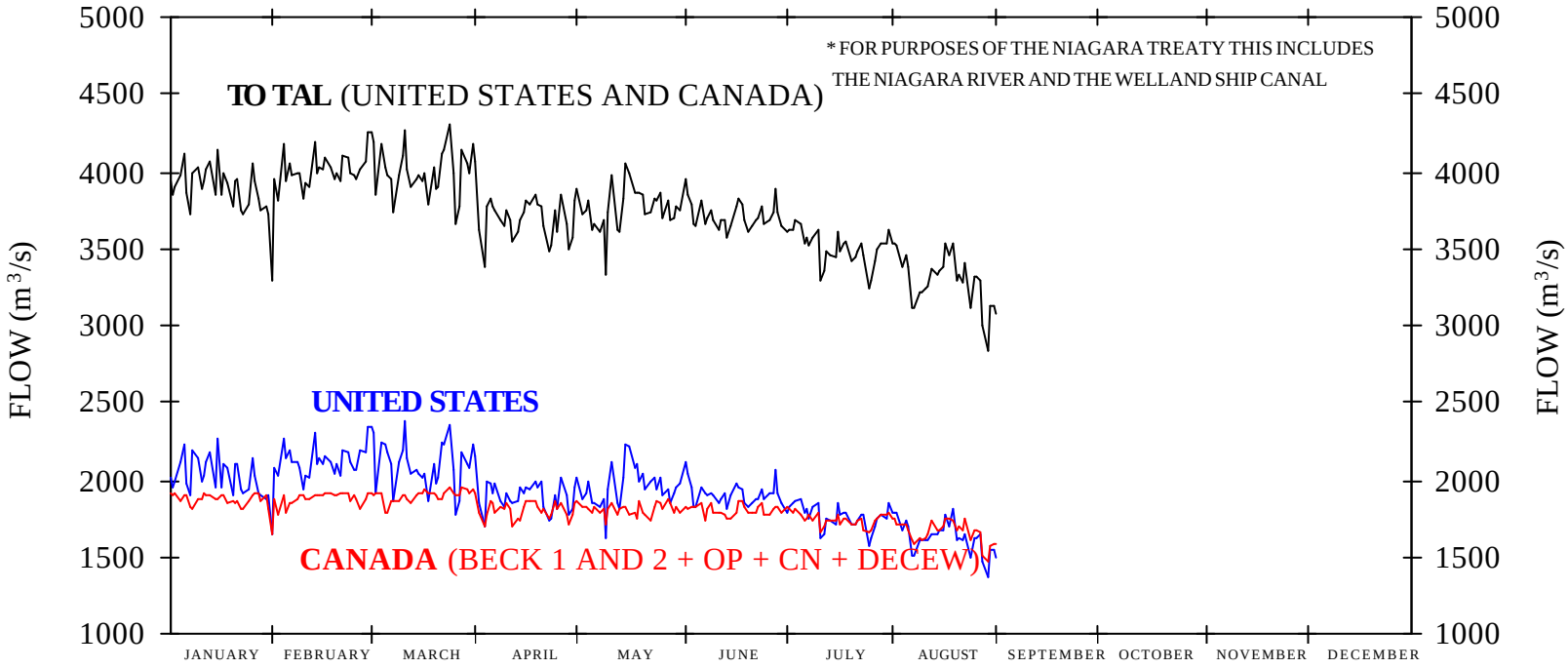

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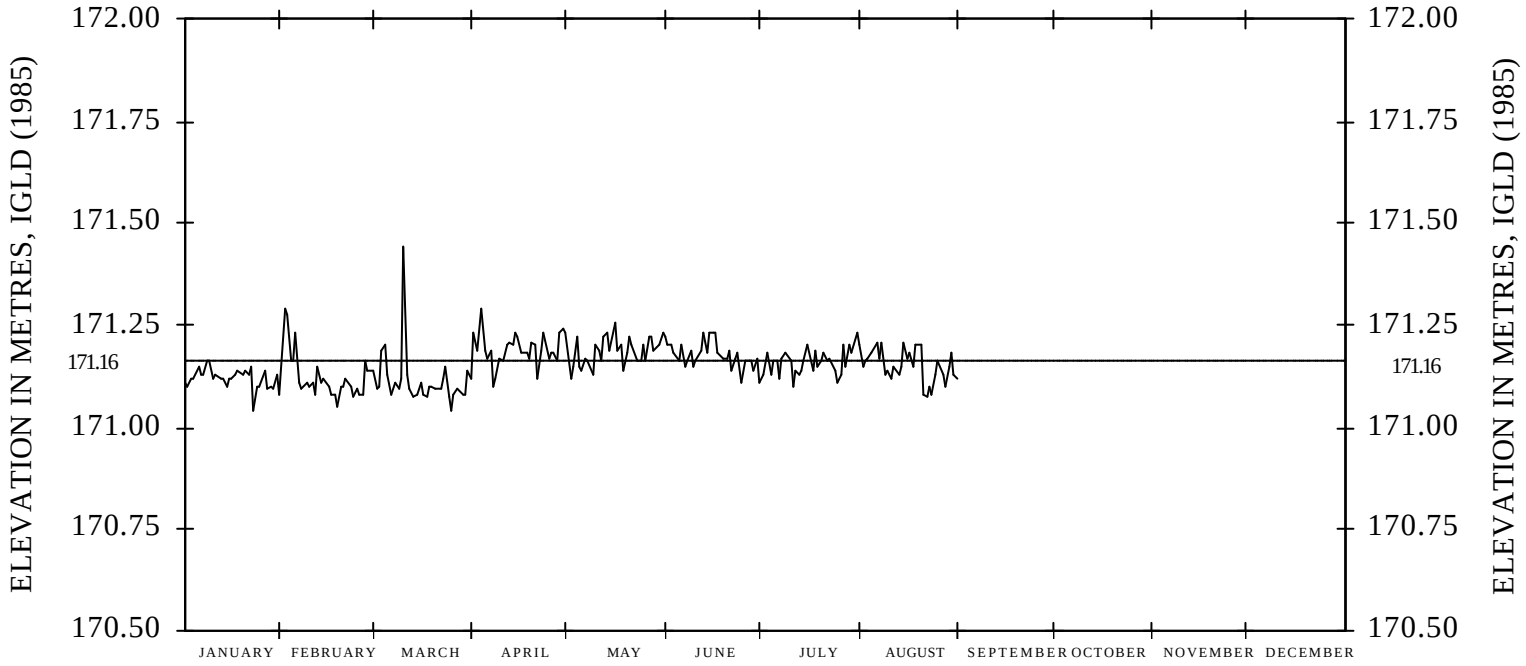

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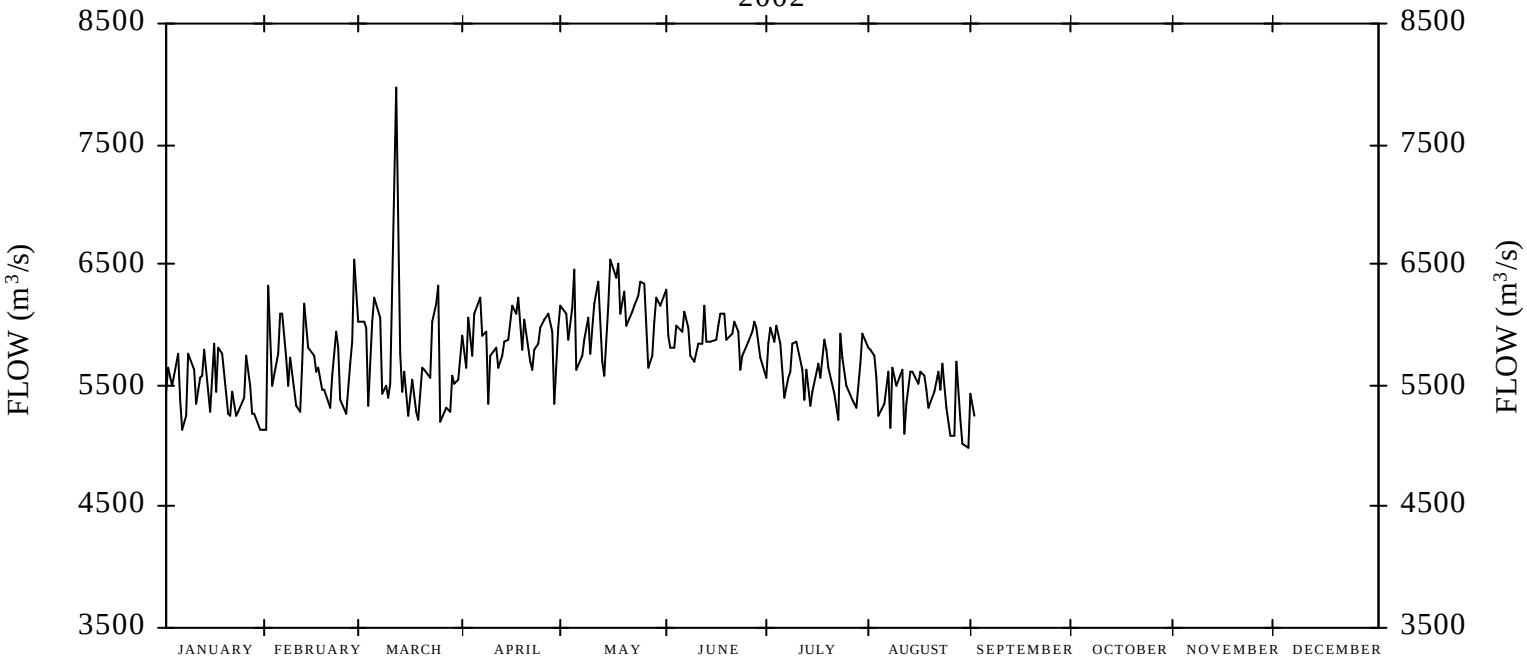

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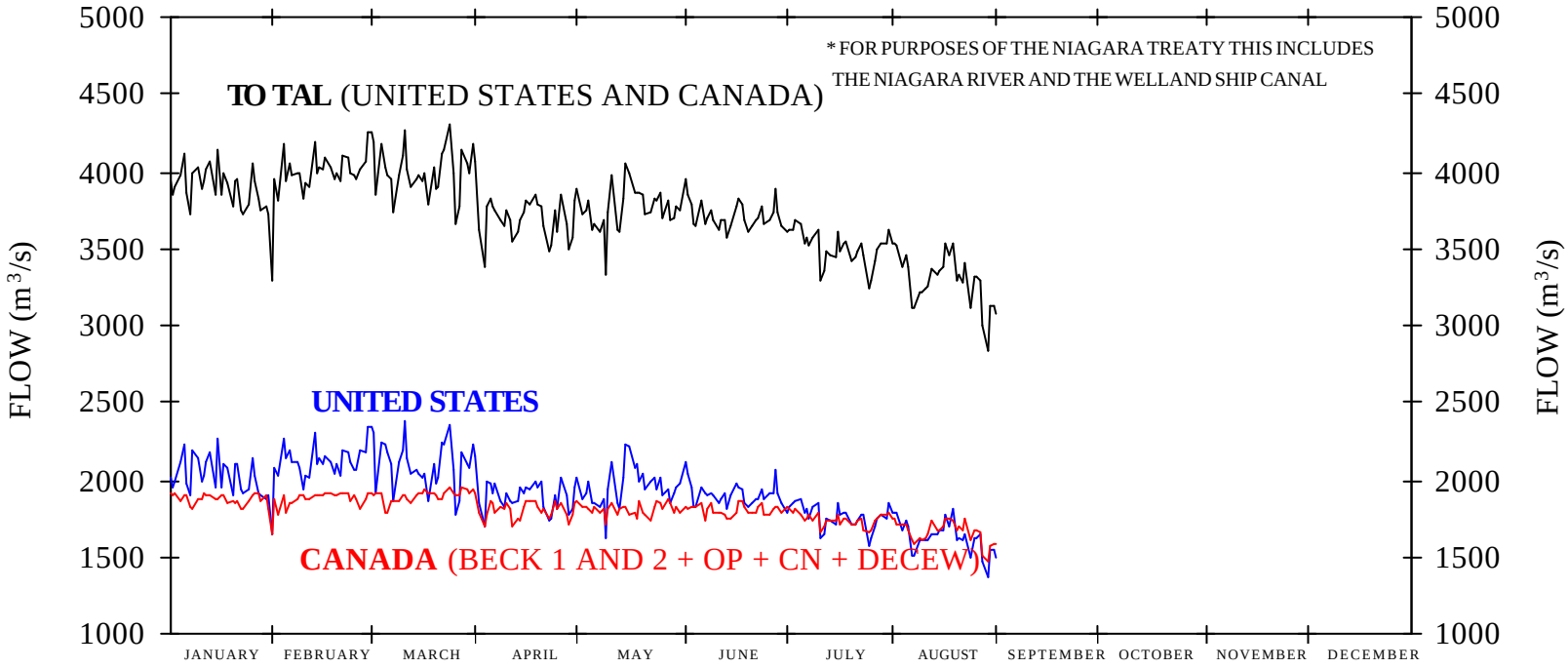

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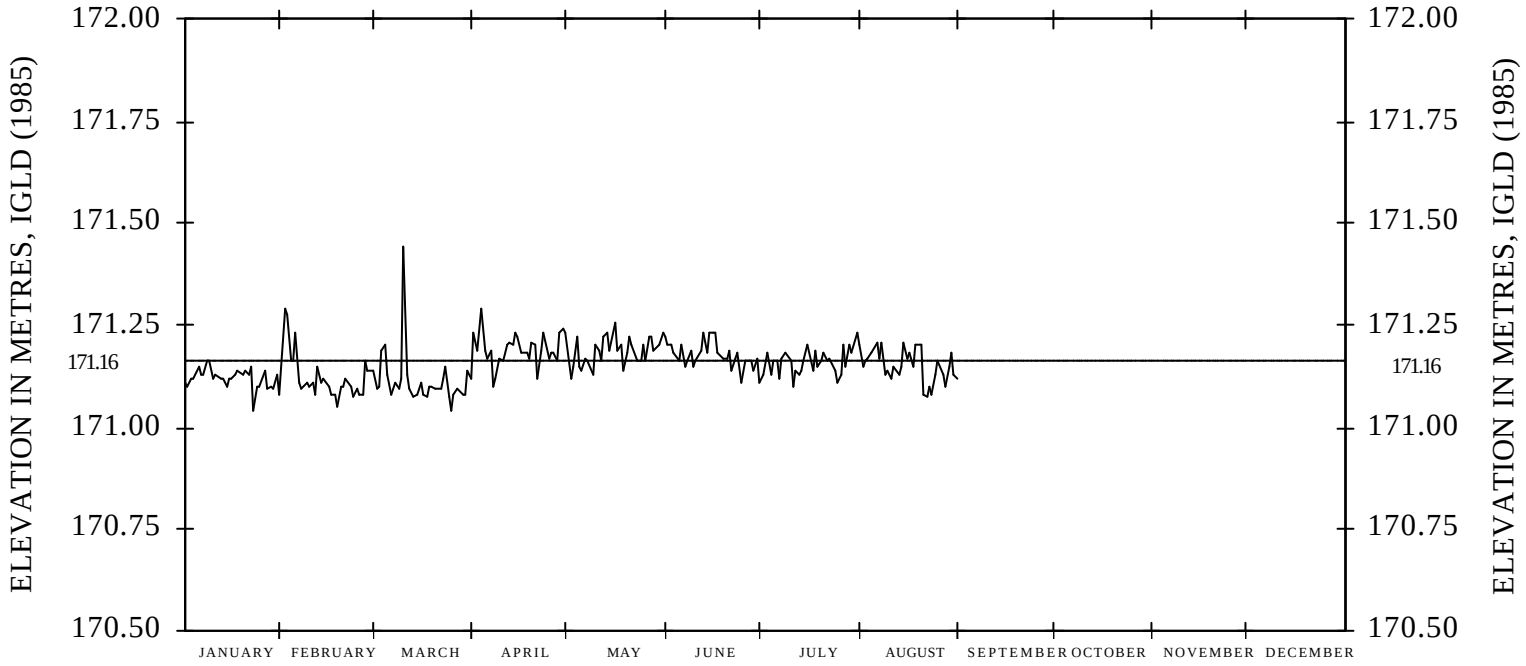

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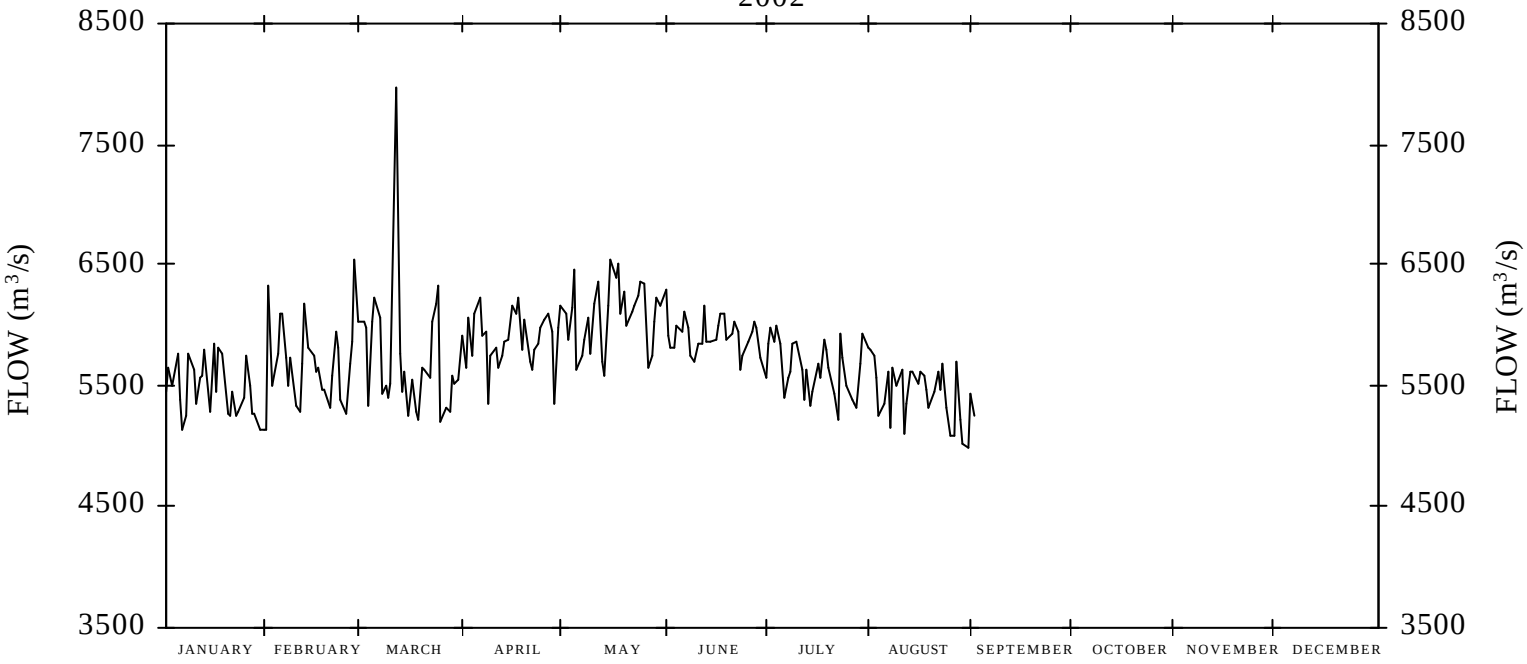

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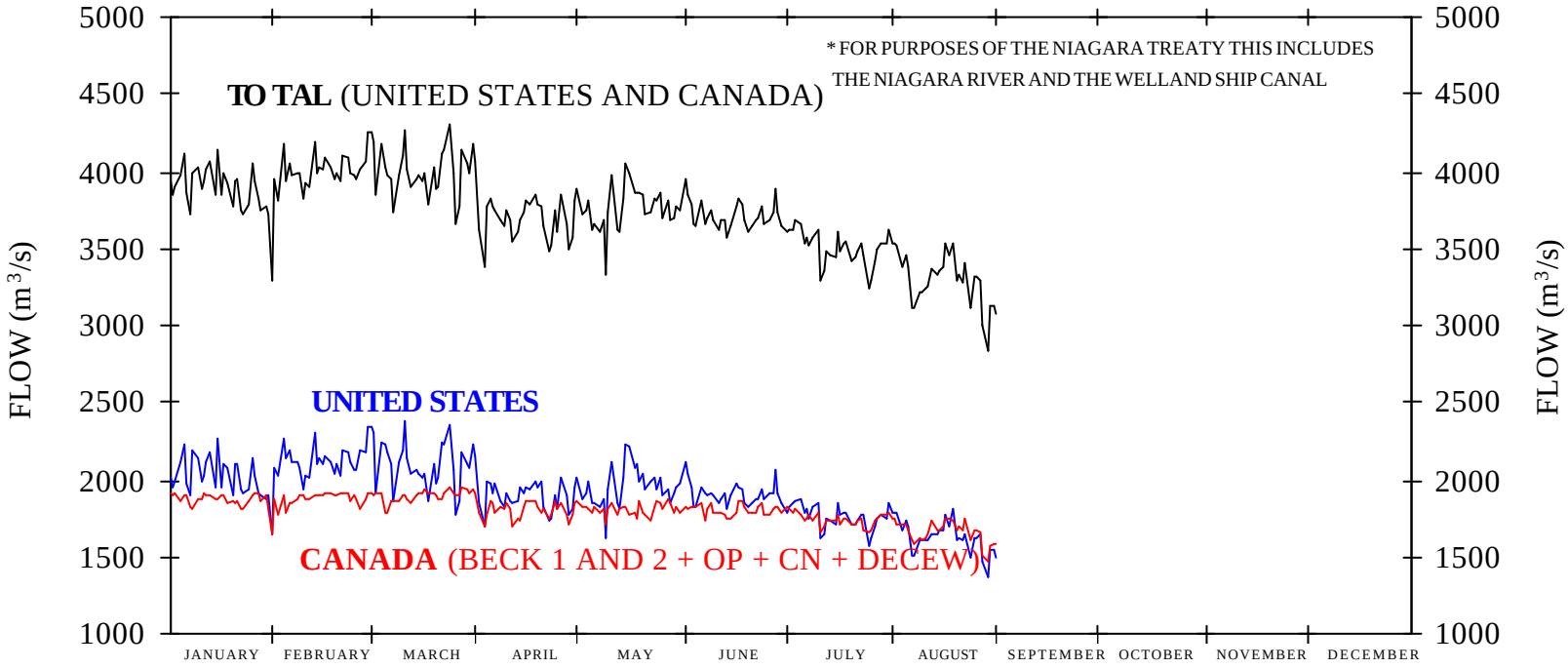

