

NOAA/National Weather Service
National Hurricane Center / Tropical Analysis and Forecast Branch
Experimental Graphic Tropical Cyclone Satellite-Based Rainfall Quantitative Precipitation
Estimates (QPE) and Quantitative Precipitation Forecasts (QPF)
Product Description Document

15 July 2014

Part I. Mission Connection

- a. Product Description** - The National Hurricane Center's Tropical Analysis and Forecast Branch (TAFB) has been providing on **an experimental basis** event-driven Satellite Rainfall Quantitative Precipitation Estimates (QPE) and model-derived Quantitative Precipitation Forecasts (QPF) for tropical cyclones and tropical disturbances affecting areas within the National Hurricane Center and Central Pacific Hurricane Center areas of responsibility (AOR). The experimental product represents an improvement over the existing satellite precipitation estimate product which is based on the Griffith-Woodley technique developed in the 1970s. The experimental product provides more robust satellite-based precipitation estimates from the Naval Research Laboratory (NRL) Blended and the Climate Prediction Center (CPC) QMORPH techniques and a time-matched forecast from the Global Forecast System (GFS) in tabular text and storm centered graphical formats. In addition, the experimental product provides a graphical 24 hour QPF from the Princeton Geophysical Fluid Dynamics (GFDL), the NOAA Hurricane Weather Research and Forecast (HWRF), and the GFS.

The graphical formats will continue to be made available on an experimental basis through November 30, 2014.

- b. Purpose** – The experimental QPE and QPF page is intended to provide, on an event-driven basis, a graphical depiction of satellite rainfall QPE and graphical depiction of model based QPF for tropical cyclones and pre-tropical cyclone disturbances. The product is primarily intended to provide forecast centers in the Caribbean, Mexico, and Central America better satellite based estimates and forecast guidance for significant rainfall events. In addition, decision support service (DSS) entities would have access to targeted QPF guidance that may be of assistance for distributing and directing resources to areas impacted by heavy rainfall.
- c. Audience** – The target audience for this product primarily includes the forecast centers in the Caribbean, Mexico, Central America, and the Eastern and Central North Pacific. However, other potential users of the product include emergency managers and other decision support agencies as well as first responders to events both on land and at sea such as search and rescue and oil spill relief efforts. The centralized location of the Satellite QPE and QPF product on the National Hurricane Center's web page gives these products increased visibility makes it easy for these partners to view the product for specific storms.

- d. Presentation Format** – The product page is currently automatically generated when model guidance is initiated on a tropical disturbance or cyclone in the Atlantic, Eastern North Pacific or Central North Pacific basins. The product page consists of satellite-based precipitation estimates from the NRL Blended and QMORPH techniques and a previous forecast from the Global Forecast System (GFS) with accompanying graphics that are centered over the storm. In addition the experimental product provides a graphical 24 hour QPF from the Princeton Geophysical Fluid Dynamics (GFDL) and NOAA Hurricane Weather Research and Forecast (HWRF) models as well as the GFS.

The URL for the experimental page is noted below

Experimental Satellite QPE and QPF for a tropical cyclone:
<http://www.nhc.noaa.gov/experimental/rainfall>

- e. Feedback Method - Feedback and Comments**

The Tropical Analysis and Forecast Branch of the National Hurricane Center is requesting your comments and feedback about the experimental satellite QPE and QPF page. Please feel free to use the link below for submitting comments via E-mail:
nhcwebmaster@noaa.gov

Users may also provide feedback on this experimental product by using the brief survey and comment form available on line at:

<http://www.weather.gov/survey/nws-survey.php?code=srqpf>

Additionally comments may also be provided to:

National Hurricane Center/Tropical Analysis and Forecast Branch
11691 SW 17th St
Miami, FL 33165-2149
(305) 229-4454 or (305) 229-4476
Hugh.Cobb@noaa.gov or Jessica.Schauer@noaa.gov

Experimental Feedback Period: May 15, 2014 through November 30, 2014.

