

Detailed Syllabus for One-Day Basic Meteorology Course Chicago Boat Show

Part 1...“The Weather Primer” 0800-1200

*This three hour and half hour session will introduce Great Lakes mariners to weather 101 basics, starting with definitions of weather, climatology and the atmosphere. There will be a brief discussion of the different layers of the atmosphere, focusing on the lowest layer, the troposphere, where most weather occurs.

*An important discussion will focus on how the atmosphere is heated, and its interaction with the earth's surface (land and water). This then leads into the important topic of the role of the sun's radiation in generating the land and sea breezes, due to the temperature differences caused between the land and nearby coasts lines versus offshore. As a mariner it is important to relate to these land-sea temperature differences as it influences weather in a fairly narrow range where much sailing and power boating takes place.

*Other important topics include how clouds form, the group and types of clouds found within each group. Clouds produce precipitation but not all precipitation is equal as well as the clouds that produce them will be touch upon.

*The session will conclude with basic concepts of pressure and wind, how it works which provides the foundation of reading weather maps from the surface pressure maps to upper air charts (such as 500 Millibars-Mb). Attendees of this three-hour “**Weather Primer**” allows one to gain confidence with necessary basic weather fundamentals in order to better understand the weather maps (both marine surface and upper air weather analyses and forecast charts) enabling a mariner to become self-reliant in their own weather forecasting!

Part 2...”Understanding Surface Weather Maps and their Symbols 1300-1630

*With the “**The Weather Primer**”, under your belt, be prepared to enter the world of marine weather analysis and forecasts charts!

*We will look at “Scales of Weather Systems” (Global Scale; Jet Stream; Synoptic Scale; Lows & Highs, Meso-scale; squall lines, Micro Scale; thunderstorms/micro-bursts/waterspouts). Global Scale is about “Global Pressure & Wind Belts”, such as the ‘prevailing westerlies’ that dominates the “middle latitudes (between 30 to 60 degrees)”. This is where we will concentrate on as the meat and potatoes of the course, “Synoptic Scale Weather Systems” of High and Low Pressure, along with their associated fronts (warm, cold and occluded), especially since they do dominate the middle latitudes, which is well within the region of the Great Lakes, as well as the waters south to the Gulf of Mexico, the US east coastal waters from Nova Scotia to Florida and further offshore, eastward to Bermuda before moving on to the higher latitudes of the north Atlantic Ocean. We will also further discuss features such as troughs, squall lines, and ridges and their identifiable symbols as they are depicted on surface pressure charts as prepared by the Ocean Prediction Center (OPC), the Weather Prediction Center (WPC) & the National Hurricane Center's (NHC) Tropical Analysis and Forecast Branch (TAFB,) all are important line offices of the NWS, located in College Park, MD, & Miami, FL, respectively.

*It is vitally important to understand the importance of documentation and verification of forecasts. We will take you through this cultural process by comparing previous 48-96 hour surface pressure forecasts, to the most current surface pressure analysis charts, having the same valid date and time. One must have a built in culture of belief in the human intelligence forecast discussed and just promoted (at the very least, a medium degree of confidence, in order to make solid safety decision and strategic planning).

*There will be a short presentation on methods of receiving weather information at sea.

*The day will conclude with a Question & Answer session until 5:00 PM.