

Ensuring safe travel in poor visibility



Summary

- Poor visibility on the road network leads to delays, but more critically has the potential to result in fatal accidents.
- Identifying high risk locations and installing weather monitoring equipment will help to mitigate against the effects of poor visibility.
- Appropriate location of visibility monitoring sites ensures the highway operator receives critical information.
- Using variable messaging signs, the motorist will be warned of potentially dangerous driving conditions.
- Monitoring sites may be located as one-off installations or networked systems.

Fog has caused some terrible accidents over the years, and drivers are often caught unaware by a sudden drop in visibility. Vaisala has developed highly accurate visibility detectors that will identify the formation of fog as soon as it happens. Our solution will inform you of the presence of fog straightaway.

From airport to roadside

In the exacting environment of an airport Vaisala has developed highly accurate visibility sensors that have been installed across the globe. This technology has been developed to work on the roadside as well, bringing peace of mind to the road operator that they are employing the best technology for this critical weather issue.

The right instrument for the right location

Vaisala has developed a wide range of visibility instrumentation to ensure that you use the right sensor for your particular location, delivering the information you need. Within our team, at your disposal are experienced meteorologists who will help with identifying locations on your network that are likely to be most prone to fog formation. Once that has been decided we will then help you to determine the most appropriate location for the sensors to ensure you measure exactly what you need to measure.

Making the most of the data

Data will be collected from the visibility sensor at a frequency that suits your needs, utilising whichever communications method is most suitable for your operations and the location of the site. Once collected the Vaisala Data Centre will check the data to ensure its accuracy and consistency and pass the information back to you. We can display the data on the web and by using our alarm system tailor warnings that fit with your operational practices, to be sent by email to your PC or phone thus ensuring that you never miss a sudden drop in visibility.

Delivering information to the traveller

Our fog monitoring sites may also be linked into existing ITS infrastructure to provide a real time fog alert to warn motorists of potentially dangerous conditions.

The arterial route from Folkestone in Kent has seen a number of multi-vehicle accidents over the last four years where fog was confirmed to be a major contributing factor. As part of the measures to warn traffic and increase safety, a series of visibility sensors have been installed to identify deteriorating conditions, and trigger variable message signs.

Network wide or single site

At Vaisala we strive to ensure that the solutions we deliver are designed for the specific use to which they will be put. This means we will take time to discuss with you the precise

requirements of your system. We will bring to you experience from other customers around the world so that you learn from their successes, therefore ensuring you get it right. This may mean putting one sensor at a known trouble spot, or many sensors along a full stretch of strategic highway.

Fog - a serious danger!

On Canada's highways, more than fifty fatal collisions occur each year in dense fog, smog or mist (Transport Canada, 2001).

According to the US Federal Highway Administration the average yearly accident rates due to fog total 38,700 crashes, 16,300 persons injured and 600 persons killed.

In 2007, approx 1% of fatalities on UK roads were in foggy conditions. (Department for Transport, 2007) Although the total number of road casualties in foggy weather is small, accidents per kilometre on

motorways are more numerous than on other roads and more serious. (Transport Research Laboratory, 1972).

How is fog formed?

Fog is just cloud at ground height. It is suspended water particles that cannot evaporate or move away. The air needs to cool to a point where the water vapour that is always present condenses out and then has nowhere to go. The best conditions for fog formation are a clear sky with a very slight breeze. The ground will cool quickly under clear skies to the point where the droplets appear, then the light breeze mixes that up with the clear air just above to repeat the process until you have dense fog. However, it is not just fog that can cause trouble on the roads, thick smoke from a fire or blowing sand or snow can also reduce visibility to fog limits. All of which spell trouble for the driver.



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