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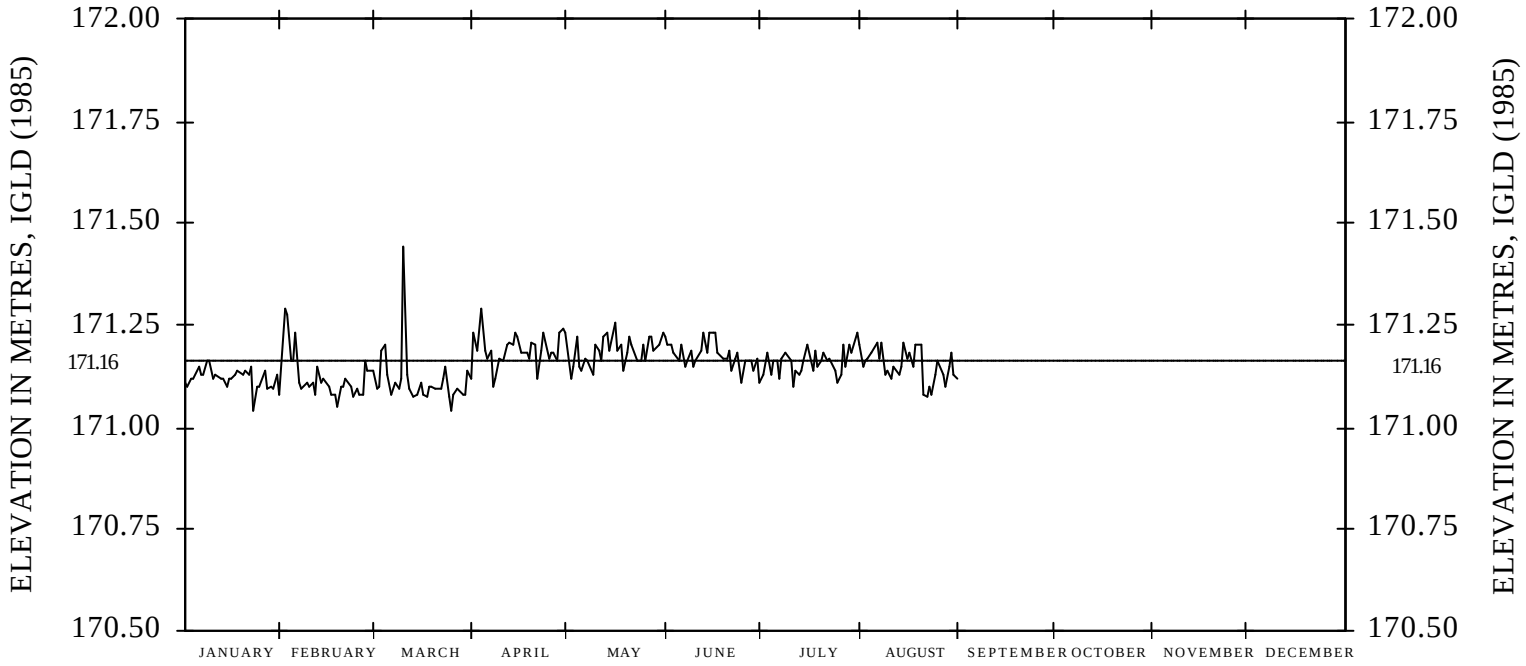

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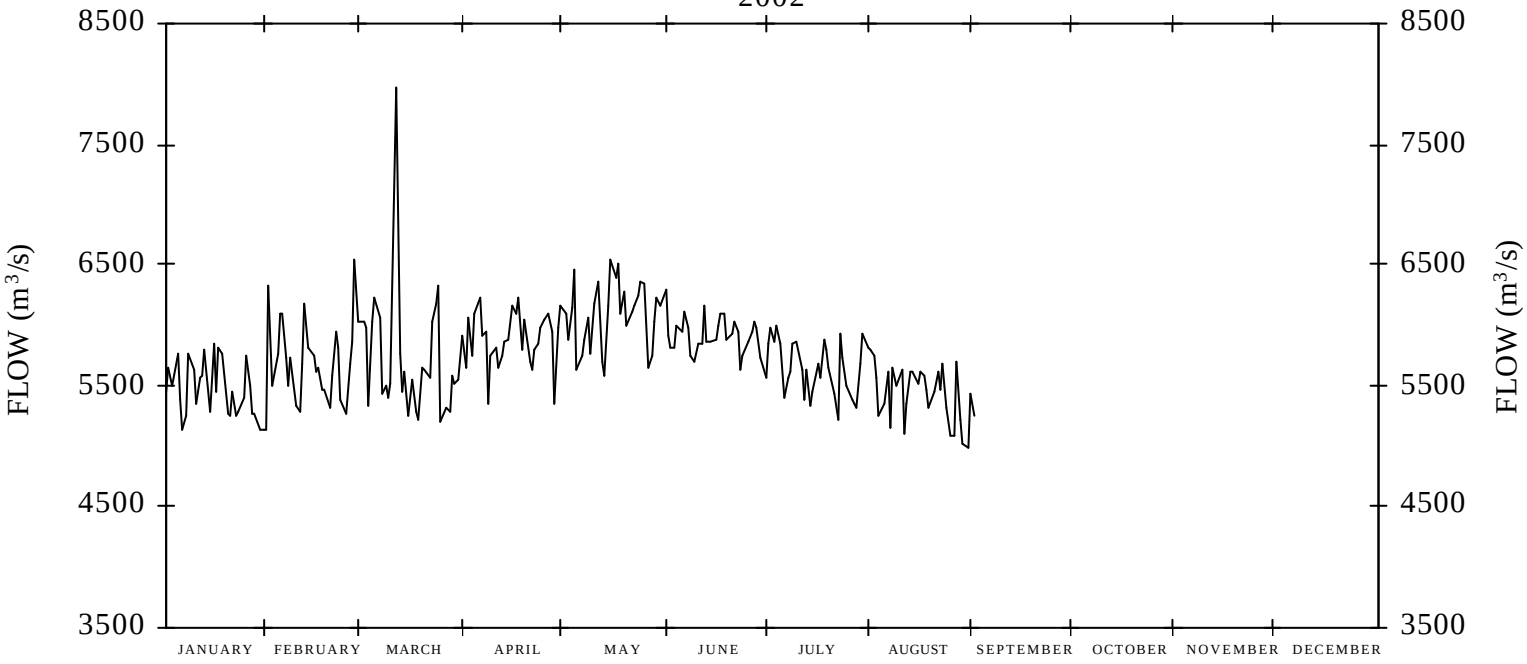

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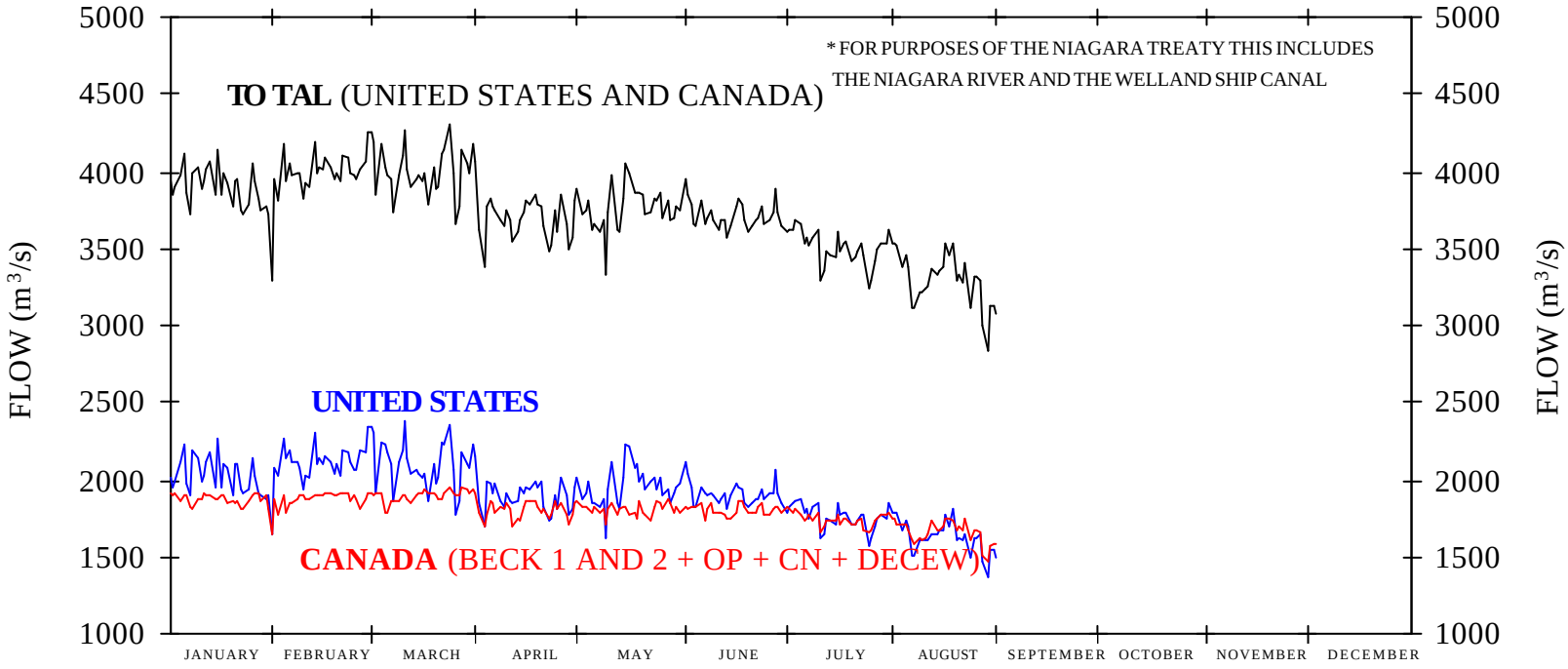

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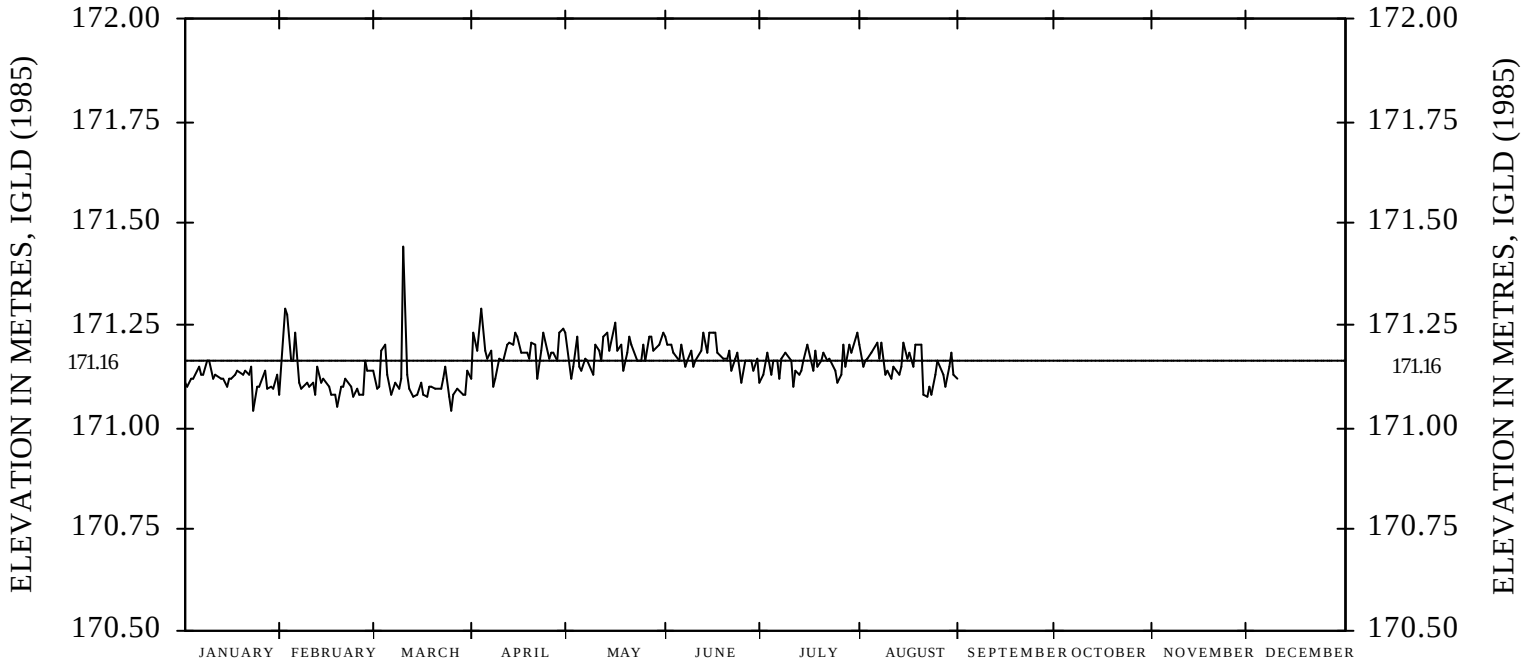

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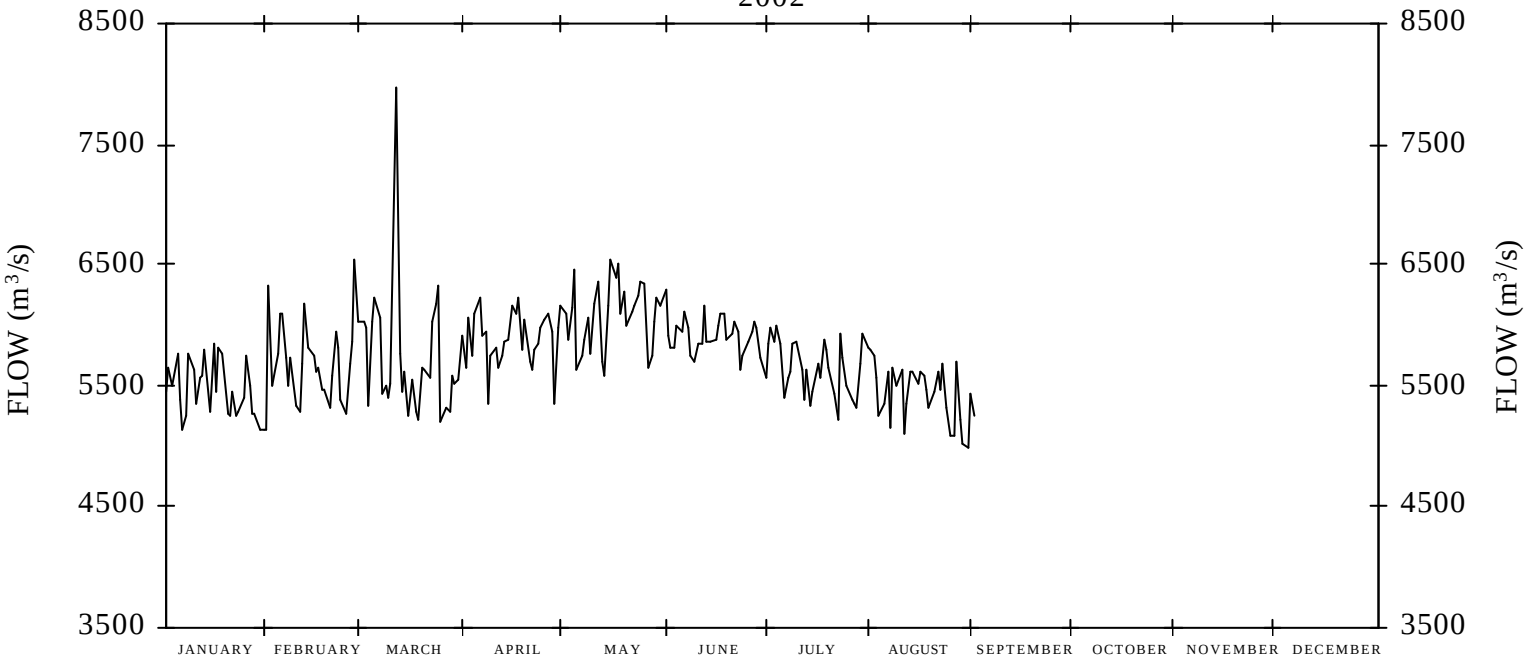

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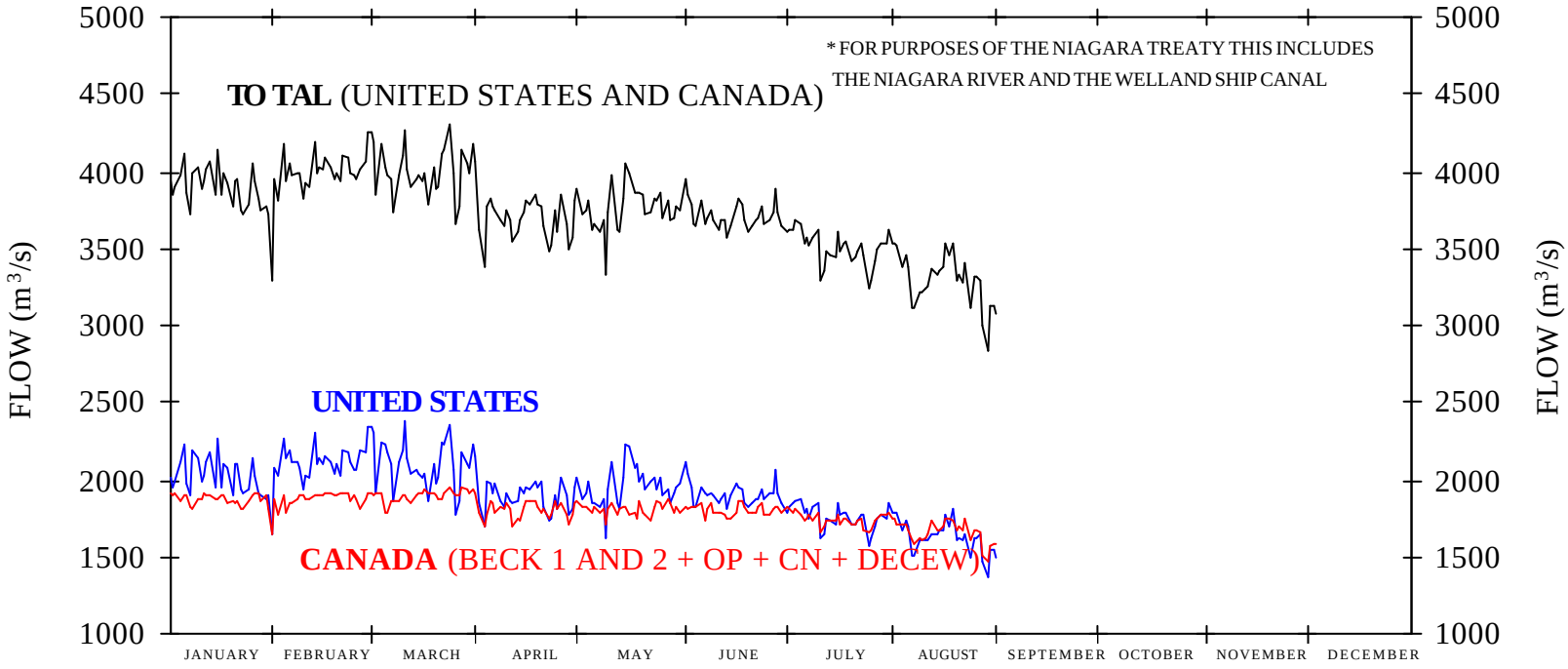

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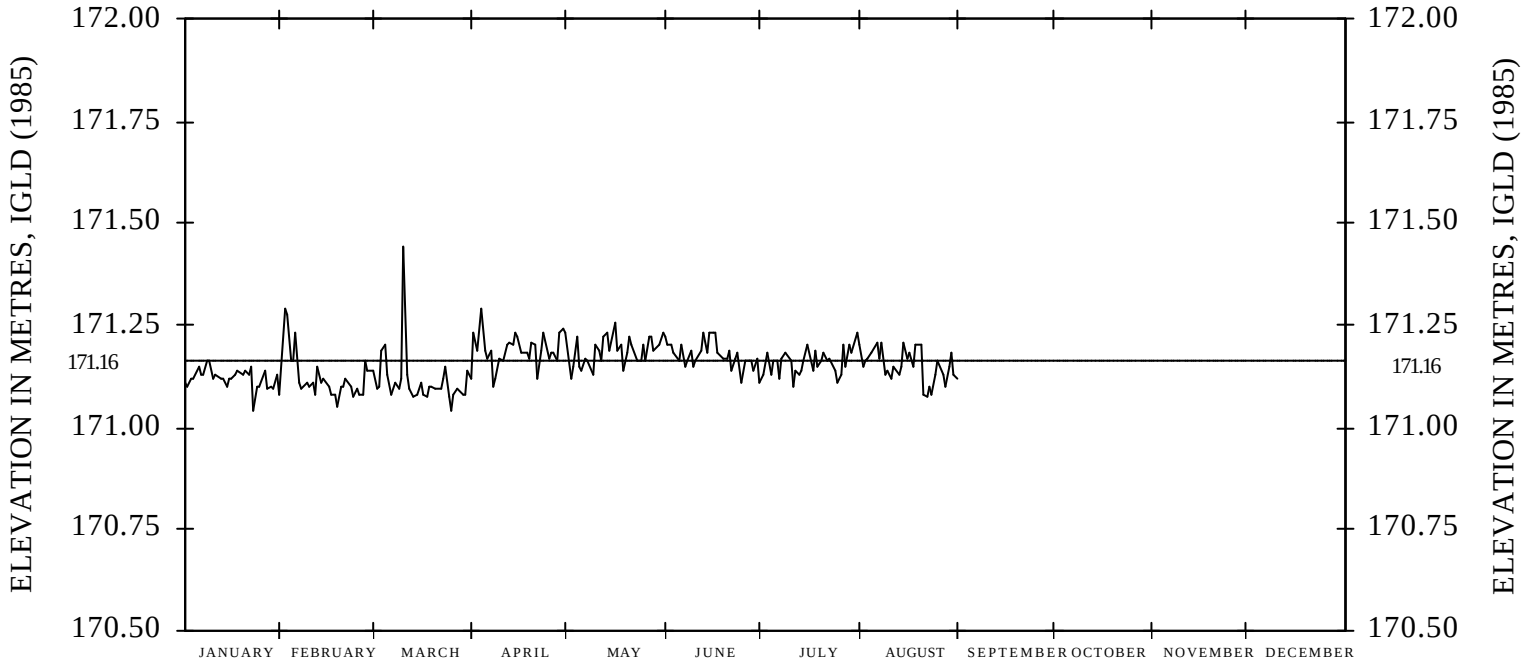

