



IFLOWS shares rain and stream gage data with the local emergency manager in real time. However, this data is of little use unless it can be transformed into useful information that can be understood and applied to an emergency decision support system. How IFLOWS data is transformed into useful local information depends on how it is customized.

The key players to assist the emergency manager in customizing IFLOWS are the Virginia IFLOWS Program Manager and the National Weather Service Hydrologist. Both agencies have a team of professional staff to help guide you through the process. The IFLOWS Program Manager can assist by providing gage IDs, gage locations, instruction on customizing IFLOWS program modules and offer software training to the intended users. The National Weather Service can provide information about the location of your water basins, training on the many hydrological products they produce, and share historical data on previous events.

The sharing of information is a two way path. The local emergency manager needs to share flood event information (i.e. digital photos) as well any practices and methods that are producing success minimizing flood impacts with the IFLOWS Program Manager and the National Weather Service Hydrologist.

The National Weather Service attempts to verify every Flash Flood or Flood Warning that they issue and they track their hits, misses and missed.

Your flood impact information is needed !

Identify Watersheds and Major Streams



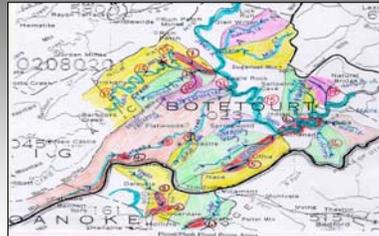
MARFC



GIS



USGS



NWS

Map Sources For River Basins And Sub Basins

1. National Weather Service Hydrology Office

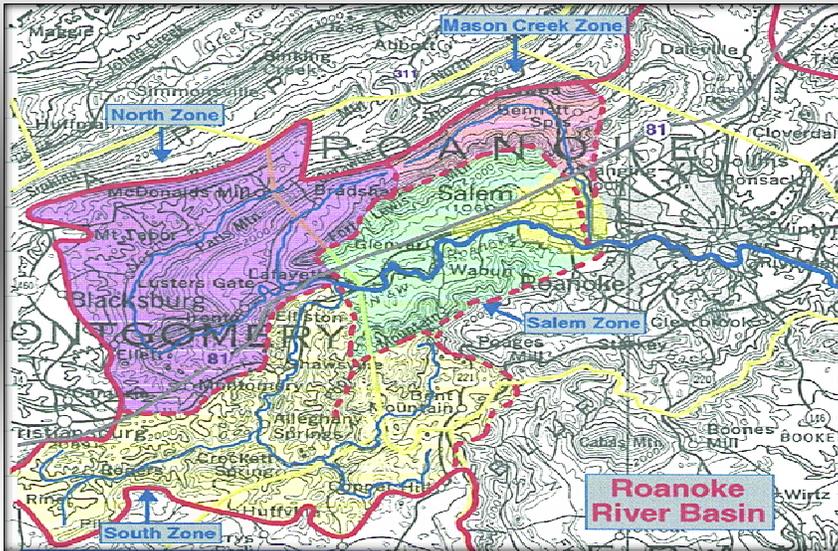
- * Blacksburg Office. <http://www.erh.noaa.gov/rnk/>
- * Baltimore/Washington Office. <http://www.erh.noaa.gov/er/lwx/>
- * Wakefield Office. <http://www.erh.noaa.gov/er/akq/>

2. United States Geological Survey (USGS) the map store. <http://store.usgs.gov/mod/>

3. Your GIS department. VDEM's GIS department may be able to provide some assistance. Check with the IFLOWS Program Manager.

4. A Google internet search may provide you with additional information.

Make The Map

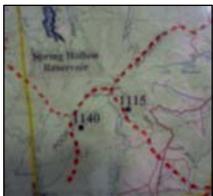


Choosing The Map Scale

Choose the smallest scale that will provide the coverage required and the size you can accommodate . The 1:100,000 scale offers good detail without creating an overly large map.

Choose the River Basins and Draw the Lines

Use a light pencil to draw the basin boundaries you want displayed. After you are satisfied with the accuracy you can use a marker directly on the map or overlay the map with an acetate film and draw your boundary lines on the clear film. Marking on the clear film provides for a brighter line that stands out.



Make The Labels

Use a clear laser address label sheet to create labels for gages, basin names and land features you wish to identify. After placing the labels on the map, sandwich the map between a cardboard backer board and a sheet of Plexiglas securing the sandwich with clips.

