Emergency Alerting Policy
NOAA’s National Weather Service

OASIS, ITU, WMO,
Environment Canada, Public Safety Canada,
Centre for Security Sciences (Canada)

Common Alerting Protocol (CAP)
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Craig Hodan
National Weather Service
Silver Spring, Maryland
USA
Presentation Outline

• Evolving capabilities
• Policy Perspective
• Alerting authorities and responsibility
• Authentication
• Interoperability
• Scope of Alerting
• Questions and Discussion
The nation’s alert and warning system continues to evolve from over forty years ago.

The Emergency Broadcasting System (EBS) was initiated to allow the President to address the nation through audible alerts. It did not allow for targeted messaging.

The Primary Entry Point Advisory Committee (PEPAC) was established to manage the Primary Entry Point (PEP) program for FEMA.

The Emergency Alert System (EAS) was initiated to replace EBS. The Federal Communications Commission began to enforce EAS Compliance in 1997.

FEMA established the IPAWS program to achieve the end state of Executive Order 13407, which the President signed in June 2006.

Integrated Public Alert and Warning System (IPAWS)

“IPAWS is...to have an effective, reliable integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being.” – Executive Order 13407
Established policies in the U. S. support the coordination of alert creation and dissemination between local, regional and global jurisdictions.

Federal Emergency Management Agency (FEMA) is the U.S. agency responsible for an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people.

The National Weather Service (NWS) is the U.S. agency responsible for originating weather alerts and maintains close coordination with other agencies, such as FEMA, to provide other non-weather alerts.

The NWS partners with FEMA to integrate weather alerts into the Integrated Public Alert and Warning System (IPAWS)

The NWS continues to transform alert information and dissemination systems from WMO-formatted products to create and distribute alerts in XML/CAP formats for improved compatibility and effectiveness.
U.S. NOAA’s National Weather Service Authorities and Responsibilities

Weather and All Hazards

- The National Weather Service (NWS) Organic Act of 1890, currently codified as amended in section 313 of title 15 of the federal statutory code (called the United States Code) authorizes the National Weather Service to issue and distribute warnings of environmental hazards. The authority is summarized as:

The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.


The NWS supports the Emergency Alert System and provides, in coordination with the Federal Emergency Management Agency, public dissemination of critical pre-event and post-event information of all hazards, including natural disasters and terrorist events.
U.S. NOAA’s National Weather Service Authorities and Responsibilities Integrated and Multi-level Policies


To prevent, prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies, the United States Government shall establish a single, comprehensive approach to domestic incident management. The objective of the United States Government is to ensure that all levels of government across the Nation have the capability to work efficiently and effectively together, using a national approach to domestic incident management. In these efforts, with regard to domestic incidents, the United States Government treats crisis management and consequence management as a single, integrated function, rather than as two separate functions.

- Executive Order 13407 of June 26, 2006; Public Alert and Warning System:

It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster, or other hazards to public safety and well-being (public alert and warning system), taking appropriate account of the functions, capabilities, and needs of the private sector and of all levels of government in our Federal system, and to ensure that under all conditions the President can communicate with the American people.
U.S. NOAA’s National Weather Service Authentication


**NWS originated Weather Alerts are authenticated at the originating Weather Forecast Offices or National Centers for dissemination over various NWS public dissemination services (NWWS, NWR, EMWIN, NOAAPORT, FOS, Internet, IPAWS).**

**Non-Weather Emergency Message Alerts are authenticated at the IPAWS Alert Aggregator/Gateway prior to NWS reception/re-distribution over various NWS public dissemination services.**

**NWS originated Weather Alerts are authenticated at the IPAWS Alert Aggregator/Gateway prior to dissemination over various IPAWS Alert Dissemination services.**

- NWS alerting authority is established in the WMO Register of Alerting Authorities with reference URL links providing authentic and credible sources for weather information.

**A first step toward authenticated NWS weather alerts for global use – more work needed. The NWS supports the Public Weather Services Programme (PWSP) with a CAP alerts.**
HazCollect Overview

Emergency Message Flow
Alerting Authorities

- Federal*
- State
- Territorial
- Tribal
- Local

* Includes NOAA

IPAWS OPEN

Alert Aggregator/Gateway
*the Message Router*
(Open Platform for Emergency Networks)

IPAWS compliant CAP Alert Origination Tools

American People

- AM FM Satellite Radio; Digital, Analog, Cable, and Satellite TV
- Cellular and Commercial Mobile Networks
- Web Browsers, widgets, applications
- cell phones, pagers

Alert Disseminators
(public alerting systems)

- Emergency Alert System
- Commercial Mobile Alert System
- Internet Services
- NOAA
  - HazCollect
- State / Local Unique Alerting Systems
- Future Technologies

IPAWS compliant CAP Alert Origination Tools

Future Technologies

Standards Based Alert Message protocols, authenticated alert message senders, shared, trusted access & distribution networks, alerts delivered to more public interface devices

**Future Technologies**
U.S. NOAA’s National Weather Service Interoperability (Domestic)

- **Core Mission** - The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy.

