



St. Mary's Middle School Astronomy Club

# Are We Alone?

## GAVRT Search for Extra Terrestrial Intelligence (SETI) Project

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**What did we do?** Scanned sections of the galactic plane in search of a strong radio source.  
**Why did we do it?** To search for signs of intelligent life on other worlds.

### ABSTRACT & CONTEXT

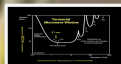
The Goldstone Apple Valley Radio Telescope Program (GAVRT) is a partnership between NASA's Jet Propulsion Laboratory and the Lewis Center for Educational Research. The program is an authentic science investigation program for students in grades K through 12 and offers them the ability to learn how to be a part of a science team while they are making a real contribution to scientific knowledge.

Using the internet from their classroom, students take control of a 34-meter decommissioned NASA radio telescope located at the Goldstone Deep Space Network complex in California. Students collect data on strong radio sources and work in collaboration with professional radio astronomers to analyze the data.

Throughout history man has wondered if we were alone in the Universe. SETI - or the Search for Extra Terrestrial Intelligence - is one of the programs offered through GAVRT that is designed to help answer that question. By participating in SETI, students learn about science by doing real science and maybe, if they get very lucky, they might make the most important discovery of our lifetime: Intelligent life beyond Earth!

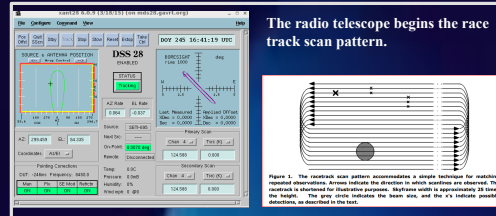
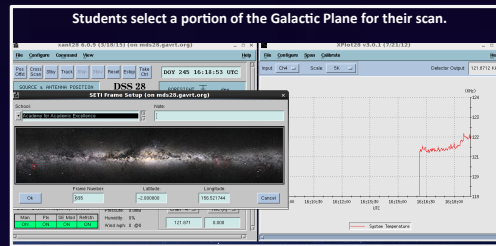
At St. Mary's School, students in grades 6-12 have participated in the project since its inception. The St. Mary's Middle School Astronomy Club is leading the way in their relentless search for ET and radio telescope studies. Students use the radio telescope to select a very small portion of the Milky Way Galaxy - or galactic plane - and scan across it over and over in the hopes of finding a signal that is not coming from humans or radio interference. The possibility of being the first to discover an alien signal has kept some students searching for the past three years. For them to discover something of this magnitude is like winning the lottery: small chance of winning - big payoff. To that end, the club is focusing on several portions of the Milky Way where they have detected a strong candidate in the past. The hope is to pick it up a second and third time. If that happens, the club will be one step closer to proving intelligent life does exist.

We are looking for a very faint signal in a scan full of interference sources. The "quiet zone" is located in the radio frequencies that are between a neutral hydrogen atom and a molecule of hydroxyl. Anyone or any being broadcasting in these frequencies would come out loud and clear.

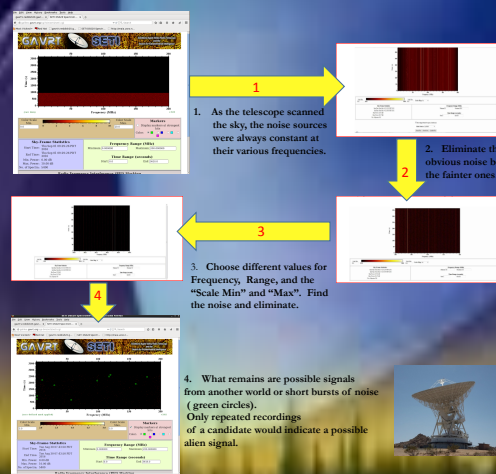


The scan is between 0 to 200 MHz and repeats every 2/3 of a second for 360 seconds.

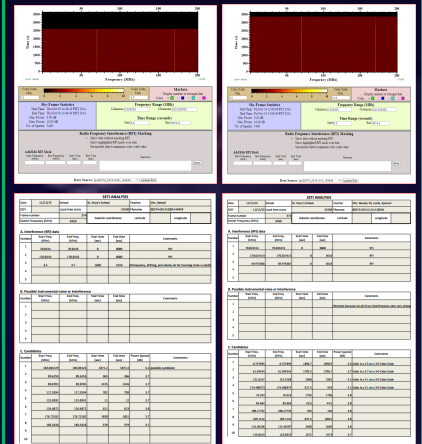
### PROCEDURE



Above is an x-y plot with the frequency of light plotted on the x-axis and time plotted on the y-axis. A real signal will only last for a short period, while the longer signal, which is interference, will always be there. The signals that may be of extraterrestrial origin will disappear when radio telescope points in another direction.



### DATA EXAMPLES FROM SKYFRAME spc00374



### RESULTS

**Did we find an alien signal?**  
 Perhaps ... Perhaps Not. In our multiple searches across the galactic plane we did not find a repeated "candidate" signal.

**Will we keep on looking for the repeating signal?**  
**YES!!!**

### ACKNOWLEDGEMENTS

We would like to thank Dr. Steven Levin and Dr. Varoujan Gorjian for developing this project and helping us with the data; Kelli Cole and Nancy Kreuser-Jenkins for all the times they have helped with running the telescope, scheduling sessions, and answering numerous questions; and Luisa Rebull for poster and abstract consultation.