



# LEVELnews

## Great Lakes – St. Lawrence River Water Levels

### High Winds Bring Surge to Eastern Lake Erie

High westerly winds with peak wind gusts of 106 km/h at Port Colborne on November 1 pushed water in Lake Erie toward the eastern end of the lake, causing a maximum positive surge (a short time-period increase in water levels often referred to as storm set-up) of 1.35 m above pre-storm levels at Buffalo, NY. As levels rose at the eastern end of the lake, there was a corresponding negative surge (or set-down) at the western

end of the lake. At Toledo, OH, levels fell 1.0 m below pre-storm levels. Although the maximum positive and negative surges did not occur at exactly the same time, for a short period of time during the storm the difference between water levels recorded at Buffalo and Toledo was more than 2.3 m. In fact, the tilt in the lake's surface from one end to the other was more than 2 m for more than five hours.

The storm also caused smaller, but notable, surges at other locations around the Great Lakes. For example, at Goderich and Midland on Lake Huron, water levels rose approximately 0.2 and 0.7 m, respectively, for a short period of time. On Lake Ontario, levels at Kingston increased by 0.2 m as levels at Burlington dropped roughly the same amount.

**(continued on next page)**

Great Lakes Water Level Information				
Lake	October 2013 Monthly Mean Level		Beginning-of-November 2013 Level	
	Compared to Monthly Average (1918–2012)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918–2012)	Compared to One Year Ago
Superior	5 cm below	33 cm above	7 cm below	28 cm above
Michigan–Huron	42 cm below	27 cm above	40 cm below	29 cm above
St. Clair	14 cm below	25 cm above	13 cm below	10 cm above
Erie	1 cm above	25 cm above	1 cm below	13 cm above
Ontario	3 cm above	30 cm above	7 cm above	31 cm above

For information on short-period, seasonal, and long-term water level fluctuations on the Great Lakes visit the Canadian Hydrographic Service website at: [www.waterlevels.gc.ca/C&A/fluctuations\\_e.html](http://www.waterlevels.gc.ca/C&A/fluctuations_e.html)

### Storm Season Reminder

Autumn often brings storms that pack high winds to the Great Lakes region. Watching large waves crash against the shore can be an awe-inspiring sight, but it is important to stand well back from the water's edge during a storm to avoid being swept into the lake by a storm-generated wave.

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### Lake Levels

Water levels of each of the Great Lakes continued their seasonal decline in October, but conditions were generally wetter than normal across the basin resulting in smaller-than-average declines on lakes Superior, Michigan–Huron, and Ontario. Montreal Harbour levels were fairly stable, remaining below average. As shown in the water level information table, levels of all the Great Lakes remain above last year's at the beginning of November. Lake Superior's beginning-of-November level was 7 cm below average, but 28 cm above last year's level, and the highest it has been since 2004. Lake Michigan–Huron's beginning-of-November level was 40 cm below average, but 29 cm above last year's level at this time. Lake Erie began November just 1 cm below average, and 13 cm higher than last year. Lake Ontario finished the month 7 cm above its average level for this time of year, and 31 cm above last year's beginning-of-November level.

### Water Level Forecast

Relative to their beginning-of-November levels and assuming average water supply conditions, all of the Great Lakes are expected to continue their seasonal decline in November. Assuming average water supplies, forecasts indicate that Montreal Harbour's monthly mean level in November is expected to rise.

For a graphical representation of recent and forecasted water levels on each of the Great Lakes, Lake St. Clair and Montreal Harbour compared to their respective period-of-record monthly averages and extreme levels please refer to the September 2013 edition of the Canadian Hydrographic Service's monthly water levels bulletin at: [www.waterlevels.gc.ca/C&A/bulletin\\_e.html](http://www.waterlevels.gc.ca/C&A/bulletin_e.html)

#### October Precipitation over the Great Lakes\*

Great Lakes Basin	141%	Lake Erie	152%
Lake Superior	110%	(including Lake St. Clair)	
Lake Michigan–Huron	153%	Lake Ontario	145%

#### October Outflows from the Great Lakes\*

Lake Superior	124%	Lake Erie	101%
Lake Michigan–Huron	90%	Lake Ontario	100%

\* As a percentage of the long-term October average.  
NOTE: These figures are preliminary.