Student Directions
The map above shows the monthly amount of snow/ice amount in January 2017. Direct students to 1.) observe the map that plots the monthly snow/ice values and 2.) interpret the information. (Do not give them the date of this image.)

A. Leading questions:

1. What is the range of values shown on the scale bar?
2. Where in the world do you find the highest and lowest extreme values of the data in your images?
3. What patterns do you see? Is the data the same all over the world? How is the data the same or different when comparing land to water? Explain.
4. What month do you predict this plot to represent? What evidence do you have to support this?

Now show students the second map, July 2017, without revealing the date. Have students go through the same steps they did previously for the other map.
B. After examining the image above, have students identify changes:

1. What changes do you observe?
2. Choose a location or region to compare both maps? If there was a change, explain why it happened. What explanations can you suggest for the timing of those extremes?
3. Which regions experience both the extremes highs and lows? What regions do not experience the extremes? Why do you think this happens?
4. Are there regions that remain relatively unchanged over the year? Explain why this may occur.
5. How did these maps change? Which happened first? last?
6. What month do you predict this plot to represent? What evidence do you have to support this?
7. How have your ideas for Question A4 changed?

The advance-and-retreat cycle of snow cover drastically changes the whiteness and brightness of Earth. Using these two 2017 maps created using NASA satellite data, have students review the seasonal differences of snow and ice extent.

Teachers who are interested in receiving the answer key, please contact MND from your school email address at larc-mynasadata@mail.nasa.gov.