



**NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY**  
Know the Earth... Show the Way... Understand the World

# NGA Integrated Work Group - Readiness, Response, and Recovery (IWG-R3) Hurricane Sandy After Action Report, Technology Initiatives

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# Hurricane Sandy After Action Report

- **Hurricane After Action Reports are part of the IWG-R3 business process**
  - Every NGA hurricane response since 1992
- **Extensive interviews conducted**
  - Lead Federal Agency members and customers
  - NGA deployers and external support team members supporting the event
  - IWG-R3 and internal NGA support providers
- **A valuable tool to identify opportunities for improvement**
  - Sixteen issues were identified, characterized into four categories
    - Operational capabilities
    - Training and tradecraft
    - Technology
    - Policy



# Technology Initiatives

- **Technology improvements are an ongoing pursuit for IWG-R3**
  - Leverages both embedded and enterprise technology programs and support projects
  - Many are ongoing projects and address issues identified in the After Action Report
  - Several new development projects will address After Action findings
- **Accomplishments**
  - **IWG-R3 Dashboard** – A web based situational awareness tool that characterizes and displays significant natural and man-made events occurring worldwide by consuming dozens of information feeds and applying “sense making” data algorithms against the information. It conveys NGA’s level of effort against the events and serves as an access point to NGA supported events
    - **Impact:** Enables customers to answer three questions: 1) What significant events are currently of concern? 2) Is NGA applying resources against any current events? 3) What is the NGA level of effort?



# World-Wide Event Dashboard

Search: Disaster, Feed, Product, or Mission

Events Analyze Tools Feeds A2 Help

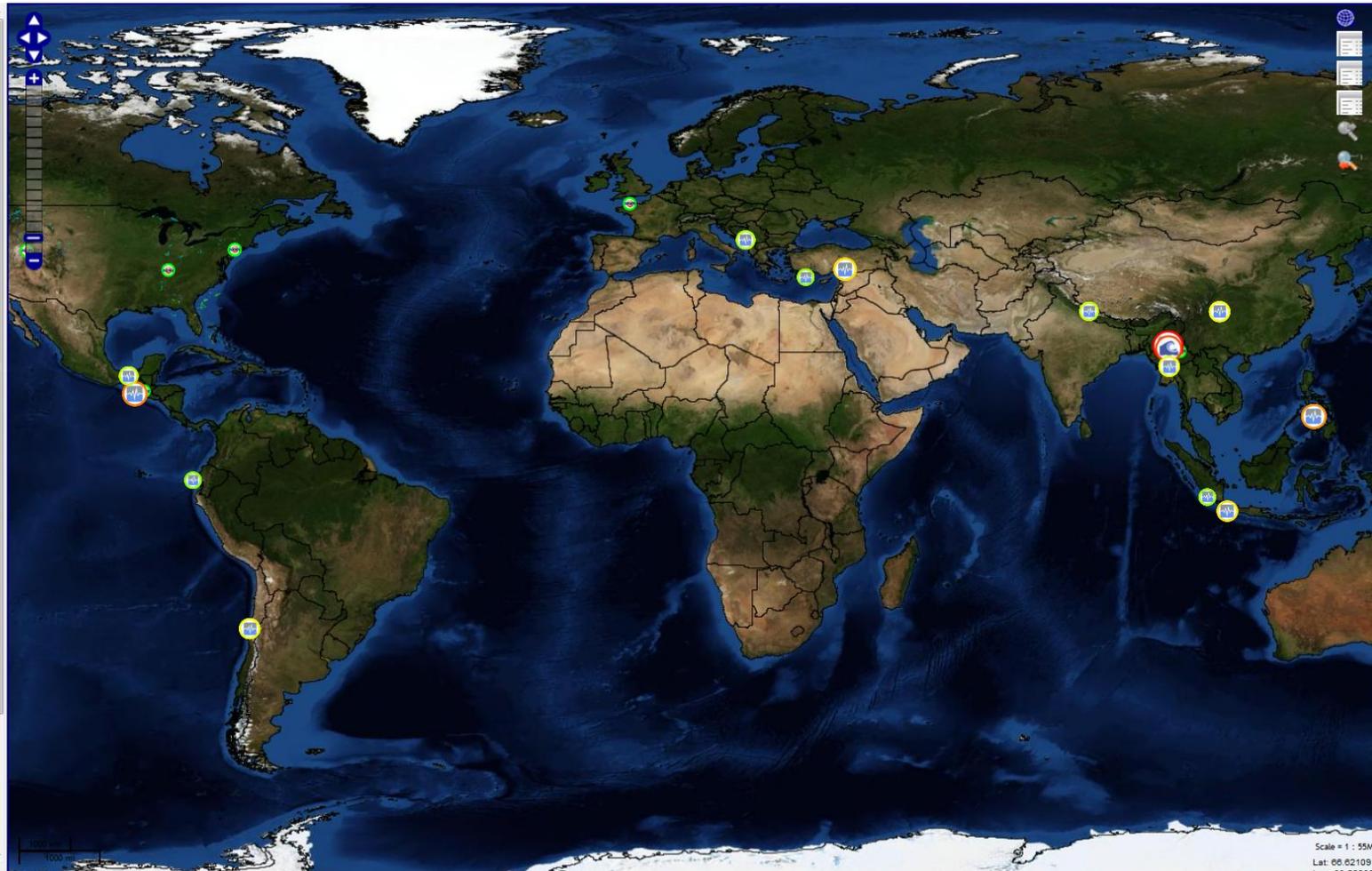
View Current Products Weightings Feedback

