

“Business as Usual or Alternative Strategies”

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ABSTRACT

An article I found recently at the national oceanic and atmospheric administration (NOAA) central library contained an intriguing possibility that inspired this poster. The article by Lesley Duxbury was “a change in the climate: new interpretations and perceptions of climate change through artistic interventions and representations.” The author expresses the idea that the general population has difficulty interpreting vast quantities of scientific data and statistics and that other methods should be used to educate the public about climate change. The idea of merging science with art to catch peoples’ attention more forcefully regarding the issue of climate change was of immediate interest to me. Before retiring from NOAA in May of 2010, I was a physical scientist working for the NOAA cooperative institute for climate studies (CICS) and had helped develop an operational satellite-derived snow and ice mapping system (IMS). Since retiring, I have devoted much of my time to acrylic painting with subject areas ranging from the tiniest insects to large architectural monuments. Using my art to convey critical messages about climate change is the perfect combination of my interests and I plan to continue in this direction with my painting. I modeled many of my paintings on NOAA and national aeronautics administration (NASA) images obtained from the internet.

INTRODUCTION

The first time I read the article by Lesley Duxbury, “A Change in the Climate: New Interpretations and Perceptions of Climate Change through Artistic Interventions and Representations,” I knew that I had the opportunity to do something meaningful for Earth’s environment ... to convey the importance of taking care of our planet.

The idea that the reading public is unable to understand the enormous amount of information presented by scientists makes sense and that an alternative means to achieve the goal of reducing human’s negative impact on the globe through art was an inspiration for me.

I switched positions in 1992 from artificial intelligence to physical science because I wanted to ‘make a difference’ within my government career and help the public. I was very fortunate to work for the National Oceanic and Atmospheric Administration (NOAA) in development of an operational satellite-derived snow and ice mapping system (IMS) that is used by the National Weather Service to track the northern hemisphere snow cover on a daily basis. I was also involved in the implementation of a program to alert the public about hazardous events. Both of these tools can provide valuable information to scientists for demonstrating and interpreting the effects of climate change.

I have spent my time creating art and paraphrasing other scientist’s work that explains the problems we are seeing in our environment. This is what I tried to show in my poster at the Eastern Snow Conference (ESC). Communicating with people, through art, the need to stop “business as usual” is one of the best ways I can achieve my goal of helping people understand what we’re doing to the climate of our planet. I will continue to use NOAA and the National

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Aeronautics Administration (NASA) images to highlight my message in the medium of communication which Lesley Duxbury has shown me how to use - art.

The remainder of my paper is an explanation of each of the paintings I created, along with the original source of inspiration for each piece and the reasons I chose it. This is not a technical, scientific paper but rather an example of how we can express technical information to those outside the scientific arena.

PAINTINGS BASED ON SPECIFIC NOAA/NASA DATA

One of the significant messages NASA was compelled to tell in July 2000, was there was less snowfall in the United States. NASA uses the Moderate Resolution Imaging Spectroradiometer (MODIS) onboard Terra to monitor snow. What they showed was a measurable amount of less snow cover in the western states in the spring than usual. "The winter of 1999-2000 brought relatively little snow cover to parts of the North American continent, and the snow melted early as compared to normal years. Low snow cover can result in drier soil conditions, affect crop production, and lead to wildfires," said Dr. Dorothy K. Hall of NASA's Goddard Space Flight Center ("A Lot Less Snow", 2011).

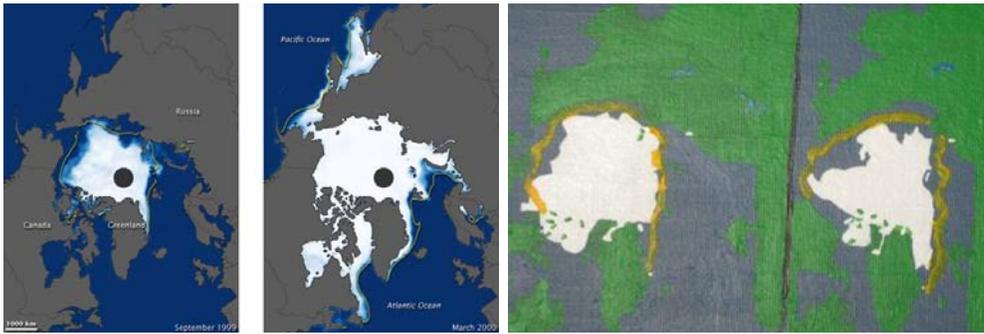
I've worked with Dr. Dorothy Hall, NASA, since I started at NOAA in 1992. My goal in using this image from NASA is to highlight some of the problems our meteorological monitoring tools tell us we have, if we listen closely.

