

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

## nizarsum

### Planet 3

Monday 28<sup>th</sup> April, 2070

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

```
00100010000110010111010010000110011101001001001010001110100101
00100010111100010010100110000001010101111011101011001010001000
00001101011011001111000110101101011110111101111000111101100111
10010011111011110111101001011011011001110000100110101110010000
11110000001010100001010011010000100110000101010010010110110010
10100011111101100101000011001100010000111111000000101000111011
10111100000100110110100011111101001000001100110011011000000011
```

This signal was first noticed at UTC 2069-12-30/19:02.

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

Spectral Type	K
Stellar Luminosity (Solar Units)	0.0454
Stellar Mass (Solar Masses)	0.462
Distance to Star (lightyears)	142.7
Planet Mass (Earth masses)	0.9
Atmospheric Pressure (atm)	0.6

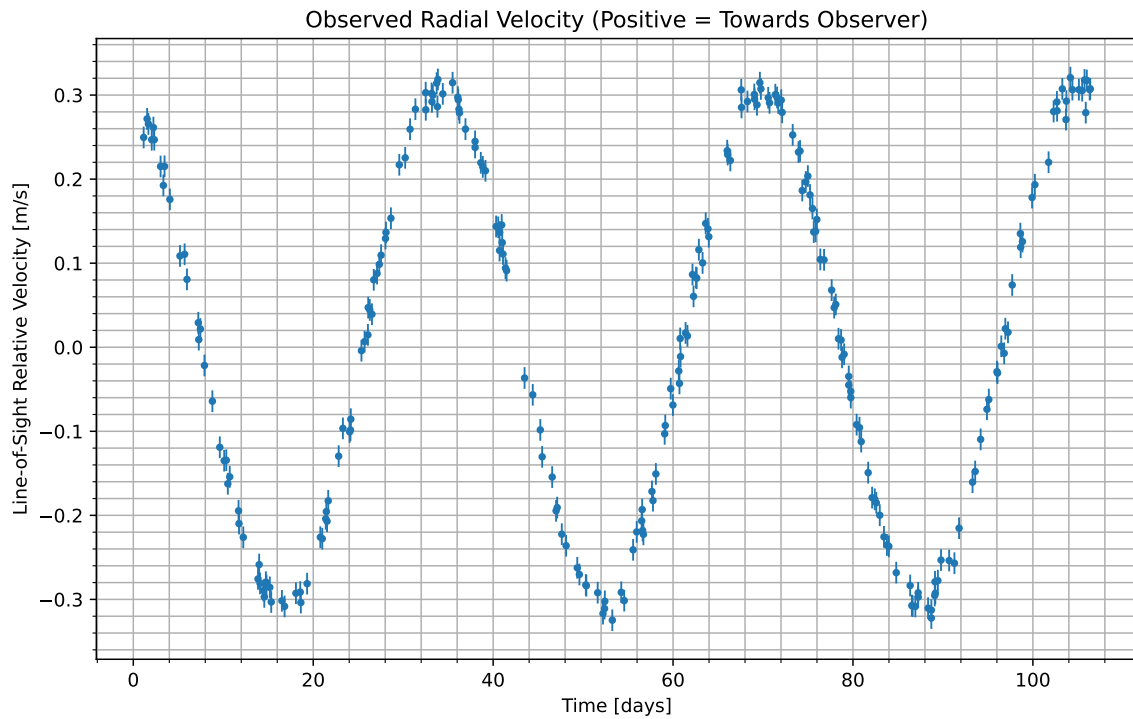


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2069-12-31/16:05. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

