



Geo-targeted All Hazard Alerts Coming to Millions of Mobile Devices

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Commercial Carriers and Government Respond to the Need for Mobile Alerts



WARN Act of 2006 authorized DHS and FCC to begin activities toward development of a Commercial Mobile Alert Service (CMAS)



In 2007-08, joint Commercial and Government (all levels) committee developed recommendations for mobile alerts

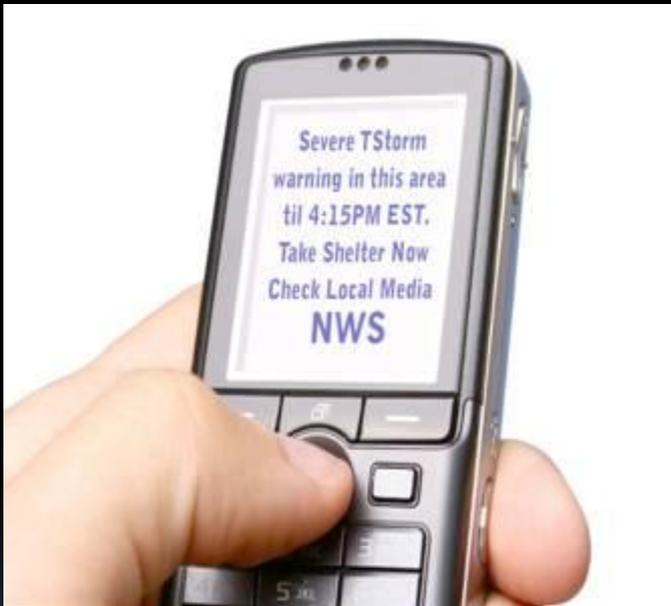
- **Cell tower broadcast (not SMS text), so no network congestion**
- **90 character maximum**
- **Opt-out**



Rollout

- **Called Wireless Emergency Alerts (WEA)**
- **Carrier rollout started April 2012 (carrier dependent)**
- **NWS scheduled to start alert push late May 2012**

Wireless Emergency Alerts (WEA)



Alert Categories

- Presidential
- Imminent threat to life and property (e.g., severe weather, HazMat, earthquake)
- AMBER Alert/child abduction

Alert Message Content (90 characters)