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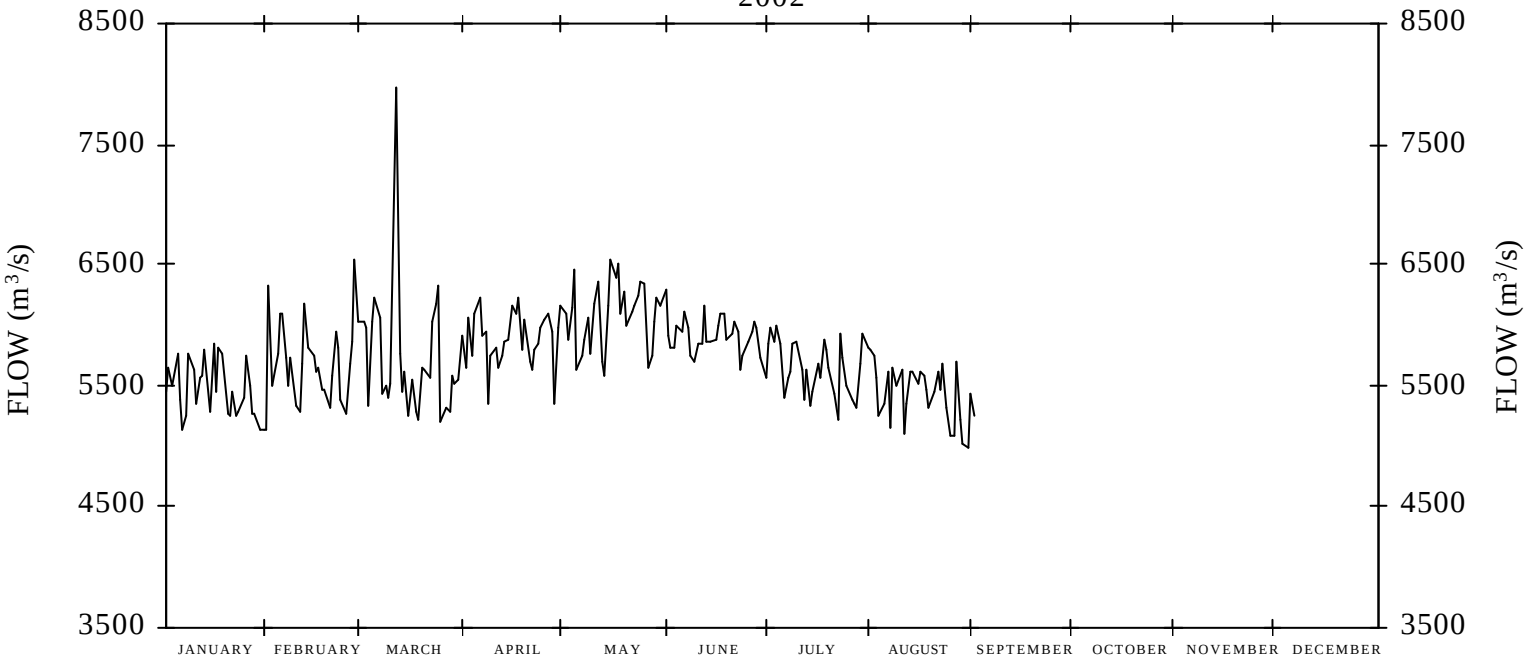

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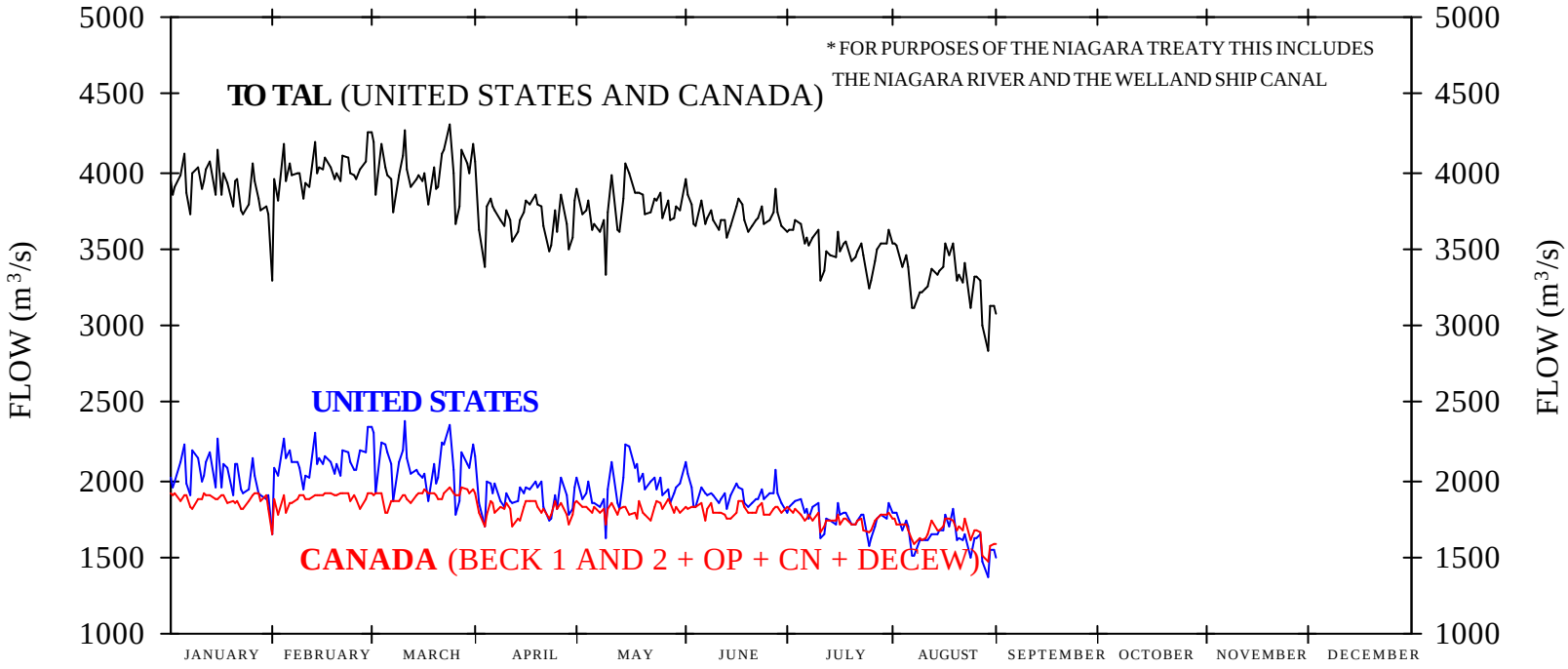

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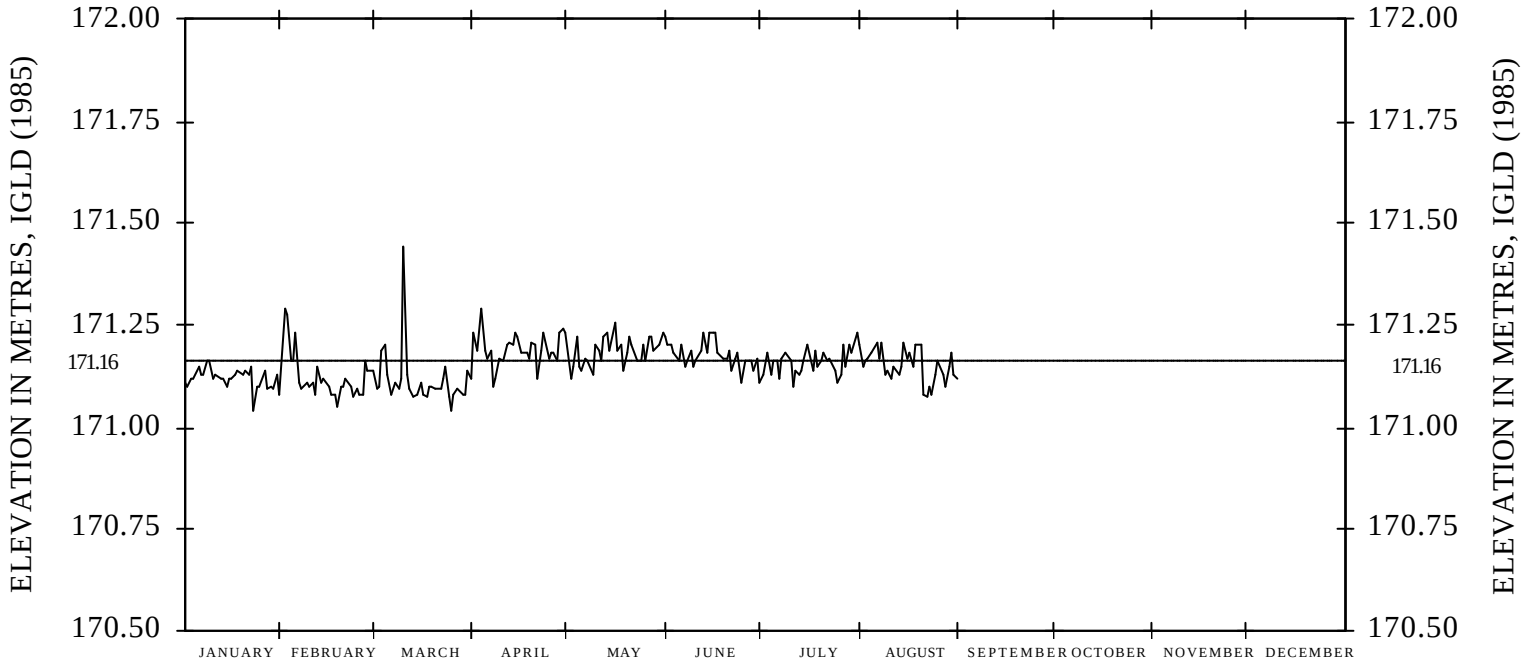

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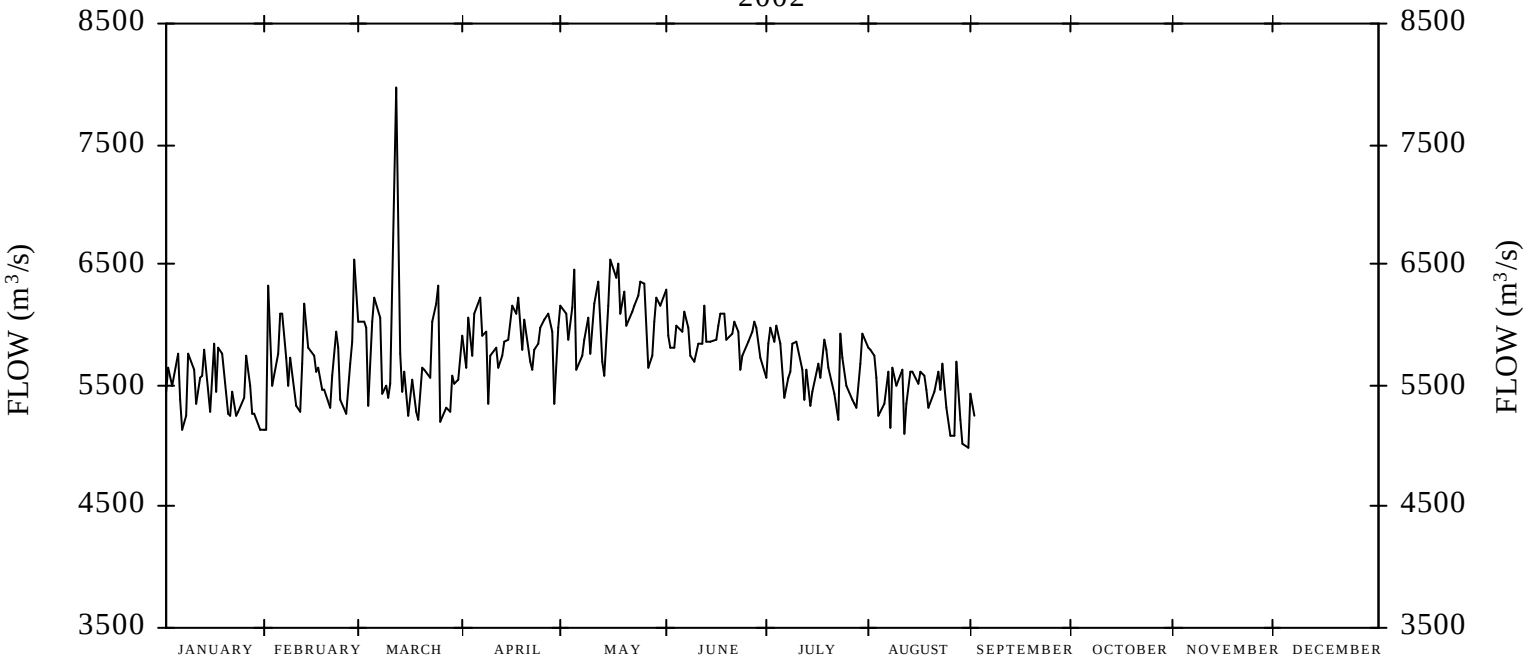

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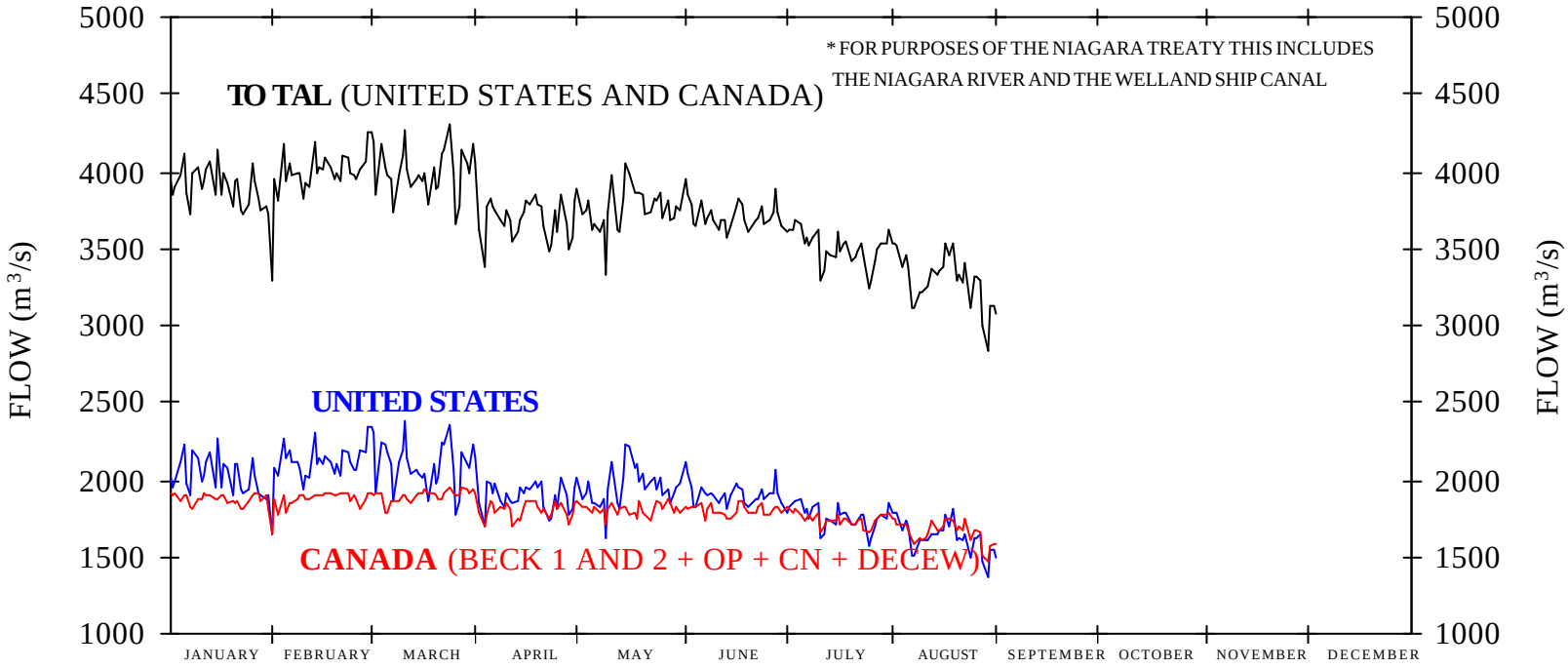

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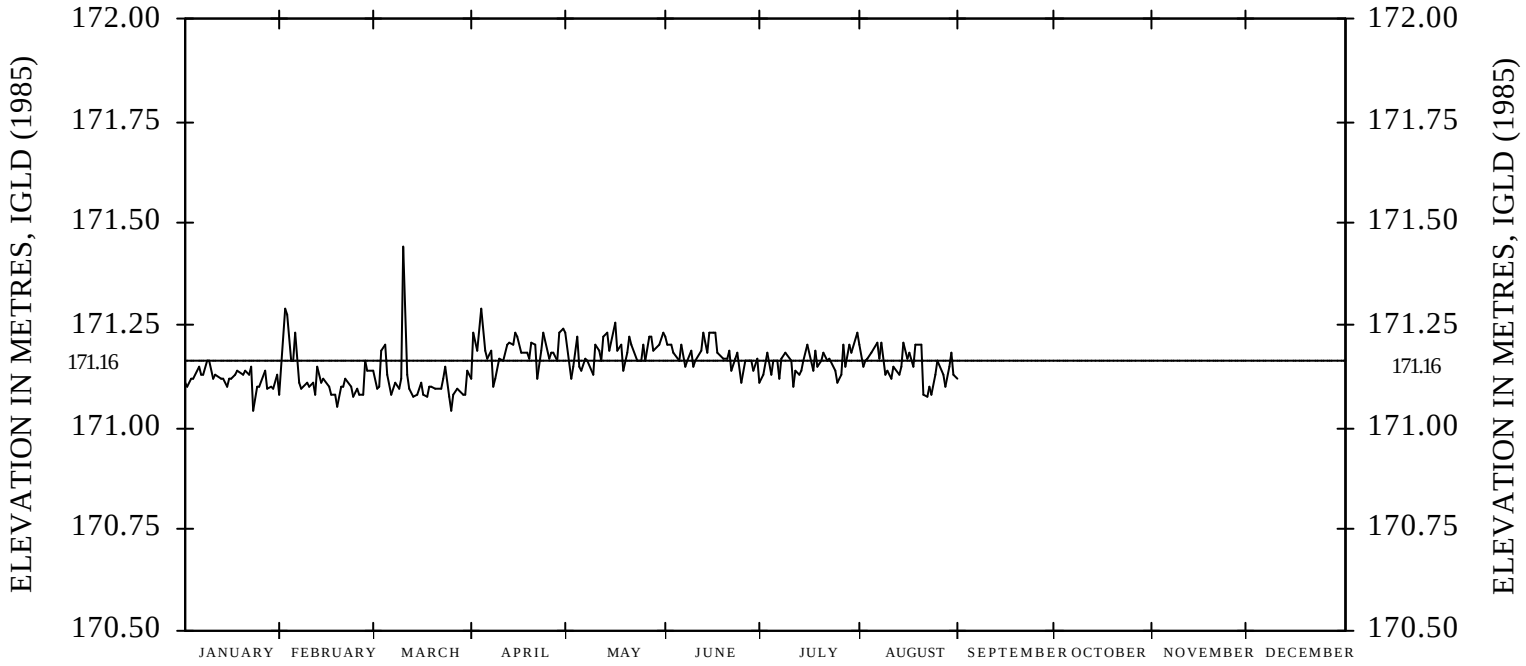