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

Molecule	Concentration
$N_2$	22.2
$CO_2$	62.7
$H_2O$	15.1

### Gas Abundance (percent by volume)

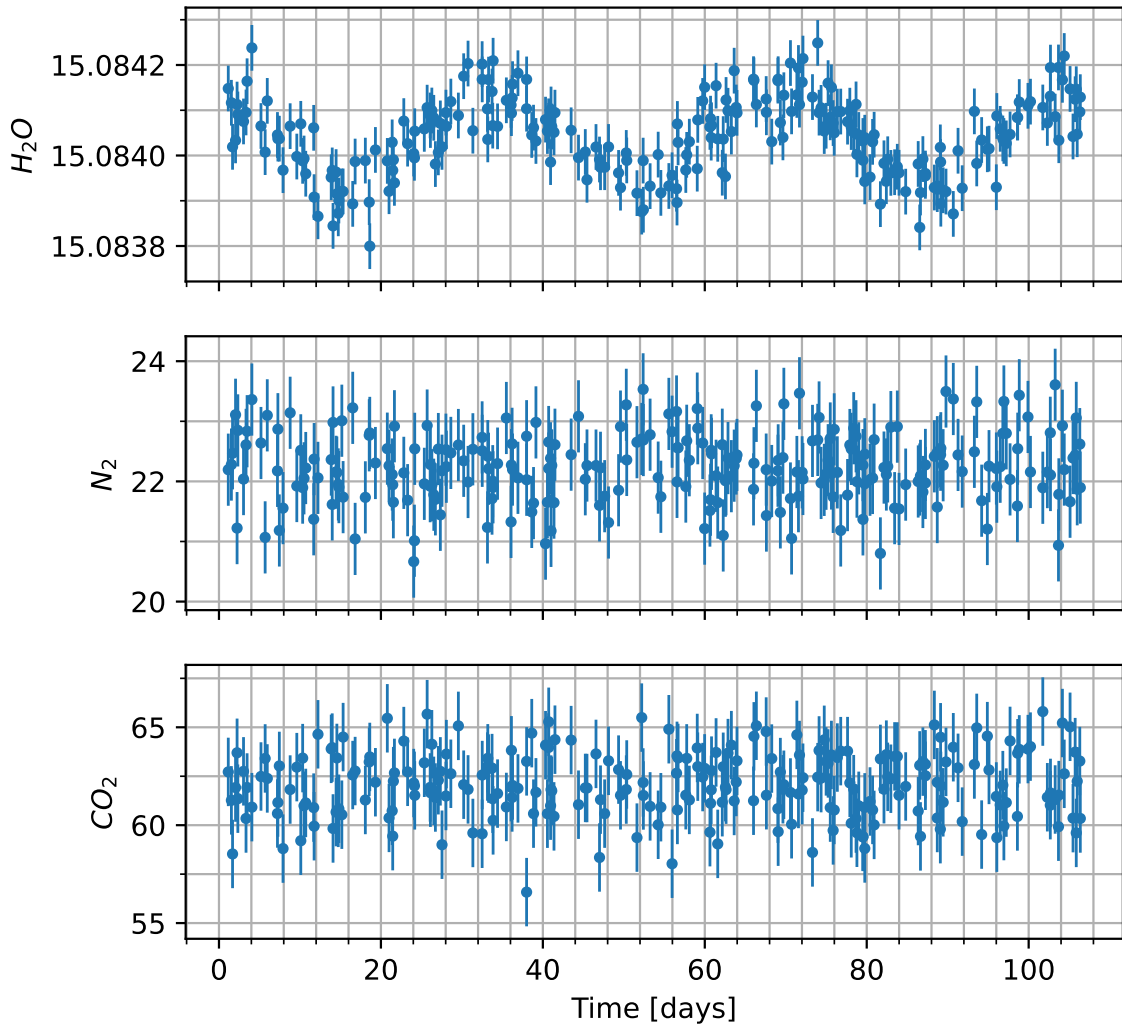


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

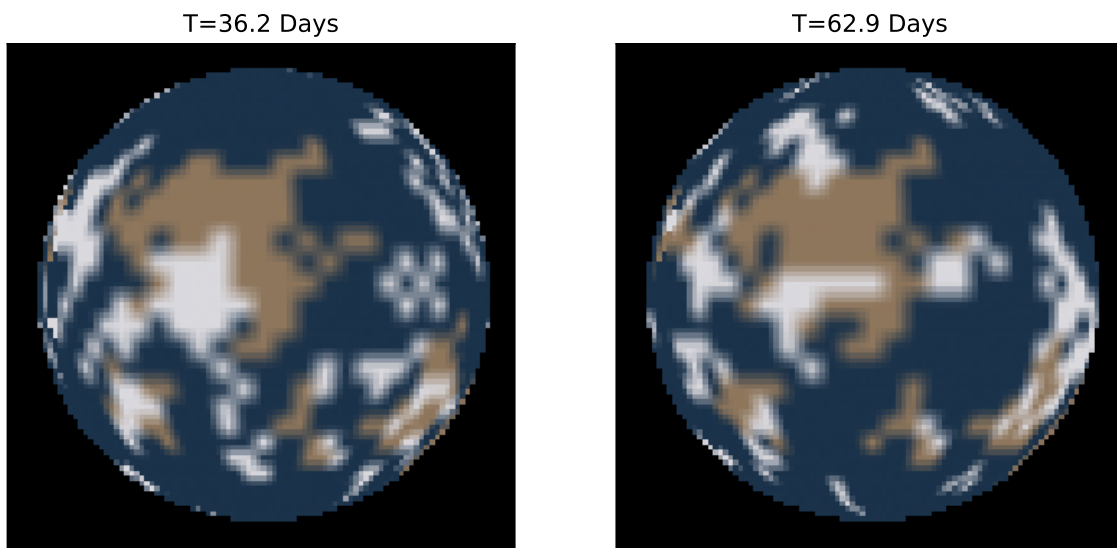


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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