



## Climate Insights 101 Questions and Discussion Points Module 1, Lesson 3: Observable Changes

Available at <http://pics.uvic.ca/education/climate-insights-101>

### 1. Impact of the Media on Presenting Climate Change Information

#### Questions:

How do “short-term changes in weather patterns” and “long-term changes in climate” confuse people when they are uncertain about the fact of global warming, or when some use the former as “proof” against global warming? (Ref. slide 3)

Explain what this phrase means: “variability at the regional scale” as it applies to people who think that global warming isn’t happening because of an unseasonably cool month in their province. (Ref. slide 3)

On what basis do some people claim that global warming has stopped? (Ref. slide 5)

What is “cherry picking”? Give an example of how it applies to climate change. (Ref. slide 5)

How much has global temperature risen over the last 130 years? (Ref. slide 6)

According to the World Meteorological Organization, what is the minimum number of years of recorded data needed to establish a “climate trend”? (Ref. slide 5)

#### For Discussion:

We are all influenced by the mass media and also by what we find on the Internet. Have you been confused by conflicting opinions? Is this the reason for such a variety of opinions about global warming among the general public? Discuss. (Ref. slide 3)

Think about where you get most of your information about climate change. Have you wondered whom to believe? Have you thought about the sources of this information? Checking a writer’s sources gives important clues as to the credibility of the writer and what she or he is saying. Find a recent article on some aspect of climate change – from a magazine or newspaper – and analyze it to see if the writer cites any sources for claims made or issues argued. Make a list of points and references and discuss. (Ref. slide 3)

What steps could be taken to help get accurate, scientifically proven information disseminated more effectively to the general public? Discuss.

## **2. Alpine Glaciers**

### **Questions:**

Is the occurrence of shrinking alpine glaciers a regional or a global phenomenon? (Ref. slide 7)

How many glaciers were studied in BC to determine changes in their surface area in recent decades and what was learned from this? (Ref. slide 7)

## **3. Arctic Sea Ice**

### **Questions:**

How long have scientists been tracking sea ice changes and in what year prior to 2012 did the Arctic Ocean summer sea ice cover reach its lowest extent? (Ref. slide 8)

What happened in the Northwest Passage in Sept. 2010? Do you think this might have helped the researchers currently studying the Franklin expedition? How?

On the positive side, this meant that ships could sail from the Atlantic to the Pacific through the Northwest Passage – but what is the downside of this loss of ice?

What are two other changes in the north that offer more evidence of climate change? Hint: one has to do with snow lines and the other with permafrost. (Ref. slide 17)

## **4. Ocean Heat**

### **Questions:**

What is a “joule” and how is it used? (Ref. slide 9)

What are ARGO floats and what kind of data do they collect in the ocean? (Ref. slide 9)

How are satellites used in conjunction with the floats? (Ref. slide 9)

## **5. Sea Level**

### **Questions:**

What are the two main contributors that are causing sea levels to rise?

### **For Discussion:**

Coastal cities, large and small, are under threat from sea level rise. Choose three cities or towns in BC that are on the coast and consider how life could change for each with increasing sea level rise. Discuss what kinds of planning and preparatory issues need to be addressed for these places, their residents and businesses. (Ref. slide 15 and 16)

## **6. Carbonic Acid**

### **Questions:**

What is carbonate ion and how is it used by some ocean creatures? (Ref. slide 18)

When CO<sub>2</sub> dissolves in the sea it reacts with water to form what new substance? (Ref. slide 18)

What is the impact of human-induced CO<sub>2</sub> into the sea? (Ref. slide 18)

How long have scientists been measuring this change? (Ref. slide 18)

What has been studied at Station Aloha since 1988 and what have scientists discovered over these years of collecting data? (Ref. slide 19)

### **For Discussion:**

A declining carbonate content in the oceans has huge implications for the future of, among other things, some of the seafood we now enjoy. Discuss why. (Ref. slide 19)

Climate change is described as a “rate-of-change” problem, because the rate of all the documented climatic changes is unprecedented in history. The clear message is that we need to slow down the rate at which we are forcing changes. But we live in an economic system based on growth and some countries, like China, are industrializing at an extraordinary rate. North America now relies on China’s factories to make many of the goods we buy. How do we get out of this dilemma – or – at least make realistic economic changes while both keeping economies healthy and slowing the rate of climate change? Discuss. (Ref. slide 21)