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FLASH FLOOD GUIDANCE PRODUCTS

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1. Introduction

Flash Flood Guidance products are issued by the River Forecast Centers (RFC's) and represent rainfall amounts required to produce flash flooding within state forecast zones, counties, and/or flooding conditions at selected forecast points. These rainfall amounts are guidance indices which are used by the WFO's as the criteria for issuing flash flood and preliminary crest forecast statements.

2. How Is Flash Flood Guidance Produced?

The Flash Flood Guidance is produced in concert with the soil moisture accounting models used at the RFC's in fulfilling their river forecast requirements. Soil moisture accounting models use observed precipitation, temperature, and other hydrometeorological parameters as input and provide a current accounting of the amount of moisture in the soil. This is an index as to the amount of runoff which will result when rainfall occurs.

Once the amount of runoff which will produce flash flooding is known for a state forecast zone, county, and/or a specific forecast point, the amount of rainfall required to produce this runoff, given the current soil moisture conditions, can be determined.

3. How Accurate Are the Guidance Values?

The accuracy of the guidance values is affected by several factors, not the least of which is the availability of reported precipitation data. An adequate network of reliable rainfall gages is essential in performing the daily accounting of moisture in the soil, a key tool in determining flash flood guidance.

In the case of forecast zones and counties, the guidance values represent an average for the area. Because of this, it must be understood that some small streams in the zone or county may flood at guidance values greater or less than the issued guidance. The accuracy of the guidance is dependent on the accuracy of the average runoff to induce flooding in the zone or county.

In the case of guidance for a specific forecast point, the accuracy is dependent on the accuracy of the unit hydrograph and the stage-discharge relationship for the site in question.

4. Other Operational Considerations, If Any.

- A. Flash Flood Guidance values are issued for a specific rainfall duration, in most cases three hours. Additionally, the rainfall is assumed to occur at a constant rate for the three-hour period. Intense, short-duration storms may cause flooding with rainfall totals less than the issued guidance values. Storms longer than three hours in duration may not cause flooding even though the issued guidance was equalled or exceeded.
- B. Guidance values issued for specific forecast points are meant to be used in conjunction with mean areal precipitation (MAP) estimates. The forecaster must make his best estimate of the average rainfall which occurred in the basin above the forecast point in question. This MAP, along with the guidance value, is applied to the flood advisory table to determine the preliminary crest forecast.
- C. Areal distribution of rainfall affects flood crests. When the rainfall is concentrated toward the downstream portion of a basin, the flood can be expected to crest sooner and higher. When the rainfall is concentrated upstream, the flood can be expected to crest later and lower. Site specific forecasts should be adjusted accordingly.
- D. When Flash Flood Guidance is used to compile flash flood or site specific flood statements, they should be issued using the proper flood and/or flash flood product identifiers.