AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging
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Planet 2

Wednesday 28th February, 2080

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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10100000000000000000000000000000111011110111110111111000000000000000000101
10101011111110111111101011111110111011110111110111111011111111111111110101
10100000000000111111101101111110111011110111110111111011111111111111110101
10100000000000111111101110111110000011110111110111111011111111111111110101
10100000000000111111101111011110000000000111110111111011111111111111110101
10100000000000111111101111101110000000000000000111111011111111111111110101
10100000000000111111101111110110000000000000000000000011111111111111110101
10100000000000111111101111111010000000000000000000000011111111111111110101
10100000000000000000000000000000000000000000000000000000000000000000000101
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This signal was first noticed at UTC 2068-06-16/22:04.

Parameters of the candidate planet of origin and its host star

Spectral Type	K
Stellar Luminosity (Solar Units)	0.212
Stellar Mass (Solar Masses)	0.679
Distance to Star (lightyears)	19.8
Planet Mass (Earth masses)	2.6
Atmospheric Pressure (atm)	8.7

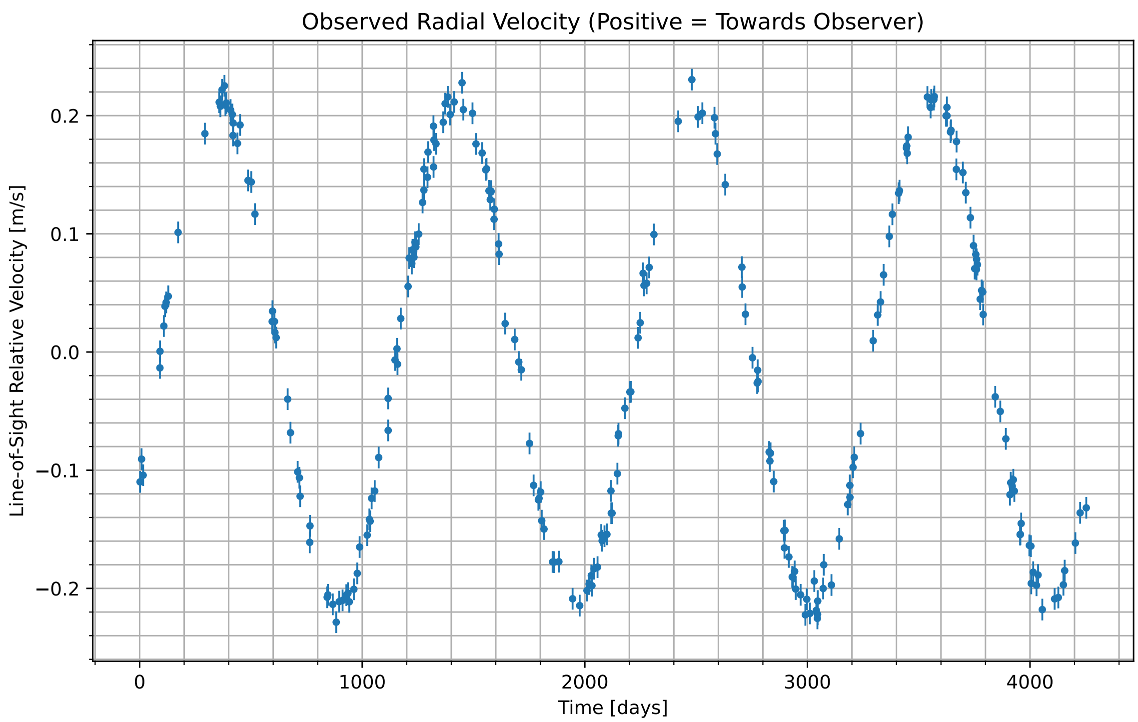

Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2068-06-18/23:39. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

Atmospheric composition of the candidate planet (percent by volume)

Molecule	Concentration
H_2S	19
N_2	16.1
CO_2	5.01
SO	29.2
SO_2	12.5
HF	0.305
CO	9.75
S_2O	0.000237
S_2O_2	0.00151

