GLACIAL BALANCE

Official Selection 30th Festival de Cine de Bogotá

Official Selection One World International Human Rights Documentary Film Festival

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Special Mention Inka Fest Mountain Film Festival

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Official Selection Jeden Svet

Official Selection FICMA International Environmental Film Festival

Official Selection Lucerne International Film Festival 2014

Official Selection Festiver 4° Festival de Cine Verde de Barichara

Official Selection Finca 2° Festival Internacional de Cine Ambiental

A DALTONIC FILMS PRODUCTION OF AN ETHAN STEINMAN FILM "GLACIAL BALANCE"

MUSIC BY MOBY TITLE DESIGN AND ANIMATION DAVID ESTEBAN CREATIVE CONSULTANT ANA CAROLINA VON ESCH

ADDITIONAL PHOTOGRAPHY RICARDO QUINTERO LONDOÑO RYAN VACHON ASSOCIATE PRODUCER JAMES STEPHEN MASTALER

DIRECTED, PRODUCED, PHOTOGRAPHED & EDITED BY ETHAN STEINMAN

GLACIAL BALANCE

Directed, Produced, Photographed & Edited by	**ETHAN STEINMAN**
Associate Producer	**JAMES STEPHEN MASTALER**
Creative Consultant	**ANA CAROLINA VON ESCH**
Title Design and Animation	**DAVID ESTEBAN**
Additional Photography	**RICARDO QUINTERO LONDOÑO** **RYAN VACHON**
Appearing in the Film	**DR. LONNIE G. THOMPSON** **JORGE LUIS CEBALLOS** **MARK CAREY** **BERNARD FRANCOU** **AL GORE** **MAXIME LITT**
Music	**MOBY**

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HDV • Native 16:9 • Dolby Digital 2.0
in Spanish and English with Spanish or English subtitles

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Short Synopsis

Glacial Balance is a journey along the spine of the Andes mountain range, from Colombia to Argentina, getting to know the individuals and lives of those who are first affected by the dwindling tropical glacier reserve, the canaries in the mine. Along the way, we are accompanied by scientists who give us a perspective on what is happening in the natural world and what we can expect. And from that, we learn of the chain reaction effect that these disappearing glaciers are having on us and the rest of the world.

MELTING GLACIERS IN SOUTH AMERICA WILL AFFECT YOU

A journey along the spine of the Andes, discovering the stories of the first victims of the melting tropical glacial reserve and the worldwide chain reaction effects we can expect.

Water and its sources have historically been the key factor in the establishment of cities, of civilizations. Along rivers, seas and downstream of mountain snowmelt, humans have depended on these seemingly endless supplies of water since the dawn of recorded history. But we are at a critical point in the environment and mankind's existence. Farmers are having to adapt to the increasingly more difficult weather patterns. Populations are relocating in a search for potable water and the infrastructure of large cities is becoming overwhelmed by this population influx.

GLACIAL BALANCE takes us from Colombia to Argentina, getting to know those who are the first to be affected by the melting glacial reserve, the canaries in the mine. Along the way, we are accompanied by scientists who give us a perspective on what is happening in the natural world, and from that, we learn of the chain reaction effect these disappearing glaciers are having worldwide. The film offers the viewer an opportunity to hear, in the locals' own words, the human impacts of a climate out of control. From coffee, potato, and quinoa farmers, to fruit and wine exporters, and even miners of sacred glacial ice blocks near the Equator, *GLACIAL BALANCE* offers the viewer a chance to visit some of Earth's most distant, inaccessible, and spectacularly beautiful landscapes.

The film shows a global interconnectedness, causing a human to human connection to the changing world around us. It entertains, teaches and provides a piece to reflect upon, bringing these images and stories of climate change, drought, famine, and migration to the forefront of public consciousness. Ultimately removing the anonymous stigma often associated with the cause and serving as a means to instigate change that depends on every one of us to make.

