

AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging hughesg4 Planet 1

Sunday 23rd August, 2093

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 has been observed to repeat itself regularly. The transmission is shown below:

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1110000110000000000000000001101110111101111101111110111  
11100111111001111100101111101101110111101111101111110111  
11100100001000111100110111100001110111101111101111110111  
00001100001000011100111011100000000111101111101111110000  
1110110000100000110011110110000000000001111101111110111  
11100100001000000100111110100000000000000000111110111  
111001111110000000000000000000000000000000000000000000111
```

This signal was first noticed at UTC 2093-01-31/10:25.

Parameters of the candidate planet of origin and its host star

| | |
|----------------------------------|--------|
| Spectral Type | M |
| Stellar Luminosity (Solar Units) | 0.0209 |
| Stellar Mass (Solar Masses) | 0.369 |
| Distance to Star (lightyears) | 16.5 |
| Planet Mass (Earth masses) | 2.2 |
| Atmospheric Pressure (atm) | 9.9 |

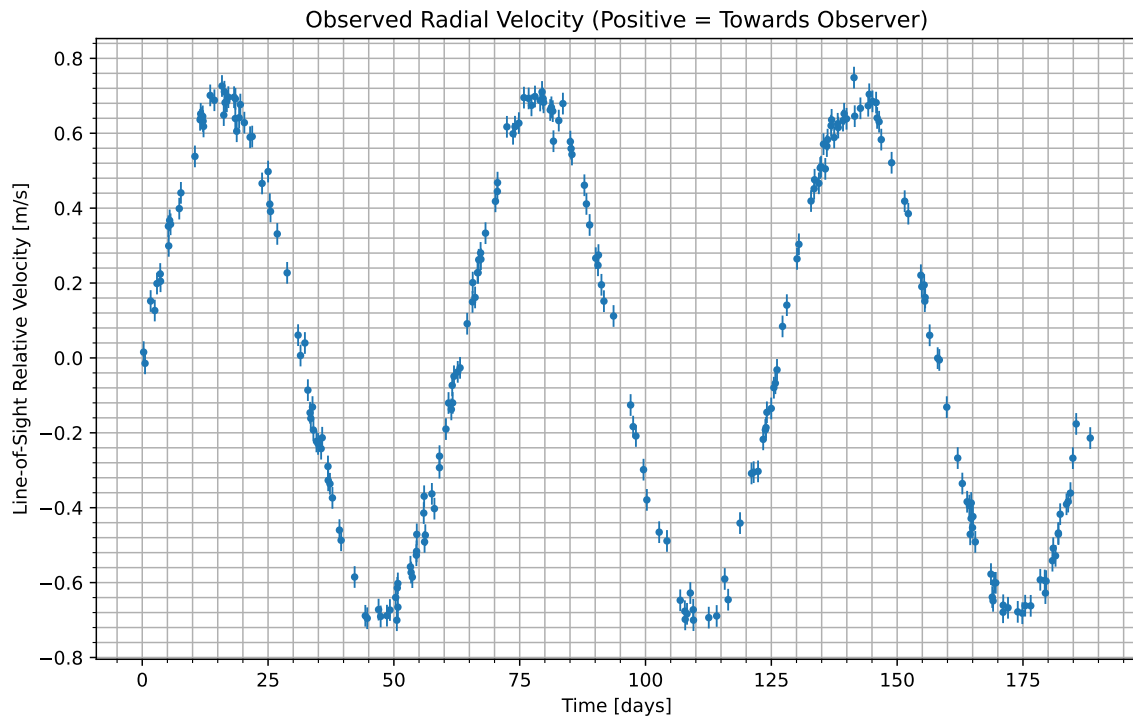


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2093-02-01/21:30. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