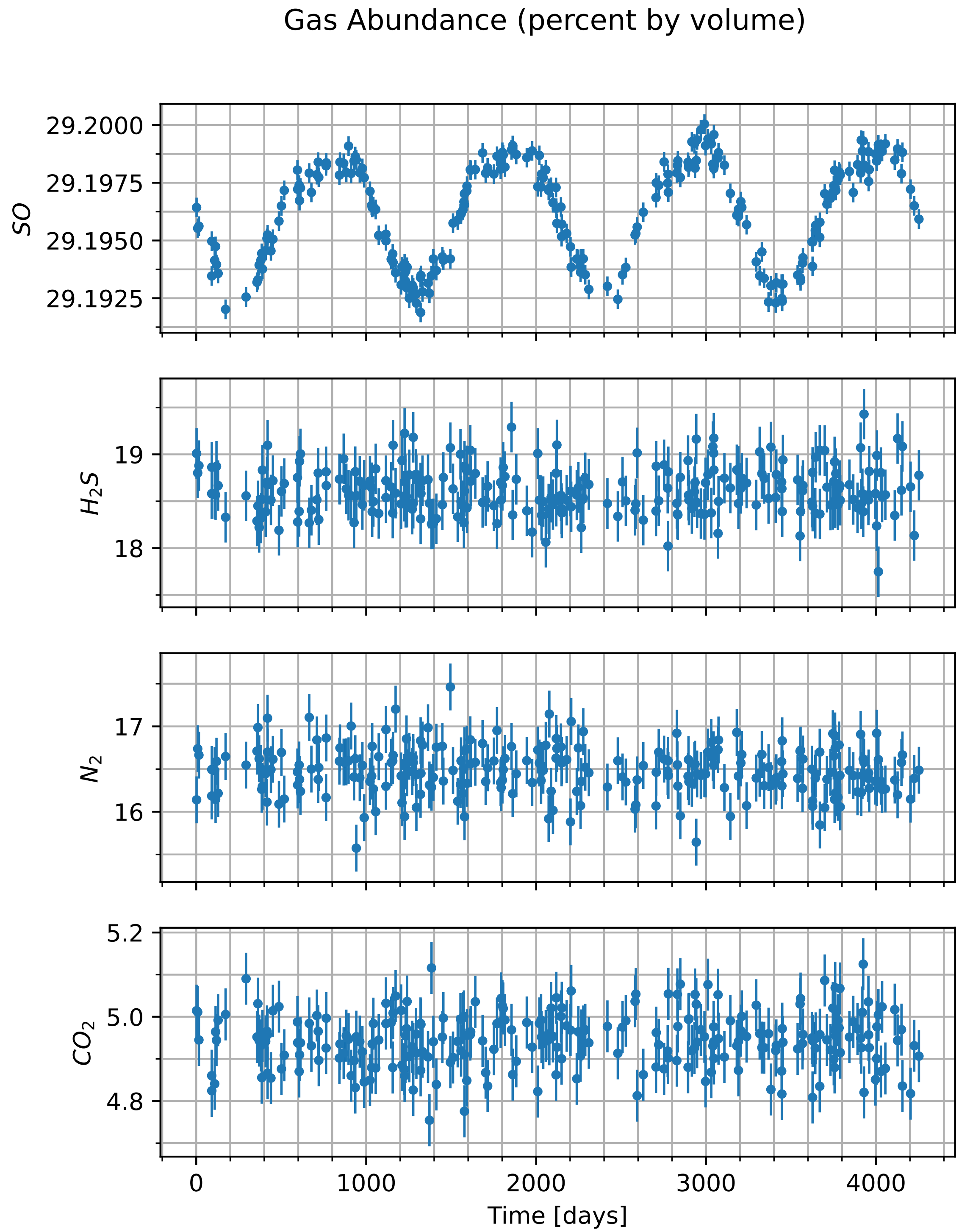

Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

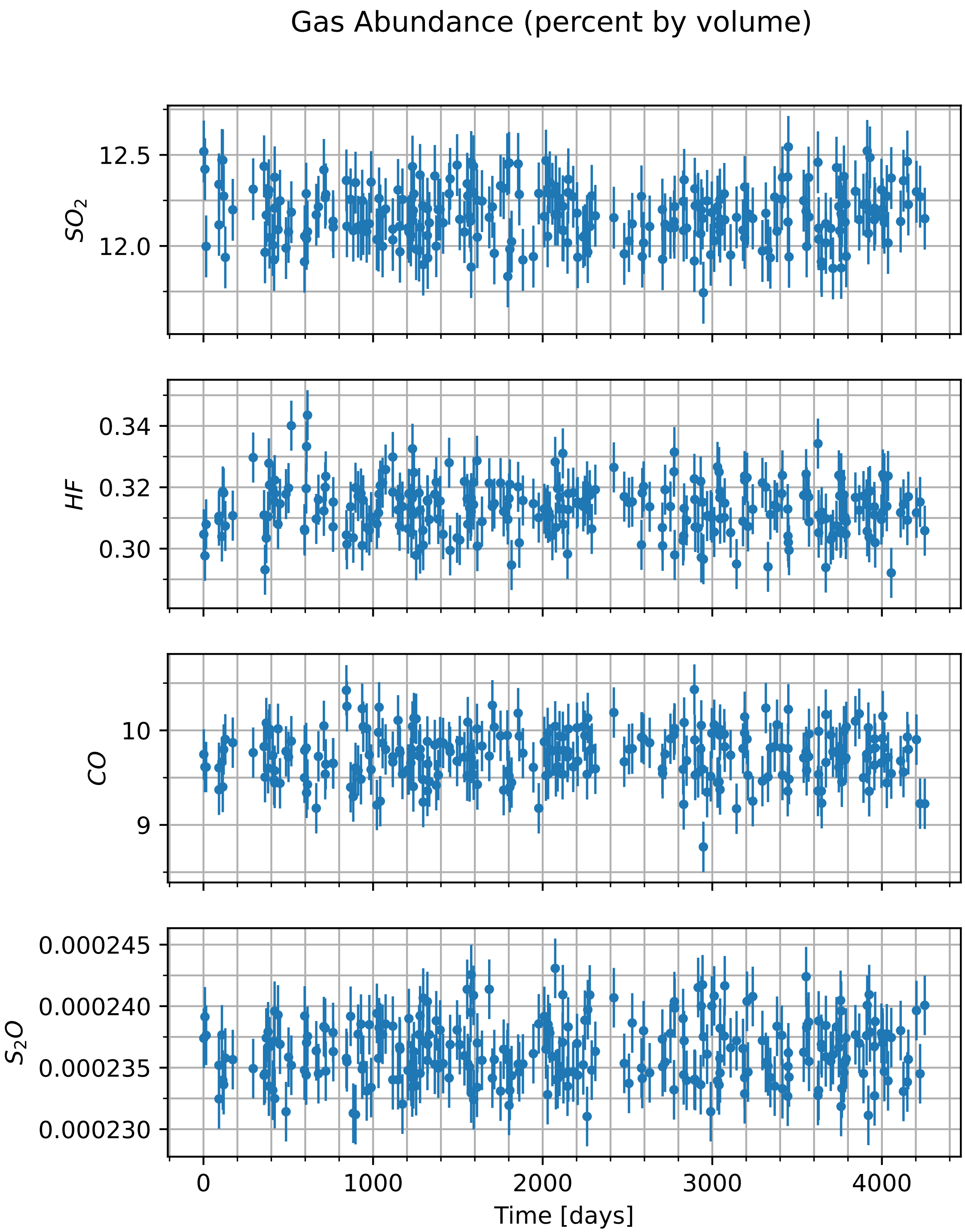

Figure 