During flood events you can mark on the Plexiglas with permanent markers making notations. Use a white board cleaner to remove any marks made on the Plexiglas by the marker. Never use ammonia based cleaners. Never use markers for dry erase boards as these inks are difficult to remove.

The IFLOWS Program Manager will provide you with gage names, IDs and locations.

Customize The Monitor Module

Create User Defined Gage Groups

Group Name	Gages	1-Hr	3-Hr	12-Hr	24-Hr	VEL	RED	MAX
Mason Creek	5	0	0	0	0	80	100	MAX
N. Roa Riv Zone	5	0	0	0	0	80	100	
S. Roa Riv Zone	5	0	0	0	0	80	100	
Salem	5	0	0	0	0	80	100	
4-15-05	0	0	0	0	0	0	0	

By default Monitor opens and displays your created RAIN Gage Groups

Alt-G FFG View Alt-S Stage View Alt-D Del Gage Alt-L Link To Pgm
 Alt-O Open Gages Alt-F File Save Alt-I Ins Gage Alt-X Xfer To Pgm
 Alt-C Calc Avg Alt-Q Quit To DOS

By default when the MONITOR program opens it displays Rain Gage Groups in MAXIMUM Rainfall. Each gage group should contain the rain gages that impact your watershed.

Create A Gage Group

Open the MONITOR program. Next you:

1. Press the ALT-I keys (Insert Gage). Enter the name you wish to call the gage group (sixteen characters max). Press the TAB key. The group has been created however, the gages need to be added.
2. Press ALT-O keys (Open Gages). Enter the gage LID then press ENTER. If the gage has been turned on in the database it should appear (Refer to Appendix X Turn On A Gage In The IFLOWS database). Continue to enter the gages.
3. You must save the new gages to the gage group by pressing ALT-F keys (File Save).
4. Enter the Flash Flood Guidance (FFG) for the gage group so the computer will alarm when guidance thresholds have been exceeded. Save FFG and Stop and Restart IFLOWS. Now IFLOWS will alarm based on the new FFG values.

Customize Obs Viewer Module

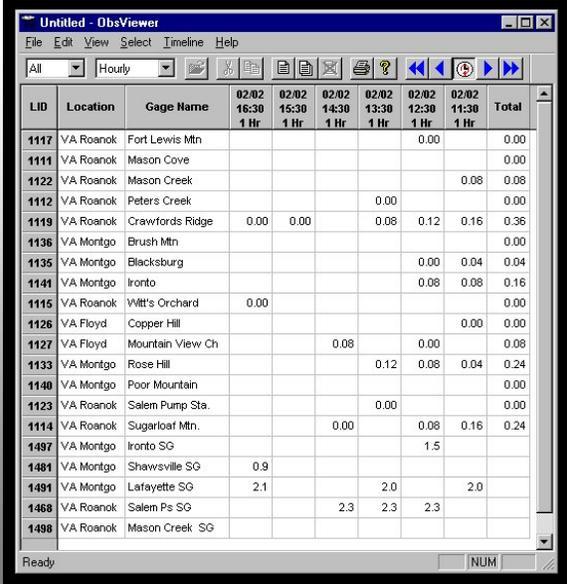
LID	Location	Gage Name	02/02 16:30 1 Hr	02/02 15:30 1 Hr	02/02 14:30 1 Hr	02/02 13:30 1 Hr	02/02 12:30 1 Hr	02/02 11:30 1 Hr	Total
1117	VA Roanok	Fort Lewis Mtn					0.00		0.00
1111	VA Roanok	Mason Cove							0.00
1122	VA Roanok	Mason Creek						0.08	0.08
1112	VA Roanok	Peters Creek				0.00			0.00
1119	VA Roanok	Crawfords Ridge	0.00	0.00			0.08	0.12	0.38
1136	VA Montgo	Brush Mtn							0.00
1135	VA Montgo	Blacksburg					0.00	0.04	0.04
1141	VA Montgo	Ironto					0.08	0.08	0.16
1115	VA Roanok	Witt's Orchard	0.00						0.00
1126	VA Floyd	Copper Hill						0.00	0.00
1127	VA Floyd	Mountain View Ch			0.08		0.00		0.08
1133	VA Montgo	Rose Hill				0.12	0.08	0.04	0.24
1140	VA Montgo	Poor Mountain							0.00
1123	VA Roanok	Salem Pump Sta.				0.00			0.00
1114	VA Roanok	Sugarloaf Mtn.			0.00		0.08	0.16	0.24
1497	VA Montgo	Ironto SG					1.5		
1481	VA Montgo	Shawsville SG	0.9						
1491	VA Montgo	Lafayette SG	2.1			2.0			2.0
1468	VA Roanok	Salem Ps SG			2.3	2.3	2.3		
1498	VA Roanok	Mason Creek SG							

The VIEW OBSERVATIONS program offers the emergency manager numerous features that contributes to the emergency decision support system concerning flood events. The presentation of this data can be customized allowing focus on specified gage groups the emergency manager deems important. This program allows the emergency manager to package the important gages into groups and apply the features this program offers.

