

NOAA/National Weather Service
National Hurricane Center / Tropical Analysis and Forecast Branch
Text satellite-based Rainfall Quantitative Precipitation Estimates (QPE)
Product Description Document

28 August 2014

Part I. Mission Connection

- a. Product Description** – **On September 2, 2014**, The National Hurricane Center’s Tropical Analysis and Forecast Branch (TAFB) will provide on **an operational basis** an event-driven Satellite Rainfall Quantitative Precipitation Estimates (QPE) text product for tropical cyclones and tropical disturbances affecting areas within the National Hurricane Center and Central Pacific Hurricane Center areas of responsibility (AOR). The operational text product represents an improvement over the old satellite precipitation estimate product which is based on the Griffith-Woodley technique developed in the 1970s. The text products provide 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 format. For tropical cyclone invests and pre-invest systems, the text product will be issued under the following AWIPS/WMO headers:

STDECA/TCCA 21 KNHC for systems in the Caribbean Sea east of 67W
STDCCA/TCCA 22 KNHC for systems between 67W and 80W
STDWCA/TCCA 23 KNHC for systems west of 80W.

For numbered tropical cyclones, the text products will be issued under the following AWIPS/WMO headers:

STDAT(1-5)/TCNT21-25 KNHC for numbered systems in the Atlantic basin
STDEP(1-5)/TCPZ21-25 KNHC for numbered systems in the East Pacific basin
STDCP(1-5)/TCDC21-25 KNHC for numbered systems in the Central Pacific basin

- b. Purpose** – The operational QPE text product is intended to provide, on an event-driven basis, a tabular depiction of satellite rainfall QPE 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 for significant rainfall events. In addition, decision support service (DSS) entities would have access to targeted QPE guidance that may be of assistance for distributing and directing resources to areas impacted by heavy rainfall.
- c. Audience** – The target audience for the text 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 distribution of the satellite rainfall QPE through the NWSTG via AWIPS and its location on the National Hurricane Center's web page gives these products increased visibility.

- d. Presentation Format** – The text product will be generated when model guidance is initiated on a tropical disturbance or tropical cyclone in the Atlantic, Eastern North Pacific or Central North Pacific basins. The text product consists of satellite-based precipitation estimates from the NRL Blended and QMORPH techniques and a previous forecast from the Global Forecast System (GFS) in tabular text format.

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 operational satellite QPE text product. Please feel free to use the link below for submitting comments via E-mail:

nhcwebmaster@noaa.gov

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

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 text format.
- b. Product Availability** - The satellite based QPE product are available four times a day when there are active tropical cyclones and pre-tropical cyclone disturbance areas and are issued by 0400, 1000, 1600 and 2200 UTC.
- c. Additional Information** - The following pages provide a sample of the tabular text satellite QPE for tropical storm Katia generated 1200 UTC 31 August 2011.

SATELLITE TROPICAL DISTURBANCE RAINFALL ESTIMATES
 NWS NATIONAL HURRICANE CENTER MIAMI FL
 1605 UTC WED AUG 31 2011

SYSTEM NAME	DATE/TIME	LOCATION
TROPICAL STORM KATIA	31/1200 UTC	14N 40W

RAINFALL ESTIMATED BY SATELLITE VIA QMORPH...
 24-HR RAINFALL MAXIMUM FROM 12-12 UTC- 30MM AT 12N 38W
 6-HR RAINFALL MAXIMUM FROM 06-12 UTC- 30MM AT 12N 38W
 RAINFALL DISTRIBUTION IN MM OVER THE LAST 6 HOURS FROM 06-12 UTC...

LATITUDE.....	LONGITUDE.....						
.....	43W- 42W	42W- 41W	41W- 40W	40W- 39W	39W- 38W	38W- 37W	
16N-17N	0- 0	0- 0	0- 0	0- 0	0- 0	0- 0	0- 0
15N-16N	0- 0	0- 0	0- 0	0- 0	0- 10	0- 10	0- 10
14N-15N	0- 0	0- 0	0- 0	0- 0	0- 10	0- 10	0- 10
13N-14N	0- 0	0- 0	0- 0	0- 10	0- 20	0- 20	0- 20
12N-13N	0- 0	0- 0	0- 0	0- 10	0- 20	0- 20	0- 20
11N-12N	0- 0	0- 0	0- 0	0- 10	0- 10	0- 30	

RAINFALL ESTIMATED BY SATELLITE VIA NRL-BLEND...
 24-HR RAINFALL MAXIMUM FROM 12-12 UTC- 110MM AT 12N 40W
 6-HR RAINFALL MAXIMUM FROM 06-12 UTC- 110MM AT 12N 40W
 RAINFALL DISTRIBUTION IN MM OVER THE LAST 6 HOURS FROM 06-12 UTC...

LATITUDE.....	LONGITUDE.....						
.....	43W- 42W	42W- 41W	41W- 40W	40W- 39W	39W- 38W	38W- 37W	
16N-17N	0- 0	0- 0	0- 0	0- 0	0- 0	0- 0	0- 0
15N-16N	0- 0	0- 10	0- 10	0- 10	0- 0	0- 0	0- 0
14N-15N	0- 10	0- 40	0- 10	0- 60	0- 70	0- 50	
13N-14N	0- 20	0- 40	0- 40	0- 40	10- 80	0- 80	
12N-13N	0- 10	0- 40	20-110	10-110	0- 60	0- 50	
11N-12N	0- 0	0- 20	0- 40	0- 20	0- 20	0- 10	

RAINFALL ESTIMATED FROM 12 UTC 30 AUG GFS MODEL RUN...
 24-HR RAINFALL MAXIMUM FROM 12-12 UTC- 70MM AT 13N 37W
 6-HR RAINFALL MAXIMUM FROM 06-12 UTC- 60MM AT 14N 39W
 RAINFALL DISTRIBUTION IN MM OVER THE LAST 6 HOURS FROM 06-12 UTC...

LATITUDE.....	LONGITUDE.....						
.....	43W- 42W	42W- 41W	41W- 40W	40W- 39W	39W- 38W	38W- 37W	
16N-17N	0- 0	0- 0	0- 0	0- 0	0- 10	0- 0	
15N-16N	0- 0	0- 0	0- 0	0- 0	0- 10	0- 10	
14N-15N	0- 0	0- 10	0- 10	0- 60	0- 60	0- 50	
13N-14N	0- 0	0- 10	0- 20	10- 60	20- 60	10- 50	
12N-13N	0- 10	0- 10	0- 30	20- 50	20- 50	10- 20	
11N-12N	0- 10	0- 10	0- 30	0- 50	0- 50	0- 20	

DIFFERENCES BETWEEN THE SATELLITE AND MODEL-DERIVED RAINFALL
 ESTIMATES INDICATE UNCERTAINTY IN THE AMOUNT OF RAIN RECEIVED

RAINFALL MAY BE UNDERESTIMATED ON THE WINDWARD SIDE OF TERRAIN

PLEASE SEE THE LATEST TROPICAL CYCLONE PUBLIC ADVISORY FOR THE
 OFFICIAL RAINFALL FORECAST FOR TROPICAL CYCLONES

FOR ADDITIONAL INFORMATION PLEASE VISIT
[HTTP://WWW.HURRICANES.GOV/RAINFALL](http://www.hurricanes.gov/rainfall)

Figure 1. Sample tabular text QPE for tropical storm Katia generated 1200 UTC 31 August 2011.