

# Clarus Initiative Update

## 2007 MDSS Annual Meeting Session 8

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FHWA Road Weather Management Team



# Clarus

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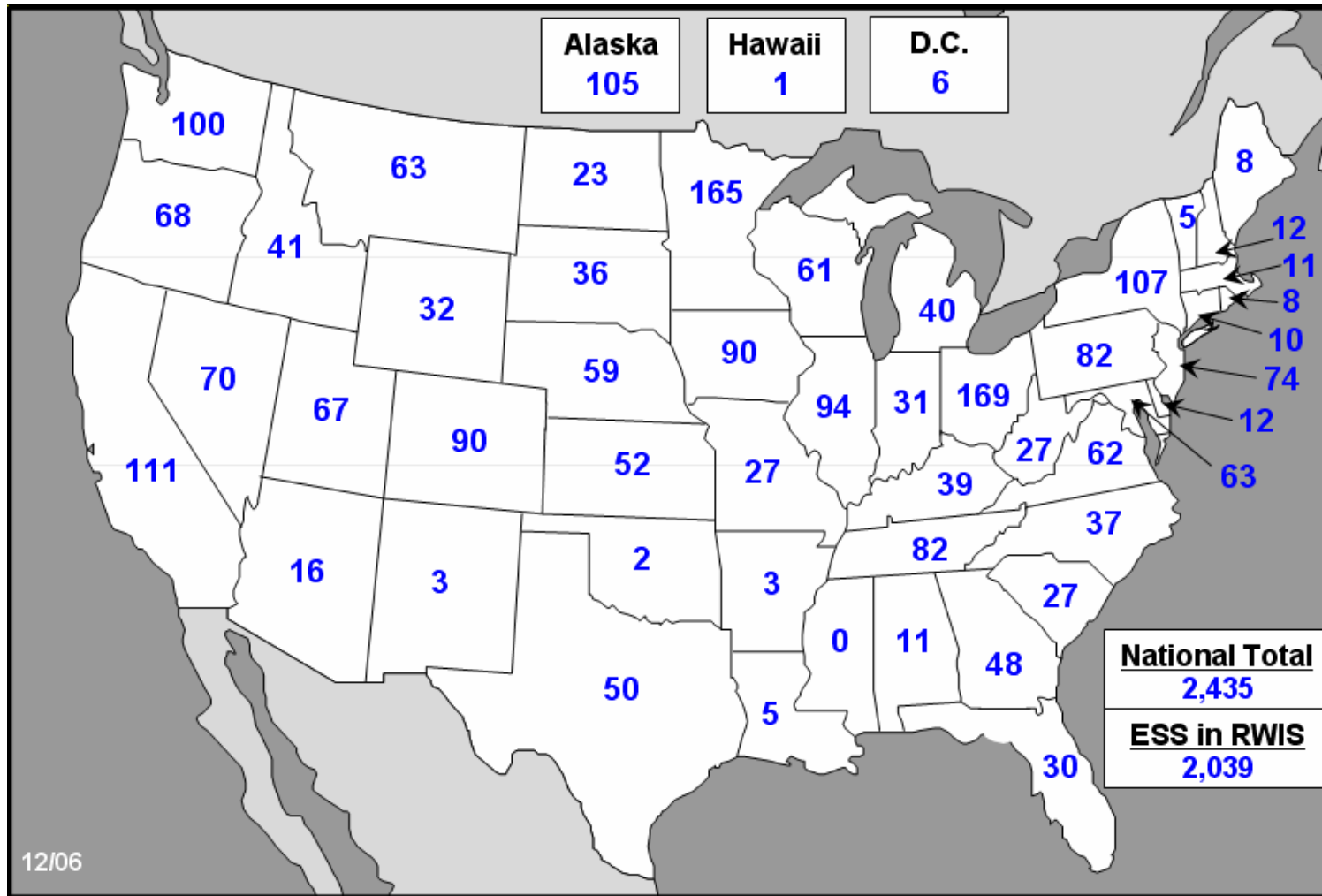
- Research initiative funded & directed by FHWA Road Weather Management Program & JPO
- Nationwide\* data management system for all surface transportation weather data (in situ & mobile, weather & pavement condition)
- Repository for the uniform collection of metadata

\*Also able to accept Canadian RWIN data.



