NOAA GREAT LAKES COASTAL FORECASTING SYSTEM

Forecasts (up to 5 days in the future) and Nowcasts for conditions on the Great Lakes

The NOAA Great Lakes Coastal Forecasting System (GLCFS) is a set of models that simulate and predict the 2-D and 3-D structure of currents, temperatures, winds, waves, ice, and more in the Great Lakes.

Nowcasts and forecasts are generated throughout the day in near-realtime. These predictions provide timely information to lake carriers, mariners, port and beach managers, emergency response teams, and recreational boaters, surfers, and anglers. The GLCFS uses a modified Princeton Ocean Model, developed by GLERL and the Ohio State University, and is supported by the National Weather Service. Model output is available in a variety of formats including ascii, netCDF, Grib, and KML. In addition, GLCFS time-series data dating back to 2006 can be viewed or downloaded using a Point Query tool developed by the Great Lakes Observing System (http://glos.us/data-tools/point-query-tool-glcfs).

WHAT IS A NOWCAST?

A nowcast is a description of the present lake conditions based on model simulations using observed meteorology. Nowcasts are generated every 6 hours and you can step backward in hourly increments to view conditions over the previous 48 hours, or view animations over this time period.

WHAT IS A FORECAST?

A forecast is a prediction of what will happen in the future. Our models use current lake conditions and predicted weather patterns to forecast the lake conditions for up to 5 days in the future. These forecasts are run twice daily, and you can step through these predictions in hourly increments, or view animations over this time period.

WAVES

AIR & WATER TEMP

WINDS

ICE

www.glerl.noaa.gov/res/glcfs/
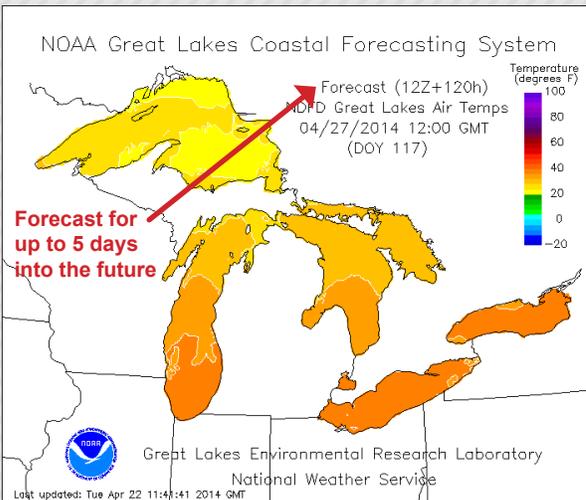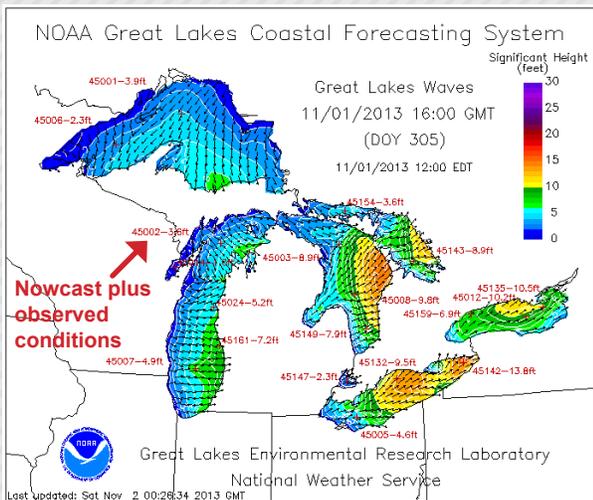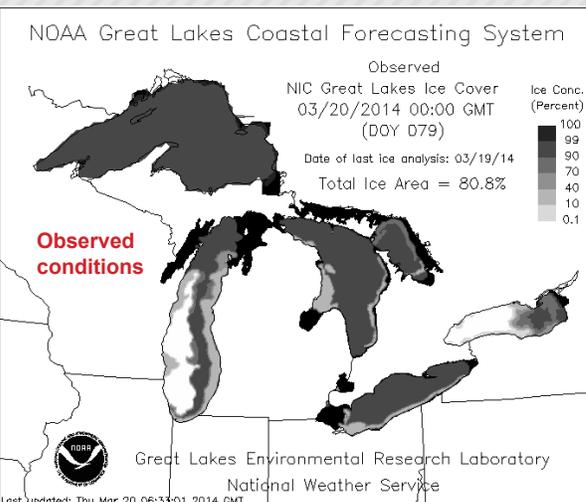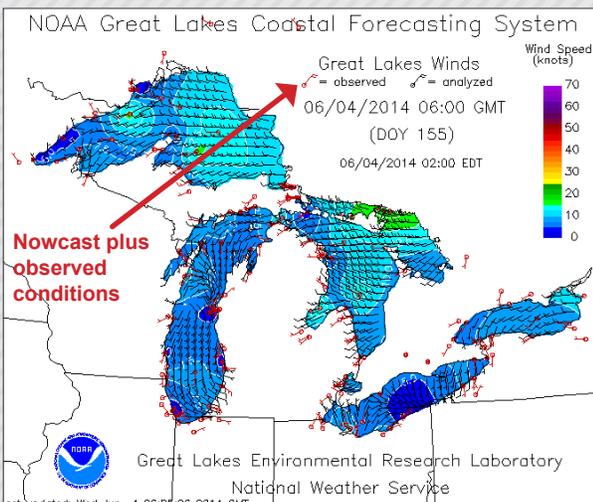
PREDICTING WHAT'S HAPPENING IN THE NEARSHORE ZONE

