



# Impact-Based Decision Support Services

## A New Focus for a Weather-Ready Nation

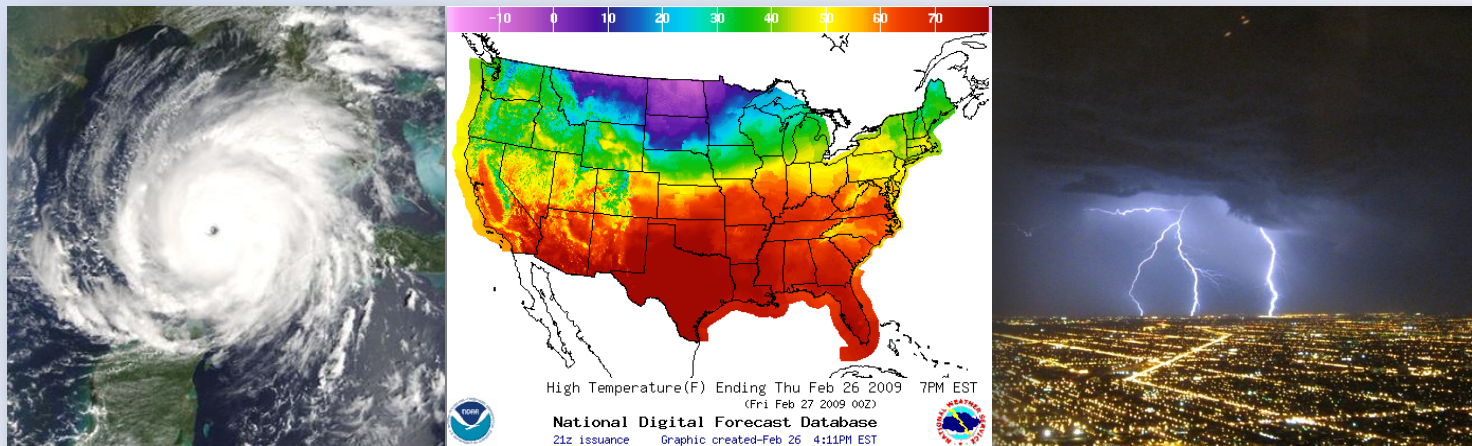
**John Ogren & Kim Runk**  
**NWS Training Center**  
**Kansas City, Missouri**



# Weather Ready Nation

## *What the Vision Means*

- Americans are educated about specific weather threats, associated risks and appropriate actions for preparation, mitigation, response and recovery
- America trusts the NWS-FEMA team; citizens know they can count on timely, accurate warnings and actionable instructions needed to keep them safe
- Warning delivery focused on those within the threat area, and messages are communicated clearly





# Weather Ready Nation

## *Flexible Response to Meet Contingencies*



- **Provide superior decision support and foundational information services**
  - *NWS will capitalize on our unique, local relationships with Core Partners to help them to better prepare communities for extraordinary events*



- **Empower our workforce**
  - *Emergency Response Specialists are accessible on-site and through remote technologies to provide Impact-based Decision Support Services*
  - *Workforce is trained and equipped to meet society's evolving needs*



- **Invest in Science and Technology**
  - *NWS utilizes state-of-the-art technology and cutting-edge science to provide the best service possible*



# How It's Different

## Where We've Been

•We issue pre-formatted forecasts and warnings; people use them or adapt them to make decisions

•***PRODUCT-CENTRIC***

- Forecast and warning products
- Schedule driven
- Rigid, rule-based thresholds for issuing watches and warnings

## Where We're Going

•We support key decision makers by offering local expertise; we consult and interpret information

•***CUSTOMER-CENTRIC***

- Forecast and warning information
- Impact driven
- Evolving services; focus on customer needs and thresholds



# A Changing World

## *High Impact Events of 2011*

- Typically, 2-3 disaster events occur in a given year which individually produce damage costs to the U.S. economy exceeding a billion dollars
- In 2011, a record 12 such events occurred
- There were hundreds of weather-related fatalities despite accurate, timely warnings
- Community vulnerabilities are increasing





