



# GLOBE AT NIGHT

## Activity Guide: Introduction

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

2021 Campaign Dates that use Taurus: December 25, 2021 – January 3, 2022.

You are participating in a global campaign to observe and record the faintest stars visible as a means of measuring light pollution in a given location. By locating and observing the constellation Taurus in the night sky and comparing it to stellar charts, people from around the world will learn how the lights in their community contribute to light pollution. Your contributions to the online database will document the visible nighttime sky.

### Materials Needed:

- Globe at Night Activity Packet
- Something to write on
- Something to write with
- Red light to preserve night vision
- Optional: smart mobile device, GPS unit, or a topographic map to determine your latitude and longitude

### Remember Safety First!

- **We encourage parents to do this activity with younger children.** Please use your judgment as to whether your child should be supervised outside after dark at your location.
- Be sure you are wearing suitable clothing for the weather and for being outside at night (light colored and/or reflective clothing).
- When choosing the darkest area in your location, make sure your child is not close to traffic, the edge of a balcony, or near danger in any other way.

### Multiple Observations:

You can enter more than one observation by moving to a new location at least 1 km away from your original location. Don't forget to get new latitude and longitude coordinates. This can be done on the same night or on another night any time during the dates of the campaign.

Charts in this document were prepared  
by Jenik Hollan, CzechGlobe

(<http://amper.ped.muni.cz/jenik/astro/maps/GaNight/2021/>).

### Five Easy Star-Hunting Steps:

([www.globeatnight.org/5-steps.php](http://www.globeatnight.org/5-steps.php))

- 1) Find your latitude and longitude** using any of the following:
  - a. the interactive tool in the web application at [www.globeatnight.org/webapp/](http://www.globeatnight.org/webapp/). With a smart cell phone or tablet, the latitude and longitude are automatically determined as you report the observation. If you are reporting it later from your computer, input the address of the observation or input your city. Zoom in/out and pan around until you find the observation location. The latitude and longitude will be displayed.
  - b. a GPS unit where you take a measurement. Report as many decimal places as the unit provides.
  - c. a topographic map of your area.
- 2) Find your constellation by going outside at least an hour after sunset**, approximately between 8-10 pm local time. **Note for latitudes >45 North or South:** during the summer, twilight may last beyond 10 pm. Once it's dark, take measurements if there's no moon.
  - a. Determine the darkest area by moving to where the most stars are visible in the sky toward your constellation. If you have outside lights, be sure they are all off.
  - b. Wait outside for at least 10 minutes for your eyes to adapt to the darkness. This is called becoming "dark-adapted."
  - c. Locate your constellation in the sky. For help use the appropriate constellation Finder Chart for your latitude. See ([www.globeatnight.org/finding](http://www.globeatnight.org/finding)) preferably before going outside.
- 3) Match your nighttime sky to one of our magnitude charts** (pp. 2-3 or [www.globeatnight.org/magcharts](http://www.globeatnight.org/magcharts)).
  - a. Select the chart that most closely resembles what you are seeing.
  - b. Estimate the cloud cover in the sky.
  - c. Fill out the Observation Sheet (page 4).
- 4) Report your observation online** (if not done already by smart mobile device) at: [www.globeatnight.org/webapp/](http://www.globeatnight.org/webapp/).
  - a. Your observations can be reported online anytime up to 2 weeks after the campaign dates for that month are over.
  - b. There is a campaign each month that is ten days long. To participate in more campaigns, see [www.globeatnight.org](http://www.globeatnight.org).
  - c. Next time, consider taking observations from different locations.
- 5) Compare your observation** to thousands around the world at: [www.globeatnight.org/maps.php](http://www.globeatnight.org/maps.php).



