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

15 July 2014

Part I. Mission Connection

a. Product Description –As of 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 invest and pre-invest systems, the text product will be issued under the following AWIPS headers:

MIASTDECA, for systems in the Caribbean Sea east of 67W, MIASTDCCA, for systems between 67W and 80W, and MIASTDWCA for systems west of 80W.

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.

Questions regarding this product may be sent to:

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11691 SW 17th St
Miami, FL 33165-2149
(305) 229-4454 or (305) 229-4476
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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.

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

SYSTEM NAME                      DATE/TIME          LOCATION
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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
15N-16N   0-  0     0-  0     0-  0     0-  0     0- 10     0- 10
14N-15N   0-  0     0-  0     0-  0     0-  0     0- 10     0- 10
13N-14N   0-  0     0-  0     0-  0     0- 10     0- 20     0- 20
12N-13N   0-  0     0-  0     0-  0     0- 10     0- 20     0- 20
11N-12N   0-  0     0-  0     0-  0     0- 10     0- 10     0- 30
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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
15N-16N   0-  0     0- 10     0- 10     0- 10     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
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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
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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
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Figure 1. Sample tabular text QPE for tropical storm Katia generated 1200 UTC 31 August 2011.