

Sun-Earth Day Podcast script #5

(Indigenous Education - Utah Workshop)

Narrator: "Our Sun... Yours to Discover"- The Sun and its impact on the solar system can be understood though studying the universe around us.

Narrator: My name is Troy Cline. In this episode we'll be revisiting one of our most popular podcasts that focused on a 'science and culture' workshop that took place in Springville, Utah, in 2007. The main purpose of that workshop was to enlighten and bring greater awareness of the understanding of science through culture... specifically with the Navajo Deneh philosophy.

During that time I was invited to share the Space Weather Action Center Program. Now **that** is a program that encourages students to design, assemble and use an 'easy to make' learning center that's called a Space Weather Action Center or (SWACs).

Each SWAC provide a **focused** environment where students can monitor and report the progress of a solar storm. The basic setup calls for at least one computer with internet access so that users can quickly retrieve current NASA data and, when necessary, read through a series of brief data tutorials. The program also includes teacher's guides and flip charts that offer the 'Step by Step' instructions on how to quickly analyze and then transfer that information to data collection sheets.

Now I believe that one of the most exciting parts of this learning experience comes next. Students are actually encouraged to design their own action centers out of basic art supplies that incorporate artwork from their cultures along with beautiful NASA imagery. They are also shown how to transform their entire experience into regularly scheduled news reports. These brief reports can ultimately be presented through variety of accessible media including inexpensive video editing software and/or already existing school-based broadcast studios. A link to the **recently updated** SWAC program can be found on the home page of the Sun-Earth Day website.

Since that workshop, over 2 years ago, a variety of other presentations and similar workshops have occurred ...and even more are planned for the future.

So let's listen to that podcast from 2007 that was produced shortly after that first workshop took place.

Narrator: The Sun, our nearest star, provides heat and energy, is the cause of the seasons, and is responsible for space weather effects that influence today's technology. Knowledge of the Sun is also a major part of indigenous traditions and cultural

practices. Humans across all cultures have venerated, observed, and studied the Sun, the Moon, the planets and the stars for thousands of years. The song you just heard in the Navajo language speaks about the Sun and how it gives us life and strength. The person singing the song is Lillian Tsostie Jensen, a Title 7 Program coordinator, from Utah. She who recently attended a dynamic workshop in Springville, Utah, that focused on a research and development collaboration between NASA, UC Berkeley, and the Indigenous Education Institute.

Narrator: The coordinator for that workshop was Shirlee Silversmith from the Utah State Office of Education. She is the Indian Education Specialist for the state and has had the unique opportunity to work with numerous school districts, the Federal Title 7 programs and with tribal education departments.

Silversmith: The purpose of this workshop was to enlighten and bring greater awareness of the understanding of science through culture specifically with the Navajo Deneh philosophy and we wanted to provide additional resources and information for our teachers, title 7 coordinators, some of the parent comities that are involved with the program because they do provide instruction with the students in the program.

Narrator: In today's' podcast we'll be listening to highlights from this workshop where indigenous astronomers, Dr. Nancy Maryboy and Dr. David Begay, spent time comparing and contrasting native and western astronomies. They made reference to their new book: *Sharing the Skies: Navajo Astronomy A Cross-Cultural View*. That work represents over 30 years of their combined research. Dr. Maryboy stressed the importance of providing a cultural framework when teaching about indigenous and western astronomies.

Dr. Nancy Maryboy: I'll give you an example; when I was going to college I tried to take an astronomy course once, and I just couldn't get-it I just couldn't remember those constellations. I didn't have a framework to put them in that made sense. Years later when I started studying Navajo astronomy, there was an order, patterns and cycles. All of it made so much sense. It created a framework in my mind which I could use to fit all of these constellations in. Then it was easy because I had the framework and I could fit all the western constellations in. Then I could fit all the Cherokee ones. And now we've learned Mauri and Hawaii and all of these different constellation patterns around the world. But you need a framework first that you can follow and understand and make sense to you. We think that by teaching kids that they have astronomy and what the framework would be, they will be able to fit anything into that framework; for the rest of their lives.

Narrator: They brought the entire experience to life by including a dynamic demonstration of a new Navajo astronomy cylinder for Starlab inflatable planetariums. While in the starlab they set the cultural stage by playing excerpts from a CD of Navajo oral stories complete with sound effects.

