

# SQM 11



## SQM Data

06-05-27

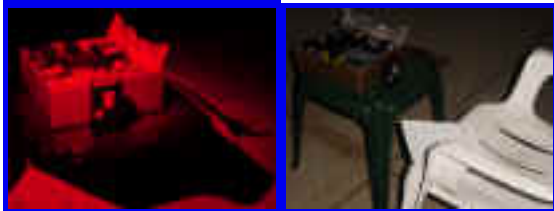
Granger, Indiana, mid-driveway

Clear Sky Clock (below): PHM Planetarium

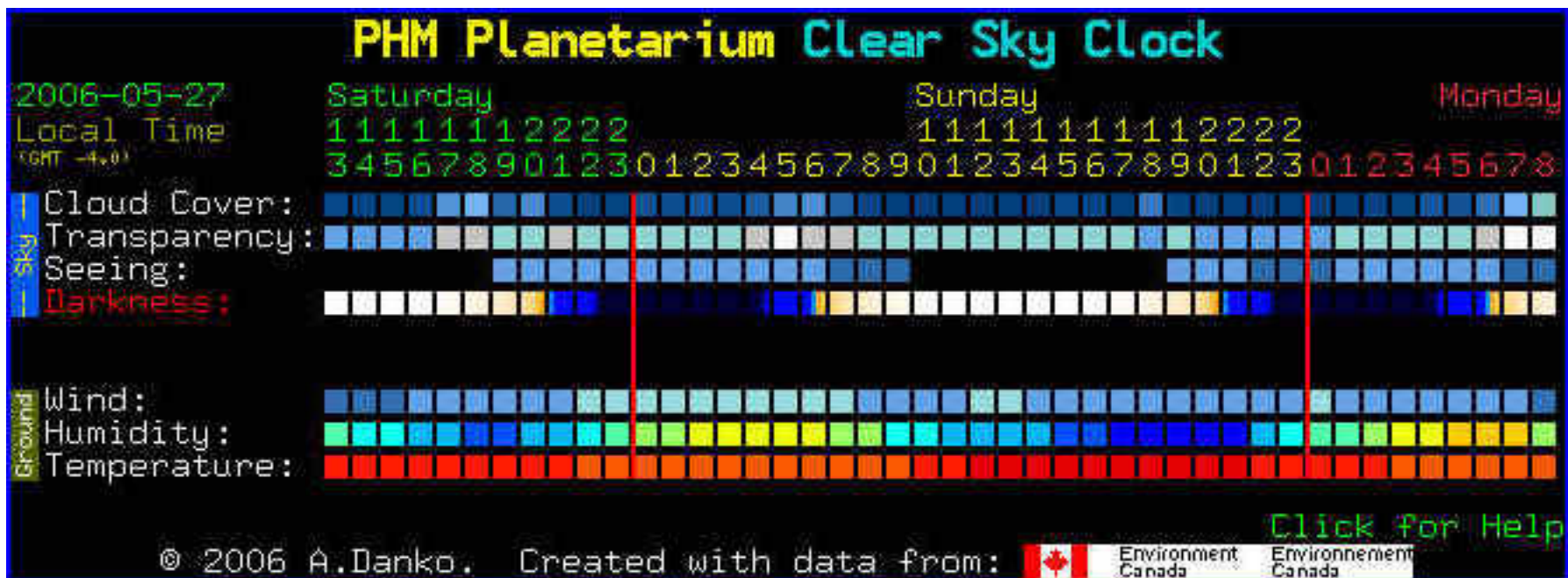
11:22 p.m. EDT to 11:55 p.m. EDT

clear, subtle haze

Note: meter readings were not in sequential order from 730 to 740.



