

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

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000011111111111111111111001111111111111111111111111111001111111111110000
0000100000000000000011000000101000001000000110000001010000010000
0000100000000000000011011110100100001000000110000001001000010000
0000100000000000000010011110100010001000000100000001000100010000
0000100000000000000010011110100001001000000100000001000010010000
0000100000000000000011011110100000101000000110000001000001010000
0000111111111111111111110000001111111111111111111111111111111111110000
```

This signal was first noticed at UTC 2068-11-23/14:05.

Parameters of the candidate planet of origin and its host star

Spectral Type	M
Stellar Luminosity (Solar Units)	0.0244
Stellar Mass (Solar Masses)	0.387
Distance to Star (lightyears)	561.4
Planet Mass (Earth masses)	0.7
Atmospheric Pressure (atm)	9.6

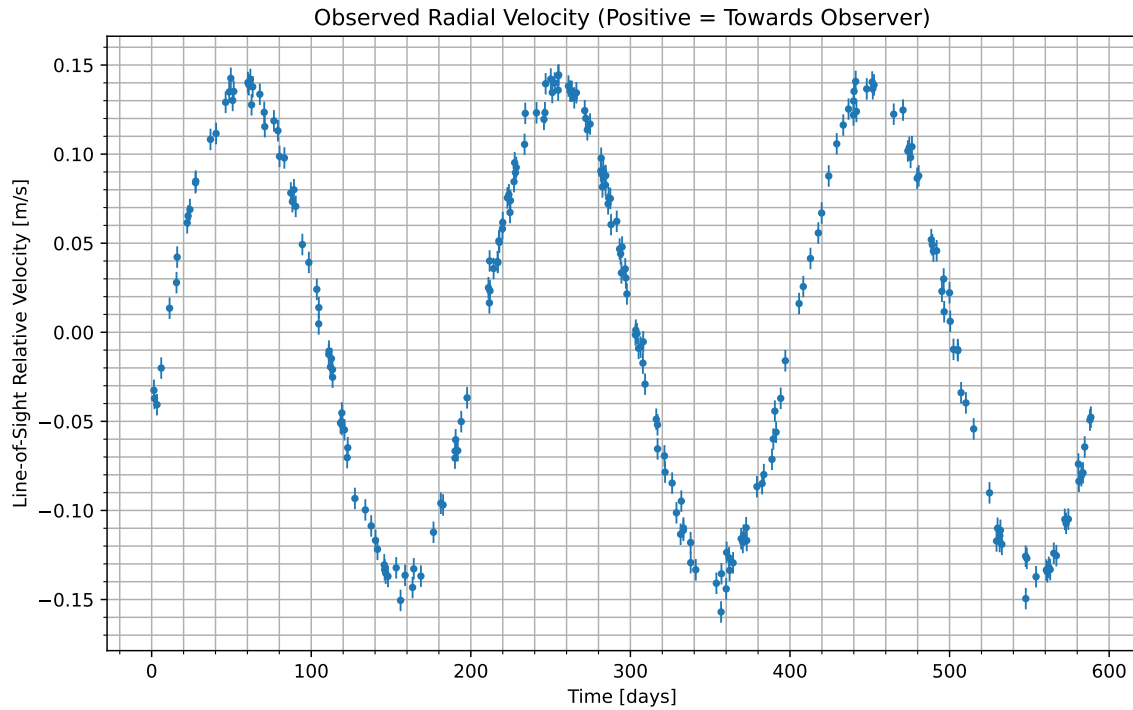


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2068-11-24/23:56. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
H_2S	36.3
N_2	38.9
CO_2	10.5
SO	9.2
SO_2	2.53
HF	0.0507
CO	1.72
S_2O	0.000625
S_2O_2	1.36E-05

Gas Abundance (percent by volume)

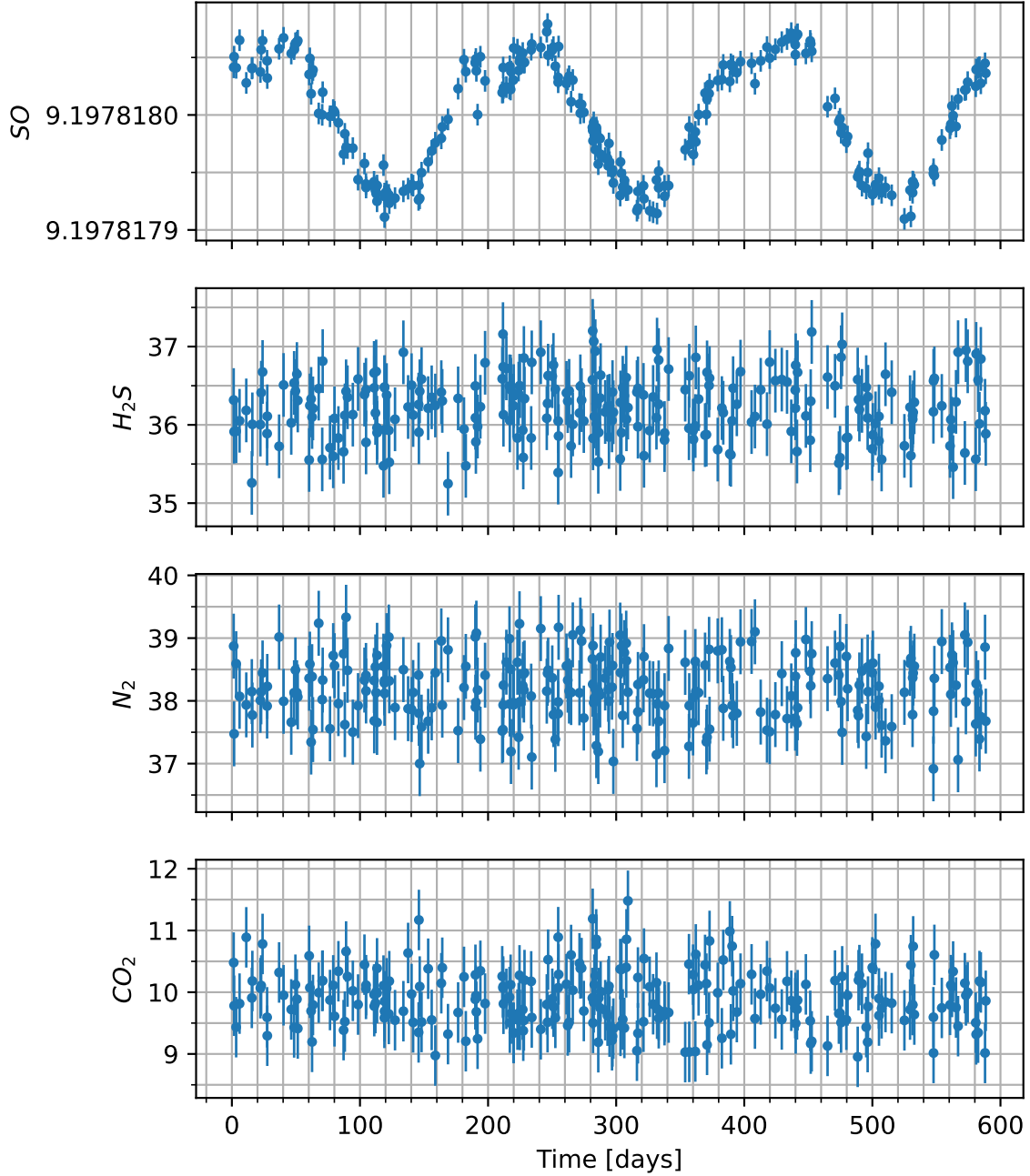


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

Gas Abundance (percent by volume)

