

# A week at Astronomy Camp



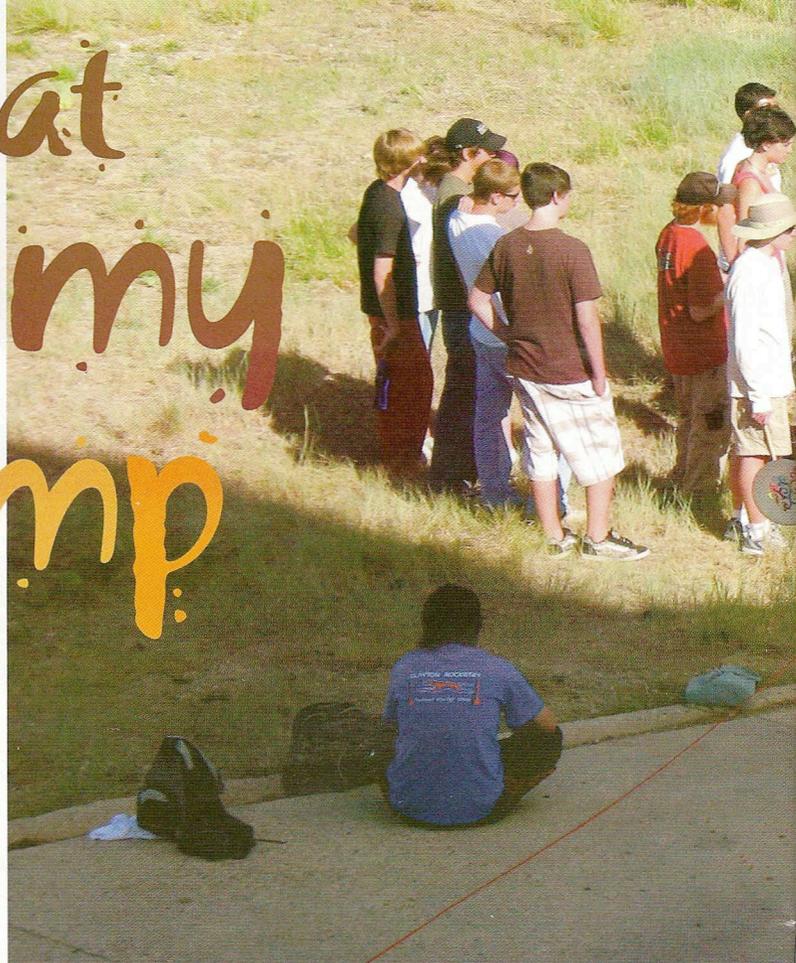
By Gayathri Cheran/Photography by Emily Joseph

It is enviable to think that come fall, when their friends ask them what they did over the summer, only 29 of over 50 million high school students across the United States will be able to say that they attended the 2008 Advanced Teen Astronomy Camp. Only 29 students, plus their 11 counselors, will be able to say that they had the chance to see Jupiter and the Whirlpool galaxy through a 61" telescope, that they used liquid nitrogen to freeze ice cream, and that they camped out in the lobby of the Large Binocular Telescope (LBT) atop Mt. Graham.

To all who seek to experience such rare, once-in-a-lifetime adventures, let me be the first to tell you about astronomy camp, the ultimate destination for anyone who likes science.

But first, you may be wondering: just what is this Astronomy Camp? Well, it is many things. Astronomy Camp is a ten day scientific engagement of the mind, in which campers at all levels plunge into the depths of the world of astronomy, armed with eleven

counselors and four telescopes equipped with spectrometers, photometers and CCD imagers to explore the universe and answer their own questions about it. It is, to my knowledge, the only camp in the world whose participants can boast the gaining of a deep-



**Above:** Dr. McCarthy leads an activity in which the campers, each representing a different planet, produce a scale model of the solar system. **Below:** The Large Binocular Telescope (LBT) and the Submillimeter Telescope (SMT) atop Mt. Graham.

ened scientific curiosity, a strengthened sense of articulation and eloquence, experience in the expansion of one's comfort zone, a better understanding of oneself, and last but certainly not least, fearlessness towards moths – all within ten days! Said simply, Astronomy Camp is an unofficial synonym of the word "paradise," or so I have declared after my experiences there this summer.

