
WEATHER TELEMATICS
We deliver weather™
Connected Vehicle Surface Observation Network
Presented to:
2014 AMS Washington Forum for Surface Transportation
Thursday, April 3rd , 2014
WEATHER TELEMATICS

Background

Surface Transportation Weather Support

- Developed and manufactured a proprietary sensing platform
  - Telematics enabling technology for the connected Vehicle Market (focus on weather safety) but not limited to.
- Connected vehicles – Next generation of Telematics
  - Communication protocol, DSRC / 5G cellular (combination) – V2V, V2I
- Objective: Turn vehicles into Sentinel beings.
- Vehicles become road maintenance probes
  - weather, surface reconstruction (potholes).
- Create a real time road weather alert system / public
  - Situational awareness, Dynamic Weather Routing / shortest safest route.
- Designed to Collect and aggregate weather data on a dynamic basis from both the WT platform and Vehicle Can-Bus.
  - Axel Slippage
  - Humidity into the engine intake system
  - Headlights
  - Windshield Wiper Activity.

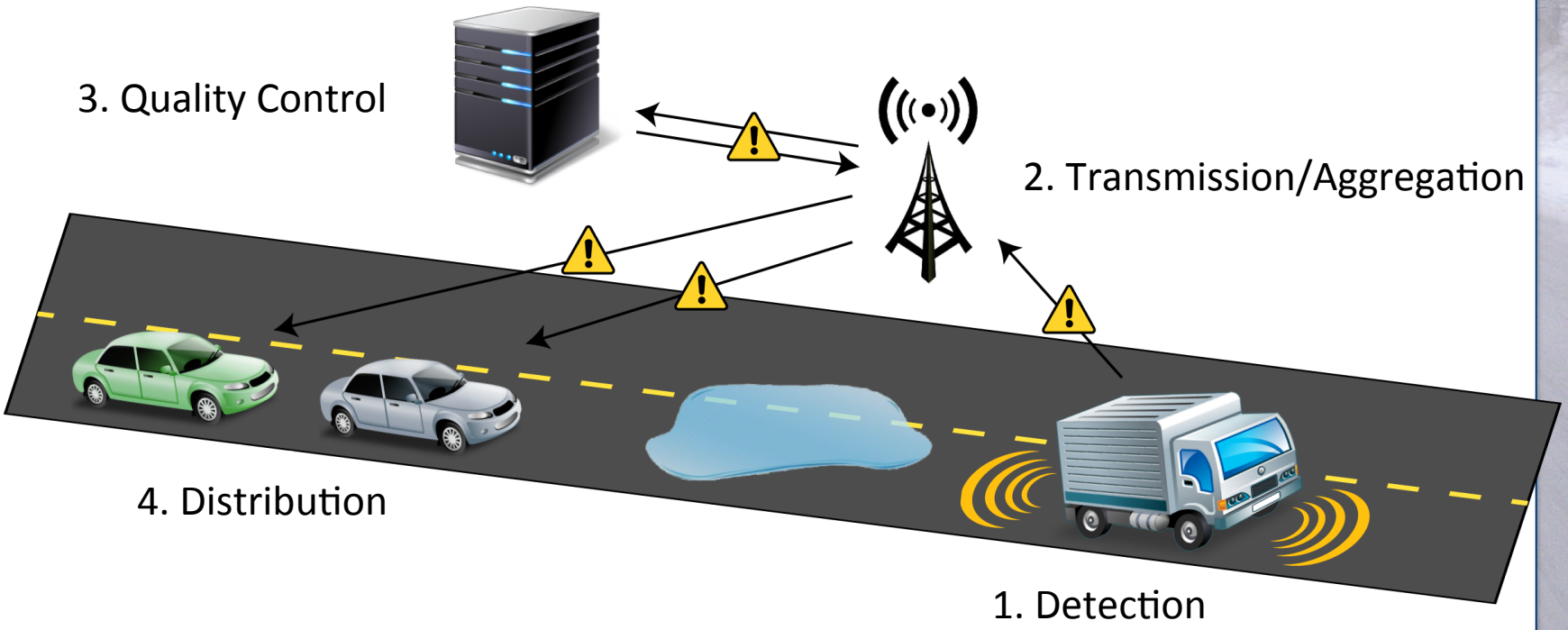
Current Capabilities

Surface Transportation Weather Support

- **Deployed the largest Mobile Weather and Air Quality Observation Network in the US.**
- **Pure Real-time (dynamic) data**
  - **Exceptional Quality / scientific integrity, NWS/EPA**
- **Unsurpassed Spatial and Temporal Granularity.**
- **Millions of observations Daily to the NWS**
  - **Perspective: More observations in one day / US national fixed weather infrastructure delivers in a week.**
  - **Extremely cost effective, 10 x's more observations @ 10th cost**
  - **Virtually maintenance free.**
- **Connected fleet of 1,500 Con-Way trucks (24/7)**
  - **Year round vs Seasonal vehicles**
  - **Every major interstate / transmitting every 5 seconds**
  - **On-board notification to driver / 25 mile geo-fenced alerting**

