

CHASING ICE Q&As

These responses were compiled from Chasing Ice team members at various film festivals across America in early to mid 2012.

QUESTION: What can we do to help?

Jeff Orlowski: I look to James as a great role model for this. He used his skills as a photographer to do something unique and original that really forced the conversation forward. I used my skills as a filmmaker to share his story. Everybody on our team has a different skill set and they all contributed in different ways. Whether it's our lawyer or editor or designer or writer or producers, each person is doing everything they can with their skill sets to make a difference. I would challenge everyone that each of you has unique skills and resources which can be used to help advance this mission.

Dr. Tad Pfeffer: You know, doing things like installing florescent light bulbs doesn't seem like very much of a step forward. But we got into this situation because of one incandescent light bulb at a time, or one car at a time. It wasn't some giant event that created the environmental and fossil fuel situation we are in now. And it's reasonable to think that collectively with many small efforts we can work to resolve this. I think the same goes with taking action and communication. Your voice may not seem very large to you in the context of the world but collectively it can be quite loud.

Q: How did you meet James Balog?

Jeff Orlowski, Director of Chasing Ice: I met James through a mutual friend during my senior year of college. My friend pushed James to take me with him on his first trip to Iceland. I grew up with a darkroom in my house, so I had been taking photos and de-

veloping black and white film throughout my childhood. When I first met James, I wanted to work with him because he was an incredible photographer and I saw a great opportunity to learn from him.

We went to Iceland together, then on to Greenland and Alaska. Over the course of these trips we filmed everything. At the time, we didn't know what we were going to do with the footage or what was going to happen with the project itself. But we knew that accurate documentation was essential.

Q: How did the team pass the time when waiting for that spectacular calving event?

Adam LeWinter, Extreme Ice Survey Engineer: We sat, watched ice and read. We divided the day into three 8-hour shifts. Each one of us would be up for 8 hours while the other guy slept then we would both be awake in the evening for dinner.

Jeff Orlowski: It was actually really beautiful to just watch and listen even if nothing was going on. Under those conditions it takes a lot of work just to keep the camp maintained and running smoothly. Downloading cameras, re-charging batteries, backing everything up, and cooking just seemed to take a lot more time.

Q: Adam, what were you thinking when Jeff filmed you during that severe windstorm?

Adam LeWinter: I don't know if the viewers can understand the intensity of the moment when the tent was collapsing and all our food and camera equipment was about to get tossed around. But

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as you can tell, Jeff is very driven and that was a good piece of filming. Jeff's dad did say that when he saw that footage he could just imagine me cursing.

Q: What does a calving event sound like in person?

James Balog, Photographer: The first big calving event I ever heard was when we were camping at the Columbia Glacier in Alaska. We were exhausted after a long, cold day out on the glacier and we were all trying to get warmed up in our tents. While warming up we heard this huge roar that sounded just like a 747 was doing a low-altitude run right over the bay. At first I am thinking, "What is that?" There was an air force base about 100 miles west of us so I thought maybe fighter planes were flying above. Then I thought, "no the weather is terrible" and I stuck my head out of the tent and didn't see a thing. It just sounded like six 747s were flying right over us. This huge roaring sound of a calving incident is almost identical to the roar of these big jet airplanes. When that calving event went off the entire 2-mile long calving face just zippered off in one big piece.

Q: How did you get the audio from the big glacier calving?

Jeff Orlowski: When we filmed the big calving scene we were too far away from the glacier to accurately capture the actual sound. We ended up employing three reliable sources. The first was from calving events in Alaska and places in Greenland where we had been close enough to the glaciers and were able

to capture the original sounds in a very high quality. The second source came from Skywalker Sound. They have a great library of ice calving sounds from different ice projects that they worked on. The third source actually came from Jason Amundson, a scientist from the University of Alaska in Fairbanks. Jason and his team use seismometers, which are designed to measure earthquakes. They can capture any vibration on the planet, and the waveform created when a piece of ice calves can be converted from the vibration into sound waves. So it's basically having a contact microphone on the planet capturing the sound of the vibrating bedrock.

