

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging

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Planet 1

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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 broadband microwave 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:

```
001110101110000110100011101100111010110001110110111101011100011
001011000100111000010001010000011011101111010011001011010100011
101101000000110011100001001100100110011110110001101000111100001
1100101000001101000100001111110111111011101001111000111111101
010101011011100000011101001100011110110111100100010110000101011
01001001001001011111101001111111010110110110001110111010001000
101110110100001000001000000111001001011101100011000100000111000
11101100101000000000011110010101111011011110111010101011001010
001100000100000000011010111010000011110110100101100000110001001
```

This signal was first noticed at UTC 2099-04-20/11:03.

## Parameters of the candidate planet of origin and its host star

Spectral Type	K
Stellar Luminosity (Solar Units)	0.0789
Stellar Mass (Solar Masses)	0.53
Distance to Star (lightyears)	285.3
Planet Mass (Earth masses)	2.4
Atmospheric Pressure (atm)	0.9

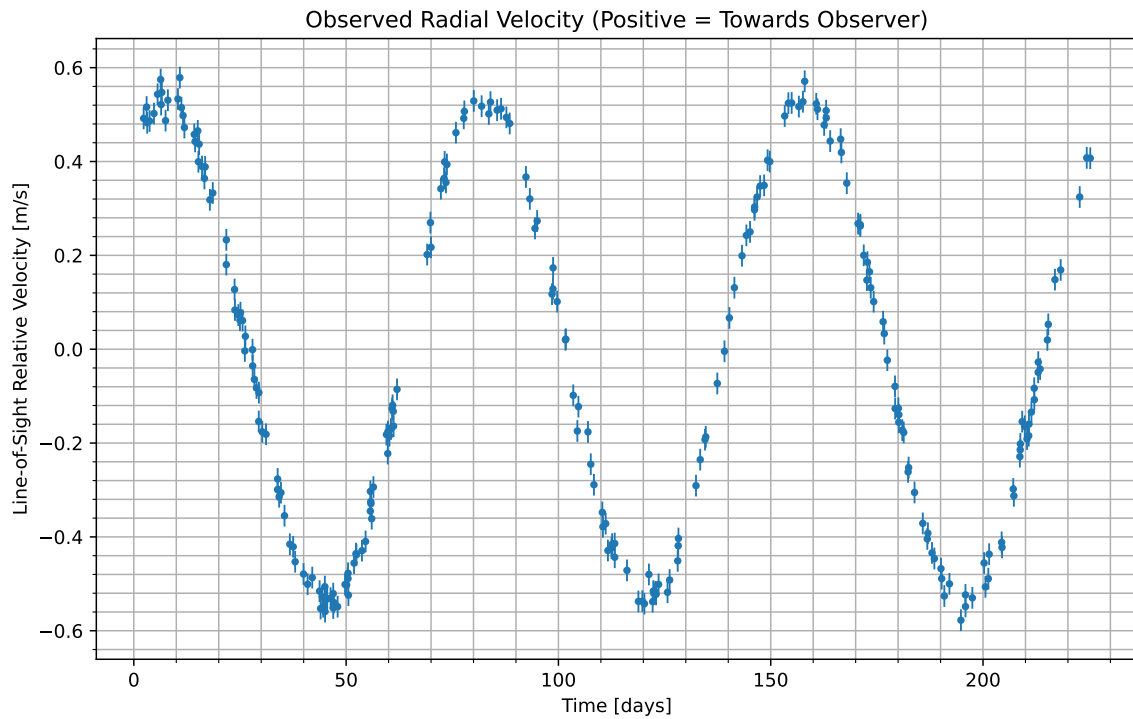


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2099-04-21/19:09. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