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For more information about *GLACIAL BALANCE* and to find a screening near you, visit: http://glacialbalance.com

> "*Mountain glacier demise preludes the fate of the great ice sheets on Greenland and Antarctica, if humanity does not come to its senses soon.*
> *Steinman's film wakes us up to the danger by hearing directly from the ones suffering the consequences of society's inaction*."
>
> **James Hansen**
> Fmr. Head, NASA Goddard Institute for Space Studies
> Adjunct Professor, Columbia University Earth Institute

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Reviews

Few things are changing as fast on our home planet as the cryosphere--the frozen portion of the earth's surface, which is melting quickly. And nowhere faster or with more grievous effect than along the Andes, as this piercing film makes clear!

Bill McKibben
Author, Educator, Environmentalist

Although there's been plenty of talk about the Andean glaciers melting fast—and faster than originally projected--this film moves the issue from the realm of a vague concept to a real phenomenon, affecting real people's lives in many ways every day. Glacial Balance not only admirably presents modern glacial science but also balances the science with the social consequences of rapidly melting glaciers in the Andes.

Cindy L. Parker MD, MPH
Bloomberg School of Public Health
Johns Hopkins University

Filmmaker Ethan Steinman's beautifully-filmed and sobering documentary paints a bleak picture of the future for an already struggling people. Tropical glaciers have historically topped the Andes Mountains, running all the way down the western spine of South America. But as Earth's atmosphere warms, those glistening white expanses are shrinking, with immense consequences for farmers who rely on glacial melt for their water; many, if not most, will have no choice but to relocate, most likely to an urban setting. Steinman follows scientists as they collect core samples from the remaining glaciers (to be stored and studied when the ice masses themselves are gone). Interviewees include educators and environmentalists (including Al Gore), as well as men and women working the soil in Colombia, Ecuador, Peru, Bolivia, Chile, and Argentina, who understand what is happening to the climate, even as residents of the Northern Hemisphere debate whether anything significant is occurring at all. A second disc included deleted scenes and extended interviews. As much an anthropological study and geography lesson as a climate-change documentary, this is highly recommended.

F. Gardner
Video Librarian
Mar/Apr 2014 (vol.29, no.2)

Glacial Balance is a captivating film, stunningly beautiful and deeply disturbing. From the glaciers high atop the Andes to the cities in the valleys below, the film takes a close-up and personal look at the lives of local villagers and the work of glaciologists racing to document the disappearance of the Andes snow and ice due to climate change.

Seattle-based filmmaker, Ethan Steinman, documents the heartbreaking decline of agricultural communities in the region, from the livelihoods of small-plot coffee farmers in Colombia to the viability of industrial agriculture in Chile, where farms that feed the world are facing inevitable drought and decline.

As touching as it is haunting, Glacial Balance brings into high relief the uncertainty we face in the wake of climate change. Lives are in the balance as glaciers in South America, and across the planet, slowly melt away, taking with them unique ecosystems, ancient communities, and individual livelihoods, and leaving us to face a most uncertain future.

Steve Hesse
Environmental Columnist, The Japan Times

Baltazar Ushca, the last iceman of Ecuador, climbs Chimborazo higher than he has since he was a boy to collect the ice from the glacier so that he may sell it at the markets below. Glacial Balance is a documentary film that reveals the truth of the Andean Glaciers and the South American communities that are shrinking along with them.

Documentary filmmaker, Ethan Steinman, takes his camera and treks the Andean Glaciers traveling through the countries of Columbia, Peru, Ecuador, Chile, Argentina, and Bolivia. He documents the work of ice core expert, Dr. Lonnie Thompson along with the local communities that are faced with the very real present effects of glacial change, such as the disappearing water supplies, and the conflicts that it causes between communities. Effects that we in America think are either impossible, in the too distant future, or simply inapplicable to us. Glacial Balance educates on such a superior level that after watching it, I was immediately googling how communities could adapt to decreasing water supplies.

If you're like me, you usually don't say or write glaciers and South America in the same sentence. Now, I cannot think of South America without thinking of its glaciers. Glacial Balance leaves you with the sobering thought of what South America will be like without them. On second thought...how will the United States be affected and how would we adapt? Climate change is happening. Glacial Balance challenges us to think ahead and start a dialogue as to what our communities worldwide need to do to adapt to it.

