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Toth's students keep close eye on weather

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By Beth Knoll The Record Herald

WAYNESBORO - In this world, to alter a familiar saying, nothing is certain but death, taxes - and the presence of weather, although the certainty of forecasts is an entirely different story.

The students in Todd Toth's classes at Waynesboro Area Senior High School can't manipulate the weather, but they can do plenty with the evidence it leaves behind.

Toth has all his science classes collect weather data at the school's weather center, a room of computers that take measurements from rooftop instruments and provide Internet access to national and local forecast data.

Information from the WASHS

Weather Center is used daily by WHTM Channel 27, WeatherBug and the Department of Homeland Security, among other organizations. Toth said he regularly receives calls, two or three a week, from residents, the media and others who want to know about Waynesboro's weather.

But Toth knows as well as anyone that in the Cumberland Valley, the weather can be tricky.

"We've noticed over the years that a Washington County (Md.) or Hagerstown forecast is much more accurate for Waynesboro than a Franklin County forecast," he said, mostly due to Waynesboro's proximity to the Maryland line and the lay of the local land.

Growing program

Students in Toth's classes compare daily, weekly, monthly and yearly data with 112 years' worth of local data logged by the National Weather Service.

"In the beginning, we started out with a modem, a computer and a subscription to Sprint AccuWeather," said Toth, now in his 31st year teaching in the district.

The program has grown from just one computer in the mid-1980s at the former East Junior High to 12 computers, a weather camera and instruments on the roof - and

national organizations

asking for the WASHS center's measurements.

Students started sending data to the National Weather Service, a weather partner of NASA and NOAA, in 1994.

Toth, who has a lifelong interest in weather research and is working on a degree in meteorology from Penn State University, wants his students to understand why the forecasts they see or hear aren't always accurate.

"There are thousands of variables that change within seconds," he said. "The National Weather Service has some of the best computers in the world and they can't do it. You can get a three-day forecast that's accurate, and after that, you may as well flip a coin."

GLOBE effort

While students in Toth's ninth-grade class crunch numbers and compile local forecasts, his senior environmental research class works with NASA on weather- and climate-related projects.

They collect data for maximum, minimum and current temperatures; rain and other precipitation; soil temperature and pH; water temperature and pH in a nearby stream; electrical conductivity; and ultraviolet and ozone atmospheric information.

GLOBE, which stands for Global Learning and Observations to Benefit the Environment, is a program that gives the students access to live radar, archives of NASA weather data and a connection with research scientists nationwide. The seniors currently send weather data to government and research scientists in Colorado, Philadelphia's Drexel University and the University of Arizona.

"There are very few schools that have this," Toth said.

Students, teachers and community members collaborate on projects through GLOBE, and Waynesboro students have performed trials of projects with collection equipment



Waynesboro Area Senior High School science teacher Todd Toth knocks snow off the Weather Center's measuring instruments on the roof of the high school. Toth climbs up to the roof twice a year to clean and adjust the instruments.

provided. If the trials work, they get to keep the equipment.

A few years ago the students planted coneflowers, which are particularly susceptible to changes in ground-level ozone and can be studied by looking for "rust," or red spots on leaves.

"They send the data in. They talk and e-mail back and forth with the scientists," Toth said. "It gets them ready for college."

Two of Toth's former students have since earned meteorology degrees from Penn State.

Find it online

The Department of Homeland Security can remotely pull the school's detailed data any hour of any day.

Local residents can, too. Anyone interested in the temperature at, say, 2 a.m. can log onto WeatherBug and enter Waynesboro's zip code for data and a view from the video camera stationed on the school roof.

A link on the Waynesboro Area School District Web site offers plenty of weather information.

On the Net

Weather center:

<http://www.wasd.k12.pa.us/weather>

WeatherBug:

<http://www.weatherbug.com>

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