Supporting Information for

Meteotsunami Events and Hydrologic Response in an Isolated Wetland: Beaver Island in Lake Michigan, USA

Wendy M. Robertson[1,2], Daria B. Kluver[1,2], John T. Allen[1,2], and Eric J. Anderson[3]

[1]Central Michigan University Department of Earth and Atmospheric Sciences.

[2]Central Michigan University Institute for Great Lakes Research.

[3]Colorado School of Mines Hydrologic Science and Engineering Program, Department of Civil and Environmental Engineering

Contents of this file

Additional Supporting Information (Files uploaded separately)

Introduction

The supporting information contains two figures (S1 and S2) and one table (Table S1) that shows validation of FVCOM input from the HRRR vs ASOS stations, timeseries data from the NOAA NOS observation stations, and statistical distribution of wetland water levels during the period of record.
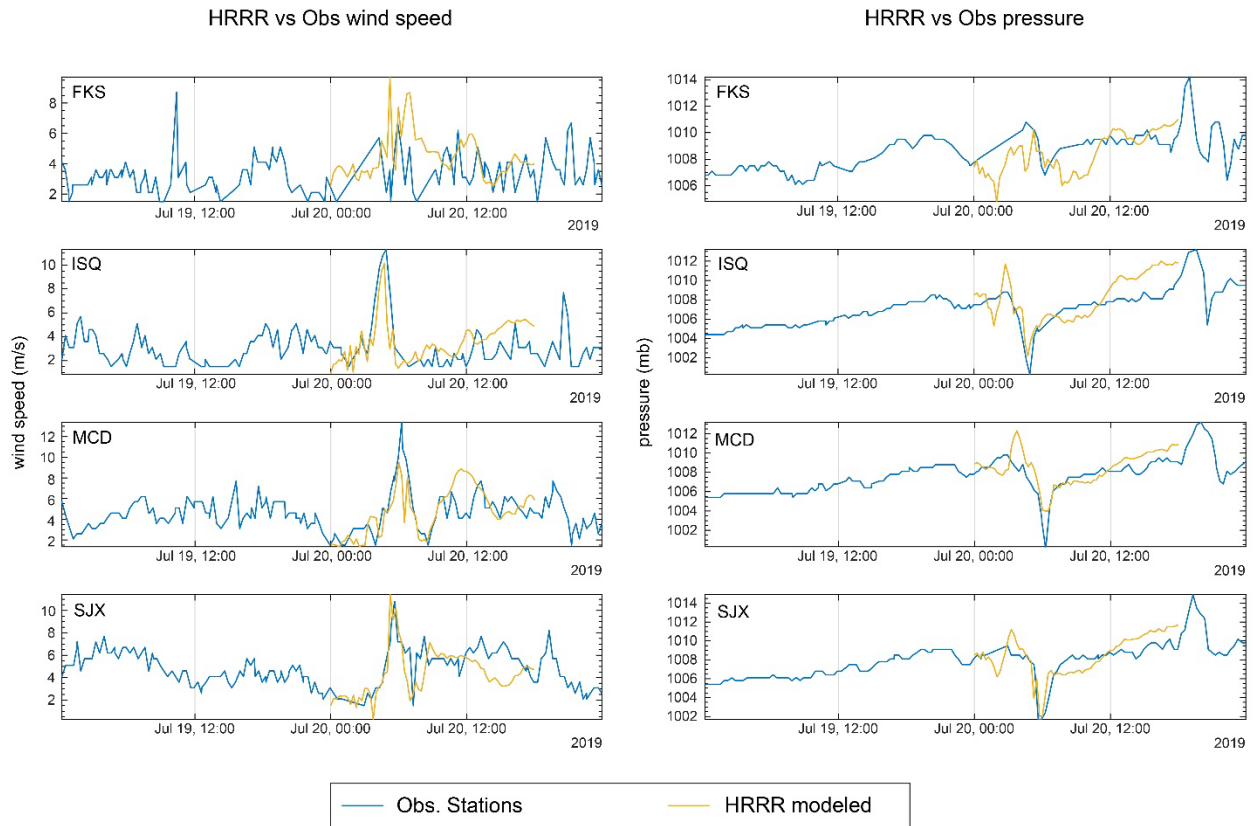
Figure S1. Atmospheric forcing validation for July 20, 2019 with 5-minute ASOS observations. 10 m wind speed (left) and surface (2 m) barometric pressure (right) are shown in blue at Frankfort (FKS), Manistique (ISQ), Mackinaw Island (MCD), and Beaver Island (SJX) stations. The 15-minute output from the HRRR 00 GMT forecast on July 20, 2019 used to drive the lake hydrodynamic model (FVCOM) is depicted in gold.
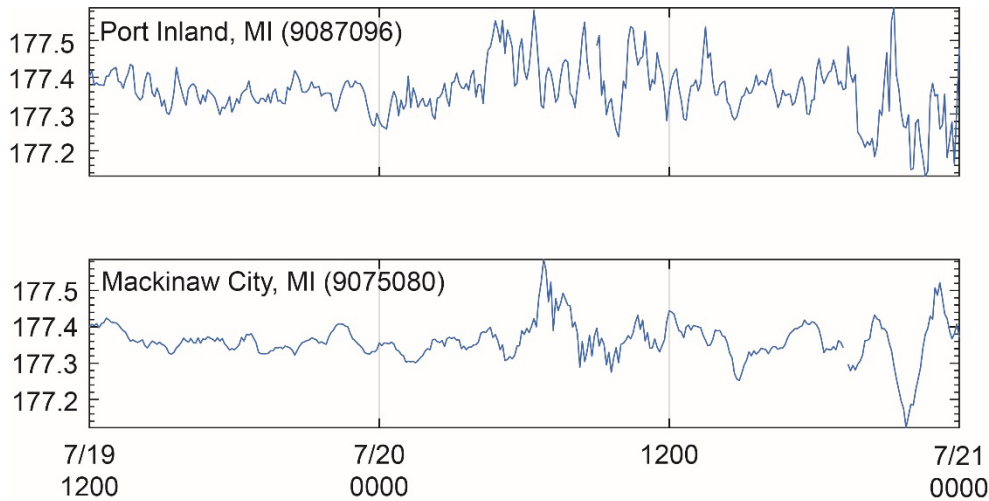
Figure S2. Water level observations from the NOAA NOS observation stations at Port Inland, MI (9087096) and Mackinaw City, MI (9075080) for the period of interest (7/19 12:00 UTC – 7/21 00:00 UTC)

	Date range	N	mean (masl)	90% (masl)	95% (masl)	99% (masl)
full record	8/8/2016-6/22/2020	135,793	177.51	177.74	177.79	177.9
2016*	8/8-12/31/2016	14,016	177.43	177.55	177.57	177.63
2017	1/1-12/31 2017	35,038	177.44	177.55	177.59	177.73
2018	1/1-12/31 2018	35,035	177.41	177.49	177.52	177.58
2019	1/1-12/31 2019	35,036	177.62	177.83	177.89	177.99
2020*	1/1-6/22 2020	16,657	177.7	177.8	177.83	177.9

Table S1. Summary statistics for wetland groundwater levels (masl) during the observation period.