National Weather Service Experimental Service Description Document (SDD) December 2008

NWS Experimental Warning Alert Messaging Services via Mobile Device Technologies - Interactive NWS (iNWS).

Part 1 - Mission Connection

a. Service Description:

The NWS is responsible for providing weather warnings and alerts in a timely and effective manner to support the protection of life and property. The NWS must provide this information to an increasingly mobile public who are using rapidly evolving technologies for accessing Internet content via mobile wireless devices. In response to this the NWS is developing weather warning services that take advantage of mobile device technologies such as Personal Digital Assistants (PDA) and cell phones, in order to better serve the public. The experimental application has been named Interactive NWS **(iNWS).**

The NWS Western Region is developing an application that will provide real-time, warning services tailored to the unique characteristics of cellular phones and mobile devices. This application will allow access to NWS watches, warnings, advisories, weather statements, forecasts and observations, as well as the ability to view looping RADAR imagery for the United States. Customers can also choose to automatically receive weather warning alerts as they occur for locations of interest via text messaging. This application will provide multiple levels of service to give customers options for accessing this information in a format that best fits the capability of their mobile devices.

The full-featured service envisioned by this application will be a mobile Internet-based graphical tool for viewing watches, warnings and relevant weather data, and for receiving real-time weather alerts for customer selectable locations on Internet-enabled cell phones. Background maps and layers of weather data are displayed as the customer moves the cursor around the map to locations of interest. When the customer is interested in receiving weather alerts for a given location, they select that location and the type(s) of alert, such as tornado warnings, or winter storm warnings, and this information is saved to a database at WRH. Several locations can be saved for each customer's profile. When a warning comes into effect for any of the customer selected locations, a text message warning is automatically sent to the customer via their cell phone number.

b. Purpose/Intended Use:

Providing NWS information in formats suitable for display on mobile devices and via text messaging allows access of this information to a wide audience in many mobile settings. This experimental service will duplicate content and warnings already provided by the NWS, reformatted for mobile devices.

The automated alert notification feature will provide critical weather warnings to customers as they occur. For example, if a customer creates a profile of interest for receiving tornado warnings via their cell phone, they will be notified of such a warning automatically when it is issued for their selected location. This is a critical element of the NWS mission to alert mobile customers of severe weather at anytime day or night for the protection of life.

c. Audience:
This service is intended to meet a wide range of needs for customers with mobile wireless capability. Provision of this service permits access to current NWS weather information from any location with mobile Internet service, and could include emergency management, transportation, recreational, commerce and general weather information customers.

d. Presentation Format:

The experimental application that WRH is developing for providing mobile warning alerts has been named Interactive NWS, or iNWS. Three presentation formats were determined to best serve the range of mobile device capability and customer need. These formats are named for their level of access to the data and the features they offer. For full documentation on this application suite, please see http://inws.wrh.noaa.gov.

iNWS SMS provides automated text message alerts when the NWS issues a watch, warning or advisory for a customer area of interest. The customer registers interest in a location by selecting an area on a map, or by texting a five-digit zip code to the WRH short-code (56149). For example, texting 20230 to 56149 will register interest in weather alerts for Washington, D.C. This capability uses SMS (Short Message Service) for text messaging.

Services required:
- **Cell Phone -- Text messaging**
    - o A customer can opt out of the service by texting STOP to 56149.

iNWS MobileWeb provides cell phone/PDA web access to display the following weather information:
Watches, warnings and advisories currently in effect for a city or zip code,
Weather conditions and forecasts,
RADAR and satellite imagery for the area selected.

This capability uses simple HTML (Hyper-Text Markup Language) and should work with even the slowest Internet access.

Services required:
- **Cell Phone – Data plan and web browser**
    - o Depending on the cell phone, service provider, and data access plan selected, Internet access speed for cell phones and PDAs can vary dramatically. Cell/PDA access is an area that is rapidly changing and is improving each year.

iNWS Mobile provides the most rich and configurable access to NWS products and text message alerts for mobile devices. iNWS Mobile provides an interactive map-based graphical display of current RADAR imagery overlaid with watch, warning and advisory polygons in effect for the area selected by the customer.

iNWS Mobile provides options to:
Animate the most current four frames of RADAR imagery,

Display current weather conditions,
Display current forecasts for any customer selected location in the U.S., and
Interactively select up to three areas and **automatically receive text message alerts** for a variety of categories of watches, warnings and advisories

This capability currently uses Java™ and works best with moderate to fast Internet access. This capability is targeted for high-end cell phones and PDAs. The mobile device industry is changing quickly. We anticipate that today's high-end cell phones and PDAs will be the base line capability within the next five years**.**

Services required:

• **Cell Phone/PDA:**

o **Caution**: This application works best on high-end cell phones and PDAs. This is an area that is rapidly changing as each new generation of cell phones/PDAs are coming with more powerful processors and Internet bandwidth.

Java™: For mobile devices with Internet connectivity and support for graphical Java™ applications.

o **Note**: New Blackberries and many non-Microsoft based phones/PDAs come with Java™. Sun Microsystems, Inc. is also currently working on a Java™ module for mobile devices.

e. Feedback Method:

Comments will be compiled through September 31, 2009 and will be evaluated by the appropriate NWS program managers. Feedback and technical support will be obtained through the application support email address posted on the website (wr.mobile.alerts@noaa.gov).

f. SDD Approval

This Experimental Service Description Document has been approved by Robert M. Tibi, Acting Director, NWS Western Region Headquarters.

Part 2 - Technical

a. Format and Science Basis:

This mobile warning alert messaging service is a next-generation NWS application bringing warning alert products on demand to mobile devices, or automatically as weather events occur, based on customer location interest profiles.

Three levels of service will be provided in accordance with a range of mobile device capabilities:

Text Only: For mobile devices with a text messaging service, but no data service.

Web Based: For mobile devices with Internet connectivity (including graphical support), and

Interactive Based: For mobile devices with Internet connectivity and support for graphical Java™ applications. This application provides the most rich and configurable access to NWS products and text message alerts for mobile devices.

This service will provide weather and warning alert information directly to a cell phone display or via SMS text messaging. The application is compatible with and has been approved by the following United States cell phone carriers for providing experimental text messaging services.

AT&T
Verizon Wireless
T-Mobile
Sprint/Nextel
Virgin Mobile
Alltel
Boost
US Cellular
Dobson Cellular
Cricket Communications
Rural Cellular Corporation
Western Wireless

The need for the public to be able to receive weather data and warnings is not limited to fixed environments such as in the office or at home, but is person-based and therefore needs to be mobile. In addition, customers want to have some control over the content of the data they receive in order to tailor it to their changing needs. This experimental application creates a service that addresses these requirements using relevant mobile technologies combined with valuable NWS weather data.

b. Availability:

This experimental service will be available on a "best-effort" basis, with a goal of 24 hours/day, seven days a week. The iNWS SMS service requires customers to have a cell phone and text service from a mobile telecom provider. The graphical levels of service, iNWS MobileWeb and iNWS Mobile, require an additional data service (Internet service) from the telecom provider.

c. Additional Information:

This experimental service will be tested at all Western Region Weather Forecast Offices. More information is available at http://inws.wrh.noaa.gov.