A Measurement of Naturally Occurring Ambient Light Levels Near Peak Wavelength = 540 nm Near Twilight Hours

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The statement, "It is always darkest just before the Day dawneth", is investigated. Luminous intensity for non-terrestrial sources of visible light (i.e., solar, lunar, and stellar) was measured over a period of several nights using a collimated detector with a peak sensitivity of 540 nm. The detector consisted of a 1-1/2 inch diameter hemispherical acrylic lens, a 12 inch by 1-1/2 inch diameter collimator, a 4 foot by 1-1/2 inch diameter collimator, and an array of light dependent and temperature dependent resistors. The detector was located in a remote region of West Virginia, removed from man-made sources of light. Light arrived at the detector due to Rayleigh scattering, atmospheric refraction, and direct projection. Detector response to light was measured and recorded once every second over several consecutive 24-hour periods that included various conditions, a full moon, new moon, and a lunar eclipse. Logistic curves were fit to the data by minimizing the sum of square residuals and inflection points were compared with astronomical twilight, civil twilight, and sunrise times. The results indicate that the claim is false, it is not always darkest just before dawn.

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