

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

## vasude41

### Planet 1

Monday 12<sup>th</sup> January, 2099

**We have identified what may be an indication of extraterrestrial intelligence, as well as the planet where it may have originated. This document summarizes the information gathered so far about the candidate message and its candidate planet of origin.**

### **Potential evidence for extraterrestrial intelligence**

Astronomers have detected a broadband microwave transmission that appears to have originated from this planet's solar system. The transmission is believed to contain an image and is displayed below with the most likely aspect ratio. The transmission lasted a short duration and then stopped. The transmission is shown below:

```
1100001100111010001100010100111101101000001000100101000010001110001101110
1101011001110101100100110100111010000010101010100100011100100010100111101
110100111011111110010011111000011110011010111011111101010111110010001101
0100111111101010011101000000100110010111000001000000110001010011100011001
1110011001001110001010100100101110100111000100100100111111010110001001110
0100001010010111111100100110000110100001101100001111110100110011001101101
1010110110000111100011101011100010001100111110111000101110101100011010111
1100010010000000111000000101011100001011001010110011001100110100010010001
0101010110011110001001110100001011111010000010001110011100110101000011001
1010111101101111110110111110011001111010101001001001001100010111000011010
```

This signal was first noticed at UTC 2098-06-19/05:15.

### **Parameters of the candidate planet of origin and its host star**

Spectral Type	K
Stellar Luminosity (Solar Units)	0.0827
Stellar Mass (Solar Masses)	0.536
Distance to Star (lightyears)	5.3
Planet Mass (Earth masses)	1.3
Atmospheric Pressure (atm)	15.8

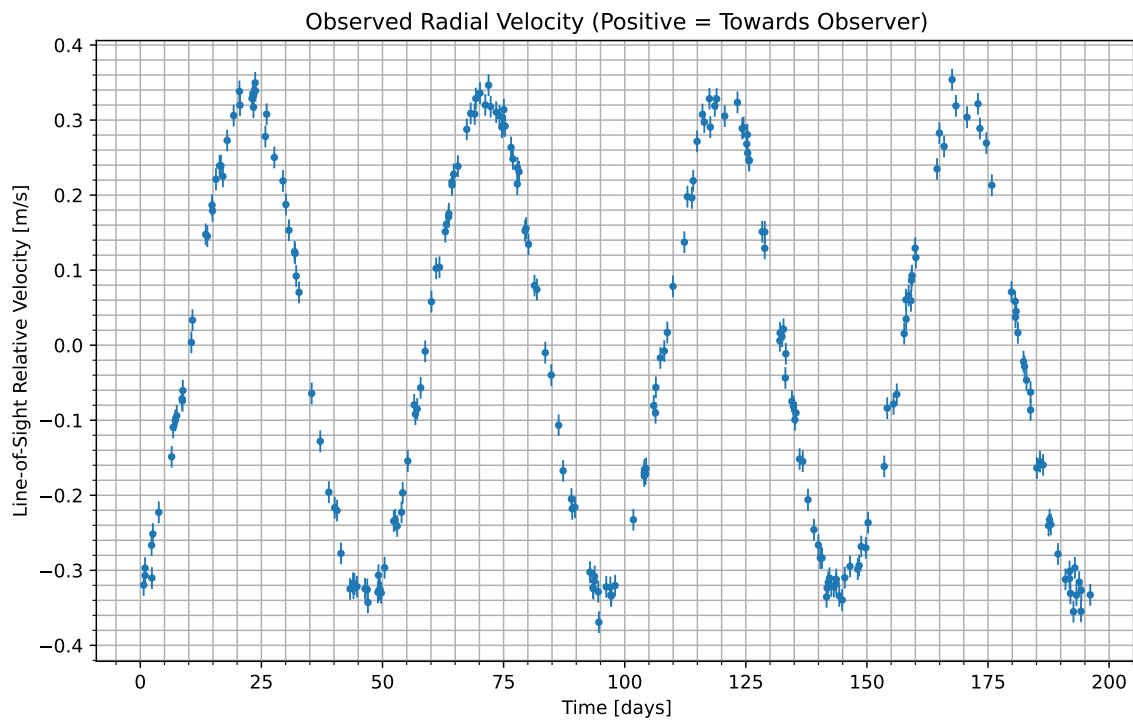


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2098-06-20/11:49. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

### Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
$N_2$	11.3
$CO_2$	64.9
$H_2O$	23.8