# ESS Owned by State DOTs

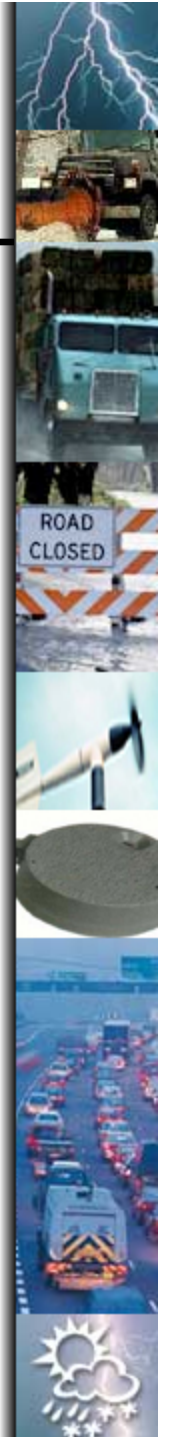
An Environmental Sensor Station (ESS) is any site with sensors measuring atmospheric conditions, pavement conditions, and/or water level conditions.



# Why connect to *Clarus*?

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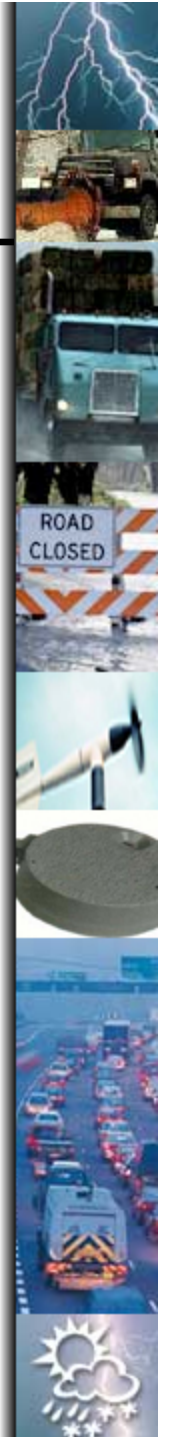
- Better manage your ESS network
  - Access entire network(s) via one portal
  - Ability to monitor network health (communication status, sensor status)
  - Receive quality checked observations
- Increased availability of road weather information leading to improved:
  - transportation system management
  - road weather forecasts, and
  - products from service providers



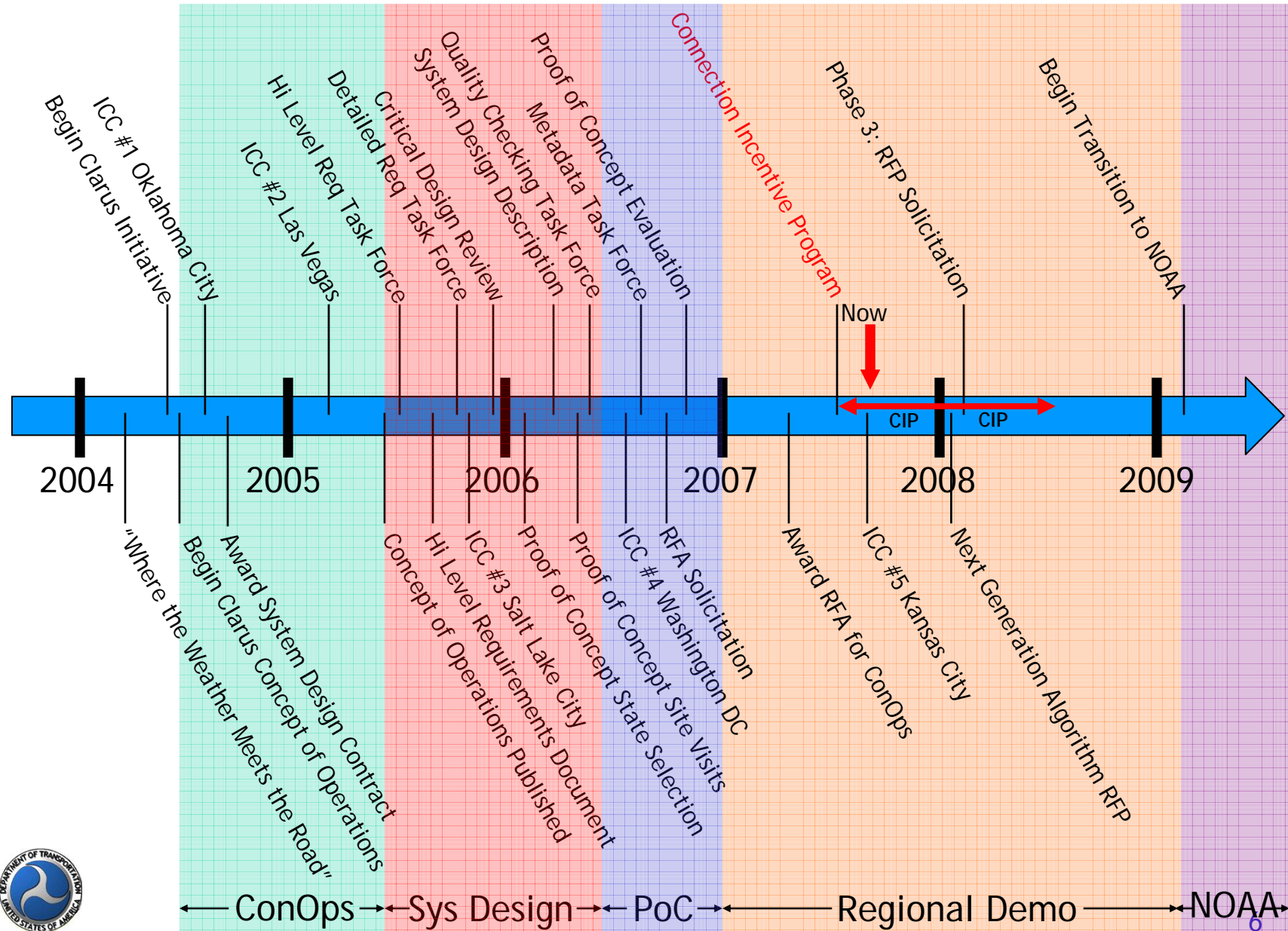
# Why connect to *Clarus*?

