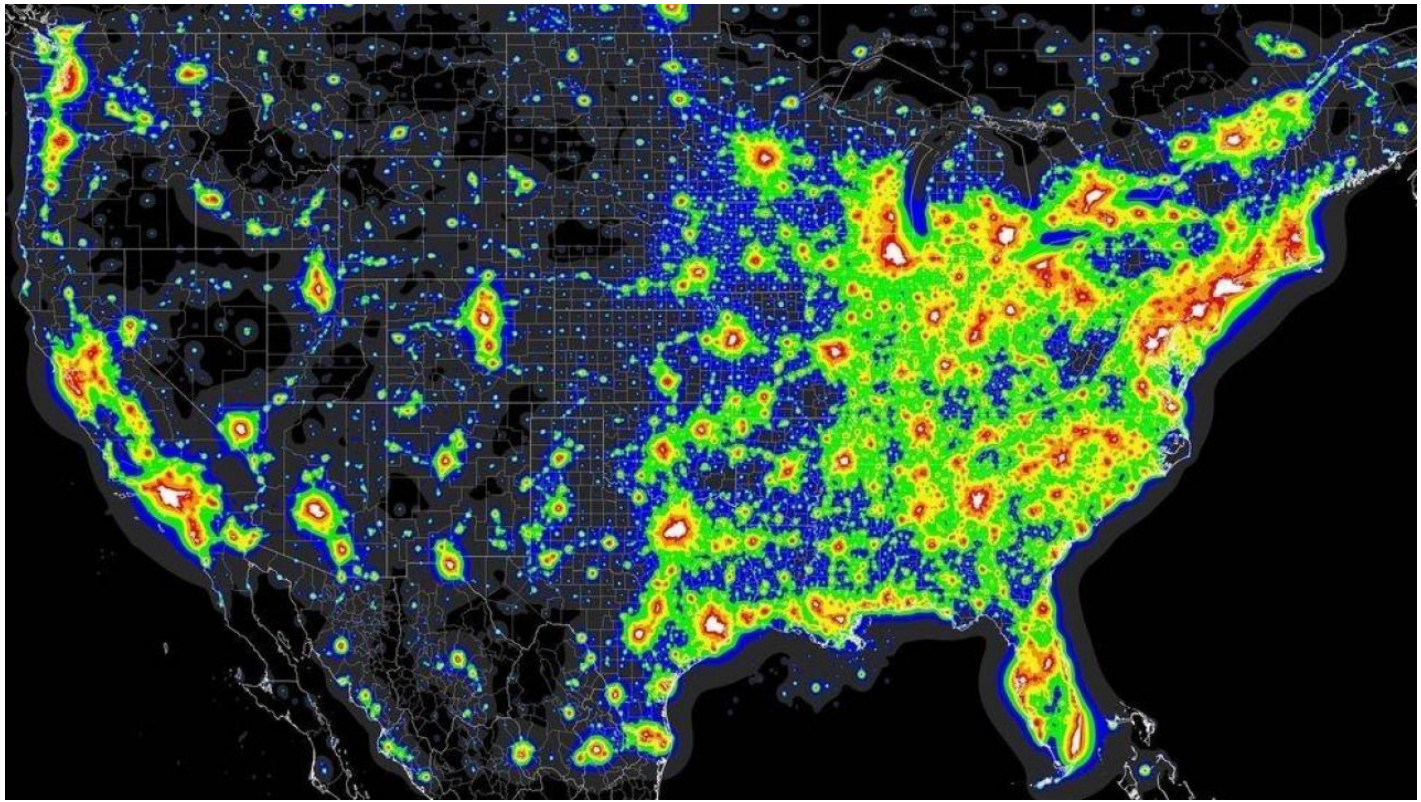

How to Measure
Light Pollution

In order to study and enjoy the night sky, we need to understand how obstructed our view of outer space is by the light pollution created by the urban environment around us. We can take a quantitative measurement of the **luminance** of the night sky with a handheld **Sky Quality Meter** device.

