

Road Weather API

High-resolution road weather forecasting to improve safety, efficiency, comfort and convenience for drivers and vehicles



Drivers select or change their route based on weather conditions. Autonomous vehicles avoid icy or snow-packed roads. The future of safer, more comfortable journeys is gaining speed — made possible with Vaisala Road Weather API.

Road Weather API provides reliable, actionable road weather forecasts and insights for drivers and autonomous driving technologies. The flexible and customizable framework enables automotive manufacturers, transportation technology innovators and other industry solution developers to provide customers with a safer, more enjoyable traveling experience.

Road Weather API incorporates surface state current conditions with down-the-road forecasts, friction estimates, and water, snow and ice film thicknesses. A multi-step validation process maximizes accuracy and reliability, while modeling accounts for the potential effects of numerous factors such as road maintenance activities and traffic congestion.

Through sophisticated modeling and machine learning, the Data-as-a-Service (DaaS) API delivers reliable, relevant current and future road surface condition data—including the likelihood of dry or slippery conditions—for different road types. The solution can be delivered, for example, through integration with infotainment systems or overlaid with a GPS interface to give drivers and autonomous systems the information needed to make better decisions before or during a trip.

Key benefits

Improves safety for drivers and vehicles

Empower your customers with real-time road weather information. Drivers can plan or change their route to avoid hazardous conditions, while autonomous vehicles can optimize trips for greater passenger comfort. The result: Fewer accidents and injuries plus reduced costs.

Highly accurate and reliable

Drive innovation with reliable current and future road condition data. Road Weather API uses machine learning to combine multiple inputs for excellent nowcasting, while the sophisticated mass and energy-balance model gives a precise understanding of road surface condition for each road segment.

Customizable for multiple industry applications

Get the most flexibility for innovative uses. Customizable APIs provide accurate, actionable road weather data that enhances safety and efficiency for multiple applications in fleet management, local delivery, infotainment and driver support, ADAS & AD, vehicle systems and more.

Confidence with partnership and trust

Team up with the weather and environmental measurement experts. Vaisala solutions are grounded in 85+ years of sensor experience, 20+ years of road weather forecasting and pioneering road weather stations. We collaborate with top tier vehicle manufacturers and automotive tech companies.

DaaS for continuous value

- Enables the advancement of ADAS and automated driving technologies
- Supports other vehicle systems such as EV range calculation and hazard warnings
- Can be integrated with vehicle sensor data for even finer-resolution weather awareness
- Provides support for ongoing R&D of advanced driving technology and customer-facing road weather products

Key features

- **Unified, comprehensive methodology** for real-time road weather information in all conditions.
- **Incorporates multiple data sources** including radar and satellite, traffic profiles, road classifications, bridge locations and maintenance activities.
- **Real-time, location-based road weather modeling** categorizes wet pavement, snowfall, sleet, poor visibility and wind conditions.
- **Assesses current and near-future** driving conditions on the road surface.
- **Comprehensive road condition classification** includes basic dry, wet, slush, snow, or ice identification plus friction estimates, water/snow/ice depth, and road surface temperature output.
- **Validated against actual road condition observations** from nearby Vaisala or third-party road weather stations or mobile sensors.
- **Currently covers North America and Europe** with other regions to follow.

Why Vaisala?

The industry's most dependable road weather forecasting technology

Vaisala road weather forecasting technology solutions lead the industry thanks to superior data qualities and a continuing commitment to innovation and research and development. They are built on 85 years of weather measurement experience and solutions, trusted in over 170 countries from the north pole to the south pole and even on Mars.

Vaisala's strong background in road weather, active development of novel forecasting methodology, and investment in R&D activities demonstrate to your customers that you care about quality and safety.

Insight every day

The combined power of our weather and environmental solutions provide dependable intelligence people can confidently act on to make better decisions. With Vaisala, you can count on our 360 degree solutions that are extensively put to the test across the world and proven to consistently provide superior performance.



An example of how road weather data could be used as a part of navigation and route planning

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