

Introduction

Earth – Sun relationships play an important role in governing seasonality and climate patterns on Earth. This lab exercise is designed to explore seasonality and climate (including climate change) strictly from the perspective of satellite map interpretation. We'll spend much more time later in the semester working with other satellite images from Maine and elsewhere in the US looking for evidence of climate change at different spatial and temporal scales. In the accompanying PowerPoint file you will see 8 satellite maps (4 US scale and 4 New England scale) that represent the four seasons. For the assignment, you'll need to email me your PPT files with the following format: Last Name_Last Name_Lab 1_Sat_Images and a Word file with your responses to any questions with the following format: Last Name_Last Name_Lab 1_Responses (Mac users, please ensure compatibility).

Objectives

- To better understand patterns of Earth-Sun relationships and seasonality using satellite imagery
- To introduce climate related web resources

Part 1.

1. Arrange the satellite maps (i.e. slides) in order from Winter (US/NE) → Spring (US/NE) → Summer (US/NE) → Fall (US/NE).
2. Discuss your approach to arranging the maps below (e.g. patterns, coloration, etc.)
3. Looking at the US maps only, how does seasonality in NE compare to other locations in the US?
 - a. Southwest
 - b. Southeast

Part 2.

Visit <http://ge.ssec.wisc.edu/modis-today/> (Users might need to select Allow Content based on their computer settings)

- Use the drop down menu to view the maps on the dates listed below. Be sure True Color and Aqua are selected.

Explore the different options/features available on this website.

4. Select the map for January 20, 2010, zoom in to New England. (Aqua, True Color).
Can you see any similarities between the weather we received on Wednesday and this image?
5. Select the map for January 22, 2010, zoom in to New England. (Aqua, True Color).
How does this map compare to the map for the previous day?

Part 3.

Visit <http://svs.gsfc.nasa.gov/search/Keyword/index.html>

This is an excellent resource for images and animations related to all things satellite related. Explore the climate and snow/ice cover sections. Clicking on the icon will open a file immediately. Clicking on the name of the file will allow you to choose format/resolution.

5. [Sea Ice](#) → ID 3563 [Sea Ice Yearly Minimum with Graph Overlay 1979 through 2008](#).
How have sea ice amounts in the arctic changed over this ~3 decade period?
6. [Snow Melt](#) → ID 3475 [Annual Accumulated Melt over Greenland 1979 through 2007](#).
Has there been a uniform rate of ice loss since 1979 on Greenland?