

What can affect Sound Outdoors?

Temperature – Yes, temperatures can affect the sound as well. Sound can “slow down” as the air gets colder and “Speed up” when temperatures are hot. This is related to the difference in “density” between cold and hot air. Since cold air is denser than hot air – the sound will slow down in colder air and speed up as the air gets hotter. Although temperature affects sound waves, it is not as distinct as the effect that wind has on sound waves.

Humidity – Basically, sound waves will travel faster in high humidity. Why? Because humid air is not as dense as dry air. That said, the humidity effect on sound waves will only affect frequencies 2kHz and above.

Wind –Different things can occur when the sound goes in the same direction as the wind if the sound is going against the wind, or when the sound is caught in cross-winds. Wind can give the impression that sound is coming from different directions than it’s really coming from. During a strong cross-wind, if the listener faces a speaker, it could give the illusion that the sound is coming from the left or right. This is called “refraction” (which describes the “bending” of sound waves).

Although Temperature, Humidity, and Wind can potentially affect sound waves outdoors – The effect will be small and barely noticeable to the average listener. The biggest “threat” to live sound outdoors would actually be the factors of the “Environment” and “Surroundings” of the location of the sound system.

Here are a few “Environment and Surroundings” examples to be aware of:

Is the sound bouncing off buildings? Is something covering or obstructing the front of the speaker?

- Are there reflective surfaces? Such as Glass, Plexiglass, Concrete, Wood, Metal walls, etc.
- Are there any “absorbent” materials in the environment? Such as Drapes, Acoustic Foam, etc.

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