

AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging yineric1 Planet 1

Wednesday 28th October, 2082

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 narrowband 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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11000000000000000000000000000000000000000000000000000000000000000000000000000000000110
110010111111000111110001111110010111111000111111000000000100000000110
0000110111110011111110001111100110111111001111111000000111000000000
1110111011111001111111000011111001110111110011111110000001111100000111
1110111101111001111111000001111001111011110011111110000011111100000111
1110111110111001111111000000111001111101110011111110000111111110000111
0000111111011001111111000000011001111110110011111110001111111111000000
1100111111101001111111000000001001111110100111111100111111111111100110
1100000000000000111111000000000000000000000011111100000000000000000110
    
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This signal was first noticed at UTC 2082-09-17/04:03.

Parameters of the candidate planet of origin and its host star

Spectral Type	K
Stellar Luminosity (Solar Units)	0.233
Stellar Mass (Solar Masses)	0.695
Distance to Star (lightyears)	5.6
Planet Mass (Earth masses)	2.2
Atmospheric Pressure (atm)	0.6

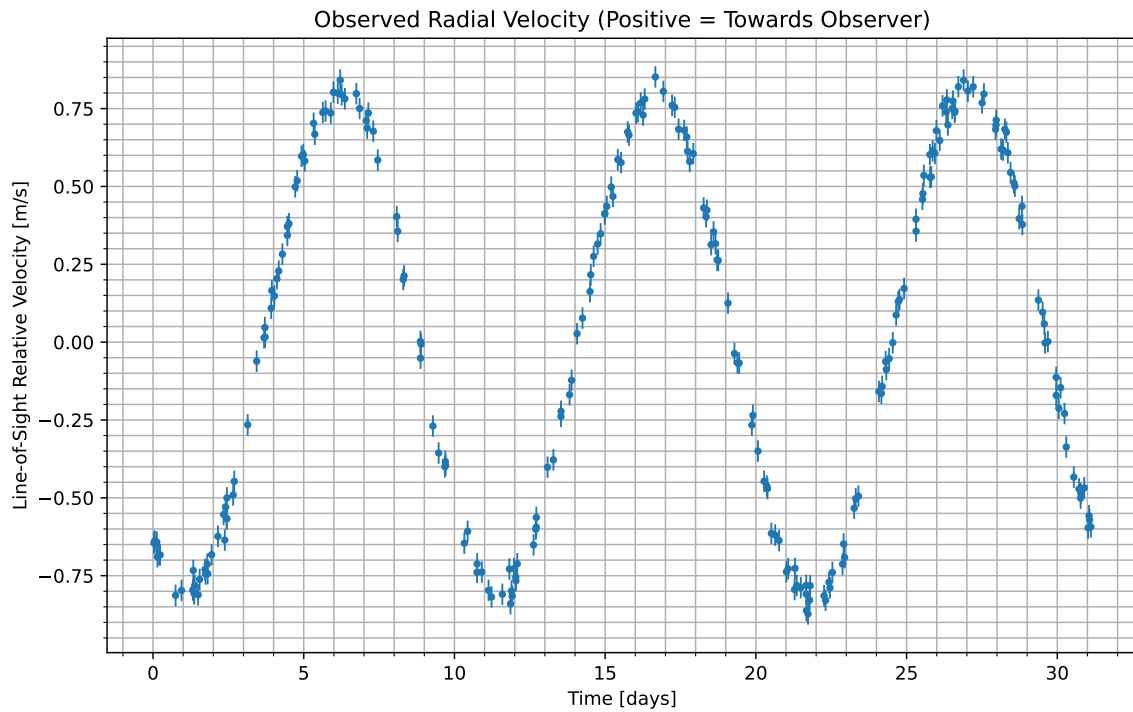


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2082-09-18/03:34. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
<i>CO</i>	46.9
<i>CO₂</i>	10.3
<i>SiH₄</i>	11.1
<i>NO</i>	9.89
<i>NO₂</i>	21.5
<i>Na</i>	0.317

Gas Abundance (percent by volume)

