

# Experimental Extreme Cold Warning Products

## Product Description Document (PDD)

### Part 1 – Mission Connection

#### 1. Product / Service Description:

The National Weather Service's (NWS) core mission is to provide accurate and timely hazardous weather information for the protection of life and property. Currently, NWS Weather Forecast Offices (WFOs) produce Wind Chill Advisories, Watches, and Warnings based on the Wind Chill Index (WCI, updated in 2001, <http://www.weather.gov/om/windchill/>). WCI is defined for a combination of ambient temperatures at or below 40 F and wind speeds greater than or equal to 3 mph that can lead to dangerous hypothermia and/or frostbite conditions. However, in some circumstances, extreme cold ambient temperatures with little or no wind (under 3 mph) can produce dangerous conditions. NWS Alaska Region has for several years used an Extreme Cold (EC) Warning for events that mainly impacted aviation, including congealed and frozen fuels and hydraulic lines. This experiment will focus on its use in public warnings.

**Extreme Cold Warning Issuance:** On occasion, winter temperatures may fall to extreme cold readings with no wind occurring. Currently, the only way to headline very cold temperatures is with the use of Wind Chill Advisory or Warning products. In the rare situations where actual temperatures reach Wind Chill Warning criteria with little or no wind, WFOs may issue an EC Warning.

#### 2. Purpose/Intended Use:

The EC warning is intended to fill a gap in providing critical winter information for public health and safety by using existing AWIPS software and dissemination tools.

#### 3. Audience:

This service is intended to provide critical winter weather information to a wide range of decision makers including emergency managers, public safety, media, and the general public.

#### 4. Presentation Format:

The EC Warning products are generated within AWIPS Graphical Hazards Generator (GHG) as a Non Precipitation Warning (NPW) Product and utilize an existing Valid Time Event Code (VTEC) phenomenon (EC.W). There is no EC Advisory product in VTEC. The products will be in the standard format of GHG long duration products as shown in NWS Instruction 10-515 (<http://www.nws.noaa.gov/directives/sym/pd01005015curr.pdf>). The criteria used during this experimental period will be determined by local needs based on comparable Wind Chill Index values, local winter weather climatology, and consultation with emergency managers and public health officials.

#### 5. Feedback Method:

Feedback will be available via a web e-mail link at <http://www.weather.gov/survey/nws-survey.php?code=ecw>. A formal evaluation and comment period is set for January 11 – April 15, 2011.

Technical or general comments for the EC warning product may be addressed to:  
National Weather Service  
Attn: Jim Keeney  
7220 NW 101st Terrace Building:  
Routing Code: W/CR1  
Kansas City, MO 64153-2371

Or,

National Weather Service  
Attn: Paul Stokols  
Office of Climate, Water and Weather Services  
1325 East West Highway  
Silver Spring, MD 20910

or e-mail comments to: [Jim.Keeney@noaa.gov](mailto:Jim.Keeney@noaa.gov) or [Paul.Stokols@noaa.gov](mailto:Paul.Stokols@noaa.gov)

## **Part 2 – Technical**

### **1. Format and Science Basis:**

The EC will be created and formatted within AWIPS GHG as a Non Precipitation Weather (NPW) product . The EC product will utilize existing VTEC code (EC.W) for dissemination to our partners..

### **2. Additional Information:**

#### **(a) Examples:**

WWUS73 KEAX 091420  
NPWEAX

URGENT - WEATHER MESSAGE  
NATIONAL WEATHER SERVICE KANSAS CITY/PLEASANT HILL MO  
920 AM CST THU DEC 9 2010

...EXTREME COLD WARNING FOR RECORD BREAKING LOW TEMPERATURES...

.AN ARCTIC HIGH PRESSURE SYSTEM WILL SETTLE INTO THE AREA  
TONIGHT. EXPECTED AIR TEMPERATURES WILL BE THE COLDEST ON RECORD  
FOR THE AREA. LOW TEMPERATURES OVERNIGHT ARE EXPECTED TO DROP  
TO 20 TO 25 BELOW ZERO.

KSZ025-102-MOZ001>004-011>013-020-021-092230-  
/O.NEW.KEAX.EC.W.0001.101210T0600Z-101210T1500Z/  
ATCHISON-DONIPHAN-NODAWAY-WORTH-GENTRY-HOLT-ANDREW-DE KALB-  
BUCHANAN-CLINTON-  
INCLUDING THE CITIES OF...ATCHISON...WATHENA...TROY...HIGHLAND...  
TARKIO...ROCK PORT...FAIRFAX...MARYVILLE...GRANT CITY...ALBANY...

STANBERRY...KING CITY...MOUND CITY...OREGON...MAITLAND...  
FOREST CITY...CRAIG...SAVANNAH...COUNTRY CLUB...CAMERON...  
ST. JOSEPH...PLATTSBURG...LATHROP...GOWER  
920 AM CST THU DEC 9 2010

...EXTREME COLD WARNING IN EFFECT FROM 1 AM TO 10 AM CST  
FRIDAY...

THE NATIONAL WEATHER SERVICE IN KANSAS CITY/PLEASANT HILL HAS  
ISSUED AN EXTREME COLD WARNING...WHICH IS IN EFFECT FROM 1 AM TO  
10 AM CST FRIDAY.

ARCTIC HIGH PRESSURE WILL SET THE STAGE FOR RECORD BREAKING COLD.  
AIR TEMPERATURES ARE EXPECTED TO FALL TO 20 TO 25 DEGREES BELOW  
ZERO.

\* TIMING...RECORD SETTING LOW TEMPERATURES OF 20 TO 25 BELOW ZERO WILL  
OCCUR DURING THE OVERNIGHT AND EARLY MORNING HOURS.

\* IMPACTS...WATER MAIN BREAKS...POWER INTERRUPTIONS AND TRAVEL DELAYS  
POSSIBLE.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

AN EXTREME COLD WARNING MEANS THAT DANGEROUSLY LOW TEMPERATURES  
ARE EXPECTED FOR A PROLONGED PERIOD OF TIME. FROSTBITE AND  
HYPOTHERMIA ARE LIKELY IF EXPOSED TO THESE TEMPERATURES...SO MAKE  
SURE A HAT...FACEMASK...AND HEAVY GLOVES OR MITTENS ARE  
AVAILABLE.

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**(b) Participants**

Rapid City, SD

Aberdeen, SD

Sioux Falls, SD

Bismarck, ND

Eastern North Dakota

Minneapolis, MN

Duluth, MN

Little Rock, AR