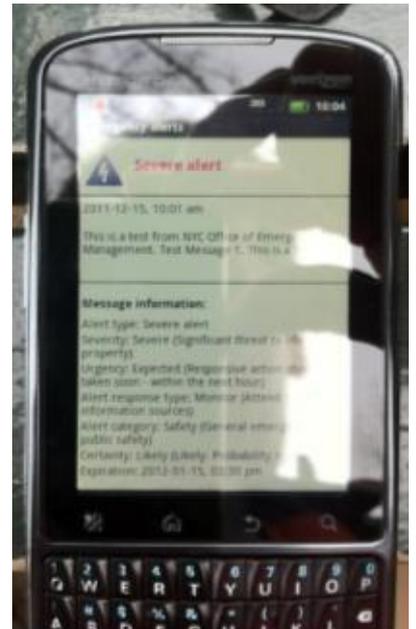
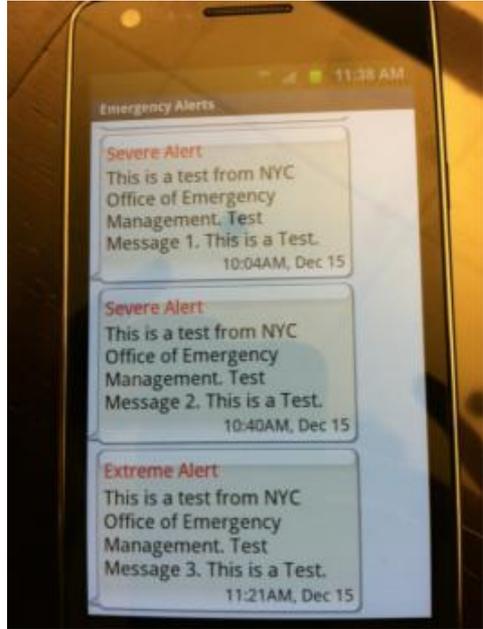
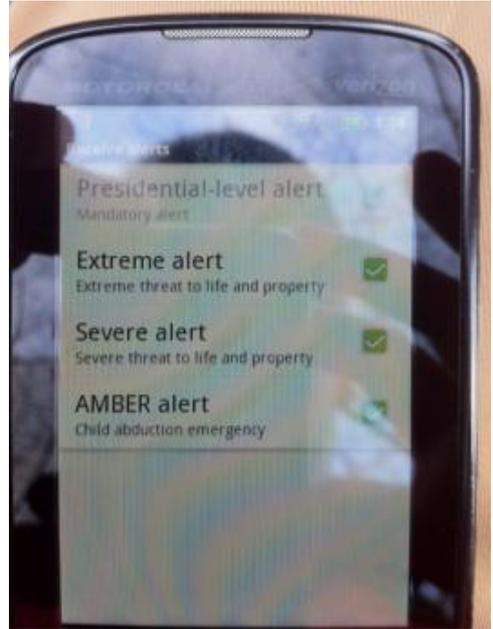
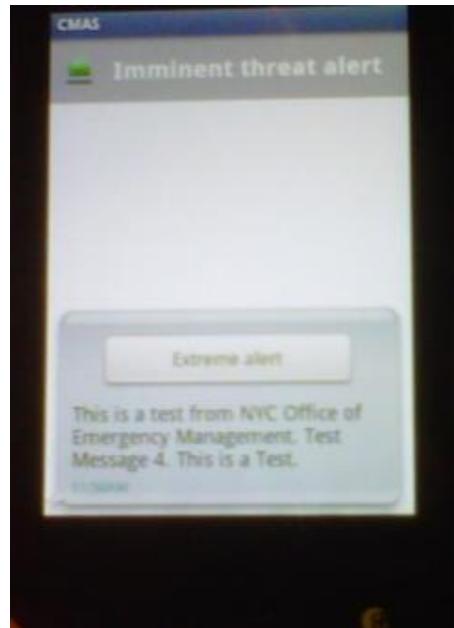
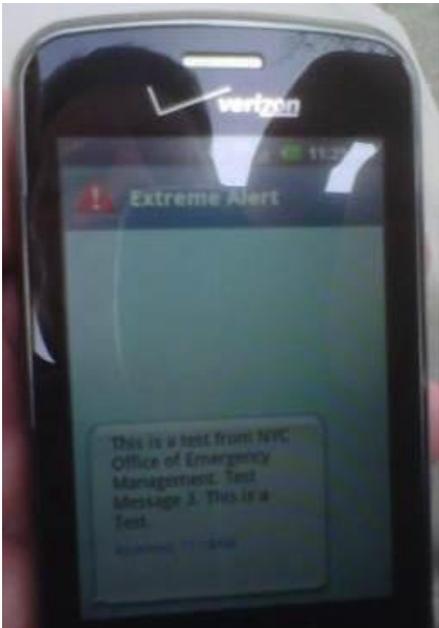
- What is happening (e.g., Tornado)
- Area affected (“in this area”)
- Time (e.g., til 4:15PM EST)
- Recommended action (e.g. take shelter)
- Sending agency (e.g., NWS)

Quick Facts about WEA

- **WEA is a free service and opt-out**
- **Cell tower broadcast to cell phones where tower broadcasts to threat area.**
 - *Not a privacy issue. Service does not track you. WEA is merely a radio broadcast.*
 - *Service is not subscription based. You only receive alert if you are in the threat area .*
- **Purpose is notification, recipient must seek additional info**
- **Acronym soup – CMAS, PLAN, and WEA are all names for the same service**
- **Major carriers are committed to producing WEA capable phones**
- **If you travel into an alert area after the alert was originally sent, you should still receive it**
- **Each WEA is only displayed once, so you don't receive duplicates**
- **WEA has a distinct vibration cadence and audio tone**
- **Alerts do not interrupt when you are in a voice or data session on the device**