Dr. Tad Pfeffer, Glaciologist, University of Colorado

Boulder: I should add that it really does sound that intense. The main glacier I worked at is the Columbia Glacier in Alaska. We were right next to the tremors and the big calving events are extremely noisy.

Q: What do you think was your biggest challenge in making the film?

Jeff Orlowski: Of course there were countless challenges during every step of this project. The harsh conditions became the norm so it would be hard to even call them a challenge. It was just a given that it would be windy and we would be cold and possibly wet. We spent 4 days shooting the moulin scene, where the water was raging down that hole and our team was rappelling into it to get the shot. We were trying to capture James as he captured a photo that he had composed in his head. The day we finally got

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the shot we wanted, Adam was hanging over the waterfall above the vast abyss and as you can see in the film he wasn't too happy at the time so he definitely had the toughest part of that job. But situations like that became routine on this project. In many ways they became the parts we most enjoyed. We did not want to just shoot ice melting.

To James's credit, safety issues were always a major concern during each trip. You can see in that footage that we had multiple ropes fixed to the glacier. That was not by accident. James had us constantly train on details like glacial travel, glacial rescue and common safety procedures. We went over possible scenarios and how we would solve potential problems. Some precautions were actually common sense (Like not stepping on our safety lines while wearing crampons.) But we needed to be reminded of these things and to be aware of our actions while on the ice. I think the team felt very confident and safe when we were out in the field. At least for the most part.

Q: As filmmakers and photographers, how did you handle the conflict of capturing and presenting horrific but important images?

James Balog: The secret in all of this is that you're looking at an issue that's potentially really ugly and really hard to look at, but you have to keep going. You have to keep taxing your brain and taxing your research and your understanding of the subject. You

keep talking to people and you have to learn to find a way around something that might be horrific and find beauty in it and make it seductive.

Like I said earlier in the film, looking at animals getting killed was harsh. But when you present it via a different visual circuit you find a means of telling the same story but in a beautiful way. Then you are able to put the beauty out front and the horror behind it as the back story. So you've seduced someone into looking at it whereas if you had just gone with the horror and upsetting visual stimulus maybe they wouldn't have wanted to look at all.

Q: What was the biggest challenge for the Extreme Ice Survey?

James Balog: The single biggest strain and risk in this project was actually the financing. It looks scary to go into those crevasses, but I know how to do that and I have confidence in my knots and anchors and in my mental process. The thing that has really stretched us to the limit—the film included—was the economic stress. It has been extremely intense and it hasn't let up for five years. The people who get paid are the helicopter companies and the airplanes that get us to Alaska and Greenland. Then there are finances that are allocated to the cost of the cameras, which is significant. Each camera was about \$7,000. Raising funds was a constant struggle.

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Q: How is climate change affecting the Southern Hemisphere?

James Balog: The glaciers in the Andes, which is the mountain range that goes all the way down South America from Ecuador to Tierra del Fuego, is experiencing a huge glacier retreat as well. Antarctica is really the big gigantic question mark in glaciology and it's quite a scary proposition to people who know the science. The Antarctica peninsula—that prong that sticks up towards South America—has warmed up faster in the past 50 years than almost any part of the world. It's equivalent to the high Arctic in terms of how fast it has warmed. This has resulted in a series of ice shelf break-offs, but so far those shelves are relatively small in terms of their impact on the rise of the sea level.

The big wild card that you will hear about in years to come is West Antarctica, which is kind of down at the base of the Antarctica peninsula. All the recent research seems to suggest that those gigantic calving faces are speeding up the melting process. Glaciers are thinning out and going into a rapid flow mode. If West Antarctica starts melting off ice the way the Greenland and Alaska glaciers are, it is potentially the game changer for sea level rise.

Q: What can you tell us about the climate change debate?

Dr. Tad Pfeffer: The scientists are doing their job by trying to establish some objective truth and understanding. The other party to this so-called conversation is merely trying to confuse the audi-

ence. They are simply trying to persuade them that it's not about getting to an objective truth. It's two completely different kinds of rhetoric and the point is very often missed. It's not an equal conversation, their goals are not equal and I don't have to tell you that creating confusion is a lot easier than creating clarity.