Laura Ballou
DC New Movies Examiner

Through the lens of a documentary we see the impact of climate change on the peoples and countries of South America that rely on the glacier fields of the Andes for their water supply. Taking a country–by–country approach, the filmmakers follow two different sets of individuals in each geographical location. What do we find?

One group they follow includes the farmers who live in a particular area and the impact of the shrinking glaciers on the dominant crop grown there, as well as how that affects the livelihoods of the farmers and their community (e.g. they follow a coffee farmer in Columbia and a wine–maker in Argentina). The other group followed is the team of scientists studying and recording the changes in the glaciers in that same country and how their research is informing public policies at both the community and national levels.

What I especially like about this film is how it documents the day–to–day activities of the farmers and how climate change very directly impacts their everyday lives. You see firsthand how changes in the annual patterns of glacier melt forces people to alter what they plant and the consequent diet they eat (e.g. beans instead of potatoes in Peru because potatoes consume too much water) as well as how these changes impact basic energy consumption in societies that for decades have relied primarily on hydro–electric power production. The science is also well documented and the film is divided into "chapters" with a menu to select country by country. The average attention span of a modern teenager is not going to sit through more than one country's worth of this movie at a given time; being able to pick–and–choose will make it far more likely for a teacher actually to use this very good film in his or her classroom.

David Brock
National Science Teachers Association

Watching ancient fields of ice and snow melt is an arresting sight tinged with sadness. While other impacts of climate change happen at an imperceptible scale or speed, the tragedy of the glaciers stands out as one of the most visible facets of this world wide phenomena. In Glacial Balance, director Ethan Steinman focuses on the Andes mountains, going from Colombia to Argentina, and the viewer experiences not just a first-hand look at the melting glaciers, but also the communities and the people who depend on their water as a means of sustenance and livelihood.

The film starts by explicating the science that connects changes in the global climate and glaciers. As Dr. Lonnie Thompson's research team from the Ohio State University drills for core samples, the audience learns how glaciers grow into massive units that can range in size from that of a football pitch or stretch for over a hundred kilometers. Yet the sheets of hard ice flow gently from higher elevation to low.

The melting glaciers are a loss of history and tradition. A great deal of attention has focused on the environmental effects of melting glaciers: from sea level rise to positive feedback loops such as increased albedo. Less focus has been given to the social aspects. A glacier is more than a field of ice and snow, but is a critical part of a wider system of people, livelihoods, and culture, which has evolved in relation to these imposing features of the landscape. As the film discusses, patterns of human population have followed past glacial oscillations. However, the speed and scope of the current loss threatens to cause a significant disruption for these communities.

The film is primarily narrated by citizens from these frontline communities. This is a strength of the film, and gives voice to the real subjects of the study. Farmers, workers, and even ice collectors lend their viewpoints to the film and provide the audience with a personal connection to the lives that are affected by climate change. The viewer might be surprised to find a significant amount of the film is in Spanish with English subtitles. A focus on the people using their language reinforces the film's sincerity and honesty: two valuable commodities for any documentary.

The central premise of the movie is that impacts from climate change and melting glaciers create a ripple on this socio-ecological system. The film deals with climate change in two ways. First, it does so largely through the lens of how retreating glaciers are impacting the people and communities that depend on them. Second, the film examines specifically how lower precipitation in these areas has further impacts. Both of these issues underscore the shrinking amount of water available in the environment for the plants, animals, and people that dependent on the glaciers. The director highlights these observations by taking the viewer to a wide range of examples that might not commonly be associated with glaciers, including drying moorlands and a hydroelectric power plant.

The speed at which glaciers are melting forces the viewer to take pause. As the film shows, areas that were buried in ice 60 years ago are now dry and support an entirely different ecosystem. The movie uses historical photographs to show the shocking shrinking coverage of the Pastoruri glacier from 2001 to 2009. Far from an isolated incident, this example is indicative of the new 'normal' for these communities, who are scrambling to adapt their traditional ways of life.

As Glacial Balance discusses, climate change is a world-wide phenomena. But, to understand the issue better, the film highlights the micro-climate in different areas. As Jairo Salazar, a coffee farmer, points out, the effects of climate variability are not just global, but have "a local effect." The impacts are not consistent around the world, but vary based on specific locations. Sadly, as the film documents, in most of these locations the result is dryer and less ecologically and economically productive.

