AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging
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Planet 2

Friday 1st May, 2076

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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01011111111111111111111111111111001000100001000001111111111111111010
01010100000001000000010100000001001000100001000001000000000000001010
01011111111111000000010010000001111000100001000001000000000000001010
01011111111111000000010001000001111111100001000001000000000000001010
01011111111111000000010000100001111111111111000001000000000000001010
01011111111111000000010000100001111111111111111111000000000000001010
01011111111111000000010000010011111111111111111111000000000000001010
01011111111111000000010000001011111111111111111111000000000000001010
01011111111111111111111111111111111111111111111111111111111111111010
```

This signal was first noticed at UTC 2075-05-21/21:57.

Parameters of the candidate planet of origin and its host star

Spectral Type	M
Stellar Luminosity (Solar Units)	0.00303
Stellar Mass (Solar Masses)	0.202
Distance to Star (lightyears)	127.8
Planet Mass (Earth masses)	0.6
Atmospheric Pressure (atm)	4.5

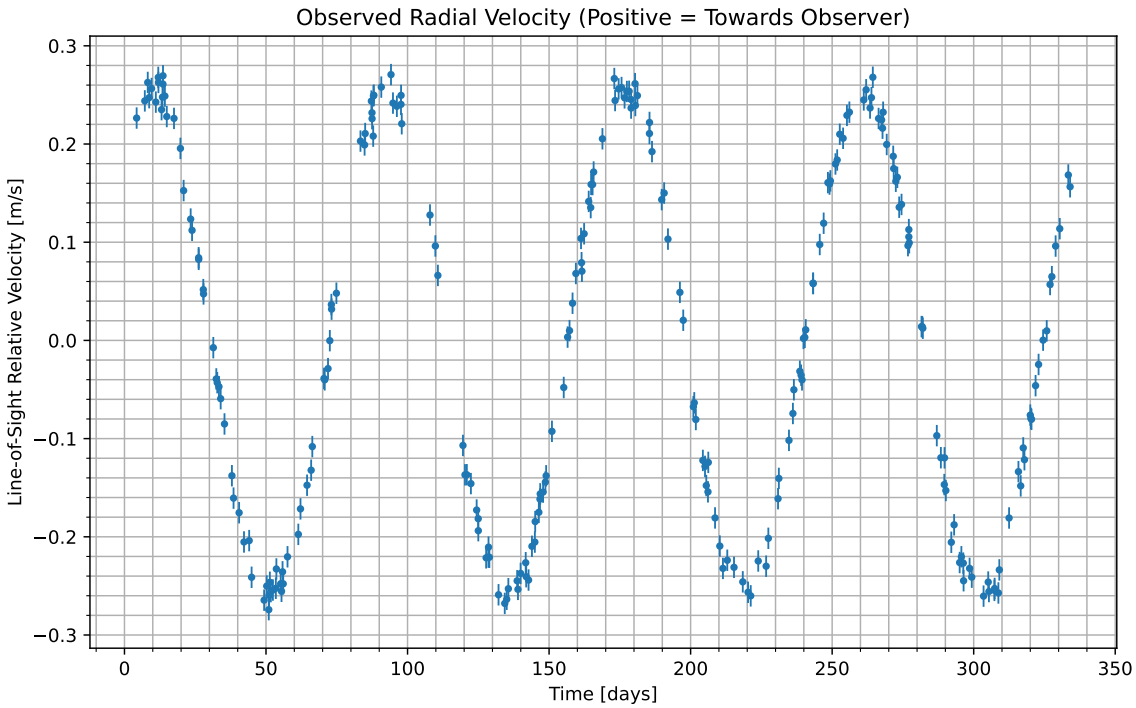

Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2075-05-24/12:09. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
H_2S	43.4
N_2	21.7
CO_2	8.89
SO	4.88
SO_2	13.3
HF	0.212
CO	4.73
S_2O	8.93E-07