**Atmospheric composition of the candidate planet (percent by volume)**

Molecule	Concentration
$N_2$	51.8
$CO_2$	25.4
$H_2O$	22.8

### Gas Abundance (percent by volume)

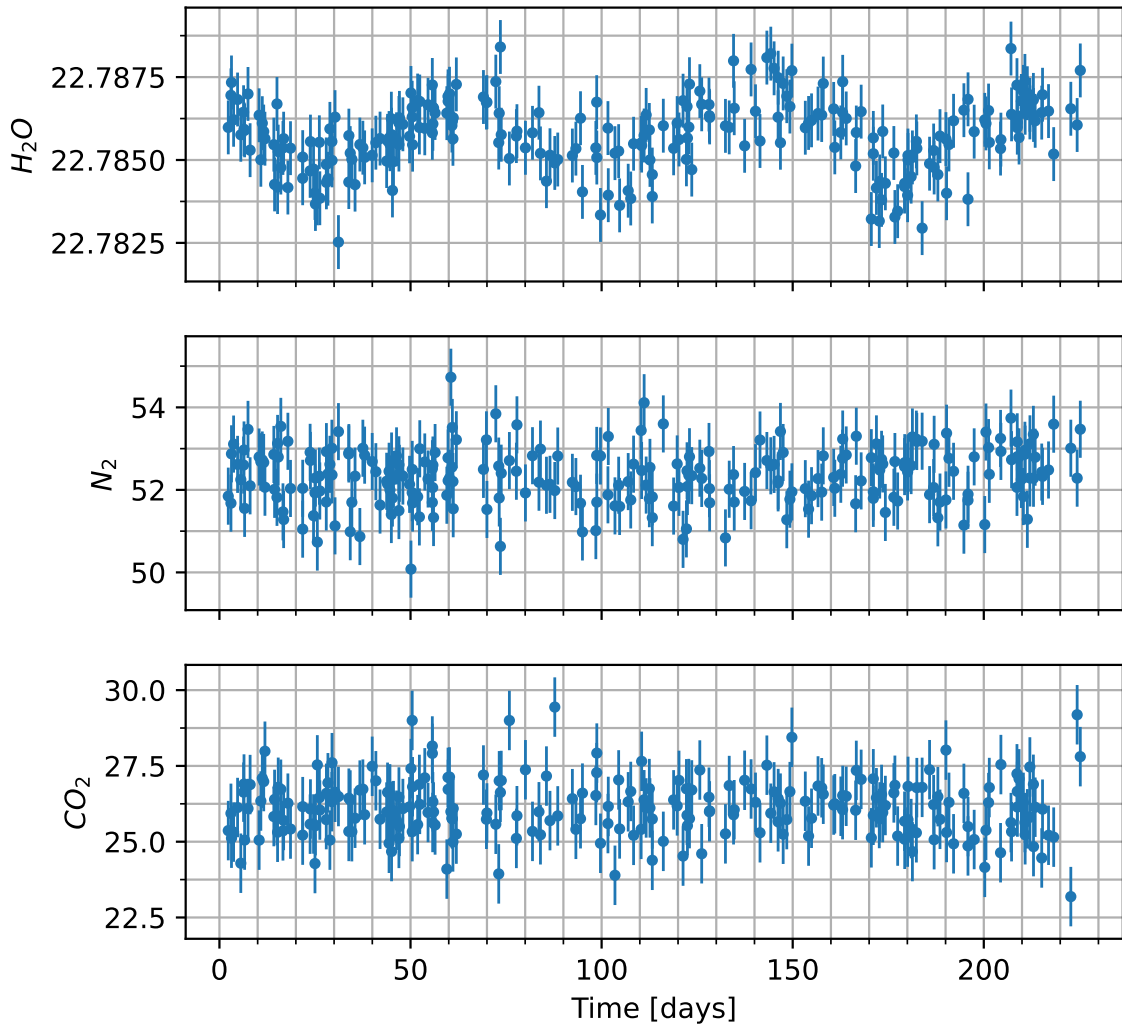


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

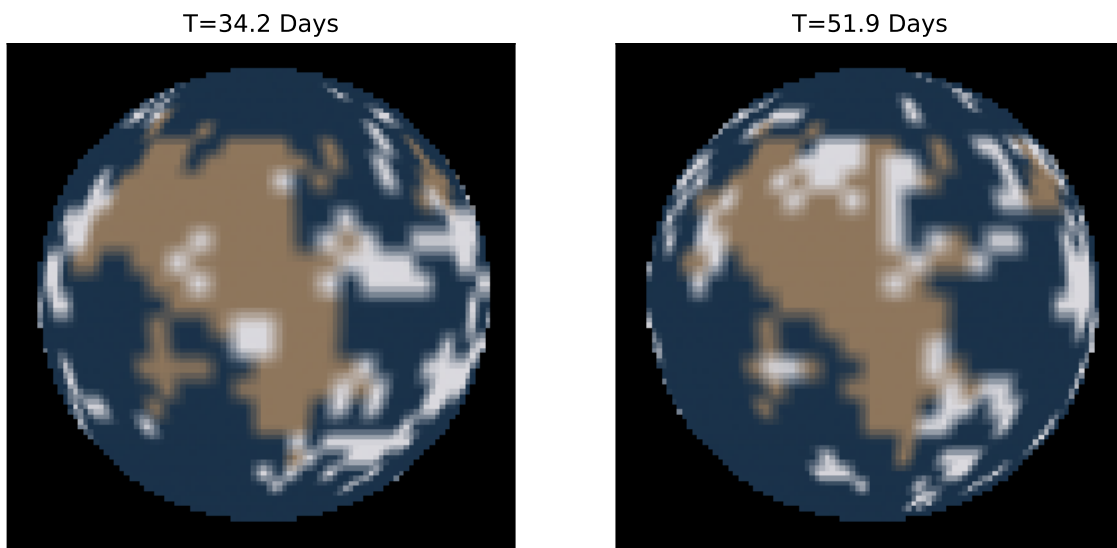


Figure 3: Maps of the surface of the candidate planet taken at two different times. Times are indicated above each image relative to the times shown in the radial velocity curve. Those maps are shown here. Tan areas indicate what we believe to be land, while blue-ish areas indicate what we believe to be liquid regions of some kind. Other colors present reflect the visible color as best as we are able to measure.