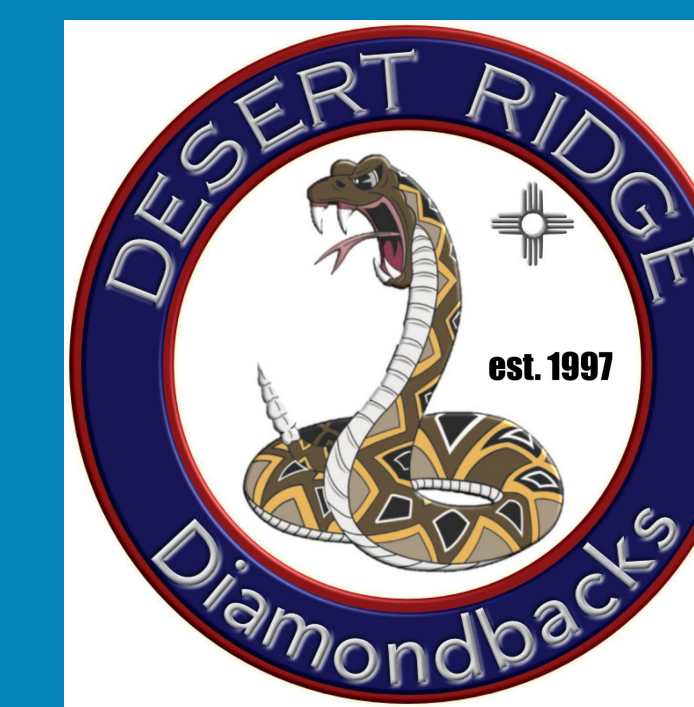




A FREEZE OVER THE GREAT LAKES 2020-2021

Desert Ridge Middle School, Albuquerque, New Mexico



BACKGROUND

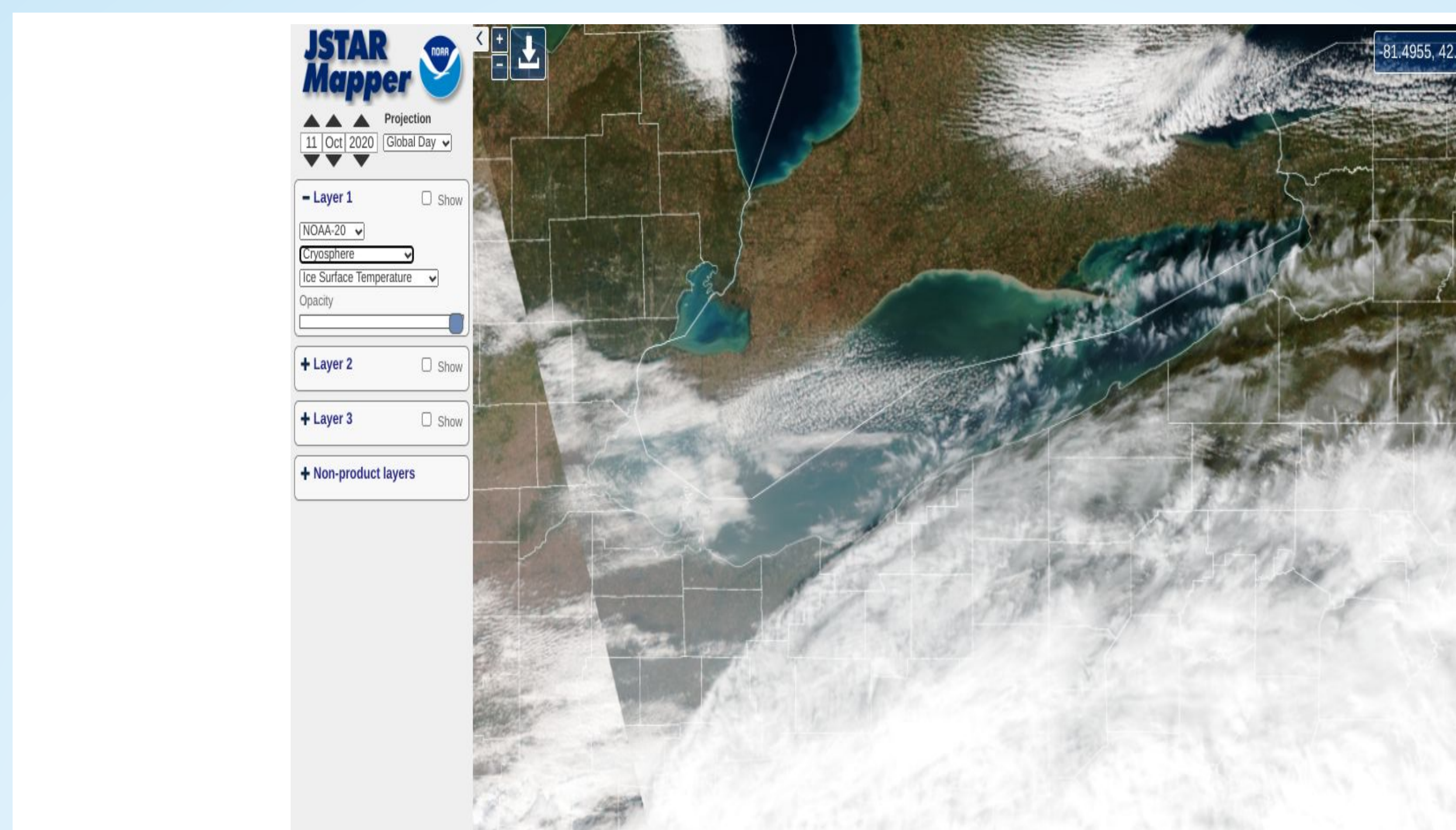
Lakes tend to only get ice on them in low temperatures and get it mostly in the winter. This is due to the winter being the coldest season of the year. However, it does not appear until late December. The ice can be seen until early Spring. 88% of lakes get ice during the winter. Ice starts at the edge where it is shallower. The ice looks white when you view it on the JSTAR Mapper satellite interface using the NOAA-20. The farther North the ice is, the colder it will be due to there being lower temperatures the closer you get to the North Pole.

We're expecting to see ice on Lake Erie. If we want to do this we are going to want to go back to winter in any year and on the VIIRS satellite interface. We are hoping that we see at least half of Lake Erie covered in ice at any point. We are also planning on investigating how long the ice stays on Lake Erie. We specifically are investigating the Great Lake Erie. We're also investigating the amount of ice on Lake Erie. We are also going to look at ice on Lake Erie, we're looking at Lake Erie before ice, when it gets ice, and after it gets ice.