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- Maximize your ESS ROI
- Open the door to new applications
- Help grow the *Clarus* system database since in this case, BIGGER is BETTER...So get connected!!!



# Clarus Initiative Milestones



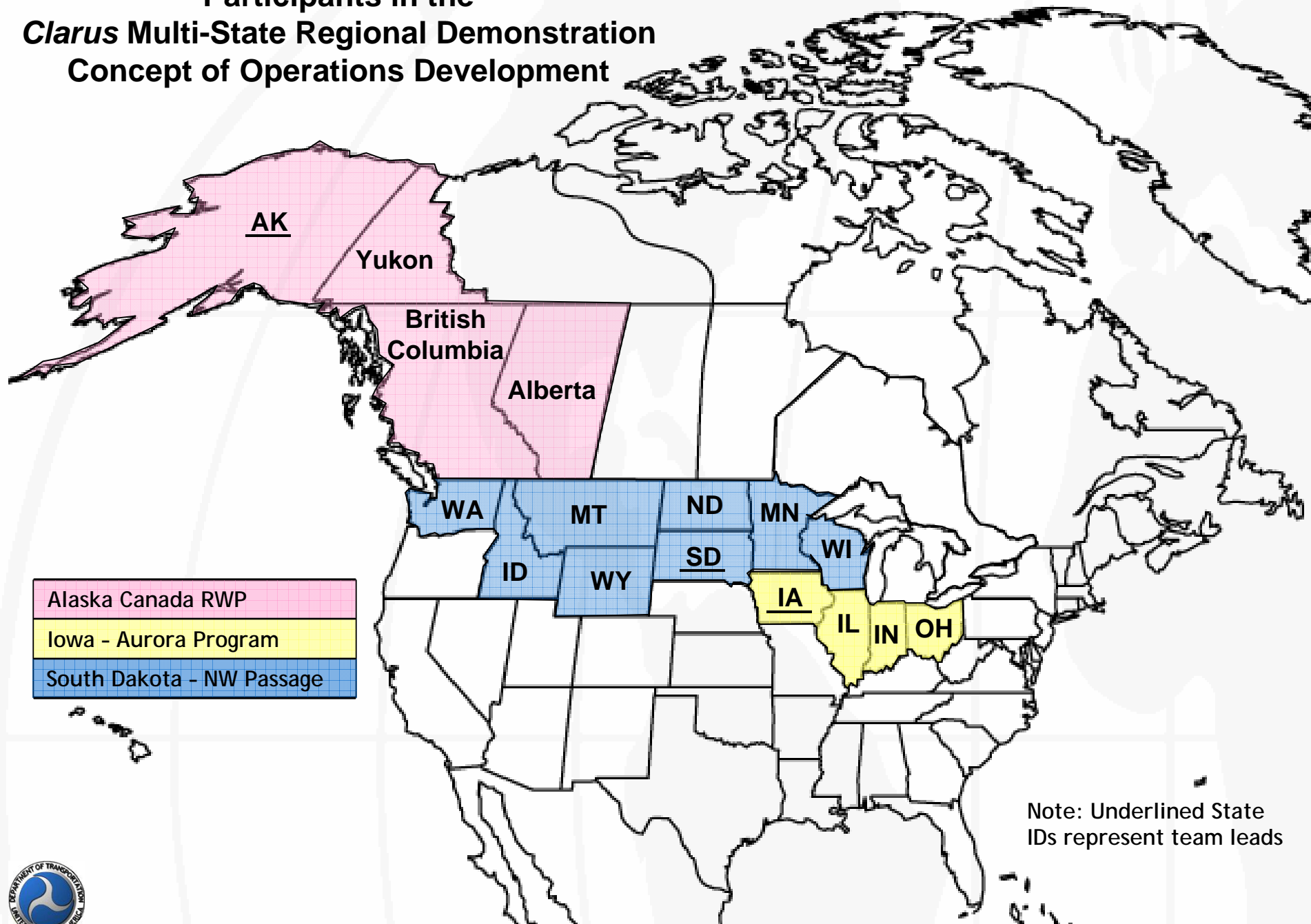
# Regional Demonstration Phases

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- Phase 1: Request for Applications (RFA)
  - Team-based approach
  - Creating *Clarus* ConOps & examples of solutions
  - Making ESS data available to the *Clarus* System
- Phase 2: Connection Incentive Program (CIP)
  - Expansion of the *Clarus* system database and public agency participation in the initiative
  - Offset costs associated with the collection of metadata & ensuring data availability/accessibility
- Phase 3: Request for Proposals (RFP)
  - Private sector build out & testing of ConOps solutions
  - Independent evaluation of the *Clarus* System



# Participants in the *Clarus* Multi-State Regional Demonstration Concept of Operations Development



Note: Underlined State IDs represent team leads



# The *Clarus* System

## Clarus System

2007-09-05 15:27 UTC

## Reports and Subscriptions

Get Observations by:

[Contributor](#)

[Geospatial Coordinates](#)