| Molecule | Concentration |
|----------|---------------|
| N_2 | 43.6 |
| CO | 10.3 |
| CO_2 | 5.82 |
| SiH_4 | 5.4 |
| H_2S | 34.9 |

Gas Abundance (percent by volume)

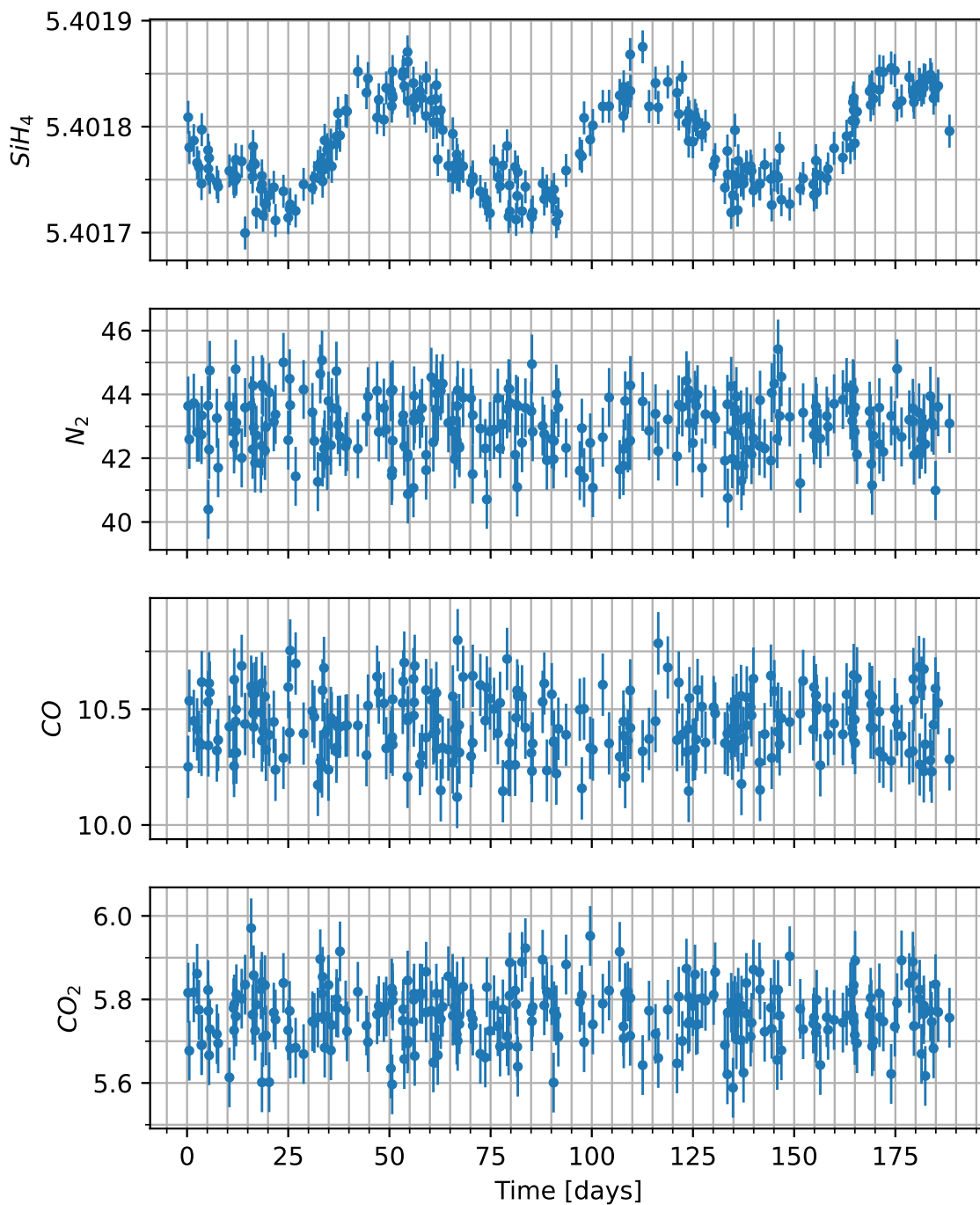


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

Gas Abundance (percent by volume)

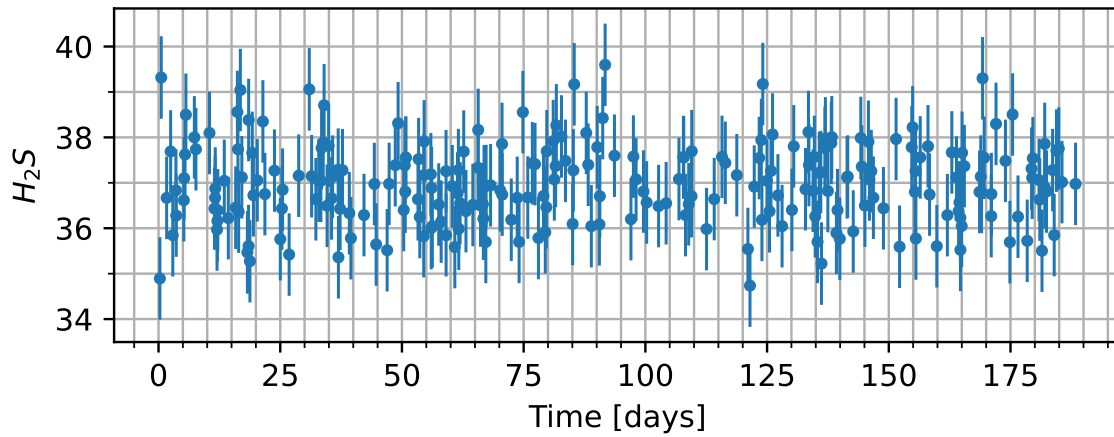


Figure 3: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

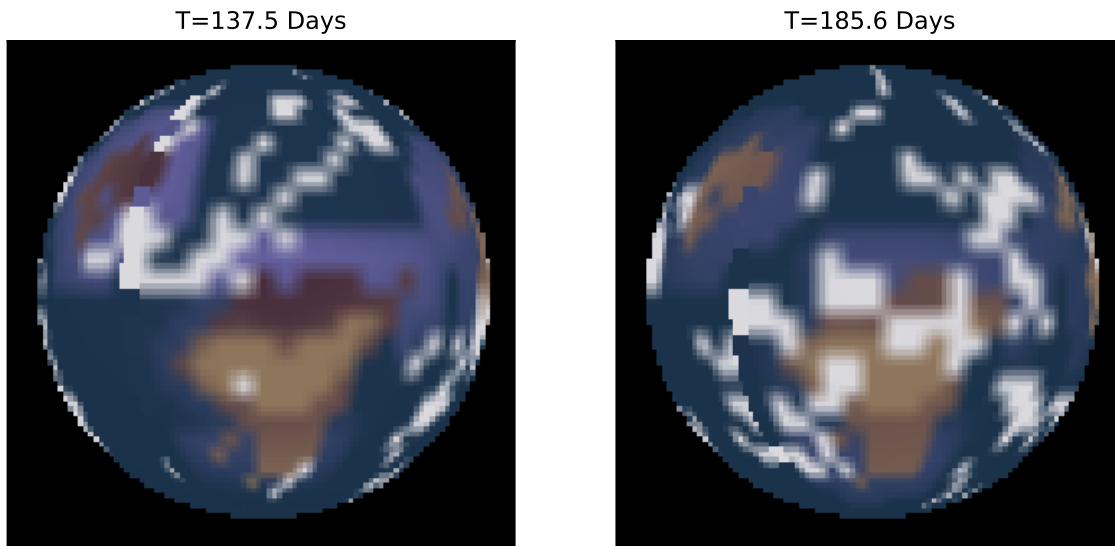


Figure 4: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to be liquid regions of some kind. Other colors present reflect the visible color as best as we are able to measure.