Climate change. Bill Gutowski helping build a climate research community in Africa.

Climate change research has caught the world's attention of late. In October, for example, the Intergovernmental Panel on Climate Change (IPCC) shared the Nobel Peace Prize with former Vice President Al Gore.

Yet developing countries - especially African nations - are far behind in their study of climate change and its local effects. That's why for a decade Bill Gutowski, professor of geological and atmospheric sciences, has been helping build a weather and climate research community in Africa.

ISU has a strong record of climate change research. Gutowski and colleagues Gene Takle, professor of geological and atmospheric sciences and professor of agronomy, and Ray Arritt, professor of agronomy, contributed to the IPCC.

Gutowski has a personal interest in helping African climate researchers, but he said the African climate also could affect North America.

"There are ways the Sahara is relevant to us here in the United States," Gutowski said. "All the weather systems and climatic patterns that revolve around West Africa, in particular, actually have a direct connection with us here."

He said there is speculation that dust from Africa that gets blown across the ocean may affect the temperature structure of the atmosphere and play a role in how and when tropical storms generate.

Gutowski began his efforts in 1997 at a conference in South Africa. He started making connections with other researchers and a year later an agreement was signed leading to exchanges and workshops. In early 2001 he co-hosted a workshop in Cape Town, South Africa, to train African scientists to perform regional climate simulations. Later that year he began a sabbatical at the University of Cape Town and did a follow-up training session.

He also taught at workshops in 2003, 2004 and 2006 held at the International Centre for Theoretical Physics, Trieste, Italy. The sessions involved students from developing countries including Africa. Gutowski, Takle and Arritt helped run the latter workshop.

Gutowski has had graduate students from Kenya and Zimbabwe and has hosted short-term visits from Cape Town graduate students. He currently has a post-doctoral researcher from Nigeria, Babatunde Abiodun, working with him.

Too few places in Africa have capabilities for climate research. In many locales, electricity supply is spotty and the Internet is even more intermittent. Nigeria is one of those nations.

"Even if you have a computer there," Gutowski said, "you can't use it for climate simulation because the electricity is going to go out all the time. It's an incredible challenge."

In addition to infrastructure obstacles, the top African climate researchers are asked to wear many hats. A colleague of Gutowski's who did weather forecasting and training for the Nigerian Meteorological Service had trouble finding time for research, especially when he was sometimes called upon to deliver the weather on television.

"Against a backdrop like this," Gutowski noted, "it's difficult to develop and sustain a community of researchers."

Last fall Gutowski taught a senior and graduate-level class, Physics of Climate, that was simultaneously offered in Ames and at the University of Cape Town. He used pre-recorded lectures and weekly live on-line sessions featuring graphics and audio. He would like to offer the lectures in Nigeria, "but the live interaction just isn't going to work. They don't have nearly the bandwidth required."

Gutowski said an African weather and climate change research community will not be built overnight.

However, if he and others can assist African researchers, those researchers might be able to convince their governments to engage in the issue.

"It is personally satisfying for me to feel like I am doing something to help the larger world," Gutowski said. "But a lot of this wouldn't have happened if not for the mutual interest to pursue the research."