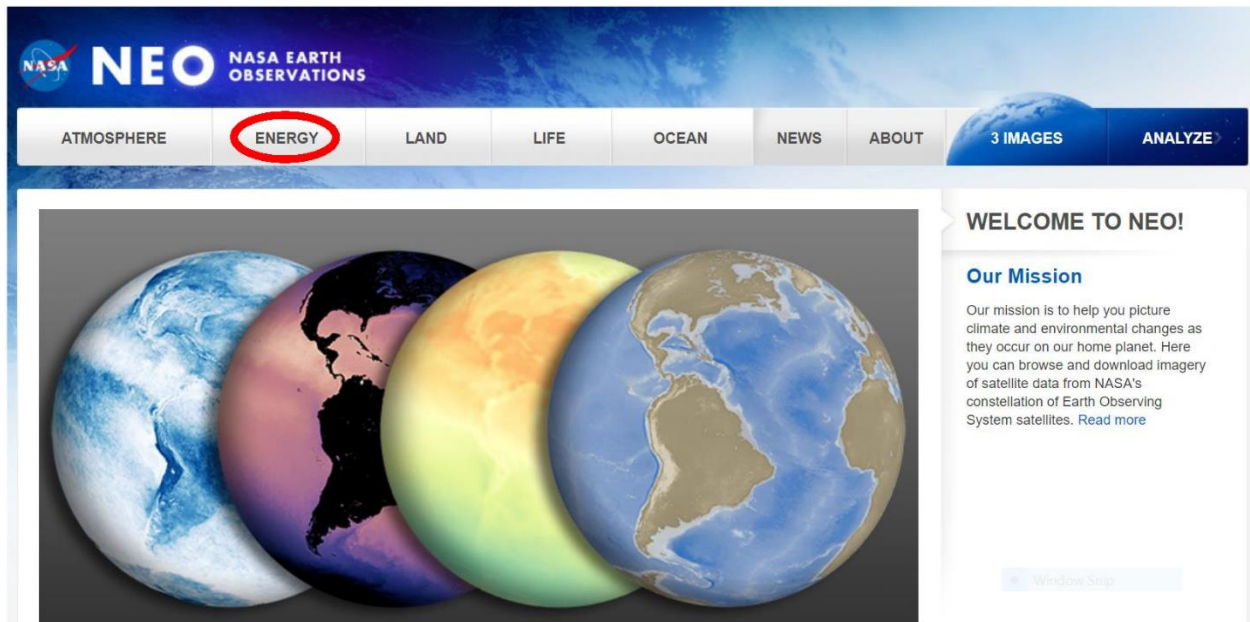
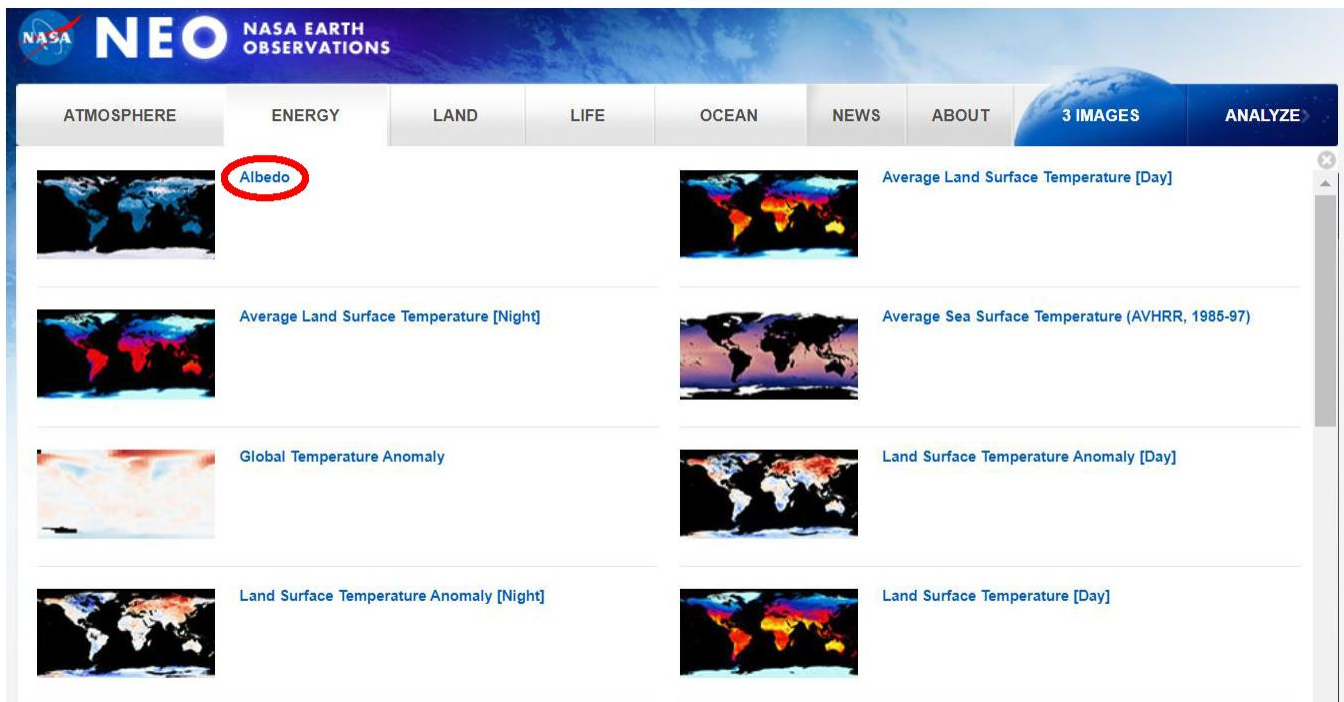