Figure 1 shows the North American snow cover from NASA's *Science News* that tells a story of the Terra satellites remote sensing during the winter of 1999 and 2000, seeing less snow than it had seen before over North America. The average March snow line is red; the average February snow line is yellow. The recent snow cover, shown in white is appreciable farther North than the yellow or red lines ("A Lot Less Snow", 2011).



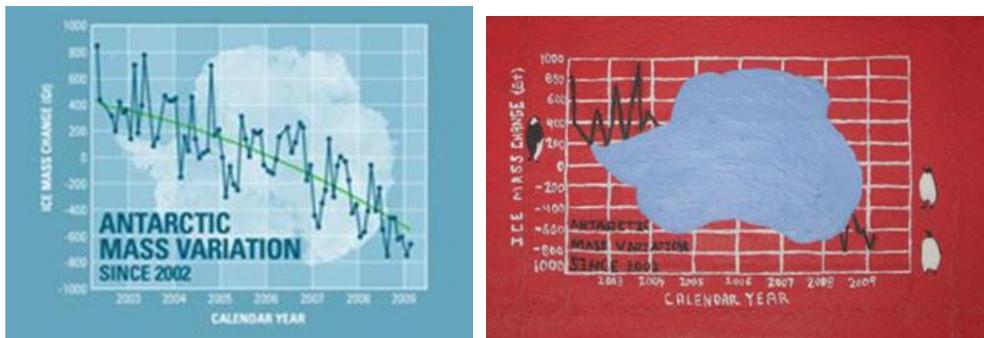
Figures 1 and 2. NASA's North American snow image and corresponding painting

NASA's Earth Observatory compared the Arctic sea ice at its minimum in September and its maximum in March, shown in Figure 3. The yellow line marked on the sea ice maps indicated the average or median value of the sea ice extent. The Arctic sea ice extent, the white areas, has shown a decline during the satellite record, 1978 to the present and the rate of decline is accelerating in the 21st century ("Arctic Sea Ice," 2011). The Arctic is critical for many land and sea borne organisms.



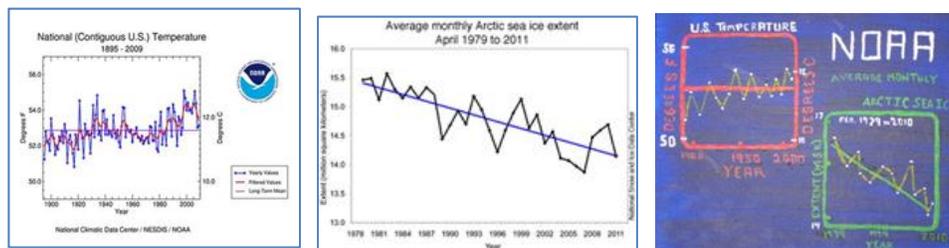
Figures 3 and 4. The North Pole and sea ice extent.

The Antarctic mass variation has changed a measureable amount since 2002, as shown in Figure 5. “Gravity data collected from space using NASA’s Grace Satellite show that Antarctica has been losing more than 100 cubic kilometers (km³)... of ice each year since 2000.” (“Is Antarctica Melting?” 2010). The painting on the right, Figure 6, shows the loss of more than 100 km³, with some of the true losses illustrated around the edge of the graph.



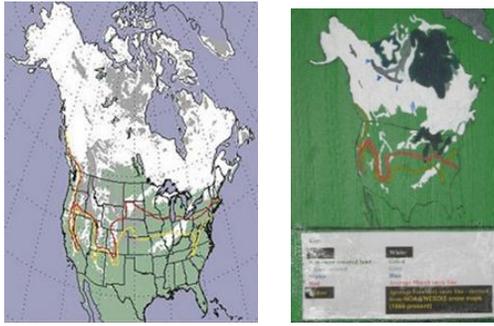
Figures 5 and 6. Antarctic mass variation since 2002.