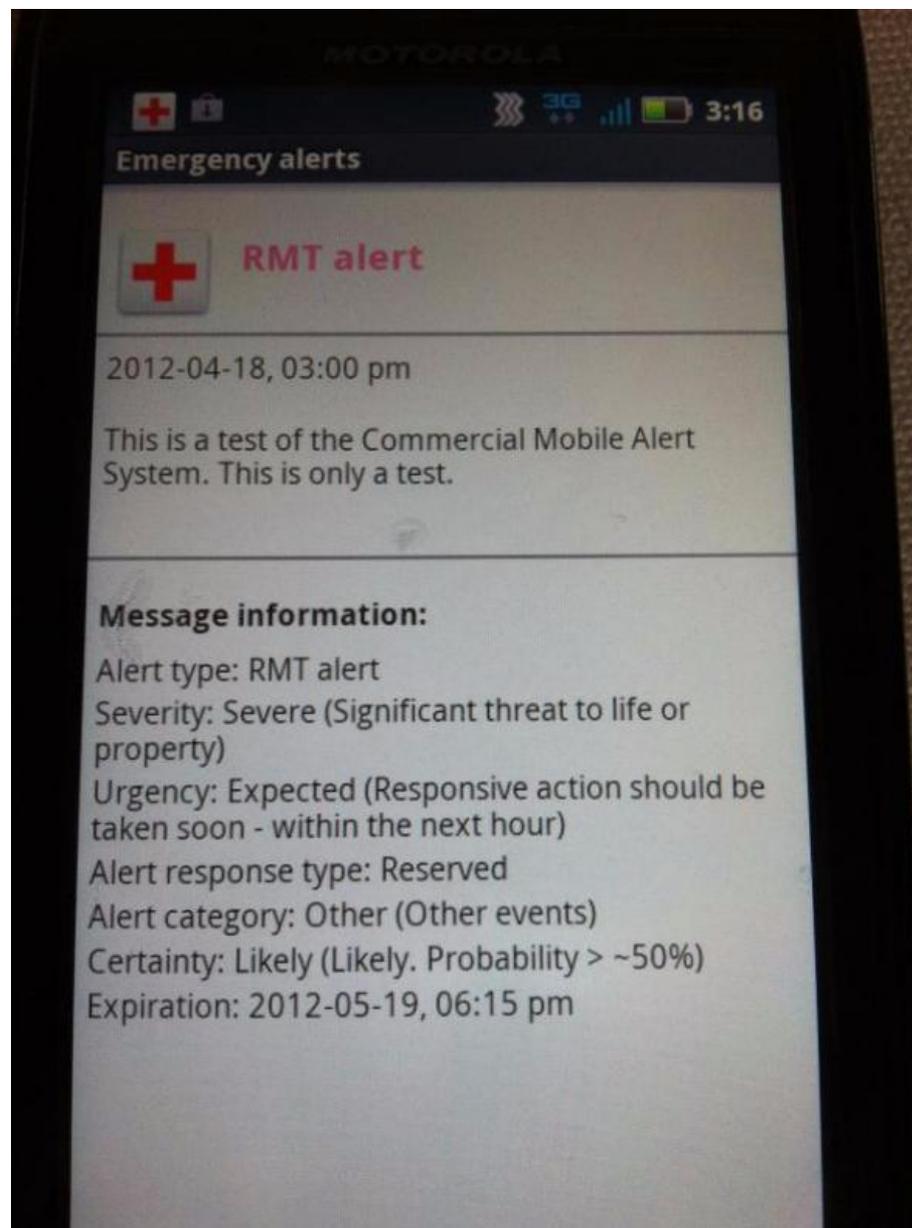
Examples of alert presentation on phones observed in NYC testing 15 Dec 2011:

