



Innovative Trends in Providing Global Extreme Weather Warnings

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Making the Connection in a Rapidly Changing World





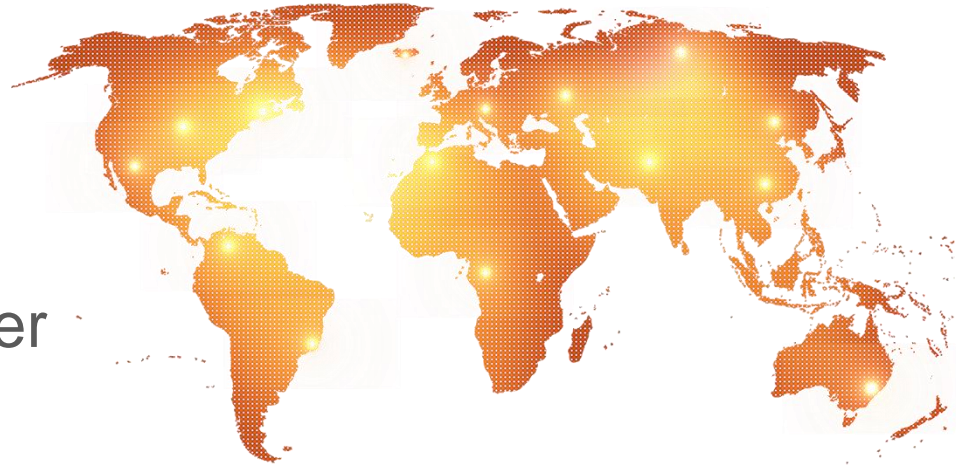
A Better Connected World

- Internet of Things, mobile technology, and the generation of Big Data quickly increasing interconnectedness
- In 2015, the amount of Internet users will reach 42.4% of the world's population – topping 3 billion people – and mobile search will surpass desktop search (*Source: eMarketer*)
- In 2015, 41% of people in Sub-Saharan Africa will own a mobile phone – an increase by more than 90% since 2010 (*Source: GSMA Intelligence*)



Enhanced Weather Information Needs

- Hyper-connectivity increasing awareness for and demand for weather content
- Dynamic global weather vulnerabilities to populations
- Numerical forecast models and other weather technology continually improved







Partnership Opportunities

- AccuWeather reaches over 1.5 billion people each day globally!
- **Through cooperation and use of the CAP format, we have the opportunity to make a difference in the lives of users by quickly and accurately delivering critical weather and natural disaster warnings!**
- A key component of this workshop is to identify ways to partner more effectively, using CAP as a vehicle. My goal today: share some thoughts on best practices based on our unique experience working with weather warnings from all over the world.

Weather in a Hyper-Connected World





Providing Global Content 24x7

- 12 billion requests for AccuWeather data every day
- Weather in 100+ languages and dialects
- Award-winning mobile apps available on every major platform worldwide
- Highly ranked, rated, and featured across all major, global mobile platforms