| Meter # | 730   | 731   | 732   | 733   | 734   | 735   | 736   | 737   | 738   | 739   | 740   |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|         | 19.20 | 19.16 | 19.17 | 19.20 | 19.14 | 19.03 | 19.13 | 19.21 | 19.10 | 19.08 | 19.14 |
|         | 19.20 | 19.15 | 19.16 | 19.21 | 19.22 | 19.09 | 19.06 | 19.26 | 19.10 | 19.05 | 19.12 |
|         | 19.19 | 19.17 | 19.13 | 19.24 | 19.23 | 19.14 | 19.04 | 19.25 | 19.14 | 19.08 | 19.18 |
|         | 19.22 | 19.17 | 19.08 | 19.20 | 19.31 | 19.13 | 19.06 | 19.27 | 19.11 | 19.21 | 19.20 |
|         | 19.20 | 19.14 | 19.12 | 19.22 | 19.09 | 19.13 | 19.15 | 19.24 | 19.12 | 19.15 | 19.12 |
|         | 19.21 | 19.20 | 19.10 | 19.20 | 19.15 | 19.08 | 19.15 | 19.23 | 19.12 | 19.13 | 19.17 |
|         | 19.24 | 19.20 | 19.09 | 19.27 | 19.13 | 19.17 | 19.17 | 19.24 | 19.10 | 19.13 | 19.15 |
|         | 19.18 | 19.18 | 19.10 | 19.17 | 19.19 | 19.14 | 19.12 | 19.24 | 19.11 | 19.12 | 19.21 |
|         | 19.19 | 19.17 | 19.12 | 19.20 | 19.16 | 19.16 | 19.16 | 19.21 | 19.11 | 19.13 | 19.18 |
|         | 19.20 | 19.17 | 19.06 | 19.19 | 19.20 | 19.15 | 19.15 | 19.16 | 19.11 | 19.12 | 19.16 |
|         | 19.22 | 19.17 | 19.13 | 19.18 | 19.20 | 19.14 | 19.14 | 19.23 | 19.07 | 19.12 | 19.18 |
|         | 19.22 | 19.15 | 19.16 | 19.24 | 19.16 | 19.11 | 19.15 | 19.27 | 19.08 | 19.16 | 19.18 |
|         | 19.23 | 19.17 | 19.03 | 19.23 | 19.17 | 19.11 | 19.09 | 19.25 | 19.08 | 19.17 | 19.18 |
|         | 19.24 | 19.17 | 19.06 | 19.22 | 19.22 | 19.15 | 19.07 | 19.27 | 19.09 | 19.12 | 19.19 |
|         | 19.18 | 19.18 | 19.10 | 19.21 | 19.21 | 19.16 | 19.17 | 19.27 | 19.10 | 19.12 | 19.12 |
|         | 19.21 | 19.18 | 19.12 | 19.25 | 19.16 | 19.11 | 19.12 | 19.24 | 19.11 | 19.15 | 19.11 |
|         | 19.21 | 19.19 | 19.10 | 19.23 | 19.16 | 19.16 | 19.13 | 19.27 | 19.09 | 19.11 |       |
|         |       | 19.18 | 19.12 | 19.21 | 19.20 | 19.11 | 19.02 | 19.27 | 19.13 |       |       |
|         |       | 19.19 | 19.12 | 19.23 | 19.25 | 19.13 | 19.07 | 19.19 | 19.11 |       |       |
|         |       | 19.17 | 19.12 |       | 19.25 | 19.24 | 19.15 | 19.24 | 19.11 |       |       |
|         |       |       | 19.13 |       | 19.22 | 19.23 | 19.15 | 19.24 | 19.12 |       |       |
|         |       |       |       |       | 19.22 | 19.12 |       |       |       |       |       |
| Average | 19.21 | 19.17 | 19.11 | 19.22 | 19.19 | 19.14 | 19.12 | 19.24 | 19.11 | 19.13 | 19.16 |



Clear Sky Clock data courtesy of A. Danko; used with permission.

