CIRCUS OF THE STARS

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Abstract

A unique collaboration between diverse groups is proving that, in Waco, Texas, the sky's the limit. Think of the most unlikely pairings you can and you will most likely find them in this conglomeration of interests. You will find Heart of Texas Amateur Radio Club (HOTARC) members alongside students in grades K-6 attending Baylor University's University for Young People. You will find astrology buffs and members of the Baylor Amateur Radio Club (BARC), KC5OJY. You will find Eagle Scouts and members of the Psychology and Sociology departments. You will find public school teachers and EMS Technicians. The MBA and the PhD. You will find gimme caps and belt buckles alongside mortar boards and sensible shoes. These unique collaborations are behind what is coming to be known as a "Circus of the Stars." This paper describes some of the events leading up to the "circus" coming to town and our plans for the event itself.

Key Words

astronomy, collaboration, community projects, packet radio, radio telecommunications

Introduction

In the spring of 1993, after viewing a packet radio demonstration during a telecommunications class, I went home wondering what this interesting technology was all about. I was thinking about it the next day when I arrived at work. I saw a computer technician who had something on his belt and asked him if he had ever heard of "packet radio." He pulled a laptop out of his bag, hooked up a few things, clicked a few keys, and asked me if this was what I meant. The technician, Kenneth Ransom, N5VHO, became my mentor on that day and we have been working together ever since. First, we created the Baylor Educational Amateur Radio Service (B.E.A.R.S.) which we hope will become a clearinghouse of information on using Amateur Radio in the classroom. We are in the process of forming the Central Texas Packet Educational Network. Six schools in the Central Texas area are interested in becoming involved in the Network. They are: China Spring Elementary School, Hillcrest Professional Development School, Parkdale Elementary School, Connally High School, LaVega High School, and Harker Heights Elementary School. To attract more potential members, we decided to organize a summer event that we have dubbed, "The Circus of the Stars"—"Stars" for Space, Telecommunications, Amateur Radio, and Schools, and "Circus" for the circus we have created and the atmosphere surrounding it.

Project Description

In "The Circus of the Stars" we plan to assemble a diverse group of people from the Central Texas area for fun, learning, and partnership. We would use telescopes, binoculars and our eyes to enter the world of the night sky, guided by amateur astronomers, scientists, teachers, children, parents, and our imaginations. We would use radio communications, both voice and digital, to communicate among three bases of operations around the Waco area—two in the field and one at the campus of Hillcrest Professional Development School, for the less adventurous or less able to negotiate the country footpaths. We would use amateur television to send from site to site our live reactions to what we see and do. We would send digital star maps to the sites to show them what to look for. All the while we would be forging partnerships: The college professor and the 6-year-old; the mommy and the amateur astronomer; the octogenarian CW operator and the 9-year-old's little sister. These partnerships, more than stars, planets, galaxies, or radio, are what this project is all about.

Initial Stages

In the spring of 1996, I spoke to the Heart of Texas Amateur Radio Club (HOTARC) in Waco about my research in using Amateur Radio in education. My goal was to find at least eight potential mentors for the six schools who had shown an interest in helping start a Central Texas Packet Educational Network. The HOTARC members were politely reserved at first as I began to explain some of the projects my colleagues of the North Texas Packet Radio Group had come up with over the past 3 years. I told of a project where a classroom sent out a CQ asking for people to send a square inch of dirt from their neighborhood. The idea of the class being able to claim ownership of a square inch of property from around the world made the HOTARC hams began to take notice. I could see nods of agreement as I explained the geographical, scientific, language, and mathematical applications of packet radio in the classroom. By the time I had finished with my presentation, I could hear excited chatter. Folks who had been hams for years had discovered a new application for their hobby. At least eight hams volunteered to be mentors or showed an interest in helping in the schools. One of these hams, Steve Smith, KC5NGW, tried to contact me for several days after the HOTARC meeting. When we finally connected, Steve told me that he not only had ham equipment, but was an amateur astronomer with several telescopes. In addition, he worked with Amateur Television, of which I had heard but never seen. He volunteered to join me in some demonstrations of Amateur Radio and I accepted.

I began thinking about how we could use Steve and his equipment to attract more interest in our Central Texas Packet Educational Network. Rick Strot, a lecturer in Curriculum and Instruction at Baylor, approached me during this time. Rick works with Baylor's annual University for Young People (UYP-described below). We had talked earlier in the year about doing a unit on radio for this summer's UYP. Students entering grades I-3 were to participate in a space program June 24-28 at Hillcrest Professional Development School in Waco. The students would learn how astronauts are trained, how spaceships are constructed, how astronomers study planets and stars. We decided to try for the night of June 25. We could have a "star party" with telescopes and radios. What better place to use Steve's talent and knowledge? I called Steve. He thought it was a great idea, just happened to be free that night, and so the "circus" was born. We would have three sites, connected by voice radio, packet, and Amateur TV. Word spread, both by mouth and airwaves, and soon, we had a real circus on our hands. Each day brought another group or expert who wanted to participate.

