Across the Cosmos June 2024:
Reconnecting to the Night Sky

Beginning this month, the title of my monthly column will reflect a wider range of news from "across the cosmos." The processes that have led (and are leading) to potentially life-friendly environments occur over enormous timescales, and have been shaped by the physical and chemical evolution of the Universe. Our story on Earth is part of the Universe's story. Regrettably (and ironically), the technology that has made possible the incredible discoveries that help us tell this story can sometimes make us feel disconnected from nature's wonders, so this month I'd like to suggest one exciting way to combat "nature deficit"[1] by reconnecting to the night sky.

Have you ever wondered whether some of the stars with known planets[2] are actually visible in the night sky? The answer is "yes," although most are pretty dim. Go to NASA's Exoplanet Archive to view a table with all currently-known exoplanets and their stars[3]. You need to know something about the brightness scale used in Astronomy to determine which of the listed stars you might be able to see. Scroll across the columns to find one labeled "V (Johnson) Magnitude". Contrary to what you might expect, a larger "magnitude" corresponds to a dimmer star. The dimmest stars visible to the human eye under very dark sky conditions have a magnitude of about 6.

The table allows you to apply various "filters" to the list. For example, typing "<4" in the box under the "V (Johnson) Magnitude" column heading shows there are 30 stars brighter than 4th magnitude that have known planets. Typing "<3" indicates 6 of these stars are brighter than 3rd magnitude. One of these is Beta Ursae Minoris (also known as "Kochab") in the cup of the Little Dipper.[4] The "RA" and "Dec" columns in the table give the sky coordinates of all stars known to have planets. If you have a night sky app[5] installed on your phone, you should be able to see which stars hosting planets are visible from your location and time.

If you type "Kepler" under "Planet Name" in the table (don't filter by magnitude!), you'll see that 2,752 of the currently-known 5,638 (at the time of this writing) exoplanets were discovered by the Kepler Observatory. Although none of these stars is visible to the naked eye, the field of view on the sky where these exoplanets were discovered is easily found (without an app!) in the prominent northern hemisphere summer constellation Cygnus ("The Northern Cross").[6]

---

[1] https://connect.mayoclinic.org/event/video-qa-about-nature-deficit/

[2] "Planet" and "exoplanet" are often used interchangeably, even though planets orbiting other stars are known as "exoplanets."

[3] https://exoplanetarchive.ipac.caltech.edu/cgi-bin/TblView/nph-tblView?app=ExoTbls&config=PSCompPars

[4] https://skyandtelescope.org/observing/meet-kochab-guardian-pole/

[5] e.g., https://www.space.com/best-stargazing-apps

[6] https://www.nasa.gov/wp-content/uploads/2009/07/189566main_kepler_mission.pdf

So I encourage you to go outside, look up, and consider that somewhere among those stars there may be beings wondering whether the star we call “Sol” (our Sun) harbors a planet with life!

Until next month,

Grace

Grace Wolf-Chase (she/her/hers)
Senior Scientist; Senior Education & Communication Specialist
Planetary Science Institute
gwolfchase@gmail.com
https://www.psi.edu/about/staffpage/gwchase
Vice President, Center for Advanced Study in Religion and Science
(CASIRAS)