

**SEARCHING FOR THE WOW SIGNAL THROUGH RADIO OBSERVATIONS.** L. C. Weston<sup>1,2</sup> and G. R. Harp<sup>1</sup>, <sup>1</sup>SETI Institute, <sup>2</sup>California State University, Sacramento, leahweston@csus.edu

**Introduction:** With the Allen Telescope Array (ATA), we search for radio signals coming from the direction of the original Wow! Signal. We centered our observations at 1419 MHz with a bandwidth of 13 MHz, covering the same frequency the Wow! Signal was found at[1].

**Background:** The Wow! Signal has garnered a lot of attention, particularly in mass media since its discovery in 1977 by Ohio State University with the Big Ear radio telescope. It was a strong narrowband radio signal that lasted for 72 seconds and reached a peak signal to noise ratio of 30[1]. The astronomer who discovered the signal and named it, Jerry Ehman, searched for it in the months after its discovery, but with no success[2]. Others have also made the attempt to no avail. They have, however, ruled out the possibilities of it repeating at certain periods. Robert H. Gray, author of "The Elusive Wow: Searching for Extraterrestrial Intelligence" searched in the late 80's and mid 90's with instruments much more sensitive than Big Ear, such as the Very Large Array[1]. The search that we have attempted is different from the others before in two main ways. No search before has lasted for 100 hours with the ATA's sensitivity. Also, we are covering a larger field of view. It is also important to consider the possibility that the signal was something like a lighthouse beacon. If this is the case, the longer we observe, the greater our chances of finding it again.

**Method:** The poster being presented is reporting on roughly ten hours worth of data from the ATA. This data has been inspected for unuseable data. To successfully flag all of the defective data, we search for human generated radio frequency interference (RFI) and instrumental errors. A known point source is used as a calibrator. For these observations, the quasar 3c-380 has been selected. Graphs and images of the quasar are produced to search for groups of data that do not match expected values. When we feel comfortable with the results of the calibrator, we can then apply the same parameters to the Wow! source data.

**Results:** There are many sources found in the images produced. We know these are real because they show up in the NRAO/VLA Sky Survey images as well. Unfortunately, all of the sources that we found in our search for the Wow! signal appear in the NVSS image, which means that they are not new. There are actually more sources found in the NVSS image than in ours. For our images, we were looking for signals exceeding a certain threshold flux, so everything that fell below this threshold was removed in order to rule out

weak noise. We did not find any signal near the strength of the original Wow! signal. The Wow! signal had a peak flux of around 50 Jy[1]. If we had, it would be 43 times brighter than the brightest source in our image. The strongest signal we found was 0.3 Jy. These are the results after only taking ten percent of the planned observations.

**Conclusion:** When completed, the ATA's observations of the Wow! source will be the largest field of view with the longest period ever done. As of right now, we can conclude that there are no new radio frequency sources in this larger field of view of the original Wow! signal. This does not mean that the Wow! signal is not out there or that we will never see it again. If it is some sort of lighthouse beacon, then there is no way to know its period which means there is no way to know when we would see it again. However, this also means that our chances of finding it again are better the longer we observe.

**References:** [1] Gray, Robert H (2012). *The Elusive WOW: Searching for Extraterrestrial Intelligence*. Chicago: Palmer Square Press. [2] Krulwich, Robert (May 29, 2010). "[Aliens Found In Ohio? The 'Wow!' Signal](#)". [National Public Radio](#). Retrieved 2016-07-02.