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Noise Reduction System Impacts on Sensor Cavity Temperature

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Earlier studies into the impacts of environmental variables on infrasound sensors have demonstrated that the frequency response can be susceptible to temperature changes. Infrasound stations are typically configured to prioritize thermal stability, either by installation in an underground vault or the use of an insulated enclosure, and the air temperature around the sensor can be monitored. However, one challenge for infrasound sensors is that they must be ducted to the outside air, typically via a Wind Noise Reduction System (WNRS), potentially exposing the transducer to different temperatures than the vault interior. We have completed a long-term study monitoring the temperatures of the outside air, vault interior air, and sensor transducer cavity temperature using different styles of WNRS. The results of this study comparing the variability of temperature measurements around the sensor are shown here.

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