



Great Lakes Basic Marine Weather Seminar (Half-Day) For Both Sailors and Power Boaters

Seminar Description: Learn a little meteorology and reduce some of the uncertainty of boating on the Great Lakes. An enhanced understanding of basic weather principles and a few simple forecasting skills can improve cruise planning, racing performance and reduce the likelihood of being exposed to uncomfortable or hazardous weather conditions. It is impossible to predict the weather with total precision, but that doesn't mean that the weather is entirely unpredictable.

The half-day Basic Marine Weather Seminar provides attendees with an understanding of basic meteorological principles and explores the conditions favoring the development of severe weather. Animated graphics and case studies of actual weather events are used to focus on the interesting and unique forecasting challenges associated with the Great Lakes. Attendees will also develop a basic daily forecasting resource kit based upon readily available government and university websites.

Introduction: My background and a discussion of the seminar's structure.

A Solid Foundation: An understanding of the weather requires a familiarity with basic physical and meteorological principles. This section addresses concepts such as barometric pressure, air masses, atmospheric instability and other meteorological terminology in order to build a foundation for the remainder of the seminar.

Interpreting Weather Graphics: Weather forecast graphics use a confusing array of symbols, meteorological shorthand, and color schemes to display current weather conditions and portray future weather patterns. The symbols identifying high and low pressure systems, frontal boundaries, troughs, ridges, and other meteorological features will be explained.

The Invisible Forces Controlling the Wind: Mariners have attempted to explain the capricious nature of the wind for thousands of years. This section looks at the forces that control the wind and reviews a variety of online resources that will improve your ability to predict its speed and direction. Small-scale and short-lived features such as sea and land breezes will also be presented.

Observational Tools – Radar Imagery: Doppler weather radar has a lot to offer the weather-savvy mariner. This section will introduce common types of Doppler weather radar and provide instruction in their interpretation and use. You'll learn how weather radar works (along with a few of its quirks) and how it can be used to monitor the development, intensity, and speed of approaching thunderstorms.

Low Pressure Systems: Sailing on the Great Lakes will place you in the path of low pressure system, known as "cyclones" in the meteorological community. Their passage often presents a significant risk to boaters in the form of strong, gusty, shifty winds, steep waves, dangerous lightning, and damaging thunderstorms. This section will investigate low pressure systems in detail and review a variety of resources for predicting the development, strength, and movement of these weather-makers.

Thunderstorms: Thunderstorms can quickly spoil a cruise in many ways—strong winds, large waves, dangerous lightning or visibility-limiting rain. This section will examine the various types of thunderstorms and the atmospheric ingredients that lead to their formation. Learn why thunderstorms often ‘pop-up’ late on summer afternoons and why some storms have short life-spans while others persist for hours. Discover why thunderstorms remain independent on some days and form into damaging long-lived squall lines on others. Reduce your chances of a hair-raising or wind-swept encounter with a thunderstorm by learning to assess the potential for their development using readily available Internet resources and the sky.

A Daily Forecast Routine: This section will include a hands-on exercise to reinforce the seminar’s meteorological concepts and increase your familiarity with a variety on-line forecasting resources.

Instructor Biography



Mark Thornton has been sailing on Lake Erie for more than 20 years and currently owns *Osprey*, a C&C 35. His interest in weather forecasting grew from his experiences cruising and racing on the lake. Mark is a 2006 graduate of the Penn State University *Certificate of Achievement in Weather Forecasting*, a two-year program that develops skills in general, tropical, and severe weather forecasting.

He is the president of LakeErieWX LLC, a company dedicated to providing marine weather education and forecasting resources for recreational boaters (www.lakeeriewx.com). He served as race meteorologist for the 2014-2017 Bell’s Beer Bayview Race to Mackinac, and is the past president of the Cleveland chapter of the American Meteorological Society. Mark is employed as the Vice-President of Administration for the law firm of Wegman, Hessler & Vanderburg, and as a Teaching Assistant in the *Certificate of Achievement in Weather Forecasting Program* at Penn State University. He can be reached by email at Mark@LakeErieWX.com.