

LEVEL *news*



Great Lakes - St. Lawrence River Water Levels

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The Stormy Season has begun—Please be Careful

Fall often brings storms packing high winds to the Great Lakes region. While the below-average water level conditions throughout the Great Lakes will help reduce the risk of serious flood and erosion damage to shore property this fall, readers are reminded to exercise caution when near the water's edge during a storm event. Don't risk being knocked over or swept into the lake by a storm-induced surge or wave.

Short-period changes in water level, lasting from less than an hour to several days, are caused by meteorological conditions. The effect of

wind and differences in barometric pressure over the lake surface create temporary imbalances in the water level at various locations. Storm surges are largest at the ends of an elongated basin, particularly when the wind is aligned with the long axis of the basin. In deep lakes such as Lake Ontario, the surge in water level at one end rarely exceeds 0.5 m, but in shallow Lake Erie, water-level differences from one end of the lake to the other of more than 4 m have been observed. Wind-induced waves are superimposed on these short-period changes.

The impact of wind on water levels can be seen in the attached plots showing the hourly water heights (in metres above Chart Datum) recorded last month at Port Colborne and Bar Point on Lake Erie. On the 29th of September, strong winds pushed the water to the eastern end of the lake causing levels at Port Colborne to quickly rise (a positive storm surge) by about 1 m above pre-storm levels. As levels rose at the eastern end of the lake there was a corresponding drop, or a negative storm surge, in
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Great Lakes Water Level Information

Lake	September 2005 Monthly Mean Level		Beginning of October 2005 Level	
	Compared to Monthly Average (1918-2004)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918-2004)	Compared to One Year Ago
Superior	21 cm below	11 cm below	22 cm below	13 cm below
Michigan-Huron	45 cm below	19 cm below	42 cm below	14 cm below
St. Clair	19 cm below	17 cm below	16 cm below	13 cm below
Erie	8 cm below	16 cm below	6 cm below	12 cm below
Ontario	5 cm below	26 cm below	4 cm below	22 cm below



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water levels at the western end of the lake. At Bar Point, levels fell about 0.9 m below pre-storm levels, creating a 1.8 m tilt in the lake's surface from one end to the other at one point in time.

The winds also caused smaller, but notable surges at other locations around the Great Lakes. For example, at Goderich on Lake Huron water levels rose about 0.4 m. On Lake Ontario, levels at Kingston increased by 0.35 m as levels at Burlington experienced a consequent drop of about 0.25 m.

Listings and graphical representations of hourly water level heights at each of the Great Lakes water level gauging stations operated by the Canadian Hydrographic Service can be found at:
chswwww.bur.dfo.ca/danp/

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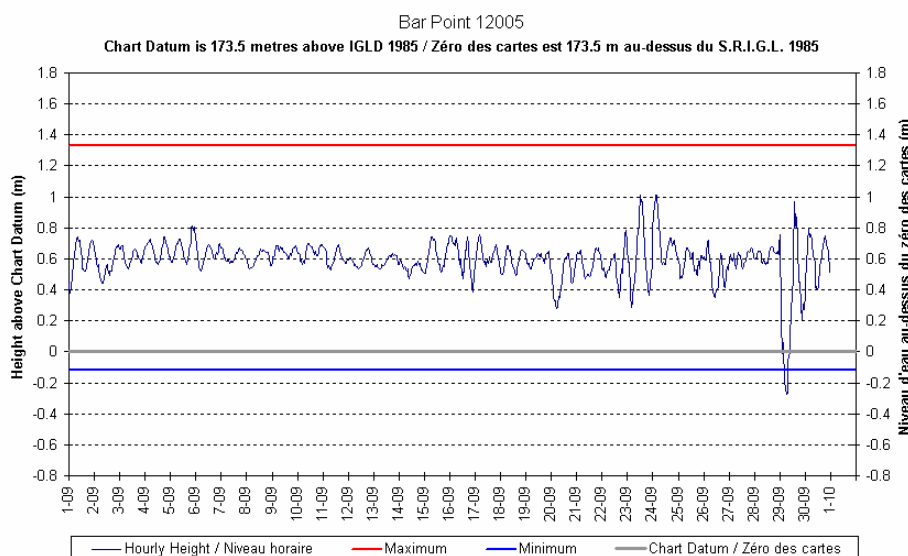
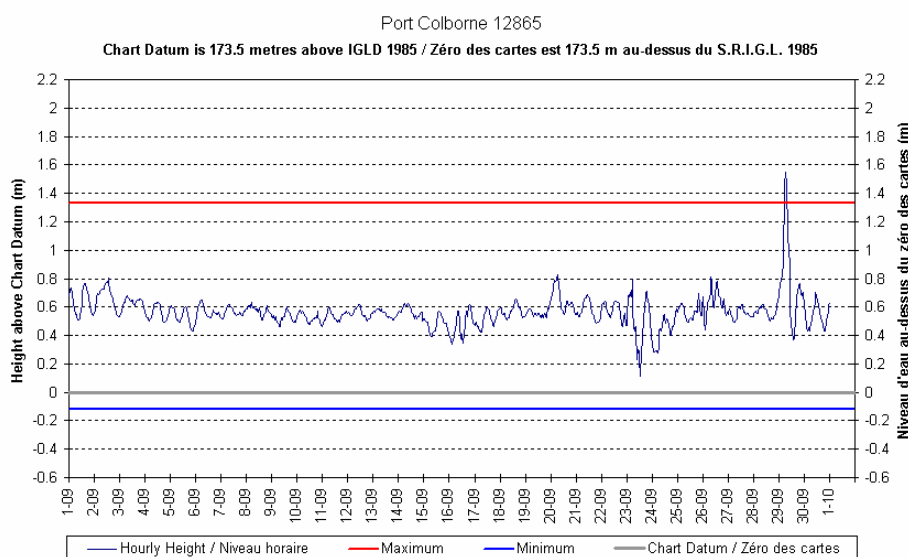
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September Precipitation over the Great Lakes

As a percentage of the long-term September average:

Great Lakes Basin	98%	Lake Erie	103%
Lake Superior	89%	(including Lake St. Clair)	
Lakes Michigan-Huron	99%	Lake Ontario	89%

NOTE: These figures are preliminary



September Outflows from the Great Lakes

As a percentage of the long-term September average:

Lake Superior	94%	Lake Erie	93%
Lake Huron	88%	Lake Ontario	97%

NOTE: These figures are preliminary