  - The NWS produces Common Alerting Protocol (CAP) alert messages to facilitate emergency information sharing and data exchange across local, state, tribal, national and non-governmental organizations in various trades that provide emergency response and emergency management services.

  - The NWS CAP messages are XML based format providing weather and hydrologic watches, warnings, advisories, and special statements.

  - The NWS is transitioning to the CAP v1.2 Integrated Public Alert and Warning System (IPAWS) profile by early 2012.
U.S. NOAA’s National Weather Service Interoperability (Global)

• The National Weather Service’s International Activities Office coordinates the development of and monitors the activities of bilateral international agreements that cover joint cooperation between the United States and other countries in the areas of meteorology and hydrology:

  *Bilateral agreements and Memorandum of Understandings are the basis for interoperability with the global community.*

• The International Tsunami Information Center (ITIC) is operated for the United Nations Educational, Scientific, and Cultural Organization's Intergovernmental Oceanographic Commission (IOC). Located at the National Weather Service (NWS) Pacific Region Headquarters, the ITIC was established upon request of the IOC and is maintained by the NWS to strengthen the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) and to assist member nations in mitigating the effects of tsunamis throughout the Pacific. The mandate and functions of the ITIC are given in IOC Resolution X-23, November 1977 and amended by IOC/Executive Council-XXI March 1988.

  *The ITIC provides Pacific countries information on the PTWS, the affairs of ITIC, and how to join in the activities of the IOC (ICG/PTWS).*

  *The ITIC assists member states of ICG/PTWS in the establishment of regional and national warning systems and in the improvement of preparedness*
U.S. NOAA’s National Weather Service
Scope of Alerting

- Example Scope of Alerting - Tsunami events:

  The National Weather Service (NWS) provides warning, mitigation, education, preparedness, and research to meet the needs of its users and partners. The NWS operational objectives are:

  a) to rapidly detect and characterize earthquakes in regards to their tsunami potential for the area of responsibility (AOR),
  b) to forecast tsunami wave arrival times and, when possible, provide potential local impacts,
  c) to detect and measure the tsunami waves in order to refine the forecast,
  d) to provide timely and effective tsunami information and warnings to coastal populations within the AOR to reduce the risks of tsunamis, especially to human life, and
  e) to carry out disaster preparedness activities.

- The Pacific Tsunami Warning Center in Ewa Beach, Hawaii and the West Coast/Alaska Tsunami Warning Center in Palmer, Alaska use earthquake information, tide gauges and tsunami detection buoys to issue tsunami advisories, watches and warnings, as well as tsunami information statements.

Upon receipt of tsunami watches and warnings, coastal NWS offices activate the Emergency Alert System (EAS) via NOAA Weather Radio (NWR). All broadcasters (TV, AM/FM radio, cable TV) receive the tsunami EAS message simultaneously. Individuals with NWR receivers in homes, businesses, schools, and health care facilities can also receive the alert directly. NWR activates the All-Hazard Alert Broadcast (AHAB) units located in remote coastal areas, alerting people in those isolated locations.
U.S. NOAA’s National Weather Service Scope of Alerting (continued)

• Role of Education for Tsunami Alert Preparedness and Resilience.

*Tsunami Resilient Communities have designated tsunami inundation zones and marked evacuation routes to assist residents and visitors to higher ground.*

*Emergency management officials distribute tsunami education information, conduct community meetings and workshops, and conduct other awareness activities.*

*The National Weather Service recognizes communities with strong tsunami warning and awareness programs through the TsunamiReady Community program. Such communities are recognized for their efforts to enhance their tsunami warning system, widespread use of weather radio receivers and community awareness activities. TsunamiReady road signs are also a part of NWS recognition.*

• Tsunami communications tests verify communication pathways between the TWCs and primary recipients, and the timeliness of message delivery over those pathways.

*Each TWC conducts periodic tests; at least quarterly.*

*Primary recipients include: designated national focal points, state/territorial warning points, coastal Weather Forecast Offices (WFOs), U.S. Coast Guard, and critical military dissemination points.*
U.S. NOAA’s National Weather Service
Scope of Alerting (continued)

• Tsunami Test Surveys

*Gain information for improving the NOAA/NWS’s Tsunami Warning System*
*Made available (web portal) to all stakeholders*
*Response to survey is voluntary*
Challenges

• Further develop policies to support the international exchange of alert information

• Use bilateral agreements and memorandum of agreements to foster cooperative use of alert information

• Continue to transform NWS alert information and dissemination systems from WMO-formatted products to create and distribute XML/CAP alert formats

• Collaboratively define CAP parameters and supporting efforts for the use of weather alerts
Questions and Discussion?

http://alerts.weather.gov/

Craig Hodan
Dissemination Systems Branch
NOAA National Weather Service
Silver Spring, Maryland, USA
Craig.Hodan@noaa.gov