

Abstract Submitted
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Pilot Study of Microclimates in an Artificial Structure LARRY D. BORUM III¹, MARSHALL THOMSEN, Department of Physics and Astronomy, Eastern Michigan University — We present our observations on the feasibility of using artificial structures to study microclimates in a somewhat controlled environment. While microclimates can play a very important role in local ecology, complexities in natural structures make analysis challenging. We propose using artificial outdoor structures as an intermediate step, allowing the analysis of microclimates influenced by regular, as opposed to irregular, structures. We present some preliminary results on measurements made in a parking structure. Using an IR probe, temperatures were recorded in approximately 30 different locations in and around the parking structure. The measurements were repeated 10 times over the course of one week. Clearly visible were effects such as temperature changes in the interior of the structure lagging behind external temperature changes. Two unheated, enclosed stairwells were observed in most cases to have a temperature distribution that differed from the exposed portions of the parking structure. A third stairwell had a heat source at the base that produced a distinctive temperature signature. Developing an understanding of the microclimate of a parking structure can lead to an improved understanding of microclimates in natural systems such as shallow caves and cliff overhangs.

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