People in the developed world may feel that melting glaciers and the changes in these communities are of little consequence. However, as the director shows, these communities are critical linchpins in global production and trade of key commodities, such as coffee or quinoa. Prices everywhere rise as the agricultural potential in these specific areas diminish. Equally important, the land supports fewer people. As many families in the movie discuss, future generations are choosing to migrate to urban centers instead of continuing to farm.

Juxtaposed with these community stories, Glacial Balance also follows scientists doing glacial studies. The microscopic bits of insect and plant material that the researchers find provide a historical climate record for thousands of years. This quantitative data tells the same story as the villagers; the earth's climate is changing at a remarkable speed.

One drawback to the film is that it does not always maintain a strong narrative flow. The non-linear nature of the film does not build from established propositions and lead to a conclusion. The film more clearly resembles an intimate travel-log of a voyage from North to South along the Andes, gaining access to people and viewpoints the average tourist could never find.

This film's balance is scientific and social. As pointed out, ice is fine if it stays one degree below freezing. However, above that point melting can occur rapidly. This threshold is mirrored in the communities that are dependent on these fragile ecosystems. Today, humanity is sliding over the edge of this boundary between stability and rapid change. Reports suggest that in the next few decades, the Andes could lose many of their glaciers. With that melting, these communities and cultures could disappear as well. This timely film warns the viewer that as climate changes, so does humanity.

Scott McKenzie
Global Policy Journal

Director's Statement

My motivation in making this film began as a means of grasping the importance of glaciers in my own life. I was living in Mendoza, Argentina and after receiving several chain letters about a proposed mine in the Andes and its alleged effects on nearby glaciers, I became intrigued. The country went through a process of enacting a glacier protection law, and during that same time I took off on an exploration to understand more about these natural water reserves. The more I learned, I realized how little society is aware of the workings of the natural world and felt that through stories of human impact, an emotional connection can be made to climate change. The film plants the stories and ideas of these individuals' lives in the viewer's mind, not just numbers and graphs, causing a human to human connection to the changing world around us.

"HOW DOES IT AFFECT ME?"

This is the common thought in the minds of people when they hear the climate change debate. They suffer an inability to understand just how things will change, an inability to understand who the people are that will be first affected by this crisis. This chain reaction has already begun and we are seeing the first victims of the glacial decline. I trace a line between the real life stories of these people and show how the effects they are feeling right now will ultimately affect us all through a worldwide chain reaction.

As a society, we have been bombarded with information and movies showing the disastrous effects of this climatic shift, all too often through the use of doomsday scenarios. But the effect will not be so immediately drastic. It will require individuals, corporations and governments to work together and understand how a seemingly simple aspect of human life can be lost within decades... or less. The IPCC projections suggest that by 2020, more than 1.5 billion people worldwide will be experiencing water-stress, including between 7 and 77 million Latin Americans. The potential is great for mass migration, saturation of already overcrowded cities causing conflicts over water supplies, abandonment of entire industries and the loss of imported dependencies from foreign countries. This massive migration will in and of itself put a huge strain upon an already fragile system, thus leading it deeper into problem and despair.

With *GLACIAL BALANCE* my goal was to learn about the interconnectedness of the world and through a cinematographic journey take the viewer along with me. As a result, the film is both entertaining and educational, a chance to see some of Earth's natural beauty and hear firsthand the stories of inhabitants from the other side of the globe. My intention was never preach to the viewer or instruct you on what you should do. It introduces the world to these potential victims and removes the anonymous stigma so often associated with the cause, allowing the viewers to decide what, if any, steps they wish to take.

-Ethan Steinman

Profile: Ethan Steinman

Ethan Steinman launched his career in film and television in 1995. Since then, an array of projects – from independent films to television productions – have sparked the creative focus and technical foundation that the native of St. Louis, Mo. applies today.

