

AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

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Planet 1

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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 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:

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1111100010100010100101101110110011101111011111001111001001001110000001010
1001101001110011111011110111110101000010101100000011010101001111001010110
1000110100000100001000111111011101100010100000110111000010100100111111010
0111011000110010111001101101100011001000100010010001010110111101111110100
0010100100110110100001000110001010110010001011100000001001100011000011110
1010101000110111100011110100101001100010101010101110111011010101010110010
0011110001000110010000110011010111100011001010110000110100011101110101000
0011101010001111111011100011110110100001100011000111001011111101000011001
000010001100101010000000101000110111111111001100000000000001010100000010
```

This signal was first noticed at UTC 2098-05-11/06:38.

Parameters of the candidate planet of origin and its host star

Spectral Type	M
Stellar Luminosity (Solar Units)	0.0119
Stellar Mass (Solar Masses)	0.31
Distance to Star (lightyears)	6.6
Planet Mass (Earth masses)	4.0
Atmospheric Pressure (atm)	1.3

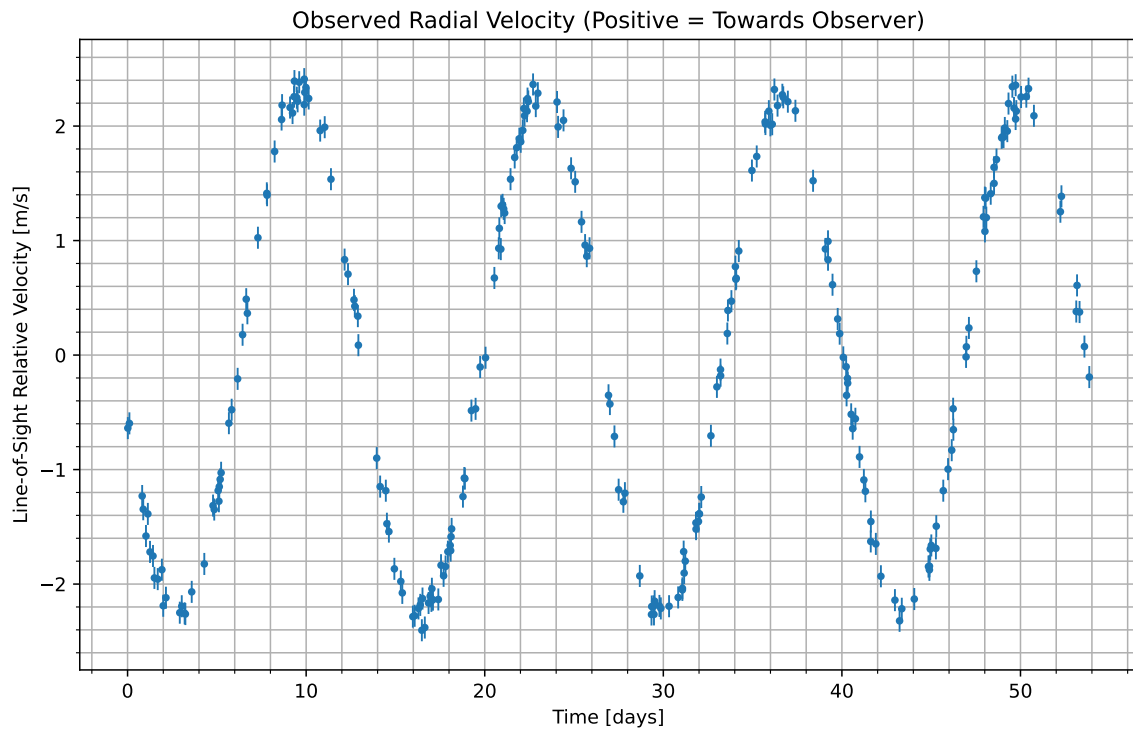


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2098-05-12/06:48. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
N_2	38.4
CO_2	45.8
H_2O	15.8

Gas Abundance (percent by volume)

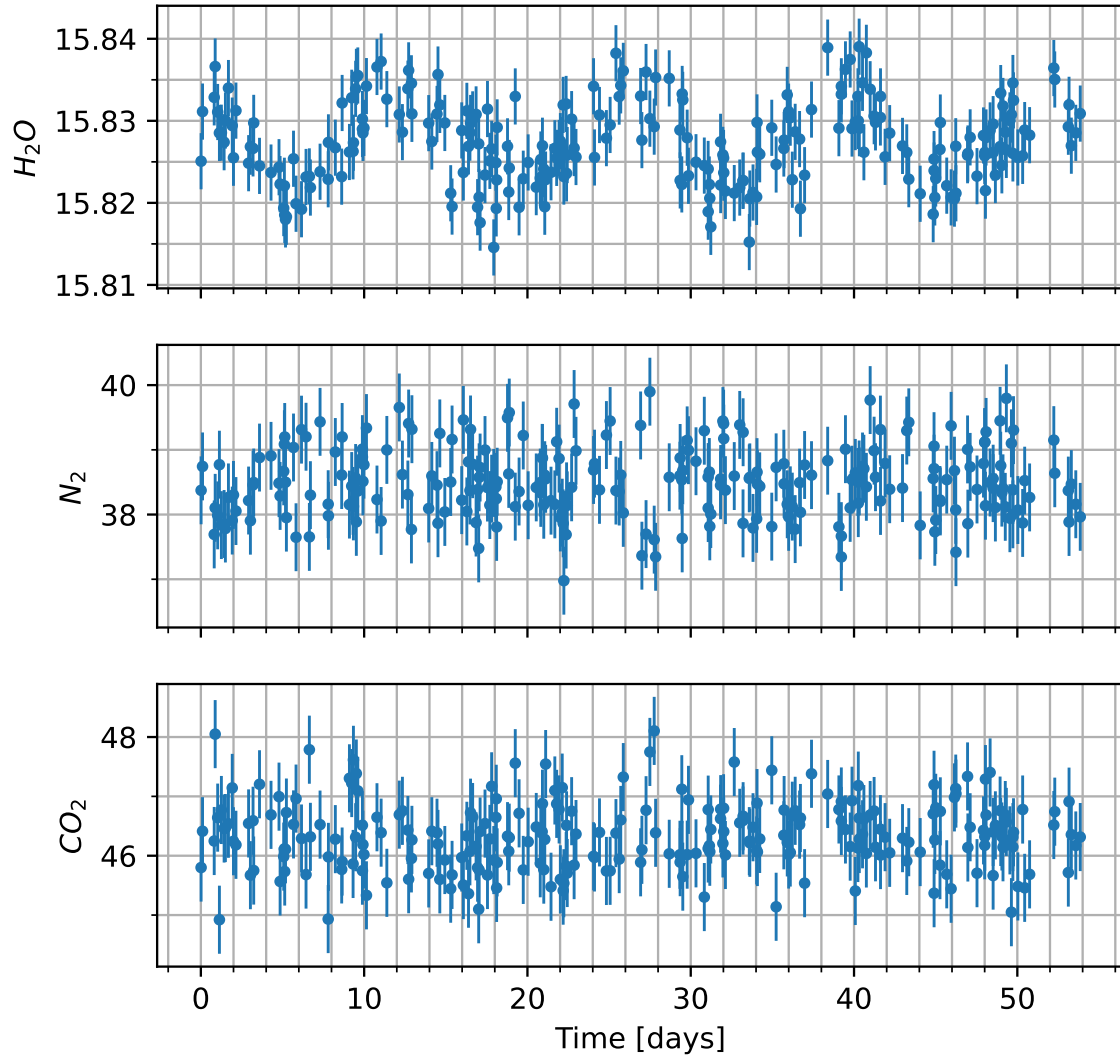


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

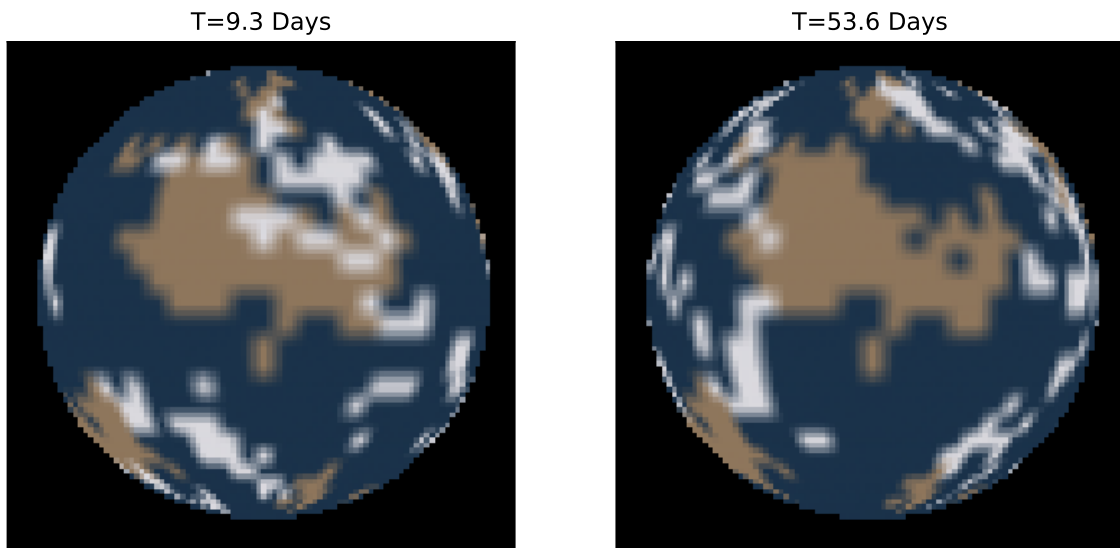


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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