It all started at home in Burke, Virginia, when I first began researching for my admissions essay, a description of life on a hypothetical planet of the binary star Procyon A. Five days of skipping lunchtime at school to go to the library instead paid off when I proudly placed my essay and forms in an envelope and mailed it off to Arizona, an

action which was followed by what seemed like ages of waiting impatiently for a reply. My eagerness was quickly





replaced by exhilaration when I received notification from Dr. McCarthy, the camp director, informing me that I had been accepted into camp. Then, before I knew it, I was aboard a plane; destination: Arizona, and the promise of excitement in

the days to come!

My first and perhaps greatest mistake was in wearing a long sleeve shirt on the plane. I realized with embarrassment what a stupid thing that was to do when I arrived at the Tucson International Airport, a sleek and thankfully air-conditioned building full of friendly tan folks dressed in tank-tops and shorts. My idiocy hung even heavier over me when I stepped outside into the sweltering 107° heat, although I got used to seeing through perpetual heat waves after the first couple of hours. Luckily for me, the temperature atop Mt. Lemmon, our soon-to-be residence for the next week, would be much cooler.

After meeting the counselors and other campers, we began the drive from Tucson to Mt. Lemmon. There were 29 of us from 13 different states and Mexico. Our counselors were mostly former astronomy campers, ranging in profession

from astronomers to professors/educators and some of them were students in college who were majoring in astronomy or physics. We had plenty of time to get to know each other during the two-hour drive from Tucson to Mt. Lemmon. When we finally arrived, we had time only to lug our suitcases to our rooms before Dr. McCarthy would show us the buildings and various telescope domes that speckled the mountain.

We watched the sunset from the roof of the army tower, a building where we would gather each day to dine and see the counselors' presentations. The mesmerizing hues of the sunset rivaled the beauty of the

stars and view of the Milky Way, when night fell. The seemingly infinite number of stars sharply contrasted with what I was used to seeing at home – 20 stars maximum on a really clear night. I saw for myself the true effects of light pollution and was stunned.

We ended our first day by driving to the 61" telescope on the nearby Mt. Bigelow, where we spent the night viewing various things ranging from the Whirlpool galaxy, to the globular cluster M15.

The next day we set to work on writing telescope proposals for our research projects. There were four telescopes available to us: the 61", the 60", the 20" and the 12", each equipped with a spectrometer, a photometer or a CCD. I planned to pursue two projects, which would require the 61", the 60", the CCD and the spectrometer. My first project was a team effort with two other campers, and it consisted of imaging various merging galaxies and recreating their collision with an online computer simulation.

I worked alone on the second project, a spectroscopic study of spiral galaxies to investigate a correlation between the elemental composition of the disk and the intensity of star formation taking place there. Unfortunately, because of cloudy weather, I was not able to collect any data for the second project, so I instead focused on the first one.

Our group had managed to image two galaxies: NGC 7256, and UGC 10214 (The Tadpole Galaxy). The three of us were all new to astrophotography, and we had a lot of fun combining the color

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exposures and editing the images with a program called IRAF. The campers would typically spend their days reducing data collected from the previous night (that is, if they got any).

The cloudy weather that plagued the sky for most of the nights of camp was quite upsetting when the time came to collect data – not just for me, but for everyone’s research projects. I recall numerous occasions in which the entire camp would remain in the army tower for the night, playing cards because of thunderstorms outside. We did various activities during times like these, including having dance parties, electrocuting a

pickle, freezing things with liquid nitrogen and building our own crystal radios!

With 75% of the nights being cloudy, I am especially glad that the skies were clear on the night that we spent at the LBT. We spent the night in the lobby, with the research teams taking shifts to hike down and use the nearby Submillimeter Telescope (SMT). Dr. McCarthy took a group of us out to go stargazing at around midnight. I was euphoric and was treated to a spectacular view of the Milky Way and countless meteors.