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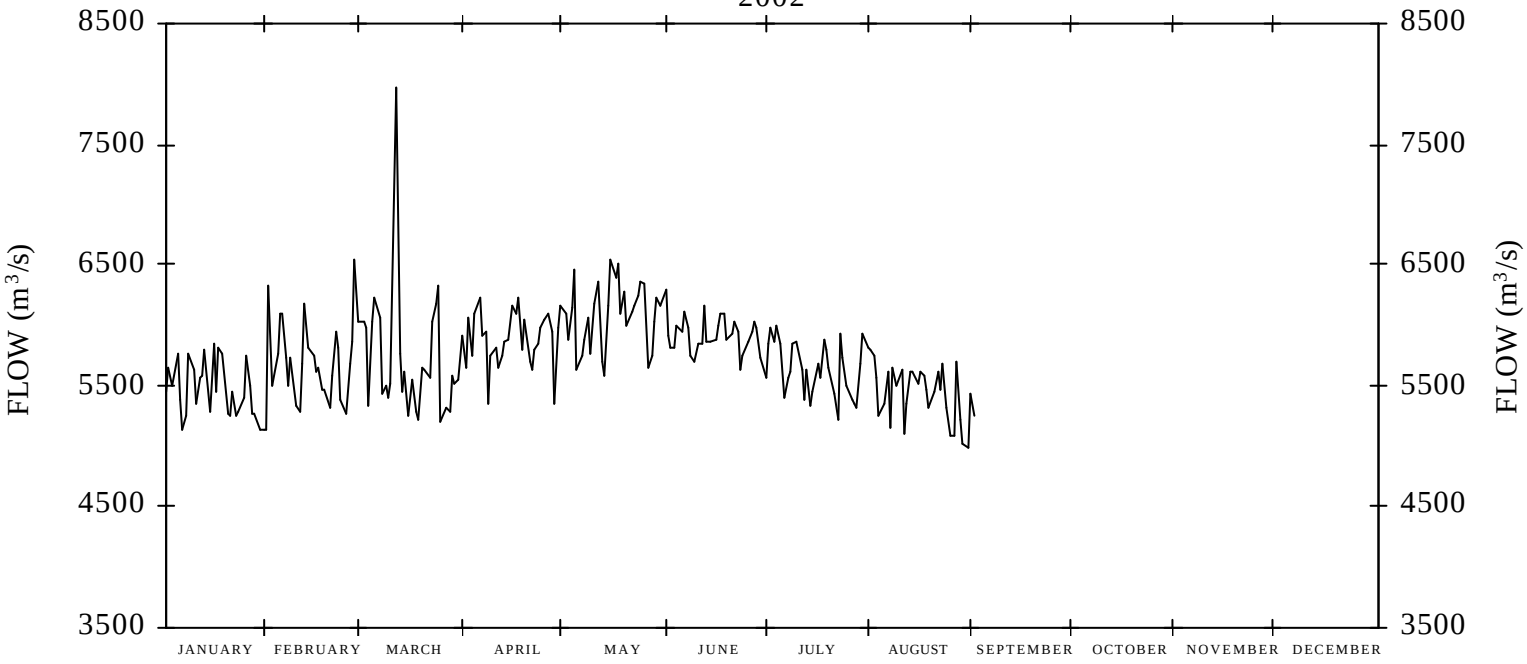

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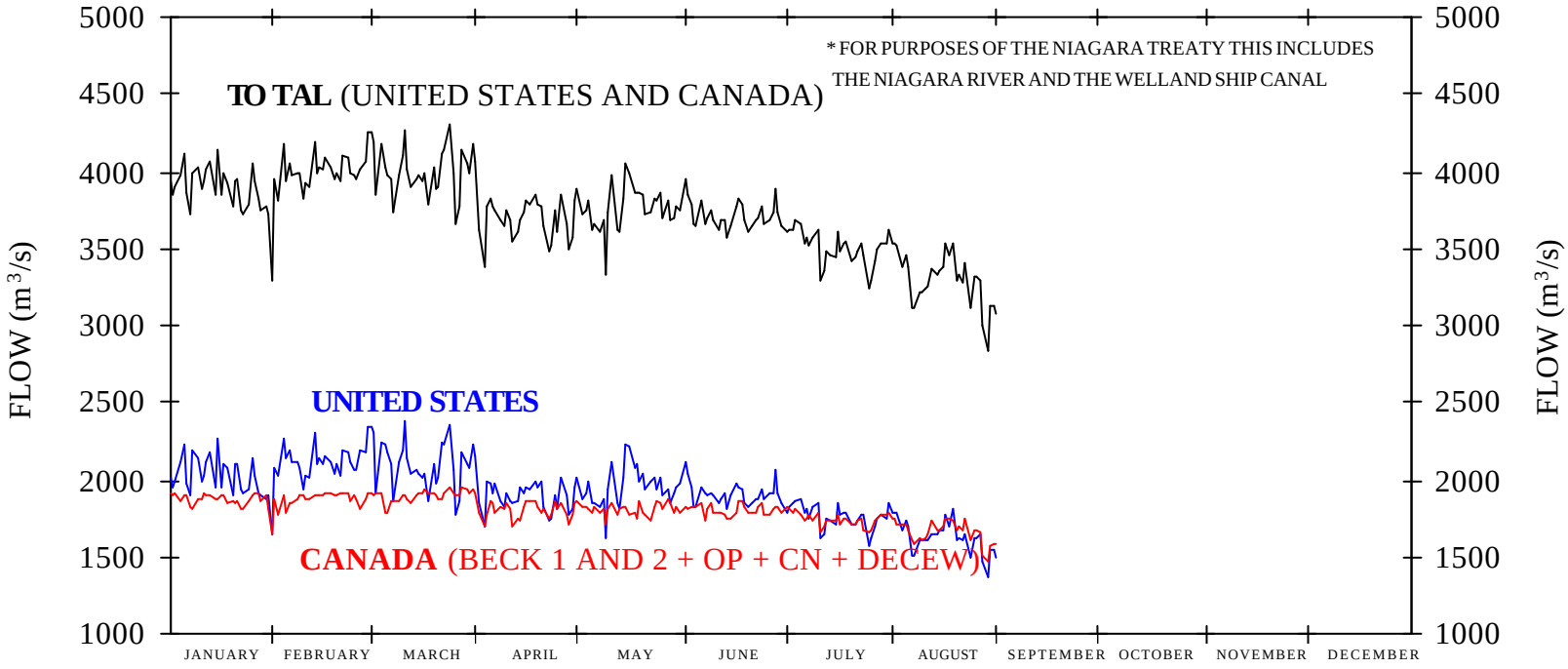

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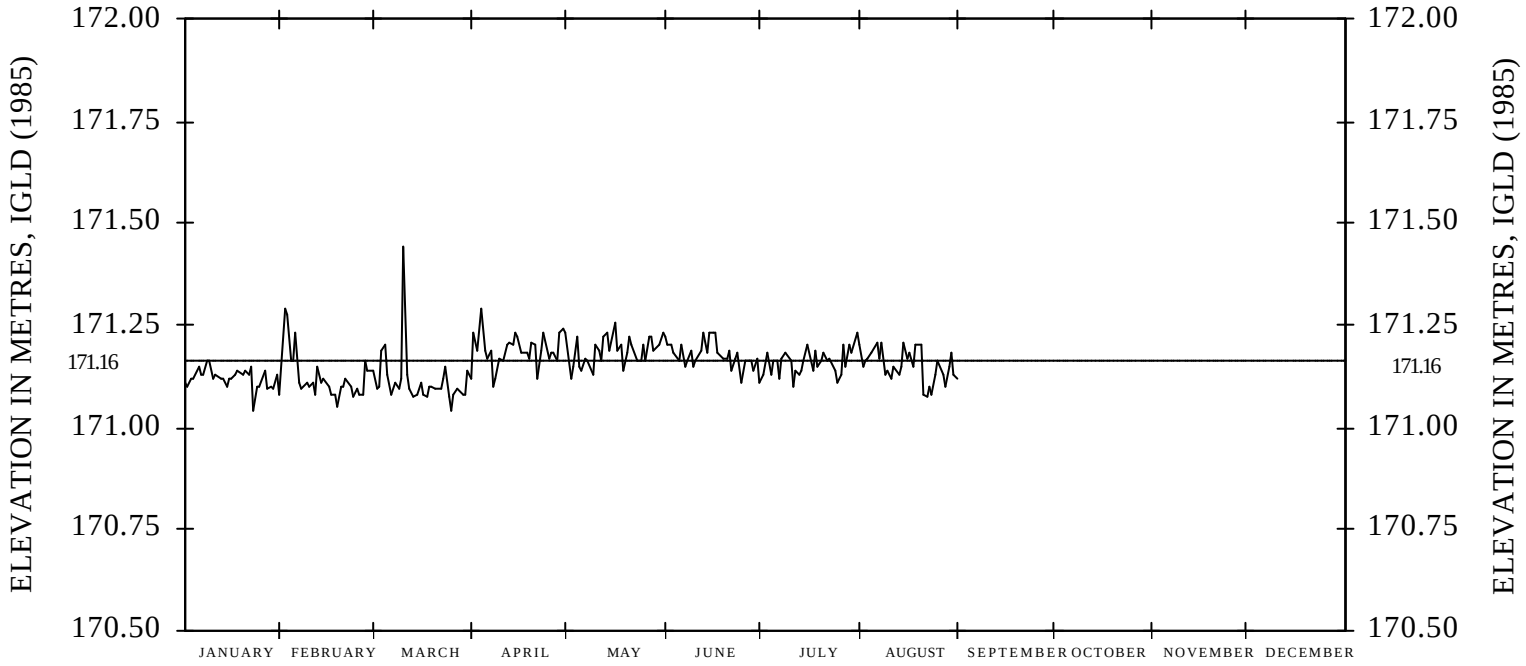

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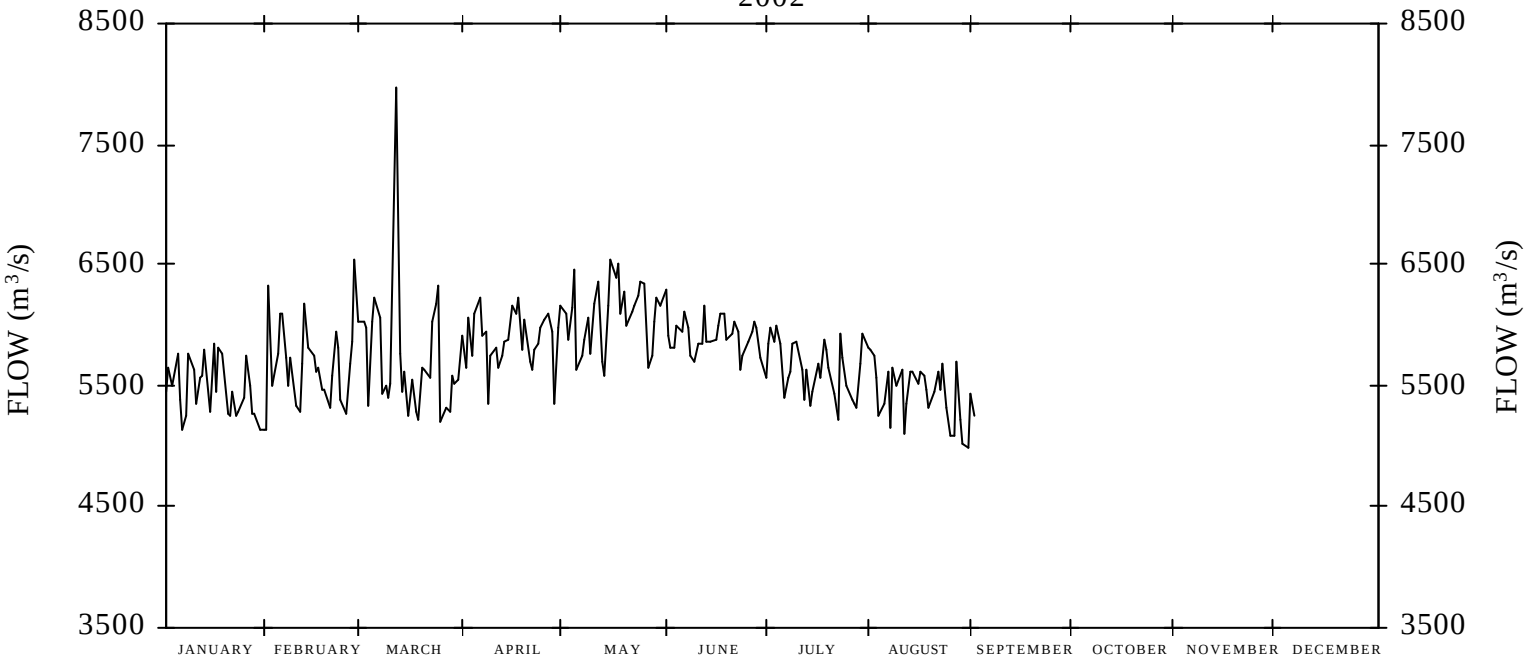

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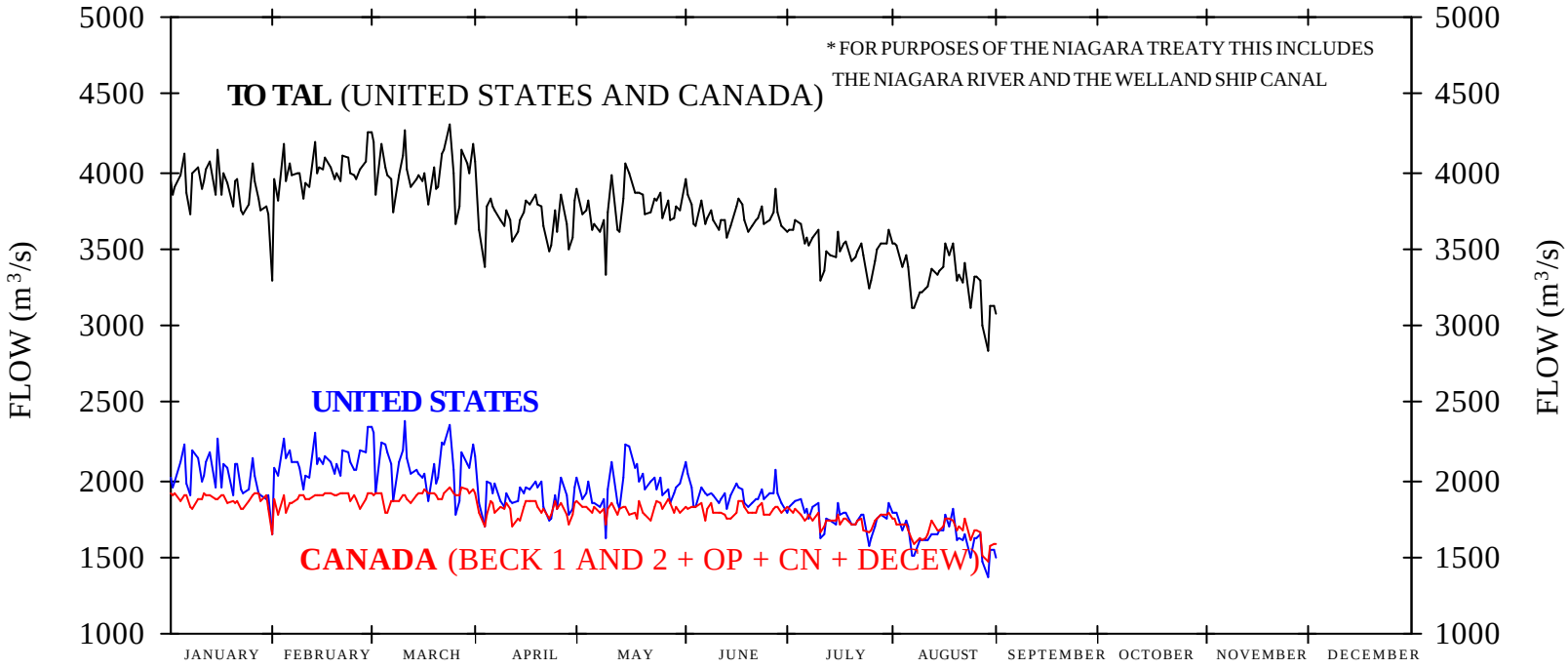

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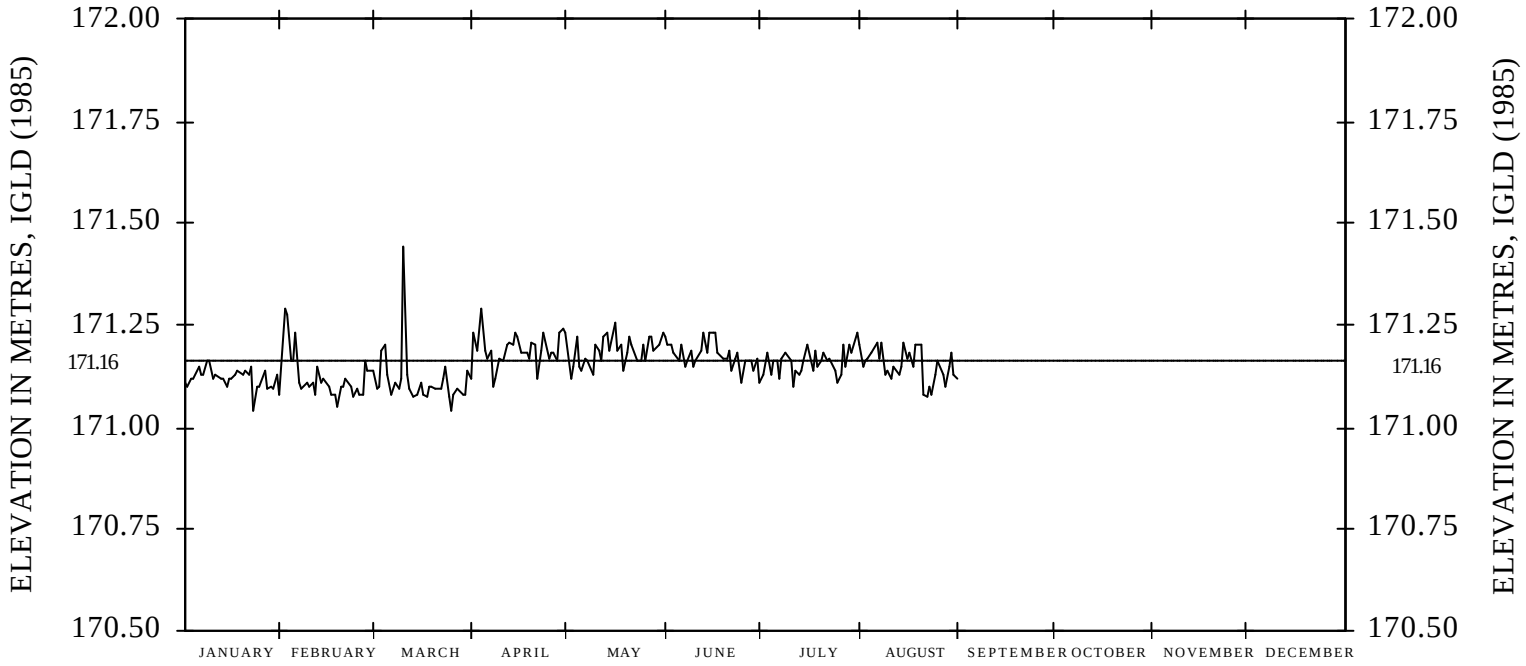

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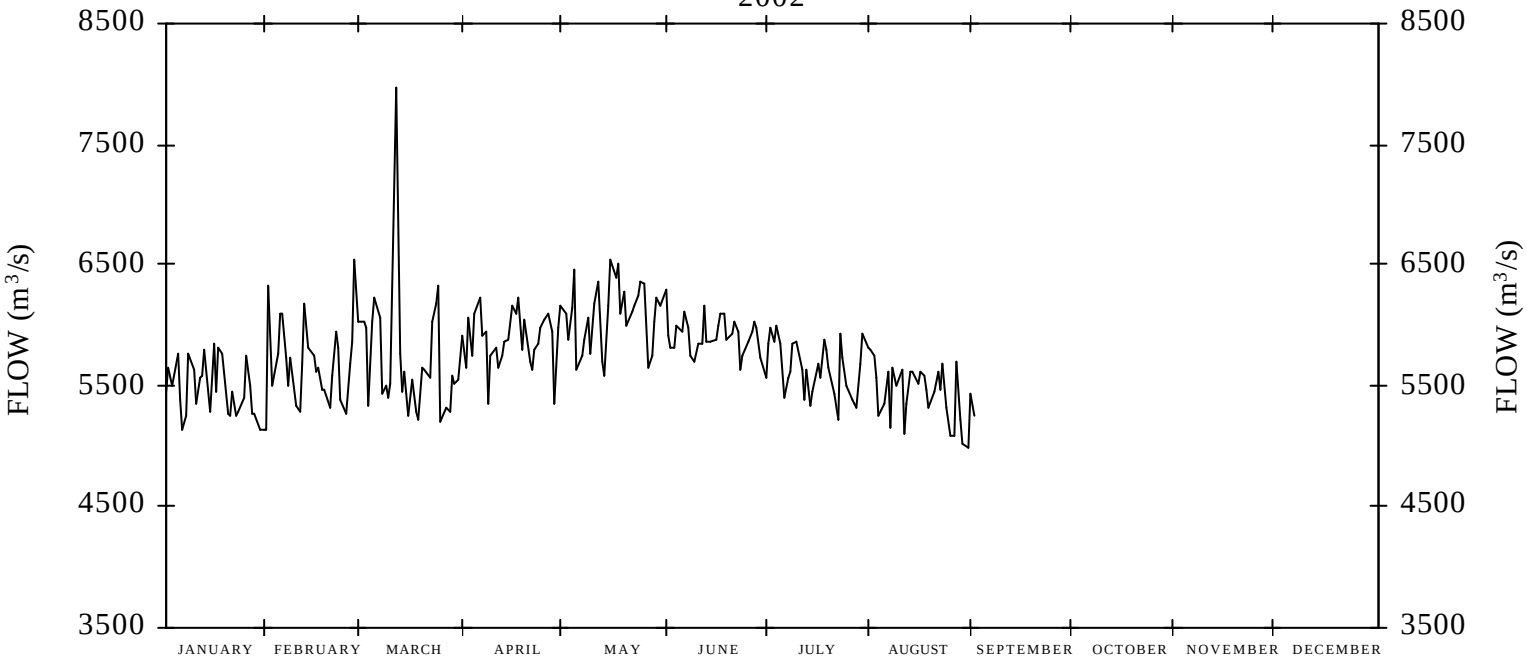