[View Metadata](#)

[View Subscriptions](#)

## United States

Alabama	Hawaii	Massachusetts	New Mexico	South Dakota
<a href="#">Alaska</a>	Idaho	Michigan	New York	Tennessee
Arizona	<a href="#">Illinois</a>	<a href="#">Minnesota</a>	North Carolina	Texas
Arkansas	<a href="#">Indiana</a>	Mississippi	North Dakota	<a href="#">Utah</a>
California	<a href="#">Iowa</a>	Missouri	Ohio	Vermont
Colorado	Kansas	Montana	<a href="#">Oklahoma</a>	Virginia
Connecticut	Kentucky	Nebraska	Oregon	Washington
Delaware	Louisiana	Nevada	Pennsylvania	West Virginia
Florida	Maine	New Hampshire	Rhode Island	<a href="#">Wisconsin</a>
Georgia	Maryland	New Jersey	South Carolina	Wyoming

## Canada

<a href="#">Alberta</a>	Quebec
<a href="#">British Columbia</a>	Saskatchewan
Manitoba	<a href="#">Yukon Territory</a>
New Brunswick	
Newfoundland & Labrador	
Northwest Territories	
Nova Scotia	
Nunavut	
Ontario	
Prince Edward Island	

The *Clarus* System is an experimental product and is being used for evaluation and demonstration purposes only.





# Clarus: Quality Checking

Clarus System [home](#)

Map Interface

Time: 2007-05-16 15:12 UTC

Station Code:

Lat, Lon: 47.204642, -94.031982

Units:  Metric  English

essAirTemperature (F)

(Recenter map on ...)