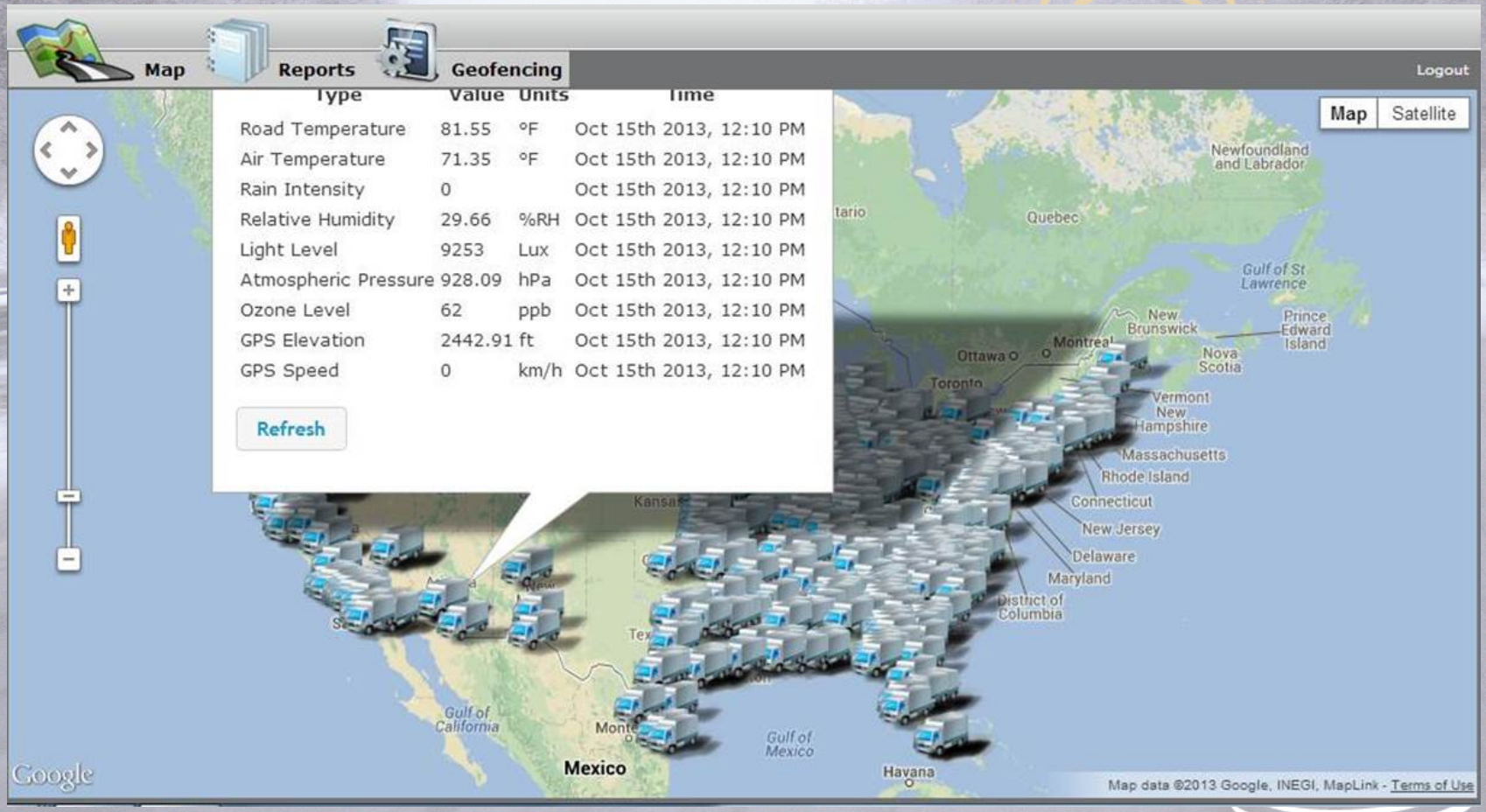
How it Works