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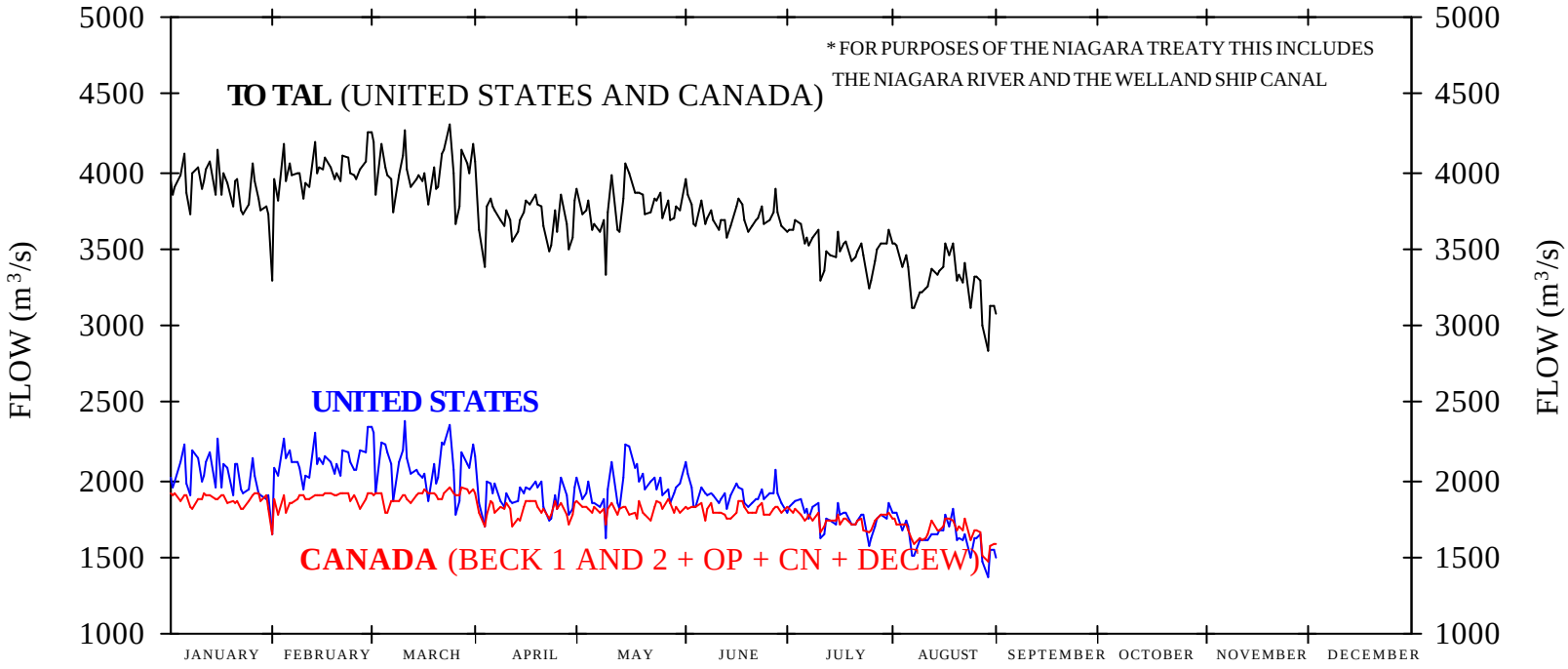

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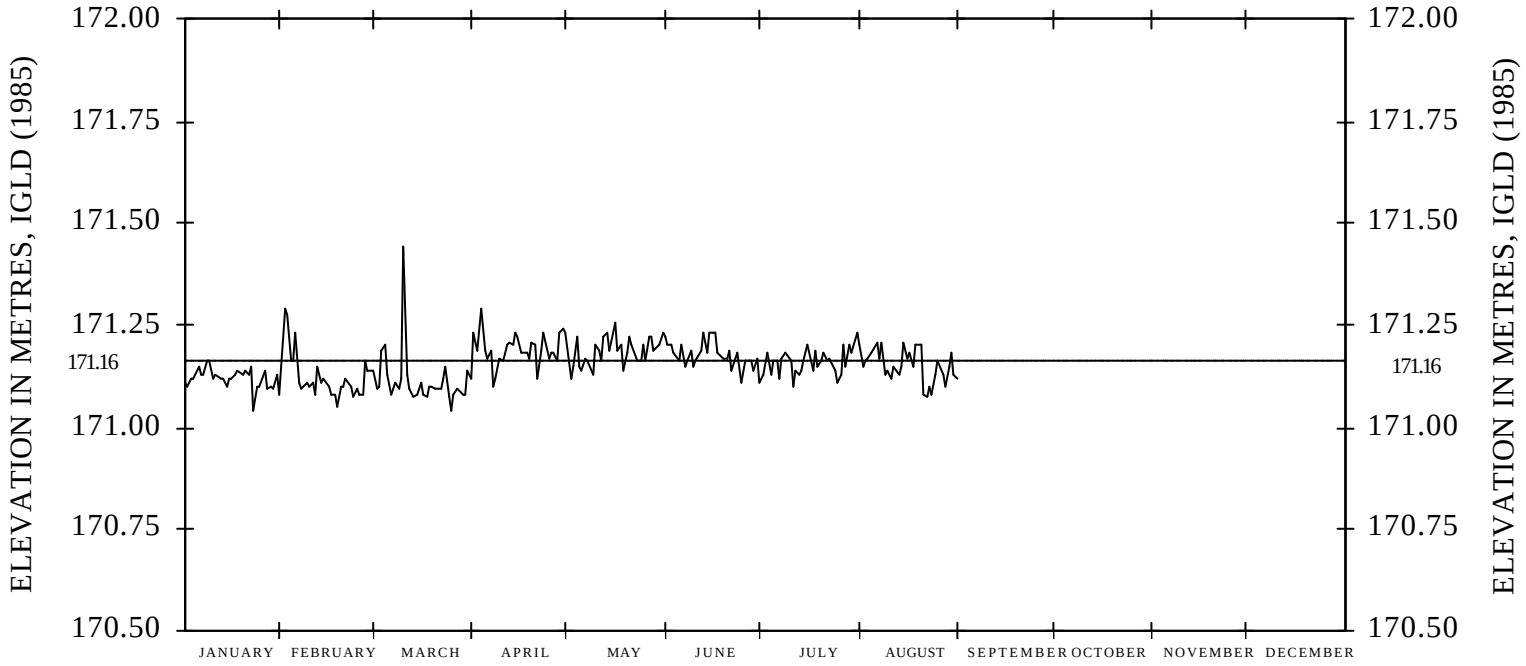

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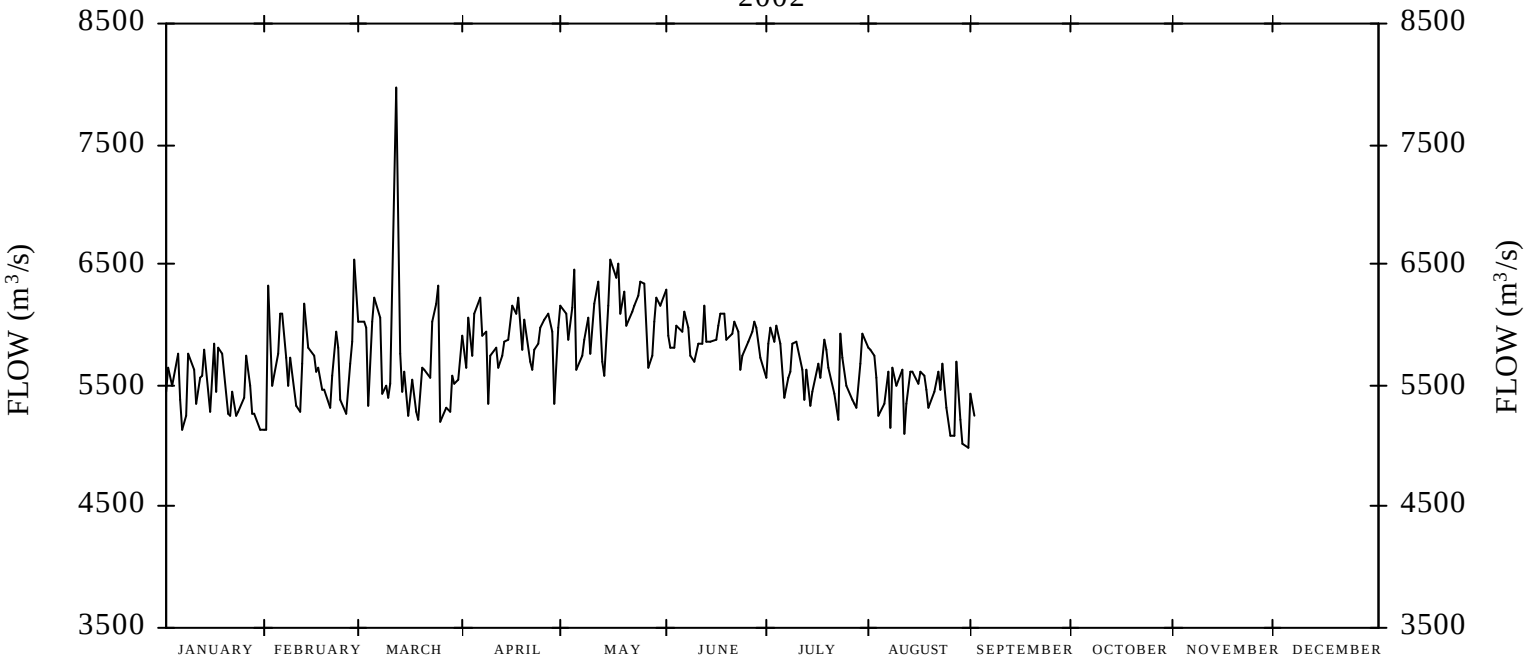

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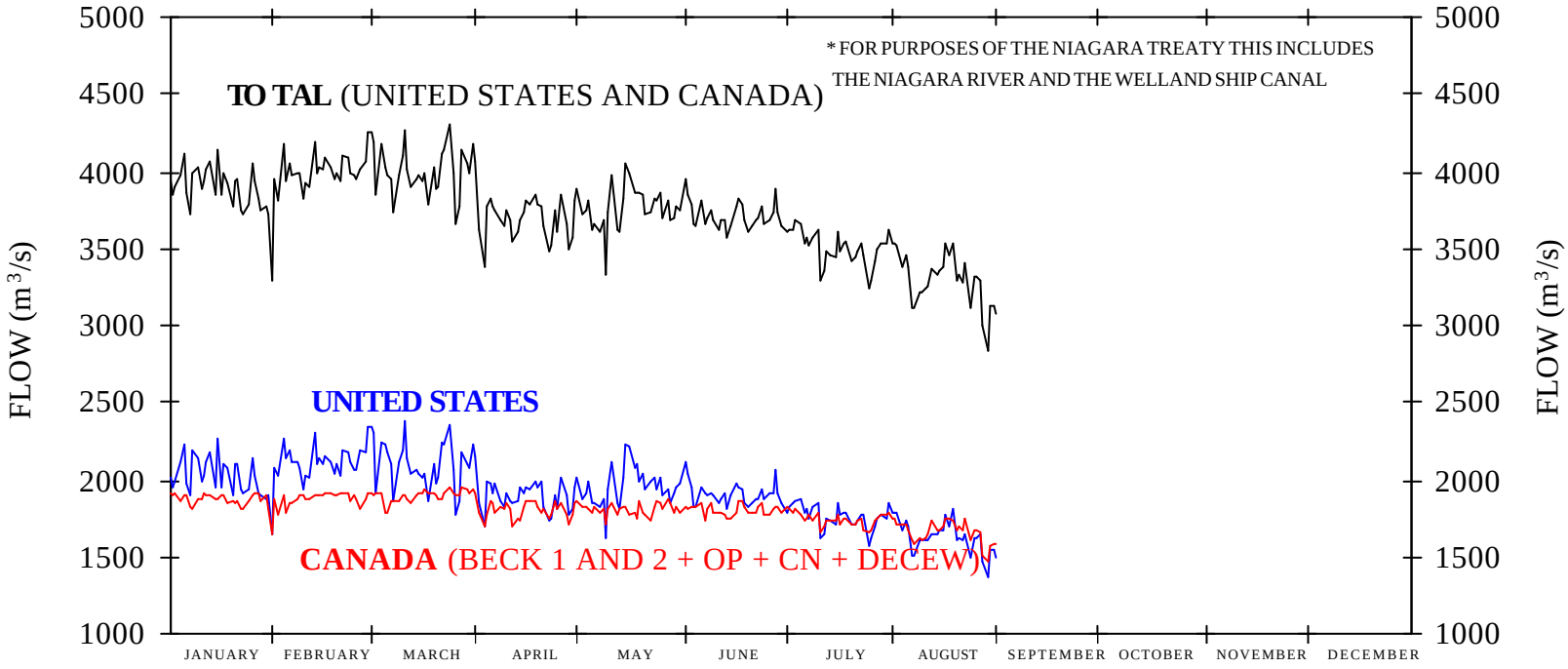

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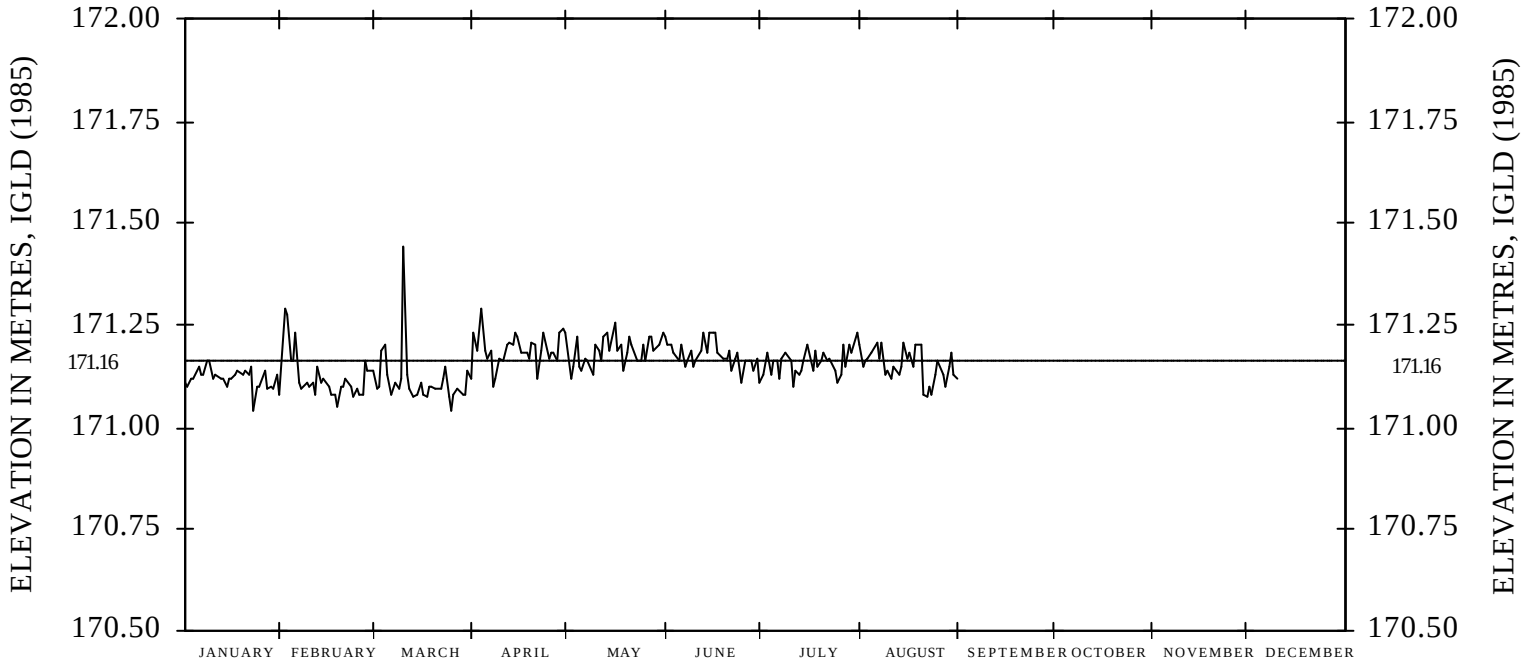

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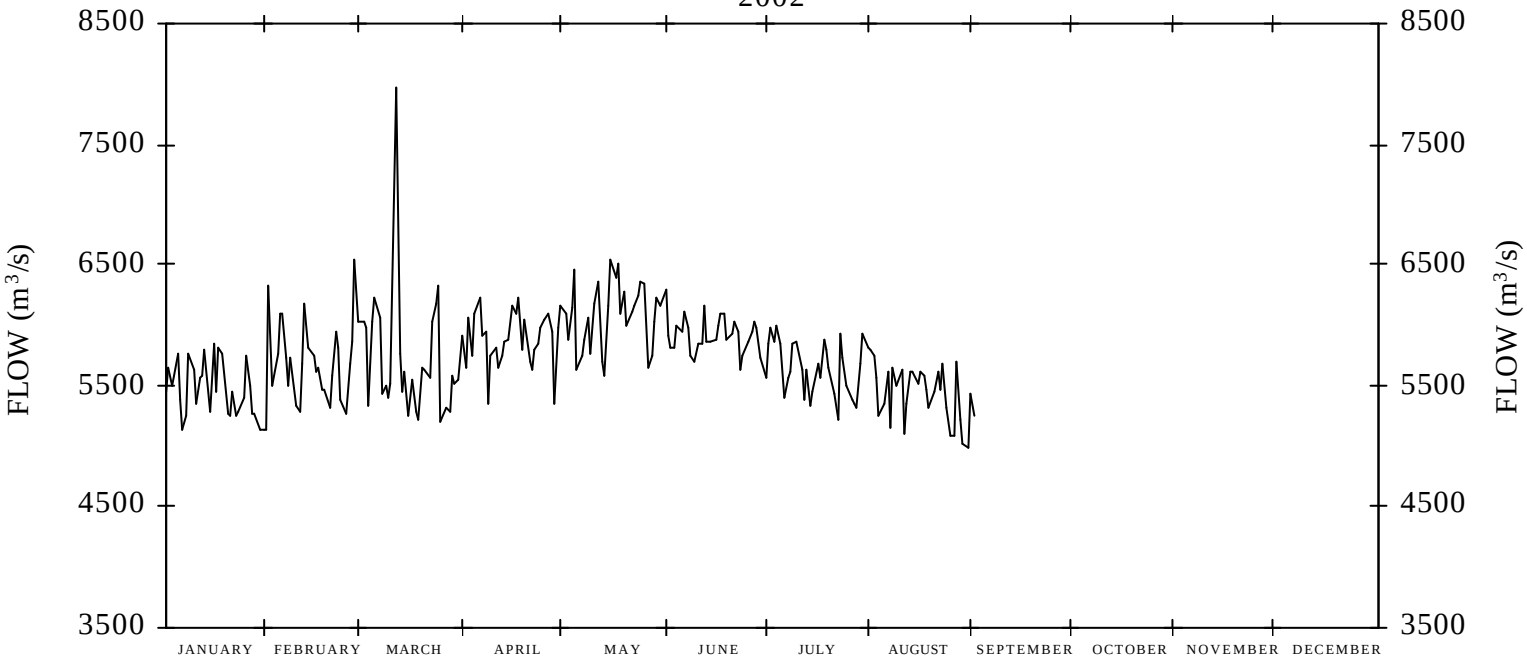

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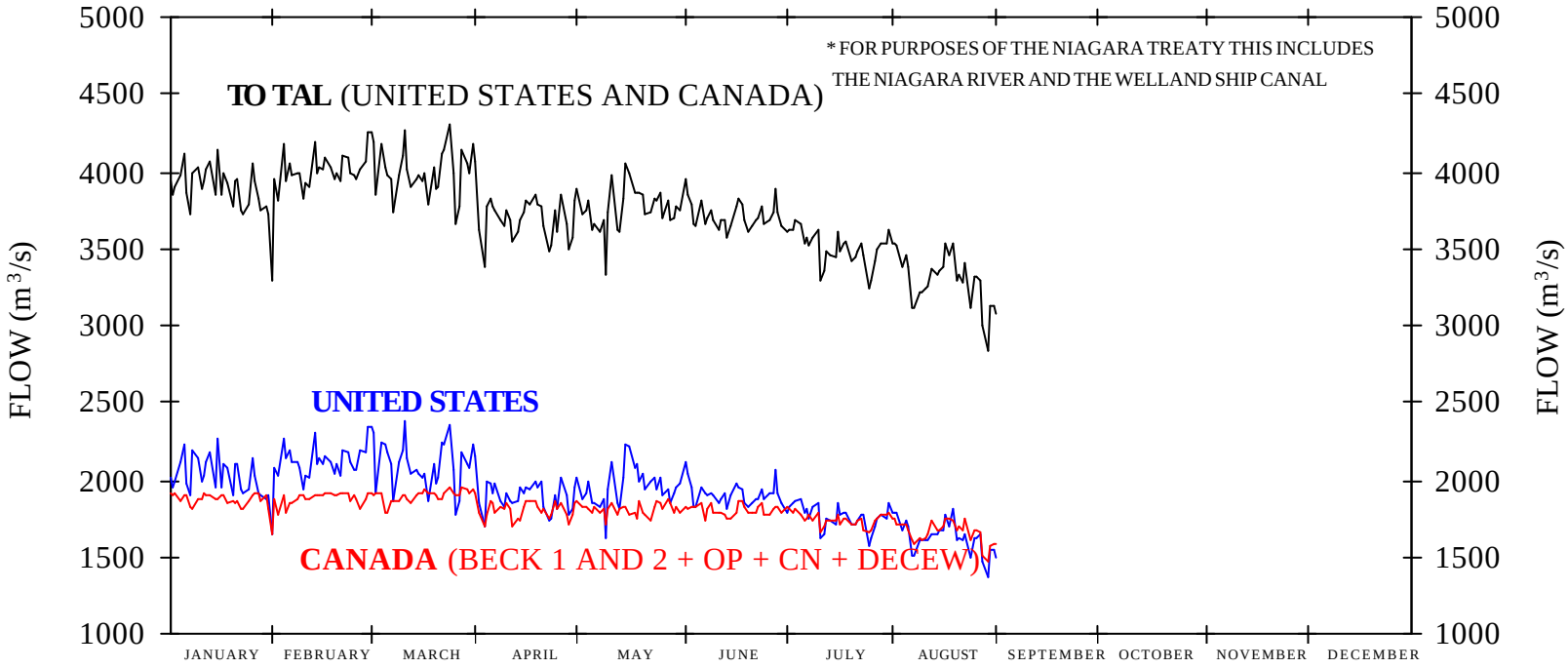