Jeff Orlowski: Climate change is a bipartisan issue that effects everyone and it's a shame that this has been compartmentalized into a political debate. I think one of the things we are trying to accomplish with the film is to remove it from the political arena. We wanted this project to be a neutral observation and documentation of what we saw happening on the planet. It doesn't matter what your political stance is. You should be able to watch this film and take something from it that you can incorporate into your own life.

Q: Has this work converted any climate change skeptics?

James Balog: I was at a museum in Florida and gave a standard slide show and lecture. Afterwards, this very distinguished, white-haired, older gentleman came up to me. He had on this canary yellow jacket and madras pants. It looked like he had just come off a golf course. He said, "Young fella, you convinced me. And you have no idea how important it is that you convinced me and how hard it was for me to accept that you convinced me. But you made a believer out of me." I said, "Well okay, why is it so important that we convinced you?" And he said that he was the former head of exploration of [a prominent oil company].

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Q: How has the field of glacier study changed for scientists?

Dr. Tad Pfeffer: People at the National Snow and Ice Data Center here in Boulder have received death threats a number of times. Now there is a lot of additional security. It is nothing like the field I thought I was getting into 35 years ago when this was all pretty obscure stuff. There was no strong societal reason for studying glaciers at that time. It was pretty much pure science and now that's changed. Today it has become an issue with very obvious importance for everyone and there's a lot of pressure to get it right. It has changed the dynamic not just between science and the public but within the scientific community as well.

Q: How did you decide where to install the time lapse cameras?

Dr. Tad Pfeffer: There are two kinds of glaciers we were interested in. One of them was glaciers that end in the ocean and interact with the ocean. These glaciers calve icebergs, and many are located in Alaska and Greenland. The second kind are glaciers that end on land in the high mountains. They're also retreating very rapidly because of warming. Places like Iceland, the Alps in Europe, and Glacier National Park were other choices for us. Some of it was a matter of opportunity. The Himalayas are a very difficult place to get to. We have installed cameras at some Himalayan glaciers now but we were not able to incorporate those results in the film.

Q: What other kinds of problems have the time lapse cameras experienced?

Jeff Orlowski: There was a camera we set up in Greenland that we had not been able to get to for an entire year. We found out that it took a few photographs and then it died, and we lost an entire year's worth of the record. In other locations, after we had been shooting for a period of time, a rock would hit a camera or something else would happen to it and the electronics were damaged. We lost the cameras at Glacier National Park for a period of time. Somehow a marmot chewed through a case and the system broke off the wall. We lost maybe a year's worth of photography at that location because of that.

Q: How are the glacier time-lapses useful to scientists?

Dr. Tad Pfeffer: Time-lapse photography of glaciers has been around for many decades but it has always been done on film in the past. The labor involved in putting together and analyzing time lapse sequences was enormous so we never really did anything with the footage except look at the images. Now that we have digital technology we can do much more than that. We can use them to measure motion, thinning rates, and to look at the mechanics of how iceberg calving works. Time-lapses are a very powerful observational tool that we can use to look at glaciers in much greater detail.

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Q: What is next for the Extreme Ice Survey?

James Balog: EIS is going to continue on. We expect to keep these cameras alive more or less indefinitely. We now recognize there is a profound historical obligation to continue to collect this record. When people look back at this 100 years from now, these landscapes will not look like anything we are seeing today. So we want to keep the progressive changes recorded. The cameras are solar powered and are running on their own right now and we hope they will run indefinitely. They currently shoot once during every half hour of daylight. We are also looking at expanding this project into other areas.

We have nine cameras out in the Rocky Mountains right now,

capturing some time-lapses of how the pine beetles are killing off the pine trees. The cameras have been set up all the way down from the San Juans to Wyoming. The destruction of those trees is a function of climate change and don't let anyone tell you differently. That's a climate change story. We are also looking at the dust transport coming out of the Utah desert during big windstorms that are being deposited on the snowfields in the elk range. The San Juans are changing the hydrology of the snow because the dust now on the snowfields is absorbing heat thus making the snow melt faster. So that's what we've had the time and financial capacity to do thus far. The rest of my life could be spent working to shed more light on these issues, and I intend to do that.