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Drift Rate Analysis of Detected Signals of Interest

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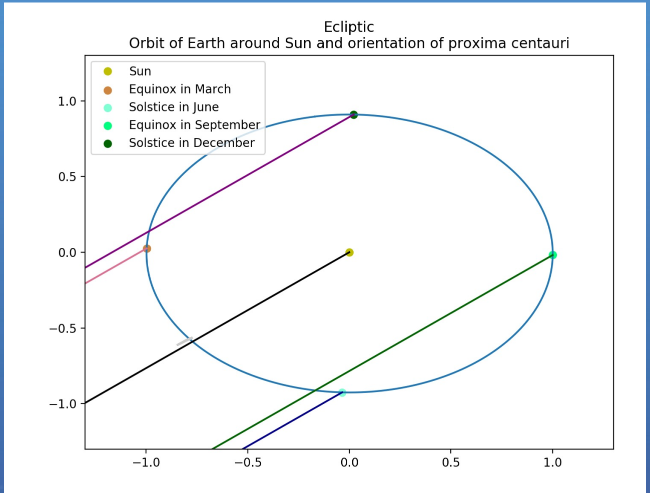
Background and Motivation

- This project builds upon previous research analyzing the validity of a signal of interest that seemed to originate from Proxima Centauri.
- What makes a signal interesting:
  - It is only observed when the telescope is directed at a specific point on the sky
  - It doesn't seem to match the drift of any known astrophysical phenomenon or radio interference at the frequency of the signal
- Causes of frequency drift:
  - Movement of the Earth as well as the signal source
  - Movement of man-made radio transmitters
  - Electronic oscillations of Earth-bound transmitters



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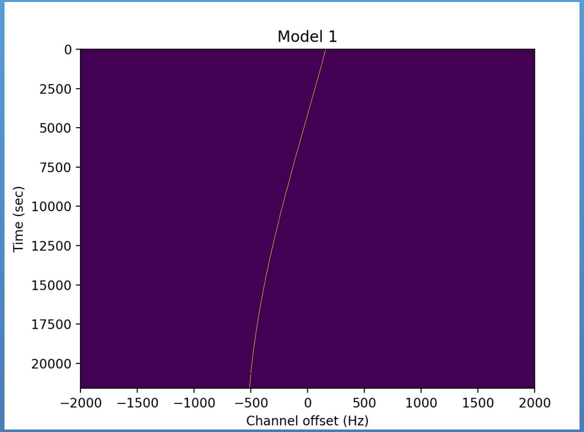
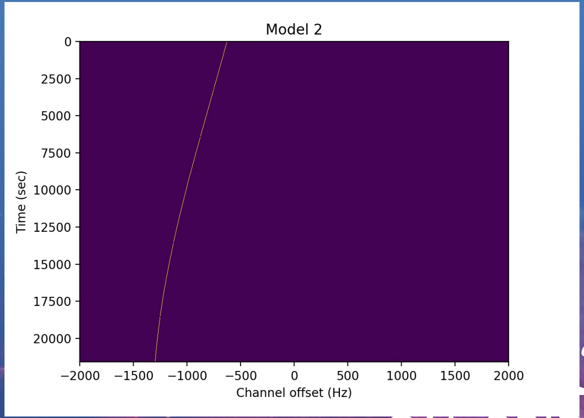
Methods

- To analyze the signal, I developed a Jupyter notebook to help visualize the relative location of a potential signal as well as simulate waterfall plots of the signal's drift.
- Model 1: The signal was sent intentionally to our solar system
- Model 2: The signal was intentionally sent to the Earth





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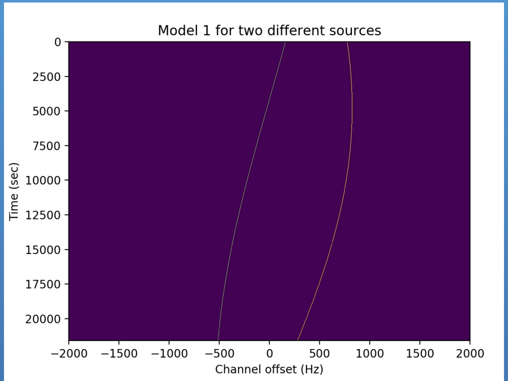
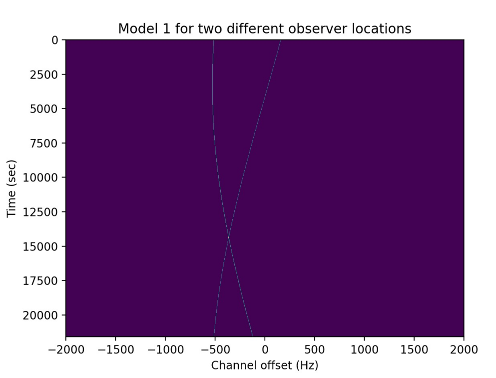
Final Product

- Two other functions of the notebook:
  - A detailed walkthrough of the code
  - An overview of all the research I've done this summer
- The point of the notebook was to develop code that could be used in any instance to aid in the search for extraterrestrial intelligence.





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