3: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

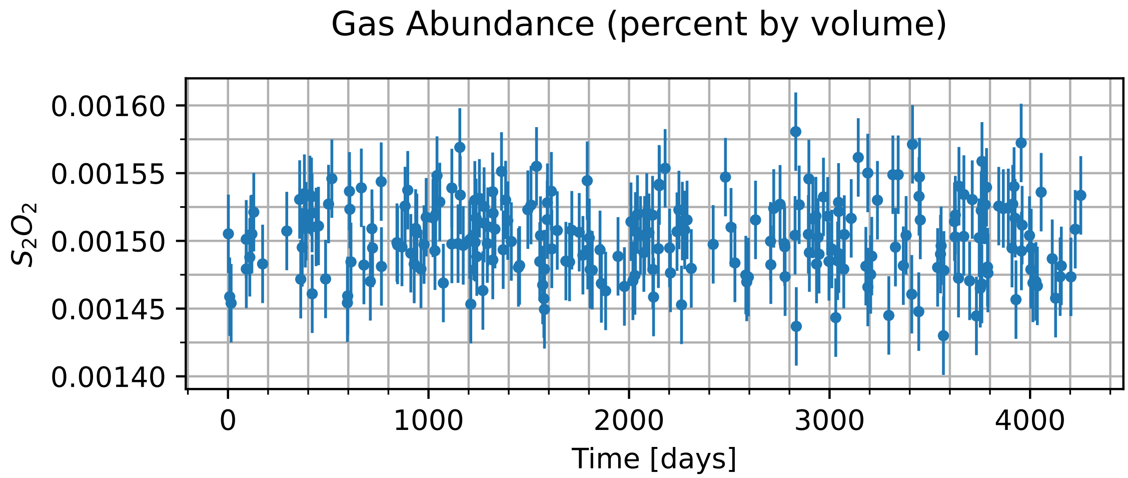

Figure 4: Concentration of various additional gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

