NC FIMAN During Hurricane Matthew

FIMAN’s Coming Out Party
Topics to be Covered

- FIMAN 2.0 Overview
- FIMAN during Hurricane Matthew
- Ground-Truthing Inundation Maps
- FIMAN, Hurricane Matthew & Social Media
FIMAN 2.0
Flood Inundation Mapping and Alert Network

- Rain and Stream Data at 561 Gages
- Inundation Maps at 88 Locations
- Gage Alerts selected by the User
- NWS Flooding Forecasts Mapped
- Scenario Flooding Assessments
- Buildings Flooded Identified
- Building Risk Assessments
Gages sending Data to NC FIMAN Contrail Base Station

Hurricane Matthew
Area of Impact
Gage Search Tools
Gage Search Tools
Gages Near Me Tool

Click on a stream gage to view more information.
Current Conditions Map
Gage Stage Hydrograph with Forecast
Gage Site Flood Impacts Report

FIMAN Current Flood Impacts Report

Tar River at Greenville
Site ID: 02084000

- Current Stage / Elevation: 16.2 ft (12.7 ft NAVD 88)
- Current Flow: 13100 cfs
- Impacted Structures / Damages: 1 Buildings $3,000

Impact Summary:
- Road Impact: None reported at this time
- Building Impact: 1 buildings impacted; $3,000 estimated damages
- Other Impact: Some farmland flooded. Water overflow lowlands adjacent to river.

Legend:
- Observed
- Forecast

Forecasted Peak / Impacts:
- 12.7 ft 2/11/16 12:00 AM
- 1 Buildings Est. Damages: $3,000

Risk Ratings:
- Normal
- Monitor
- Minor Flooding
- Moderate Flooding
- Major Flooding
- Not Risk Rated
- Out of Service

Trend:
- Rising
- Falling
- Constant
Flood Scenario Mode
Sound Sites Example
GROUND TRUTH
TESTING
Beech Street Greenway (2-9-16: 11:45 am)

This Shadow is from roof of trail map board

Photo taken: 2/9/16 – 11:55 am
September 22, 2016 in Windsor
Windsor Flooding
9/22/16 - Morning

Note Flooding is on THIS side of tennis courts
Hurricane Matthew
Saturday 10/8/16 @ 2pm
Hurricane Matthew
Sunday 10/9/16 @ 12:30 AM
FIMAN during Hurricane Matthew
Library Compared to HWM-Greenville
Library Comparison to HWM-Greenville
Greenville – October 11, 2016

FIMAN Ground Truthing
10/11/16 – Greenville

Tar River Map Library

Note: all building color coded showing NO flooding above First Floor (Elevated)
Library Comparison to HWM-Kinston
Kinston-Hurricane Matthew
Kinston-Hurricane Matthew
FIMAN during Hurricane Matthew
FIMAN during Hurricane Matthew

NC National Guard @NCNationalGuard · 3h
Our #AlwaysReady team is working closely with our State Emergency Response partners coordinating support efforts for Hurricane #MatthewNC

NC Emergency Management, NC Public Safety and NC Governor’s Office
Rising Tar River water levels threaten Tarboro, Princeville

The rising water levels in the Tar River are threatening to flood Tarboro and Princeville.

5:34 a.m. yesterday
FIMAN Web Traffic

- Hits: 3.73 Million
- Media Awareness
- Page Views: 499,000
- Visits: 54,000
Media and Social Media

WRAL TV was live.
Page Liked: October 12

WRAL Nate Johnson takes a look at crest levels across the state.

7,676 Views

Like Comment Share

146

Realtime Comments

53 shares

24 Comments

Raisy Rae 2:11 Praying
Like 1 October 12 at 2:45pm

Rachael Currin Skipper 2:06 News on lower Cape Fear?
Like 1 October 12 at 2:33pm

Monamovingforward Marie 2:00 264
Wilson/rocky mount?
Like October 12 at 4:46pm

Robin Steward 1:57 That is right
Like October 12 at 2:53pm

Write a comment...
The Lumber River in the Lumberton area is currently running at record levels but is down from yesterday with a reading of 20.7'. The old record was 20' with flood stage at 13'. According to the NC Flood Inundation Mapping and Alert Network, 882 buildings are flooded with an estimated damage cost of $23.9 million.
Mike Moss

Lots of areas continue to face river flooding - this is one example in the Goldsboro area, showing locations west and southwest of Seymour Johnson AFB where the Tar River is or will extend to as it reaches a...

Nate Johnson

This is a look at the areas expected to flood if the Tar River crests as forecast in Greenville NC later this week. This is from the new NC FIMAN system at http://fiman.nc.gov/fiman/ — if you live in an area...

Nate Johnson

Good news for Fayetteville. Assuming no dams fail and there is no additional rain (and certainly none is in the forecast), the Cape Fear will dip below flood
April 2017 FIMAN Flooding

Smithfield, NC
Inundation Ground Truth Check – 4/26/17 – 2:30pm – Smithfield

Dry space in parking lot

Dry along side of building

Dry behind this building
April 2017 FIMAN Flooding

Rocky Mount, NC
Flooding extends past power line pole and into driveway.
April 2017 FIMAN Flooding

Greenville, NC
Note: Flooding under three structures as FIMAN shows. Water extends into cul de sac which matches FIMAN inundation.
INVESTING IN THE FUTURE OF FIMAN:
Where we are going!
Leverage Existing Data Sources

Coastal Emergency Risks Assessment
ADCIRC Coastal Circulation and Storm Surge Model + SWAN Wave Model
Seamless Realtime Coastal Inundation

Coastal Emergency Risks Assessment
ADCIRC Coastal Circulation and Storm Surge Model + SWAN Wave Model

Maximum Water Height
Forecast Time Range: Mon, 07-Mar-2016, 7 AM EST - Thu, 10-Mar-2016, 7 PM EST

North American Mesoscale Model (NAM)

Water Height (ft / m) relative to Mean Sea Level for ADCIRC grid node ID: 96805

maximum water height predicted during the model forecast: 0.31 ft (0.09 m)

water height time series (ft / m) during the model forecast time range
Click and drag in the plot area to zoom in

ADCIRC grid node classified as: ‘wet’ [-14.8 ft (-4.5 m) relative to Mean Sea Level].
Real Time Surge + Map Refinement

Smart Model but Bad Mapping
Coastal Emergency Risks Assessment (CERA) - 2011 Irene
Where Libraries Come up Short
The Solution

• For a given “river system” (main stem and tribs)
• The P.A.C. raster data set, coupled with:
  – Real time stage information at each gage
  – Stage/Return period look up tables
  – Stream distance (database)
  – Drainage area (database)
  – Model cross sections – critical (database)
  – Built Environment (buildings, roads, bridges)

• Reach based – Seamless Mapping Connecting USGS Stations
  – Pre-processed datasets
  – On the fly processing
Datasets Used

Exclusive use of the USGS Gages, FLOOD Geodatabase, and Percent Annual Chance