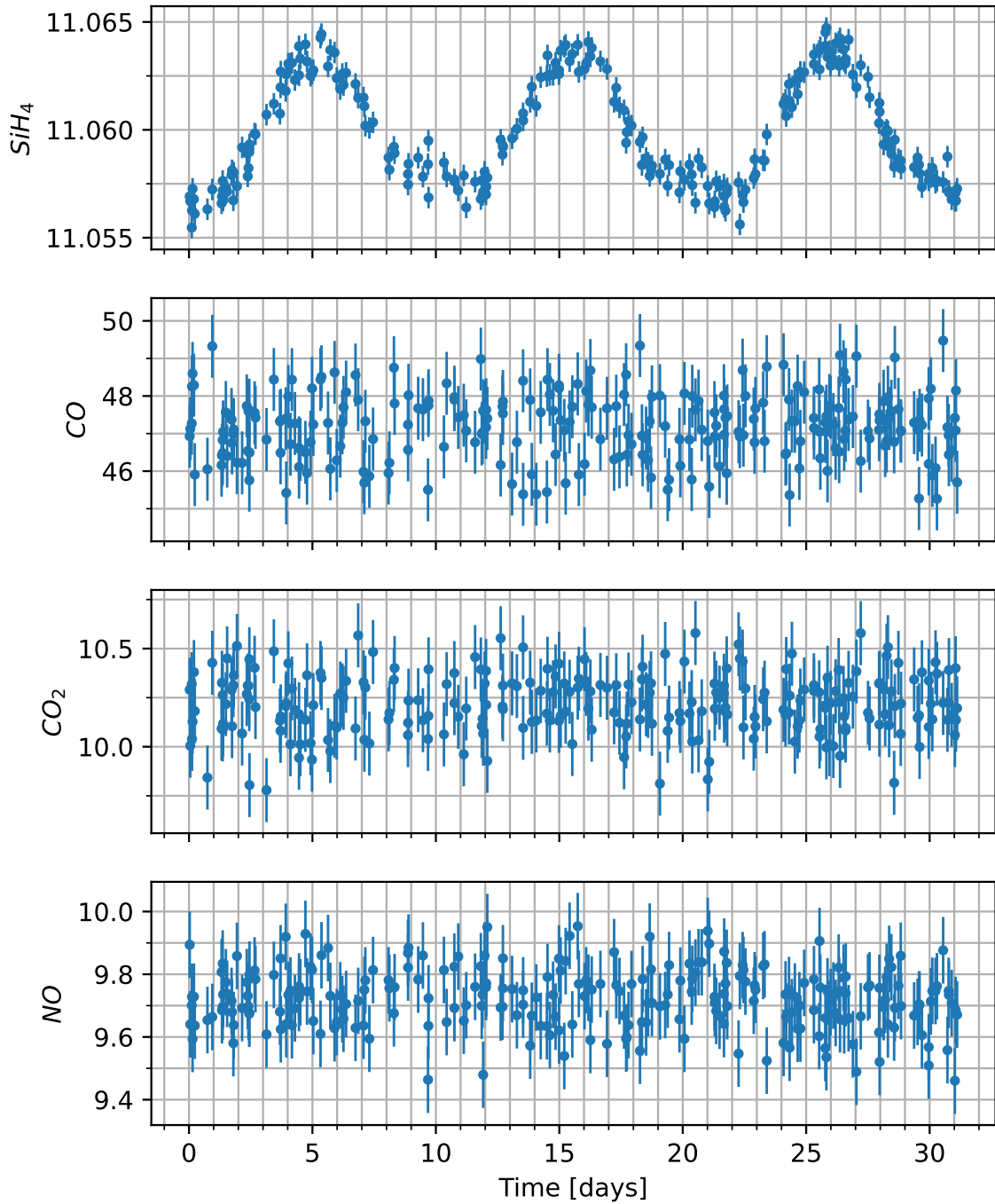


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

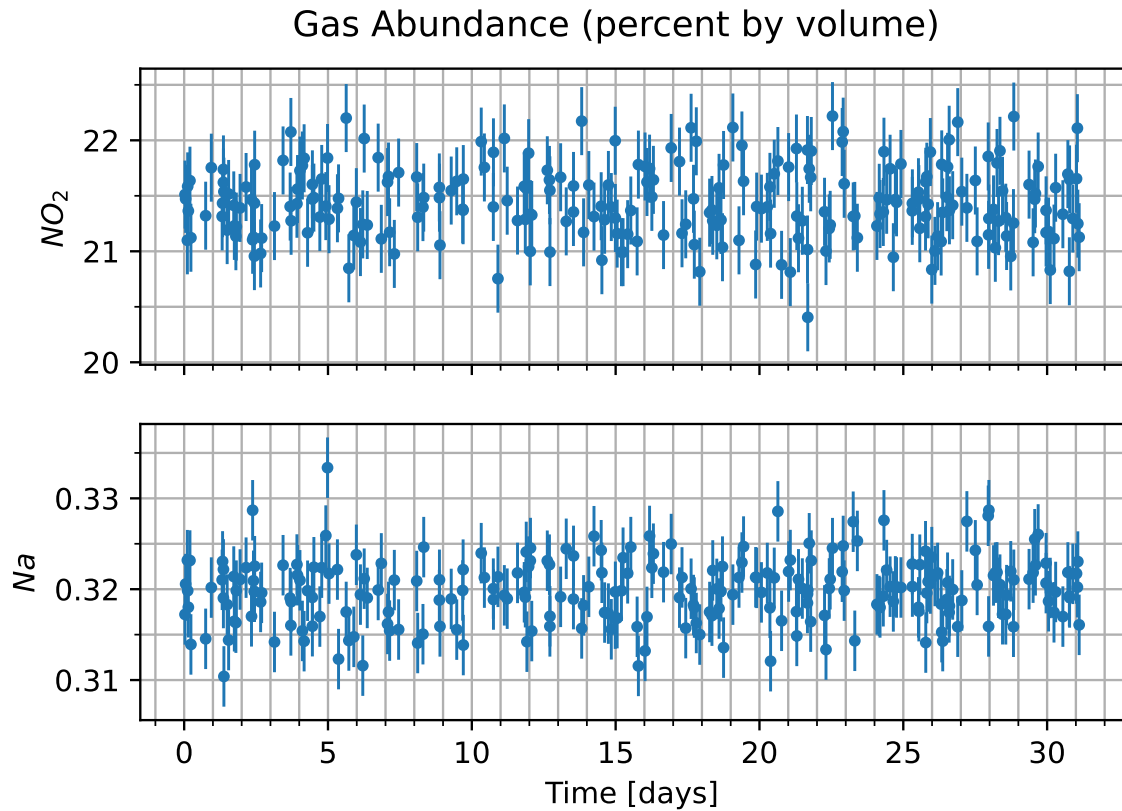


Figure 3: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