# Key Issues for NWS

## *For Building a Weather Ready Nation*

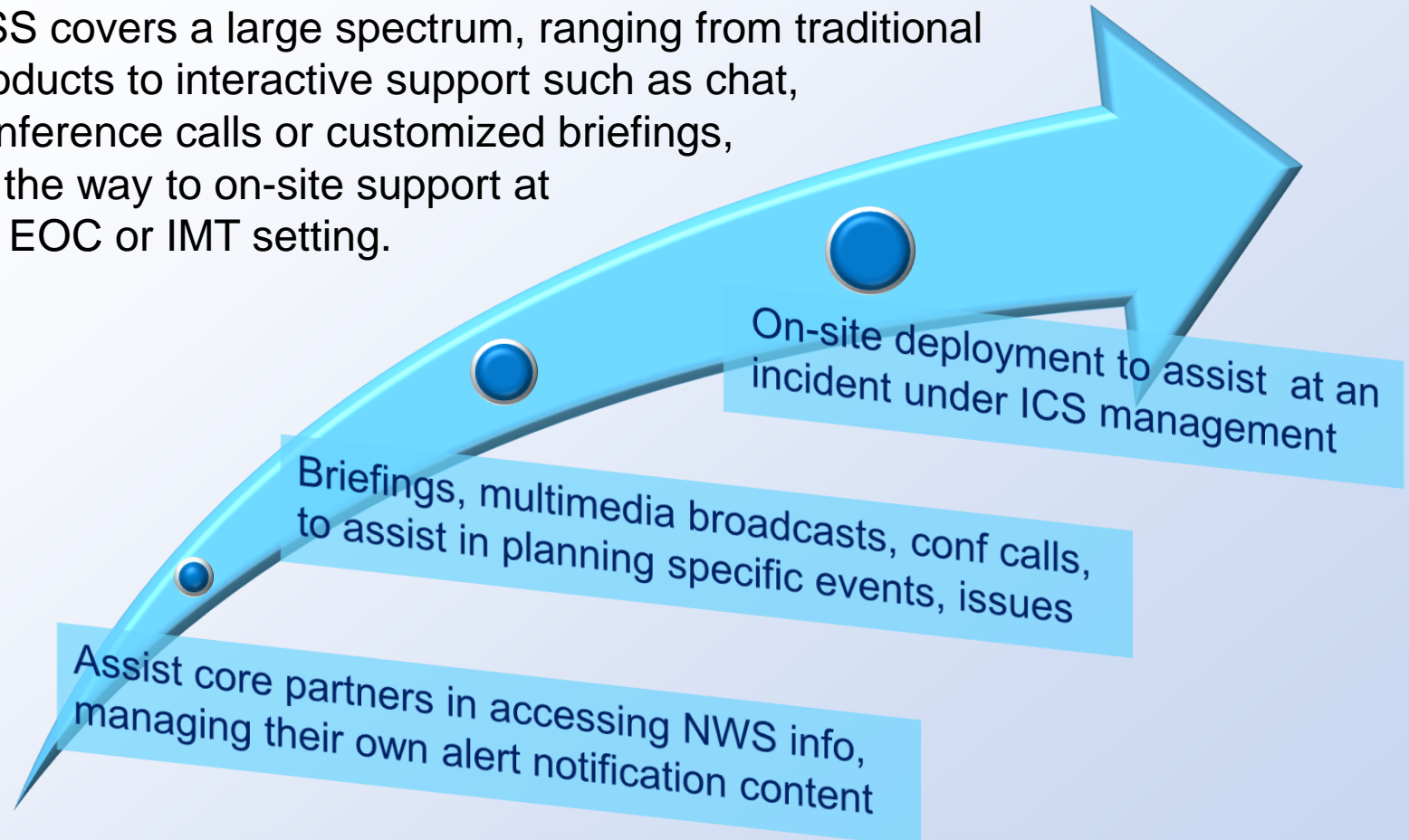
- **How to team up with trusted core partners to deliver more effective services and offer real value to Americans in light of the changing landscape**
- **How to train and prepare in the proper skill sets needed to operate in a collaborative decision support culture**





# Decision Support Continuum

DSS is not new but the demand for ICS support is growing. DSS covers a large spectrum, ranging from traditional products to interactive support such as chat, conference calls or customized briefings, all the way to on-site support at an EOC or IMT setting.