S_2O_2	3.25E-07

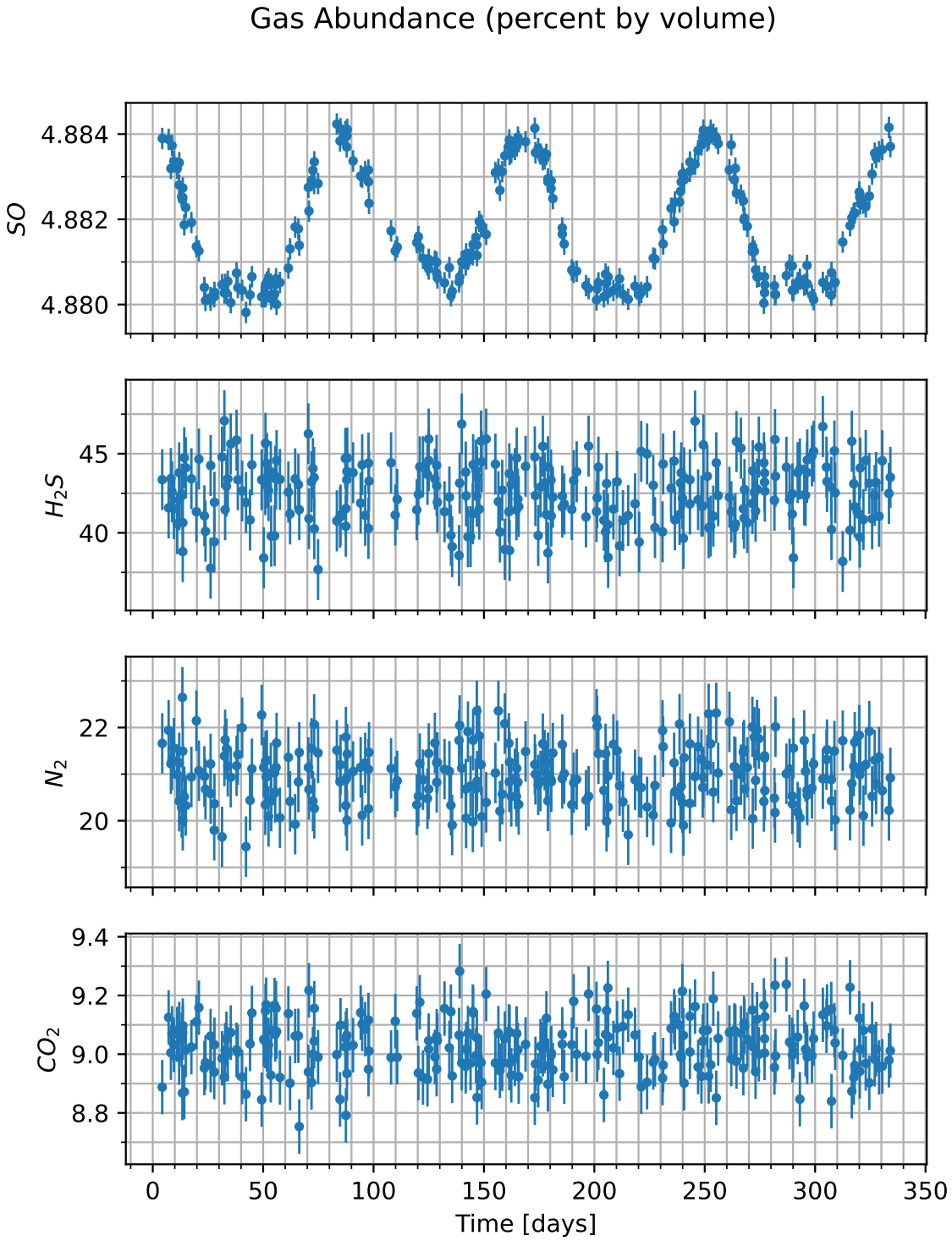

Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

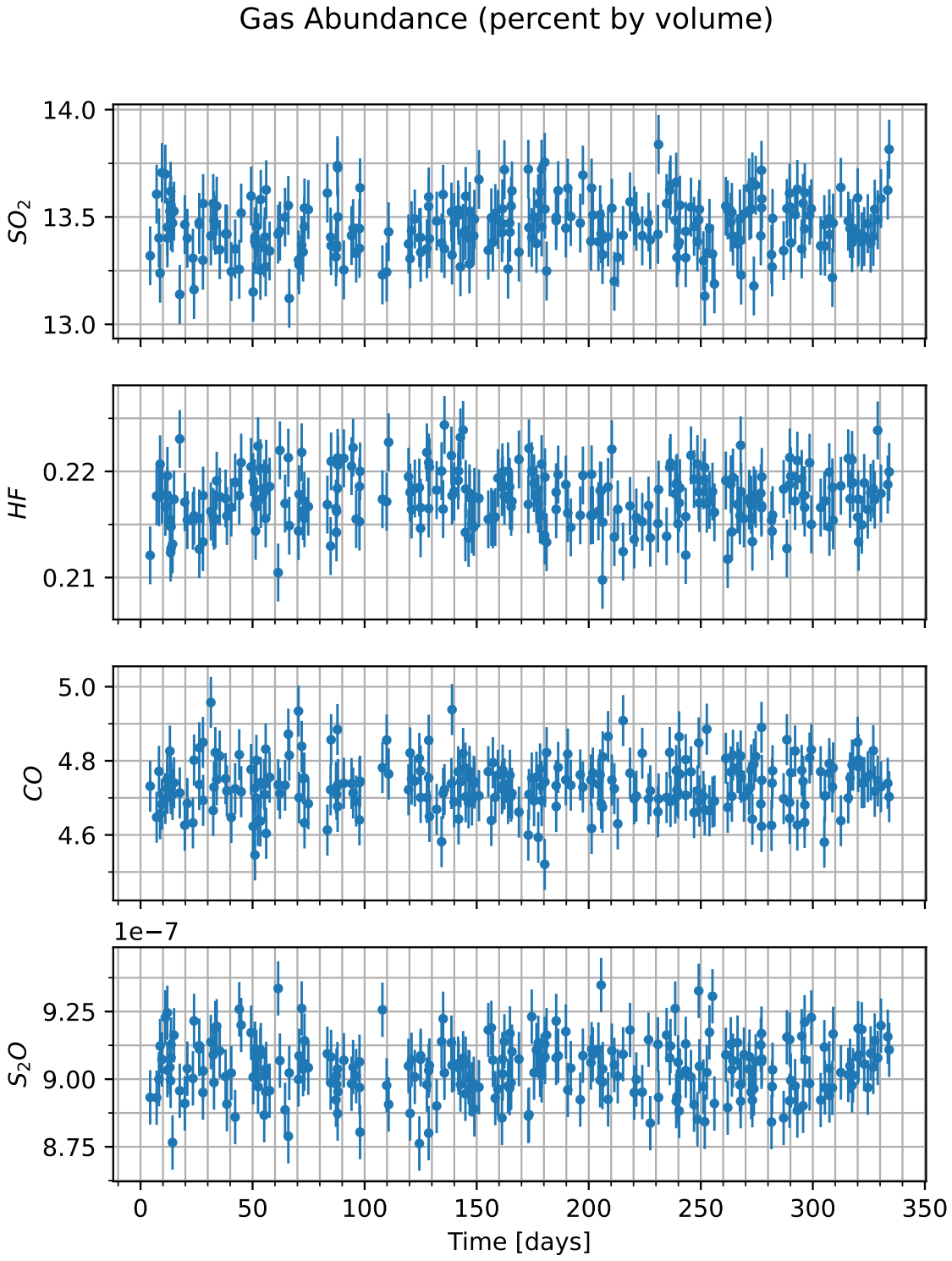

Figure 3: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

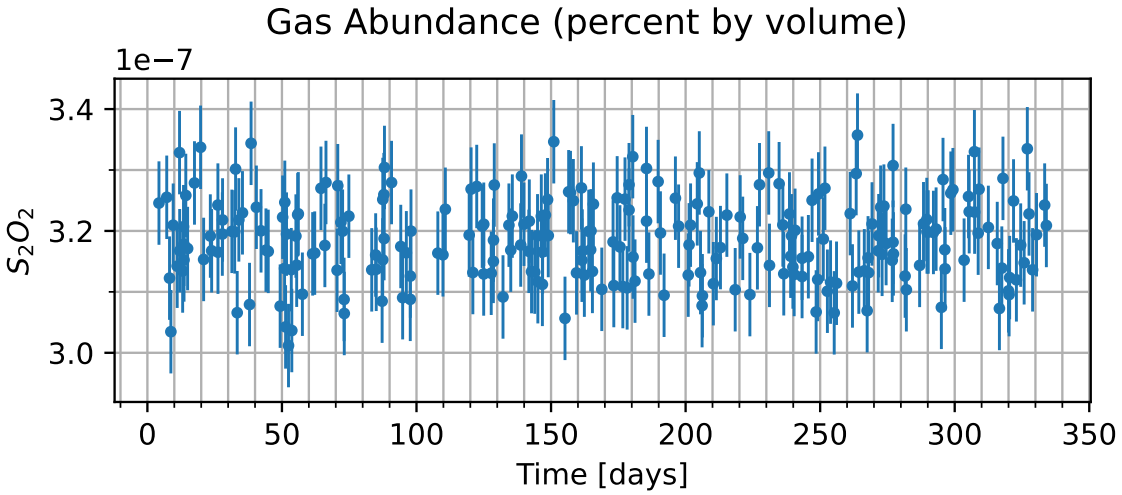

Figure 4: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

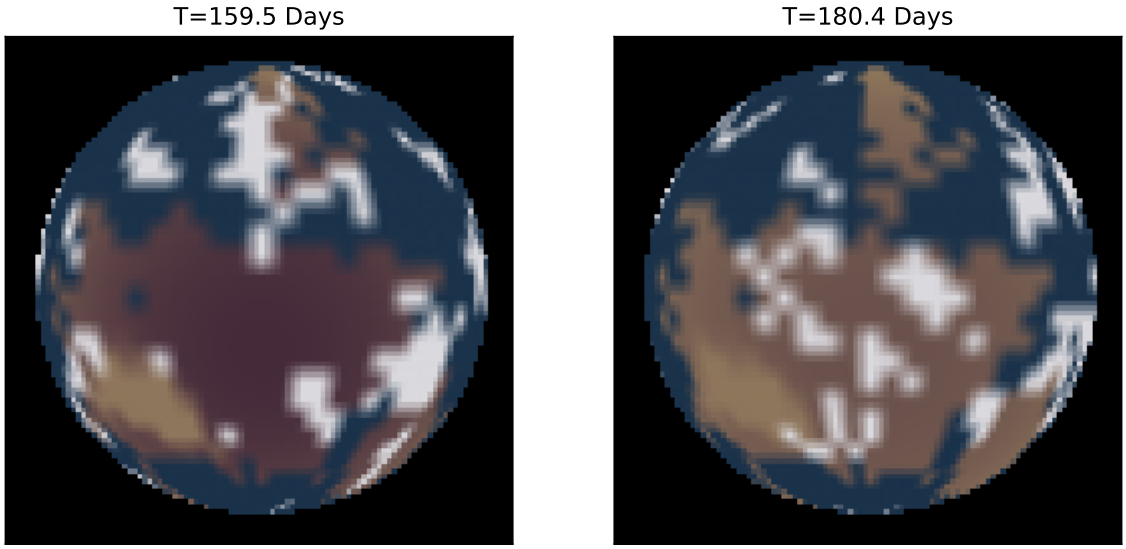

Figure 5: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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