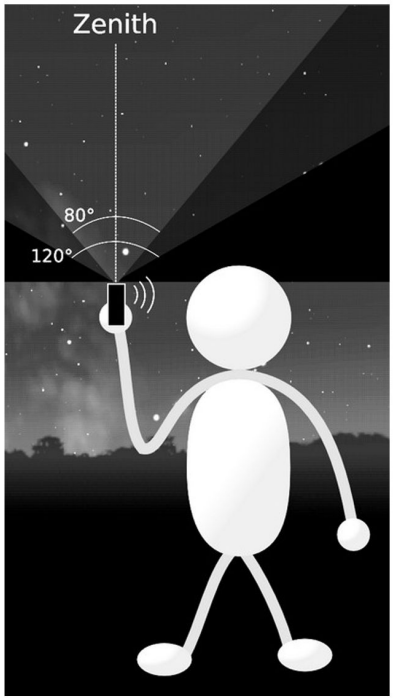
Light pollution is worst near light sources in cities. The sky is clearest far away from urban development, out in nature, the desert, a forest, or in the open ocean.



To take a measurement with the Sky Quality Meter, you must first find an area without any direct exposure to artificial light (a street lamp, a window to a bright house, traffic lights, etc.) This will ruin your measurement.

Then, point the lens of the meter straight up and press the “start” button. The device will display a number between 5 and 21 that is your sky luminance measurement.

The Sky Quality Meter measures luminance in units of **Magnitudes per square arcsecond.** This is a logarithmic measurement. Therefore, large changes in sky brightness correspond to relatively small numerical changes. The schematic below gives a rough idea of how to interpret the readings.



Bright Polluted Night Sky

Dark Clear Night Sky

Bad for Astronomers

Good for Astronomers

When taking a Sky Quality Meter measurement, you should also record the **GPS coordinate** location with the kits Mini GPS device. The combination of SQM measurement and location allows us to create maps that display where sky quality is good and where sky quality is polluted.