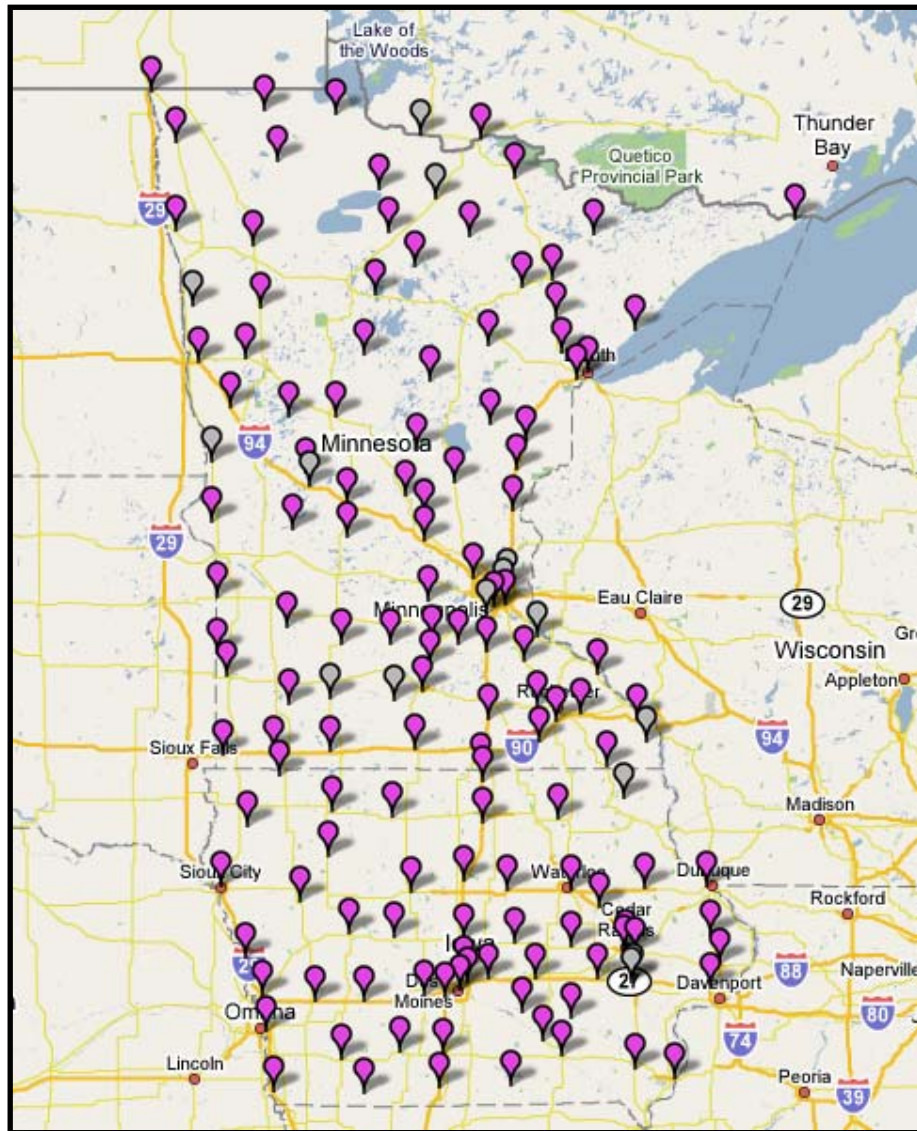
330-65 Cotton Lat, Lon: 47.21123, -92.4877 Elevation: 406 m			Complete	Manual	Sensor Range	Climate Range	Slep	Like Instrument	Persistence	Barnes Spatial	Dewpoint	Sea Level Pressure
Timestamp (UTC)	Observation Type	Value										
2007-05-16 15:04	essAirTemperature (F)	72.50	●	—	●	●	●	—	—	●	×	
2007-05-16 15:04	essAtmosphericPressure (inHg)	28.64	●	—	●	●	●	—	—	—	—	●
2007-05-16 15:04	essDewpointTemp (F)	68.00	●	—	●	×	●	—	—	×	—	
2007-05-16 15:04	essMaxTemp (F)	102.20	●	—	●	×	●	—	—	×	—	
2007-05-16 15:04	essMinTemp (F)	68.00	●	—	●	●	●	—	—	×	—	
2007-05-16 15:04	essPrecipitation24Hours (in)	0.04	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essPrecipitationOneHour (in)	0.00	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essPrecipitationSixHours (in)	0.00	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essPrecipitationThreeHours (in)	0.00	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essPrecipitationTwelveHours (in)	0.04	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essSubSurfaceTemperature (F)	32.29	●	—	●	×	●	—	●	—	—	
2007-05-16 15:04	essSurfaceTemperature (F)	32.22	●	—	●	●	●	—	—	—	—	
2007-05-16 15:04	essVisibility (ft)	14140.42	●	—	●	—	●	—	—	×	—	
2007-05-16 15:04	essWetBulbTemp (F)	69.80	●	—	●	×	●	—	●	×	—	



