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FEATURED

Keeping track: Crestwood students monitor environment during eclipse project

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Crestwood High School students Leanne Alawieh and Ali Eter, both 16, record data as part of NASA's citizen science Total Solar Eclipse project through the Global Learning and Observations to Benefit the Environment Program. Science teacher Diana Johns initiated the project and chose the two teens to serve as coordinators. Photos courtesy of Diana Johns

Most people who watched the recent solar eclipse merely grabbed a pair of safety glasses and enjoyed the view. Not so for a group of Crestwood High School students.

The science students busied themselves collecting all sorts of environmental data as part of NASA's citizen science Total Solar Eclipse project through the Global Learning and Observations to Benefit the Environment Program.

Diana Johns, a Crestwood science teacher, led the effort and recruited student coordinators Leanne Alawieh and Ali Eter to round up volunteers for the research study.

About 30 students gathered at the high school to collect data both the day before the eclipse and during the Aug. 21 celestial event.

"They recruited volunteers from our student body to collect various atmospheric data the day before the eclipse — about 10 hours total — and the day of the eclipse," Johns said.

The young scientists tracked conditions for two hours before the maximum coverage of the sun at 2:27 p.m. and for two hours afterward. Their measurements included surface temperature, light intensity, air temperature, clouds, humidity, wind speed and wind direction while on grass and an asphalt surface.

"They also monitored animal and plant responses before, during, and after the eclipse using an app on their phones called iNaturalist," Johns said. "Leanne and Ali submitted the data their team collected and entered it into the GLOBE Program's database. They will be analyzing this data and comparing what we collected to teams across the United States."

NASA will use all the submitted data to help better understand the effect that eclipses have on the planet.

Alawieh and Eter, who'll both be juniors this year, have worked on other research projects with Johns, and said they were eager to take part in another experiment.

"She really wanted to do something with the solar eclipse so she contacted me and Leanne because we had done GLOBE research before," Eter, 16, said. "We sent out an email to incoming sophomores to introduce them to research."

Once the group came together, they set about taking measurements on certain weather parameters using tools such as air temperature probes, infrared thermometers, Vermeer light sensors and their own eyes. An iPhone app helped them monitor wind speed and direction.

“After all the data is taken, we’ll put about 200 measurements into the database to NASA who will use it compare what we got and what they got,” he said.

Observing changes in plants and animals was the students’ favorite part of the research.

“The coolest observation came when we noticed one of the flowers on the front lawn of the school that closes up at night,” Eter said. “We thought what if it closes during the eclipse because it gets darker? At 2:27 — the maximum time — we went over to the flowers and found they had closed up.

“We also looked at how animals react, and when it was darker we started to hear crickets chirping. That was really cool.”

Alawieh, 16, said she enjoyed making the cloud observations. “I always found that interesting,” she said. “Also the light intensity. The sun was covered 83 percent so I was interested in how the light would change, and we did see a difference at the maximum time of 2:27 and differences throughout.”

Both teens were bitten by the research bug last year after doing a project about minute atmospheric particles known as aerosols. They researched how aerosols affect global warming in comparison to the gases sulfur dioxide and ozone.

“I was really interested in doing research in general, but didn’t know what I wanted to focus on this year,” Eter said. “When Mrs. Johns offered the opportunity with the eclipse, I thought it was so cool, especially because it happens once in a blue moon.

“The best part was being able to coordinate so many volunteers to make it happen. It felt like you were part of something so big.”

Alawieh added: “Honestly it’s fun to learn and get more involved but it’s really fun to do with my friends. Mrs. Johns left it up to us to find our own way, so we got to do it on our own.”

The students also found it rewarding to put their study skills to use in an empirical manner.

“It was very hands-on, which is how most of my group members learn,” Alawieh said.

Both teens said research is something they're considering exploring in college and beyond.

"I definitely want to do something with research when I get out of school," Eter said. "I have such a good time collecting data and noticing trends."

Added Alalwieh: "I think maybe I'd like to work in a lab and get a little more technical with it in college."

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