All messages constructed using free form 90 character CMAM text field



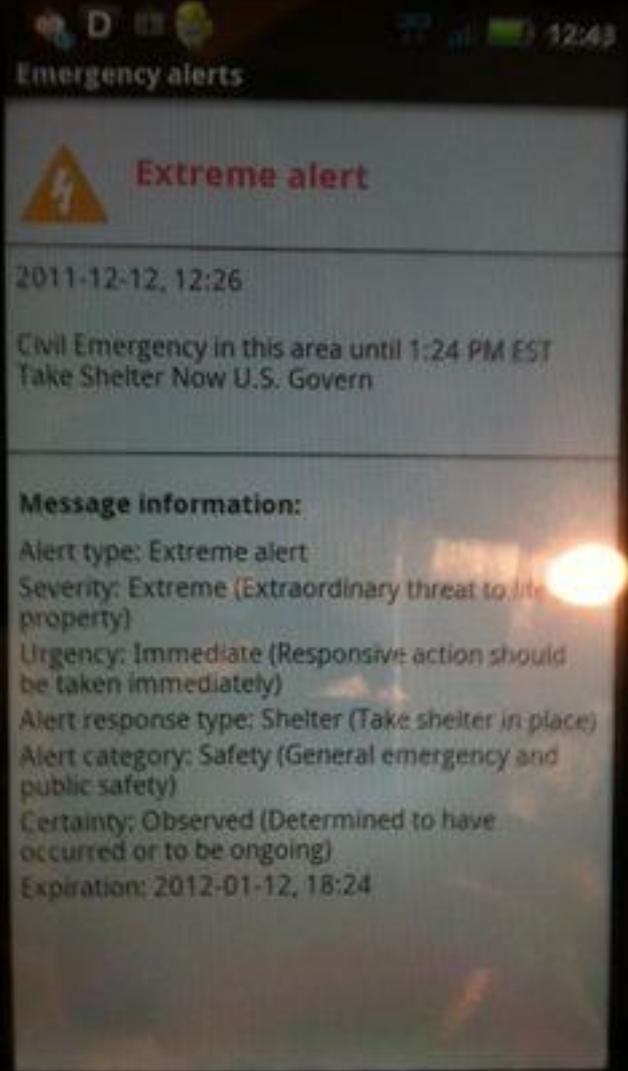
RMT 18Apr2012, VzW
phone in WDC

This message was
generated from CAP
message that included
free form CMAM Text
field



Red Bank NJ Verizon Wireless accidental test message release, 12Dec2011

Messages constructed from CAP fields



Nuggets from April 20 Webinar

- Rollout - Sprint fully deployed nationwide. Other carriers rolled out to lesser extent, but rolling out gradually.
- Opt-out for Severe vs. Extreme alerts - Sprint and Verizon allow users to opt-out of severe or extreme imminent threat alerts rather than forcing opt-out of "all or none". Unclear if users would understand difference.
- County vs. Polygon level alerting - Sprint and AT&T working to do sub-county level warning, but even if NWS polygons used, there are numerous cell network complexities that could result in under/over-warning. Other carriers alerting at the county level as required in the Code of Federal Regulations for CMAS
- iPhones will be CMAS capable with a future software update

CMAS Messages Originated by NWS

When new alert or correction issued or time/area extended

Warning Type	CMAS Message
Tsunami Warning	Tsunami Warning in this area. Avoid coastal areas. Check local media. -NWS
Tornado Warning	Tornado Warning in this area til hh:mm tzT. Take shelter now. -NWS
Extreme Wind Warning	Extreme Wind Warning this area til hh:mm tzT <u>ddd</u> . Take shelter. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
Hurricane Warning	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Typhoon Warning	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Blizzard Warning	Blizzard Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Ice Storm Warning	Ice Storm Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Lake Effect Snow Warning	Lake Effect Snow Warning this area til hh:mm tzT ddd. Avoid travel. Check media. -NWS
Dust Storm Warning	Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS

