

### VI.3.6E FLASH FLOOD GUIDANCE (FFG) - ZGRID PROGRAM

The ZGRID program assigns existing threshold runoffs by areas (i.e., zones, counties) to each HRAP bin within the boundary defined for the area.

Run zgrid if area (zones, counties) boundaries are changed or their threshold runoffs are changed.

The usual input (and control) file is the file used to define area parameters. The filename is defarea but is user named. Output files are gridro1, gridro3, gridro6, gridro12, and gridro24 which contain the ASCII definitions of gridded runoffs that become input for the FFGUID program. Another output file is a new control file containing updated area parameters (runoffs) which can be named defarea\_new (user named).

The input file format is described in NWSRFS user manual Section VI.3.6C-INFILE-AREA.

```
Input File:  defarea    (user named)

Output files: defarea_new  (user named)
              gridro1
              gridro3
              gridro6
              gridro12
              gridro24
```

#### Runoff Factors

Runoffs for durations other than 3 hours are computed using default or user-supplied factors applied to the 3-hour runoff. Options to compute runoffs for durations other than 3 hours are controlled by the following commands:

<u>Command</u>	<u>Function</u>
(None)	Compute runoffs using default factors applied to 3-hour runoff only when area runoff for a duration is 0.0. Default factors for 1-, 3-, 6-, 12-, and 24-hour durations are: 0.70, 1.0, 1.5, 2.0, and 2.5, respectively.
mult	Compute runoffs using supplied factors applied to 3-hour runoff only when the area runoff for a duration is 0.0. (Example: mult: 0.65 1.0 1.5 2.0 2.5)
mul1	Compute 1 hour runoff using supplied factor applied to 3-hour runoff. (Example: mul1 0.6) [mul and the digit 1]
mul3	Compute all runoffs using supplied factor applied to 3-hour runoff. (Example: mul3 0.6 1.0 1.3 0 0)

zex3        Set area runoffs to 0.0 (except 3-hour) and compute  
            runoffs using supplied factors. (Example: zex3 0.65  
            1.0 1.4 1.8 2.3)

All commands must be the first record in the file. However, commands  
mult and mul3 apply to all area definitions following the command.  
Hence, these two may be used several times and as needed in the input  
file.

### Conversion From Headwater Definition

An optional feature of the program creates an area parameter  
definition file from a headwater parameter definition file for  
zones/counties.

The commands for this option are

cabb        Use first area identifier in headwater area for zone  
            boundary identifier.

rohd        Use headwater (zone) parameter definitions to create  
            area parameter definitions.

nopc        Replace any 1-hour percentages of 3-hour FFG with a  
            1-hour runoff using the default factor for 1-hour  
            duration.

which must be the first record in the input file.

The input file format is described in NWSRFS user manual Section  
VI.3.6C-INFILE-HEAD.

Input File:  defzone    (user named)

Output files: defarea\_new    (user named)  
              gridrol  
              gridro3  
              gridro6  
              gridrol2  
              gridro24

### Application Guideline

If the current directory is the define directory, then path names for  
the user-supplied input and output files are not needed. Execute the  
program using the ffg script:

ffg -p zgrid