

NASA arrives in WNC for Solar Eclipse

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Thousands of people poured in to the city of Brevard on Monday, Aug. 21, to see the spectacle of a totally eclipsed sun passing over the town. During the event, NASA, and Brevard College's Associate Professor of Physics Michael Castelaz took part in once in a lifetime research at the Pisgah Astronomical Research Institute in Pisgah Forest (PARI).

"The PARI event had several components," Castelaz said. "One part was public, where they were set aside a footprint to sit in and watch the eclipse. The other part was with researchers."

Approximately 1300 people viewed the eclipse at the grounds of PARI, with a small percentage of that number conducting research. Professor Castelaz was among this group of researchers.

"There were different NASA groups, doing different sets of atmospheric measurements. The research I was involved in was in Radio Astronomy," Castelaz said. "There are two big dishes on the (PARI) campus, and we used both of those to view the total solar eclipse. This is the first time, that we are aware of, that a radio observatory has been in the path of totality. For at least another 100 years or so, it's not going to happen again."

"We decided to do it (make radio observations), and what we were looking at was the corona of the sun, which is very hot, and a lot of it is just plasma, electrons and protons. A lot of people said however, that there could be hydrogen atoms too, but nobody has ever had the ability to look for it. So that's what we decided to do," Castelaz explained.

"We set up the two dishes to look up at the sun during totality to look for hydrogen. The bigger dish see's the entire full moon, observing totality, while the smaller dish see's an area bigger than that, the corona," Castelaz said. "By com-

paring the two images, we can look for neutral hydrogen gas. This has never been done before."

On Wednesday, Aug. 23, Castelaz went to PARI to sit with the crew that made the observations. "The data is pretty complicated. It's going to take us sometime, maybe weeks, maybe more, to work to a point where we can even say anything. Research just takes time."

Castelaz plans to present his findings from the total eclipse at the North Carolina Astronomers meeting in late September, though the data is still complicated. "We looked at the data, and just kind of shook our heads," Castelaz said with a laugh.

"It was really quite an effort by the crew up in PARI," Castelaz said. "I was the research director in PARI, starting in 2001, and the President of PARI, Don Cline, pulled me aside and told me to remember August, 2017, because there was going to be a total solar eclipse over PARI. This was in 2001. He was already thinking about this eclipse. I remember thinking, 'who thinks that?'"

PARI however has not stopped looking towards the future according to Castelaz, who said, "When I was there on Wednesday morning, they were already talking about 2024, when we will have a partial eclipse here. It will be about 85 – 90 percent."

Despite the significance that the results at PARI may yield, Castelaz was far more interested in talking about another important part of the day. This was the social side that arrived as part of the eclipse. "I thought, when I walked from this building (MS) to the Porter Center. The amount of people that were out there picnicking and just having fun, I'm so glad that astronomy could do something like that."

As a professor at Brevard College, Professor

Castelaz teaches several courses in the Physics department. For an opportunity to take a course with him, and to travel to the Pisgah Astronomical Research Institute, where the experiments of last week were conducted, the course PHY 102 is offered to all students.



Photo Courtesy of PARI

Above: a view of PARI located in Pisgah Forest.
Below: image of the solar eclipse.



Photo Courtesy of PARI