When Observation Viewer opens it reads a file called DEFAULT.RGF and displays the gages listed in this file. When DEFAULT.RGF is loaded both rain and stream gages are displayed. The display format is in hour increments. This is by default.

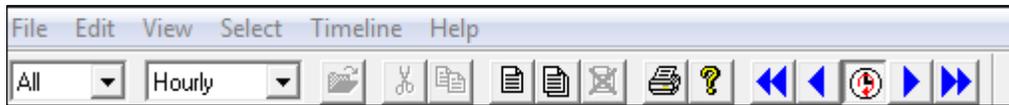
DEFAULT.RGF is basically a notepad text file that contains a list of gage LIDs and contains an **.rgf** file extension instead of an **.txt** extension. The gages you wish to have displayed when OBSERVATION VIEWER opens are the gage LIDs you list in the DEFAULT.RGF file. The DEFAULT.RGF file is stored in the C:\IFLOWS46\DATABASE directory. The State has loaded RGF files containing rain and stream gages into this directory of all the County's in the State. There are two methods in which the user can display these gage folders:

Customize Obs Viewer Module



View IFLAWS Obs Data

There are two methods the user can choose to display the gage folders:

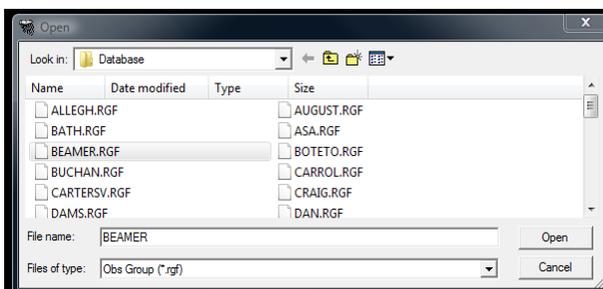


View Observations program Menu Bar

1. Load New Select List.  lick on this icon and a list of gage folders appear. Choose the gage folder you wish to display by double clicking on the folder. The choice will replace the gages currently displayed.

2. Add Gages to Select List.  lick on this icon and a list of gage folders appear. Choose the folder you wish to display by double clicking on the folder. The choice will add the gages in the folder to any gages already displayed in the list. You may choose more gage folders to add to the list. The gages in the chosen folder are added in addition to the displayed gages. Duplicate gages are omitted.

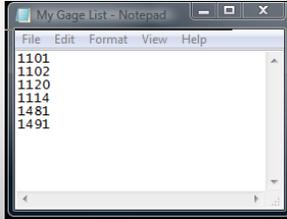
When the View Observation program is closed and reopened the DEFAULT.RGF gage group is displayed.



Gage groups are located in the **C:\VFLWS46\Database** directory.

Create Your Own RGF File

Windows Notepad

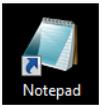
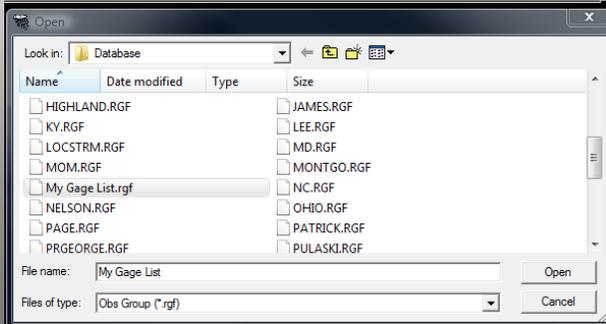


Enter LID's and save as a .rgf file.