### Gas Abundance (percent by volume)

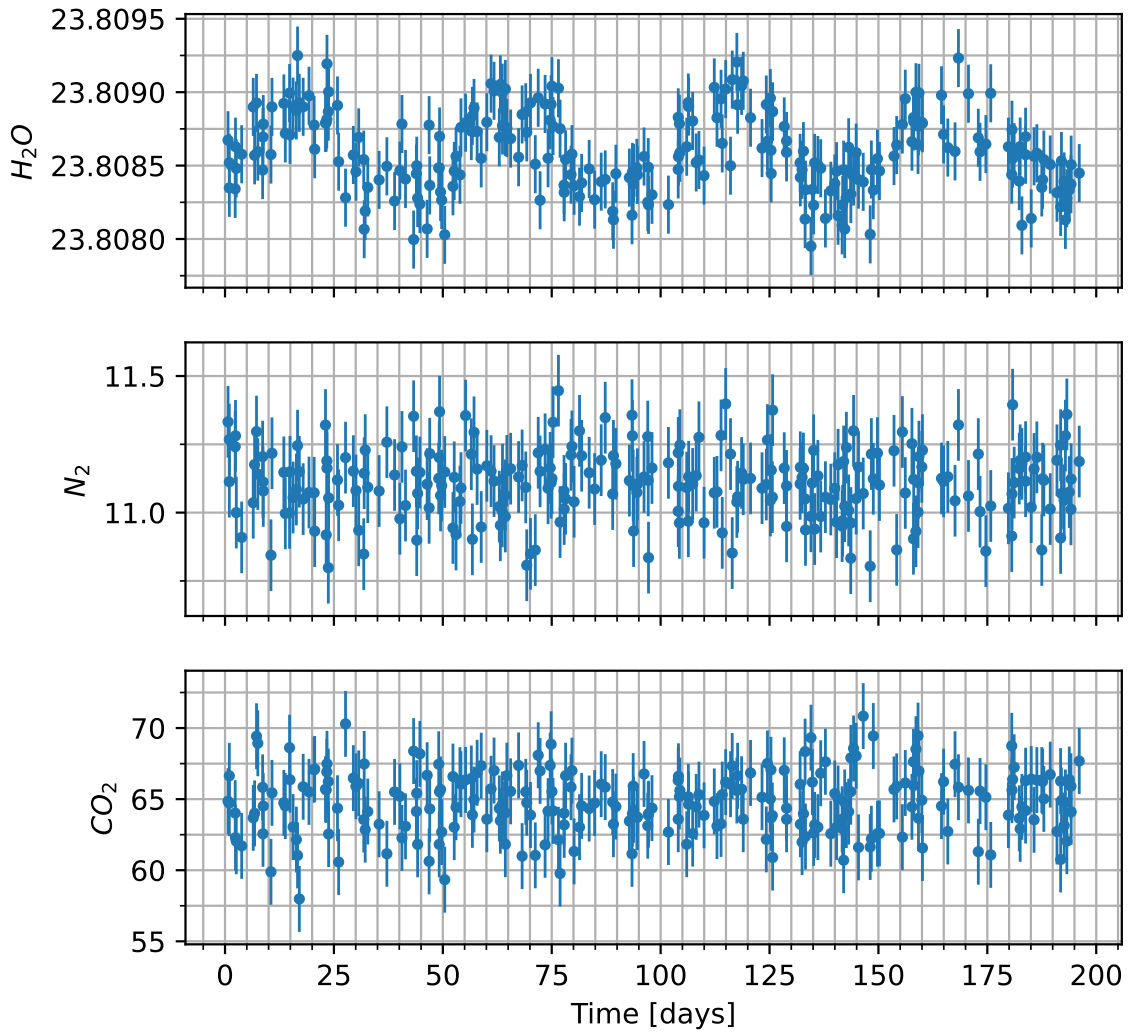


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

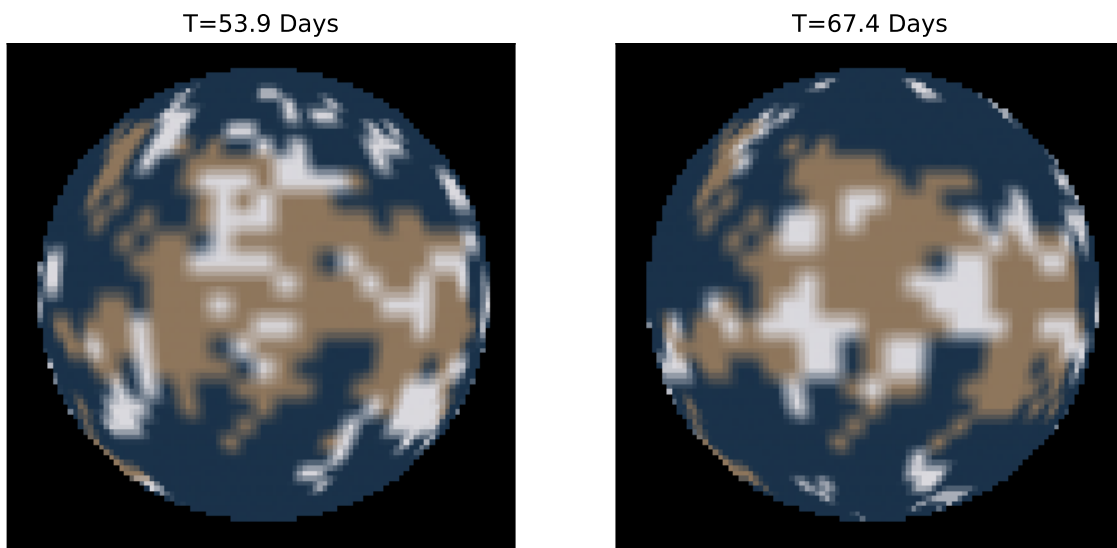


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to be liquid regions of some kind. Other colors present reflect the visible color as best as we are able to measure.