

# A Federal Partnership: Assessing Extreme Cold Warnings in North Dakota through a Community Assessment for Public Health Emergency Response (CASPER)

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# Wind Chill and the Extreme Cold Experiment

- Wind Chill in use by NWS since 1973
- Calculation change in 2001
- Life threatening low temperatures under arctic high pressure with little to no wind
- Wind Chill Temperature  $\approx$  Ambient Air Temperature (low)
- Motivation for this experiment: use of wind chill warning when there is little to no wind but ambient temperature is life threatening

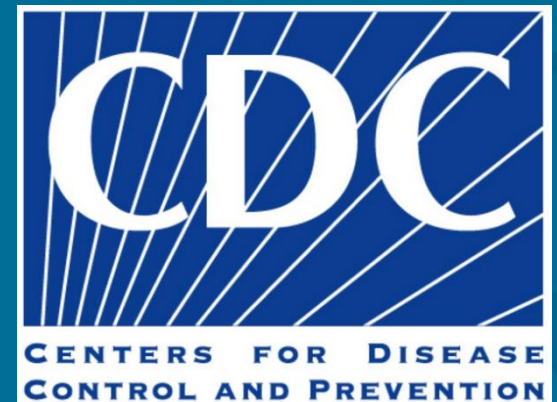
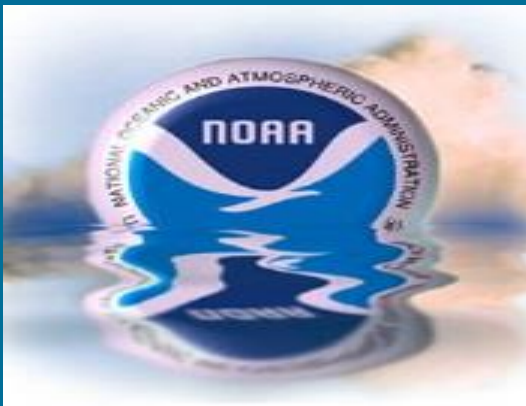
# The Extreme Cold Experiment

- **2010 – 2011**
  - Wind Chill Warning: - 40° F and lower with 5 + mph wind
  - Extreme Cold Warning: Ambient Temperature of - 30° F and lower with wind under 5 mph
  - Confusion at the borders (participating offices vs non-participating)
- **2011 – 2012**
  - Extreme Cold Warning used exclusively
  - Mild winter
  - Few issuances
  - More confusion at the borders
- **2012 – 2013**
  - Much collaboration...but no common solutions
  - Discontinue the extreme cold experiment