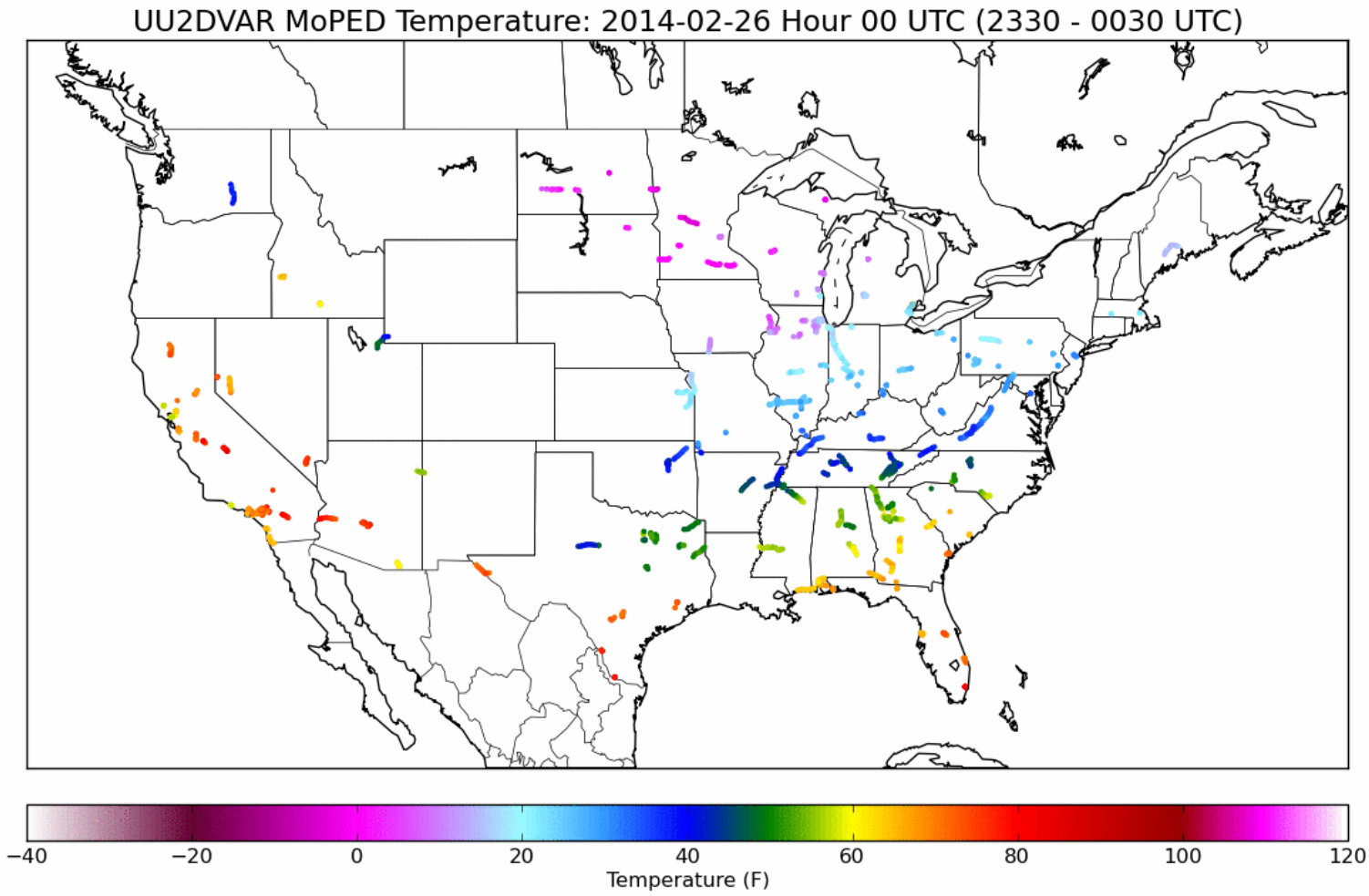
- **Connected Vehicle Surface Observation Network**

