

World Meteorological Organization (WMO)  
Observing and Information Systems Department  
WMO Information System (WIS)

Introduction to  
Common Alerting  
Protocol (CAP)

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PWS

# What is CAP?

Common Alerting Protocol (CAP), ITU-T Recommendation X.1303, is a standard message format designed for All-Media, All-Hazard, communications:

- ✧ **over any and all media** (*television, radio, telephone, fax, highway signs, e-mail, Web sites, RSS "Blogs", ...*)
- ✧ **about any and all kinds of hazard**  
(*Weather, Fires, Earthquakes, Volcanoes, Landslides, Disease Outbreaks, Air Quality Warnings, Transportation Problems, Power Outages ...*)
- ✧ **to anyone:** the public at large; designated groups (civic authority, responders, etc.); specific people

# World Meteorological Organization

- WMO Congress (2007) requested the Secretary-General to improve the exchange of high priority data and products in support of a virtual all hazards network
- WMO Executive Council (2008) requested Commission for Basic Systems to follow up on CAP implementation as a matter of urgency
- WMO Executive Council (2009) asked the Secretariat, and invited all Members and Regional Associations, to spare no efforts in ensuring that the implementation of CAP benefits all user communities

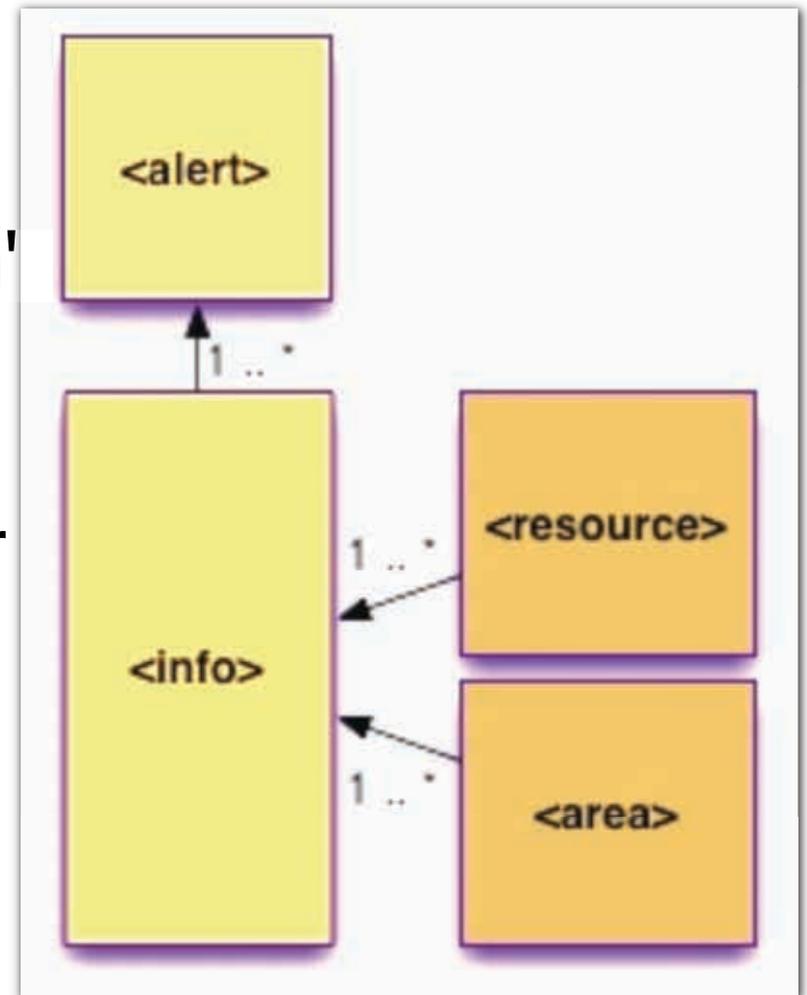
# Presentation Outline

- Key features of CAP message
- Implementing the CAP standard
- Example tool for creating alerts in CAP format
- Register of Alerting Authorities
- The CAP Jump-Start Initiative

# Structure of a CAP Message

CAP Messages contain:

- Text values for human readers, such as "headline", "description", "instruction", "area description", etc.
- Coded values useful for filtering, routing, and automated translation to human languages



# Filtering and Routing Criteria

- **Date/Time**
- **Geographic Area**  
*(polygon, circle, geographic codes)*
- **Status**  
*(Actual, Exercise, System, Test)*
- **Scope**  
*(Public, Restricted, Private)*
- **Type**  
*(Alert, Update, Cancel, Ack, Error)*

# Filtering and Routing Criteria

- **Event Categories**  
*(Geo, Met, Safety, Security, Rescue, Fire, Health, Env, Transport, Infra, Other)*
- **Urgency:** Timeframe for responsive action  
*(Immediate, Expected, Future, Past, Unknown)*
- **Severity:** Level of threat to life or property  
*(Extreme, Severe, Moderate, Minor, Unknown)*
- **Certainty:** Probability of occurrence  
*(Very Likely, Likely, Possible, Unlikely, Unknown)*

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# The CAP Standard

## ITU-T Recommendation X.1303

- Compatible with legacy as well as newer transports (news wires, digital TV, Web Services, ...)
- Flexible geographic targeting
- Phased and delayed effective time, expiration
- Message update and cancellation features
- May include inline digital images and audio
- Significant uptake, many implementations



Local forecast by "City, St"

Warnings  
Current  
By State/County...

Observations  
Radar  
Satellite  
Snow Cover  
Surface Weather...

Forecasts  
Local  
Graphical  
Aviation  
Marine  
Hurricanes  
Severe Weather  
Fire Weather  
Climate...

Forecast Models  
Numerical Models  
Statistical Models...

Weather Safety  
Weather Radio  
Hazard Assmt...  
StormReady /  
TsunamiReady  
Education/Outreach

Home > Alerts

## Experimental XML Feeds and Web Displays of Watches, Warnings, and Advisories

NOAA's National Weather Service offers several XML services  
[\[Forecasts\]](#)[\[Watch/warnings\]](#)[\[Current Observations\]](#)[\[Tropical Cyclone Advisories\]](#)[\[Storm Prediction Center Forecast Products\]](#)[\[Change Notices\]](#)

This page provides access to NWS watches, warnings, advisories, and other similar products several different formats. Select a state or product name to view a list of active alerts in your web browser. These files are updated about every two minutes. Tropical Prediction Center/Storm Prediction center feeds are updated on an as needed basis. RSS and CAP/XML lists based on state and NWS forecast zones are provided to aid the automated dissemination of this information. More information on RSS and CAP/XML formats/feeds. This is an **experimental** product of the National Weather Service. [Comments and feedback](#) are welcome. A [Product Description Document](#) is also available.

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

HTML/WEB

RSS

CAP

RSS

By State

By  
County/Zone

Alabama	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>
Alaska	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>
America Samoa	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>
Arizona	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>
Arkansas	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>
California	<a href="#">XML</a>	<a href="#">CAP</a>	<a href="#">XML</a>

<http://www.weather.gov/alerts>

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# Editing Tool for Alerts in CAP Format

Save this CAP Alert in drafts directory and send a copy to me by Email

```
<?xml version="1.0" encoding="UTF-8"?>
<cap:alert xmlns:cap="urn:oasis:names:tc:emergency:cap:1.1">
  <cap:identifier>urn:oid:2.49.0.3.1.2011.3.14.9.26.21</cap:identifier>
  <cap:sender>echristian@wmo.int</cap:sender>
  <cap:sent>2011-03-14T09:26:21-00:00</cap:sent>
  <cap:status>Test</cap:status>
</cap:alert>
```

Start Over at login screen

CAP message sent by e-mail to **echristian@wmo.int**

Publish this alert message to the RSS news feed?

Start Over at login screen

CAP alert saved to alerts directory as: **20110314092621.xml**

RSS news feed for alerts has also been updated.