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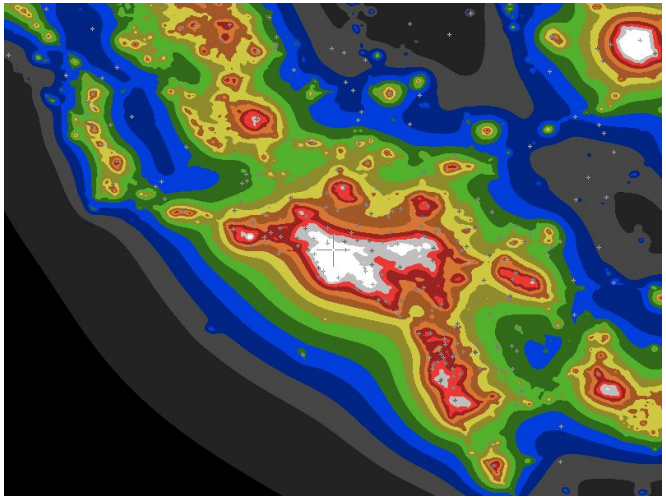
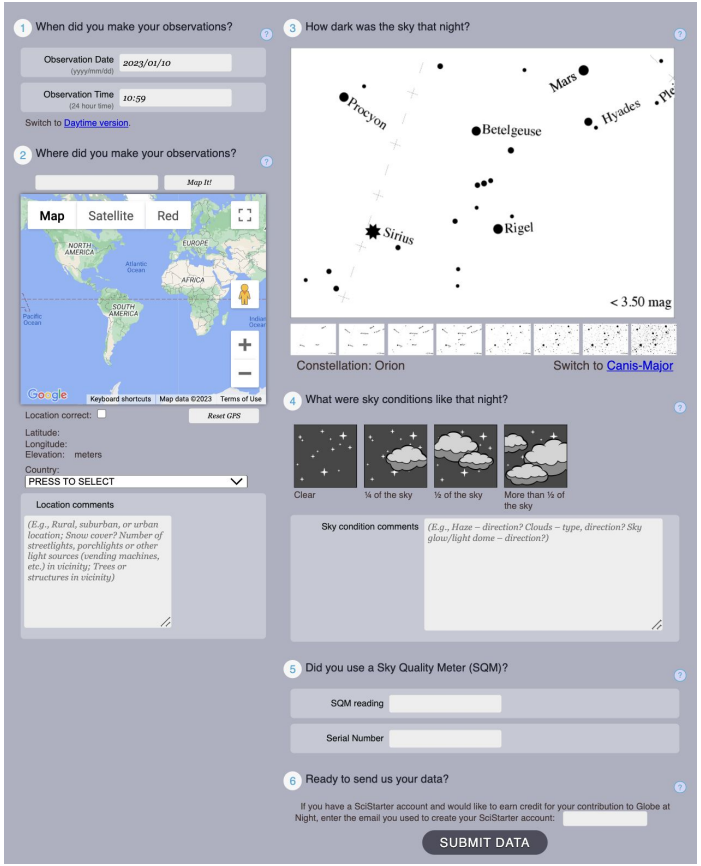
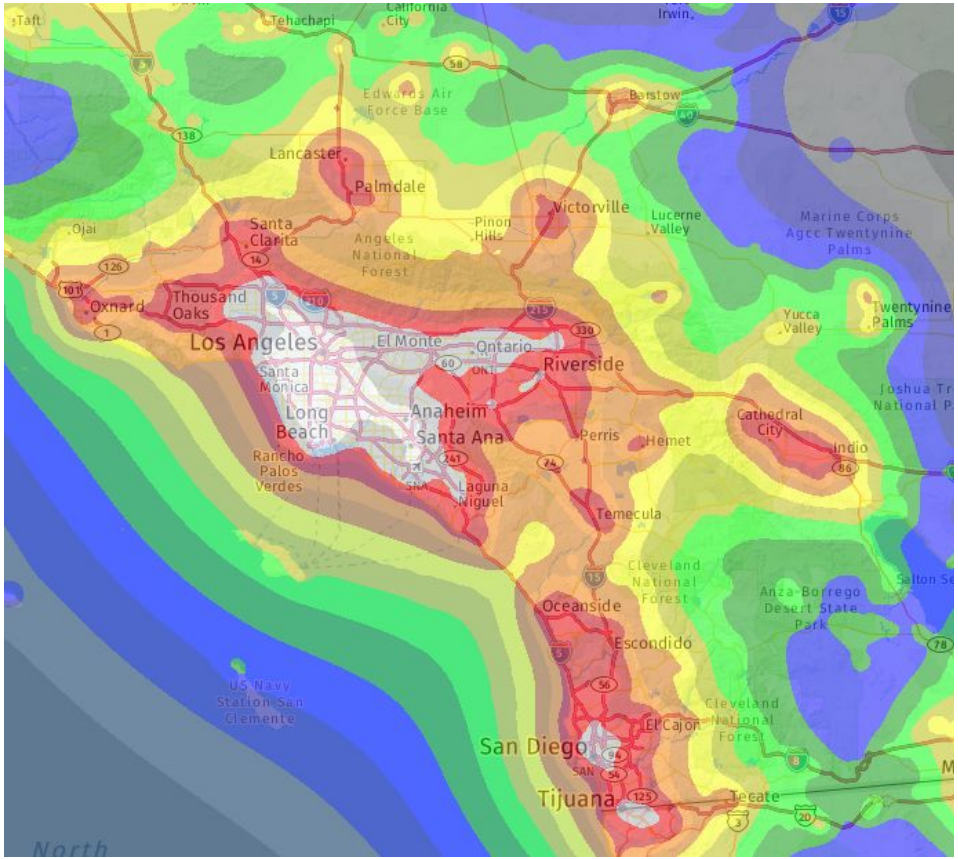


Using the **globeatnight.org** reporting page, you can add your observations to the public database.





This public, scientific data helps astronomers, natural scientists, and hobbyists to enjoy and study the night sky with the most clarity possible. It should also inspire us to do our part in reducing light pollution.