



Preparing Your Chicago-Mac Forecast: A Workshop for Sailors

Sailing and weather are closely linked. There's little dispute that the conditions during the past two Chicago-Macs have significantly challenged the fleet. Experienced Chicago-Mac sailors understand that developing a detailed weather forecast and monitoring its evolution on the racecourse is an important strategic and safety aspect of participating in this summer classic. Misjudging the wind forecast can quickly send you to the back of your fleet, while failing to properly assess the risk for severe weather can unnecessarily jeopardize the safety of the crew.

The workshop is designed for Chicago-Mac and other long-distance sailors interested in improving their weather forecasting and management skills. You will learn the following at the workshop:

- How to decode the confusing symbols and meteorological shorthand on forecast graphics.
- How to predict the development and movement of low pressure systems and their accompanying frontal boundaries.
- Why the wind behaves the way it does and how to prepare a detailed wind forecast.
- How to prepare a detailed wave forecast.
- How to forecast the potential and nature of severe weather.
- The terminology used by the National Weather Service during hazardous and severe weather forecasting.
- How to use Doppler weather radar to help you avoid a hair-raising encounter with a thunderstorm.
- The advantages and challenges of using a weather routing program.
- Where to find forecast graphics and a strategy for preparing a multi-day marine forecast.

The workshop combines classroom instruction, case studies, and hands-on forecasting exercises to create an engaging learning experience.

Seminar Outline

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

Fundamentals: The ability to prepare a forecast and manage the weather on the racecourse requires a familiarity with basic meteorological principles. This section will present concepts such as barometric pressure, air masses, and the structure of the atmosphere. The confusing array of symbols, meteorological shorthand, terminology, and time systems that appear on forecasts charts will be reviewed.

Forecasting Low & High Pressure Patterns: The wind and weather conditions that you encounter on your way to the Island will be governed by the passage of low and high pressure systems. We'll examine the life-cycle and structure of a low pressure system, including cold fronts, warm fronts and stationary boundaries.

Assessing The Risk Of Thunderstorms: Thunderstorms can make the race more challenging 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.

The Invisible Forces Controlling The Wind: This section will investigate the atmospheric forces that control the wind including large-scale dynamics and small-scale features such as lake and land breezes. The wide range of wind forecasting resources on the Internet and smartphone applications will also be reviewed.

Wave Forecasting: Wave heights can make all the difference between an enjoyable journey to the Island or a wet and uncomfortable one. This section will review the dynamics of wave formation and a few wave forecasting resources.

Putting It All Together: A Mac Forecast Routine: A strategy for preparing your Mac forecast will be presented. This section will include a hands-on practice Mac forecast exercise designed to reinforce the workshop's concepts and increase your familiarity with on-line forecasting resources.

After The Start – Monitoring The Weather: After the race starts, you'll need to monitor the weather for possible changes to your race strategy. A variety of observational resources will be examined. The National Weather Service's severe weather warning process will also be presented.

Doppler Weather Radar: Doppler weather radar has a lot to offer the weather-savvy Mac sailor. 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.

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 Bell's Beer Bayview Race to Mackinac since 2014 and is the past president of the Cleveland chapter of the American Meteorological Society. Mark is employed 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.