The next day, before leaving for Mt. Lemmon, we took a group photo atop the SMT, toured the LBT and the nearby Vatican Telescope, or the “pope scope,” as we playfully called it. Of the three telescopes, I found the LBT to be the most impressive. Its two 8.4 meter mirrors seem a lot bigger in person than when you are seeing pictures of them.

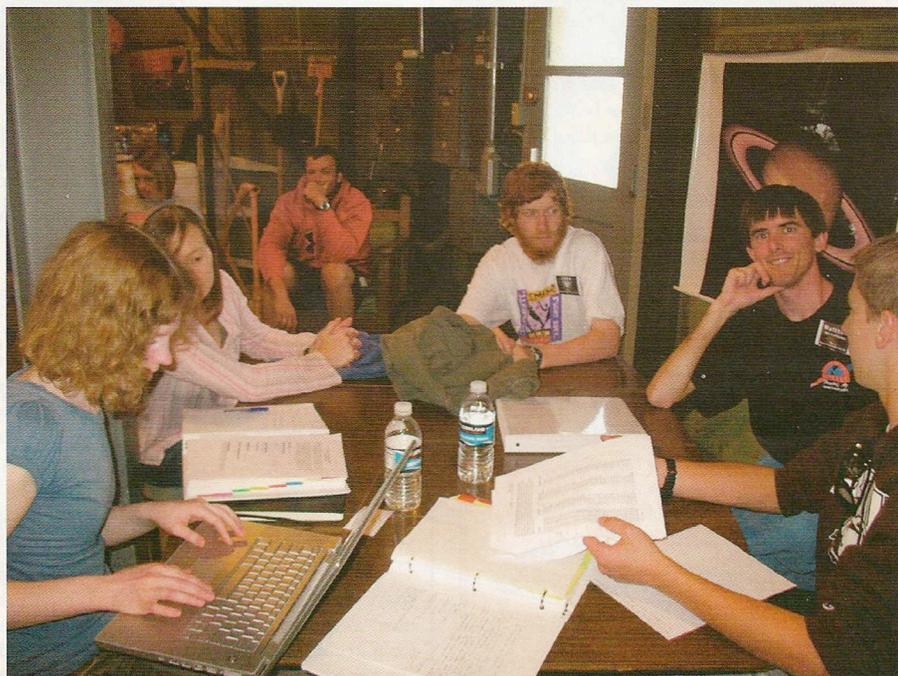
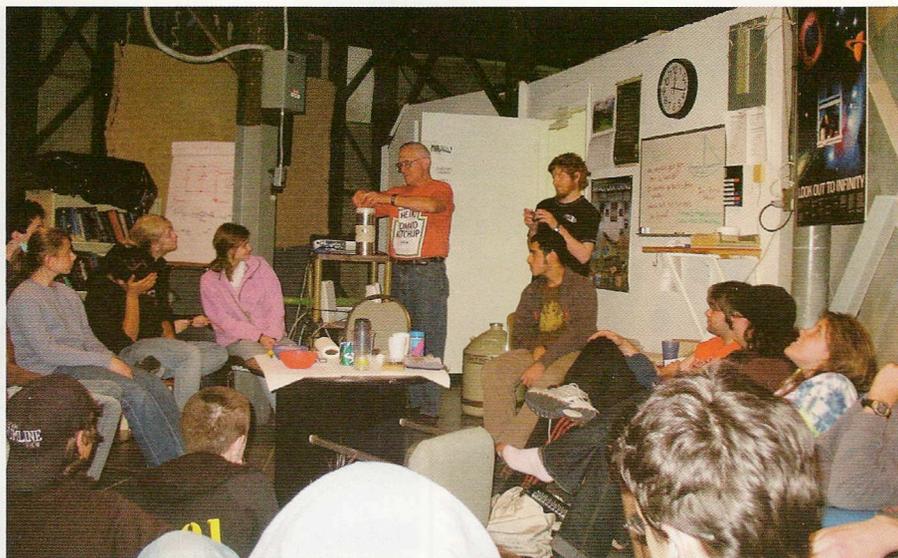
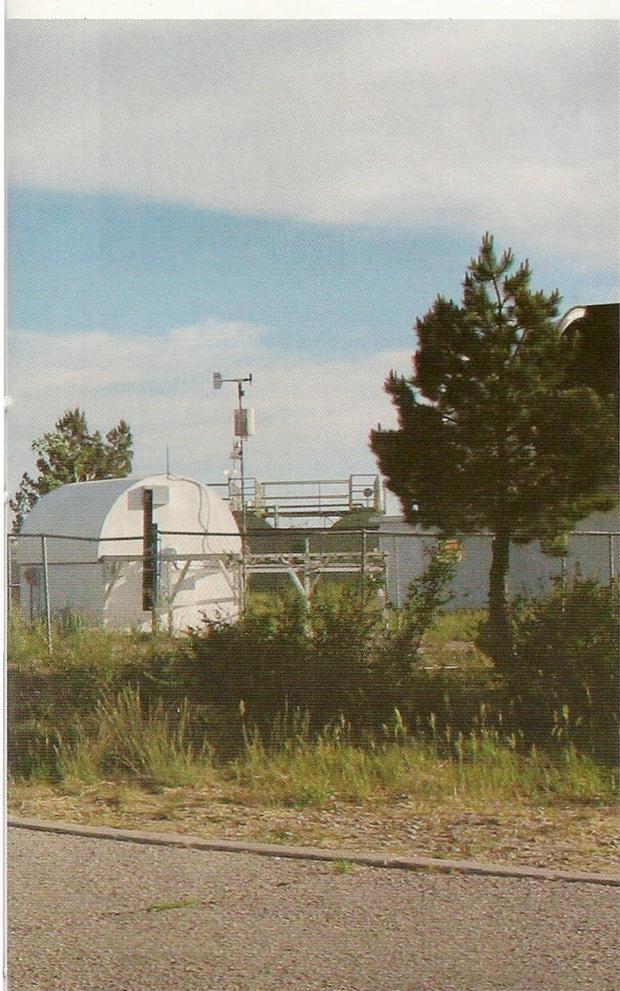
On the last day, we gathered at the army tower to present our research projects to the other teams. The projects were interesting and varied, ranging from imaging an asteroid, to a study of spiral galaxy morphology. Unfortunately, many of them had been ruined by the cloudy weather as well.

