

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

## hedaya21 Planet 2

Wednesday 8<sup>th</sup> March, 2090

**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 radio 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:

```
100111110100100000100000000001110101100011110101111100100000101001010010  
010011111100111110100000010110111001001101001100010101001011001110110001  
001010111101000011111010001000100011111100011000110100100111100010101010  
010001111000010010011010100100001001110100011101101101100010011100011100  
110010010110110011100101011010110001001001101100001000000110110101110011  
100001010011011000100010011110011100011100000001001100111000111100001100
```

This signal was first noticed at UTC 2089-11-15/08:12.

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

Spectral Type	M
Stellar Luminosity (Solar Units)	0.0292
Stellar Mass (Solar Masses)	0.409
Distance to Star (lightyears)	13.6
Planet Mass (Earth masses)	0.5
Atmospheric Pressure (atm)	0.6

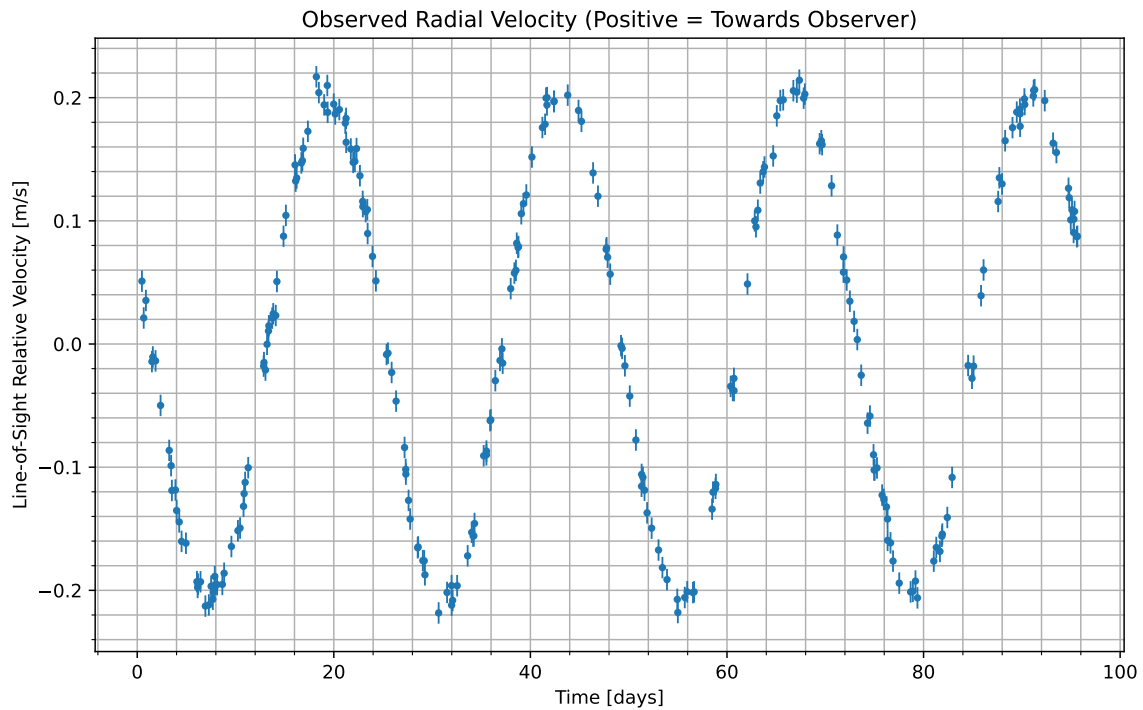


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2089-11-18/02:24. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

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

Molecule	Concentration
$N_2$	27.2
$CO_2$	57.3
$H_2O$	15.6

Gas Abundance (percent by volume)