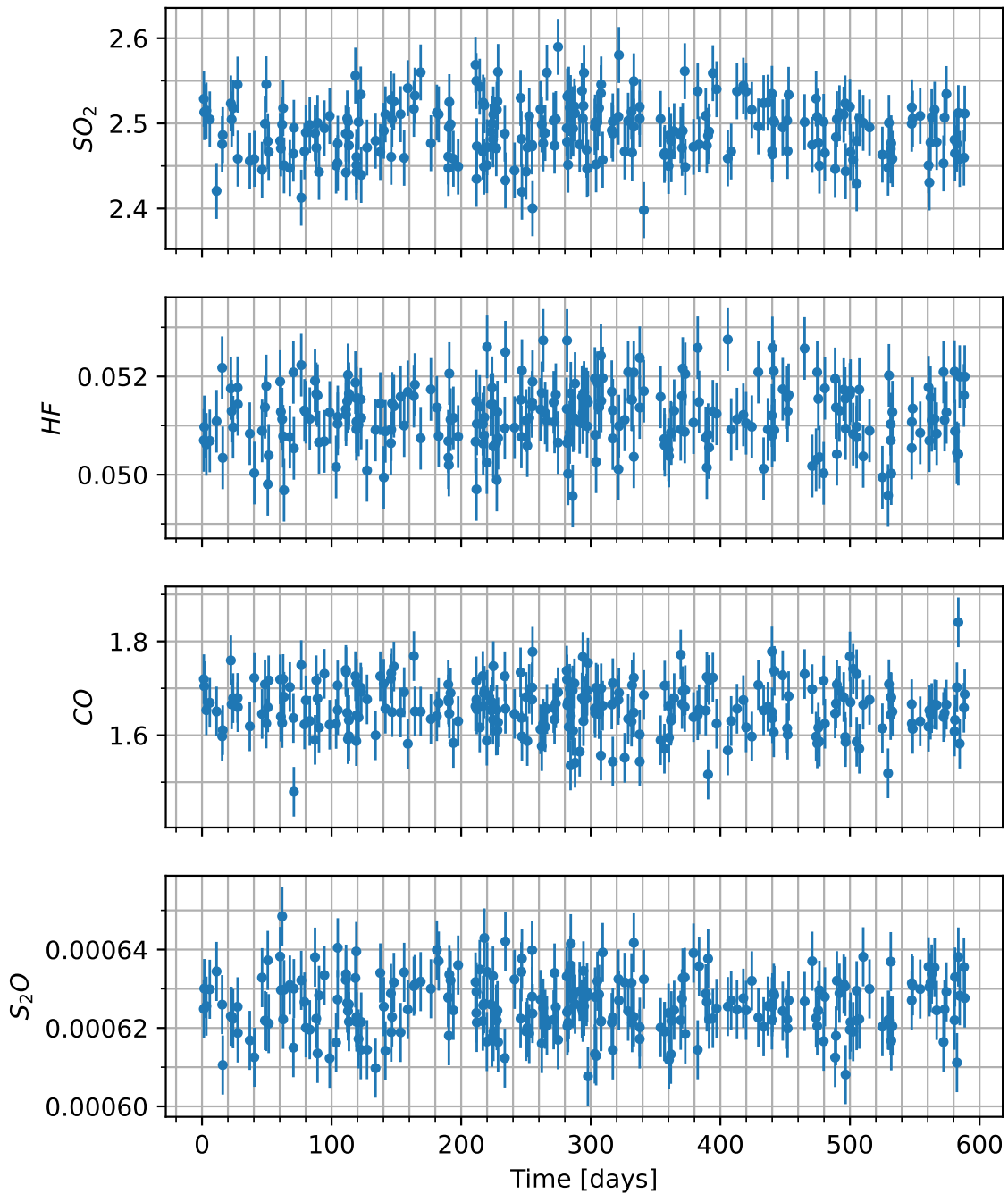


Figure 3: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

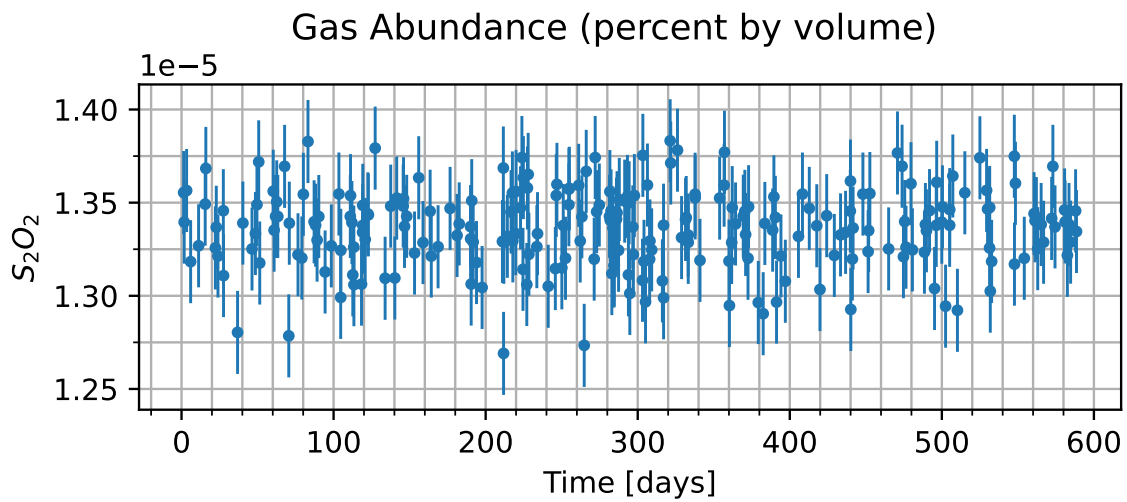


Figure 4: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

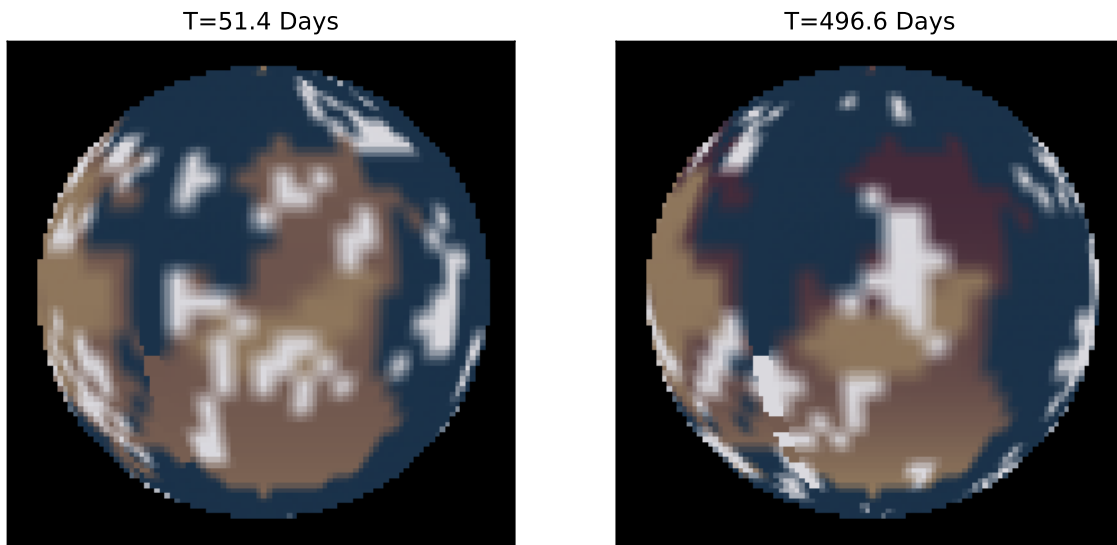


Figure 5: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to be liquid regions of some kind. Other colors present reflect the visible color as best as we are able to measure.