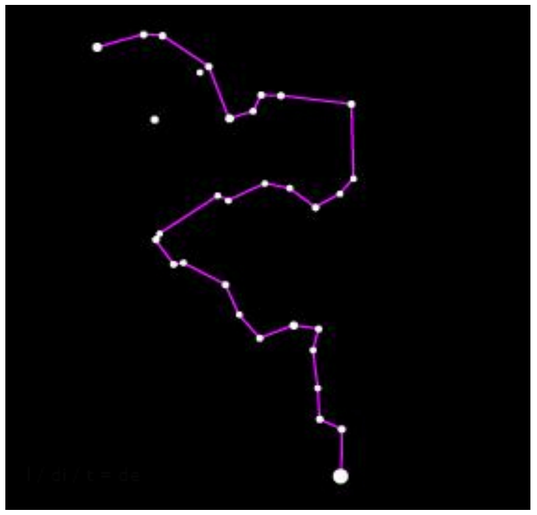

WASP50

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Introduction

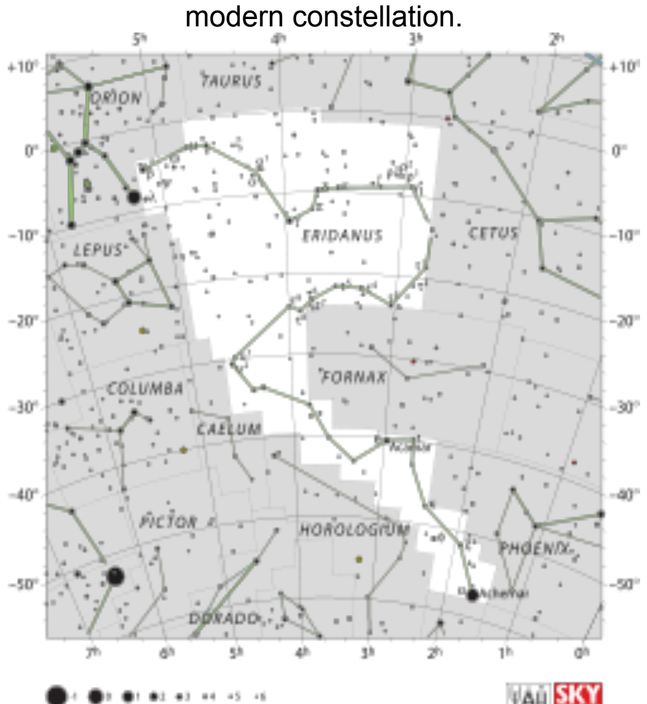
We live in a complex and unfathomable world enveloped by an even greater mystery- the universe. We are insignificant in comparison to the grandeur and depth of the great beyond. WASP 50 is our assigned star, around which we believe an exoplanet is orbiting. According to the data we have collected over the past few weeks, we have evidence to prove that there are, in fact, extraordinary exoplanets beyond our solar system.

Orbit

We believe the exoplanet orbits the **middle** of WASP-50 rather than a grazing orbit. Grazing orbits tend to manifest as V-shaped dips on the brightness chart during transit, while our brightness chart reflected the rounded transit dip symptomatic of a middle orbit.