Steinman has worked on a series of television specials for **NBC**, **FOX, Discovery Channel** and **Comedy Central**, commercial projects for **Dodge**, **Burger King**, **Capri Sun**, **Mercedes**, **Nike**, **Ford**, **GMC**, **Lennox, Mazda**, **Nissan**, **Pepsi**, **BMW, Asahi**, **Hewlett Packard**, **Novartis**, **Unilever**, **Qatar Telecom, Campari** and **Deutsche Bank**, music videos for the likes of the **Backstreet Boys**, **Black Eyed Peas**, and **Pet Shop Boys** and produced for series' on Discovery Channel, **Discovery Health** and **A&E**.

In 2002, Steinman relocated to Paris, France to broaden his vision and to present himself with new challenges. Exposed to the distinct working method and ethic of his newly adopted culture, Steinman capitalized on the opportunity to meld elements of the French production style with that of his own.

Smitten by Argentina while on vacation, Steinman relocated to Buenos Aires in 2004 and rapidly learned the language, immersing himself in the local production scene for 6+ years. Over the past few years, he has directed the award winning documentary **Tesoros Descartados *(Discarded Treasures)***, documentary programs for **AJE** and **CNN**, and **Glacial Balance**. He is currently working on his next documentary feature **Chroma** as well as a series focusing on the world of glass blowing.

He now resides in Seattle, Wa.

Credits

In memory of Roberto Filippi

DIRECTED, PRODUCED, PHOTOGRAPHED & EDITED BY	Ethan Steinman
ASSOCIATE PRODUCER	James Stephen Mastaler
CREATIVE CONSULTANT	Ana Carolina von Esch
TITLE DESIGN AND ANIMATION	David Esteban
ADDITIONAL PHOTOGRAPHY	Ricardo Quintero Londoño Ryan Vachon
MUSIC WRITTEN AND PERFORMED BY	Moby "Morning Span" "Ana" "Drug Police" "Under" "Go Awry" Courtesy of Moby Gratis Music
SOUND EFFECTS	Jarmo Siimento
APPEARING IN THE FILM	Agustin Charco Lluay Al Gore Alejandra Nicolasa Alvaro Bermeo Américo Serrano Baltazar Ushca Balthazar Paza Bernard Francou Brad Goodwin Carlos Arellano Carlos Trujillo Cecilia Condori Mollo César Portocarrero Elizabeth Ospina Felix Vicencio Felix Vino Loli German Torres Gladys Acán Hernan Soto Hilario Hurtado Humberto Cuamanshi

Jaime Lliuya Reyes
Jaime Villanueva
Jairo Salazar
Jeff Sandifort
Jorge Luis Ceballos
Koky Castañeda
Jose Paca
Juan Moromenacho
Juan Pablo Vicuña
Keith Mountain
Leonardo Proverbio
Lonnie Thompson
Luciano Bernacci
Lucio Sicas
Luis Arias
Marcos Villacis
Maria Caceres Ortiz
Maria Victoria Tenenaula
Marina Espinosa Huerta
Marisa Acán
Mark Carey
Maxime Litt
Melchor Sicas
Nanci Condori Mollo
Néstor Riaño
Oscar Paz
Pablo Sottano
Paolo Gabrielli
Ricardo Lozano
Roberto Filippi
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Ice crisis: How disappearing glaciers devastate communities [VIDEO]

by Claire Thompson 27 Jul 2011 7:00 AM

When we describe something as moving at a glacial pace, we usually mean it progresses so slowly it's imperceptible. Glaciers appear as permanent and unchanging as the mountains they cling to, so glacial recession brought on by rising global temperatures feels abstract, distant. But the people of the Andes feel glacial movement each season, and it already affects their lives in swift and devastating ways -- depleting local water supplies, sending people packing for the big city, and damaging cultural traditions that for centuries have depended on those seemingly permanent rivers of ice.

As the glaciers disappear, so too will traditional ways of life that depend on them.

Photo: Ana Carolina von Esch

Glacial Balance, a documentary in the works by director Ethan Steinman, looks at the human toll taken by the glaciers' disappearance. "I was more interested in people's stories and how this was affecting them," Steinman says. He mentions a village in the south of Bolivia where the Uru Chipaya -- "water people" according to legend, and one of the oldest civilizations in the Andes -- are watching their younger generations flee to the cities now that the stream which served as the town's water supply has dried up. "There's no future for them there," Steinman says. He pointed out a man in a baseball cap in the film's trailer and explained that he and his fellow Uru Chipaya can no longer wear their traditional clothing because their animals are too sick to produce enough wool.

