



Chasing Ice

Film Screening Followed by a Panel Discussion

Friday, November 2nd, 2012 – 10 a.m.

Martin Luther King Performing Arts Center, Charlottesville High School

The debate over climate change exposes American passions about climate science. Many Americans are disgusted by political stubbornness, and wonder what personal difference they can make to change what most scientists see as dramatic disruptive changes in sea level, weather extremes, sensitive bio-systems and economic systems. Through the educational efforts of environmentalists, many citizens are now committed to conservation: reduce, reuse and recycle. Is this enough to effect change? One photographer, James Balog, decided to help using the tool he knew best - his camera lens - to document the science behind climate change in the Arctic. Balog, initially a climate change skeptic, first traveled to the Arctic on assignment for *National Geographic*. Witnessing the changing landscapes of the glaciers and ice, he decided to change his career and mindset - his new mission was to document the story of the ice. To do so, Balog created the Extreme Ice Survey, a team of photographers and engineers dedicated to capturing indisputable evidence of the changing Arctic landscape. The film *Chasing Ice* documents Balog's commitment to completing a daunting project and providing visual proof of a changing environment to his fellow citizens - proof reinforced by the release of recent scientific measurements that catalogue 2012's Arctic ice cap melt as the most extensive in recorded history. This film offers insight into the debate over global warming and shows the excitement of science in a new and fresh way.

***Chasing Ice* is a springboard for study of the sciences, economics, politics, geography, sociology, research, engineering, photography, practical problem solving and the arts of storytelling and documentary filmmaking.**

Consider the following:

Fact/theory: What is a theory? What is the scientific definition of theory? Is climate change a theory? A hypothesis? A fact? An opinion? What evidence best supports one's position? Is more information needed? What further evidence would be helpful to the debate?

Man's interaction with the environment: Think about what you do in any two hours. What are some examples of how you interact with the environment? Is climate change a natural phenomenon or a result of man's interaction with the environment? Again, what evidence supports your answer?

Scientific research: How did Balog define the scope of his project? What steps did he take to compile his team? What was the project's hypothesis? How did the team document and analyze

their research? How did the team present their findings and conclusion? How did the project evolve and change over the years? How and why did Balog's understanding of the environment evolve from his initial skepticism?

Project leadership/management: How did Balog shape his team as a leader? What characteristics did he have to be an effective team leader? How did his passion for EIS show in his work? Did he ever make mistakes or lead in an ineffective way? What were some of the challenges or difficulties that the team faced? How did Balog guide the team through those challenges? How did he convey his project vision to the team?

Technology: How did technology contribute to the fulfillment of Balog's mission? How did it pose challenges? The EIS engineers solved everything from camera computer malfunctions to securing the camera tripods to safely carrying the equipment on ice. Is this what you picture when you think of an engineer's job?

Ecosystems and changing earth's chemical composition: Methane, a powerful greenhouse gas, occurs naturally in the atmosphere in very small concentrations. What is predicted to happen when permafrost, which contains trapped methane, melts? Carbon dioxide, the most common greenhouse gas, is released into the atmosphere through burning fossil fuels and naturally as a by-product of life and decay. One quarter of atmospheric carbon dioxide is eventually absorbed by the ocean. How can this absorption change the chemical composition of the ocean? Will increased acidity have an effect on sea creatures? Many sea dwellers, including coral, have carbonate-based shells that dissolve in acidic solutions. What is predicted to happen to the coral ecosystem as pH levels lower?

Cycles and positive feedback loops: What is a cycle? What is a positive feedback loop? What positive feedback loops are in play in ice melt? How does the reflective nature of open water, exposed earth, and ice affect the temperature of the earth? What happens to energy from the sun when sea ice melts? What is predicted to happen to atmospheric temperature as polar ice caps and permafrost melt?

Extreme weather: Climate and weather are not the same. How do scientists define the differences? Can an individual weather event, such as a hurricane, be blamed on climate change? Can the intensity and frequency of extreme weather events be attributed to climate change? What are some recent weather disasters that you can remember? How did those extreme events affect the US? How did they affect your family? Is the earth experiencing more weather extremes, such as floods, storms, tornadoes, and droughts? What factors contribute to extreme weather? What is atmospheric carbon and how does it contribute to weather extremes?

Politics: Is climate change a current issue in US politics? What positions do different political parties take in the debate? Have those positions changed over the past decade? What is the challenge for politicians who take a position on the topic? Do Americans care about climate change?

Economics: What is the economic impact of climate change? Consider job loss, job creation, consumer spending, insurance, and education. Does climate change have a positive effect on our economy? Negative? What industries and companies may profit or be harmed the most by climate change?

Industrial Revolution: Has the earth's climate always been changing? What is an example of a period of natural climate change? Why is the Industrial Revolution considered the start of man-made climate change? How have carbon emissions changed since the Industrial Revolution? What efforts are underway to curb carbon emissions? Is curbing carbon emissions important? Why or why not?

Merging of science and art: Balog began his career as a photographer and is now a scientist who represented NASA at a global climate conference. How has Balog effectively used his artistic eye to present science to the public? How is his background as an artist different from other scientists?

Primary sources: What primary sources are used in the film? Are primary sources effective in telling the story? Why or why not? How would the film be different if no primary sources had been used? Is the use of primary sources important to documenting research? Why or why not?

Storytelling: How does the filmmaker organize the film for the viewer? Is this effective? Are viewers able to understand the film even if they have little prior knowledge of the science? Does the science fit into the story well? Why or why not? Are there parts of the story that are difficult to understand? If so, how could those parts be changed to communicate with the audience more effectively?

Documentary filmmaking: What are the different types of films? What are the traits of documentary films? In what ways is *Chasing Ice* like/unlike other documentary films you have seen? How does a filmmaker decide what style of film best suits the purpose? Can a documentary be unbiased?

Filmmaking techniques: How does director Jeff Orlowski's deliberate filmmaking affect the tone of the movie? How is Balog portrayed - crazy activist, informed scientist, or something in between? What effect do interviews with Balog's family have on the film? What effects do the hand-held shots have on telling the story? What effect do Balog's final lecture and speeches have on the story's end?

Film as a vehicle for change: Is this a controversial film? Is this a political film? Should filmmakers produce films that are controversial or politically charged? Why or why not? Is this film important in shaping our thinking about the environment? Does the film's director have a message goal or want us to think a certain way about the project? Did *Chasing Ice* change or inform your opinion on an aspect of climate change?

The Virginia Film Festival's Community Outreach & Education Program is supported by The Academy of Motion Picture Arts and Sciences and the Charlottesville Area Community Foundation's Community Endowment.

The Virginia Film Festival

617 West Main Street | PO Box 400869 | Charlottesville, VA 22904 | 434-982-5560

www.virginiafilmfestival.org

Teaching Resources for *Chasing Ice*

Virginia Film Festival School Screening 2012

Background Information:

- <http://www.sierraclub.org/arctic/>: information on Arctic habitats, melting polar caps and prevention goals, produced by the Sierra Club
- <http://www.epa.gov/climatechange/students/index.html>: student guide to climate change, produced by the EPA
- http://www.extremeicesurvey.org/index.php/education_toc/: information on glaciers and climate change topics published by the Extreme Ice Survey
- <http://www.chasingice.com/science/top-10-questions/>: information about the scientific research shown in *Chasing Ice* published by the movie website
- http://filmguide.sundance.org/film/120051/chasing_ice: film guide to *Chasing Ice*, published by Sundance Film Festival
- <http://www.variety.com/review/VE1117946941/>: critical review of *Chasing Ice*, published by Variety

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