# Factors Critical to Success

- Collaborative partnerships
- Enhanced decision making
- Risk communication skills
- DSS focus at every level







# National Operations Center

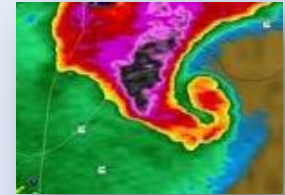
- **Based at NWS HQ near DC**
- **Defines nationwide decision support model**
- **Coordinates with national interagency counterparts to enhance emergency operations**
- **Serves as central point of contact for nationwide high-impact weather and hydro events**
- **Informs NOAA senior management, as well as DOC, FEMA, and White House**





# Regional Operations Centers

- Based at each of six regional headquarters
- Coordinate with counterparts and external partners to enhance emergency operations
- Serve as regional points of contact for high-impact meteorological and hydrological events
- Orchestrate and synthesize field operations for long-duration events, espec. on-site deployments
- Inform NWS senior management, NOAA, and DOC





# Local Office Operations

- **Information vs. Product**
- **Impact vs. Phenomena**
- **Collaboration vs. Coordination**





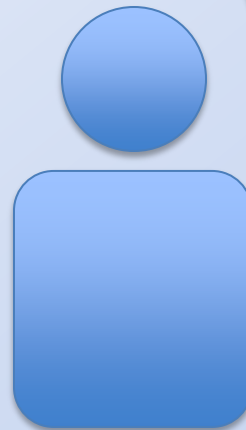
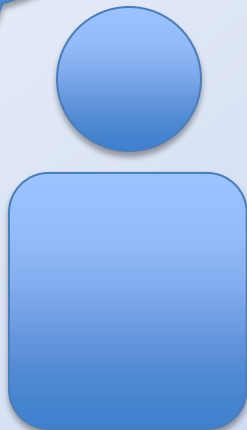
# Individual Skill Sets for DSS

## *Forecasting Expertise AND...*

- Knowledge of ICS Operations/Terms
- Importance of Consistent Messaging
- Alignment of Message with Impacts
- Ability to Adapt to Incident Needs
- Plain Language Communication Skill

...expect mostly stratiform precipitation under the deformation zone...

Wait...Whuutt?  
So, is it gonna rain?





# Operations Proving Ground

*Vision: Prepare today's forecasters for tomorrow's Weather Ready Nation*

- **Effective transfer of research-to-operations to ensure world-class forecast services**
- **Operations-to-research feedback loop, optimizing limited resources to focus new S&T discoveries**
- **Capabilities tested in realistic ops environment, with partner involvement; assess human factors, work flow, communication, collaboration issues, as well as S&T aspects, prior to field deployment**
- **End game: Timely, appropriate protective actions and response by public , fewer fatalities, lower mitigation costs, more rapid post-event recovery**





# Prototype DSS Boot Camp

## *One-Week In-Residence Workshop*

- **Highly participative; groups engaged in discussion and discovery**
- **Practice assessing risk as function of both hazard and vulnerability**
- **Core partners involved in planning and facilitating simulations**
- **Three scenarios:**
  - *Urban tornado*
  - *Inland oil spill*
  - *Major flood*





# The Boot Camp Experience





# The Most Important Lesson

*Partner Involvement was Crucial  
Drew highest ratings on feedback surveys*







# EM Partner Endorsement

***“This program’s goal is very exciting. Growing the number of qualified NWS emergency response specialists will be a huge benefit to those of us who lead disaster recovery teams and manage emergency support functions.***

***Working together to train as though we’re on an incident really builds camaraderie and understanding; and it accelerates the learning curve.”***

***-Kevin Brown, Mobile EOC Team Leader, Cole County MO***





# Decision Science Research

**Collaborative teams tend to make more effective risk reduction decisions than individuals. \***



*Decision Sciences Journal  
Volume 32, Issue 4 (2007)*



# What's Next

- **Complete hiring of staff for OPG**
- **Build out mock WFO and EOC**
- **Establish governance processes in coordination with research test beds**
- **Run demonstration evaluation with new NWS ERS personnel**
- **Develop and execute full schedule of reviews and ORE sessions for FY13**





# Outcomes

- **America is a Weather-Ready Nation through superior impact-based DSS**
- **By integrating NIMS into its operating picture, NWS is embraced as a valuable partner on the emergency preparedness and response team**
- **Together we succeed in saving more lives and enhancing the U.S. economy**





# ***Questions?***



# ***Comments?***