SQM Data

06-05-28

Stevensville, Michigan, backyard

Clear Sky Clock (below): Warren Dunes State Park

11:31 p.m. EDT

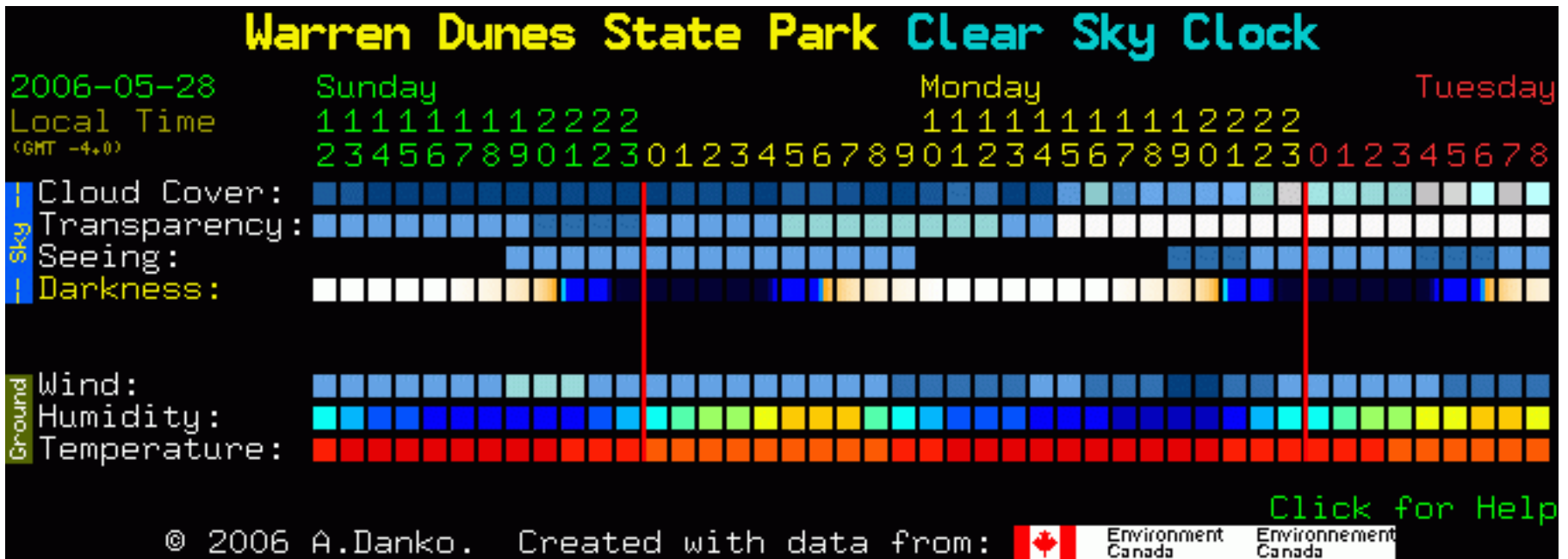
clear, no moon, astronomical twilight~11:15 p.m.

SQM readings by Kathleen R.

Note: meter readings were not taken in sequential order from 730 to 740. Number 731 was early, while 731 was repeated about 20 minutes later as 731b.

| Meter # | 730   | 731   | 732   | 733   | 734   | 735   | 736   | 737   | 738   | 739   | 740   | 731b  |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|         | 19.89 | 19.87 | 19.86 | 20.13 | 19.95 | 19.80 | 19.89 | 20.07 | 19.93 | 19.82 | 19.93 | 19.93 |
|         | 19.88 | 19.84 | 19.86 | 20.11 | 19.88 | 19.74 | 19.85 | 19.98 | 19.94 | 19.86 | 19.87 | 19.90 |
|         | 19.88 | 19.84 | 19.81 | 20.10 | 19.88 | 19.78 | 19.85 | 19.99 | 19.93 | 19.86 | 19.87 | 19.92 |
|         | 19.90 | 19.83 | 19.86 | 20.11 | 19.89 | 19.78 | 19.85 | 19.98 | 19.94 | 19.82 | 19.86 | 19.92 |
|         | 19.89 | 19.83 | 19.86 | 20.11 | 19.89 | 19.73 | 19.85 | 19.99 | 19.93 | 19.80 | 19.85 | 19.92 |
|         | 19.88 | 19.84 | 19.85 | 20.11 | 19.89 | 19.72 | 19.86 | 19.98 | 19.93 | 19.82 | 19.86 | 19.91 |
|         | 19.89 | 19.84 | 19.79 | 20.10 | 19.90 | 19.72 | 19.86 | 19.99 | 19.94 | 19.82 | 19.85 | 19.90 |
|         | 19.88 | 19.84 | 19.82 | 20.10 | 19.89 | 19.74 | 19.86 | 19.97 | 19.93 | 19.86 | 19.85 | 19.92 |
|         | 19.91 | 19.84 | 19.83 | 20.10 | 19.90 | 19.73 | 19.85 | 19.96 | 19.93 | 19.8  | 19.85 | 19.92 |
|         | 19.90 | 19.84 | 19.85 | 20.11 | 19.95 | 19.75 | 19.85 | 19.98 | 19.92 | 19.82 | 19.85 | 19.91 |
|         | 19.91 | 19.85 | 19.85 | 20.10 | 19.93 | 19.78 | 19.86 | 19.98 | 19.93 | 19.81 | 19.85 | 19.91 |
|         | 19.88 | 19.85 | 19.86 | 20.10 | 19.90 | 19.72 | 19.85 | 20.04 | 19.92 | 19.82 | 19.91 | 19.92 |
|         | 19.91 | 19.84 |       | 20.10 | 19.90 |       | 19.85 | 19.99 | 19.92 | 19.88 | 19.83 | 19.92 |
|         | 19.90 | 19.85 |       | 20.10 | 19.89 |       | 19.86 | 19.97 | 19.92 | 19.83 | 19.81 | 19.92 |