[Background sounds of wind and a crackling fire]

Native American speaker: Now imagine that you are hundreds of miles from the nearest city. You are sitting in a small round Navajo room, a Hogan. It is winter, mid January, and it is very cold outside. It is snowing and the wind is blowing. There is no electricity, no running water and no television. Nothing of the modern conveniences that we take for granted today. Inside, however, it is warm. A small fire is burning in the center of the Hogan. You are sitting in a circle with your family on soft white sheepskin rugs around the edge of the Hogan. It's crowded with your grandparents, your mother, your father, brothers and sisters; with your aunties and uncles. All of the men and boys are sitting on the southern side of the room. All of the women and girls are sitting on the northern side. The door faces east to honor the rising sun. The smell of coffee fills the room. Everything is warm and comfortable.

Narrator: I was able to bring the NASA's Sun Earth Connection portion of the story into the workshop by drawing from the fact that "stars are suns and our Sun is a star". That provided the perfect segway to not only share NASA's Sun-Earth Connection science, but also the new Space Weather Action Center program and Sun Earth Day.

Narrator: Towards the end of the whole experience we asked everyone to share their thoughts about the workshop and how they felt one could effectively teach NASA science within the appropriate cultural framework. Here is what some of them had to say...

Speaker 1: My mom always used to tell me - "You cannot learn anything until you know who you are. You can't help anybody else out there, you won't know what your purpose in life is, until you know who you are inside, and where you come from. When you learn that, Then you can go out and pick up all these things and learn all these fantastic things". That's what I feel like with the NASA information. That is a way for us to connect with our Native American children. It validates them.

Speaker 2: I'm having a major "Ah-Ha moment". And that is beautiful because at least I understand it in the context of my experience, now.

Speaker 3: When you incorporate some of the traditional teachings, and when you incorporate things that are familiar to the children. Children are brilliant anyway, they're going to take off. They're going to soar like eagles.

Speaker 4: I believe that the NASA materials are fantastic. I was just completely amazed by the wide range and the vast multimedia opportunities that students can participate in. I was just so delighted to see that because it provides a very strong interactive approach to learning about science and space. It brings about greater learning opportunities for the students where they can be involved with the learning process rather than just sitting in their chair and listening to someone speak-speak-speak at them.

Narrator: Many people expressed a very strong interest in using current educational technology tools such as podcasting to strengthen their students skills in communication. One of the participants added...

Speaker 5: How can we make a child a teacher, overnight, so they can share it with another. Something like podcasting is a great tool because you are giving them a skill and he can take that and buy something to create his own in-house thing. He can interview his own family and share their traditional ideas. He can then share that with everyone. To me that is the ultimate way of teaching.

Narrator: I would like to leave you with this quote from Leland Leonard, Executive Director for the Department of Dine Education for the Navajo Nation in Window Rock Arizona. He stated,

[Native American song plays in the background]

Narrator: "The value of the comparative astronomy approach cannot be overestimated. Navajos should not only know their own astronomy, they should also learn the stories behind the Greek constellations, used in the schools today, as well as the space science that has guided space exploration and the collection of remarkable images from telescopes such as the Hubble Telescope".

Native American speaker: Whatever your culture is, honor the stories of your ancestors. Ask your parents and grandparents, aunties and uncles, what stories do they know about the night sky. Learn from them. One day you will be a mother or father. What do you know that you can share with your children when that day comes?

Narrator: [The Indigenous Education Institute \(IEI\) of Santé Fe, NM, and World Hope Foundation \(a non profit orgainzation\) of Boulder Colorado, worked together to develop education programs, such as Sharing the Skies. These programs combine modern](#)

space information from NASA and Native American Astronomy knowledge to stimulate student interest and performance in math and science. More information can be found at sharingtheskies.com .

Narrator: For all other details about the Sun-Earth Day program including information about our past

Sun-Earth Day is a program sponsored by the NASA Sun-Earth Connection Education Forum at the Goddard Space Flight Center, and at the UC Berkley Space Sciences Laboratory. To find out more about the Sun-Earth Day program visit our web site at www.sunearthday.nasa.gov