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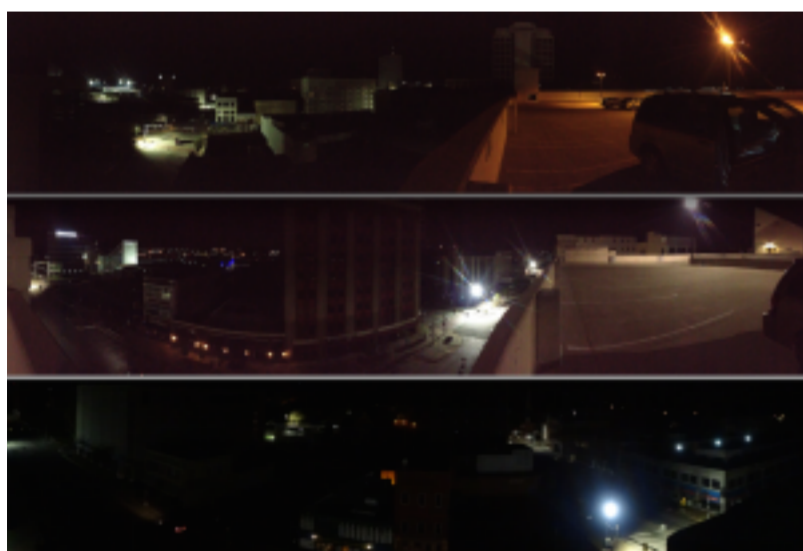
Power Outage Darkness

Posted by admin on May 21, 2014



When the power went out for a weekend in downtown South Bend, IN, the city scrambled to bring back the lights. In the early hours of Sunday, May 18, 2014, I set out to measure the quality of the sky overhead. Armed with three [Sky Quality Meters](#) (SQMs) and a [Dark Sky Meter](#) app on my cell phone, I visited the rooftops of three parking garages to quantify the sky brightness.

A glance at the [recorded data](#) suggests the average reading is approximately **17 magnitudes per square arc second** (dubbed "squims"). This value is a baseline against which one can compare the urban sky when the lights are back on and the city is fully functional. A meter reading of 17 [corresponds](#) to a naked eye limiting magnitude (NELM) of about **three**. That is, you can see down to third magnitude stars.



Though electricity was out in the heart of South Bend ([#dtsbpowerout](#)), portable lights and generators had been brought in to illuminate key intersections and to power some major buildings. The three parking garages from which I observed had lights on, so I took measurements from locations on the top decks where I was removed somewhat from the light's influence. The three sites ([map](#)) shown left (click name to enlarge photo) are the [Wayne Street Garage](#), the [Leighton Garage](#), and the [Main & Colfax Garage](#).



The second night (Sunday) of the power outage had clear skies, allowing one possibly to see four planets along the arc of the ecliptic--elusive Mercury setting in eastern twilight; Jupiter dominant with two stars of Gemini above it; bright reddish Mars to the south; and fainter Saturn rising last toward the southeast. A large gibbous moon (84% illuminated) rose at midnight and was low (<10 degrees) in the east when I recorded these sky quality measurements, between 1:00 and 1:45 a.m. EDT.



Unfortunately, during the power outage I did not record visual observations of limiting magnitudes. While they are admittedly subjective compared to the meter readings, visual observations would clarify the correlation between "squims" and NELM.

Similar measurements with Sky Quality Meters have previously assessed the night sky over northern Indiana. For the [Let There Be Night](#) program, teams of students from 13 schools recorded sky glow in 2009. They then conveyed how much of the night sky has been lost to light pollution by using the visual observations of 3,400 students and building a 3D model out of 35,000 LEGO blocks. For her [Sorry Starry Night](#) project, a student recorded SQM values before and after major construction projects near Cleveland and Gumwood Roads.

I invite others to investigate sky glow by comparing my observations with new data taken with the power restored. The pro version of the a [Dark Sky Meter](#) app costs about \$5.00; a Sky Quality Meter from Unihedron costs \$120.

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