

AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

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Planet 2

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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:

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0011111101010001110001001111011110010111001101001111000111101110011001001101
0110101100010111000100100011010101111000101011010111101110111001111111011111
1110110100101001011100111100100000010011001101101010010010110111111101110010
0101101001000010011100110101100011010011111110000101001110011001100100110001
0000011001100010100100000111110000010101100010100101100010001000100100101010
0100010100011100111000000100100001010001010101011000110100001110000101111011
0011011101011010100110111110110000001101000111110110011101010111011010111110
0011010000011000110001100001011011110101101100010000110110000011110010101011
1110001001000110110111010000001111110000011000000011011101000010111100001000
0100101100101101101111010100101011101101011100010100000110000100001000100010
```

This signal was first noticed at UTC 2070-09-22/16:36.

Parameters of the candidate planet of origin and its host star

Spectral Type	M
Stellar Luminosity (Solar Units)	0.00397
Stellar Mass (Solar Masses)	0.22
Distance to Star (lightyears)	531.8
Planet Mass (Earth masses)	0.5
Atmospheric Pressure (atm)	34.6

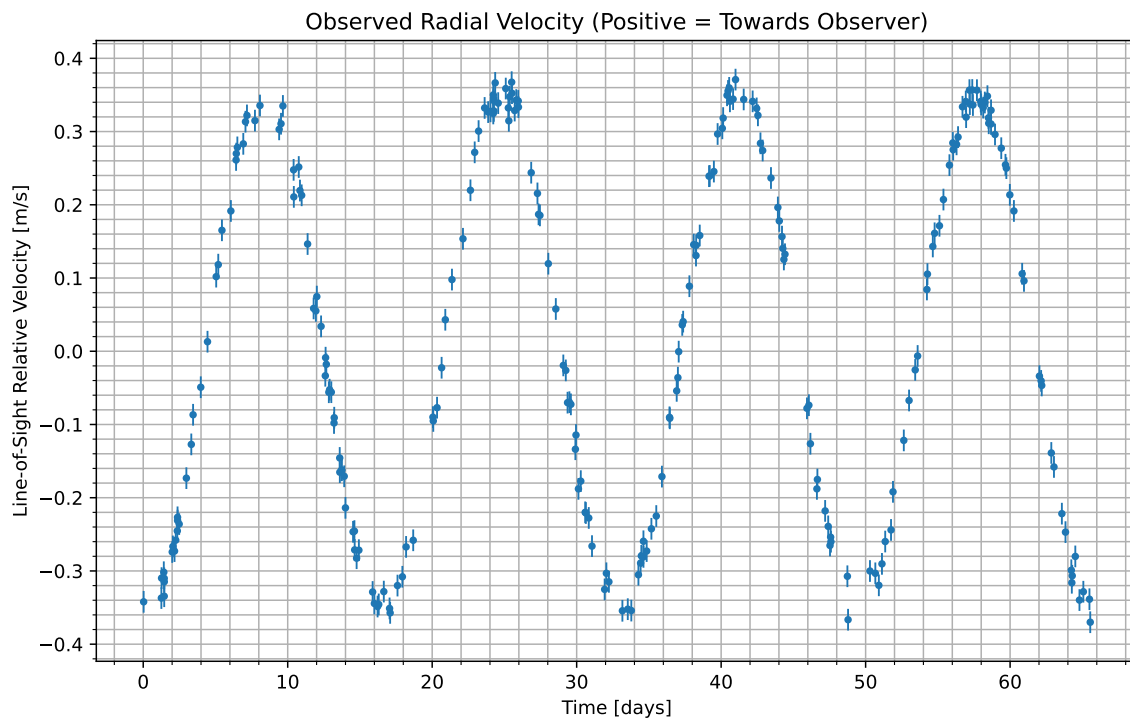


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2070-09-22/21:53. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
N_2	9.07
CO_2	67.6
H_2O	23.4

Gas Abundance (percent by volume)

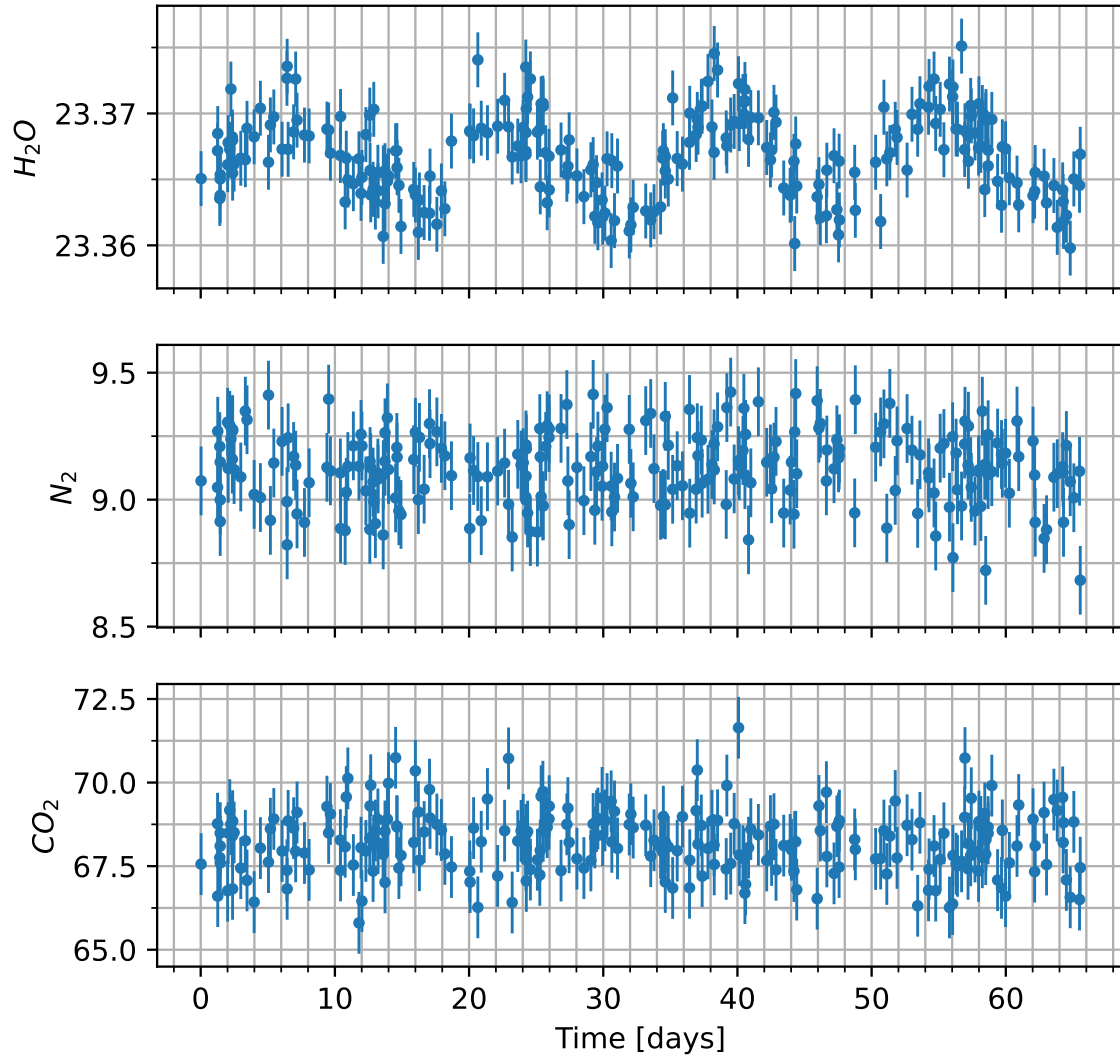


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

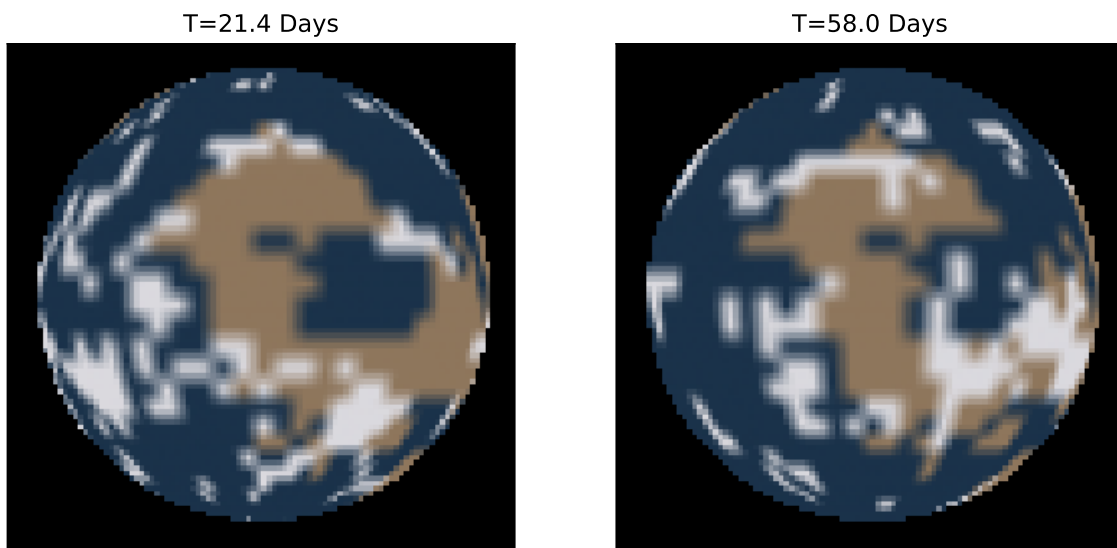


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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