# GLOBE AT NIGHT

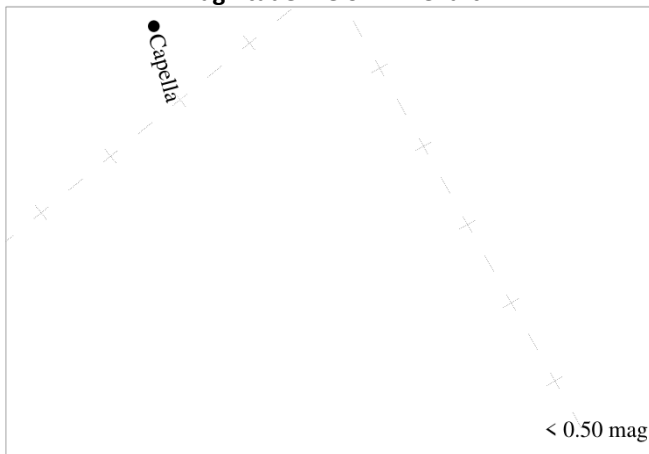
## Activity Guide: Magnitude Charts

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

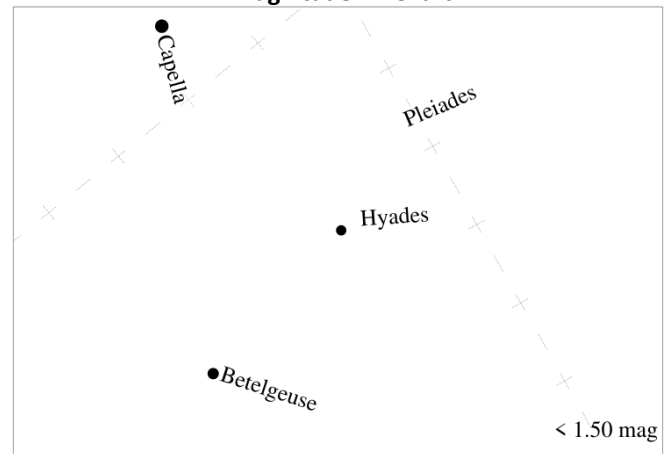
2021 Campaign Dates that use Taurus: December 25, 2021 – January 3, 2022.

Before heading outside to make your observations, consider visiting [www.globeatnight.org/finding](http://www.globeatnight.org/finding) for information on how to find the constellation with respect to your latitude.

