A Federal Partnership for Flood Inundation Mapping Services

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Pop Quiz

- Why Flood Inundation Map Libraries?
- How are we collecting data and how are we storing it?
- How can these FIM Libraries be disseminated, displayed and used?

USGS
Over 9,000 USGS Gages reporting current stream conditions in NWIS.

USGS and NWS Data Networks

Over 4,000 NWS Flood Forecast/Warning locations in AHPS

USGS
Translate hydrograph into operational maps that communicate risk and consequences.
Creation of Inundation Map Libraries

Gage/HWM Calibrated Hydraulic Model

High Quality Elevation Data (LiDAR)

Series of concentric maps showing probable areas of inundation from bankfull to record stages
FIM Data Management

- It’s all about data
- Managing data is a primary task for FIM initiatives under IWRSS
- Working towards clearly defined data management standards to eliminate inconsistency in delivery of products between federal, state, local, and private partners

Risk Communications

USGS
Data Management Needs

- Consistent data standards for working with FIM
  - Need procedures for developing and archiving data
  - What data needs to be kept? How is it related to other data along the same gage/river forecast point?
- Uniform data schemas (database inputs)
- Open Standards
- Dissemination tools can be built around a standardized database and its web services
FIM Mapper – more than just maps

http://wim.usgs.gov/FIMI/
FIM Web Mapping Application

- Decision Matrix – ability to show two linked dependent sites for one reach
- Display of leveed areas
- NWS forecast expanded and color coded display
- HAZUS services available
- WaterAlert – User defined text alerts for stages
- WaterWatch – Sets historical context of flood flows
- Review staging mapper now available to facilitate community and peer review of libraries

http://wim.usgs.gov/FIMI/
FIM Web Mapping Application

http://wim.usgs.gov/FIMI/
Next steps

- Continue to enhance the mapping application
  - Discharge as primary variable option
  - Incorporate Flood Impacts and other consequences information
- Create a database and submission method for libraries and all supporting information
  - We will be looking for volunteers to help identify critical variables – see me later!
Web Portal

http://water.usgs.gov/osw/flood_inundation/
Questions

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http://water.usgs.gov/osw/flood_inundation/
http://wim.usgs.gov/FIMI/
Equipment limitations may occur above 20 ft.
Disclaimer for Flood-Inundation Maps

Inundated areas shown should not be used for navigation, regulatory, permitting, or other legal purposes. Although USGS intends to make this server available 24 hours a day, 7 days a week, timely delivery of data and products from this server through the Internet is not guaranteed. The USGS provides these maps "as is" for a quick reference, emergency planning tool but assumes no legal liability or responsibility resulting from the use of this information.

Uncertainties and Limitations for Use of Flood-Inundation Maps
Although the flood inundation maps represent the boundaries of inundated areas with a distinct line, some uncertainty is associated with these maps. The flood boundaries shown were estimated based on water stages (water-surface elevations) and streamflows at selected USGS streamgages. Water-surface elevations along the stream reaches were estimated by steady-state hydraulic modeling, assuming unobstructed flow, and using streamflows and hydrologic conditions anticipated at the USGS streamgage(s). Unique meteorological factors (timing and distribution of precipitation) may cause actual streamflows along the modeled reach to vary from those assumed during a flood, which may lead to deviations in the water-surface elevations and inundation boundaries shown. Additional uncertainty is involved due to the nature of the inundation mapping process.
Blanchard River at Ottawa OH

Estimated Gage Height: 12.25 feet
Estimated NAVD88 Altitude: 718.43 feet

Current Gage Height: 6.14 feet
Current NAVD88 Altitude: 706.55 feet
Discharge: 9.83 ft³/s

USGS Site Number: 04189260 Provisional Data, Subject to Revision
NWS Site ID: OTTO1 Forecast Subject to Revision
Please visit the full USGS NWIS Site page for full site information.

05454500 Iowa River at Iowa City, IA

- Current Stage 10.52 feet on 2012-05-20 19:00:00 (provisional)
- Recent Maximum Stage (previous 365 days) 17.46 feet on 2011-05-30 (provisional)
- Highest Recorded Peak Stages at Current Datum
- National Weather Service Flood Stage 22 feet
Quick Assessment

Study Region: iow14
Scenario: Stage 28.50

Regional Statistics
- Area (square miles): 614
- Number of Census Blocks: 2423
- Number of Buildings
  - Residential: 33029
  - Total: 36732
- Number of People in the Region (x10): 1110
- Building Exposure ($ Millions)
  - Residential: 6197309
  - Total: 8911981

Scenario Results

Shelter Requirements
- Displaced Population (# Households): 1118
- Short Term Shelter (# People): 3230

Economic Loss
- Residential Property (Capital Stock) Losses ($ Millions): 18
- Total Property (Capital Stock) Losses ($ Millions): 54
- Business Interruptions (Income) Losses ($ Millions): 1