Part II. Technical Description

- a. Format and Science Basis** – The Satellite QPE represents an improvement over the Griffith-Woodley technique by incorporating precipitation estimates from NRL blended product and QMORPH techniques as well as a time-matched recent forecast from the GFS model. These estimates are provided in graphical formats. The page also provides a QPF forecast component out to 24 hours from the GFDL and HWRF hurricane models and from the GFS model.

- b. Product Availability** - The experimental satellite based QPE and model based QPF products are available four times a day when there are active tropical cyclones and pre-tropical cyclone disturbance areas and are posted to the web at approximately 0400, 1000, 1600 and 2200 UTC.

- c. Additional Information** - The following pages provide a sample of the proposed main web page for tropical storm Katia generated 1200 UTC 31 August 2011.

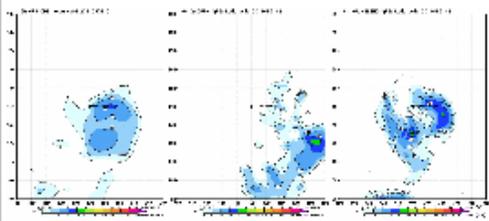
Experimental Tropical Rainfall Products

[Rainfall Graphics](#) | [Description](#) | [Rainfall Tools](#)

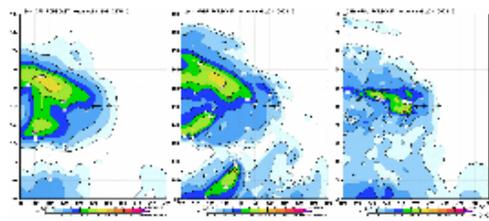
Current Operational Text Products
[Eastern Caribbean](#) | [Central Caribbean](#) | [Western Caribbean](#)

TROPICAL STORM KATIA - [Experimental Text Product](#)

6-hr Satellite Rainfall Estimates

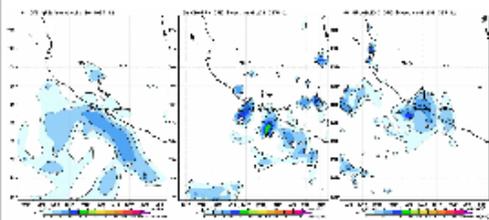


Model 24-hr Rainfall Forecasts

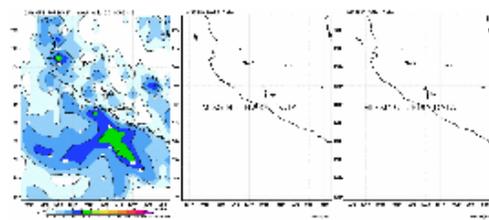


DISTURBANCE NEAR 103W - [Experimental Text Product](#)

6-hr Satellite Rainfall Estimates

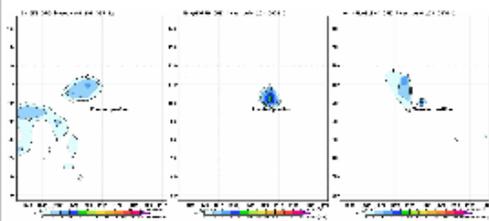


Model 24-hr Rainfall Forecasts

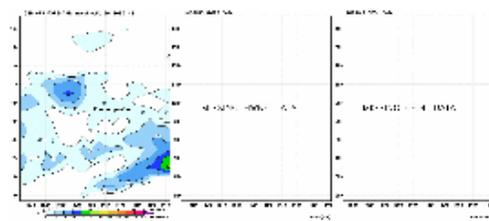


DISTURBANCE NEAR 149W - [Experimental Text Product](#)

6-hr Satellite Rainfall Estimates



Model 24-hr Rainfall Forecasts



About These Products

- [NHC Tropical Rainfall Graphics](#)
- [NHC Tropical Rainfall Text Products](#)
- [NRL-Blend Satellite Rainfall Estimates from the Naval Research Laboratory](#)
- [QMORPH Satellite Rainfall Estimates from the Climate Prediction Center](#)

Figure 1. Sample Web Page depicting active tropical cyclones and pre-tropical cyclone disturbances.