"It's affecting basic survival," Steinman said. "It's causing life to be more difficult on a day-to-day basis. People from smaller communities can't get by anymore, so they're going into cities, and they put a strain on the system because the cities aren't set up for this huge influx of people."

Steinman hopes to show that the crises caused by disappearing glaciers already have a human face. Images of swimming polar bears elicit distress, especially from animal lovers, but human suffering is empathetic on a more mass scale. "I know people who are interested in climate change and activism and I think we'll be able to reach that public, but I want to reach other people who wouldn't necessarily consider this something important in their lives," he said.

In August, Steinman heads to Ecuador and Colombia to see how the affects of glacial recession are playing out in those countries. Check out the trailer for *Glacial Balance* below:

Inspired? Incensed? Consider lending your support to Steinman's project.

Claire Thompson is an editorial intern at Grist. She is a recent graduate of Northwestern University's Medill School of Journalism.

Interview with “Glacial Balance” Filmmaker Ethan Steinman

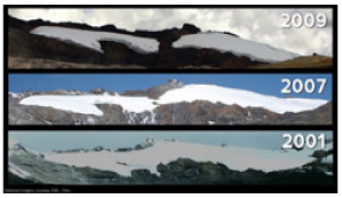
June 14, 2012 - 12:00am — Kristen Stanton

Part science documentary, part humanitarian expose´ and part adventure flick, “Glacial Balance” profiles the work of ice core expert Dr. Lonnie Thompson and the plight of local people who are dependent on the Andean glaciers.

Filmmaker Ethan Steinman set out to make a documentary about the people living in the Andes who depend on the mountain glaciers for their water supply, and how threats to those glaciers from mining and climate change are impacting their lives. In the process, he met researchers in the field whose work on ice cores opened a whole new world of understanding, expanding the scope of his film. “Glacial Balance” tells the oral history of a people and culture under siege and the story of scientists dedicated to preserving a history of the Earth that only the ice can tell.

Dr. Lonnie G. Thompson atop Hualcán Glacier, Peru

The film takes its viewers on a journey along the Andes Mountains to the Hualcán Glacier in Huascaran National Park, Huarez, Peru. On the Hualcán Glacier, Paleoclimatologist Lonnie G. Thompson, an expert on ice cores and a distinguished professor at Ohio State University, and a Picarro customer, along with a dedicated team of fellow researchers, is taking ice core samples to measure the effects of climate change and create an archive of core samples for future generations.



Pastoruri Glacier's visible decline over the past decade

I had the privilege of sitting down with Mr. Steinman to discuss his inspiration for making this film and how it evolved.

Be sure to visit the **Glacial Balance website** to learn more about the film and view the riveting footage of Dr. Thompson and his team in the field. If you are interested in supporting this film’s production and finishing costs (music licensing, final sound mix, design, and color correction) before its public release, please send an email to info@glacialbalance.com.

Scaling a glacier on the Antisana Volcano, Ecuador. Photo courtesy Bernard Francou

Kristen Stanton (KS): Thanks for taking the time to talk with us, Ethan. Let’s start with how the idea for “Glacial Balance” originated.

Ethan Steinman (ES): I was living in Argentina when the country was on the verge of passing a historic glacier protection law back in 2009. There were political issues with the law that ended up delaying it. The ongoing debate was about a gold mine in the Andes, between the Chilean/Argentine border, that could potentially have negative impacts on glaciers above the mine. A story I read (later confirmed by an Argentine glaciologist) talked about a mining company’s suggestion on how to avoid a negative impact on three glaciers in the area. The idea was to airlift the glaciers and put them on another mountain! Even to my extremely limited knowledge of glaciers at the time, this idea sounded unfeasible at best, but I was intrigued by the subject of glaciers, and realized my own lack of knowledge of them at the time. As my interest in glaciers grew, so did the scope of the film.