On the last day of camp, we packed our bags and drove back to Tucson for an awards ceremony. All of the campers received an award for something goofy they did during camp. My prize was a textbook and poster, for balancing a notebook on my head for 20 minutes without dropping it. In addition to that, a couple of other people and I were also awarded with space art, for completing the observing challenge, which was basically a list of stars, constellations, and messier objects to see during camp. There was also an award for best astrophotography, given to a girl named Katy,

whose work will be displayed in the National Air and Space Museum. We all exchanged emails and promises to keep in touch before saying our goodbyes and going our separate ways. This was perhaps the most bittersweet moment of camp, knowing that my nostalgia would soon be relieved, but at the cost of the chance to do more astronomy.

I missed the other campers a lot more than I had anticipated, considering the fact that I had only known them for ten days. The sense of unity brought on by the common interest in astronomy was different from anything I had ever experienced before. I enjoyed camp a lot despite the clouds’ negative impact on my research project.

Astronomy Camp, for me, was among the best weeks of my life, an intellectual voyage beyond fun. I recommend it to anyone who is interested in the night sky. For more information, go to [www.astronomycamp.org](http://www.astronomycamp.org). \*



*Clockwise from above:* The campers head to the Army Tower for breakfast. Dr. McCarthy, the camp director, does a demonstration involving liquid nitrogen. The participants write research proposals. The campers tour the Vatican Telescope atop Mt. Graham. The counselors prepare the 61-inch telescope atop Mt. Bigelow for the campers to use.