Legend

tzT = timezone

ddd= three letter abbreviation for day of the week

NWS Alerts Get to WEA Through FEMA Integrated Public Alert and Warning System (IPAWS)

National Weather Service
and other authorities



Alerts in Common Alerting
Protocol (CAP) Format



Commercial
sector



Television



Radio



Cell Phone
(WEA via
FEMA IPAWS)



Computer



Home Phone

Other alerting systems,
consumer electronics, and
decision support tools



Public Signage

CAP Message Format Encourages Technology Innovation that Improves Decision Making and Public Response

XML-based industry standard = low cost of entry for commercial developers

<event>Flash Flood Warning</event>

<urgency>Immediate</urgency>

<severity>Severe</severity>

<certainty>Likely</certainty>

<effective>2010-06-03T14:00:00-05:00</effective> <expires>2010-06-03T17:00:00-05:00</expires>

<senderName>NWS Memphis (Western Tennessee, Arkansas and Northern Mississippi)</senderName>

<headline>Flash Flood Warning issued June 03 at 2:00PM CDT valid until June 03 at 5:00PM CDT by NWS Memphis</headline>

<description>DOPPLER RADAR ESTIMATES 1 TO 3 INCHES OF RAINFALL HAS OCCURRED OVER THE PAST HOUR

<instruction>MCUR IN AUTOMOBILES. NEVER DRIVE YOUR VEHICLE INTO AREAS WHERE THE ROADWAY...TURN AROUND...DONT DROWN</instruction>

<polygon>36.20,-88.91 36.18,-88.91 36.05,-88.84 35.99,-89.17 35.99,-89.19 35.98,-89.21 35.94,-89.30 36.17,-89.31 36.21,-89.04 36.20,-88.96 36.22,-88.95 36.20,-88.93</polygon>

Alert information
at its most
granular levels

GIS
Friendly

NWS CAP feeds available at <http://alerts.weather.gov>

weather.gov

National Oceanic and Atmospheric Administration's
National Weather Service

Site Map News Organization Search NWS All NOAA

Local forecast by "City, St"

Sign-up for Email Alerts
XML RSS Feeds
Warnings
Current
By State/County...
UV Alerts
Observations
Radar
Satellite
Snow Cover
Surface Weather...
Observed Precip
Forecasts
Local
Graphical
Aviation
Marine
Hurricanes
Severe Weather
Space Weather
Fire Weather
Text Bulletins
By State
By Message Type
National
Forecast Models
Numerical Models
Statistical Models...
MOS Prod
GFS-LAMP Prod
Climate
Part Weather

Home >

NWS Public Alerts in XML/CAP v1.1 and ATOM Formats

Overview

This page provides access to NWS watches, warnings, advisories, and other similar products in the Common Alerting Protocol (CAP) and Atom Syndication Format (ATOM).

Use of ATOM and CAP with Traditional and Emerging Technologies

NWS CAP and ATOM feeds can be used to launch Internet messages, trigger alerting systems, feed mobile device (e.g., cell phone/smart phone and tablet) applications, news feeds, television text captions, highway sign messages, and synthesized voice over automated telephone calls or radio broadcasts.

CAP Overview

CAP is an XML-based information standard used to facilitate emergency information sharing and data exchange across local, state, tribal, national and non-governmental organizations of different professions that provide emergency response and management services. NWS CAP messages are produced in the [CAP v1.1 format defined by the Organization for the Advancement of Structured Information Standards \(OASIS\)](#).

Developers and re-packagers of NWS CAP messages should review the [Technical Notes](#) about the NWS CAP 1.1 Messages.

NWS is now using a [public access Wiki](#) to act as a guide and collaborative venue for developers and re-distributors of NWS alerts in CAP.

ATOM Overview

ATOM is an XML based document format for syndicating news and other timely news-like information. The NWS ATOM feeds act as an index for active CAP messages by state, county, and NWS forecast zones to aid the automated dissemination of this information.