Inside the Hualcán drill tent. Left to right: Ryan Vachon, Paolo Gabrielli, Americo Serrano, Lonnie G. Thompson, Roberto Filippi

KS: Airlifting the glaciers to another location, eh? That sounds like a bad idea whose time should never come! So it was this process of educating yourself that led you to the work of these scientists?

ES: My initial idea for the film was to focus on the stories of the people along the Andes who depend on the melt water from these glaciers. To me, climate change was always a general term, never really having a human connection. Naturally, for knowledge about what was happening to their water supplies I turned to studies done by the scientists who have dedicated their lives to the analysis of these ice deposits. As we began filming, I saw how intertwined the scientists’ stories became with the locals as they carried out their research, and it seemed only natural to me that in the film, the

scientists' story should be interwoven with the stories of the Andean citizens.

KS: How did learning about the science affect your perceptions about climate change?

ES: I have learned so much about climate change that I hadn't understood before the production, but I've found that (for a layman) learning about the process of analysis and how these scientists look at the samples they pull from the glaciers, I am better equipped to explain to deniers and even climate change activists the basic mechanics of how precise the science is that goes into studying our planet's history, which is literally entombed in the ice. In addition, the great wealth of information that is (for now) sitting within the ice made me realize how essential prompt scientific funding is – so these glaciers can be studied sooner, rather than later - or never, as they melt away.

Porters carrying ice cores down from Hualcán, later to be transported to freezer trucks

KS: In the film, Dr. Thompson talks about the impacts that the people living in the region will experience as these glaciers disappear, as well as the repercussions to the larger global population. He mentions that 76% of Peru's power comes from hydro-electricity, powered by these glaciers, which creates a negative feedback loop – the glaciers melt, so Peruvians lose their ability to generate hydro-electric power, thus depending more on fuel burning, which increases global warming, and so on.

"Naturally, scientists are the key to understanding this and finding those whose goal is information retrieval and making that information accessible to laypeople such as myself is my own way of trying to make their work more accessible, and meaningful, to the general public."

- Ethan Steinman

ES: Unfortunately it's true. The film began on a much smaller scope with my own exploration into the importance of glaciers. As I learned more, the focus of the film became broader as I learned just how interconnected the world is, and what the repercussions may be as a result of climate change. For example, the IPCC's projections suggest that by the 2020s, between 7 and 77 million people in Latin America alone will experience water-stress. This means forced migration from rural areas with no water supplies into larger cities. Right now, cities like La Paz and El Alto in Bolivia are facing the stress of this as their existing water supply isn't enough to sustain the base population, much less the influx of climate refugees. So more strain is put on the already fragile system, which has the potential for even further migration from even more densely populated areas. So at what point will this trend stop?

Filmmaker Ethan Steinman films a small avalanche from base camp on the way up to the Hualcán Glacier

KS: This is what it is critical for people to understand – that scientists studying these simple molecules in the ice are telling us how, on a humanitarian level, our world will change. The footage in "Glacial Balance" is incredibly dramatic because of the location. What were some of your biggest challenges in making the film?

ES: Temperature wasn't that big a factor as I'm from the Midwestern U.S. and somewhat used to cold weather. For example, on top of Hualcán, I think the temperatures only got down to about 13°C (8°F) at night and were hovering right around freezing during the day. Without a doubt, the biggest factor was elevation. I'm not a mountain climber by any stretch of the imagination and Hualcán was my first ascent. As I was initially in touch with Lonnie (Thompson) while he and his team were between climbs, I was in a rush to get there before they finished their drilling, so the time I went from sea level up to 5,400 meters above sea level (masl) - approximately ~17,700 feet above sea level (fasl) - was around four or five days. Going from sea level up to the altitude of Huaraz (3,050 masl / 10,000 fasl) was strenuous in and of itself. Acclimatization and some practice trekking along with Lonnie's long-time guide, Felix Vicencio, helped the transition quite a bit. But a couple days later, when we made our two-day trek from Huaraz up to the top of Hualcán, I could never have imagined the strain the increasing altitude could have on every aspect of my mind and body. You get to a point where every movement, every decision has to be methodically planned out as the simplest tasks are exhausting.

