Persistence Flash Flood Threat (PFFT)

Persistence Flash Flood Threat (PFFT) is the second flash flood threat product. Persistence is the simplest method of forecasting the weather and relies upon the current moment's conditions to forecast conditions for the next. The concept of PFFT is that previous precipitation of a given duration will persist for the same duration into the future. Therefore, the PFFT is considered a forecast flash flood threat using persistence for the rainfall forecast. **Note that this set of products uses a crude rainfall forecast and contains large uncertainties and because of that, forecasters should be very careful with this product.**

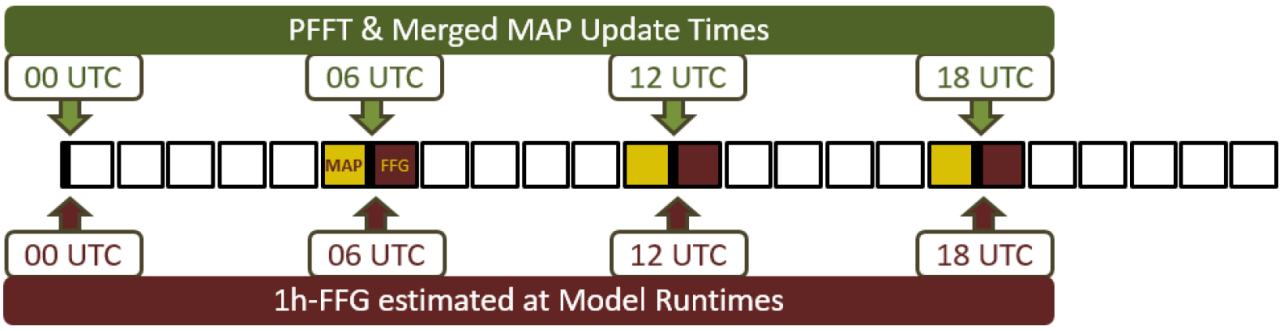
PFFT is the difference between the merged MAP estimated and updated at the FFG model runtime and the corresponding FFG value. 1-hour, 3-hour and 6-hour Persistence Flash Flood Threat products are estimated and updated at 00 UTC, 06 UTC, 12 UTC and 18 UTC.

Descriptions of the products can be accessed by clicking on the “Product Description“ button at the bottom of the FFGS Products Console.

Values of PFFT (1-, 3-, and 6-hour) are not displayed in the graphical products or provided in the data text files for basins with an accumulated drainage area greater than 2,000 km2.
Basins meeting these criteria are shown in grey-colored shading in the products and as -999.00 in the text files.

1.1. 1-Hour Persistence Flash Flood Threat (1hr-PFFT)

PFFT 01-hr: Difference of 01-hr FFG for current model processing hour and current 01-hr MAP persisted for the next 1 hour (mm/1hr) as shown on figure below.



1-hr PFFT estimation scheme

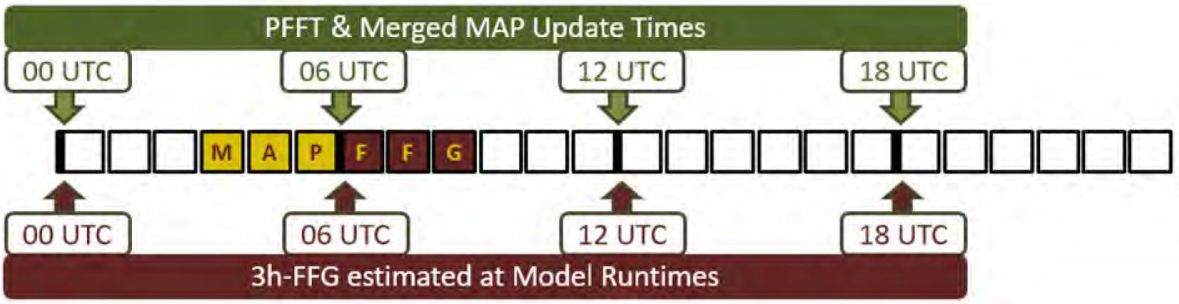
1h PFFTt = 1h merged MAPt – 1h FFGt, where t = 00, 06, 12 and 18 UTC