1. Watch this video. The [NASA Climate Bits: Albedo](#) video.
2. After watching the video, go to the [NASA Earth Observation Website](https://neo.sci.gsfc.nasa.gov/) (<https://neo.sci.gsfc.nasa.gov/>). Here, you will select three months of albedo data and use the data probe tool to explore the albedo values in the Arctic region.
3. The first screen will look like this.



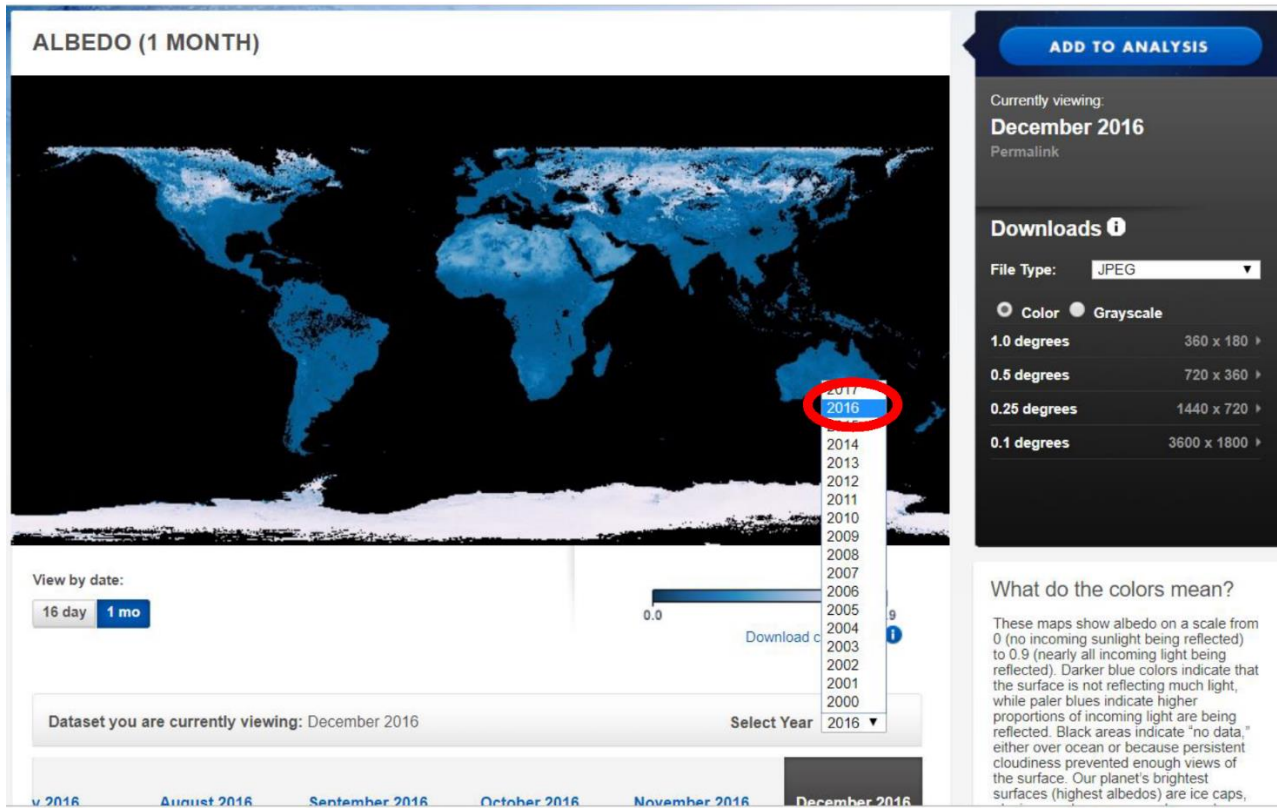
Credit: NASA Earth Observations

