

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

## kanghyij

## Planet 2

Saturday 13<sup>th</sup> November, 2077

**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 is continuous and does not repeat itself frequently. An excerpt of the transmission is shown below:

```
1011100101110111010111011000011101111000111000110011101100011000111111100
011101010110101111110000100100111010100001010110011111110100000110110010
010110111001000001100100110010010100111001011001010001011111100011111001
010101010100110001011011000110110101111110101011011110101110110000000000
111110011100011110001100100110010010100010011001110111011101100000001011
111100001111000011001011010111110110111011111001001010101010010111110101
010111110010010110000010010000010100001011101001110001011001111010010101
010011000111110001100101000011111010100001101001111110101101001011001100
111111011011010100111101100000111001111100001011010011000000111101011100
```

This signal was first noticed at UTC 2077-08-08/15:42.

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

Spectral Type	M
Stellar Luminosity (Solar Units)	0.0201
Stellar Mass (Solar Masses)	0.365
Distance to Star (lightyears)	1365.7
Planet Mass (Earth masses)	0.3
Atmospheric Pressure (atm)	2.7

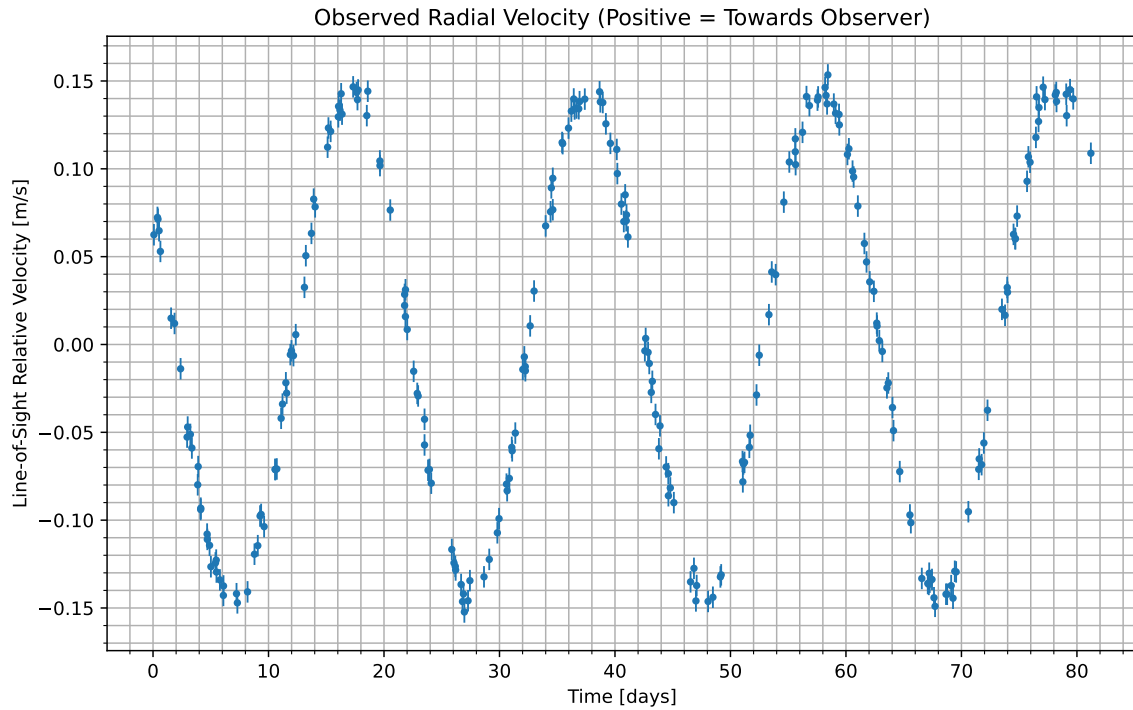


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2077-08-11/07:31. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