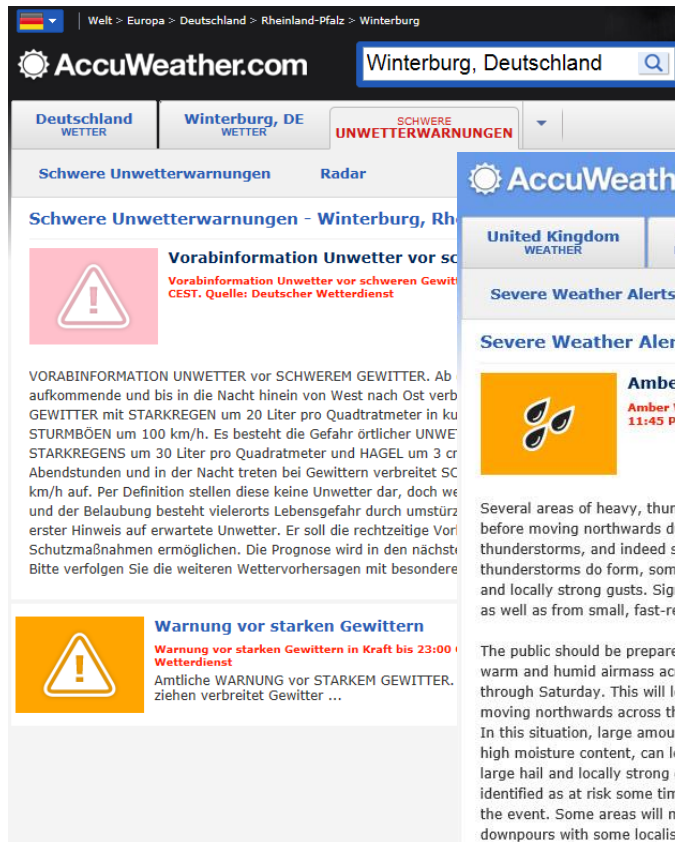




Our Role in Distributing Warnings

- AccuWeather is delivering publically available, government issued weather warnings for over 35 countries within our products and services!
- Severe weather alerts provide valuable, actionable insight into upcoming extreme weather events
- Contextually relevant for the end user so they can make informed decisions and take necessary precautions
- Quickly and rapidly amplify important messages

Global Severe Weather Alert Examples



The screenshot shows the AccuWeather.com interface for Winterburg, Deutschland. The page features a search bar with the location name and a dropdown menu showing 'Schwere Unwetterwarnungen'. Below this, a section titled 'Schwere Unwetterwarnungen - Winterburg, Rh' displays a warning icon and text: 'Vorabinformation Unwetter vor schweren Gewittern. Quelle: Deutscher Wetterdienst'. A detailed paragraph follows, describing the weather conditions and the potential for severe weather. At the bottom, another warning icon is shown with the text: 'Warnung vor starken Gewittern. Amtliche WARNUNG vor STARKEM GEWITTER. ziehen verbreitet Gewitter ...'.



The screenshot shows the AccuWeather.com interface for London, United Kingdom. The page features a search bar with the location name and a dropdown menu showing 'Severe Weather Alerts'. Below this, a section titled 'Severe Weather Alerts - London, Greater London' displays a warning icon and text: 'Amber Warning for Rain. Amber Warning for Rain in effect from Saturday, 12:11:45 PM BST. Source: Met Office National Severe Weather Centre'. A detailed paragraph follows, describing the weather conditions and the potential for severe weather. At the bottom, another warning icon is shown with the text: 'The public should be prepared for the risk of disruption from any of the warm and humid airmass across the UK will become increasingly unstable through Saturday. This will lead to the development of areas of intense moving northwards across the UK and affecting different areas at various times. In this situation, large amounts of energy are available in the atmosphere and this, coupled with high moisture content, can lead to torrential downpours along with frequent lightning activity, large hail and locally strong gusts. As is usually the case with thunderstorms, broad areas can be identified as at risk some time in advance but detail will remain very uncertain until very close to the event. Some areas will miss the worst of the storms whilst nearby spots experience severe downpours with some localised flooding, so the public are advised stay in touch with the latest forecasts and warnings through Saturday. The public is advised to take extra care, further information and advice can be found here: <http://www.metoffice.gov.uk/weather/uk/links.html>'.