NGA-supported Missions:

DETAILS: Hurricane Sandy  
STATUS: DEPLOYED 29%

Other Worldwide Events:

- Quake 6.8, 52km NNE of Shwebo, Myanmar
- Tsunami: Myanmar
- Quake 6.5, 30km WSW of Champerico, Guatemala
- Quake 5.6, 4km NNW of Linaon, Philippines
- Quake 4.5, 23km WNW of Sehitkamil, Turkey
- Quake 5.1, 7km SW of Rancaerang, Indonesia
- Quake 4.9, 4km SSW of Jin'e, China
- Quake 6.1, 82km SW of Vallenar, Chile
- Quake 4.8, 50km NW of Taungoo, Myanmar
- Quake 4.8, 39km NNE of Achham, Nepal
- Quake 4.6, 4km N of Ostuacan, Mexico
- Quake 4.6, 12km W of Danilovgrad, Montenegro
- Quake 4.7, 63km S of Demre, Turkey
- Quake 4.6, 83km WNW of Kuripan, Indonesia
- Quake 5.0, 85km NW of Salinas, Ecuador
- Volcano: Kilauea
- Quake 4.8, 116km WSW of Abepura, Indonesia



ng Rolling Stones? - CNN (blog) (1 hr ago)

CNN: First Irene, then Sandy. Jersey City recovers, again - CNN (3 hrs ago)

Quake 6.1, 82km SW of Vallenar, Chile (3 hrs ago)

Volcano: Kilauea (4 hrs ago)

Volcano: Iliamna (4 hrs ago)

Scale = 1 : 55M  
Lat: 00.02109  
Lon: 33.22266





# Technology Initiatives

- **Accomplishments**
  - **IWG-R3 Event Pages** – The Event Pages provide services and capabilities for situational awareness and an on-line repository of all of the information related to an event that NGA is working. This information includes an Request for Information (RFI) tool, access to GEOINT data, services and products, links to GEOINT information services, situation assessments, as well as other communication and collaboration tools.
    - **Impact:** Enables all NGA analysts and customers to maintain situational awareness, post or retrieve RFI's, and improves efficiency



# Hurricane Sandy Landing Page

MENU

- [Active Incidents](#)
- [R3 Dashboard](#)
- [GEOINT App Store](#)
- [SMTS Product Widget](#)

### Map Layers:

- DigitalGlobe
- BlueMarble
- LandSat7
- States
- NOAA Storm Tracks
- NOAA Radar
- Electric Outages (not all)
- NOAA Wind
- Flash Flood Warnings
- Flood Warnings
- Nexrad
- FEMA Sandy Surge
- Nuclear Power Plants
- Nuclear Fuel Plants
- Plume Emerg Planning Zones
- Communication Centers
- FEMA Offices
- Red Cross Facilities
- Huric. Evac Routes
- Emerg Ops Centers
- Natl Shelters
- Fire Stations

## Hurricane Sandy



### Overview

The entire federal family continues to **lean forward to support** the states, tribes and communities in their **ongoing response efforts** as they work to save lives.

Visit the [FEMA Website](#) for more details.

