



SHENANDOAH ASTRONOMICAL SOCIETY

January 2011



Betty in Hawaii

MY EXPERIENCES AT THE ALI'I ASTROBIOLOGY INSTITUTE FOR INSTRUCTORS AT THE UNIVERSITY OF HAWAII, MANOA

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Last fall, I was searching the web to find a summer program in astronomy to attend that might help me teach my astronomy class or run Berkeley County Planetarium in my job at Hedgesville High School. I came across the Ali'i Institute for Instructors in Astrobiology at the University of Hawaii and it had a trip included in it to the observatory at Mauna Kea on the Big Island of Hawaii. I had in the past, only applied to workshops that were of no or minimal cost to participants. Sometimes I would attend a workshop where you paid for transportation and the graduate school credit and everything else was paid for. This workshop was free to Hawaiian Teachers, but all teachers who wished to attend from the mainland, would only receive a \$750.00 stipend. I applied

because I never thought I would be accepted.

Astrobiology is the hot new science topic which incorporates biology, geology, and astronomy, and studies the possibility of life occurring elsewhere in the universe. It incorporates the topics of evolution, planetary exploration, studying extreme life on other planets, studying how planets form and how we discover planets around other stars. After I came back from spring break, I was stunned to find that I was one of the teachers selected to attend the 2010 Ali'i workshop. At first, I had to look up again about the workshop and that was when I realized that I would have to spend more money than the stipend I would receive, if I wanted to attend. At first I decided that I couldn't afford to go, but that behind-the-scenes tour of Mauna Kea still lingered in my mind.

One afternoon while talking to Dr. Jason Best, the astronomer at Shepherd University, on the phone about my dilemma about dropping out of the workshop, he said, "What are you crazy? You might never get this opportunity again. Go. So I went, and boy was I glad I took his advice. We stayed in the world famous East-West Center which was celebrating its 50th anniversary. It was designed by I.M. Pei. This center was created to foster interaction between the United States and the Far East and had a great multicultural feel to it from the architecture to the meals cooked by students in the communal kitchen. From the 12th floor common porch, I saw the famous extinct crater Diamond Head by day and Alpha and Beta Centauri by night as well as a Scorpius much higher than

normal in the early evening sky. I also watched two different fireworks displays on the Fourth of July.

Classes were held in the Pacific Ocean Science Technology (POST) building, and went from 9:00 a. m. to 9:00 p. m. There were fourteen teachers attending the institute from as far away as Florida and Alaska. We had lectures in astronomy by astronomer Mike Nassir, especially on transiting exoplanets. University of Hawaii professor, Gary Huss did a lecture and lab session on meteorites and we looked at many of them in thin sections with polarizing microscopes. We heard lectures and did activities in evolutionary biology with Stephen Freeland, an evolutionary biologist new to the University of Hawaii's Institute for Astronomy's astrobiology division and he gave us a different slant on the search for extraterrestrial life.

In the evening we conducted remote observing sessions with Don Starkey from DeKalb Observatory in Indiana. He is an amateur astronomer with his own observatory and teams up with Hawaiian high school students to take pictures of areas of the sky for research throughout the school year. The reason teachers use Don, is because of the time difference between Hawaii and Indiana. Students can take pictures during the school day in Hawaii since it is night where Don is. They use Skype to make the connection and remote control the telescope. Great set up! I took a picture of M101 with red, blue and green filters, but haven't gotten around to combining the images in photoshop yet. To learn more about Don, you can check out his website at <http://www.starkey.ws/donspers.html>

We also worked with University of Hawaii graduate student Marco Micheli who used the Faulkes Telescope on the island of Maui to search in real time for asteroids using the internet. The technique is basically a 21st century version of what Clyde Tombaugh did to discover Pluto. Take two pictures of the sky by remote control, have them sent to you via the web and search the fields by aligning them and blinking them. Marco has grown so talented in doing this that he has no qualms blinking images of the sky deep in the Milky Way and he has discovered a few new asteroids this way. He gets to put a name on the ones he discovers. We got a likely candidate while he was showing us how to search. You can learn more about the Faulkes Telescope on Maui by going here: <http://www.faulkes-telescope.com/>

The last day we flew to "The Big Island" of Hawaii and after lunch at the astronomer's midlevel facility called Hale Pohaku we went up the volcano of Mauna Kea to the telescopes there and toured Gemini North and The University of Hawaii's 88 inch telescope, one of the first telescopes put up there. This last telescope will soon be removed to make way for the new survey telescope, Pann Star. We also went to the visitor center at the Keck Telescopes and stared up at the 10 meter telescope from the glassed in visitor center and looked at the exhibits there. If you would like to learn more about Mauna Kea go here: <http://www.ifa.hawaii.edu/mko/>

Later, after dinner, we went back up to the summit to watch the sun set and get pictures of the telescopes with the domes open. At the mid-level, 9000 ft. visitor center, we observed one beautiful sky with telescopes up to 11 inches. Just staring up at the Milky Way overhead was spectacular and I enjoyed seeing the Southern Cross

here, since the lights from the High Rises along the beach in Waikiki made it hard to view from the dorms. I also got a chance to see Omega Centauri with eye, binoculars and telescope as well as the Jewel Box, a star cluster, off the side of the Southern Cross.

We stayed overnight in Hilo, Hawaii and the next morning did a tour of Volcano National Park. Go here to find out more information: <http://www.nps.gov/havo> It was interesting to see lava fields as far as the eye could see from previous eruptions as well as hear the ranger tell us which parts of the park were off limits to visitors due to volcanic activity. We spent a good part of the day, walking through a lava tube, seeing where lava hit the ocean, seeing steam vents coming up from the ground and volcanic activity coming from Halema'uma'u crater.

The trip really gelled much of what we were talking about in class and made much of it come alive. To club members, I would be happy to do a talk and show you some of the pictures I took on my trip. Also, I received a "Virtual Tour" CD from the Gemini Telescope People which would help you learn more about the observatories in an interactive way. If you would like me to do this for the club, I please give me a date and time to do it at a club meeting. Now I get very misty eyed when I watch Hawaii 5 0 episodes on the web.



KECK TELESCOPE in Hawaii

**SAS Meeting January 10
Lord Fairfax Community College
7:00 P. M. in the Board Room**

Yes, we are in the Board Room again for this semester. For the program, I think Alan is going to bring something to present this time, otherwise we will show one of the episodes from the Universe Series on astronomy.