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

Molecule	Concentration
$N_2$	33.4
$CO_2$	41.5
$H_2O$	25.1

### Gas Abundance (percent by volume)

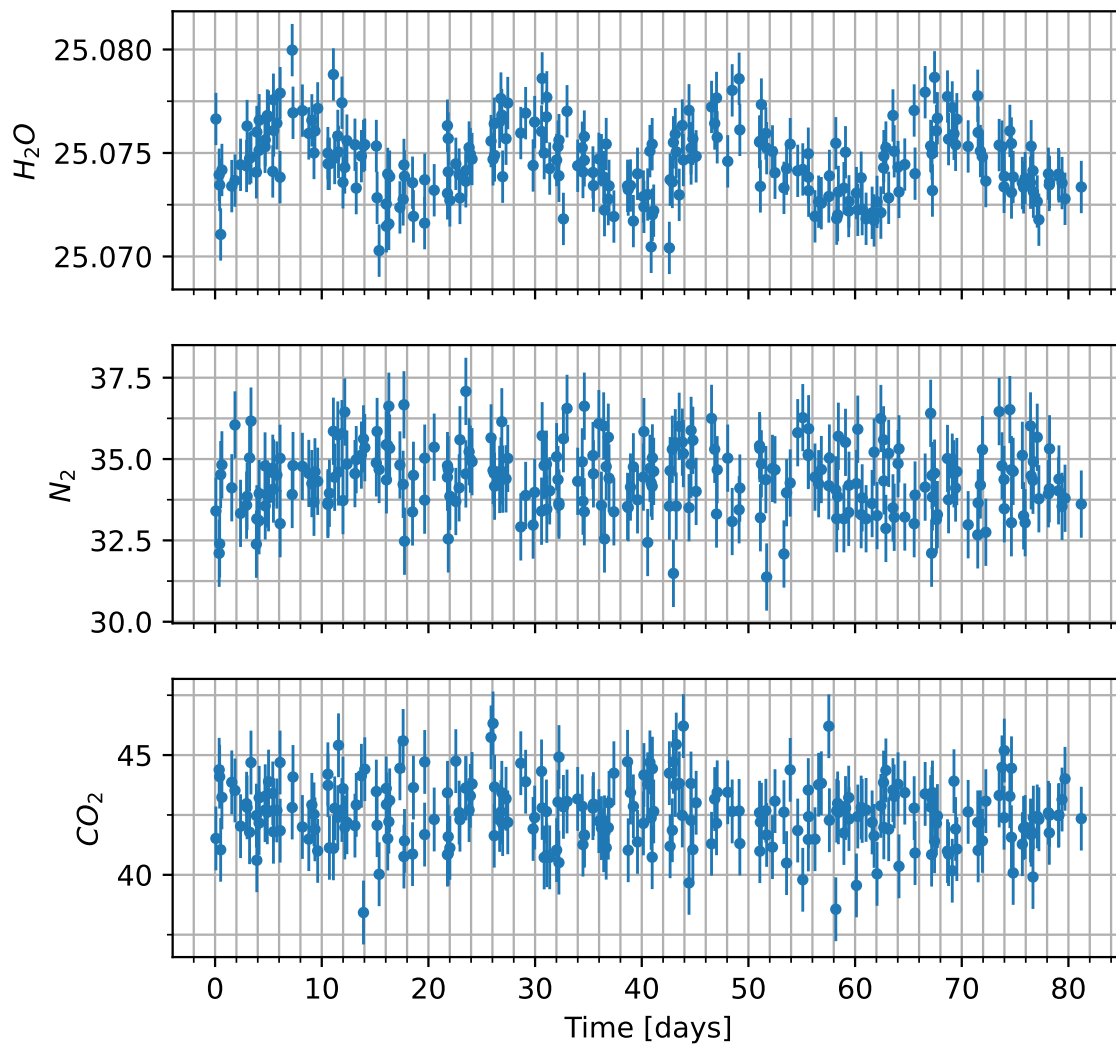


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

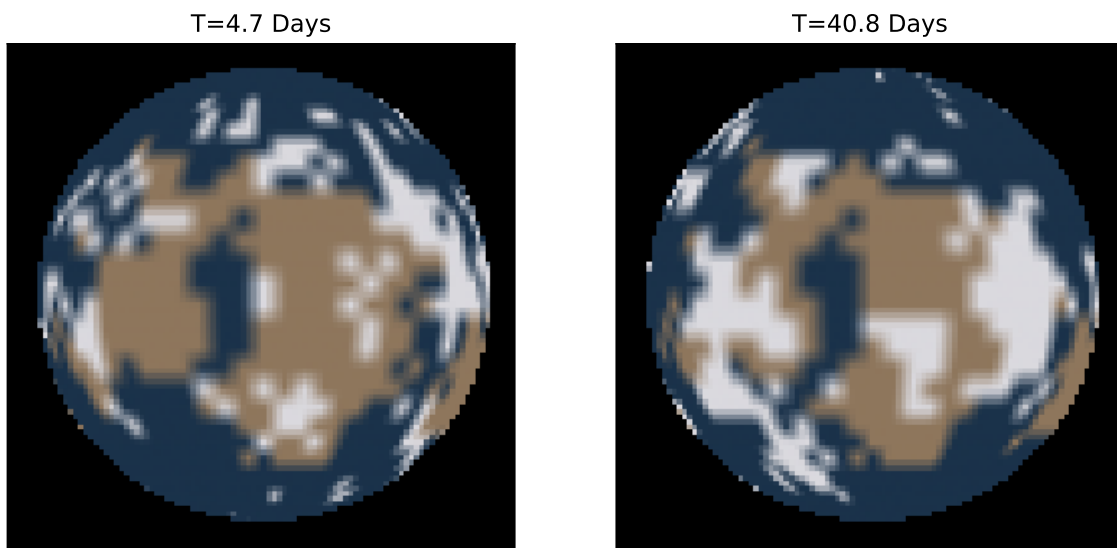


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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