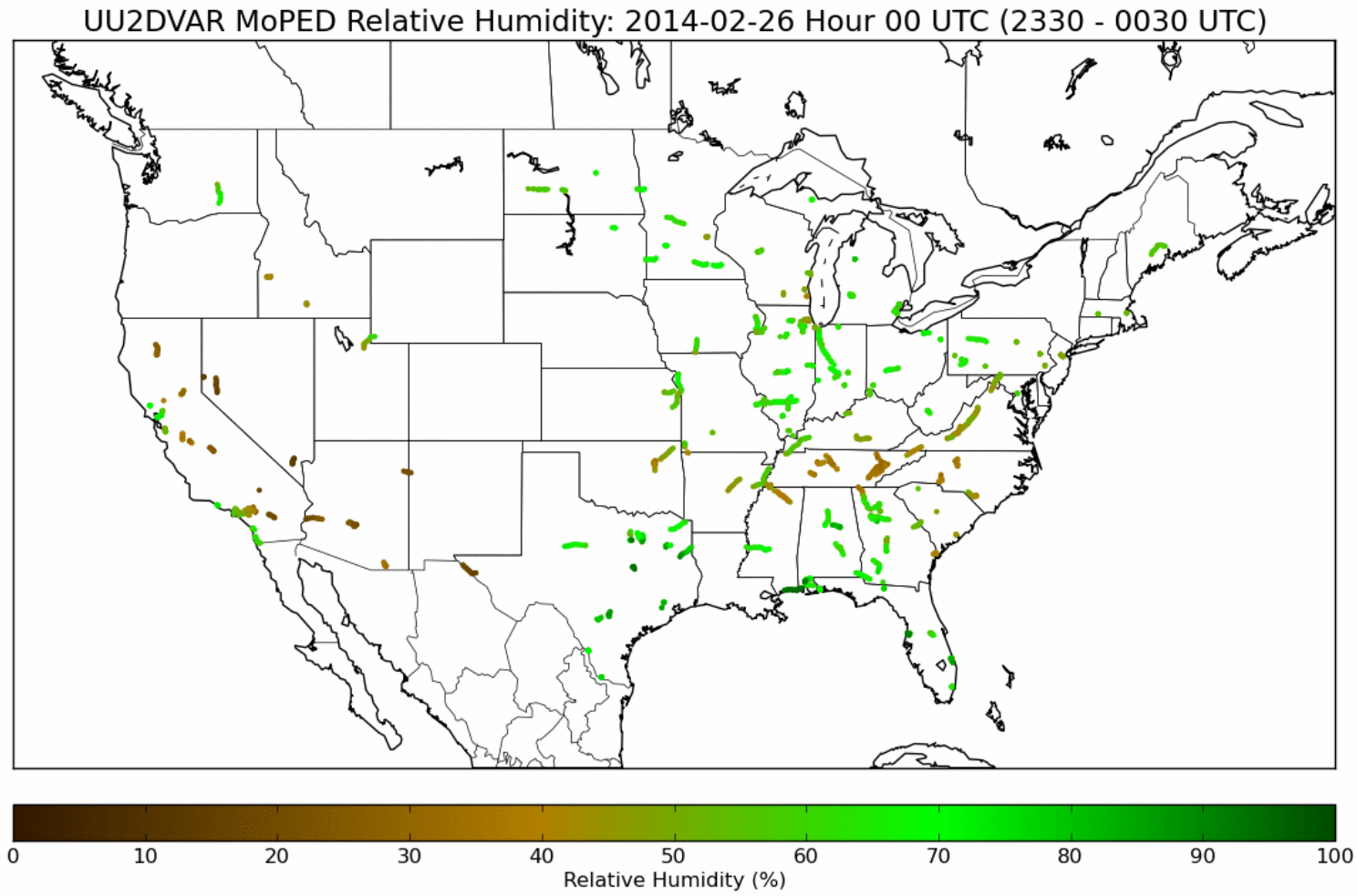


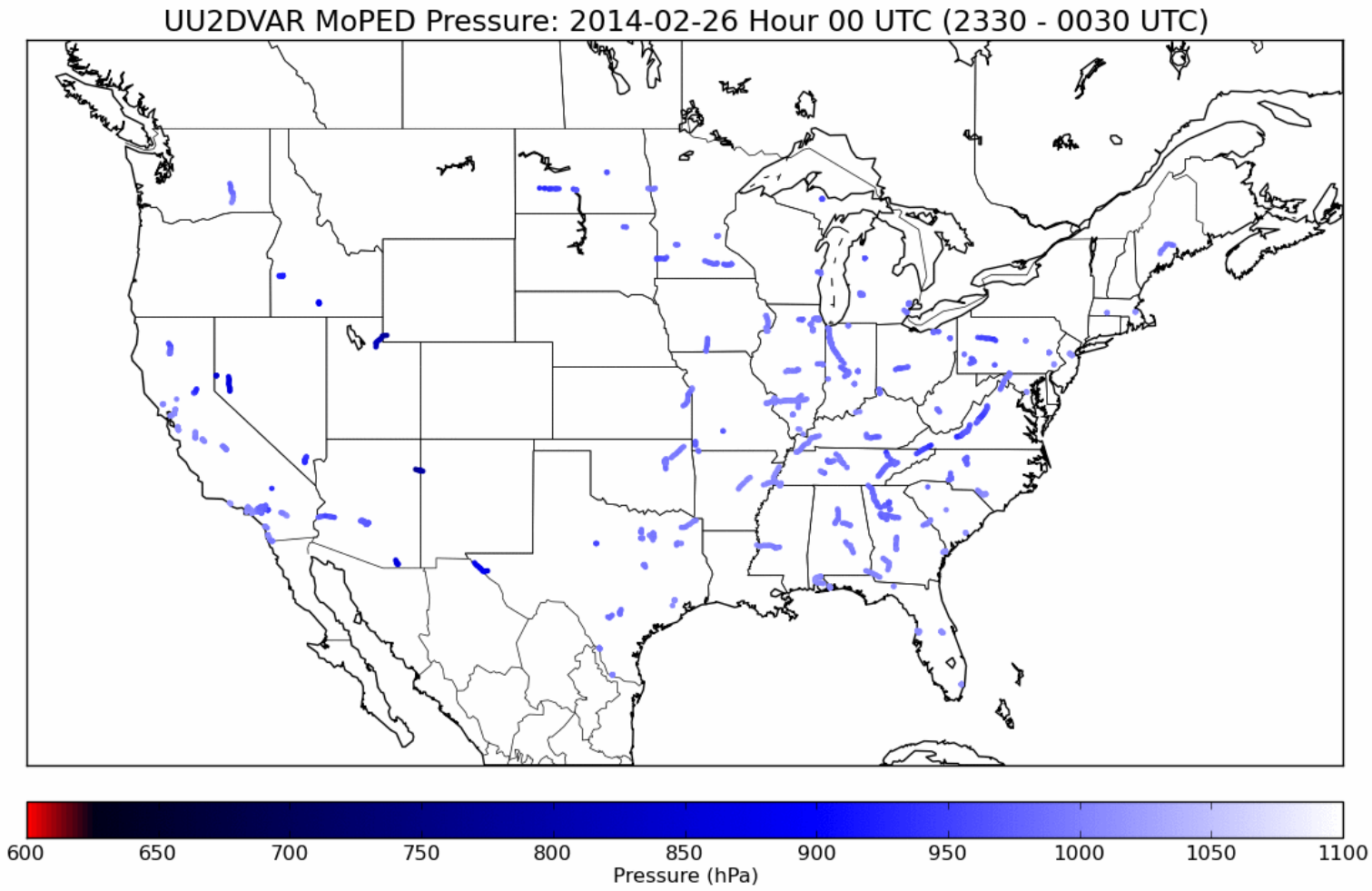
Current Coverage

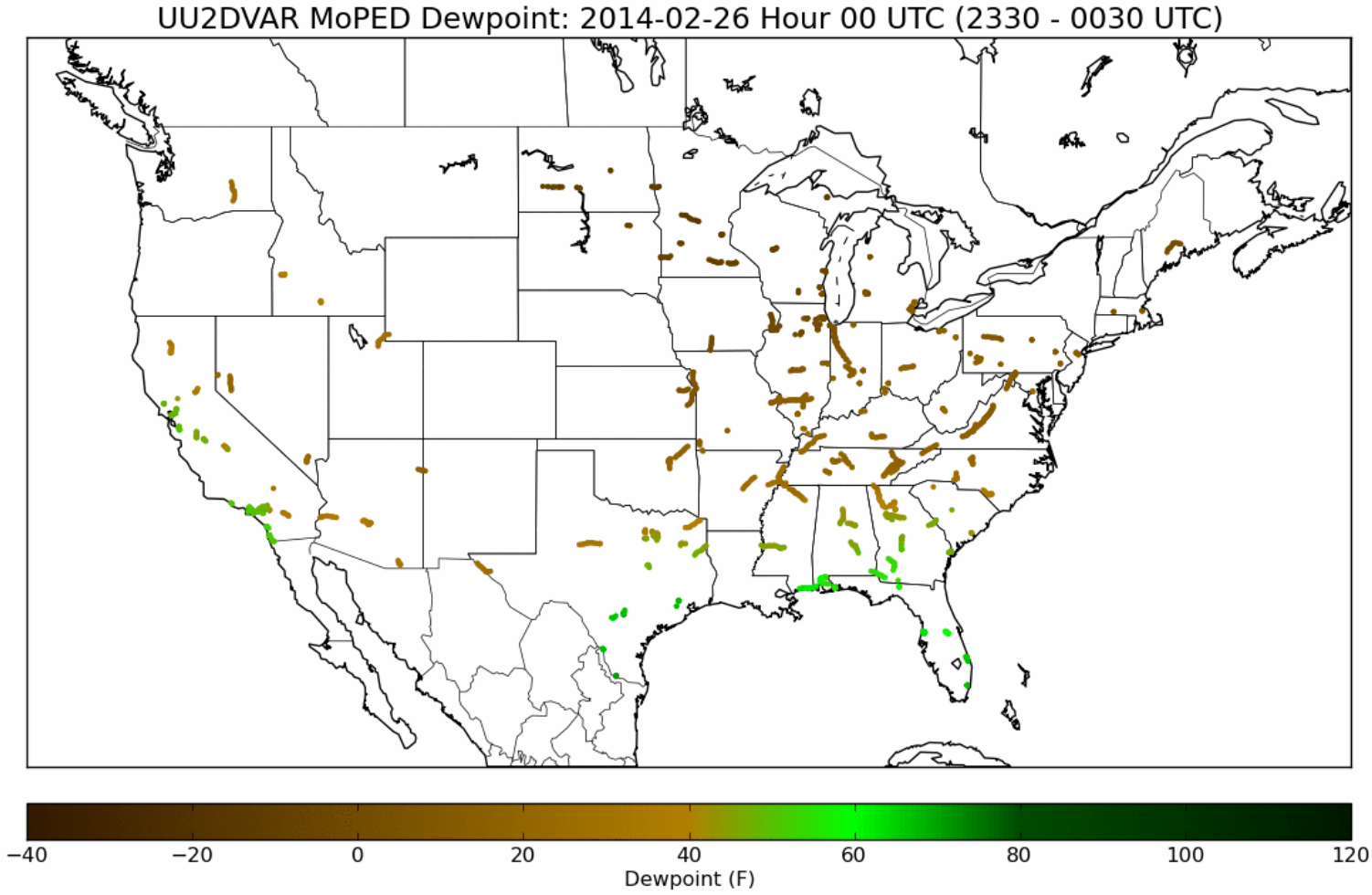
Parameters



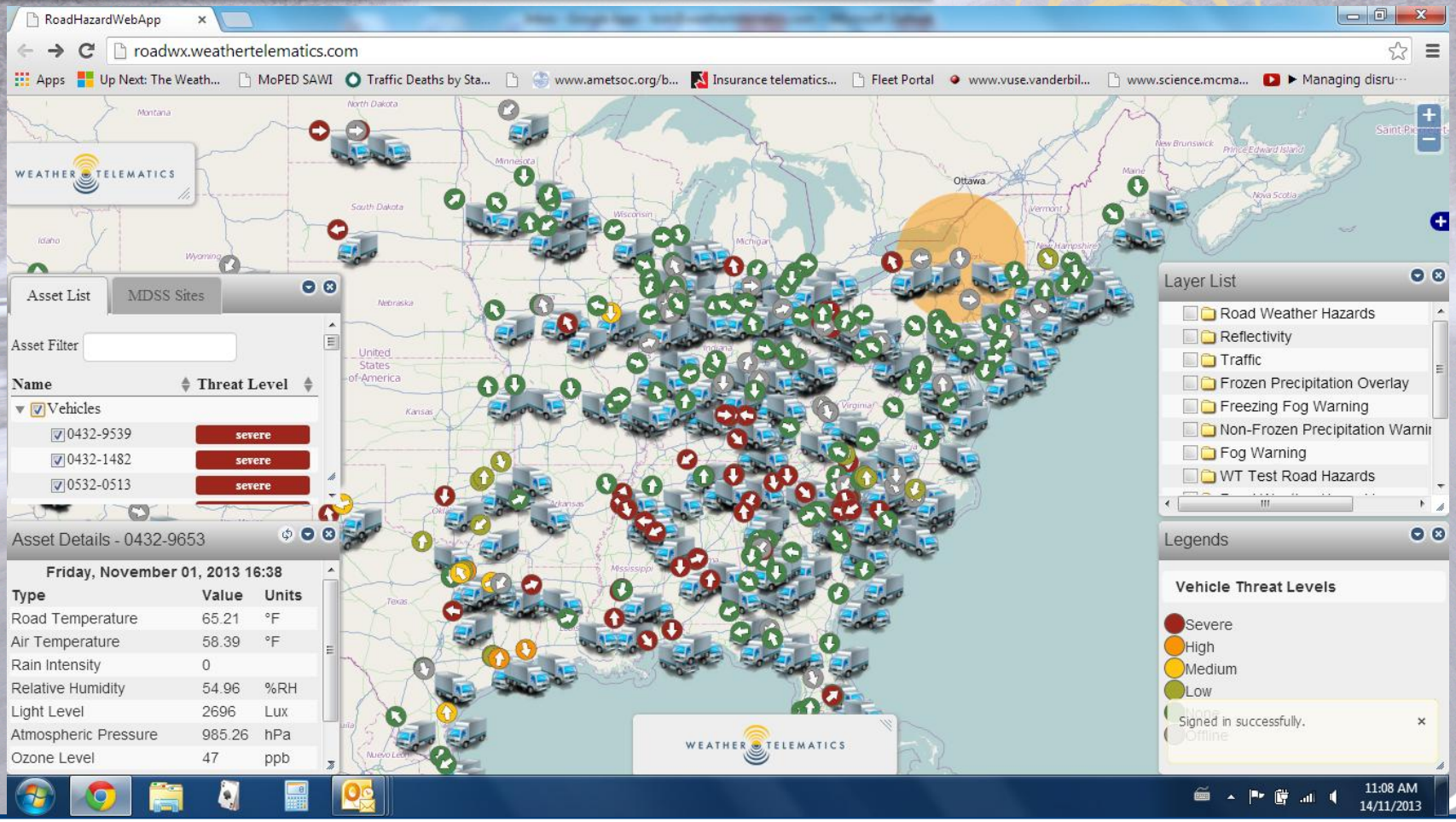

UU2DVAR MoPED Temperature: 2014-02-26 Hour 00 UTC (2330 - 0030 UTC)
−40
−20
0
20
40
60
80
100
120
Temperature (F)


UU2DVAR MoPED Relative Humidity: 2014-02-26 Hour 00 UTC (2330 - 0030 UTC)
0
10
20
30
40
50
60
70
80
90
100
Relative Humidity (%)


UU2DVAR MoPED Pressure: 2014-02-26 Hour 00 UTC (2330 - 0030 UTC)