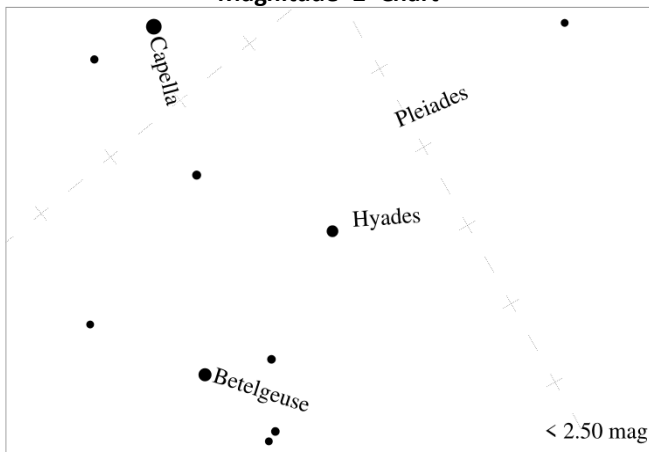
Magnitude Below 1 Chart



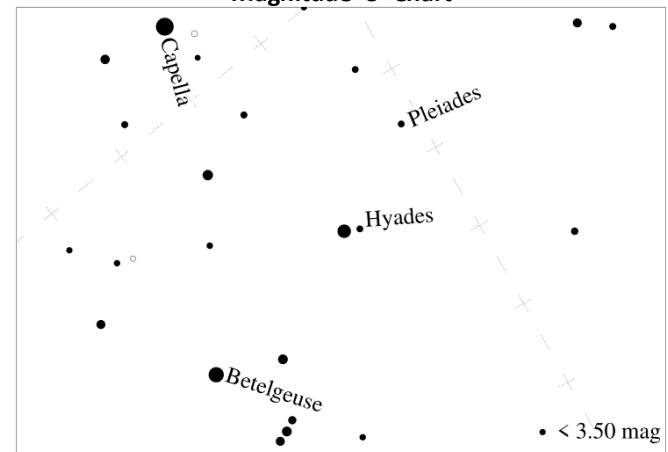
Magnitude 1 Chart



Magnitude 2 Chart



Magnitude 3 Chart





# GLOBE AT NIGHT

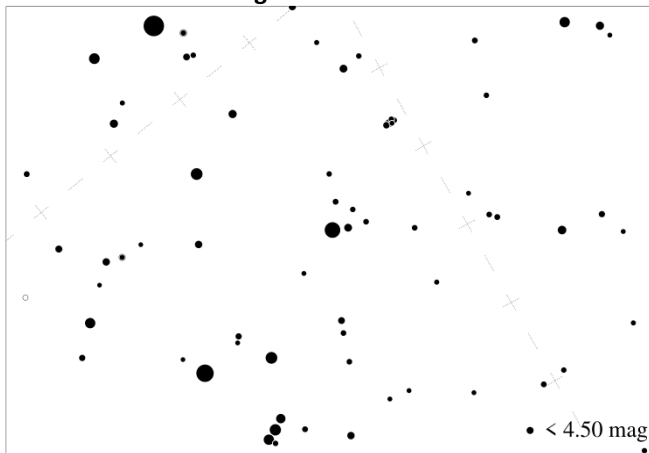
## Activity Guide: Magnitude Charts

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

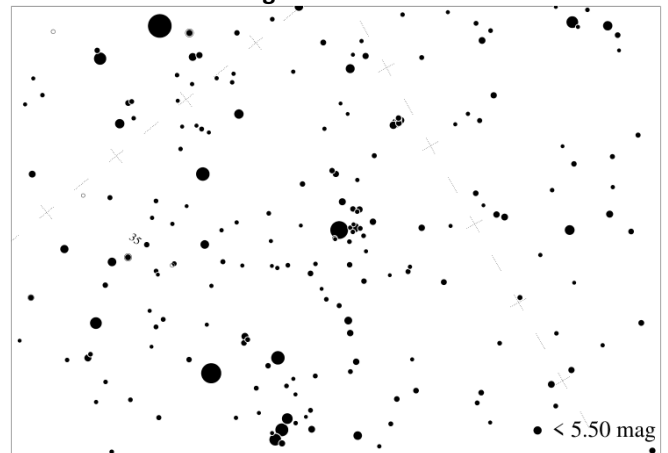
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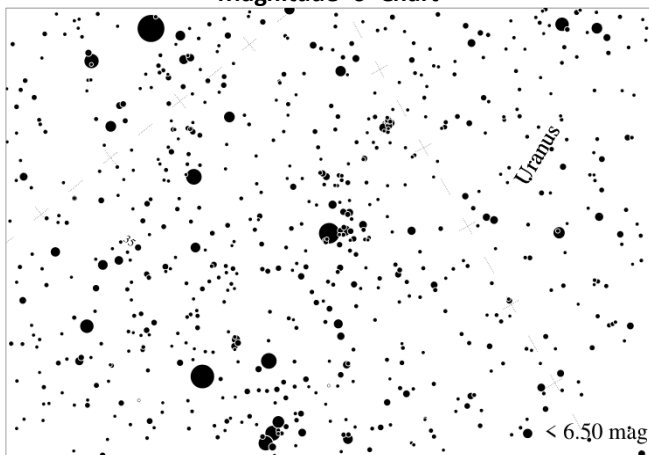
Magnitude 4 Chart