The 01-hr PFFT at 00:00 UTC = the difference between the 01-hr Merged MAP from 00:00 UTC and the 01-hr FFG from 00:00 UTC, considered valid at 01:00 UTC. The 01-hr PFFT at 06:00 UTC = the difference between the 01-hr Merged MAP from 06:00 UTC and the 01-hr FFG from 06:00 UTC, considered valid at 07:00 UTC. The 01-hr PFFT at 12:00 UTC = the difference between the 01-hr Merged MAP from 12:00 UTC and the 01-hr FFG from 12:00 UTC, considered valid at 13:00 UTC. The

01-hr PFFT at 18:00 UTC = the difference between the 01-hr Merged MAP from 18:00 UTC and the 01-hr FFG from 18:00 UTC, considered valid at 19:00 UTC.

1.2. 3-Hour Persistence Flash Flood Threat (3hr-PFFT)

PFFT 03-hr: Difference of 03-hr FFG for current model processing hour and current 03-hr MAP persisted for the next 3 hours (mm/3hr) as shown on figure below.



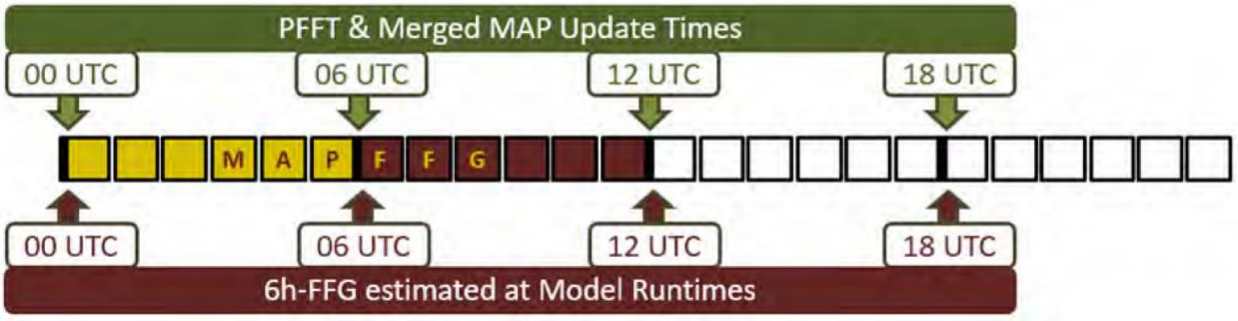
3-hr PFFT estimation scheme

3h PFFTt = 3h merged MAPt – 3h FFGt, where t = 00, 06, 12 and 18 UTC

The 03-hr PFFT at 00:00 UTC = the difference between the 03-hr Merged MAP from 00:00 UTC and the 03-hr FFG from 00:00 UTC, valid at 03:00 UTC. The 03-hr PFFT at 06:00 UTC = the difference between the 03-hr Merged MAP from 06:00 UTC and the 03-hr FFG from 06:00 UTC, considered valid at 09:00 UTC. The 03-hr PFFT at 12:00 UTC = the difference between the 03-hr Merged MAP from 12:00 UTC and the 03-hr FFG from 12:00 UTC, considered valid at 15:00 UTC. The 03-hr PFFT at 18:00 UTC = the difference between the 03-hr Merged MAP from 18:00 UTC and the 03-hr FFG from 18:00 UTC, considered valid at 21:00 UTC.

1.3. 6-Hour Persistence Flash Flood Threat (6hr-PFFT)

PFFT 06-hr: Difference of 06-hr FFG for current model processing hour and current 06-hr MAP persisted for the next 6 hours (mm/6-hr) as shown on figure below.

