

GENERAL SUMMARY - FORENSIC METEOROLOGICAL SERVICES

Consult as an Expert Meteorologist, Environmental Scientist, and Geophysical Data Analyst for court cases and insurance claims (over 100 cases to date), and requested research projects. This includes testimony under oath. Confirm the accuracy or validity of environmental data, and associated conditions. We analyzed their role in each case, with specific focus on interaction between the atmosphere and the Earth's surface. Environmental conditions assessed have included topics in climatology, ecology, geography, geology, hydrology, meteorology, oceanography, and pedology.

DETAILED SUMMARY - FORENSIC METEOROLOGICAL SERVICES

Some topics addressed for clients have involved the following:

- o **Temperature and surface weather analysis** for use in cases involving injury and loss from extreme heat to ice cover
 - Slip-and-fall or auto/truck accidents resulting from ice accumulation.
 - Agricultural losses from extreme heat stress or frost and freeze.
 - Thermal stress on structural performance.
 - Evaporation rates affecting water and ice involved in slips and falls.
 - Evaporation and transpiration role in the water cycle, drought, and water quality.
- o **Wind and visibility assessments** - dust storms, wind, or fog involved in litigation
 - Air pollution and chemical plume dispersion causing damage to health or agriculture.
 - Dust storms leading to auto/truck accidents and health issues.
 - Reduced visibility from fog, dust, or smoke causing auto/truck accidents.
 - Wind influence on fire behavior.
 - Wind, wind loading, and storm damage assessments to property structures and trees.
- o **Precipitation, flood and drought analysis** with integration of satellite, radar, and surface data.
 - Hail damage resulting in injury and property loss.
 - Flash flooding resulting in property loss and death.
 - Delay in or cancellation of construction as a result of heavy rain or snow.
 - Snow and/or ice accumulation causing auto/truck accidents, roof collapse, tree or agricultural damage, blocking egress, or leading to gas explosion.
 - Auto/truck accidents involving various adverse weather and road conditions.
 - Dew/frost accumulation leading to slips and falls.
- o **Environmental analysis** in light of surrounding land cover, geography, and overlying weather.

Spread of pollutants in watersheds, including Superfund sites.
Assessment of water availability based on past to current precipitation trends.

Investigation of weather and environmental conditions involved in water quality.

Causes of poor air quality in various geographic settings.

Energy output analyses for solar and wind renewable energy installations.

o **Precise solar position calculation** to determine the role of the sun in various cases

Burns from hot asphalt in the sun.

Sun glare inhibiting vision and causing auto/truck accidents.

Sun or moon role in lighting conditions affecting eyewitness perception.

Sun damage to exposed materials.

Direct sunlight vs shadow role in cases involving icy or wet surfaces.

- Assessment of Instrumentation and equipment for site specific studies.
- Loss of forest from fire and the change in local weather conditions.
- Analysis of large temperature, wind, or precipitation differences over short distances.

Assessment of sensor data quality in various settings for biases and errors

that result in erroneous assessments and subsequent loss.

Alteration of local climate caused by landscape changes.