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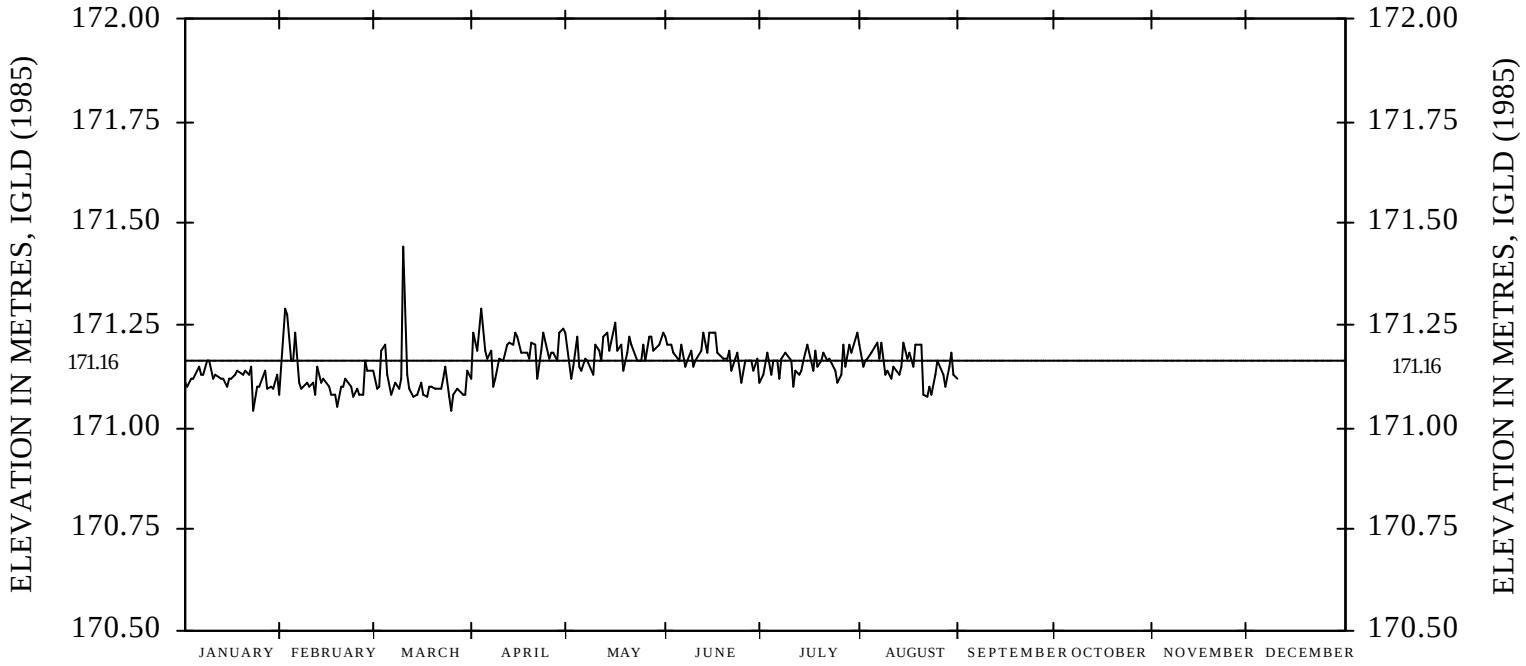

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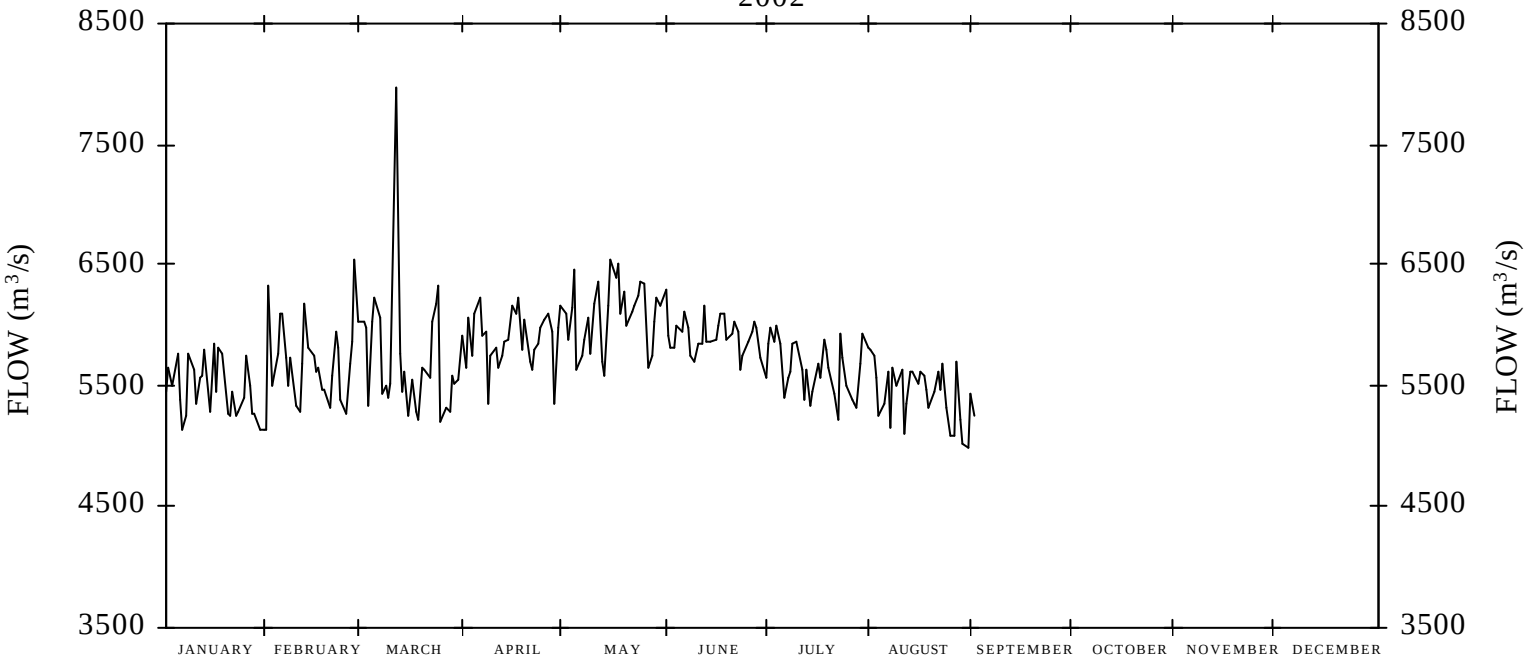

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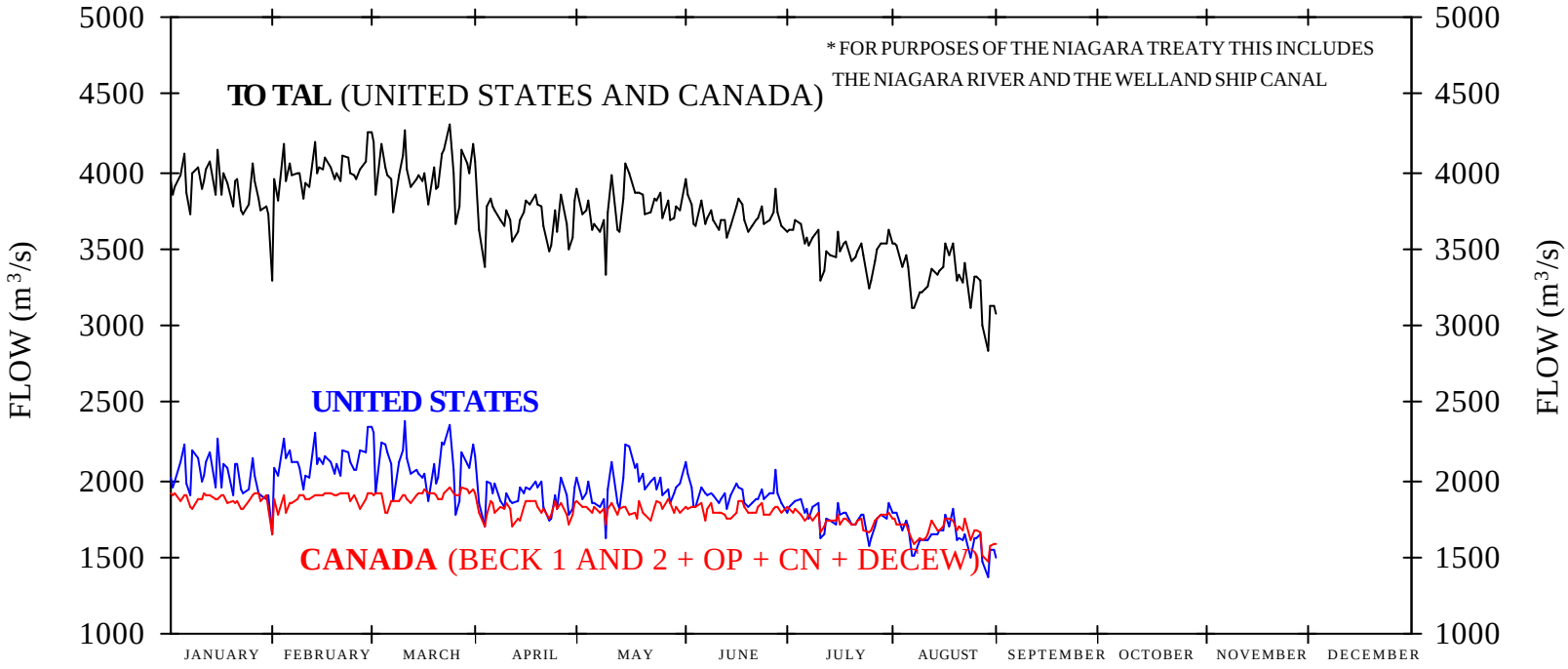

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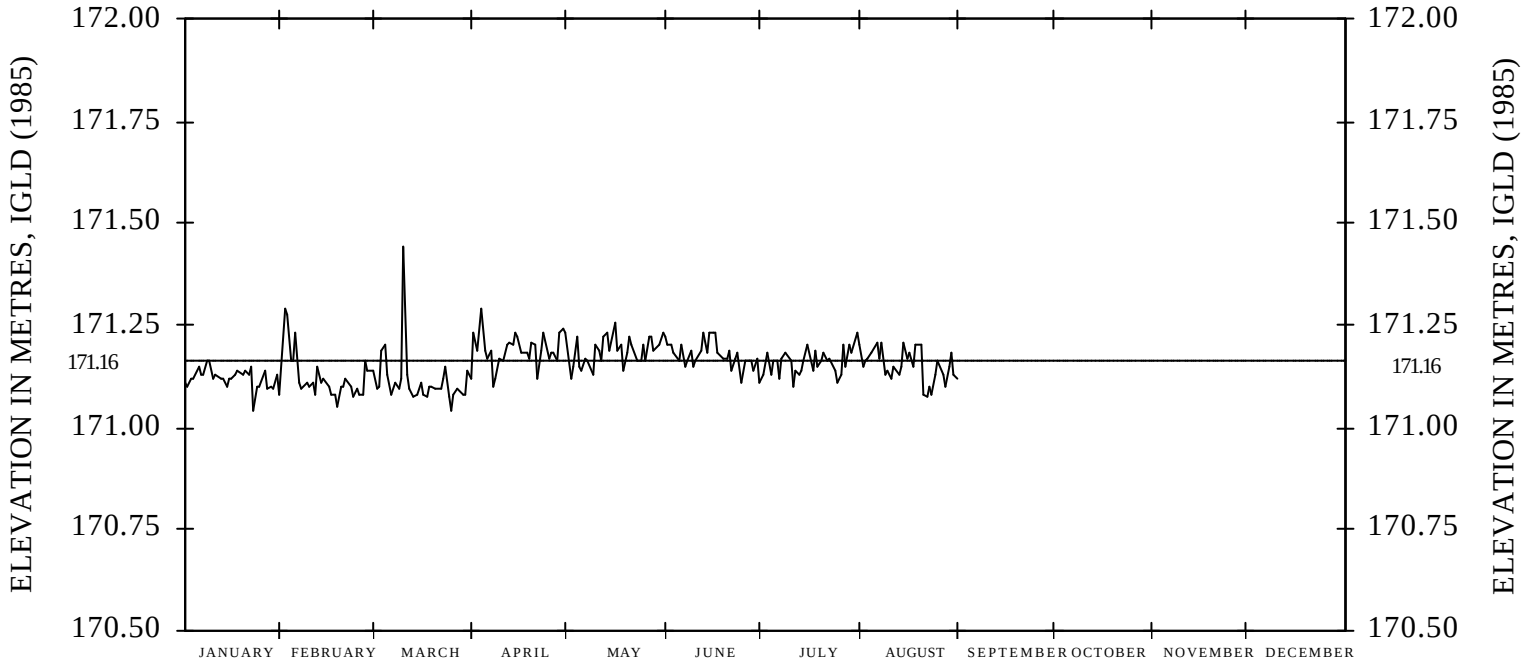
NIAGARA RIVER DAILY MEAN LEVEL AT MATERIAL DOCK GAUGE

NOTE: LONG-TERM MEAN STAGE = 171.16 METRES, IGLD (1985)

2002



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DAILY NIAGARA RIVER FLOW AT QUEENSTON

FLOW AT ASHLAND AVENUE PLUS BECK 1 AND 2 AND NYPA DISCHARGES

IN CUBIC METRES PER SECOND (m^3/s)

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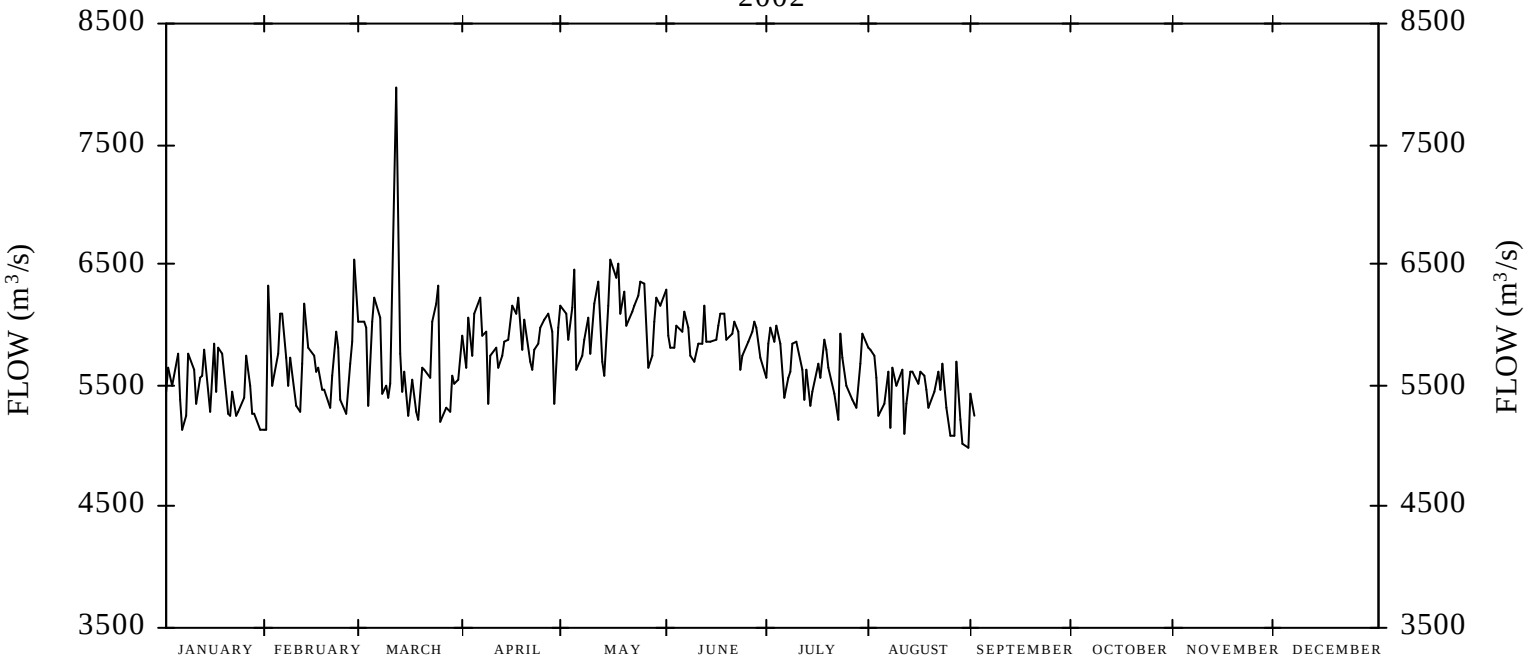

ENCLOSURE 3

DAILY DIVERSIONS OF NIAGARA RIVER WATER* FOR POWER PURPOSES

IN CUBIC METRES PER SECOND (m^3/s)

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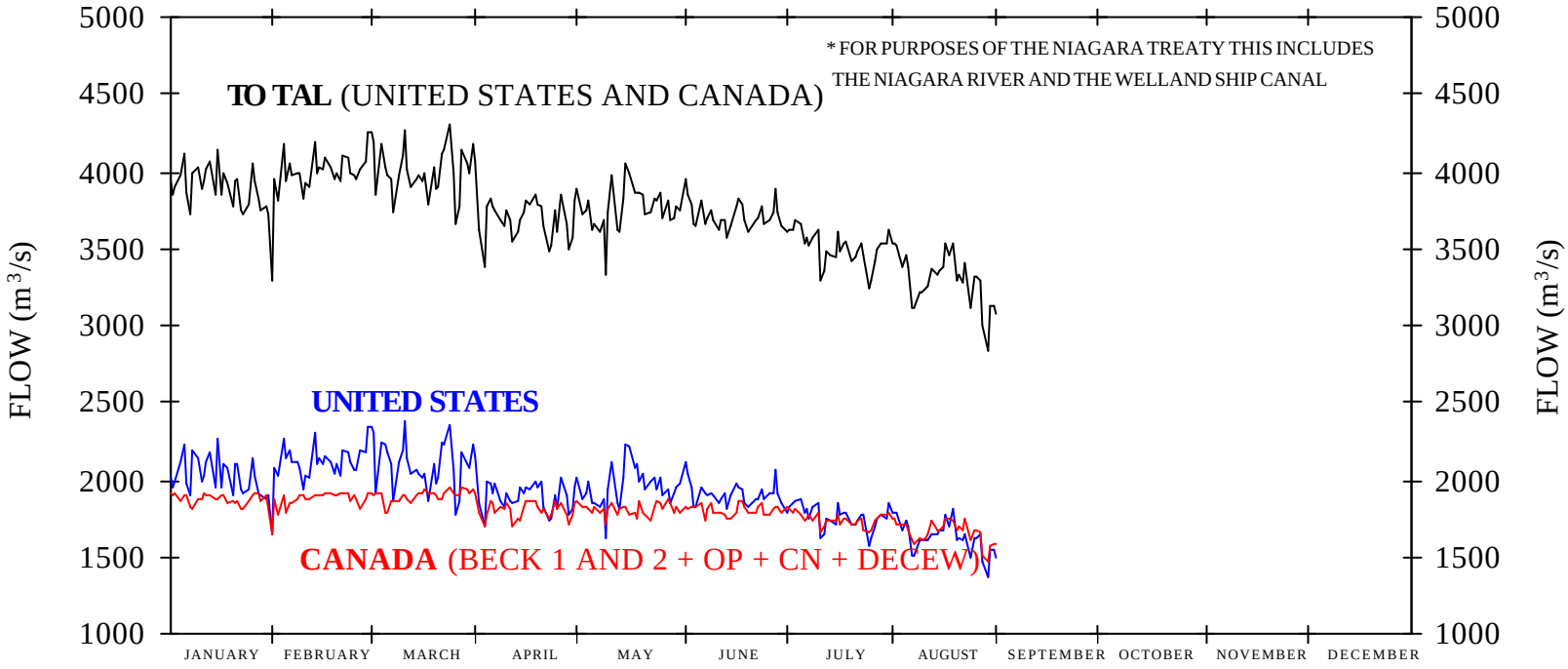

