

## Graphical Hazardous Weather Outlook Product Description Document

### Part I - Mission Connection

- a. Product Description - The Graphical Hazardous Weather Outlook (gHWO) complements the official text Hazardous Weather Outlook (HWO) by providing a graphical depiction of threat levels for the following hazards: lightning, tornado, severe hail, severe wind gust, flash flood, excessive heat, excessive cold, high wind, dense fog (or smoke), wildfire weather, rip current, coastal flood, waterspout, marine wind / high sea, and marine wind gust. Each hazard graphic is specific to the Weather Service Forecast Office's (WFO's) county warning area (CWA) and marine area of responsibility (MAOR), and depicts the geographical distribution and level of threat of each hazard. In addition, a SkyWarn Activation graphic depicts the level of assistance requested from SkyWarn spotters, as well as other weather/rainfall spotters within specified areas.
- b. Purpose - The hazard graphics are designed primarily as a planning tool for decision makers potentially impacted by hazardous weather. The graphics enable forecasters to convey pertinent hazardous weather information in an easy to interpret, consistent, and highly accessible format.
- c. Audience - The target audience for the suite of graphics includes state/local emergency managers, government agencies, media, as well as business managers and the general public. Anyone requiring location-specific hazardous weather threat information during the current day (Day-1) will have decision-making information available to them.
- d. Presentation Format - The Advanced Weather Interactive Processing System (AWIPS) Graphical Forecast Editor (GFE) is used to create fifteen plan view maps (one for each hazard), along with a SkyWarn Activation map. The graphics are then uploaded to the World Wide Web (WWW) and automatically ingested into a highly navigable and interactive web page. To enhance the usability of each threat graphic, descriptive information is extracted from the textual HWO and simultaneously displayed within the web presentation. The web page also contains a considerable amount of preparedness and safety information as well as a "one stop shopping" collection of informative links and supporting documentation for users during hazardous weather situations.
- e. Feedback Method - Continuous feedback is available via a web page email link to the developers. Many compliments and worthy suggestions have been received and incorporated into the product suite. An evaluation period was established after the experimental product was first introduced, with select user feedback resulting in valuable comments from state/local emergency managers, nearby government agencies, local media, other WFOs, and the public. The gHWO has been presented at numerous public and professional forums since 1999, resulting in extensive feedback with suggested improvements included within iterative upgrades.

Technical comments for the gHWO product developer may be addressed to:  
National Weather Service  
Attn: David Sharp  
421 Croton Road  
Melbourne, FL 32935  
or e-mail comments to: [david.sharp@noaa.gov](mailto:david.sharp@noaa.gov)

## Part II - Technical Description

- a. Format & Science Basis - The gHWO is issued at the same time as the official text Hazardous Weather Outlook and is designed as its complement. Levels of threat are determined for fifteen separate hazards as local forecasters perform hazardous weather threat assessments. The established threat levels are: No Threat, Very Low Threat, Low Threat, Moderate Threat, High Threat, and Extreme Threat. Each threat level is uniquely and precisely defined for each hazard to account for increasing magnitude, and in some cases for increasing likelihood of occurrence. Threat levels are color-coded and spatially depicted on plan view maps, one for each hazard listed above (Figure 1). All gHWO graphics depict the threats specific to the WFO CWA and MAOR for the 24-hour (Day-1; 6 AM to 6 AM) period. The term “threat” (as it relates to life, property, and economic interest) serves as a bridging concept that allows forecasters to speak about particular hazards beforehand, according to their potential negative impact.

