

# AST251 Project 3 – Evaluating Claims of Extraterrestrial Messaging sing1520 Planet 1

Thursday 7<sup>th</sup> January, 2077

**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:

```
00110010111101101111010110110100000110000010101101110100001110010111001  
1100101001101101010011010111111000001101101000000000110100000001100110  
11011111100100101110100101101001000111000001001101011000101011110111010  
01100101001010001111011010100000100100001100010100101100010101110101111  
01111100001001110011010111010011010010000100111011001100000011011001000
```

This signal was first noticed at UTC 2075-11-18/17:13.

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

Spectral Type	K
Stellar Luminosity (Solar Units)	0.403
Stellar Mass (Solar Masses)	0.797
Distance to Star (lightyears)	5.2
Planet Mass (Earth masses)	3.2
Atmospheric Pressure (atm)	18.0

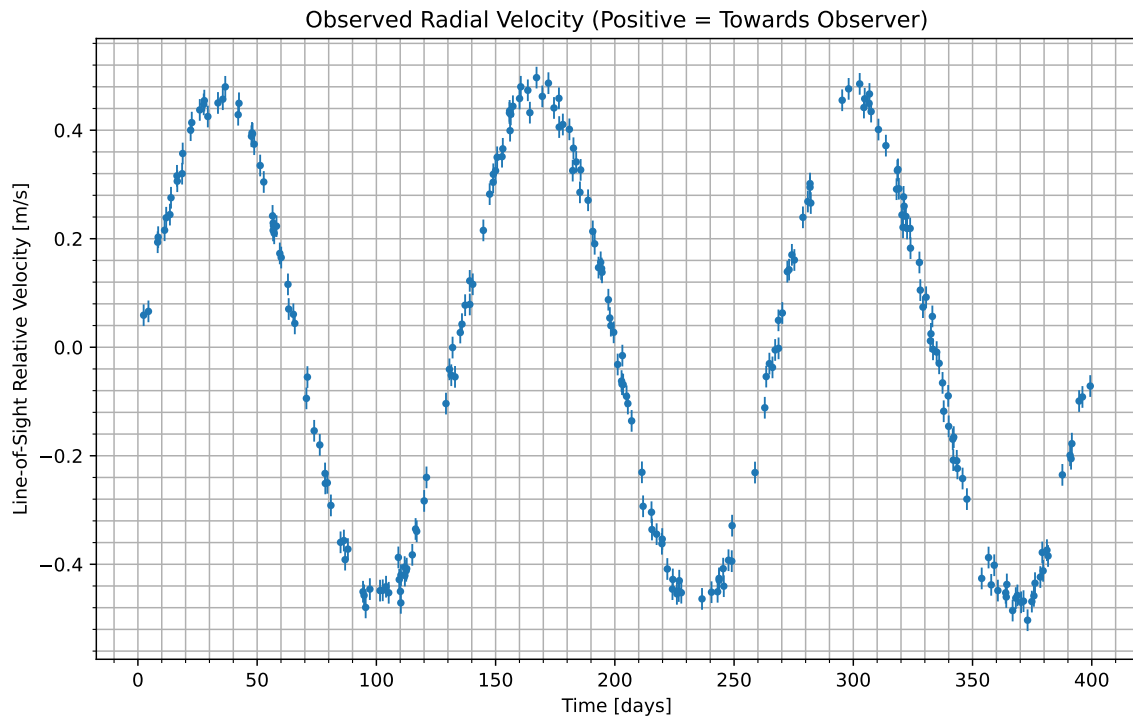


Figure 1: We have isolated the radial velocity of the host star due to the candidate planet. Data begins at UTC 2075-11-20/17:33. Positive values indicate the velocity at which the star is moving towards us; negative indicate the velocity at which it is moving away.