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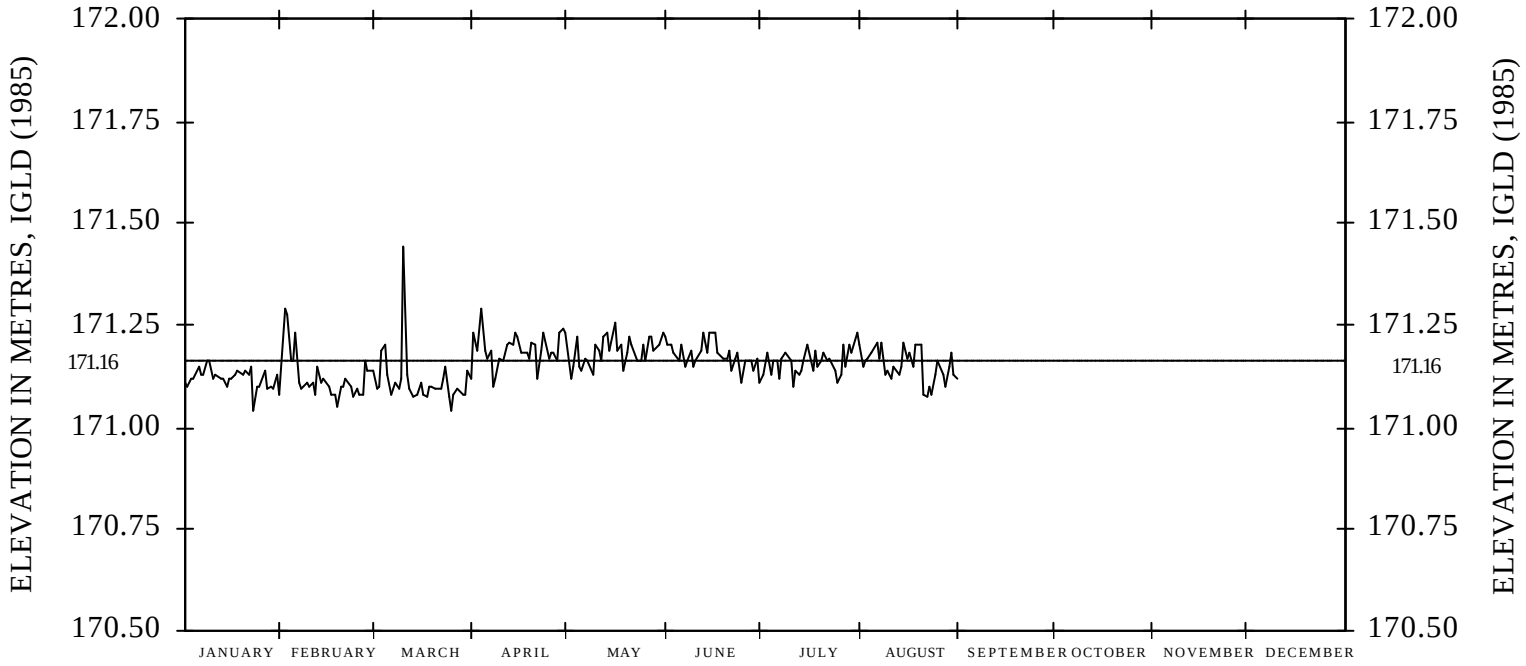

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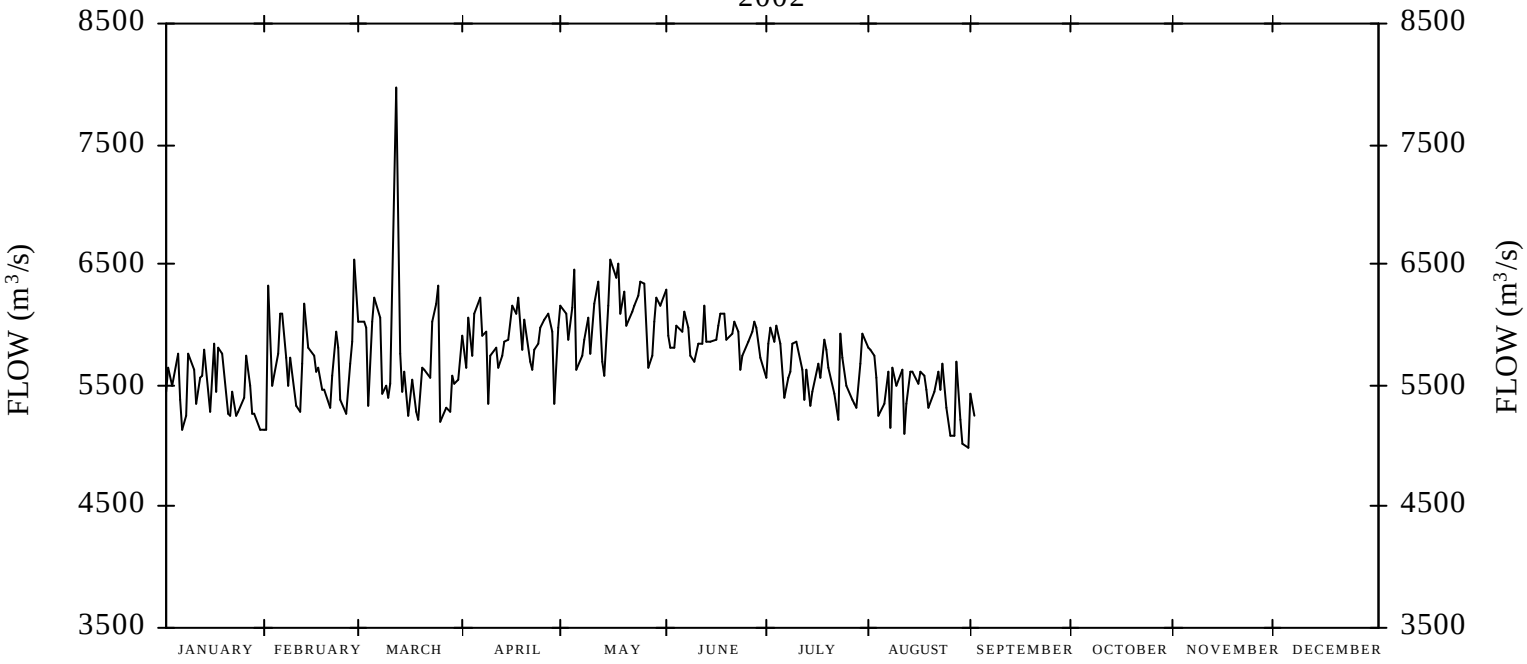

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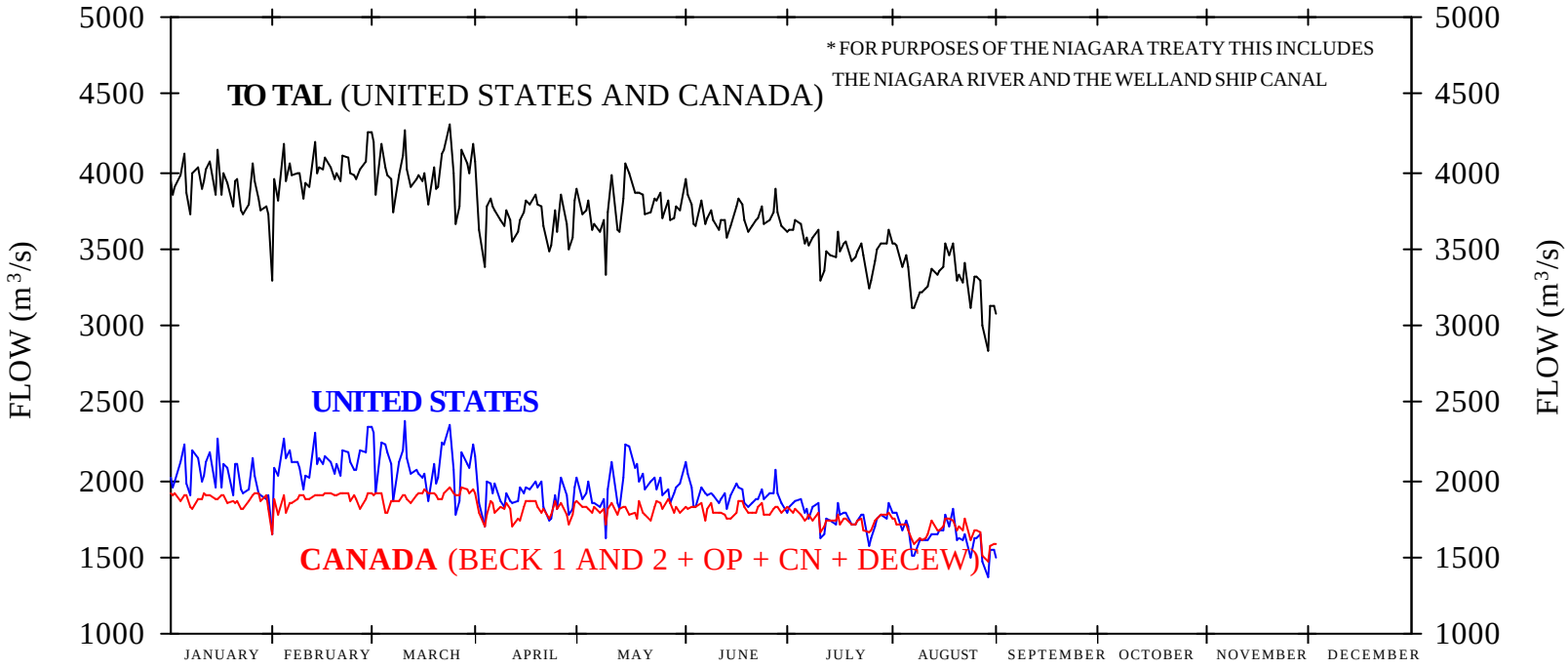

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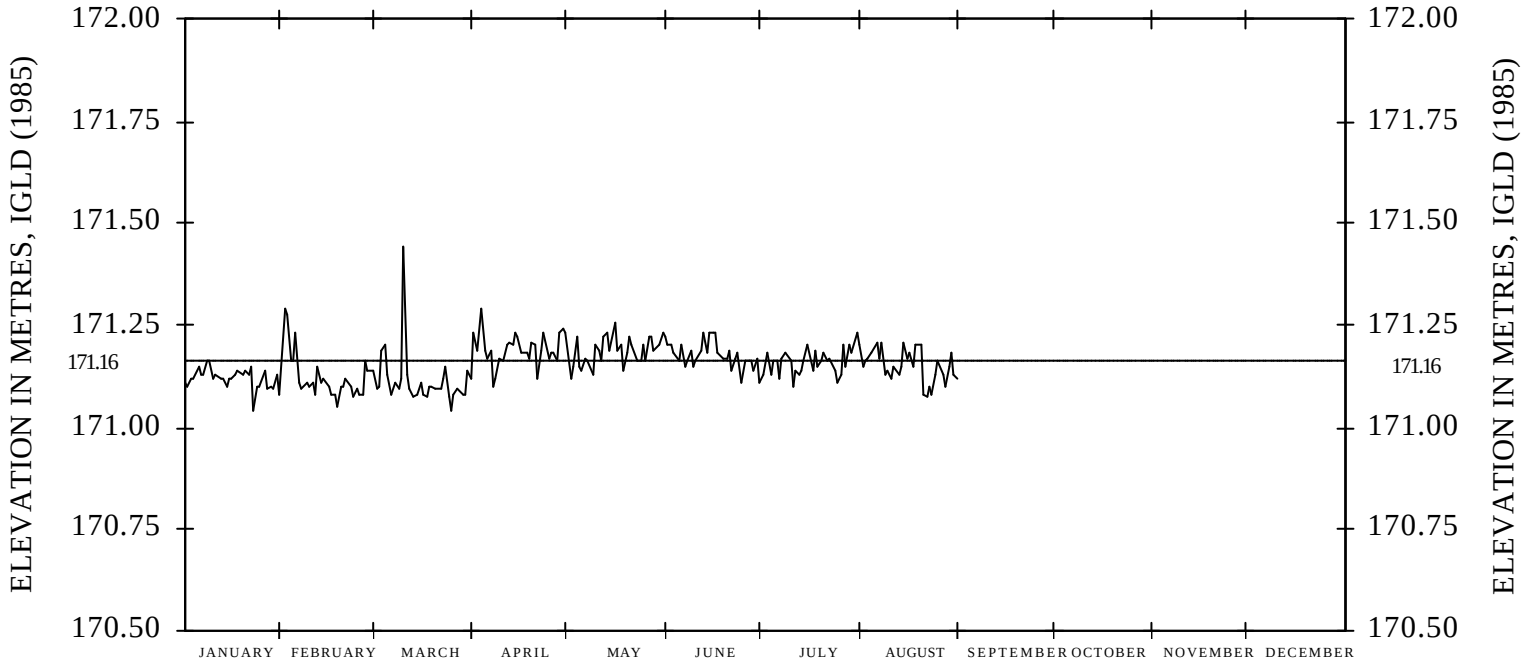

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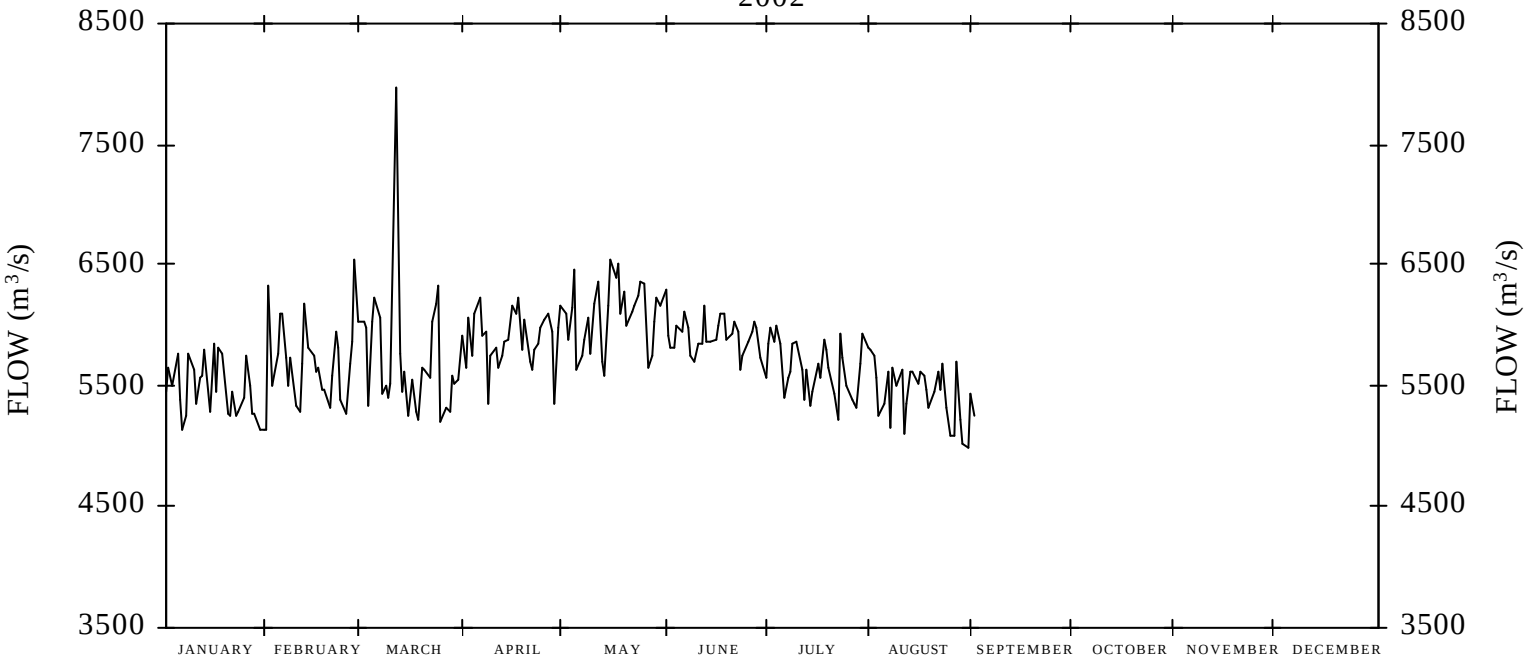

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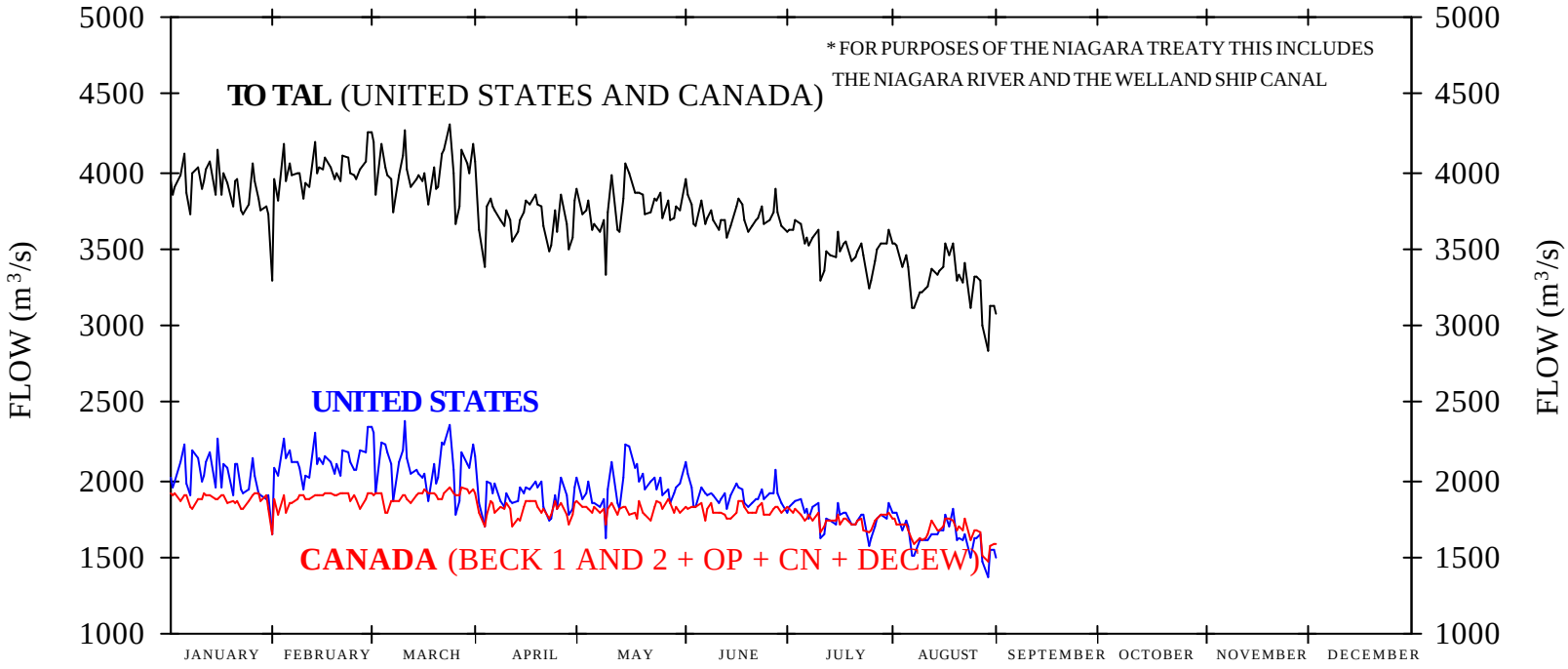

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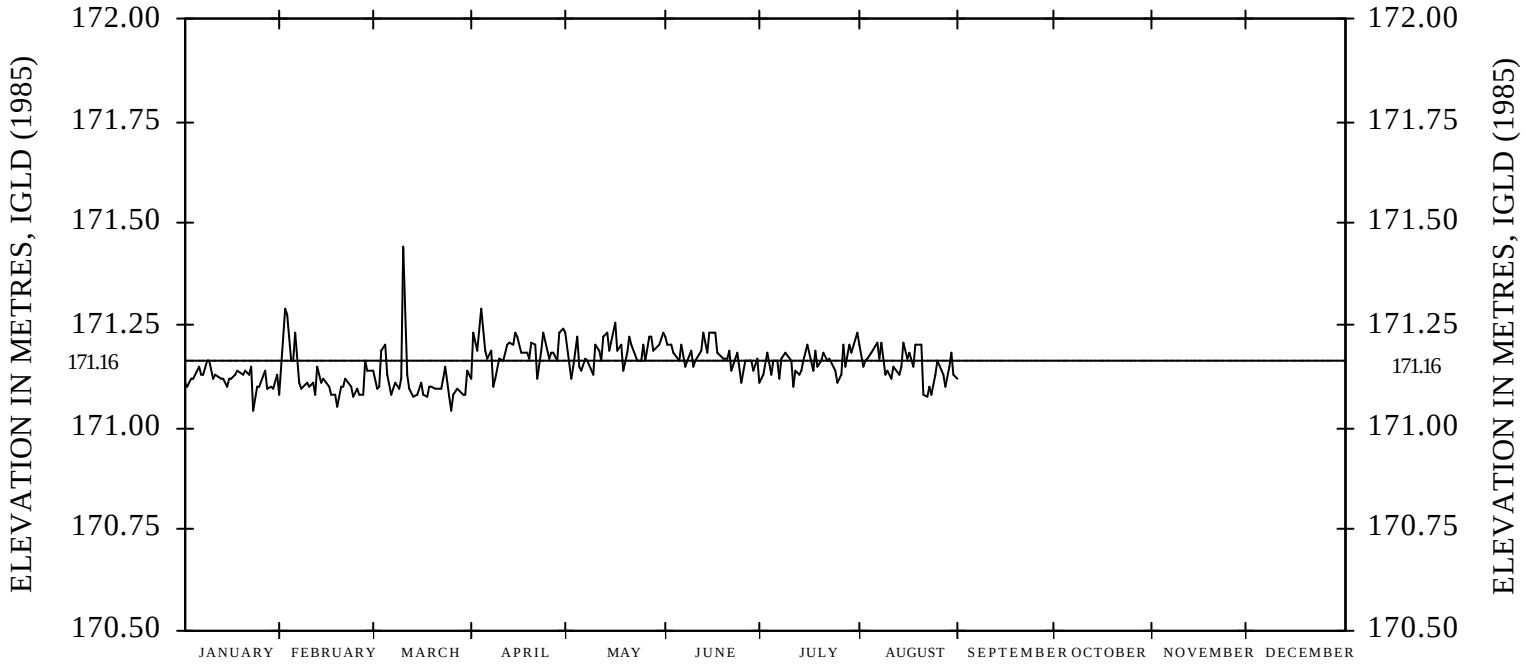