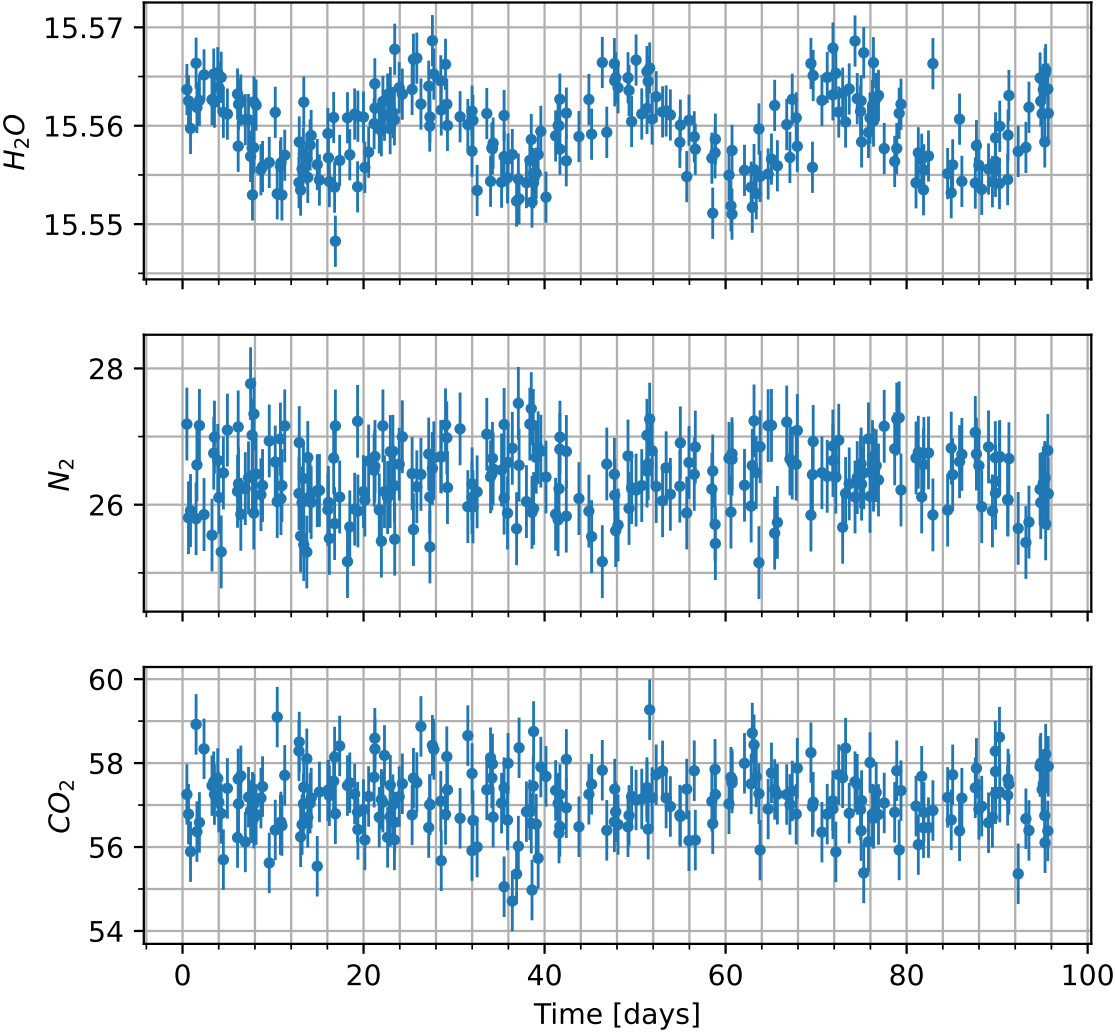


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

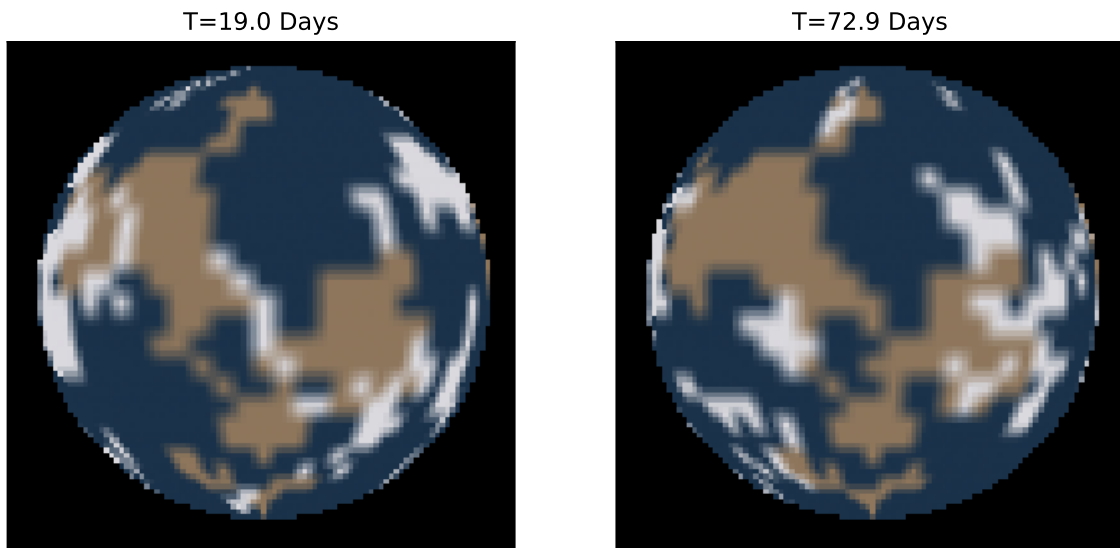


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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