

WE ARE THE FUTURE

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With a modest \$7,000 grant from the National Science Foundation, Dr. Lonnie Thompson decided to take a shot in the dark.

It was 1974 when he and his research team traveled to the Quelccaya Ice Cap in Peru to drill for ice. Until then, such drilling was only done in polar regions, and the idea of looking for ice samples anywhere near the equator was thought to be futile. Quelccaya is the largest glaciated area in the tropics and only reachable by way of a two-day journey on horseback from the end of the nearest road. But the hard work proved fruitful.

What Dr. Thompson found in that ice became valuable evidence that completely altered the course of the climate change debate.

“All the greenhouse gases we are

concerned with in today’s world have been archived for hundreds of thousands of years in the bubbles in ice,” says Dr. Thompson, a professor in Ohio State’s School of Earth Sciences. “They’re capsules of the atmosphere from the past. They’re a wonderful archive of so many things.”

Since that first trip to Quelccaya in 1974, Dr. Thompson has traveled all over the world, looking for ice samples that can tell him more about the atmosphere’s tumultuous past. And the story these samples tell is a concerning one which, by now, is not news. Quelccaya and many other glaciers around the world are melting at a startling pace. While the implications are not fully understood, a clear eventuality is a potentially devastating

rise in sea levels.

Sea levels are just one of many observable symptoms of climate change, however. Its cause, increases in atmospheric carbon dioxide, can also affect air and water quality, crop yields and other metrics that can fundamentally distort not only an economic system, but also personal well-being.

Dr. Thompson testified before Congress about his findings in 1992. Due to his work and the work of other scientists around the world, climate change has received increasing attention on a global scale. And that attention is turning into action.

World leaders gathered in Paris for two weeks in early December for COP21, a United Nations conference in which

representatives from over 190 countries negotiated a global agreement to limit temperature increases. The agreement marks an important step forward in the battle against climate change, a battle which Dr. Thompson believes should transcend politics.

“There’s no way you can argue that a glacier has a political agenda,” says Dr. Thompson. “It’s not donating money. It’s not trying to change the system. It’s just summing up what’s happening in its environment and reacting to it. When it gets warmer, they get smaller.”

Many participants in COP21 shared Dr. Thompson’s sentiments. The conference produced an agreement with the stated goal of limiting global temperature increases to 2° C above pre-industrial levels. The so-called Paris Agreement will become legally binding once it’s ratified by 55 countries that produce 55 percent of the world’s greenhouse gas.

This margin of 2° C is a strict one, as many scientists warn that the environment is already being stretched to its limits.

“If we miss that target by just a degree or two, there will be a huge impact,” says Dr. Bryan Mark, State Climatologist and Associate Professor in Ohio State’s Department of Geology. “There are a lot of thresholds in nature that don’t have plasticity. There may have to be events that shift public opinion.”

Some of those opinion-shifting events are already happening — just not yet in Ohio.

“If you go up to Anchorage, Alaska to give a climate change talk, it will be standing room only because the people there see the glaciers,” says Dr. Thompson. “They see them retreating every year and they become concerned about it. If we had a glacier in Ohio, people would be very concerned because they’d see it. We like to see things.”

In the eyes of Dr. Thompson and many of his peers, education is essential for stirring people to see climate change and acknowledge their role in it. Educators all around Ohio State are working to increase awareness and empower the public to face the issue head-on.

“What I’m saying is [that we should] rely on the science. And I think that’s where universities come into play,” says Dr. Timothy Haab, professor and chair of Ohio State’s Department of Agricultural, Environmental and Developmental

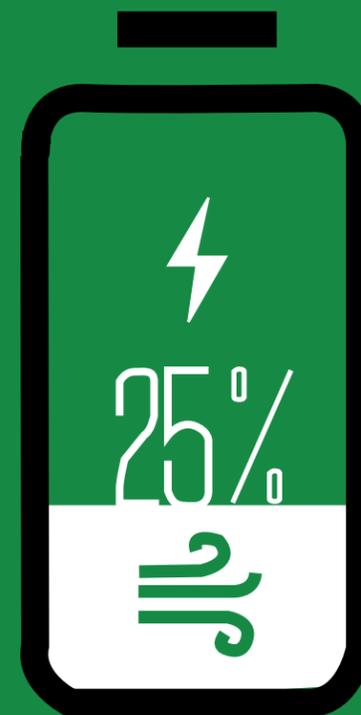
Economics. “We should be the place that houses the unbiased scientists that are able to look at these things. And I think that’s what we are.”

Dr. Haab is an expert on environmental valuation and his research focuses on the economic impact associated with climate change. In his department, researchers are prying apart issues like the ramifications of coastal erosion and the relationship between forestry and carbon emissions.

The wealth of research coming from all over the university prompted the creation of a Discovery Theme known as Sustainable and Resilient Economy. Discovery Themes are university-wide initiatives that connect scientists from various departments in order to achieve a goal, which in this case is to streamline the development of stronger, more environmentally conscious economies.

“The idea behind the Discovery Themes is that they want to get people across campus that are all thinking about similar issues thinking together,” says Dr. Haab. “We have one of the largest and most comprehensive universities in the world. The idea is to bring in new faculty and to get existing faculty to think about these issues in an

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interdisciplinary nature.”

Concerted efforts from the university to address climate change and renewable energy have already yielded tangible results. 25 percent of the energy used on campus is from a wind farm in Van Wert, Ohio. Geothermal well systems are in place to heat and cool several of the dormitories. There are dozens of campus-area buses that run on alternative energy as well as a growing number of car charging stations. And there are over 70 student groups dedicated to sustainability.

But the changing landscape of the energy industry isn’t merely an area of interest for activists. It’s a hotbed for innovation and economic growth.

“Miners have been replaced by machines,” says Dr. Thompson. “If you’re looking for a future, learn about engineering — solar panels and wind. These are clean jobs, they are safe jobs, they pay more. There are all kinds of job opportunities that come from change. Technology can be part of the fix for the future.”

Dr. Thompson is optimistic about the task at hand, despite the obstacles ahead. He relates the challenge of facing climate change to the struggles that he and his research team have faced countless times in years past. While isolated in freezing temperatures on the face of an ice cap, they would often have to reconfigure their entire methodology, whether due to illness or equipment failure. But eventually, they got the results they needed.

“So if you can work together in this extreme environment to accomplish a task, then it gives me great hope that we can do that to deal with issues like climate change,” he says. “We just need to get focused.”