

Week-2 Global Tropics Hazards Outlook (GTH) with Experimental Week-3 Product Description Document - May 2023

Part I - Mission Connection

The National Centers for Environmental Prediction (NCEP) Climate Prediction Center (CPC) produces the Global Tropics Hazards and Benefits Outlook for Week-2. The product has been updated to address these three changes: 1) The word “Benefits” has been dropped from the official name, 2) the GTH format has been updated to better reflect the probabilistic nature of rainfall, temperature and tropical cyclone related outlooks, and 3) the forecast target period has experimentally added Week-3 such that the product now covers Weeks 2-3. In a change from the initial experiment, tropical cyclogenesis shapes are provided for Week-3 during the 2023 experiment.

a. Description of Product – The Week 2-3 Global Tropics Hazards Outlook (GTH) is a forecast for areas with elevated odds for above- or below-median weekly rainfall, above- or below-normal weekly mean temperatures and regions where tropical cyclogenesis is favored for the upcoming Week-2 and Week-3 time periods. The rainfall and temperature outlooks are for precipitation integrated over a week and weekly mean temperatures targeting broad-scale patterns, not local conditions as they will be highly variable and is not the aim of the product. Figure 1 displays the product image. Note: During the 2023 experimental period, information regarding tropical cyclones (TC) is presented for **both** Week-2 and Week-3.

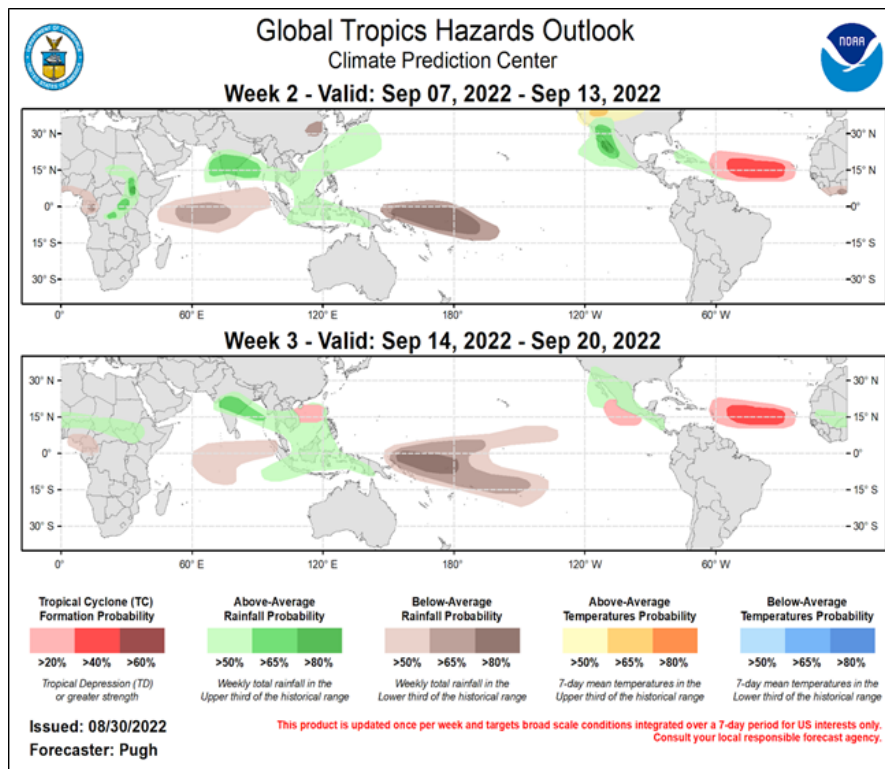


Figure 1: Weeks 2-3 GTH outlook example.

Along with the product graphic, a written text outlook discussion is also included at release time. The narrative provides a review of conditions over the past week across the global Tropics, a description of the current climate-weather situation, factors and reasoning behind the depicted outlook and highlights likely or potential impacts in both the Tropics and Extratropics when warranted.

b. Purpose – The product supports the DOC and NOAA mission in three primary ways:

- (1) assesses and forecasts important changes in the distribution of tropical convection that can lead to critical circulation changes across the Pacific Ocean and North America regions and communicate this information to the NWS regional and local field structure,
- (2) provide advance notice of potential hazards related to climate, weather and hydrological events related to the Tropics (e.g., tropical cyclone risks, atmospheric river events, etc.) to federal government emergency management and aid organizations, and
- (3) support many sectors of the U.S. economy (national security and defense, finance, energy, agriculture, water resource management, among others) that are active in global commerce, collaboration and participation.

c. Intended Audience – The audience for the GTH outlook as noted above is somewhat wide-ranging and includes entities from both the public domain (NWS, FEMA, DoD, State Department, state and local government, among other government agencies) as well as stakeholders from the private domain where several sectors (agriculture, energy, finance, water resource management) conduct extensive global commerce for the enhancement and protection of the U.S economy.

d. Presentation Method – The Weeks 2-3 GTH outlook is presented as a graphic on a CPC web page that spans the domain from 40N to 40S across the entire global Tropics. The rainfall forecast areas are depicted in shades of green and yellow/brown for predictions (calibrated probabilities represented as numbers) of above-normal or below-normal rainfall respectively. Similarly, for the temperature predictions, shades of orange and blue for probabilistic predictions of above-normal or below-normal temperature are depicted on the product respectively. Areas highlighted for potential tropical cyclone development are also represented as probabilities, but labeled as low risk, moderate risk or high risk depending on the assessed threat and these risk levels link to calibrated probabilities of 20%, 40% and 60% respectively.

e) Feedback Method:

The NWS is accepting comments via the following survey:

https://www.surveymonkey.com/r/ExpGlobalTropicsHazardsOutlookforWeek3_2023

For further information, please contact:

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Part II - Technical Description

a. Format & Science Basis – The product synthesizes information and expert analysis related to climate variability across multiple time scales and from various sources, including operational climate monitoring products. The physical basis for the outlooks include the El Niño-Southern Oscillation (ENSO), the Madden-Julian Oscillation (MJO), strength and variations of the monsoon systems, other coherent subseasonal tropical variability such as atmospheric Kelvin waves (KWs), Equatorial Rossby waves (ERWs), African easterly waves (AEWs), as well as interactions with the extratropical circulation (*i.e.*, high latitude blocking, low-latitude frontal activity, atmospheric wave breaking, *etc.*). Some tools based on the above include MJO composites, empirical and dynamical based MJO, ERW and KW forecasts.

The outlook maps are prepared utilizing the background knowledge noted above along with evaluation of dynamical model guidance and statistical and hybrid forecast tools. The model guidance utilized includes that from the CFS, GEFS, ECMWF and ECCO subseasonal forecast systems. An objective, historical skill-weighted consolidation of model guidance is also available for the forecaster to serve as a “first guess” outlook.

b. Product Availability – The Weeks 2-3 GTH outlook is released once per week on Tuesday at approximately 1800 UTC. As part of this release package, the GTH outlook graphic, forecast text discussion and the associated GIS shapefile and Google Earth KML files are available at the same time. Following release of the product on the CPC web site, an ***open live*** webinar briefing is provided to interested parties that presents the latest GTH outlook and potential impacts in both the Tropics and Extratropics (when relevant) with an opportunity to ask live questions after the briefing. The briefing always occurs at 2:30 PM ET Local Time.

The product is available at the following web address:

<https://www.cpc.ncep.noaa.gov/products/precip/CWlink/ghazards/index.php>