# Combined ESS Coverage

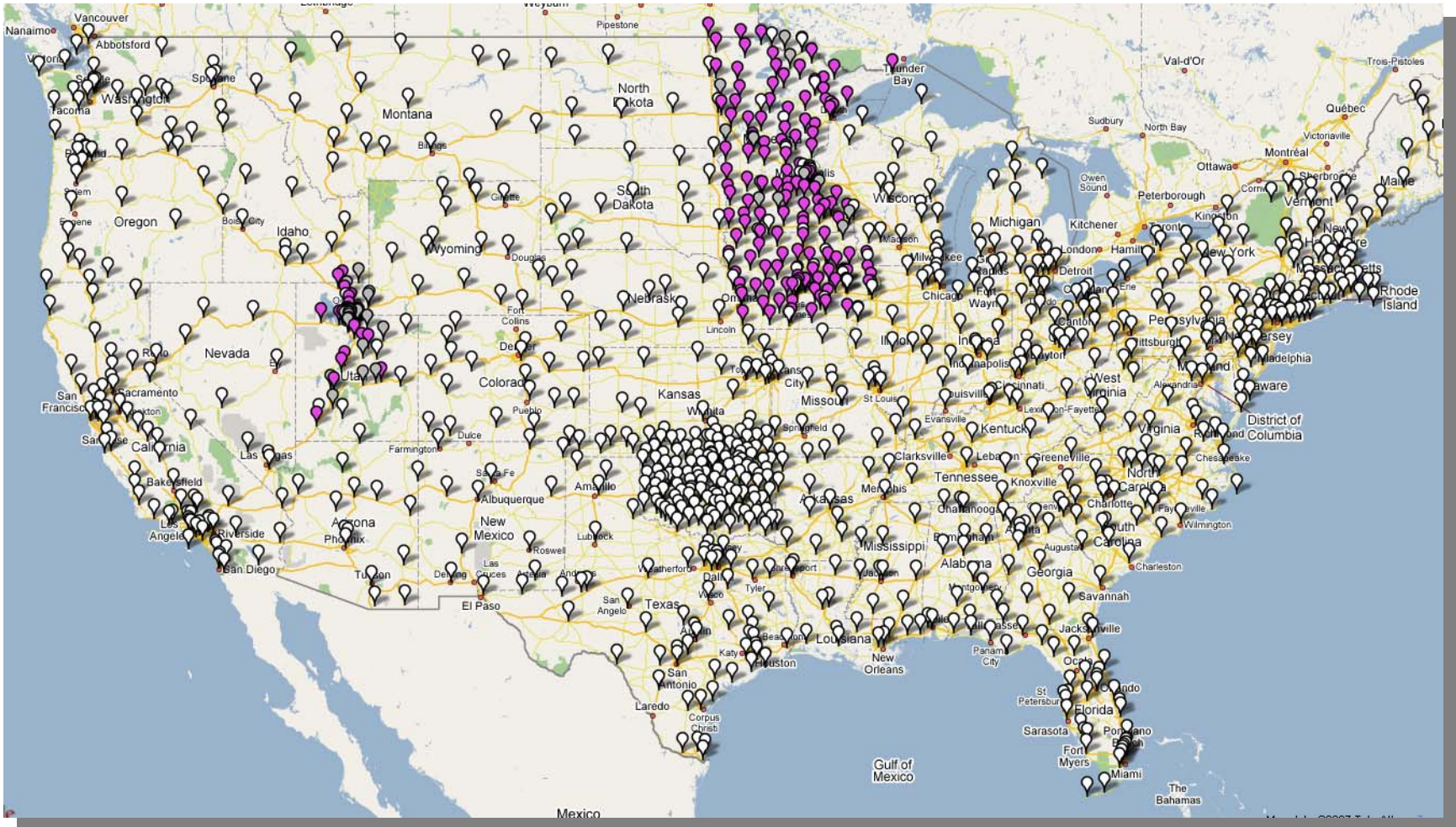
## Coverage Benefits

- Access data from 149 ESS through a single portal
- State borders disappear
- Reducing/eliminating redundant sensors & accessing data from your neighbors can result in cost savings
- Increased data density creates more effective quality checking algorithms



# Imagine Nationwide Coverage! So...Get connected!

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ASOS/AWOS (Airport), OCS (Oklahoma Climate Survey) & *Clarus* ESS 13