ARCTIC SEA ICE DATA – PRESENTING THE EVIDENCE

The Arctic Survey's measurements will allow us to better characterise the current state of the Arctic sea ice cover and predict its declining trend.

The Arctic sea ice extent is the area of the Arctic that is covered by at least 15% of sea ice, including areas of the Arctic ocean completely covered by ice, and those that are only partially covered.

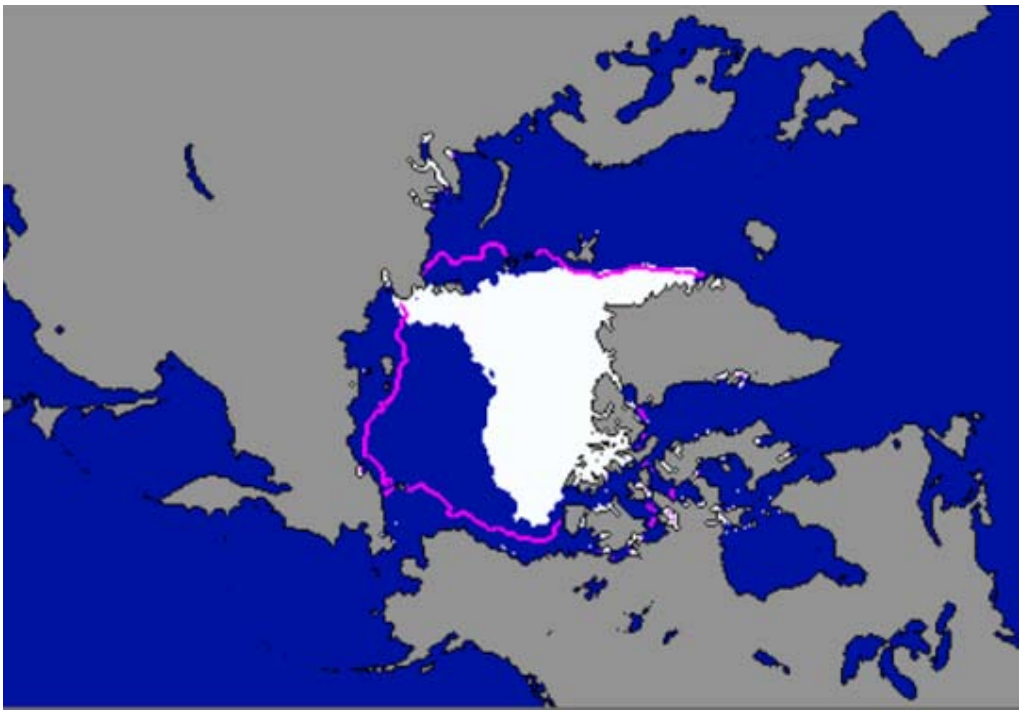

Image courtesy National Snow and Ice Data Center

Sea ice extent in September 2007. The pink line indicates the average extent over the years 1979 to 2000.

Question 1: **While you are having breakfast one morning you notice that both your newspapers are running leading articles on the decrease in Artic sea ice extent. *The Daily Panic* headline screams:**

"Arctic sea ice extent decreases by over 20%".

The *Laid-back Weekly* says:

"Artic sea ice extent decreases by only 5% a year".

Which of the two headlines do you think indicates a faster decrease of sea ice extent? Do they give you enough information to assess the rate at which the ice cap is disappearing?

Intrigued, you look up figures on the Arctic sea ice extent on the Internet. You find the following data for the years 2004 to 2008:

Year	Sea ice extent in million km^2
2004	6.05
2005	5.57
2006	5.92
2007	4.30
2008	4.67

Question 2: Work out the percentage decrease from 2004 to 2008.

Question 3: Work out the year-on-year percentage changes from 2004 to 2008, and work out the average percentage change over this period.

Question 4: Were the two newspaper headlines wrong?

Question 5: Can you come up with a headline that describes the decrease of sea ice extent from 2004 to 2008 more accurately?

Question 6: What is the most dramatic change in the years from 2004 to 2008? How does this compare to the average annual decrease?

Question 7: Now suppose that you are a newspaper editor. Based on the data from 2004 to 2008, what headline would you run if you wanted to make the decrease of sea ice extent appear as dramatic as possible? What headline would you run if you wanted to play down the decrease?

Question 8: Based on your data, write a paragraph which gives an accurate representation of the decrease in sea ice extent since 2004.

Presenting statistical evidence in a way that puts a negative or positive spin on it is called *framing the evidence*. This doesn't mean that the numbers presented are actually wrong, but it does mean that the picture created can be misleading. Evidence framing is not just something that is practiced by tabloid newspapers – politicians are sometimes guilty of it, and it can be found in serious newspapers and sometimes even scientific publications and press releases. So whenever you read about a statistical result, make sure that the article gives you all the information you need to understand it, and look at the figures carefully.

The data used in this worksheet was collated by the Snow and Ice Data Centre http://nsidc.org/index.html.