Most human activities take place in the nearshore zone of the Great Lakes. GLERL scientists are developing web based tools to inform users about current and predicted beach conditions. The intent is to help people understand the influence of wind, waves, lake surface temperature, river inputs and water currents on Great Lakes coasts.

To date, two high resolution grid experimental models have been developed for Lake Michigan (Grand Haven and Indiana Dunes) and one for Lake Huron (Saginaw Bay). These models are tailored to the local geography and are run in conjunction with the whole Great Lakes system models. The model grids are nested, meaning that a user can "drill down" to get more detailed information about both current and forecasted local conditions. In the future, GLERL plans to create additional gridded models in high use coastal zones. A long-term goal is to develop targeted nowcast and forecast products that can be used by beach managers to notify the public about unsafe beach conditions.
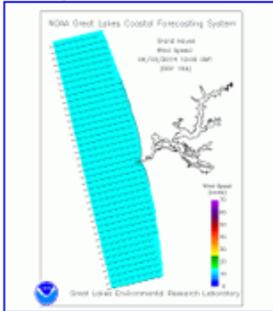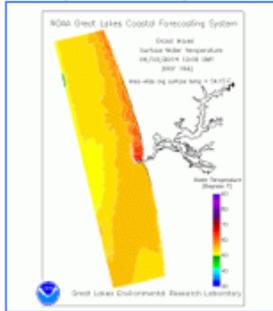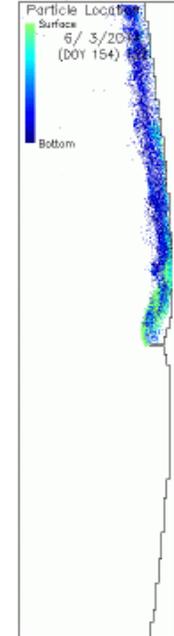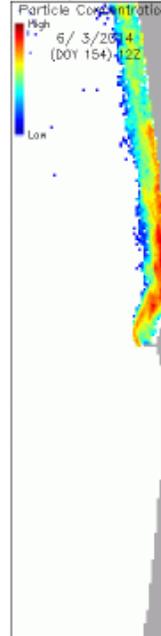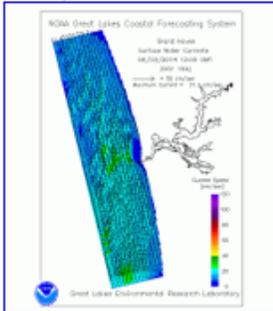

NESTED GRID NOWCASTS

Grand Haven:
http://www.glerl.noaa.gov/res/glcfs/gh/

Saginaw Bay:
http://www.glerl.noaa.gov/res/glcfs/sb/

Indiana Dunes:
http://www.glerl.noaa.gov/res/glcfs/bd/

RELATED STUDIES

A new modeling approach to the Great Lakes connecting channels

http://www.glerl.noaa.gov/res/hecwfs/
http://www.glerl.noaa.gov/res/usl/

www.glerl.noaa.gov/res/glcfs/