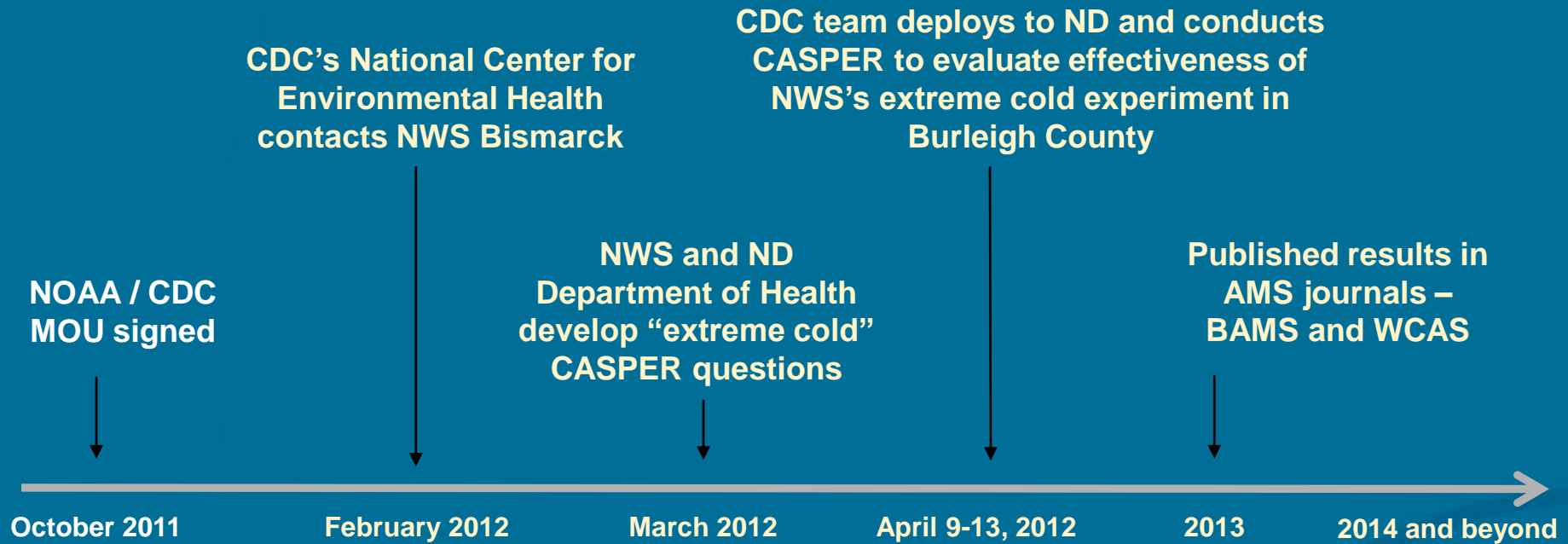
# NOAA / CDC MOU

## MOA-2011-069/8371

- Strengthen science and services of both agencies
- Understand, communicate, and reduce environmental and public health and safety impacts
- Promote the exchange of scientific expertise and personnel to conduct research in the areas of climate, weather, water, environment, ocean, etc.



# Timeline



NOAA – NWS strength: ability to reach customers with weather hazard impact information

CDC strength: ability to scientifically assess the effectiveness of public health communications

**Successful use  
of the MOU on  
future  
collaboration**



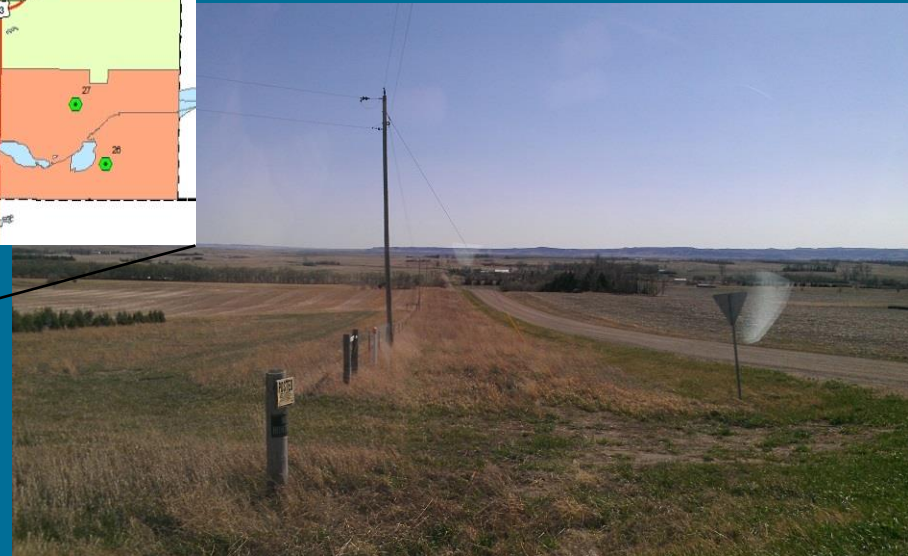
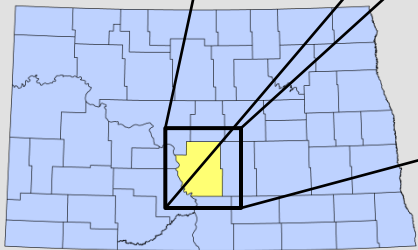
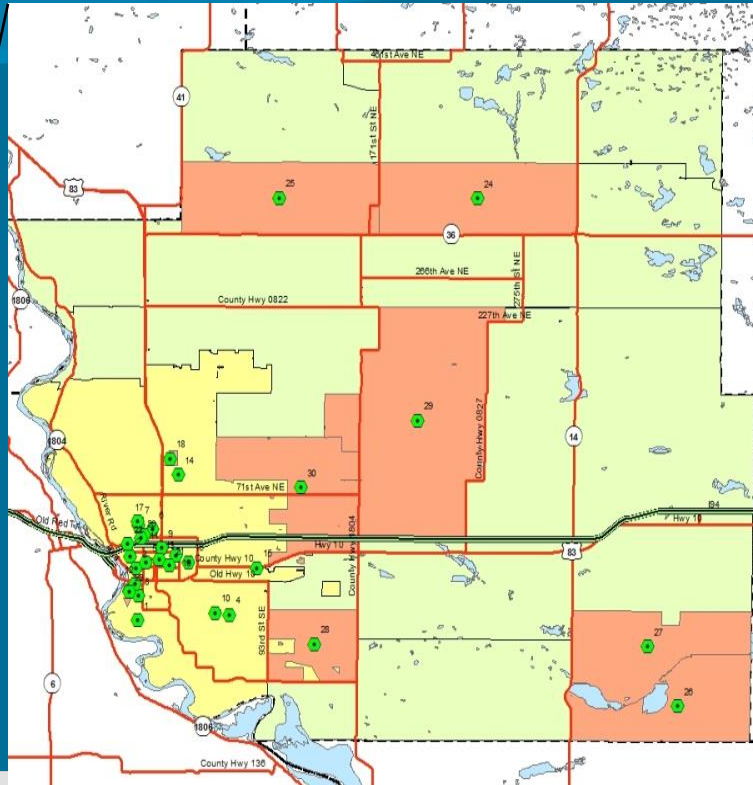
# Training