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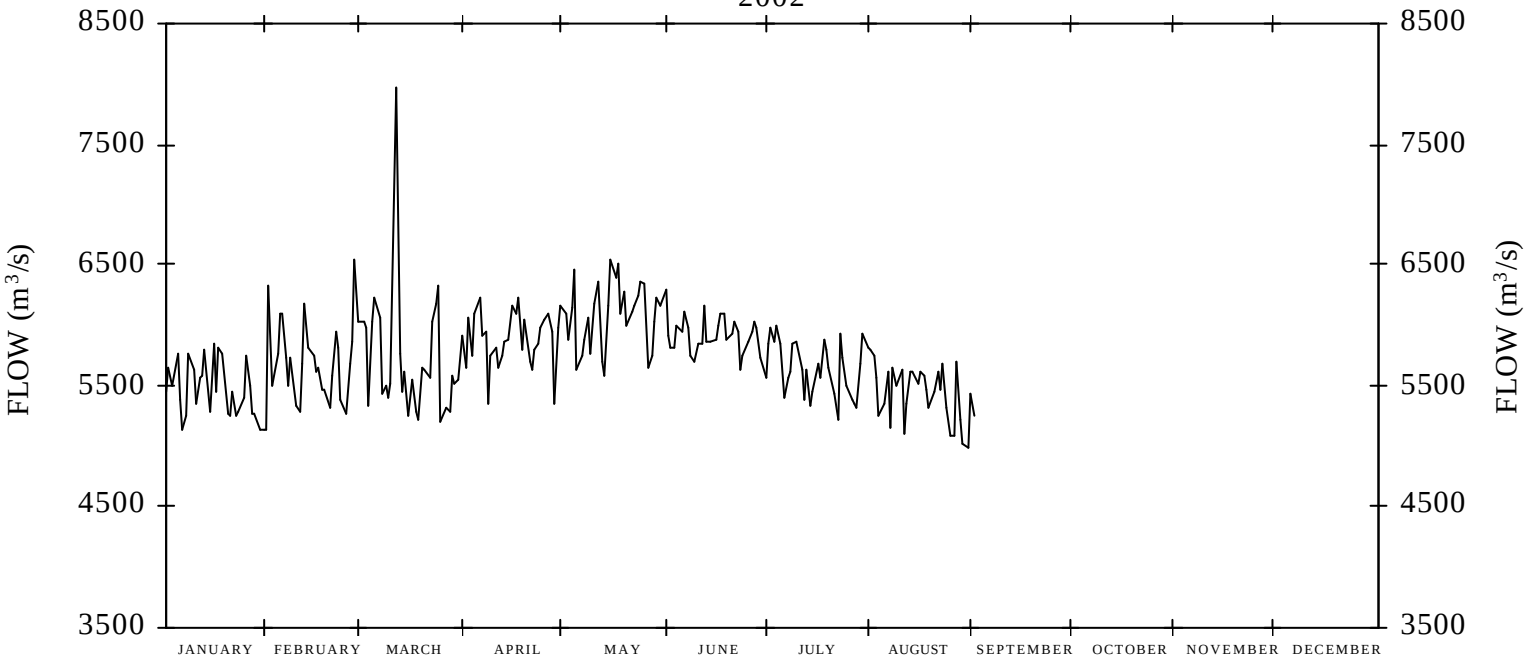

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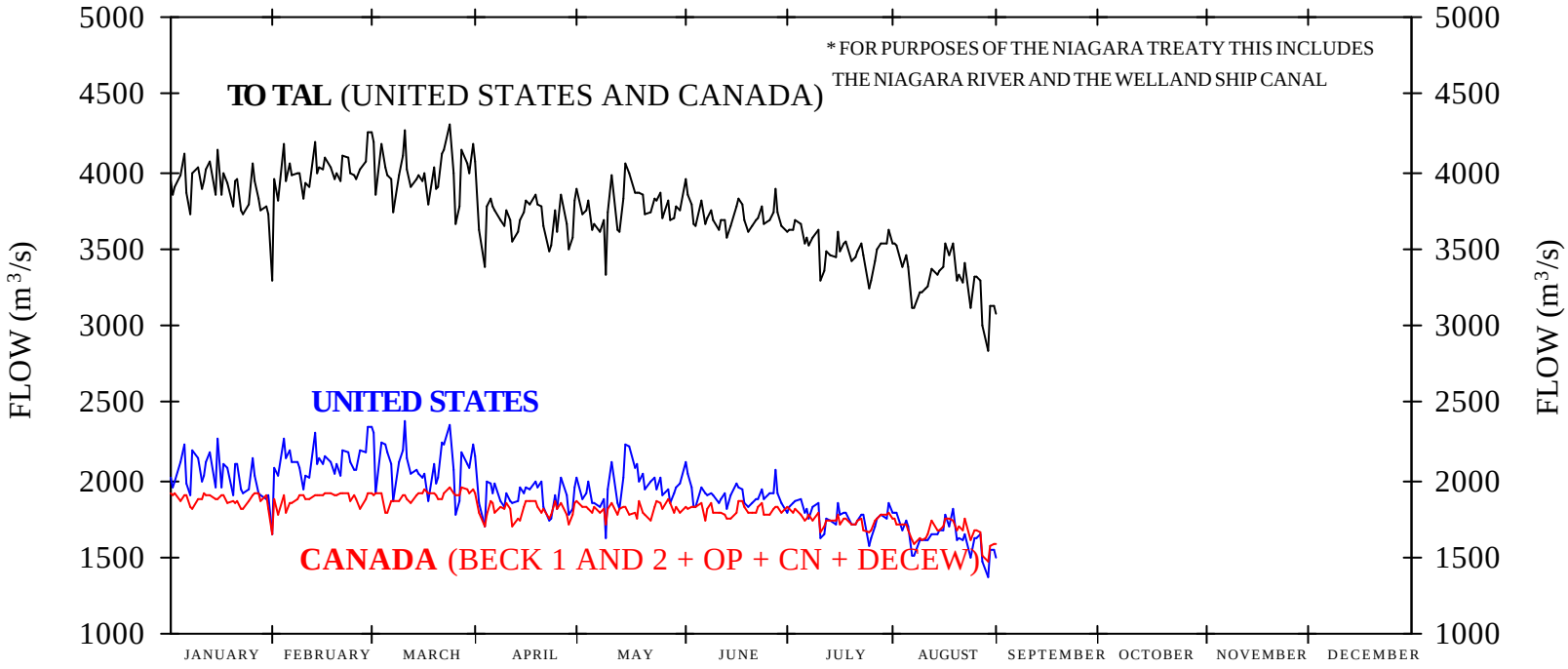

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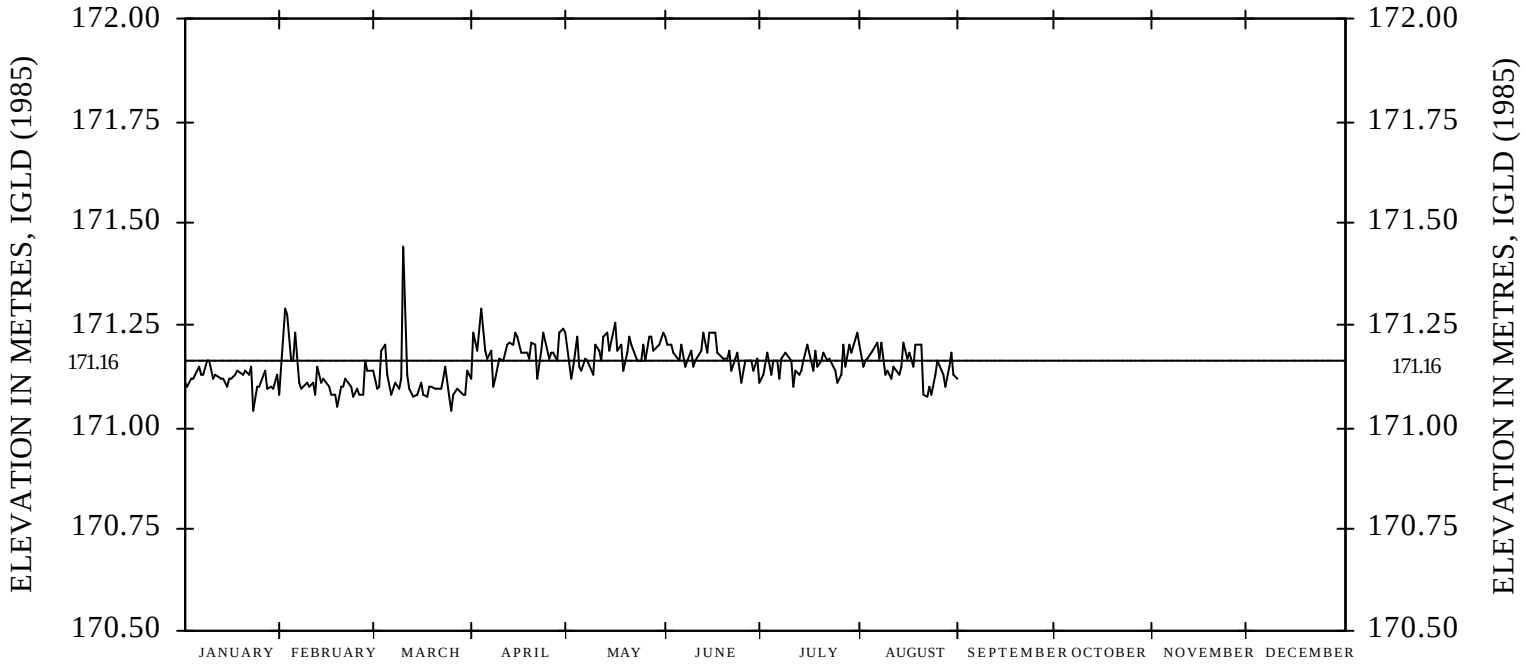

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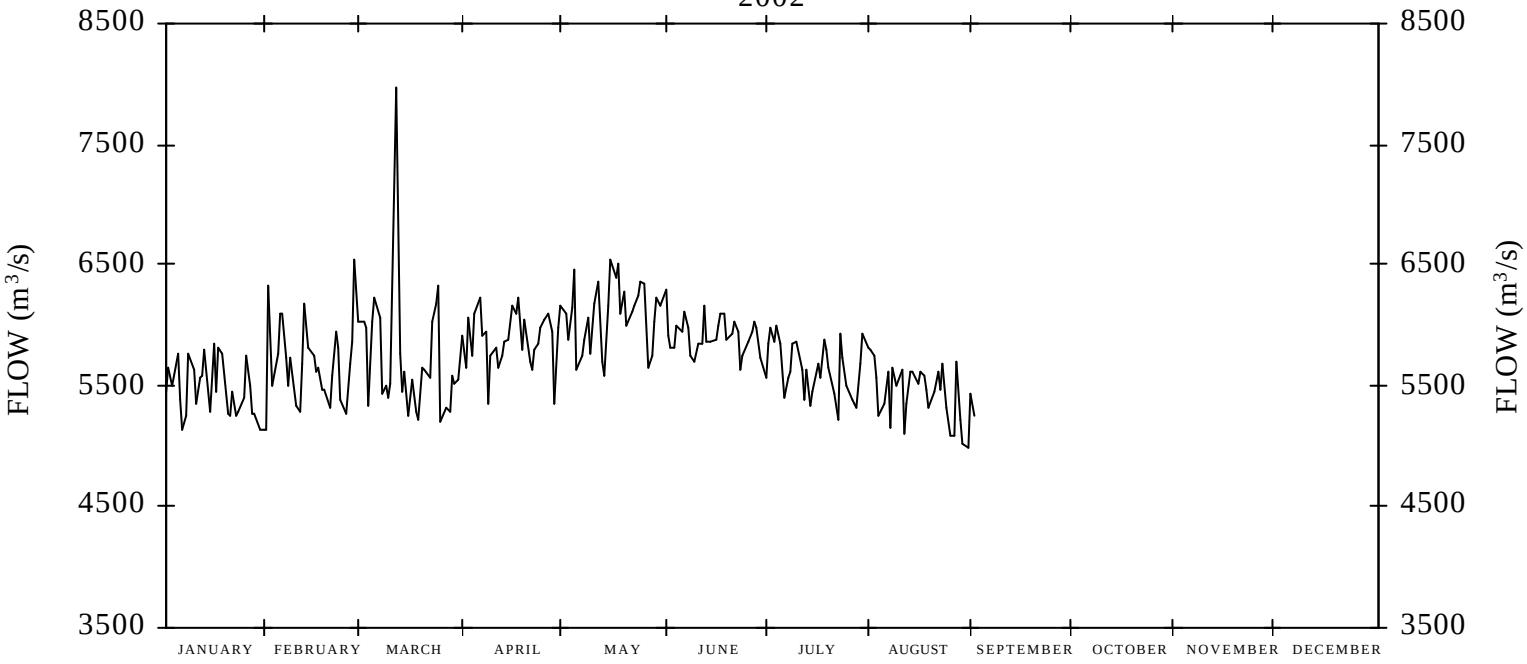

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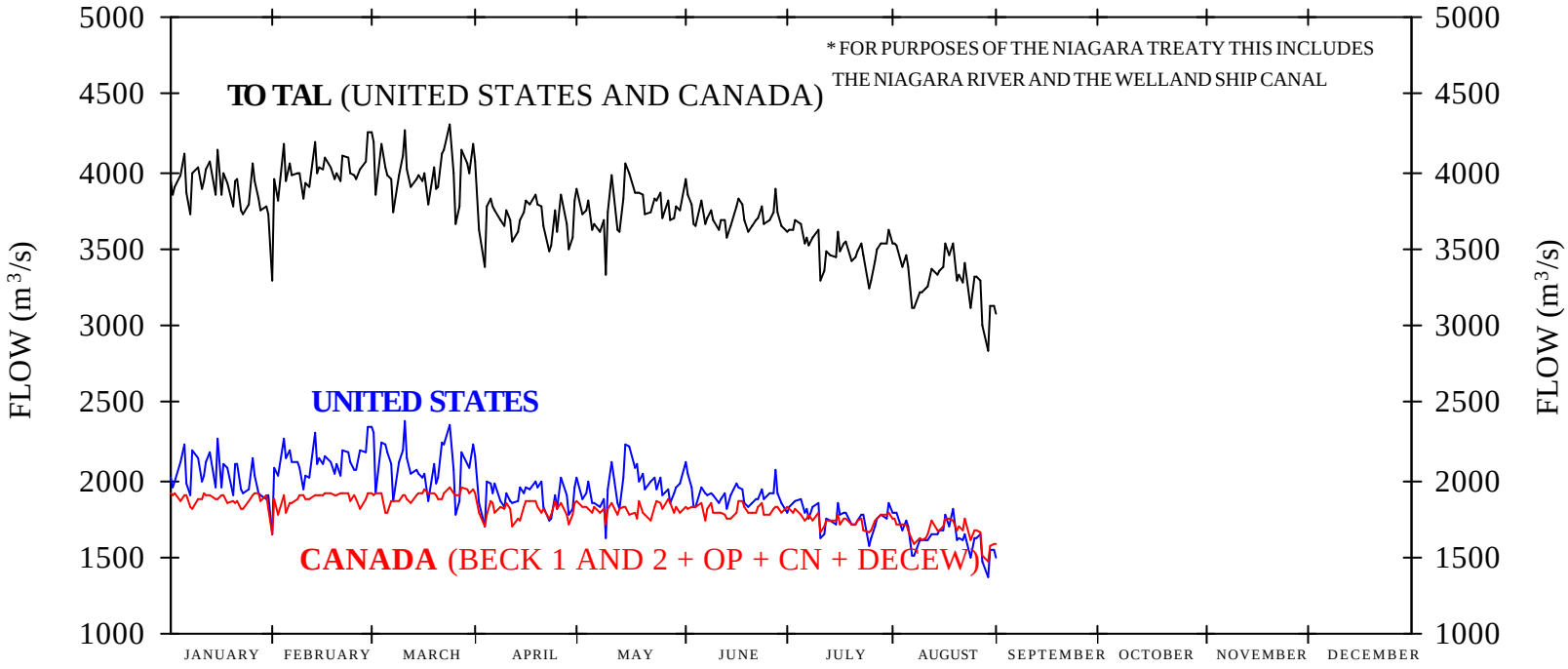

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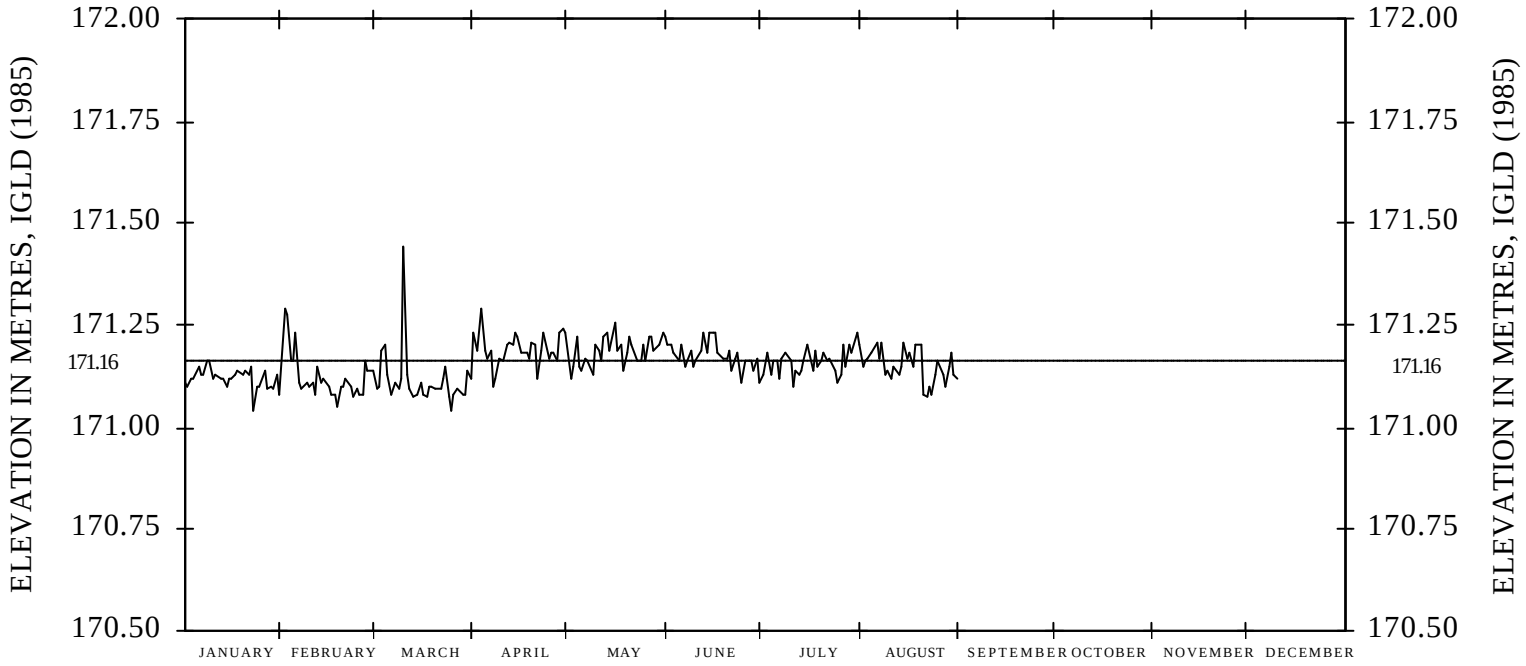

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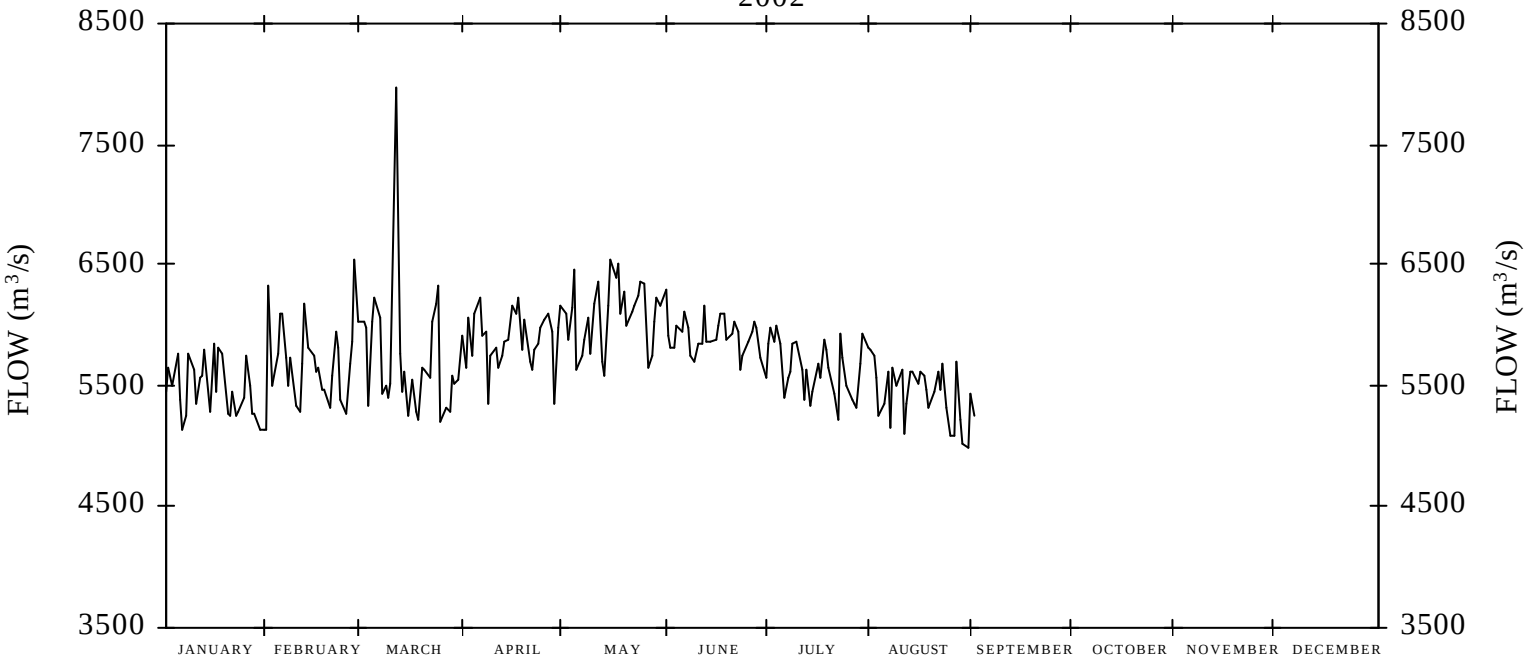

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