|                  |       |       |       |       |      |       |       |       |       |       |       |       |
|------------------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
|                  |       | 20.11 | 19.89 |       |      | 19.85 | 20.00 | 19.92 | 19.83 | 19.81 |       | 19.92 |
|                  |       |       | 19.89 |       |      |       | 20.04 | 19.94 |       |       |       | 19.90 |
|                  |       |       |       |       |      |       | 19.97 | 19.93 |       |       |       | 19.92 |
|                  |       |       |       |       |      |       | 20.01 |       |       |       |       | 19.90 |
| Average          | 19.89 | 19.84 | 19.84 | 20.11 | 19.9 | 19.75 | 19.86 | 19.99 | 19.93 | 19.83 | 19.86 | 19.91 |
| Combined Average |       | 19.89 |       |       |      |       |       |       |       |       |       |       |



Clear Sky Clock data courtesy of A. Danko; used with permission.

From the PHM Clear Sky Clock at <http://cleardarksky.com/c/PnnHrMPINkey.html>:

### Darkness

-4 -3 -2 -1 0 1.0 2.0 3.0 3.5 4.0 4.5 5.0 5.2 5.4 5.6 5.8 6.0

The line labeled **darkness** is not a weather forecast. It shows when the sky will be dark, assuming no light pollution and a clear sky. Black is a dark sky. Deep blue shows interference from moonlight. Light blue is full moon. Turquoise is twilight. Yellow is dusk and white is daylight. For those who prefer numbers, the scale is also calibrated. The numbers are the visual limiting magnitude at the zenith. (The brightness of the faintest star a standard observer can see straight up.) Mouse over a darkness block for details.

It is based on Ben Sugarman's [Limiting Magnitude calculations](#) page. It takes into account the sun's and moon's position, moon phase, solar cycle and contains a scattering model of the atmosphere. It doesn't consider light pollution, dust, clouds, snow cover or the observer's visual acuity. So your actual limiting magnitude will often be different.

A. Danko, creator of the Clear Sky Clock, writes:

"Accurate SQM readings should be had only when the clock's darkness line reads 6.0...The darkness line calculates a theoretical sky brightness that does not consider light pollution. But it

does consider the phase of the moon, altitude of the moon and altitude of the sun...It clearly shows that even a gibbous moon can have very little effect when it is at only a few degrees altitude. The altitude at which a given phase of the moon affects the brightness at zenith varies in a complex way which the darkness model takes into account...While the 6.0 number the "darkness" line calculates for a sky free of scattered moonlight and sunlight is not quite right (mostly because vision varies hugely from person to person), it's a very good indication of when the sky will be at minimum brightness from light from the sun and moon." (Copyright ©2006 A. Danko; used with permission.)

[www.nightwise.org](http://www.nightwise.org)

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