4. Click on Energy at the top of the screen as indicated by the red oval in the image above.
5. Then click on Albedo.

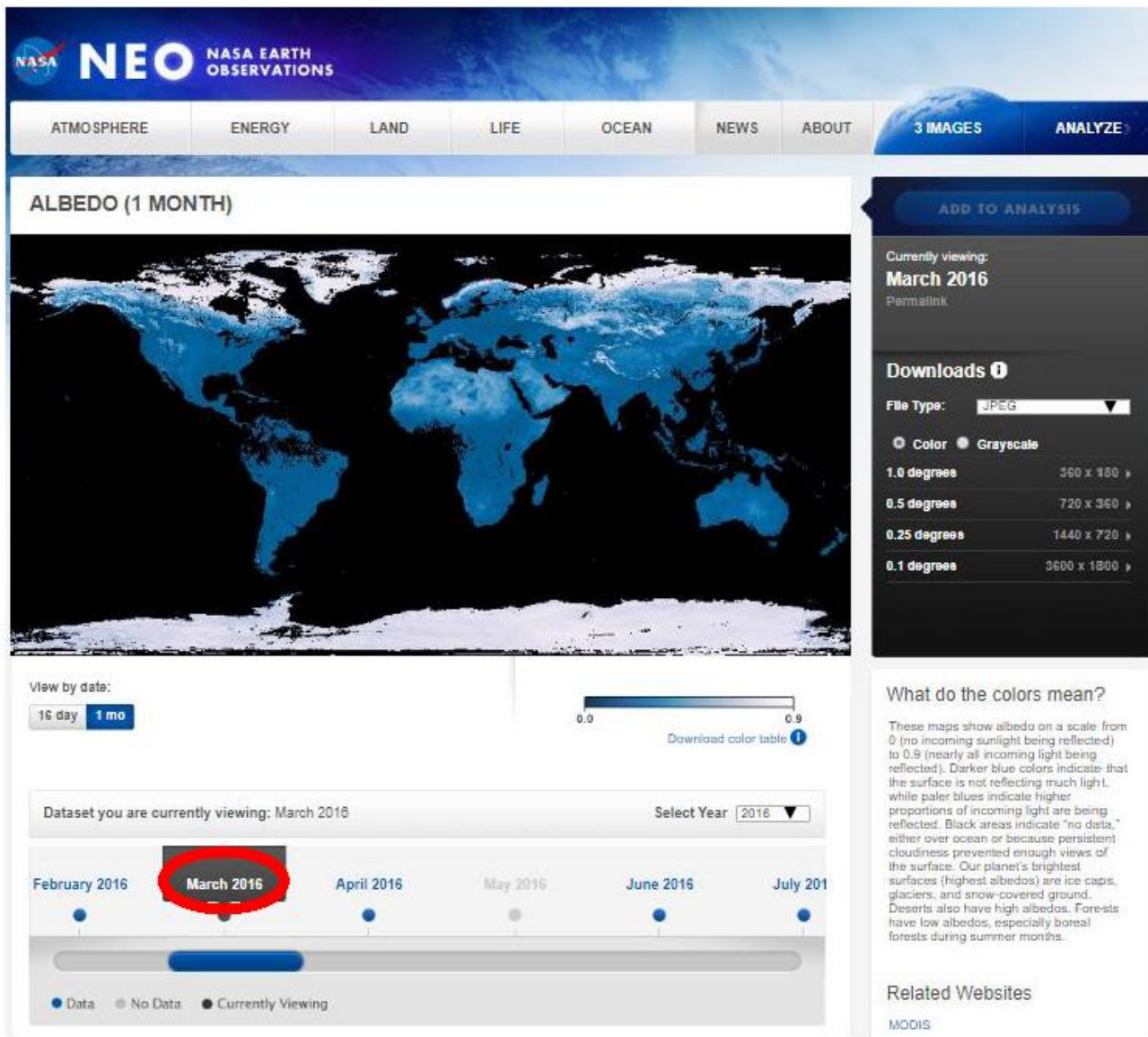


Credit: NASA Earth Observations

6. When the albedo screen comes up, students should