KS: That is definitely a lot to put your body through in a short amount of time. A fourteener (14,000 fasl peak) is a source of bragging rights for climbers, so working at nearly 18,000 ft. is inconceivable for most mortals. This really underscores the dedication and effort put forth by these scientists in doing this kind of work. I liken it to journalists working in a war zone – without scientists like Dr. Thompson and his team, and filmmakers like you, who are taking risks to tell us the true story and give us real data, we would otherwise be totally ignorant about what's actually going on. What were the most rewarding aspects of making "Glacial Balance" for you?

ES: For me, I always find it most rewarding when I travel to a small village and have the opportunity to document the way of living, of thinking, learning the history of another culture and understanding who they are as people. I feel a sense of joy coming from many of those I talk to simply by visiting them, showing genuine interest in their lives, their thoughts, and their opinions. They express their appreciation for giving them the opportunity to speak to the world and show their way of life, telling the stories that have been passed down from generation to generation. It's rewarding to hear them express their thoughts on what is happening to the world around them.

KS: What would you ideally like to see this film accomplish?

ES: Ideally, I would love for the film to be used as a tool to show climate change deniers the brass tacks of how comprehensive the scientific study method is and, at the same time, use the emotional stories of the Andean population as a way of humanizing the effects that climate change is already having in the world around us. I'm a pessimist, so naturally I don't expect hardcore deniers to necessarily accept these facts as proof. However, if "Glacial Balance" is able to serve as a tool to scientists, schools, and others to provide a better understanding of glaciers and their importance in our lives, I'll feel the film has been a success. In addition, knowing that I have been able to help give a voice to communities otherwise hidden from the world stage, I'll be pleased; all the while giving the public a glimpse into some hard-to-access regions of our planet.

KS: What are your next projects and do you plan to continue profiling scientists like this in the field?

ES: As I'm finishing editing "Glacial Balance", I'm gearing up to begin filming what I'm tentatively calling "Induction", which will be a look into the world of electromagnetics. In it, we'll be trying to understand how geomagnetic forces play a role in our lives and what, if any, effects manmade electromagnetics are having on our day-to-day existence (for better and/or worse.) Kind of an investigation into the EM debate, dispelling myths and looking at what the scientific data are telling us.

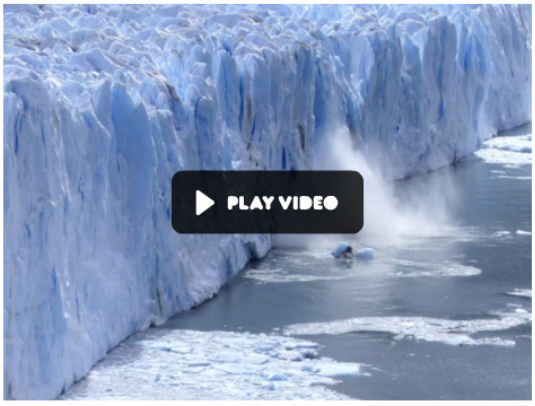
I don't have a background in science, but my films always tend to lean towards the scientific and/or anthropologic realm. I really go with my gut, what subjects interest me and can hold my interest for the two or three years that the whole production process entails. I feel like I'm using my camera as a means to understand myself as an individual, my place in the world, some of the underlying motivations and aspirations of modern-day man, and trying to learn what is happening on a larger scale in the world around me. Naturally, scientists are the key to understanding this and finding those whose goal is information retrieval and making that information accessible to laypeople such as myself is my own way of trying to make their work more accessible and meaningful to the general public.

Please visit **GlacialBalance.com** to learn more.

SCIENCE + TECHNOLOGY

Glacial Balance: Film to Reveal Climate Impacts on Andean Glaciers

by Brian Merchant, Brooklyn, New York on 07.27.11
SCIENCE & TECHNOLOGY



Glacial Balance - a documentary film by Ethan Steinman

Glacial Balance is a proposed documentary film project about the effects that the warming climate is having on the once-mighty glaciers in the Andes. Featuring talking head interviews with the likes of Al Gore, as well as ample footage of the beautiful Andean landscape, the film will trace the impacts back to the myriad communities who depend on those glaciers for water.

If you like the looks of it, head over to Kickstarter and help the movie get made.