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

Molecule	Concentration
$N_2$	39
$CO_2$	32.9
$H_2O$	28.1

### Gas Abundance (percent by volume)

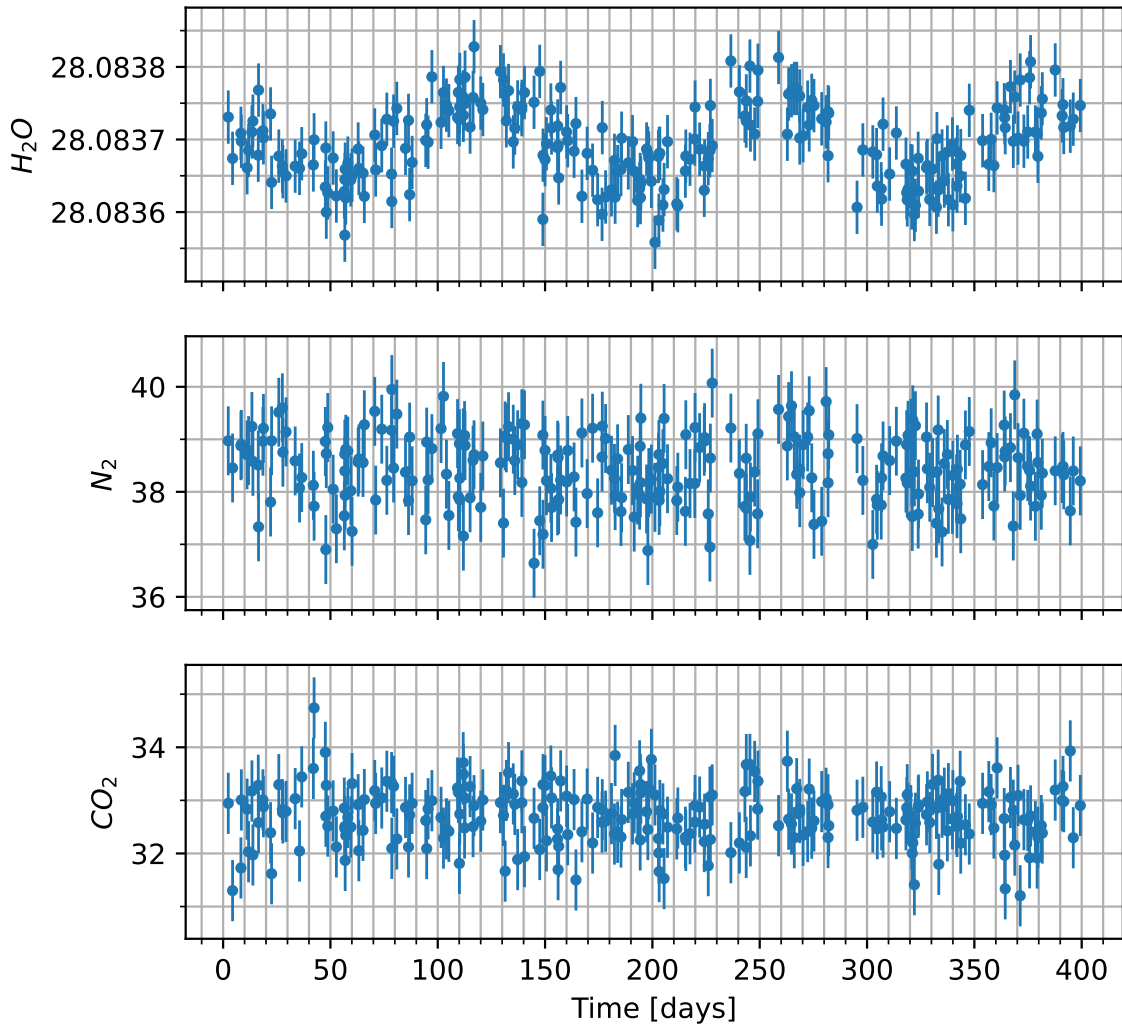


Figure 2: Concentration of various gases in the atmosphere of the candidate planet versus time. Note that the y-axis will usually only show the variation multiplied by some factor, shown in the upper left, and then added to some normal amount, also in the upper-left.

T=217.5 Days



T=249.2 Days



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.