

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 lasted a short duration and then stopped. The transmission is shown below:

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011110110001001111101111101111001010000110101001010000
1100011101011011010010100001111101101000111000111101100
1100110010100010001011111010110110001101110011100110111
010000111111100110101001010010001001010011000110011000
100010011111010000000000010110111101101101010100000010
0110101101001110000001111010010100001001010101001101011
1010000000101110011110000011101001101011001011001011110
0000001101111000011010001010011100110011101011111010010
011011111000100001010010111101100011011000110011111110
```

This signal was first noticed at UTC 2088-12-18/18:24.

Parameters of the candidate planet of origin and its host star

Spectral Type	K
Stellar Luminosity (Solar Units)	0.0429
Stellar Mass (Solar Masses)	0.455
Distance to Star (lightyears)	13.2
Planet Mass (Earth masses)	1.3
Atmospheric Pressure (atm)	2.1

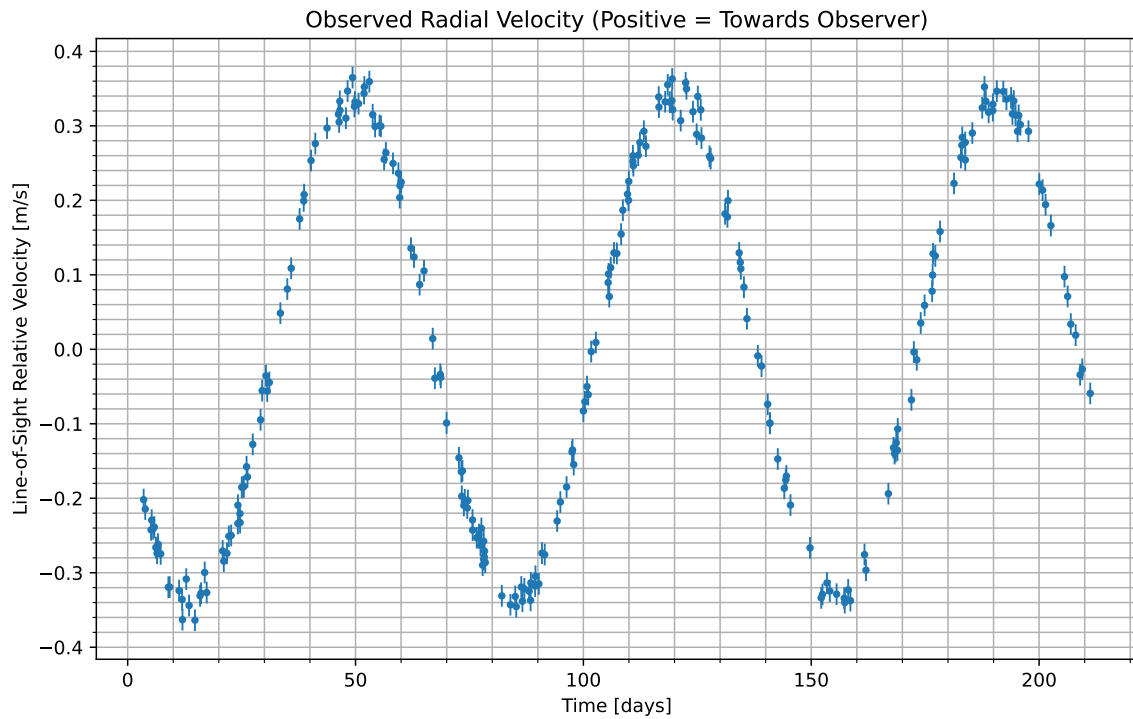


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2088-12-20/05:54. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
N_2	60.8
CO_2	34
H_2O	5.23

Gas Abundance (percent by volume)

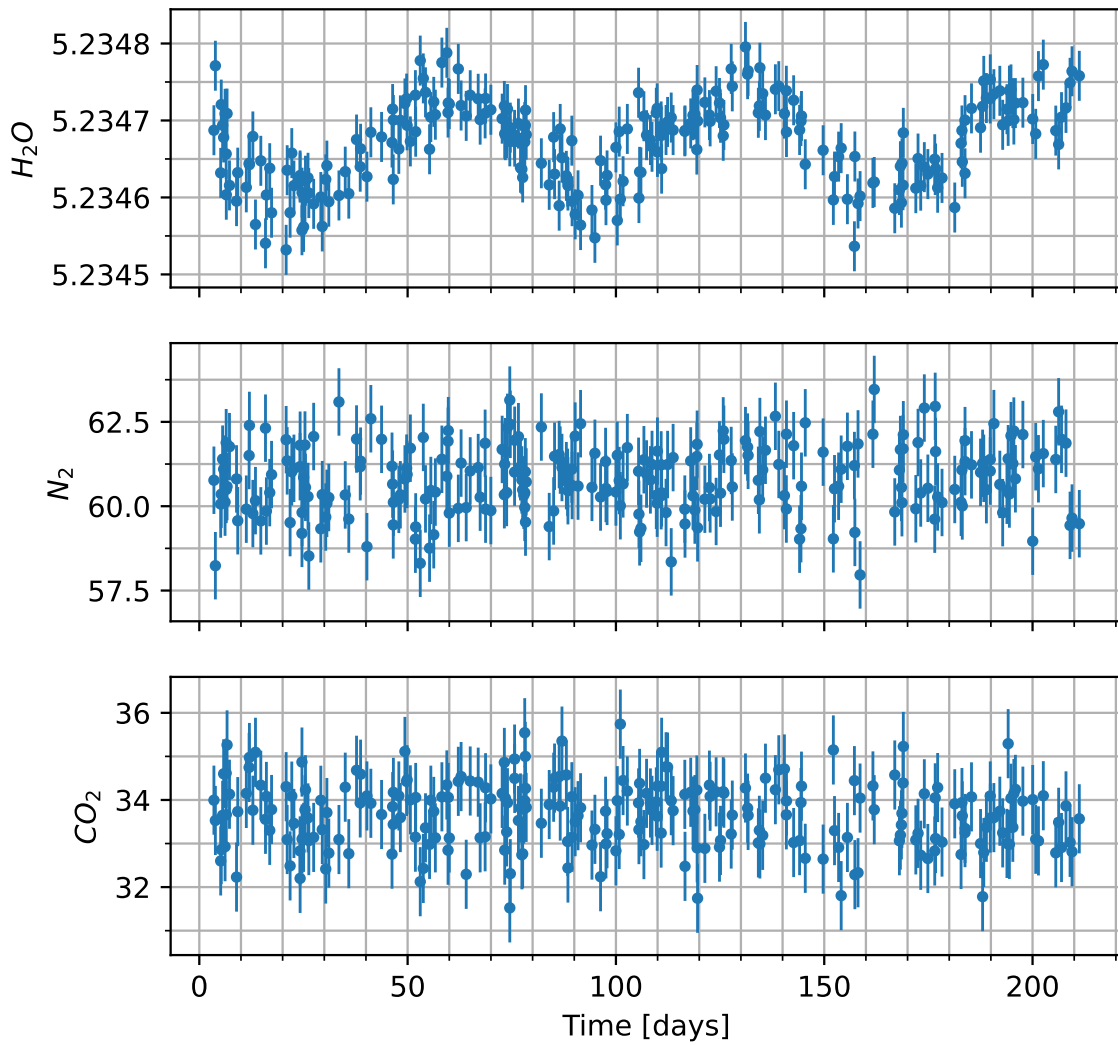


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

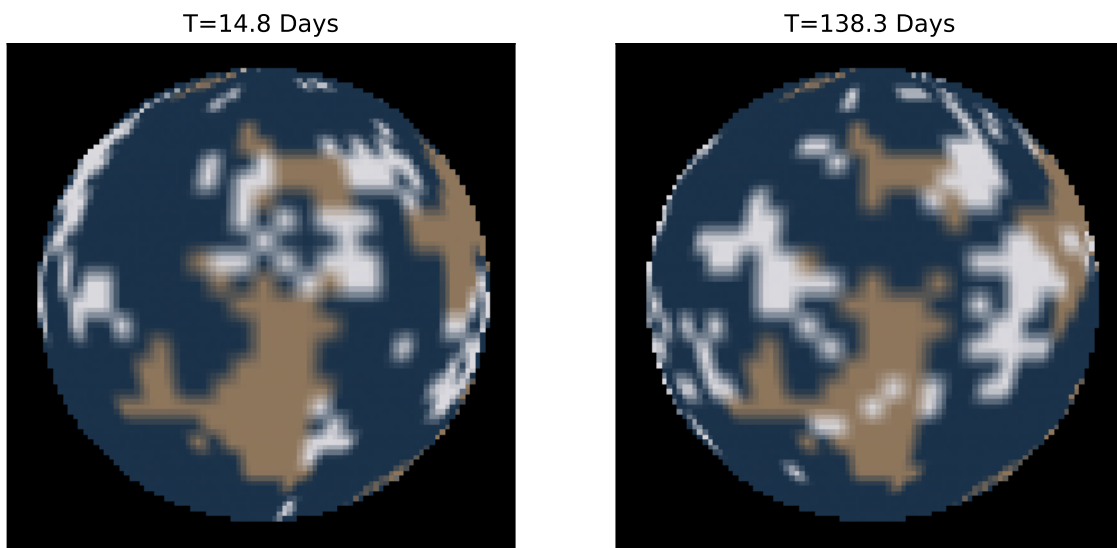


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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