

Week-2 U.S. Hazards Outlook Description

The Climate Prediction Center (CPC) U.S. Hazards Outlook is released every weekday and targets the Day 8-14 forecast period for potential hazardous conditions related to temperature, precipitation, and winds. The forecast is mainly represented in probabilistic format, with the exclusion of a few variables (e.g. frozen precipitation and flooding), which are denoted in categorical format. A categorical map is released in addition to the separate probabilistic maps, showing any only categorical variables (i.e., noted above) as well as highlighted regions drawn as a moderate risk on the temperature, precipitation and wind probabilistic maps.

The U.S. hazards outlook contains human drawn delineations of where various variables are expected to have the potential of posing a hazard to life or property. The forecasters do apply a subjective decision factor when delineating a hazard area. A cold snap in the winter or a heat wave in the summer are likely threats to life and property, while a cool period in July is not. Another example can be forecasters using less restrictive hazards criteria than normal (i.e. antecedent conditions or time in the seasonal cycle, etc.).

Forecasters use bias corrected and calibrated ensemble model forecasts to estimate the likelihood of that event occurring, and indicate a confidence or “risk of occurrence”. The GEFS extremes reforecast tool (see link below) is the primary guidance for the outlook and utilizes historical forecast information to calibrate ensemble model output to produce reliable forecast probabilities. Additional model guidance is also used to inform the forecaster’s decisions.

<http://www.cpc.ncep.noaa.gov/products/predictions/threats/extremesTool.php>

Forecast confidence is categorized as slight, moderate, or high risk with the listed labels corresponding to GEFS bias corrected and calibrated reliable probabilities of 20-40%, 40-60%, or >60% of occurrence respectively. At the current time, only slight and moderate risk labels are indicated for high winds due to unreliable probabilities and lower forecast skill based on reforecast analysis at higher forecast probabilities. Typical hazardous criteria used are listed below but these criteria can be adjusted by the forecaster when required as a function of region, season and specific situation. Percentiles are based on 30-year historical observations from 1981-2010.

- Much below normal minimum temperatures - Daily minimum temperatures less than the 15th percentile and near freezing or sub-freezing (or other temperature deemed hazardous) temperatures.

- Much above normal maximum temperatures - Daily maximum temperatures greater than the 85th percentile and temperatures reaching 90F or greater, or night time lows above 80F.
- Heavy precipitation - 3-day accumulated precipitation exceeding the 85th percentile and >1" in 24 hours.
- High winds - Sustained wind speeds reaching the 85th percentile as well as reaching 25 to 50 miles per hour, at any time over a 3-day period.