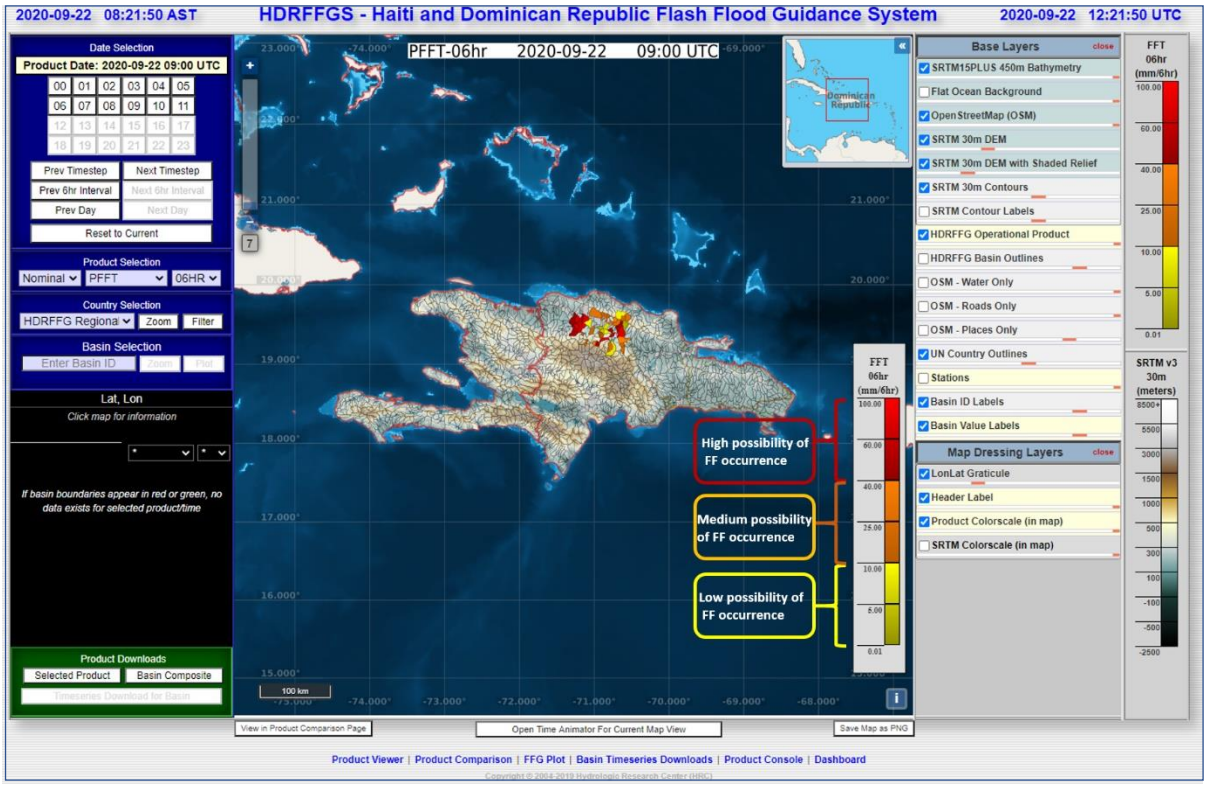


6-hr PFFT estimation scheme

6h PFFTt = 6h merged MAPt – 6h FFGt, where t = 00, 06, 12 and 18 UTC

The 06-hr PFFT at 00:00 UTC = the difference between the 06-hr Merged MAP from 00:00 UTC and the 06-hr FFG from 00:00 UTC, considered valid at 06:00 UTC. The 06-hr PFFT at 06:00 UTC = the difference between the 06-hr Merged MAP from 06:00 UTC and the 06-hr FFG from 06:00 UTC, considered valid at 12:00 UTC. The 06-hr PFFT at 12:00 UTC = the difference between the 06-hr Merged MAP from 12:00 UTC and the 06-hr FFG from 12:00 UTC, considered valid at 18:00 UTC. The 06-hr PFFT at 18:00 UTC = the difference between the 06-hr Merged MAP from 18:00 UTC and the 06-hr FFG from 18:00 UTC, considered valid at 00:00 UTC.

In the example below, the 06-hr PFFT products for Haiti and Dominican Republic is shown. The PFFT values 0-10 mm/6-hr are marked in yellow, 10-40 mm/6-hr in orange and 40-100mm/6-hr in red. Catchment of orange or red colour have highest probability that flash flood occurrence is most likely if rainfall conditions persist.



06-hr PFFT at 09 UTC, 22 September 2020

This document was prepared by WMO-FFGS team using South East Europe Flash Flood Guidance System Forecaster Guide[1] and FFGS Operational Output Product Descriptions available in the FFGS Real-Time Product Console developed by Hydrologic Research Center.

[1] https://www.wmo.int/pages/prog/hwrp/flood/ffgs/documents/SEEFFGS_Forecaster_Guide-Final_ES_TM-AS-PM.pdf