The Pikalert™ Road Weather Hazard Forecast System

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IMO 2 Partners

- Department of Transportation, United States of America
- Minnesota Department of Transportation
- Michigan Department of Transportation
- Nevada Department of Transportation
- NCAR
- Booz | Allen | Hamilton
- UMTRI

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Vehicle Data

- Sun/Rain Sensor
- Windshield Wiper Setting
- Head Lights Status
- Ambient Air Temperature

- Speed and Heading
- Adaptive Cruise Control (ACC)
- Location and Elevation
- Hours of Operation

- Anti-lock Braking System (ABS)
- Brake Status
- Stability Control
- Traction Control
How do we make sense of such a potentially large data set?
The Pikalert™ Vehicle Data Translator

- System designed to manage and quality check mobile observations
- Statistics are compiled that are segment-specific (e.g. # of wipers, average road temperature, etc.)
- Road-weather inferences are made
- VDT 3.0 TO 4.0 - segment information not totally dependent on mobile observations

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Initial Deployments

IMO 2
- Nevada
- Minnesota
- Michigan
- ITS World Congress
Enhanced Maintenance Decision Support System - EMDSS
Motorist Advisory & Warning (MAW)
Precipitation intensity and type
- Snow
- Rain
- Ice
- Road splash

Pavement condition
- Dry
- Wet
- Icy
- Hyrdoplane

Visibility
- Clear
- Blowing snow
- Dense Fog
Hazard Algorithms

Pikalert Map

Current time: 1/15 12:28:07 pm
Data valid: 1/15 12:15:00 pm

Thurs 1/23 8:30 am  ✔️ Warning: Precip: none, Pavement: dry, Visibility: fog
Thurs 1/23 9:00 am  ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 10:00 am ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 11:00 am ✔️ Clear
Thurs 1/23 12:00 pm ✔️ Clear
Thurs 1/23 1:00 pm ✔️ Clear
Thurs 1/23 2:00 pm ✔️ Clear
Thurs 1/23 3:00 pm ✔️ Clear
Thurs 1/23 4:00 pm ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 5:00 pm ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 6:00 pm ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 7:00 pm ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
Thurs 1/23 8:00 pm ✔️ Advisory: Precip: moderate snow, Pavement: slick, snowy, Visibility: normal
MAW Phone Application

- Provides situational awareness reports while on the road

Advisory: Slick roads ahead!
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- Nevada
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Additional Deployments

IMO 2
- Nevada
- Minnesota
- Michigan
- ITS World Congress
- Alaska
Additional Deployments

IMO 2
- Nevada
- Minnesota
- Michigan
- ITS World Congress

Alaska
Colorado

WeatherCloud

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Additional Deployments

IMO 2
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- Minnesota
- Michigan
- ITS World Congress

Alaska
Colorado
Michigan
Download

Software download

http://www.rap.ucar.edu/projects/connected_vehicles/pi
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