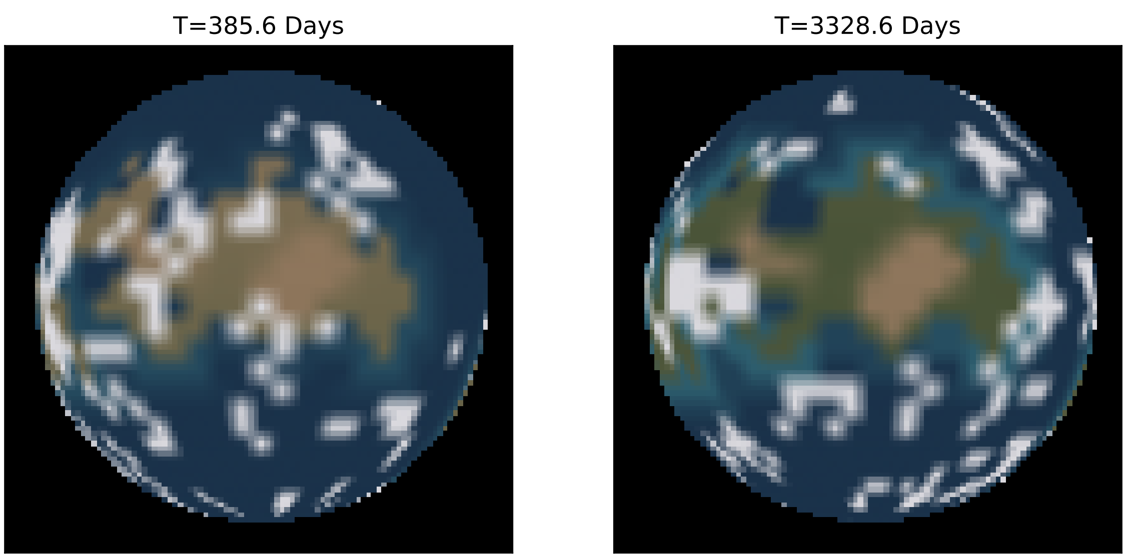

Figure 5: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to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