Supplementary Information

Development and performance of a high-resolution real-time surface wave and storm surge model (COASTLINES-LO): Application to a large lake

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Data Type	Delivery Method	Data Location	Point Name
Water Levels (US)	NOAA CO-OPS data API	https://tidesandcurrents.noaa.gov/stations.html?type=Water+Levels#Great%20Lakes%20-%20Lake%20Ontario	Cape Vincent, Oswego, Rochester, Olcott Harbour
Water Levels (CAN)	Canadian Hydrographic Service Web service API	https://tides.gc.ca/en/stations	Burlington, Toronto, Cobourg, Kingston, Port Wellar
Wave/ Wind	Python Web Scraping	https://www.ndbc.noaa.gov/data/realtime2	NW Lake Ontario, East Lake Ontario, Prince Edward Point, West Lake Ontario

Table S1: Descriptions of available near-real time data that is automatically downloaded as part of the Coastlines-LO workflow, including the data type, web locations, and the method of data delivery for each location.
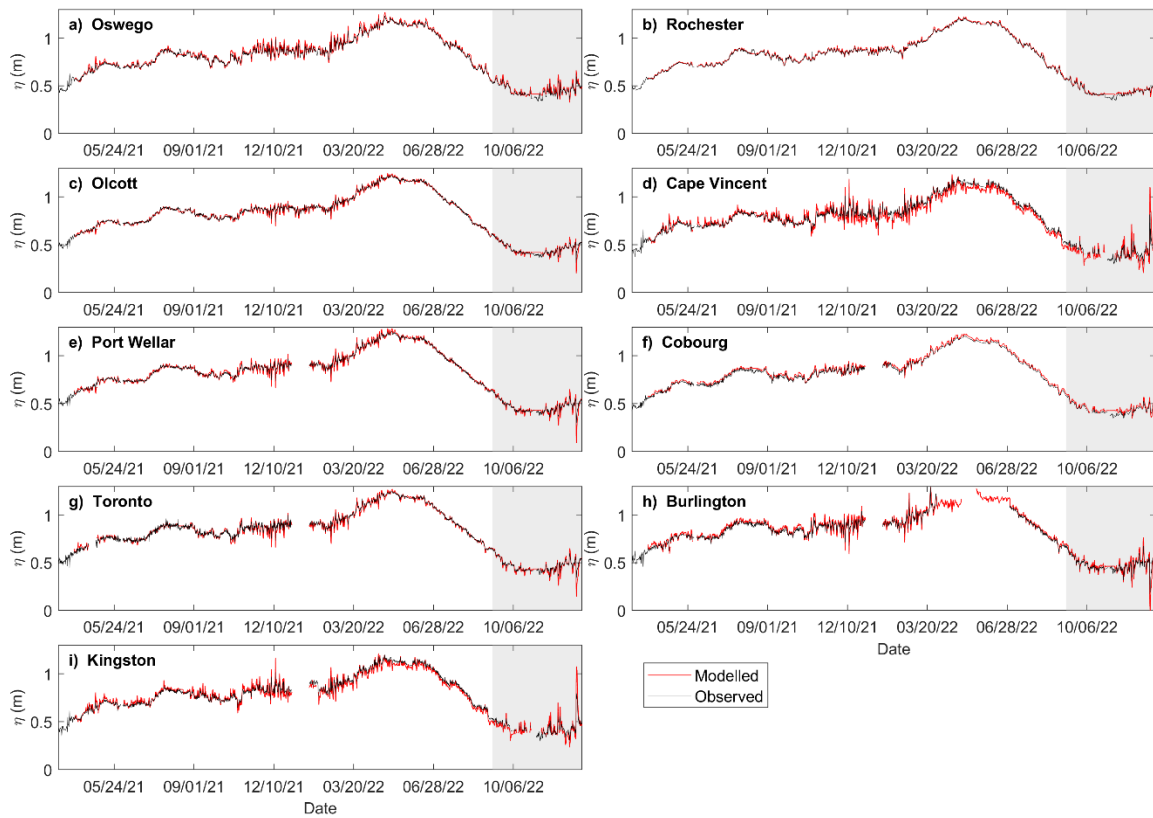
Figure S1: Time series of compiled model results (adjusted after each forecast to the correct datum) and observed total water levels at all water level observation points between May 2021 – December 2022. The highlighted area indicates the time-period examined in greater detail in Figure 3.
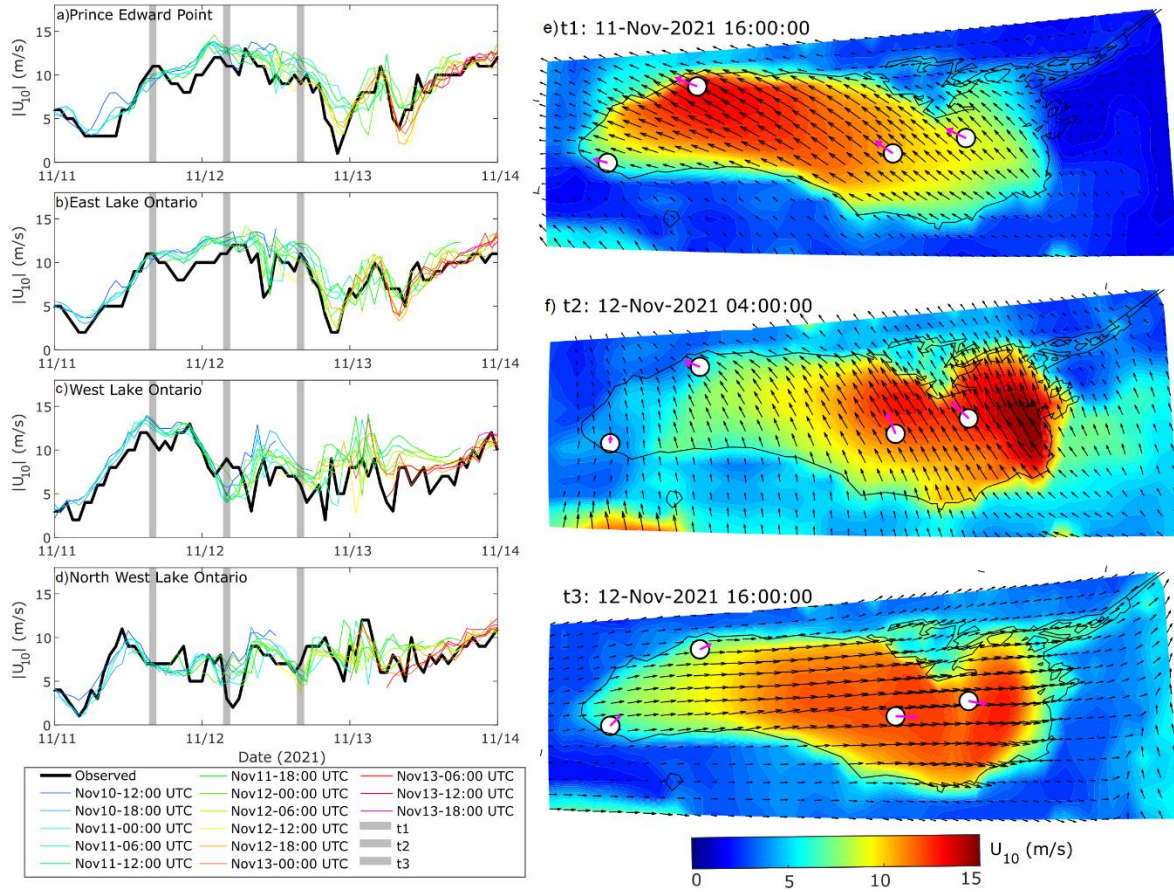
Figure S2: Time series of observed wind speeds compared to HRDPS forecasts at wave buoy locations between November 11-14, 2021 (left) and maps of HRDPS wind forecasts shown a select times with every 5th vector plotted for clarity (right). Vectors of observed data are plotted in magenta at the location of the buoys.