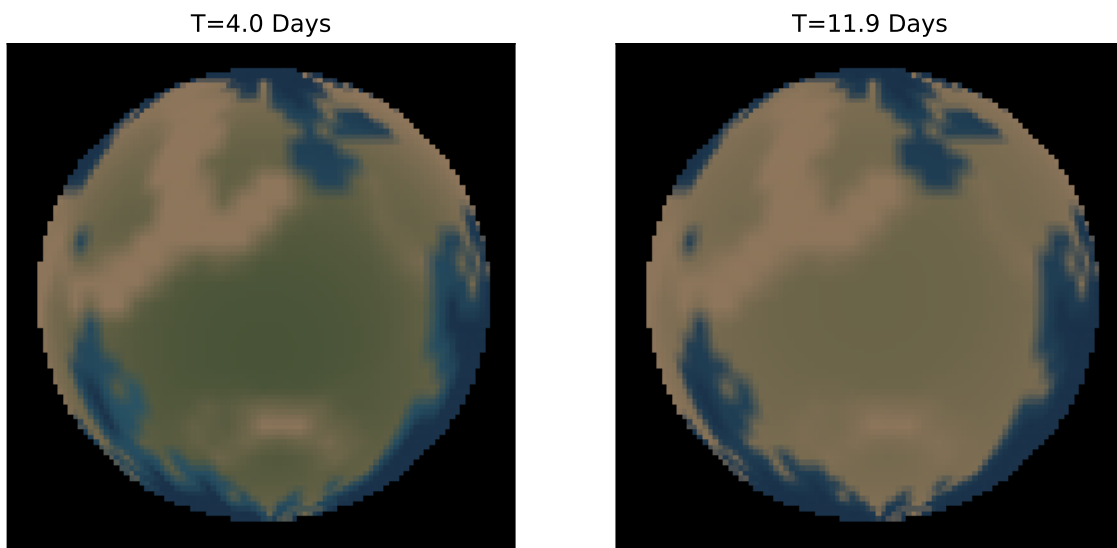


Figure 4: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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