

HEAT POLLUTION BY LARGE BUILDINGS AND THE EFFECTS UPON ASTROMETRIC OBSERVATIONS

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ABSTRACT Recent, large scale, real estate development near the U.S. Naval Observatory has led to an investigation of the systematic atmospheric effects which heat from large buildings can cause. Results show that non-negligible slopes of the atmospheric layers can be induced which cause a surprisingly large anomalous refraction. The Navier-Stokes equations were numerically integrated using the appropriate boundary conditions and the resulting isopycnic tilts using the appropriate boundary conditions and the resulting isopycnic tilts charted. Rays were then essentially traced through the perturbed atmosphere to determine the magnitude of the anomalous refraction.