ATOM provides headlines, URLs to the source document and brief description information in an easy to understand and use format. Software libraries exist to read the ATOM format and present ATOM headlines on webpages, personal computer workstations, and mobile

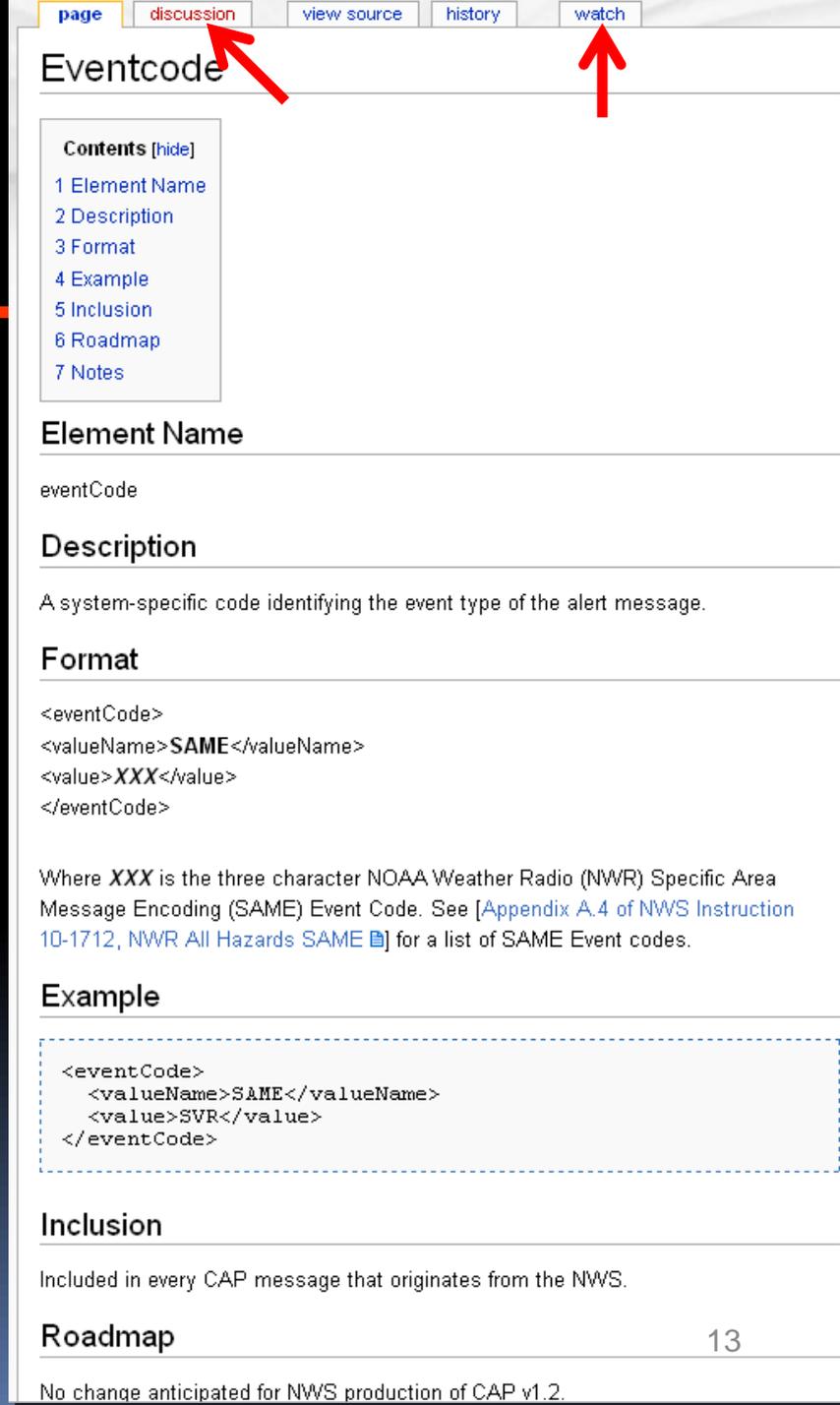
A | C | D | F | G | H | I | K | L | M | N | O | P | R | S | T | U | V | W | --U.S.--

