Vehicle Data Translator [VDT]
*Using passenger vehicles to diagnose the weather*

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- Cajun Pass, CA
- 30-car pile-up on I-15
Dec 22, 2009

- Amarillo, TX
- 80-car pile-up on I-40
Safety

Average Annual Fatalities

- Hurricane: 21
- Cold: 24
- Winter Storm: 44
- Lightning: 49
- Wind: 55
- Tornado: 57
- Flood: 84
- Heat: 235
- Total NWS tracked Weather: 569
- Adverse Road Weather: 7400

NCAR
Change is in the air

Technology

Consumer Interest

DOT IntelliDrive℠ Initiative

VDT
Transportation market trends

- 2016, connectivity will be a “critical buying consideration” on par with fuel efficiency, safety, etc.
- 2020, 30-90 million connected vehicles.
Consumer interest in transportation information

Data from JPO survey

- Detailed POIs
- Parking spots
- Many POIs
- Gas prices
- Weather
- Traffic

0% 20% 40% 60% 80%
The IntelliDrive℠ initiative

- IntelliDrive℠ is a suite of technologies and applications that use wireless communications
- IntelliDrive℠ applications provide connectivity:
  - with and among vehicles
  - between vehicles and the roadway infrastructure
  - among vehicles, infrastructure, and wireless devices (consumer electronics, such as cell phones and PDAs) that are carried by drivers, pedestrians, and bicyclists

http://www.intellidriveusa.org
Vehicle data in IntelliDrive℠

- 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
- Antilock Braking System (ABS)
- Brake Status
- Stability Control
- Traction Control
Temperature accuracy

![Temperature Accuracy Chart]

- The chart represents the count of temperature measurements within different temperature ranges.
- The highest count is for a temperature range of 0.5°C to 0.5°C, indicating a peak in the data.
- Temperature ranges are listed from -11.5°C to 10.5°C, with intervals of 0.5°C.
- The data distribution shows a normal distribution pattern, with most measurements clustered around the center.

NCAR

Precipitation algorithm

Fused Interest Field

Iterative Verification

Final Product-Impacted Roadways

Heavy Precipitation
VDT display

[Image of a VDT display with a map showing various weather conditions and data sets.]
Thanks for your time

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Mobility & efficiency

- 554 million vehicle-hours of delay per year result from snow, ice, and fog
- Delays to trucking companies range from $2.2-$3.5 billion annually
- Greenhouse gas emissions