Description of Participants

Hillcrest Professional Development School (PDS) is a partnership between Waco Independent School District and Baylor University School of Education. Many of our faculty members hold their classes in this ungraded open environment. The **Baylor Amateur Radio Club** (BARC), KC5OJY, has a student membership of over 20 and almost as many faculty advisors. Its new hamshack, also the home of B.E.A.R.S., houses many modes of communication and is the home of the BEARSGW packet gateway we are in the process of constructing. The **Heart of Texas Amateur Radio Club** (HOTARC) is a large radio club in the Central Texas area that takes its teaching role in the amateur radio community very seriously. One can see the HOTARC trailer at various community events in the Central Texas area promoting Amateur Radio as a fun and interesting hobby. We asked **Professor Adam's Baylor Astronomy Class** to join in the fun, adding to the number of telescopes and to the number of "experts" available to answer our various questions. We figured that the more experts we had, the better the project would be. That's why we have invited the local **amateur astronomers,** led by local stargazer, Paul Derrick. This would give the children an assortment of adults with whom they could consult. We have invited **Baylor Science Education Classes** to take part. By coming out into the field and working in a situation like this first hand, future science educators would have a chance to interact with their curriculum and their charges. This is life in the real world. **Teachers** would have an opportunity to interact with other subject matter experts (SMEs) in a nonthreatening situation and would, no doubt, benefit from the chance to interact with students in an atmosphere of fun and excitement. Baylor has an **Eagle Scout troop** that takes part in events and helps with setup and arrangements. Many of these scouts have radio licenses so they are instrumental in keeping things running smoothly and are always ready to help in case of emergency. Baylor's **University for Young People** (UYP) is now in its thirteenth year. This commuter program, designed for gifted students, consists of two two-week

sessions for students entering grades one through eight. Younger students participate in an interdisciplinary, thematic curriculum that emphasizes problem-solving. Their classes are part of the practicum program for educators seeking advanced training in working with gifted students. It is within this thematic curriculum that our "circus" would fit nicely. In addition to hams, astronomers, parents, teachers, elementary students and college students, and media, we would involve others in the area. For instance, we might invite a van-load of veterans from the local VA hospital as well as those participating in a local day care program for the elderly.

Project Details

By way of preplanning, we would want to make sure that we and the students are familiar with the constellations that will be visible in the summer sky. These would include Leo the lion, Ursa Major (The Big Dipper), Bootes the herdsman, the Diamond of Virgo, Scorpius the scorpion, Sagittarius the archer and its teapot asterism, Lyra the lyre, Aquila the eagle, Cygnus the swan and the Milky Way (summer) Triangle. Students would study charts of these constellations so that when they were in the field, they would know what they were looking for. Jupiter and Saturn should both be visible. The children would study these planets in the classroom so that they might identify them in the field. Classroom descriptions of the planets' sizes, locations and characteristics would take on new meaning when the students view the actual planets in the night sky.

Before participating in the field activities, students would discuss the various uses of the telescope. They would understand the concepts of distance and magnification and be prepared. for what they might expect to see. They would also discuss astronomical distance and how light travels to the earth through space.

A space shuttle launching was planned for that day. It might be possible to see it pass over and hear the radio broadcasts from the shuttle astronauts. Discussions of space travel would be an integral part of the Space unit, including space suits, space foods, weightlessness, and other issues facing the astronauts. In addition, radio in its various incarnations would be an important part of the unit. Students would learn about some of the most popular formats—voice, packet, amateur television, code-and would have a chance to participate in several of these modes at the "circus." They would also learn that many of our astronauts hold amateur radio licenses and often arrange contacts with the folks back on Earth.

An important part of any project involving community partners is making the connections. This has been the easy part. Every time I talk to someone about our event, I get another group to add to the participants' list. To further publicize our event, we planned to advertise on the local college channel in the form of an electronic bulletin board notice. I would also post a bulletin to our local packet BBS, WD5KAL. Word of mouth would take care of the rest.

We planned to set up at two sites in the country, one belonging to Steve, the amateur astronomer without whom this whole thing would not be possible, and one belonging to one of the participants in the UYP unit. The third would be at the PDS. We would need to go to these sites and make sure they are safe, that we can connect between them by voice and packet, and that we would not be compromising the sites by our presence.

It would be important, as this project got bigger and more complex, that I, as the ringleader, try to keep everyone informed as to any changes in plans, locations, or schedules. I would do this by any means possible and these means could include e-mail, snail-mail, TV, packet, phone, voice, or CW. After the event, we would compile a visual record of this event and make it available to those who participated.

Technologies Used

With the aid of telescopes and binoculars, we would view the stars, Jupiter and Saturn, the Moon, and, maybe, the Space Shuttle. The details of this would be left to those who have promised to bring the telescopes. We would use Voice Radio for communication among the three sites to give progress reports and tell kids at other sites where to look and what to look for. We would use Packet Radio communications ahead of time to get the word out on local BBS asking for participants and experts, to

download star maps, and to download the space shuttle passby schedule. During the event itself, we would use Packet to send digital drawings of constellations to other sites to see if they can find them, too. The Amatcur Television Net would be taking place as we get our "circus" underway. We would not only get to see what is going on in the net, but we would also participate by sending video from site to site to show what is happening at any given time. Later, we would make a tape from these broadcasts to document the entire event.

Conclusion

It is easy to see why I almost decided to change the name of this "circus" to a "zoo." The more time that passed, the more frenzied it became. But, as quietly as it began, the "Circus of the Stars" ended. As with many plans that include Mother Nature, this project was not to be. At six o'clock on the night of June 25, I got a call from Steve Smith. The weather was cloudy and was expected to remain that way for the rest of the week. By the time it cleared, UYP would be over. Was all this planning and collaboration for nothing? The UYPers did learn a lot about the sky and I learned how to plan a big event. The community learned that there are many ways to collaborate. I talked to all the parties involved and we agreed that we would try to hold the event some time in the fall, when the weather cooled off and the viewing conditions were good. I am in touch with all concerned on a regular basis and we plan to make this an event to remember, whenever it takes place. And when it does, it will truly be a night for Space, Telecommunications, Amateur Radio, and Schools-A Circus of the Stars!