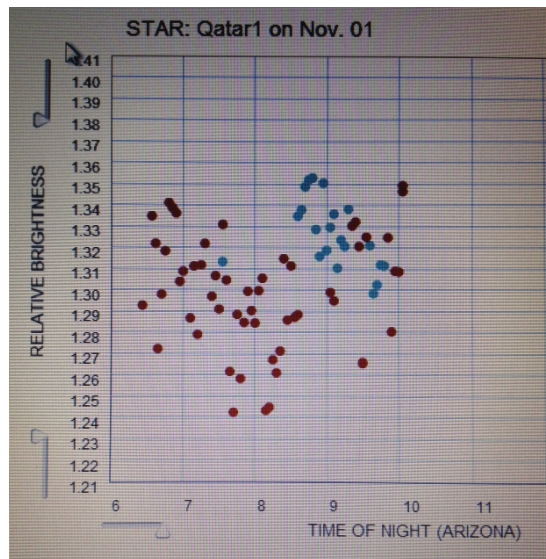


Introduction

In this study we are searching for exoplanets around the star QATAR - 1. Exoplanets are planets outside of our solar system and revolve around a star that's not our sun. We are searching for a transit, or the time when an exoplanet passes between the star and earth, thus allowing less light to reach us here on earth. A dip in the brightness curve will demonstrate a transit. If a transit is present, then we can deduce that an exoplanet is there.

Brightness Curve

Our data starts around 6:30 pm and ends around 10:00 pm on November 1st. It appears that the transit lasts for approximately 1 hour and 30 minutes from 7:15 pm to 9:00 pm. The percentage that the brightness dips is 2.7%.



Methodology

1. To find out how big our star is we took the star's brightness during transit and subtracted it by the star's regular brightness. Then, we took that number and divided it by the regular brightness.
2. We deduced that our planet has a tilted orbit because our brightness curve shows more of a pointed tip than a square.
3. This is difficult to answer because our planet has a tilted orbit and does not cross the center of the planet. If we pretended our planet crosses the center than our planet is as close as mercury is to the sun. This is because they have the same transit time.
4. The first thing we did was rewrite the sun's brightness as if it was not put through a filter and thus measured the same as our star QATAR-1's brightness. With that we found how much brighter our star was from the sun. And by knowing how far the sun was from earth we were able to find out how far our star was from the earth.

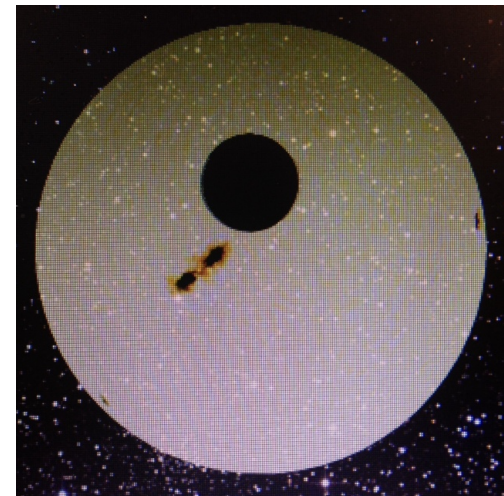
QATAR-1

Description of Our Exoplanet

Size: 2% the size of our star. Also, our exoplanet is smaller than Jupiter, bigger than earth.

Distance: Same distance from its star from Mercury

Gravitational Force: more gravity than earth.



Astronomy
Period 8

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