Example file name: **My Gage List.rgf**

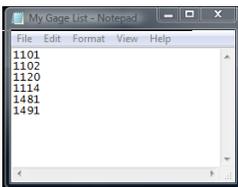
Save in C:\IFLOWS46\DATABASE

Your file 



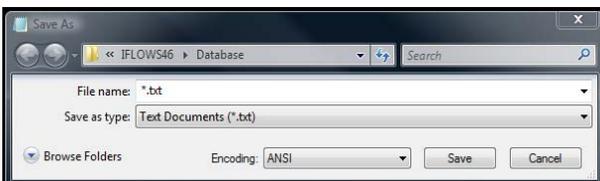
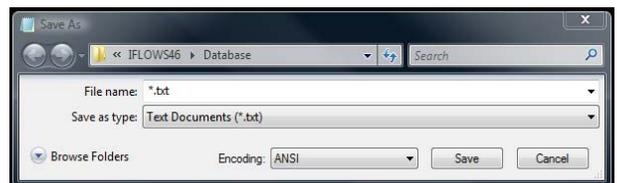
To Create your own .rgf file you must open NOTEPAD and enter gage LID's.

Follow these steps to save the file with an .rgf file extension:

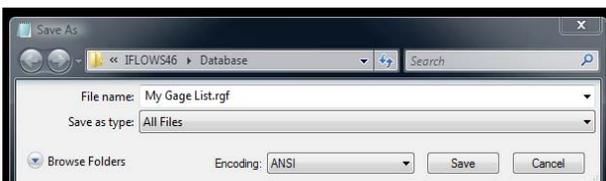


1. Click on **File** and choose **Save As...**

The **Save As...** window opens in this view.
Make sure you are in the
C:\IFLOWS\Database directory

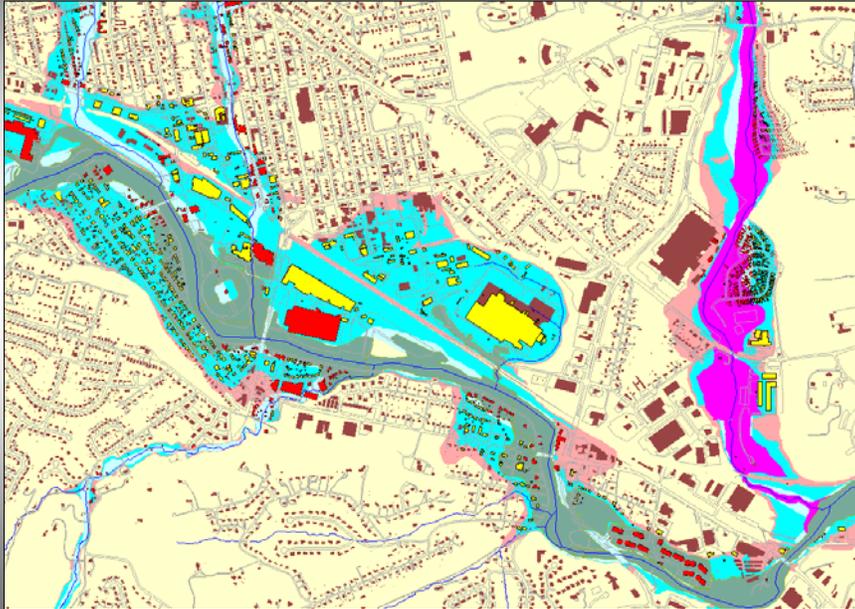


 Click in this box and choose **All Files**



Enter the file name adding the .rgf extension.
Click **Save**. Your .rgf gage group will be listed
with the other .rgf gage groups in the
C:\IFLOWS\Database directory.

GIS – What Is The Role?



Sketch the debris line onto a section map.

FEMA has mapped many river and stream flood profiles showing floodways, the 100 year flood and the 500 year flood. These maps can be added as layers into local GIS maps.

When you experience a significant flood event sketch the flood debris lines onto GIS sections maps. Using the sketches draw the flood lines into a map layer on GIS. The example here shows 1 event in which the Salem Pump Station Stream Gage reached 14 feet and the Mason Creek Stream Gage reached 10 feet. These layers show the flood impacts in relationship to the respective gage levels.

- ✓ Flooddata2007.shp
FLOODWAY
- ✓ Flooddata2007.shp
500 yr
100 yr
- ✓ 14 feet event.shp
- ✓ Mason creek 10ft.shp
- ✓ 100yr fldpln_bldgs.shp

GIS legend.

Using the **Rate Of Rise** procedure you can start anticipating flood impacts based on projected gage levels by using GIS map layers that you have created from previous events. You will also be able to document changes in flood profiles as development in the flood plain occurs.

The procedure for sketching and creating map layers is simple, however, very time intensive. The information collected that can be retrieved and displayed is invaluable.