Introduction

The very thought of an alien world often conjures up images of a variety of landscapes; some reminiscent of our own surroundings, others twisted, surreal attempts to create a place absolutely unlike what we see. Whatever the case, the recent influx of exoplanet discoveries have confirmed long held beliefs of other solar systems in our universe, and are a step closer to finding out if we are indeed not alone in space.

Our star in particular was HAT-P-32, has illustrated evidence of a planet's orbit, and while certainly not habitable, is an example of a distant world.

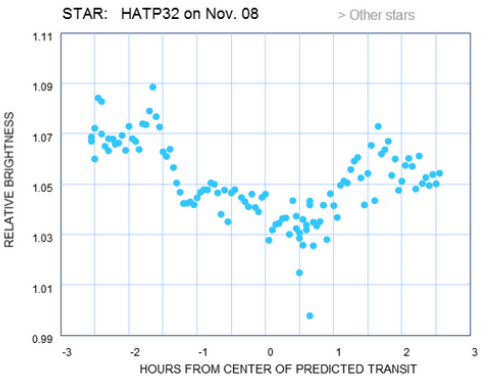
Methodology

Through a series of 108 images we determined the relative size of of our exoplanet, orientation of the planets orbit, the star's closeness to our planet - distance from Earth to our planet - and the distance (in light-years) to our star.

LOCATION

HAT-P-32 is in the constellation Andromeda. It is an autumn constellation, visible in the Northern Hemisphere from June through February.

Experiment and Data



The relatively high horizontal portion indicates the base brightness of the star.

The valley indicates a dramatic change in the amount of light reaching the telescope as well as the transiting of the planet.

The shape of the valley indicates the orbit of the planet. In this case, it transits near the center of the star.

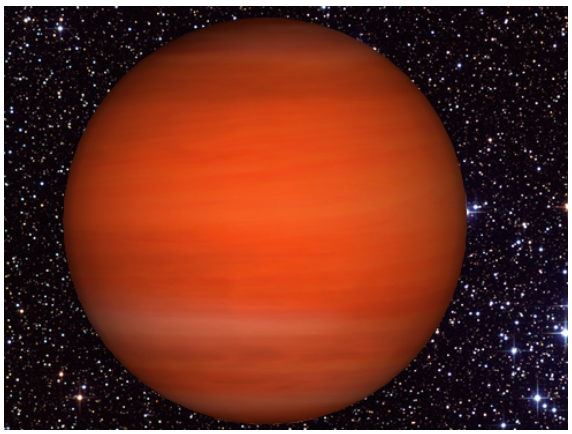
The valley also shows the length of the transit, which lasted for roughly three hours.

The planet's size relative to its star.

Exoplanet Description

The planet HAT-P-32b blocks 3.2015% of HAT-P-32's starlight. This means that the area of the planet's disk is only 3% of the area of the star's disk. The relative size of the planet, e.g. diameter, compared to its host star is 0.18. This diameter is relatively large since Jupiter, in our solar system, is only 0.1 times the Sun's diameter. The duration of the planet's transit is approximately 3 hours long. Mercury's transit length last about 4 hours so we can generalize that the planet is closer to its star than Mercury is to the Sun. With the graph provided we can conclude that the planet is about 20 million miles from its host star.

Given its diameter relative to its host star and distance from its star means that the planet is most likely an epistellar jovian, or a "hot Jupiter". These types of planets have high surface temperatures. We can assume that our planet will not have satellites, because the star will most likely destabilize the satellite's orbit.



HAT-P-32b