

Name:

Date

Albedo Investigation

Task

Now that you have completed the *Changes in Seasonal Albedo with Land Cover Class*, you will conduct your own investigation to explore interactions between albedo, land cover, and/or seasonality by posing a research question, developing a hypothesis, and analyzing your results.

Instructions

1) Develop your research question and hypothesis

- a) Spend 5-10 minutes exploring the Student Climate Data tools (e.g. the Carbon Mapper, the Albedo data resources, the Biome resources, etc.) and/or google maps to identify what aspect of albedo/land cover/seasonality you are interested in investigating and in what location(s).
- b) In your science notebook, record any initial information or observations, as well as your **research question, hypothesis statement**, and the **data/information necessary** in order to test your hypothesis. *(Make sure that your question can be answered using the tools on the Student Climate Data website).*

2) Identify Albedo Trends for Your Location.

*Depending on your research question and hypothesis, you may want to use the **Carbon Mapper tool**, the **Single Site Albedo Data tool**, or **both**. Explore each tool briefly to decide which is more useful for your investigation.*

USING CARBON MAPPER:

- a) From the Data Tools page on the Student Climate Data website (<http://studentclimatedata.unh.edu/data-tools.shtml>), click on 'Carbon Mapper.'
- b) Close the introductory pop-up window
- c) Click and drag the map and use the zoom tool to find your location on the map. (We suggest using the 'Google Satellite' Background layer). Once you are in the correct location, zoom to **Zoom Level 12** (*displayed at the bottom of the screen, this will allow you to see only one data point for your location*).
- d) In the right-hand panel, click the box next to the **MODIS Albedo** Data Group view all of the MODIS layer options
- e) Click on the box next to **MODIS Land Cover**. Wait for the land cover data to load on the map.
- f) Click on the identify tool -the  icon- and click on your location on the map to see the identify box. (**Notes: If you get the message: "Sorry, there was nothing that could be identified. Please select some more layers," try clicking in a slightly different spot on the map. In order to move around the map again you will have to click on the  icon).
- g) Now select the albedo layer(s) you are interested in by clicking the boxes next to each layer name. Wait for the data to load. When you click on your location, the identify box should now provide albedo data for all of the map layers you have selected.



USING SINGLE SITE ALBEDO DATA:

- a) From the Student Climate Data website, click on 'Single Site Climate Data.' When the page loads, click 'Seasonal Albedo.'
- b) Follow the directions on the site to enter your latitude/longitude and retrieve monthly albedo data and land cover type for your location(s).

3) Record Data

- a) In your science notebook, create a **data table** that includes the location(s) you selected to study, latitude and longitude, land cover type, albedo, and any other data or information that is important to your investigation.
- b) Create any **graphs** that help to explain the patterns you observe in your data.

4) Analysis and Discussion

- a) In your science notebook respond to the following:
 - i) **Was your hypothesis supported by the data from your investigation? Why or why not?**
 - ii) Record the **notable outcomes** of your investigation and **new research questions** you have after viewing your results. Also state the additional **data or information** you would need to answer the new questions.