600
650
700
750
800
850
900
950
1000
1050
1100
Pressure (hPa)


UU2DVAR MoPED Dewpoint: 2014-02-26 Hour 00 UTC (2330 - 0030 UTC)
−40
−20
0
20
40
60
80
100
120
Dewpoint (F)

Road Hazard View



Future Capabilities & Objectives \

Enhanced Surface Transportation Weather Support

- Ongoing enhancement to the Platform.
  - Add additional Sensors
    - Wind speed and direction
    - Lightning
- Work with Fleet partners to expand Network
  - Nationally, Globally
- Support Federal and State DOT initiatives (VDT)
- Continue to innovate telematics technology solutions to enhance the Science of Weather
  - Work with AMS Community to understand disruptive effects
    - Big data, NowCasting vs forecasting
    - Based upon an entirely new ground-truthing paradigm
    - Help improve Forecasting models
- Improved weather hazard awareness and MDSS layer.
- Work with the ITS and connected vehicle market to realize the benefits
  - Saving lives, reducing property damage, and the economical impact of weather related delays
  - Delivering whole new level of situational awareness that otherwise has gone undetected.

Case Study

- Feb 21, 2013
- Fleet vehicle involved in Fatal Head on collision
- Truck driver receives onboard warning 8 min ahead of impact – reduces speed from 60 Mph to 50 Mph
- 30 seconds up to impact, Driver receives constant warning – reduces speed to 28 Mph.
- Oncoming vehicle loses control on Black Ice.
- At point of impact truck was travelling 22 Mph.
- Mother of two dies at the scene.
- What if she had the same situational awareness
- Point: 4 RWIS stations and 1 ASOS within 5 mile radius
- Not one could detect what the mobile platform detected.
- This Technology exists today. The fleets infrastructure Exists,
- Unfortunately, Loss of life still exists.
- If one mobile platform can save just one life, I ask you to:


Imagine!
Weather on Board
Weather on Board
Mobile Weather Station on Board
- We deliver Weather!