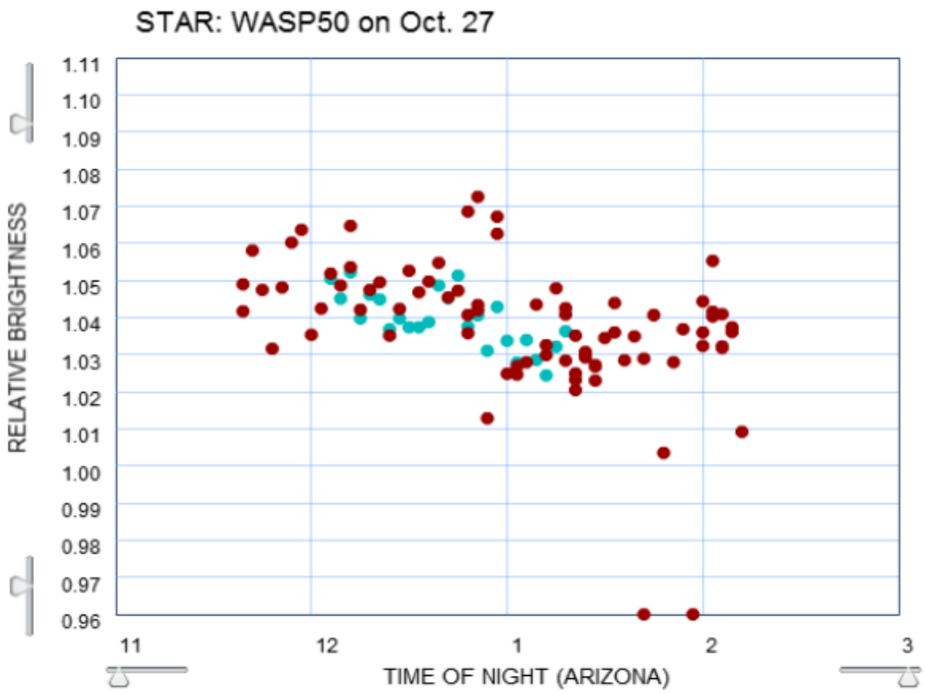
Constellation- Eridanus

Our exoplanet is a part of the constellation Eridanus, named for the Ancient Greek translation of the “Po River”. This namesake is reflected in the size and shape of the constellation (shown above). Eridanus is among the 48 constellations listed by Ptolemy in the 2nd century. It is the sixth largest modern constellation.



Brightness Curve Description

As shown below, there is a defined dip in the brightness of our star.Unfortunately our data ends just as the the dip seems to be leveling back out.This lack of data is due to the large number of unclear pictures on “Laboratory for the study of exoplanets” and therefore unable to be analyzed due to their hazy quality. This gap in our data caused our group to act as true scientists and make deductions based on our existing data.

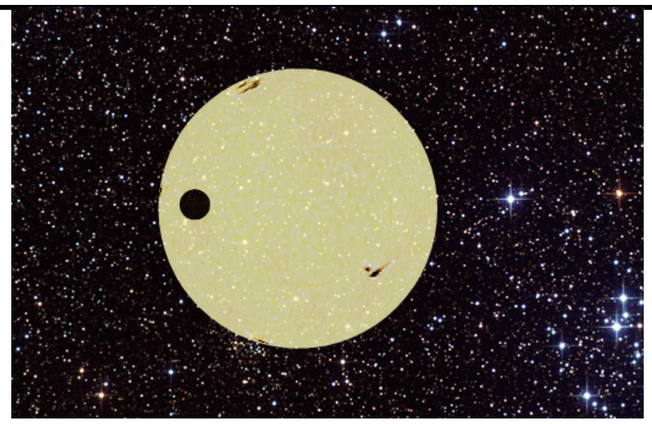


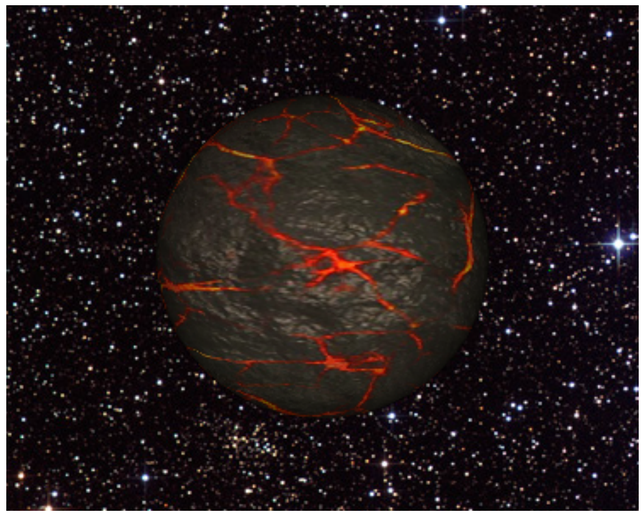
Methodology

To start, our group each was assigned about 25 pictures to analyze the comparative brightness of Wasp 50 on October 27. After getting our brightness curve and analyzing the base and dip light levels, we were able to find the ratio of our planet in comparison to its star. Then, we analyzed the brightness of the sun and compared it to the brightness of Wasp 50. We were able to use these ratios to find the brightness of our star as well as its distance from Earth. Finally, we used our data, as well as other hypothesises, in the visualization lab to obtain an estimated image of our exoplanet and its orbit.

Our Findings

-The star’s brightness without transit: 1.045
-With Transit: 1.034
-Area of planet compared to it’s star: 1.05%
-Diameter of planet compared to the star: 10.25%
-Transit Time: 1.5 hours
-Wasp 50 brightness: 4131
-Our sun appears 3.83165 x 10^14 times brighter than Wasp 50
-Wasp 50 is 19,570,000 times farther from the Earth than the Sun is.
Wasp 50 is 1.82 x 10^15 miles away from Earth, or 303.34 light years.





Exoplanet Description

Based off of what we found in the imaging lab, we have concluded that our exoplanet has a diameter that is approximately 10.25% of its star. This is about the same ratio between our Sun and Jupiter. We also concluded that it transits across the middle of the star, as it’s brightness curve plummets as opposed to dropping slowly. We assumed, based off of our data, that our planet is a molten planet. We know that it is very close to its sun, as its transit is only 1.5 hours longs, and we can therefore expect that its surface is very, very hot.