Return to alert message editing

# RSS Feed for Alerts in CAP Format

```
<?xml version="1.0" encoding="UTF-8" ?>
- <rss version="2.0" xmlns:geo="http://www.w3.org/2003/01/geo/wgs84_pos#" xmlns:dc="http://purl.org/dc/elements/1.1/">
- <channel>
  <title>Alerts Issued by ACMAD</title>
  <link>http://www.acmad.org/alerts/rss.xml</link>
  <description>Latest alerts posted by the African Centre of Meteorological Applications for Development</description>
  <dc:publisher>ACMAD (African Centre of Meteorological Applications for Development)</dc:publisher>
  <language>en-us</language>
  <copyright>public domain</copyright>
  <pubDate>Mon, 14 Mar 2011 10:37:11 +0000</pubDate>
  <lastBuildDate>Mon, 14 Mar 2011 10:37:11 +0000</lastBuildDate>
  <docs>http://blogs.law.harvard.edu/tech/rss</docs>
- <image>
  <title>Latest Alerts posted by ACMAD</title>
  <url>http://www.acmad.org/images/acmad.gif</url>
  <link>http://www.acmad.org/alerts/rss.xml</link>
</image>
- <item>
  <title>Mount St Helens Volcano Advisory (aviation color code ORANGE)</title>
  <link>http://www.acmad.org/alerts/20110314092621.xml</link>
  <description>Current status is Volcano Advisory (Alert Level 2); aviation color code ORANGE: Growth of the new lava dome inside the crater of Mount St. Helens continues, accompanied by low rates of seismicity, low emissions of steam and volcanic gases, and minor production of ash. During such eruptions, changes in the level of activity can occur over days to months. The eruption could intensify suddenly or with little warning and produce explosions that cause hazardous conditions within several miles of the crater and farther downwind. Small lahars could suddenly descend the Toutle River if triggered by heavy rain or by interaction of hot rocks with snow and ice. These lahars pose a negligible hazard below the Sediment Retention Structure (SRS) but could pose a hazard along the river channel upstream.</description>
  <author>echristian@wmo.int</author>
  <category>Met</category>
  <guid>http://www.acmad.org/alerts/20110314092621.xml</guid>
  <pubDate>2011-03-14T09:26:21-00:00</pubDate>
</item>
```

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# The Need for a Register

- Aggregators (e.g. Google, TV stations etc) and other intermediaries may lack direct knowledge needed to distinguish an authoritative source of alert messages
- This lack becomes critical as alerting makes use of large public networks
- The WMO Register of Alerting Authorities is a reference to address that lack

# Register of Alerting Authorities

- Developed for WMO Public Weather Services
- WMO Members can identify their officially recognized alerting authorities
- Each Register entry asserts that a particular source of alert messages is regarded by a WMO Member as authoritative for particular categories of hazards over a particular area
- Register includes URL's for forecasts and CAP messages
- Aggregators of alert messages and others can subscribe to a news feed to stay current with any changes to the register

# Register of Alerting Authorities

Print | Bookmark | RSS or ATOM | Zoom | Share | Recommend | GMap | Save page as PDF



World Meteorological Organization

Working together in weather, climate and water

WMO Search

HOME CONTACT US TOPICS LINKS UN SYSTEM FAQs HELP

Public Weather Services established this register of information about alerting authorities as identified by Members. For questions, please contact us. This page is using nested navigation, but is available without frames as well. Select a country to get started.

## Alerting authorities by WMO Member or Organization

To monitor updates to this Register, subscribe to the [RSS](#) or [ATOM](#) news feed.

