

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

## dewanjad

### Planet 1

Wednesday 11<sup>th</sup> September, 2086

**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:

```
01011111010000011111010100001100110100101001000001101000101001000101110110101100
0000001111110111000100011000000001101101000000010100000011011001011111001010100
1000100111001010110111000100101001010111100011111100101001100110100011011010011
1011101011001100101110101101001010101011011001111100000111000011101101010011111
0010100001000100100010001000110101010110011001100001001110010000111011011111
000001001101100100101001101101100000001111100010110110110110011111111010111011
0101010101101111001110011111000101100011110111010010111010101001100011100100011
1101011101011001011010011011001001000100101010001000110000111111110011011100111
```

This signal was first noticed at UTC 2082-01-29/02:33.

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

Spectral Type	G
Stellar Luminosity (Solar Units)	1.32
Stellar Mass (Solar Masses)	1.07
Distance to Star (lightyears)	149.0
Planet Mass (Earth masses)	0.6
Atmospheric Pressure (atm)	43.2

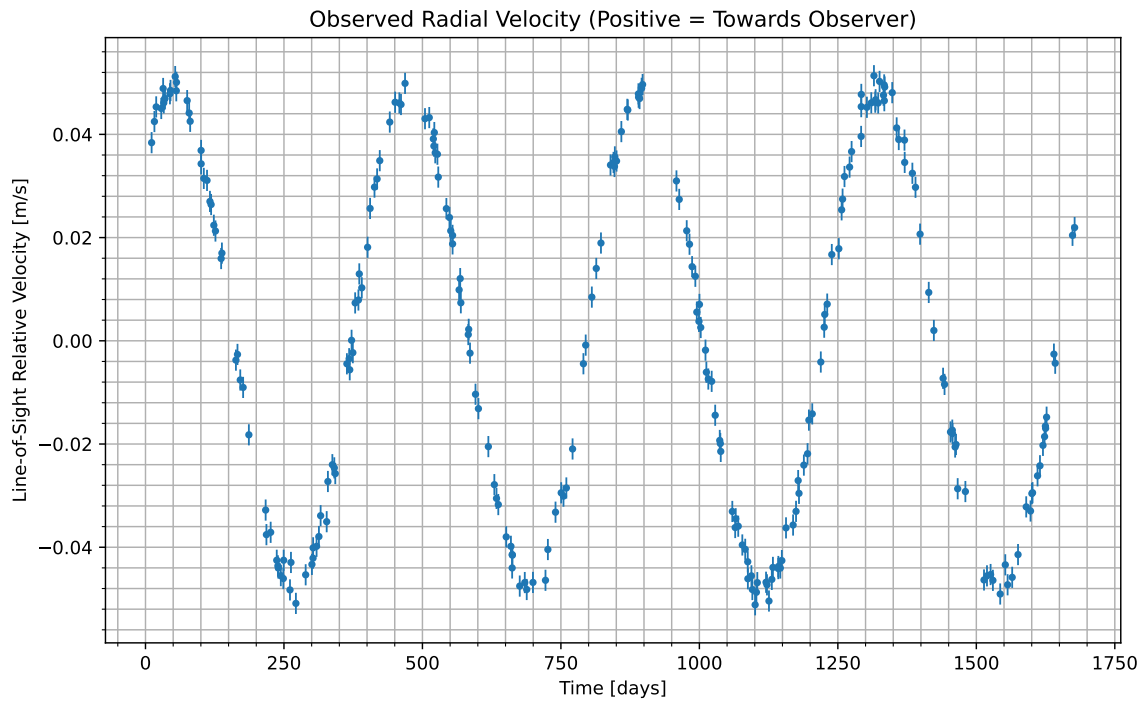


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2082-01-29/17:16. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