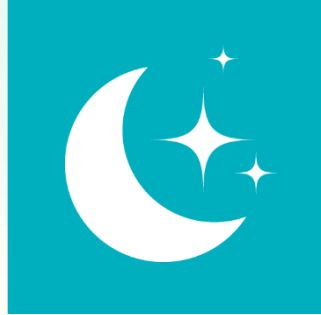
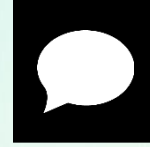
The screenshot shows the AccuWeather.com interface for Nanning, China. The page features a search bar with the location name and a dropdown menu showing '恶劣天气警报'. Below this, a section titled '恶劣天气警报 - 南宁市, 广西壮族自治区' displays a warning icon and text: '台风红色预警. 台风红色预警生效. 来源: 中国气象局公共气象服务中心'. A detailed paragraph follows, describing the weather conditions and the potential for severe weather. At the bottom, another warning icon is shown with the text: '暴雨红色预警. 暴雨红色预警生效. 来源: 中国气象局公共气象服务中心. 临汾市18日17时解除高温黄色预警. 襄汾县气象局2014年7月18日17时00分解除高温黄色预警信号. 台风黄色预警. 台风黄色预警生效. 来源: 中国气象局公共气象服务中心. 南宁市18日10时发布台风黄色预警'.



Partnerships are Key!

- Opportunity for government National Meteorological Services to partner with AccuWeather to deliver their weather warnings to a new audience
- As an example, AccuWeather is a NOAA Weather-Ready Nation Ambassador and committed to delivering warnings accurately, quickly, and reliably to users. Additionally, to many countries, we provide:
 - Technical expertise related to data formats, input on warning system design
 - Quality control feedback in real-time to identify dissemination challenges

Best Practices





Weather Warning Best Practices

- Unique designs in each country based on weather hazards and communication systems
- Although weather warning types and system designs vary substantially around the world, some key best practices for consideration when weather warning data systems are being designed or refreshed:
 - **What** is the weather hazard?
 - **Where** is the hazard occurring?
 - **When** will the hazard occur?
 - **Why** does the user need to be aware of the hazard?
- CAP guides us on answering these key questions



Key Components – What

- ***What is the weather hazard? CAP eventCode***
- Ensures end users are aware of the weather hazard type – snow, ice, coastal flooding, heat warning, etc.
- A clearly defined list of weather warning types and a brief description of the hazard type as a reference to CAP message recipients is important
- Color scheme (Yellow, Orange, Red etc) and display preferences
- Ability to expand the list as warning system changes



Key Components – Where

- ***Where is the weather hazard? CAP area & geocode elements***
- How are the warning risk areas being defined geographically?
 - Custom Defined Warning Boundaries (following terrain etc)
 - Follow Existing Administrative Boundaries (provinces, states, counties, etc.)
 - Dynamic Warning Areas (polygon areas)
- Critical to ensure only the correct users receive the weather warning to prevent “warning fatigue”



Key Components – When

- ***When is the threat for the weather hazard?***
CAP elements: effective, onset, expires
- Although optional, recommend including a defined start and end time for the warning
 - Situations that are “in effect until further notice” present challenges
- Update relevant times during warning lifecycle
 - Time Extensions
 - Cancellations



Key Components – Why

- ***Why does the user need to be aware of the hazard? CAP headline, description, instruction***
- Optional CAP components, but very helpful to user when making decisions.
- Actionable text to describe the weather hazard, expected impacts, and what actions the end user should take
- Succinct, but convey important details
- Multiple languages are valuable
- Update with latest information during warning lifecycle



Unique Event Identifier

- Unique Identifier for the message is a CAP requirement (alert identifier)
- Additional unique identifier for the warning event is another very useful component, implemented within `<info>` elements.
- Common to all messages about a specific warning event (snowfall warning #5) and used to track changes over time.
- Often added as an additional parameter
- Can be a numerical auto incrementing key or unique string value.



Other Important Aspects

- Importance of Attribution – Single Authoritative Voice
- Additional country-specific attributes in CAP are helpful as well, based on uniqueness of warning systems
 - Typically implemented as added parameters
 - Event probabilities, thresholds etc.
- Frequent communication and discussion empowers success in these types of partnerships
 - Ongoing discussion about what is working great and opportunities to enhance format or workflow
 - Newsletters and Mailing Lists

Thank You!

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