<input type="radio"/> Afghanistan	<input type="radio"/> Albania	<input type="radio"/> Algeria	<input type="radio"/> Angola	<input type="radio"/> Antigua and Barbuda
<input type="radio"/> Argentina	<input type="radio"/> Armenia	<input type="radio"/> Australia	<input type="radio"/> Austria	<input type="radio"/> Azerbaijan
<input type="radio"/> Bahamas	<input type="radio"/> Bahrain	<input type="radio"/> Bangladesh	<input type="radio"/> Barbados	<input type="radio"/> Belarus
<input type="radio"/> Belgium	<input type="radio"/> Belize	<input type="radio"/> Benin	<input type="radio"/> Bhutan	<input type="radio"/> Bolivia
<input type="radio"/> Bosnia and Herzegovina	<input type="radio"/> Botswana	<input type="radio"/> Brazil	<input type="radio"/> Brunei Darussalam	<input type="radio"/> Bulgaria
<input type="radio"/> Burkina Faso	<input type="radio"/> Burundi	<input type="radio"/> Cambodia	<input type="radio"/> Cameroon	<input type="radio"/> Canada
<input type="radio"/> Cape Verde	<input type="radio"/> Central African Republic	<input type="radio"/> Chad	<input type="radio"/> Chile	<input type="radio"/> China
<input type="radio"/> Colombia	<input type="radio"/> Comoros	<input type="radio"/> Congo	<input type="radio"/> Cook Islands	<input type="radio"/> Costa Rica
<input type="radio"/> Cote d'Ivoire	<input type="radio"/> Croatia	<input type="radio"/> Cuba	<input type="radio"/> Cyprus	<input type="radio"/> Czech Republic
<input type="radio"/> Democratic People's Republic of Korea	<input type="radio"/> Denmark	<input type="radio"/> Djibouti	<input type="radio"/> Dominica	<input type="radio"/> Dominican Republic
<input type="radio"/> Ecuador	<input type="radio"/> Egypt	<input type="radio"/> El Salvador	<input type="radio"/> Eritrea	<input type="radio"/> Estonia
<input type="radio"/> Ethiopia	<input type="radio"/> Fiji	<input type="radio"/> Finland	<input type="radio"/> France	<input type="radio"/> French Polynesia

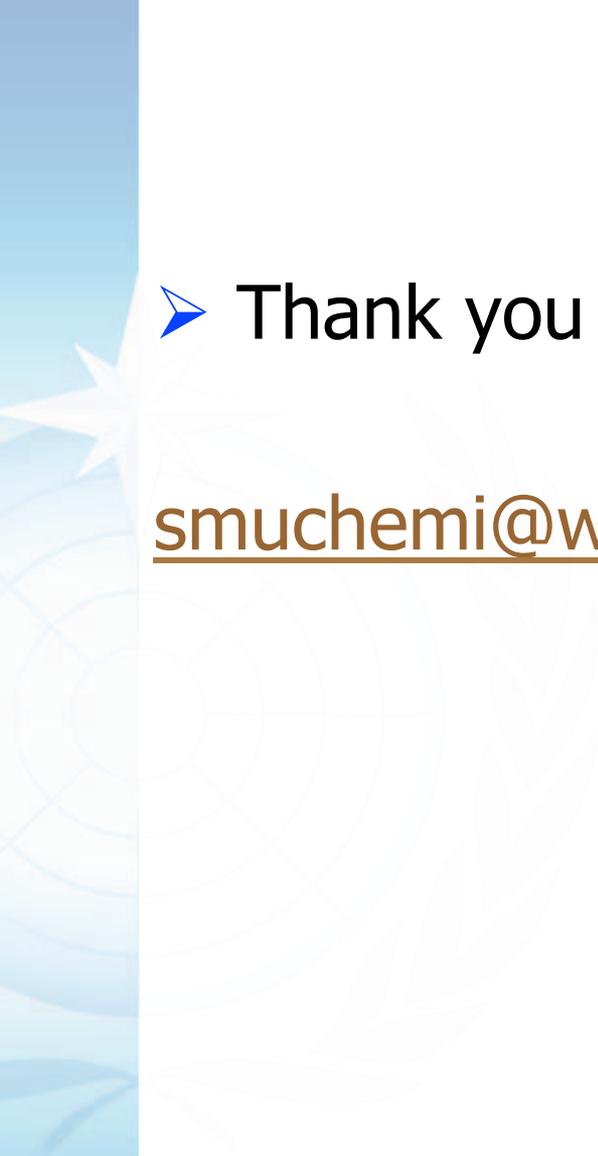


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# The CAP Jump-Start Initiative

- The CAP Jump-Start Initiative enables training on NMHSs on CAP
- Information available online at:  
[www.wmo.int/pws](http://www.wmo.int/pws)

The WMO logo is a large, faint watermark in the background, featuring a globe with latitude and longitude lines, surrounded by a laurel wreath. A blue vertical bar is on the left side of the slide.

➤ Thank you

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