### About this Event

**Event Type:** Hurricane/Cyclone  
**Country:** United States  
**Created:** Oct. 24, 2012, 9:54 a.m.  
**Last Updated:** Nov. 5, 2012, 2:56 p.m.  
**R3 Posture:** Deployed

**Tags:** [hurricane](#) [sandy](#)  
**Collaborate:** [DCO Connect](#)



### Download Geometry

[Event KML](#)

### Requests for Information

[Submit an RFI](#)

- **Completed:** Power Outage Product
- **Completed:** Hurricane Sandy Support
- **Completed:** Hurricane Sandy Recover Operations - USCG RFI
- **Completed:** NASA Request for Information



# Technology Initiatives

- **Accomplishments**

- **IWG-R3 RFI Tool** – The RFI tool was developed for our mission partners to leverage the use of the www domain to request GEOINT support during a HADR event or SSE
  - Impact: Allows the user to enter in requests to R3 analysts and provides R3 with a method to track production requirements and provide status to the user
- **On Line Map Atlas** – By hosting the Map Atlas pages on line, NGA enables first responders to quickly access only the pages needed, vice waiting for a book to be bound and shipped. R3 damage assessments are overlaid with infrastructure and population data to provide an online gridded reference document over the entire disaster area
  - Impact: FEMA was able to use the atlas pages to quickly declare large areas as disasters and speed the reimbursement process from months to days



# Disaster Map Atlas

Home Disaster Atlas Map Help

+ -

18S VE 5739  
1 of 1

12

State: North Carolina  
County: Dare  
Disaster Planning Atlas  
1K GRID CELL: 18S VE 5739 10 K GRID CELL: 18S VE 57

Map / Vector Data Source: 2010 NAVTEQ, HSP  
(These are national level assets and cannot be verified accurate at the local level.)  
1000m cell, 100 m grid, USNG  
World Geodetic System 1984 Datum  
Grid Zone Designation: 18S  
100,000m Square Identification:

USNG	100,000m Square Grid
VE	All places
18S	Colleges/University
Grid Zone Designation	Firestation

Not to be used for navigation.  
For information and planning purposes only.

- Airport
- All places of worship
- College/University
- Firestation
- Hospital
- Nursing home
- Police
- Public school
- Railroad
- Red Cross
- Substation
- Urgent care center

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1:6,000 Scale

0 50 100 200 300 400 Meters  
0 170 340 680 1,020 1,360 Feet

INDEX MAP  
CURRENT GRID: 18S VE 5739

18S VE 5640	18S VE 5740	18S VE 5840
18S VE 5639	18S VE 5739	18S VE 5839
18S VE 5638	18S VE 5738	18S VE 5838
18S VE 5637	18S VE 5737	18S VE 5837

Damage Areas

- Catastrophic
- Extensive
- Moderate
- Limited

Population Estimates  
Day 8  
Night 52



# Technology Initiatives

- **Accomplishments**

- **SAR Flood Tool** – The SAR Flood tool developed by the NGA InnoVision R&D office helps analysts quickly detect flooded areas using automated algorithms
  - Impact: Flooded areas can be assessed in minutes per image vice up to 30 minutes using manual extraction methods
- **Rapid R3** – NGA contracted with DigitalGlobe for rapid commercial imagery services for direct support to disaster events. Three levels of service available depending on severity of the event, imagery available within hours of acquisition
  - Impact: Tremendous time savings and improved access to commercial and third party imagery for analyst exploitation.



# Technology Initiatives

- **Projects in Work**
  - **Unclassified Integrated Analytic Environment (IAE)** – An online analytic capability that integrates data, tools, workflows, and product templates allowing analysts to work effectively on line
    - Impact: Improved collaboration and coordination between R3 and LFA analysts
  - **Identity Management Program** – Centralized access control program that manages user access to NGA on line services
    - Impact: Eliminates multiple login and access problems for both internal and external customers of NGA data, products and services
  - **Cross Domain Transfer** – Enterprise automated and semi-automated capability to transfer information across all networks and classification levels
    - Impact: Tremendous time savings and improved access to data, products and information for analyst exploitation



# Technology Initiatives

- **Projects in Work**
  - **Apple B2B iTunes Service** – Working to establish Business to Business service that would allow access to NGA apps via iTunes vice NGA App Store
    - Impact: Improved access to NGA iOS apps for LFA and USAR responders
  - **SAR Flood Tool Improvements** – R3 and InnoVision R&D working to identify augmentative processes to integrate with SAR Tool and overcome problems using the tool in urban areas
    - Impact: Improved analytic results and extended utility of the tool into urban areas
  - **Photo Phenomonology** – Work with InnoVision R&D to develop a capability to harvest, georeference, and visualize panoramas of hand held photography available from social media, commercial websites, and other sources
    - Impact: Taps into underutilized sources of imagery for improved analytic capability for damage assessments and predictive analysis