

***AcademiCast* Transcript**  
**Texas Tech University**  
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**Dunn:** Texas Tech researchers featured in a new IMAX® movie.

Hello everyone, I'm Danielle Dunn and this is *AcademiCast*, brought to you by Texas Tech University.

New to IMAX® in March, the movie "Tornado Alley" focuses on VORTEX2, the most ambitious effort ever made to understand the mystery of tornado genesis. Christopher Weiss, associate professor of atmospheric science at Texas Tech University was a principal investigator on the VORTEX2 project and talks about Texas Tech's involvement.

*Weiss: Texas Tech was responsible for a lot of what we call the observational sampling of the storms. So, we were trying to get measurements of the state of the atmosphere near the developing tornadoes, and that includes measurements of temperature and pressure and humidity. Also, we had our mobile radars out there, which allowed us to gather remotely wind information about the developing tornadoes and the mature tornadoes. We're just in the data analysis phase of VORTEX2, being less than a year removed from the field phase. We're discovering some considerable variability in the temperature structure near developing tornadic storms. We had a strong feeling that these variations in temperature have something to do with the ability of the storm to eventually produce a tornado, and we had some hypotheses coming into VORTEX2 related to that. The preliminary findings seem to support some of those hypotheses that we were trying to prove.*

**Dunn:** The measurements taken by Weiss and other scientists are used to gain deeper insight into why storms occur and how they develop. Although atmospheric scientists have been gathering research relating to tornado activity for years, there is still not enough information to make any firm conclusions about the upcoming tornado season.

*Weiss: Most times when we're making a seasonal forecast for tornadoes, we look at global scale signals. Probably the most familiar to the public is El Niño and La Niña, which are two halves of the whole of the same oscillation. Currently we are in a La Niña phase. We're starting to come out of that. Some research suggests that perhaps there will be an increase in the number of tornadoes, but that's not a firm conclusion at all. We just don't have enough data points to really make that a real firm statement. We don't have any reason to believe it won't be an active storm season, so we want to be ready to make the measurements when the storms do start occurring.*

**Dunn:** In addition to the IMAX®, Texas Tech's VORTEX2 team was featured on the Weather Channel.

Texas Tech's College of Mass Communications will screen the Global Film Initiatives Global Lens 2011 for the third year. The film series runs from March through May and comprises 10 critically acclaimed feature films from countries worldwide. More information about the Global Film Initiative can be found at [today.ttu.edu](http://today.ttu.edu).

Our next integrated scholar feature is Sindee Simon, a professor in Texas Tech's Edward E. Whitacre Jr. College of Engineering. Here's Provost Bob Smith with more.

**Smith:** Dr. Sindee Simon is one of only 38 Paul Whitfield Horn Professors at Texas Tech—a distinction reserved for the most distinguished faculty at the university. She is also an outstanding faculty contributor to the Department of Chemical Engineering in the Whitacre College of Engineering. The Horn distinguished professor title was awarded to Dr. Simon, in part, because of her notable research efforts, which include studies that could lead to the development of materials for the next generation of spacecraft. Specifically, she works on materials that are not only lighter but also less prone to heat damage. Much of what Dr. Simon studies relates to the physics of glass transitions at the nanoscale.

*Simon: So, one of my main research interests is in the glass transition, which is the transition from a liquid to a glassy solid, so not crystallizable. And one of the hot areas is the glass transition at the nanoscale. So, nanoscale layers of glass or glasses inside nanopores, and glasses can be anything from window glass or the glass in my glasses, to polymeric glasses like polystyrene and even glycerol, which is an oily liquid substance at room temperature, it makes a glass if you cool it.*

**Smith:** Dr. Simon's research has been funded by the National Science Foundation, the American Chemical Society Petroleum Research Fund and the National Aeronautics and Space Administration or NASA, among many others. The results of her research have been highly regarded and broadly cited. As importantly, Dr. Simon has been able to apply the results of her research to learning experiences for students, whether these experiences occur in the classroom or the laboratory. Briefly, she helps students understand the world of polymers and polymer research while instilling a spirit of inquiry necessary for innovative and productive thinking and research.

*Simon: I teach a lot of grad classes and polymers. So, I study actually mostly polymeric glasses, and I guess that would be my favorite, is to teach graduate students because they're very enthusiastic, they're really interested. And because it's an elective, it's closely aligned with their research so it's really nice to teach people who are interested.*

**Smith:** On top of her research and teaching, Dr. Simon dedicates a significant portion of her time to reviewing and editing manuscripts for publication in outstanding journals in her field. She has also served in leadership roles for a number of professional engineering organizations. Dr. Simon has also developed workshops right here at Texas Tech to help faculty members adopt more active learning approaches in their teaching.

In addition to working with graduate students and mentoring junior faculty, Dr. Simon teaches undergraduate courses and works with undergraduate researchers. In fact, she is a member of the Texas Tech Undergraduate Research Task Force, which has been commissioned to enhance faculty and student involvement in undergraduate research.

Considering all that Dr. Simon does and how effectively she balances and integrates her efforts, it is clear that she deserves the designation as integrated scholar. Her personal benefit? She says that workshops and mentoring alone have helped her with integrated approaches to reinforcing the critical balance of research, teaching and outreach.

***Simon:** You have to get the research funds so that you can run your lab so that you can publish papers, and I think it's a little bit harder to get that part going as a young faculty member. Get people to mentor you, so I've mentored a few people here. I think that benefits the young people a lot if somebody else reads their proposals and gives them some feedback, then that can be very helpful.*

**Smith:** We are very grateful to Dr. Sindee Simon for her exceptional research, teaching and outreach contributions at Texas Tech, along with her numerous achievements in the field of chemical engineering. Thanks for listening! I'm Bob Smith.

**Dunn:** Thanks, Dr. Smith. A Texas Tech wildlife science doctoral student is now in western Paraguay on a Fulbright Program studying jaguars. Anthony Giordano will evaluate Paraguay's protected forest areas known as the Chaco, in hopes to enhance jaguar conservation in the country.

***Giordano:** The Fulbright scholarship gives me an opportunity to maybe spend some time on the ground in Paraguay for an extended period of time and make a difference. I've been going down there for the last five years or so, working over the summers, two or three months here and there. I get to spend 10 months down there, run around, talk to the people I need to, meet with the people I need to, and really toss around the ideas that I need to, to try to make a difference long term on the ground for jaguars. And other species as well, basically all the species that occur in their ecosystems as well. That's kind of my long-term vision down there.*

**Dunn:** The Fulbright U.S. Student Program provides scholarships for graduating seniors, graduate students, young professionals and artists to study abroad for one academic year.

I'm Danielle Dunn for *AcademiCast*.