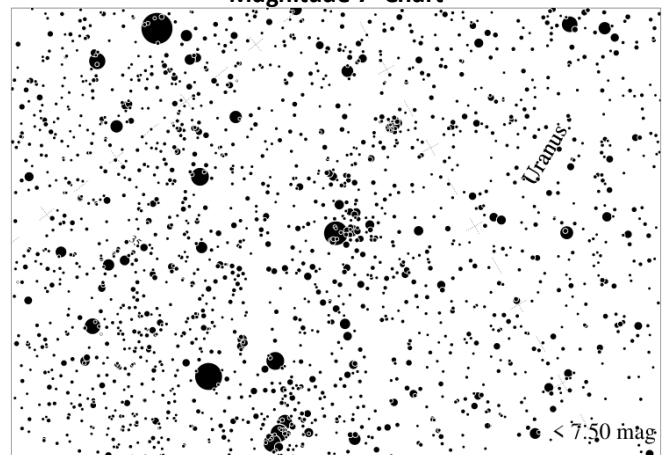
Magnitude 5 Chart



Magnitude 6 Chart



Magnitude 7 Chart





# GLOBE AT NIGHT

## Activity Guide: Observation Sheet

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

2021 Campaign Dates that use Taurus: December 25, 2021 – January 3, 2022.

Only fields marked by \* are required.

\*Month: \_\_\_\_\_ \*Day: \_\_\_\_\_ \*Year: \_\_\_\_\_

\*Observation Time: \_\_\_\_:\_\_\_\_ PM local time (HH:MM) \*Country: \_\_\_\_\_

\*Latitude (in deg/min/sec \_\_\_\_ deg \_\_\_\_ min \_\_\_\_ sec (North / South) Circle direction.  
or decimal degrees): \_\_\_\_\_ decimal degrees

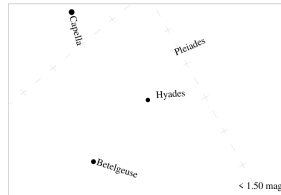
\*Longitude (in deg/min/sec \_\_\_\_ deg \_\_\_\_ min \_\_\_\_ sec (East / West) Circle direction.  
or decimal degrees): \_\_\_\_\_ decimal degrees

Comments on location: (e.g. There is one street light within 50 m that is shielded from my view.)

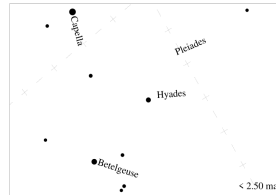
\*Match your nighttime sky to one of our magnitude charts:



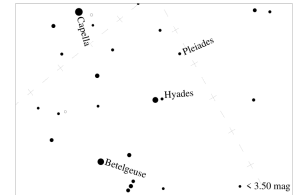
No stars visible



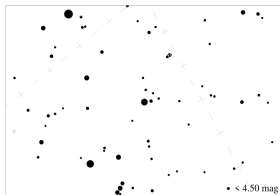
Magnitude 1 Chart



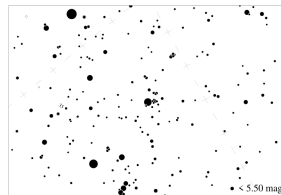
Magnitude 2 Chart



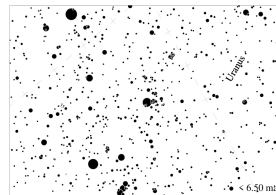
Magnitude 3 Chart



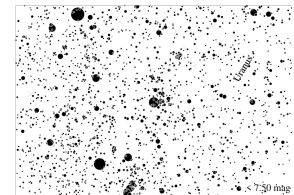
Magnitude 4 Chart



Magnitude 5 Chart



Magnitude 6 Chart



Magnitude 7 Chart

Reading from the Unihedron Sky Quality Meter (if applicable): \_\_\_\_\_

Serial number from the Unihedron Sky Quality Meter (optional): \_\_\_\_\_

\*Estimate the cloud cover in the sky:

Clear       Clouds cover ¼ of sky       Clouds cover ½ of sky       Clouds cover more than ½ of sky

Comments on sky conditions: (e.g. a little haze to the north)

Report online at [www.globeatnight.org/webapp/](http://www.globeatnight.org/webapp/)