State (Zone List County List)	ATOM
National (all)	
Alabama -- (Zone List County List)	
Alaska -- (Zone List County List)	
America Samoa -- (Zone List County List)	
Arizona -- (Zone List County List)	
Arkansas -- (Zone List County List)	
California -- (Zone List County List)	
Colorado -- (Zone List County List)	
Connecticut -- (Zone List County List)	
Delaware -- (Zone List County List)	
District of Columbia -- (Zone List County List)	
Florida -- (Zone List County List)	
Georgia -- (Zone List County List)	
Guam -- (Zone List County List)	
Hawaii -- (Zone List County List)	
Idaho -- (Zone List County List)	
Illinois -- (Zone List County List)	
Indiana -- (Zone List County List)	
Iowa -- (Zone List County List)	
Kansas -- (Zone List County List)	
Kentucky -- (Zone List County List)	
Louisiana -- (Zone List County List)	
Maine -- (Zone List County List)	
Marianas	
Maryland -- (Zone List County List)	
Massachusetts -- (Zone List County List)	
Michigan -- (Zone List County List)	
Midway Island	
Minnesota -- (Zone List County List)	
Mississippi -- (Zone List County List)	
Missouri -- (Zone List County List)	
Montana -- (Zone List County List)	
Nevada -- (Zone List County List)	

New NWS wiki fosters use of NWS CAP

https://wiki.citizen.apps.gov/nws_developers

- Usage guide for NWS produced CAP
- Facilitates collaborative discussion around CAP
- Keeps NWS CAP users up to date with email notification of changes



The screenshot shows a MediaWiki page titled "Eventcode". At the top, there are navigation tabs: "page", "discussion", "view source", "history", and "watch". Two red arrows point to the "discussion" and "watch" tabs. Below the tabs is a "Contents" box with a list of sections: "1 Element Name", "2 Description", "3 Format", "4 Example", "5 Inclusion", "6 Roadmap", and "7 Notes". The main content area is divided into sections: "Element Name" (with the text "eventCode"), "Description" (with the text "A system-specific code identifying the event type of the alert message."), "Format" (with XML-like code: `<eventCode>`, `<valueName>SAME</valueName>`, `<value>XXX</value>`, `</eventCode>`), "Example" (with XML-like code: `<eventCode>`, `<valueName>SAME</valueName>`, `<value>SVR</value>`, `</eventCode>`), "Inclusion" (with the text "Included in every CAP message that originates from the NWS."), and "Roadmap". At the bottom right, the page number "13" is visible. A footer note at the very bottom states "No change anticipated for NWS production of CAP v1.2."



NWS at CES 2012



National Weather Service Alerts



FEMA

And

Commercial Partners



TV and Radio



Public Safety



Integration of NOAA National Weather Service Alerts in Consumer Electronics

- Enhances public safety
- Low cost of entry
- CAP/XML alert content can be reformatted for many uses



Cellphones



Decision Support Tools



Consumer Navigation

Communicating Impact and Improving Public Response Through CAP

Typical Event

<urgency>value</urgency>

- Immediate
- Expected
- Future
- Past

<severity>value</severity>

- Extreme
- Severe
- Moderate
- Minor

<certainty>value</certainty>

- Observed
- Likely
- Possible
- Unlikely

2-4" Snow
(Moderate Impact)

<urgency>Expected</urgency>

<severity>Moderate</severity>

<certainty>Likely</certainty>



Forecaster can better convey impact and generate greater public response for high impact events

Crippling 1/2" snow squall
(less snow, but greater impact)

<urgency>Immediate</urgency>

<severity>Severe</severity>

<certainty>Likely</certainty>



Questions?

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