The International Climate and Environmental Change Assessment Project (ICECAP), has assembled a long-term climate record for the surface temperature of the contiguous United States from 1895 to 2008. The graph in Figure 7 shows the increase in surface temperature over the U.S. for over 100 years. The chart in Figure 8 shows the decline of 2.6% per decade of the Average monthly Arctic sea ice extent from 1979 to 2011. My painting, Figure 9 merges one graph showing the increase in surface temperature over the U.S. for over 100 years with a graph showing the decline of the average monthly Arctic sea ice extent by 2.6% per decade to visually associate the two phenomena (*National Snow and Ice Data Center, 2011*).



Figures 7, 8 and 9. U.S. surface temperatures and monthly Arctic sea ice extent.

Another rendition (Figure 11) of NASA’s report for the winter from 1999 to 2000, on the decrease of snow cover over North America, includes the key for the original image. In the original image, snow is white, non-snow covered land is green, cloud covered is grey, and water is blue. Red is the average March snow line, and yellow is the average February snow line – “derived from NOAA/NESDIS snow maps from 1966 to the present” (“A Lot Less Snow”, 2011).



Figures 10 and 11. NASA's image of the winter of 1999 to 2000 vs. climate history

CLIMATE CHANGE?

This series of paintings in my poster does not directly depict scientific data but shows some ideas I derived from current events and general scientific discussions. They are an attempt to inspire the public to change their behavior and activities to slow the progress of global warming.

I used my own bicycle and automobile as the models for this painting (Figure 14). We can use up resources and emit pollution or pollute less and get ourselves in shape!



Figure 12, 13 and 14. Juxtaposition of harmful and helpful environments.

Figures 15 (C01.html) and 16 (solarpanel_bp.jpg) were captured to provide live examples of our energy choices. My painting, Figure 17, shows the juxtaposition of harmful and helpful environments and that there are alternatives to “business as usual” when it comes to energy.



Figures 15, 16 and 17. Alternative energy choices.

The image of the R.M.S Titanic running into an iceberg is familiar to many people. These images, Figures 18 and 19, were obtained from Wikipedia.org and show the RMS Titanic and the possible appearance of the icebergs the Titanic struck on the 14th of April in 1912. The iceberg's relative size with respect to the R.M.S. Titanic in the ‘THEN’ image of my painting in Figure 20 is approximately correct. I depicted the event at two different periods of time: on the cataclysmic day of the 14th of April in 1912 and 99 years later. If the R.M.S. Titanic were sailing today, her route across the North Atlantic may have been free of perilous sea ice.



Figures 18, 19 and 20: “Then and Now” sea ice extent.

For my final painting, Figure 21, I was inspired by Bill McKibben’s article “See no climate change” in the Washington Post, May 24, 2011. McKibben points out that while singular weather events are not necessarily connected to climate change, the number of recent record fires, floods, snow storms and tornados across the globe cannot be dismissed. While some believe humans can adapt to changes in temperature over time, McKibben points out this theory is little consolation to the victims of these types of natural disasters. Drought induced forest fires, tornado damage, smoke stacks billowing particulates and a rising sea level may all be harbingers of climate change (McKibben, 2011).

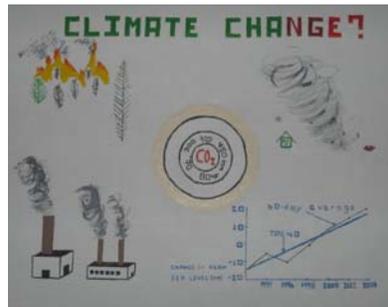


Figure 21. Current natural disasters—coincidence?

CONCLUSION

I am a survivor of a Traumatic Brain Injury, experiencing my injury in June 2004. I was working for NOAA when I had my accident. I was able to go back to work after a lot of rehabilitation but I finally realized that I couldn’t do my job any longer as a physical scientist, so I retired. I confess that I still miss those days when I was helping develop an operational satellite-derived snow and ice mapping system. So I thought I would try and keep my hand in the scientific environment and continue to investigate snow and climate change, just from a slightly different perspective.

REFERENCES

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