select the dropdown for the year and click on 2016.



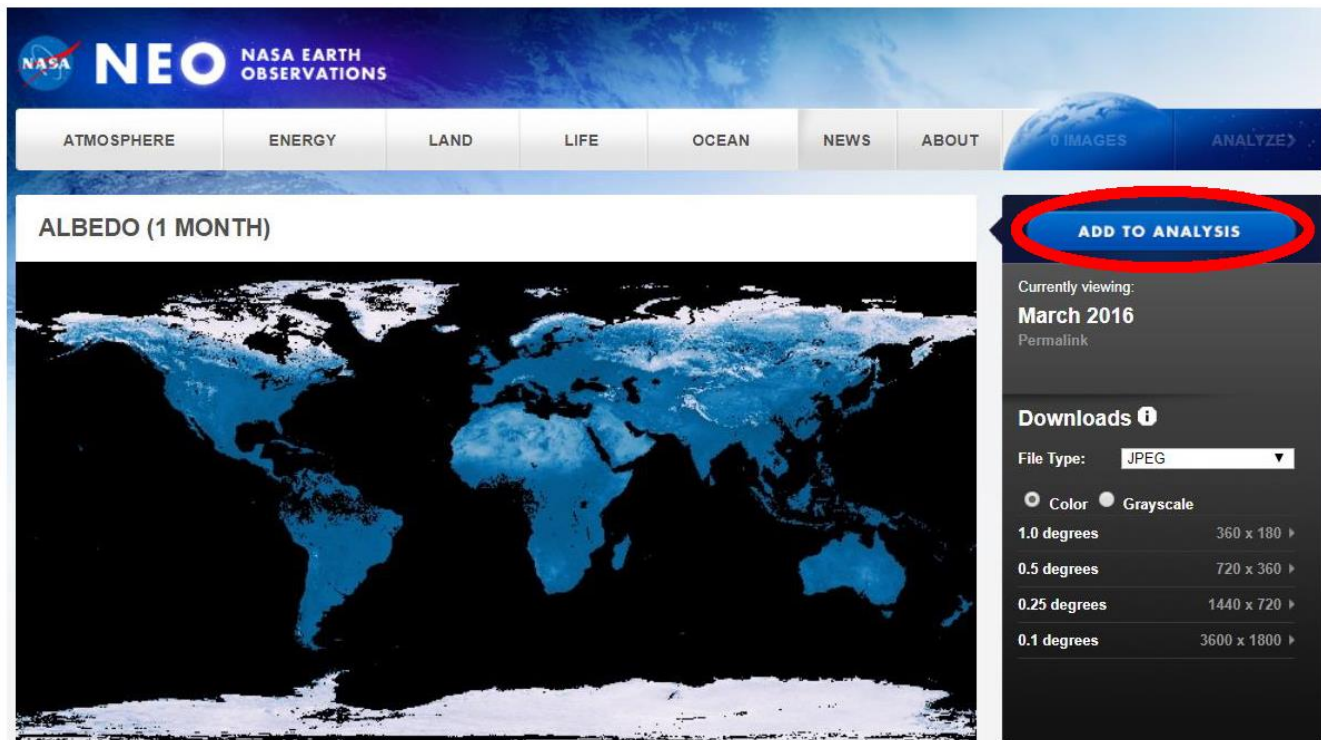
Credit: NASA Earth Observations



Credit: NASA Earth Observations

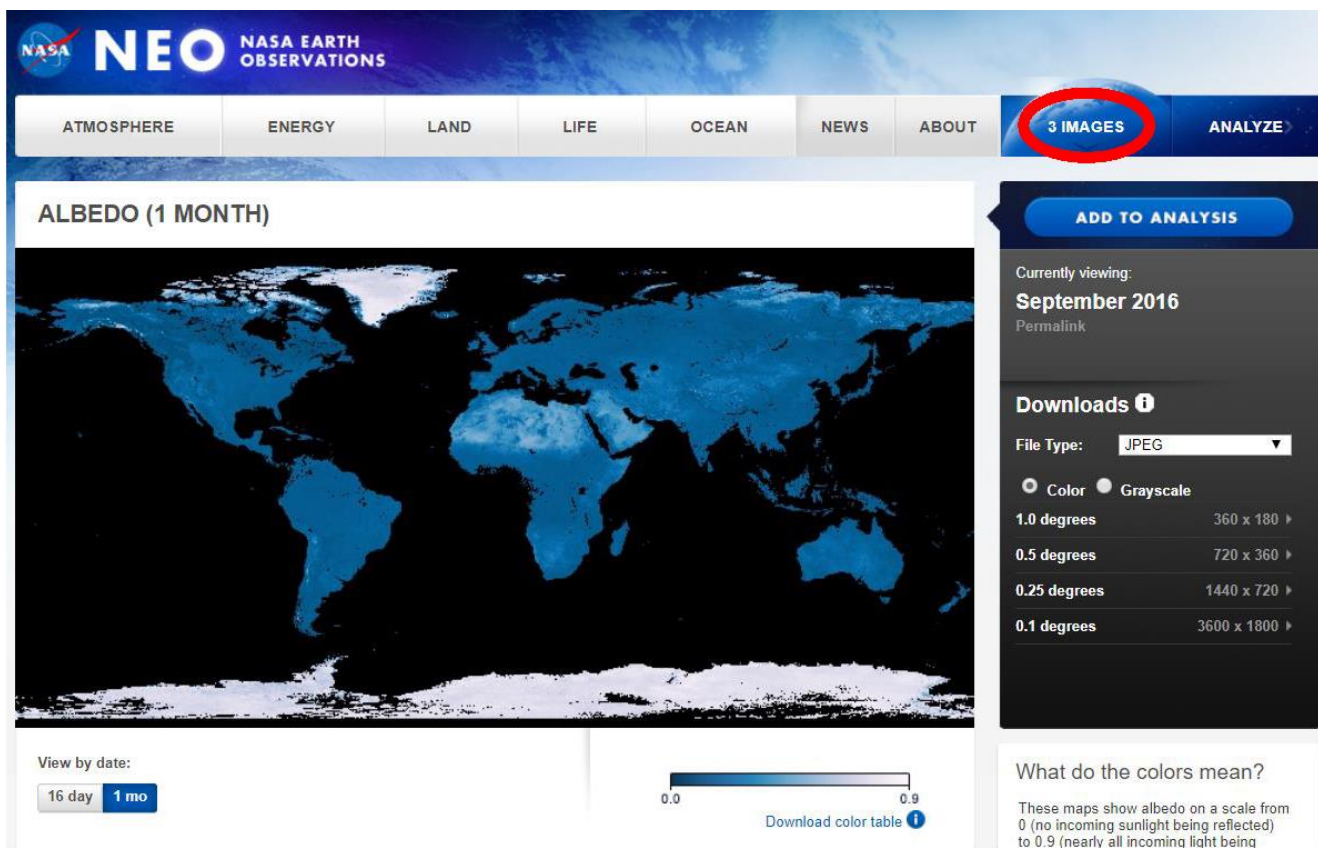
7. Then the words March 2016.

