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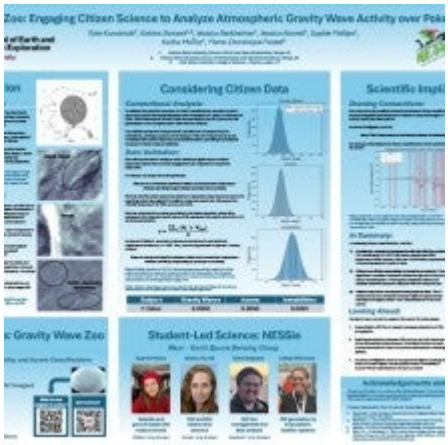
Poster
The Mesosphere and Lower Thermosphere (MLT), also known as the spacecraft reentry region, is a critical atmospheric region ranging from ~80-140 km. A main driver of momentum transport, density perturbations, temperature variations, and background winds in this region are high-altitude atmospheric gravity waves (GWs) which are not well accounted for in many models of the thermosphere and near-space region. Additionally, models that do include GWs fail to resolve small-scale activity (<200km). We utilize our OH imager located in Poker Flat, Alaska (65°N 147°W) to leverage our ongoing citizen science initiative, Gravity Wave Zoo, expanding the breadth of available GW, aurora, and Kelvin-Helmholtz Instability (KHI) data. To-date, more than 2,000 Gravity Wave Zoo participants have classified over 6,000 near-infrared video clips (600,000 images), allowing for the emergence of behavioral trends on the scale of weeks, months, or seasons and aiding in a more cohesive understanding of regular MLT variabilities. We focus on a short-term study between December 27th, 2023, and February 4th, 2024, and report on recent Gravity Wave Zoo progress and accuracy, presenting preliminary statistics on both overall participation and citizen classification types of GW, KHI, and auroral events. Additionally, we compare the novel use of citizen science to conventional analysis as a means of data validation and later speculate on future studies that may be enabled by this work. Through case studies and validation of citizen science data, we demonstrate both initial findings, as well as the potential uses of this extensive citizen science dataset.


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