The debate raging among scientists over the existence of global warming isn’t actually raging these days, but that news is still trickling down to non-scientists.

With misconceptions of the subject so prevalent and with the success of films like Al Gore’s documentary, “An Inconvenient Truth,” some scientists are re-evaluating the way they share their findings with the public.

“It gets frustrating for scientists to see the ‘debate’ over global warming represented in a 50-50 sort of way,” said Ross Powell, co-chief scientist of the ANtarctic geological DRILLing (ANDRILL) project. “Because, as presented in former Vice President Al Gore’s movie, the majority of scientists who work on any aspect of this believe it’s happening and know what the significance of it is.”

The question of global warming has been examined by more people in more countries and in more scientific fields than

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Two photos show the collapse of a section of the Marr Ice Piedmont glacier that connected Norsel Point to Anvers Island, the location of Palmer Station, in January 2004. It took several weeks for the complete collapse to occur. The glacier is steadily receding.
any other scientific question in history, according to Hugh Ducklow, principal investigator for the Palmer Long Term Ecological Research project.

“The consensus among that group is overwhelming,” he said. “This issue is closed. It’s an open-and-shut case as far as scientific opinion goes.”

If the case is closed, why are only four in 10 Americans very sure global warming is occurring, according to a 2006 benchmark survey by ABC News, Time magazine and Stanford University?

Filtered facts

Scientific papers are not sexy. They don’t get passed around as e-mail forwards. They don’t make the New York Times Best Seller List. But they are where most news about science originates.

The traditional route for the spread of science news begins with scientists. They conduct their research and then try to get that information published in science journals. From there, the mass media surveys the information and, if they find it worthy of sharing, pass it on to the public.

This gauntlet prevents information overload, but it also places people other than the scientists in charge of getting findings to the masses.

“Several of us are starting to rethink that model,” said Ken Taylor, principal investigator for the West Antarctic Ice Sheet ice core drilling project. “I used to think that scientists didn’t have to worry too much about communicating to the public; that was somebody else’s job. It’s obvious that there are a lot of people that either don’t know what they’re talking about or are intentionally manipulating the story. With that in mind, I think scientists have a much stronger obligation to take control of the story and get the story out themselves.”

One of the classic examples of this technique is RealClimate.org, he said. The site allows a team of scientists to comment on global warming research and media coverage in a casual and more reader-friendly way than peer-reviewed papers offer.

“When you communicate science to the public, there is a public threshold of
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science literacy, so the communication has to be on a certain level,” said John Jackson, education and public outreach coordinator for ANDRILL. “I think one of the major challenges is to communicate to the public who scientists are and what scientists do. I’m not so sure if the public has a good understanding of those two things – especially when it comes to … cutting-edge science.”

Antarctic scientist Sridhar Anandakrishnan hopes to help reveal that information in a new way. He has applied for a National Science Foundation grant to organize a film crew to travel to Antarctica and create weekly podcasts, videos intended to be freely distributed via the Internet and viewed on computers and mobile multimedia devices.

“The primary way to get scientific information out there is always going to be through print and writing articles, but hopefully this is a very powerful way through a new medium,” he said.

The process of refining

The scientific learning process can prove to be another major obstacle. It is complicated and typically involves fine-tuning, which can appear to be a lack of understanding.

“It frequently takes three steps forward and one step back,” Taylor said. “The public often gets confused when we make changes to previous work. Sometimes there will be two studies that come out, and there’s a little bit of disagreement. The public might say, ‘Oh, these guys don’t really know what they’re talking about.’ In reality, the scientists might agree on 90 percent of the information and are just still refining the last 10 percent.”

This process is an integral part of science. Scientists don’t study things you find in a textbook. By the time a theory is established, research scientists are bored with it, Taylor said.

Instead, scientists wander around on the cutting edge, constantly refining their understanding. This is where you can find the study of global warming.

The overwhelming majority of scientists have left behind the debate regarding the existence of global warming and are now discussing its magnitude and consequences, said Doug MacAyeal, principal investigator on a project studying the breakup of icebergs.

“It still isn’t clear what [global warming] means for a given region, a given glacier, a given swampland, a given process or a given population,” he said. “Those types of uncertainties don’t change big-picture global warming.”

A complicated balancing act

Global warming has proven to be one of the few scientific debates to happen in the headlines.

Journalists are charged with bringing balanced news to their readers and viewers. Fulfilling that duty while giving an accurate representation of the global warming debate can be a confusing and challenging process, MacAyeal said.

Science debates aren’t a natural fit into the journalistic mold.

“I think it’s healthy to have debate,” Powell said. “But the debate has to be with appropriate people and with appropriate data. I think that very often the appropriate people or appropriate data aren’t used.”

Taylor explained that journalists often seek out a scientist who is part of the minority that disagrees with global warming in an effort to tell the “other side of the story.” This typically lends more weight to their argument and adds more confusion to where the issue stands in the scientific community.

“Sure, there is always the possibility that there will be this voice in the wilderness that tells the truth that we didn’t notice,” MacAyeal said. “But if you argue global warming is invalid, you have to throw away so much of what we know about the climate and the paleoclimate and how the ice age ended. It would say that we’ve been failures for the last 50 years and haven’t really learned anything.”

“We need to carry on and try to get the message across further in the U.S.”

– Ross Powell, Northern Illinois University

“I’m not interested in the debate anymore. I won’t read articles on the debate. I’ve come into acceptance, and I think it’s only a matter of time until everyone accepts it.”

– Doug MacAyeal, University of Chicago

Moving forward

The existence of global warming is no longer a scientific question, MacAyeal said. And while scientists can help the public better understand the issue, he said it is time for the research to move forward.

“Global warming isn’t just about turning up your air conditioning a little bit,” MacAyeal said. “The world is such a complex, interconnected system, and we’ve only just scratched the surface. … That’s where I think the real science of this issue will be in the future, not in endlessly coping with this debate.”

It’s a balance of education and continuing research that Taylor said he feels is important, because a lot of people are not going to believe the science models. Global warming will keep creeping forward and one day people will look around and realize that it has already changed the world they live in, MacAyeal said.

“It won’t be a ‘Day After Tomorrow’-type scenario where after the great apocalypse, people are stumbling around in the wreckage saying, ‘Yep, I guess I believe in global warming now.’”

NSF-funded research in this story: Doug MacAyeal, University of Chicago; Hugh Ducklow, Virginia Institute of Marine Sciences, www.ices.vt.edu/iter/iter.html; Ross Powell, Northern Illinois University, andrill.org; Ken Taylor; Desert Research Institute, waisdivine.unh.edu; Sridhar Anandakrishnan, Pennsylvania State University.