8. After the March 2016 image is displayed, click on Add to Analysis at the top right of the screen.



Credit: NASA Earth Observatory

9. Follow the same steps to select June 2016 and September 2016. Once the three images are added, students should see that there are three images selected.



Credit: NASA Earth Observatory

10. Students, then click on the Analyze button at the top right of the screen.



Credit: NASA Earth Observations

11. On the next screen, you should verify that the mode is basic exploration and the file size is 0.25 degrees. Then they should click on Launch Analysis.

NEO
NASA EARTH OBSERVATIONS

ATMOSPHERE
ENERGY
LAND
LIFE
OCEAN
NEWS
ABOUT
3 IMAGES
ANALYZE

ANALYSIS OPTIONS

Select Area (optional)

Mode: ⓘ
Basic Exploration

File size: ⓘ
0.25 degrees

LAUNCH ANALYSIS

These configuration options are all optional. You may use either the map above to select coordinates for a region you want to analyze or you can enter them in the fields on the left. When you are ready to run the analysis, click on the "Launch Analysis" button below.

IMAGE QUEUE

Albedo (1 month)
March 2016

Remove

Albedo (1 month)
June 2016

Remove

Albedo (1 month)
September 2016

Remove

Remove all images

REACH US

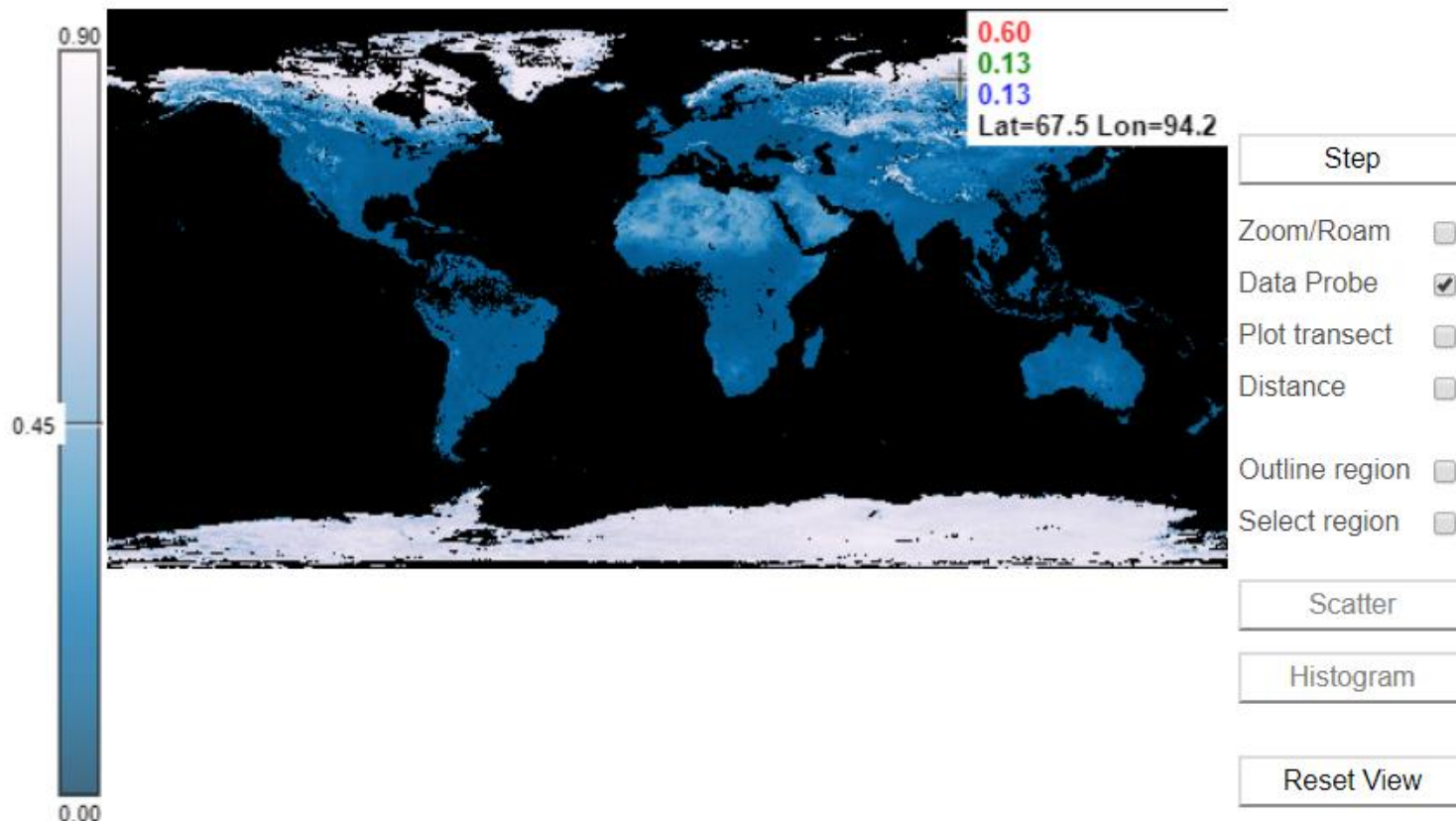
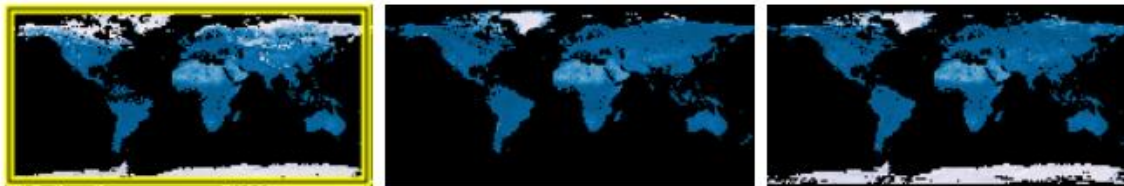
If you have a question regarding NEO, please email us at neo@.nasa.gov or visit our website at neo.gsfc.nasa.gov

Credit: NASA Earth Observations

12. When the analysis screen appears, point out to students that the three months are indicated by different colors. Have students click on Data Probe. You will be able to move the cursor over different locations and see the albedo values for all three months in their respective colors.



Credit: NASA Earth Observations



Albedo (1 month) March 2016

Credit: NASA Earth Observations

13. Feel free to explore for a few minutes then complete the student log worksheet and answer the following questions.

- Fill in the table with the data you

	Latitude	Longitude	Mar-16	Jun-16	Sep-16	Range
Mainland US						
Alaska						
Arctic						
Northern Canada						
Greenland						
Africa						

collect.

- After filling in the data, calculate the range for each location by subtracting the lowest albedo value from the highest albedo value.
- Which locations have the lowest range?
- Which locations have the highest range?

- Areas with a higher range experience more change in albedo during the year. What do these areas have in common?
- Why do you think these areas experience changing albedo?

Ice has a high albedo. As it melts, the albedo decreases. This leads to changes in albedo in the Arctic as the seasons change. Areas over land such as Africa and the mainland US experience less change because the reflectivity of the land does not change as much as the melting ice.