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

Molecule	Concentration
$N_2$	17
$CO_2$	60.5
$H_2O$	22.5

### Gas Abundance (percent by volume)

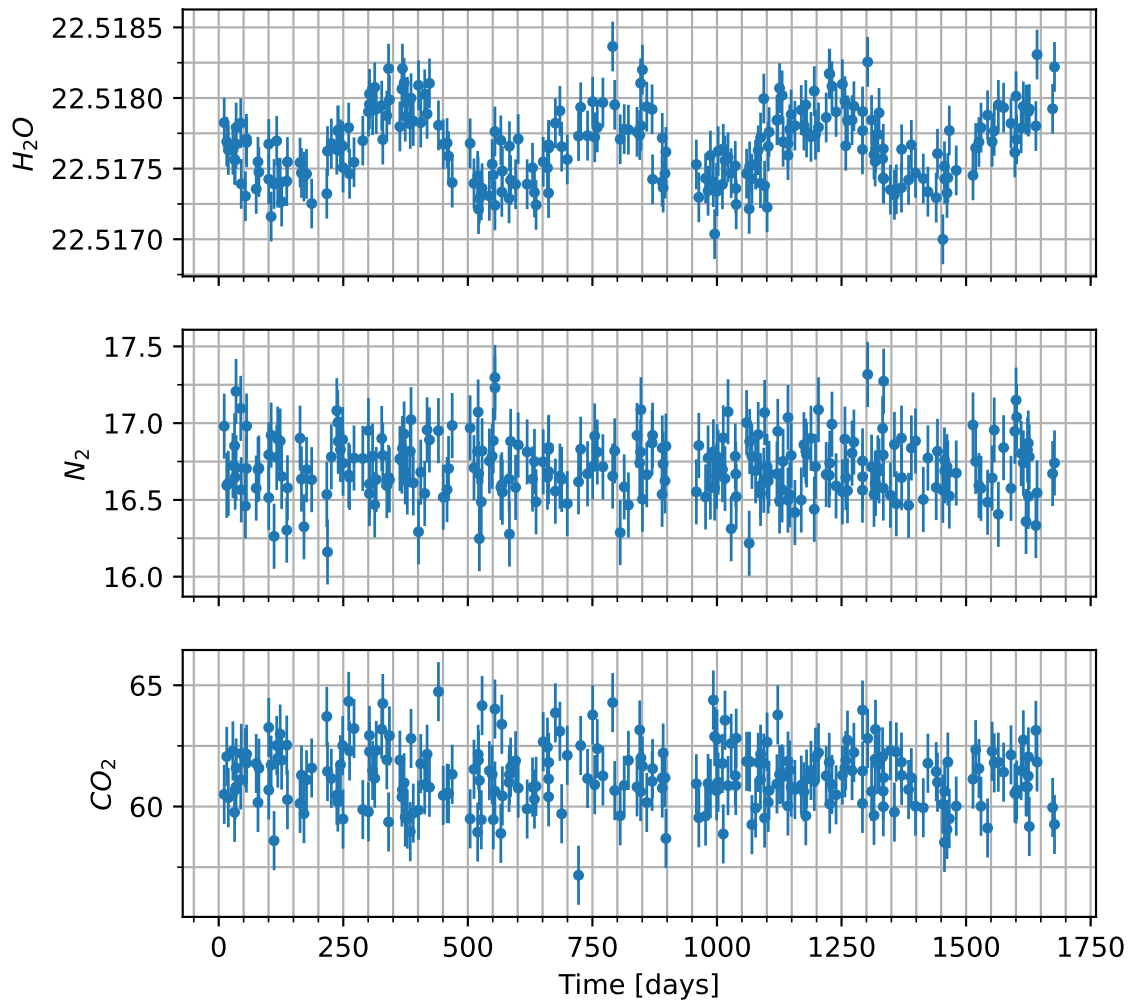


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

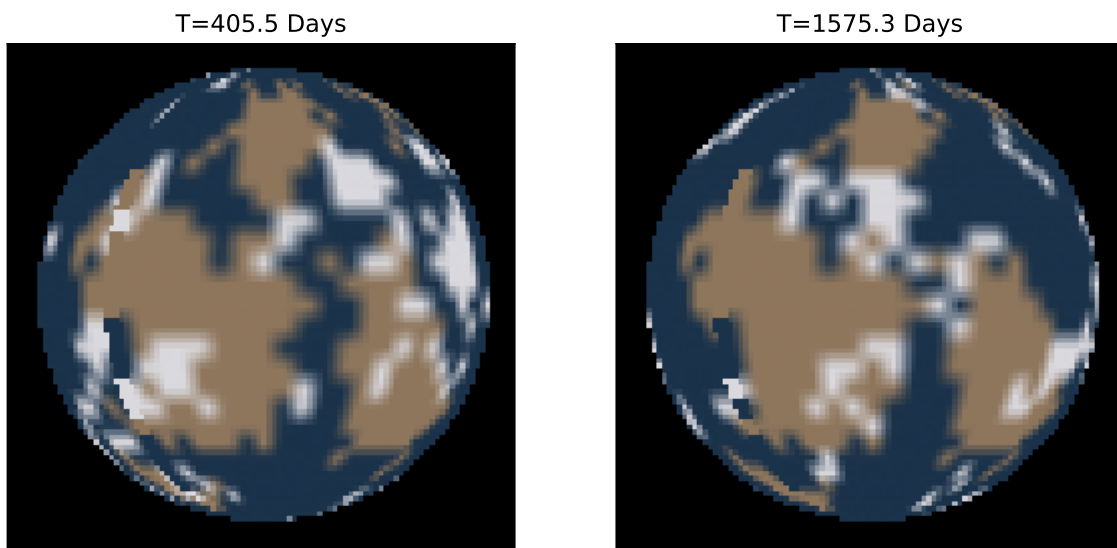


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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