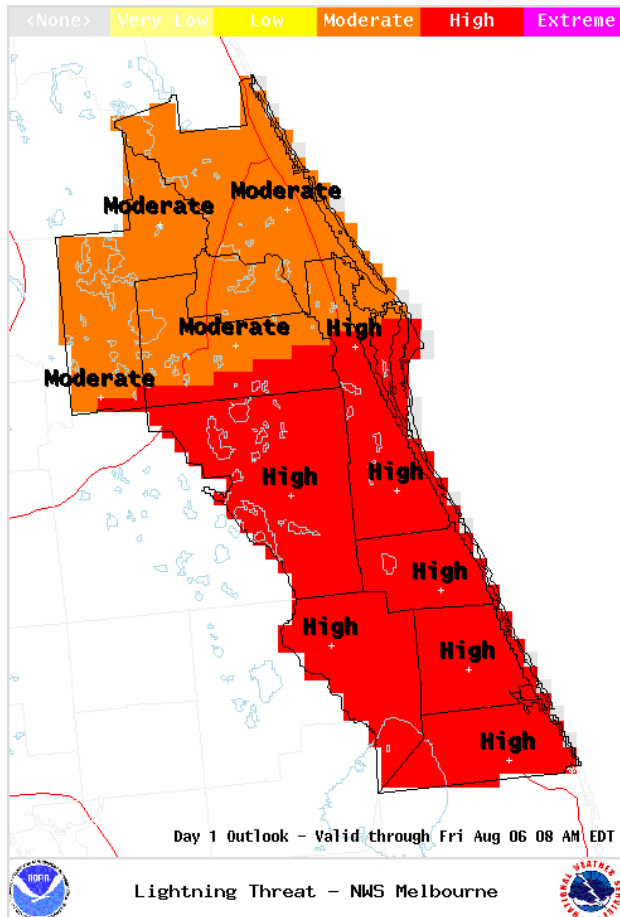


Figure 1. A lightning threat graphic is shown as an example. This graphic was created by a local forecaster through the Graphical Forecast Editor and displayed on the World Wide Web. Note the spatial distribution of threat according to prescribed threat levels.

As with the official text HWO, considerable effort is made to remain consistent with national/regional center forecasts. Guidance from the Storm Prediction Center, Hydro-meteorological Prediction Center, Tropical Prediction Center, and River Forecast Centers are taken into account. Importantly, the WFO adds mesoscale detail to more accurately specify the degree and geographic extent of each threat while working in close collaboration with adjacent WFOs.

- b. Product Availability - The gHWO is available each morning around 6 AM local time, and issued coincident with the official HWO text product. Updates are issued on an as needed basis during the course of the day according to recognized changes to the threat situation. Each issuance of the HWO is accompanied by a suite of gHWO graphics for the Day-1 period. The mechanism for creating threat maps for Day-2 through Day-7 exists, but is not exercised.

Real-time access to the gHWO can be obtained on the WWW at:

<http://www.srh.noaa.gov/mlb/ghwo/ghwomain.shtml>

- c. Additional Information - Several publications and presentations concerning the gHWO, as well as the similar graphical Hurricane Local Statement (gHLS), are available online at the following URLs:

- Sharp, D.W., D.L. Jacobs, J.C. Pendergrast, S.M. Spratt, P.F. Blottman, and B.C. Hagemeyer: Graphically depicting east-central Florida hazardous weather forecasts, NOAA Tech. Attach. SR/SSD 2000-27. 4 pp  
[http://www.srh.noaa.gov/mlb/ghwo\\_ghls\\_ta.html](http://www.srh.noaa.gov/mlb/ghwo_ghls_ta.html)
- Sharp, D. W., 2004: Leveraging the Combined Strengths of Local Mesoscale Modeling and Local Forecaster Intelligence to Refine Convective Threat Assessments, Preprints, 22<sup>nd</sup> Conference on Severe Local Storms, Hyannis, MA, Amer. Meteor. Soc.  
[http://www.srh.noaa.gov/mlb/PDFs/Sharp\\_SLS\\_2004.pdf](http://www.srh.noaa.gov/mlb/PDFs/Sharp_SLS_2004.pdf)
- Sharp, D.W., and S.M. Spratt, 2001: Graphically Depicting Threat Assessment Information for Flood Situations in East Central Florida, Symposium on Precipitation Prediction: Extreme Events and Mitigation; 81st Annual AMS Meeting, Albuquerque, NM, 378-380.  
<http://www.srh.noaa.gov/mlb/PDFs/floodsymp1.pdf>
- Sharp, D.W., and S.M. Spratt, 2000: Graphically Depicting the Hurricane Local Statement. Presented to the NOAA Hurricane Conference, Miami, FL.  
[http://www.srh.noaa.gov/mlb/PDFs/ihc55\\_ghls.pdf](http://www.srh.noaa.gov/mlb/PDFs/ihc55_ghls.pdf)

- (1) The gHWO was designed by David Sharp, David Jacobs, Scott Spratt, Matthew Volkmer, and Peter Blottman, WFO Melbourne, FL. Critical reviews and significant suggestions were also provided by John Pendergrast and other WFO Melbourne forecasters.