- April 9-13, 2012 – thorough review of survey questions and methodology



# Sample Area

## Burleigh County ND



# Hot Wash

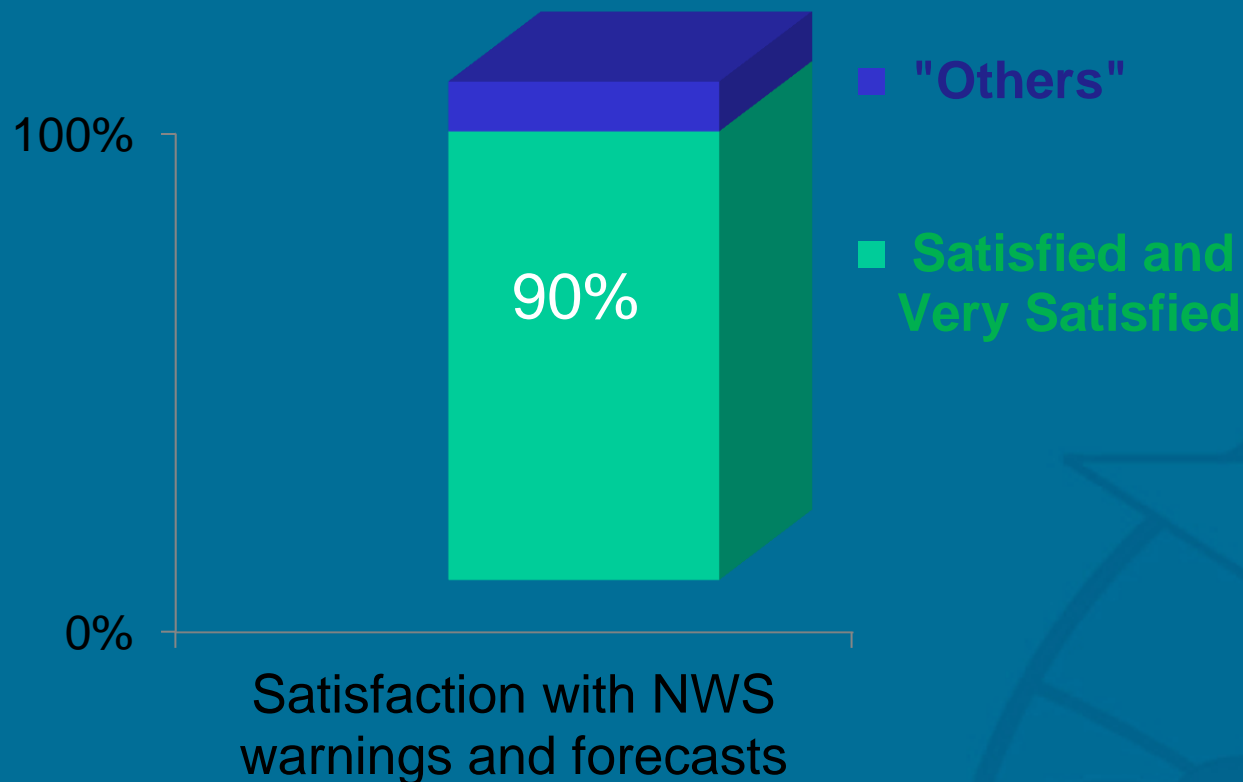
- April 13, 2012 – CDC presents preliminary survey results to NOAA





# A Few Key Findings from this CASPER

- Majority heard NWS warnings and took action, regardless of the warning name (wind chill / extreme cold)
- TV was the main source for severe winter weather and emergency information



# A Few Recommendations from this CASPER

- Use extreme cold warning to capture all dangerous cold weather events for all wind conditions
- Utilize TV as the key medium to inform the community regarding severe weather and emergencies (local NWS / broadcasters have strong partnership)

# Acknowledgements

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*Dr. Stephen Pickard – CDC CEFO assigned to ND*

## NOAA's NWS Bismarck, ND

*Corey W. King – Emergency Response Specialist*

*Dr. Joshua W. Scheck – Science and Operations Officer*

# ***Thank You !***

## **Publications**

**Early Online Release of Manuscript in BAMS:**

**Chiu, C. Noe, R. et al. 2013**

**<http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-12-00123.1>**

**Weather, Climate, and Society (WCAS) Journal Article:**

**Chiu, C. Vagi, S. et al. 2014**

**<http://dx.doi.org/10.1175/WCAS-D-13-00023.1>**

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