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Thermal Effects on Returned Laser Scatter Signals JALAL BUTT, S. JAKE ATKINS, NIMMI C. P. SHARMA, Central Connecticut State University — Laser radar (also called Lidar) is a very effective tool for understanding characteristics of the Earth's atmosphere. It employs detection of laser light scattered from atmospheric constituents to map atmospheric properties over altitude and time. The Micro Pulse Lidar system (MPL) is a single frequency ground based system that employs a single telescope for both laser transmission and collection of backscattered light. Signals detected by systems of this type can be affected by small thermal gradients. A periodicity was observed in some backscatter signals over time from laser scatter signals collected by a Micro-Pulse Lidar System housed indoors that transmits out an optical glass window. The signal's cycle was found to correlate with ambient thermal variations induced by laboratory heating systems. Results offer important information for experimental protocols and data analyses for MPL-type lidar systems.

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