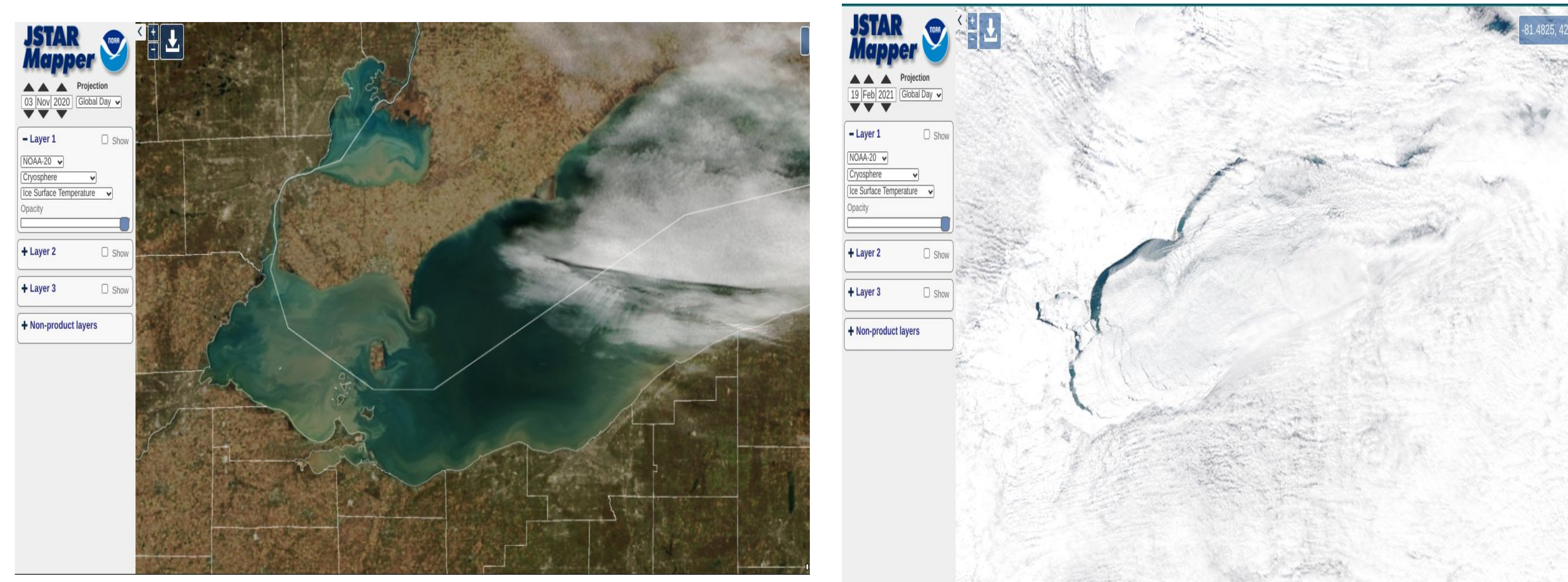
REFLECTION

We could see ice on Lake Erie before, during, and after. Without satellites, we wouldn't be able to see those things. With satellites, we can see more than just ice or lakes, we can also see oceans, land, and hurricanes, etc. With satellites, we can look around the entire Earth if we wanted to with satellites, but without satellites, we couldn't do any of that. The satellite images gave us a closer look at all the things that wouldn't be able to be seen by the naked eye. They also let us look at multiple places at once. The satellite interface also helped us easily find the lake. If the satellites weren't there, we would have to search long and far to get an image that showed us Lake Erie that displayed the ice. The image also wouldn't give us too great of a view of the lake.

RESEARCH with supporting VIIRS Satellite Images



- Taken on the JSTAR Mapper
- Taken at Lake Erie on October 11, 2020



- Taken on the JSTAR Mapper
- Taken at Lake Erie on November 3, 2020

- Taken on the JSTAR Mapper
- Taken at Lake Erie on February 19, 2021



Taken on the JSTAR Mapper at Lake Erie on February 25, 2021

RESULTS and CONCLUSIONS

Lake Erie has no ice to be found. This can be seen in the first and third images, which give a bigger picture of the lake and show us what is happening at the lake. Image 1 was taken at -81.4955, 42.0508 on October 11, 2020, and was taken on the JSTAR Mapper. The coordinates of image 3 are -81.9853, and 41.8147 and it was taken on October 28th, 2020, on the JSTAR Mapper. Something else that can be found is that the lake is slightly brown. This can be seen in image 2, which gives a clearer view of Lake Erie. The brown stuff is most likely mud or sand. The coordinates of image 2 are -82.0973, 41.8427, taken on November 3, 2020, and was taken with the JSTAR Mapper.

As winter comes around, ice starts to develop where the water used to be. This is visible in the 1st, 2nd, and 3rd images. The coordinates of image 1 are -82.1585, and 42.0037, and was taken on February 19, 2021, on the JSTAR Mapper. Image 2 was taken on February 19, 2021, on the JSTAR Mapper and the coordinates are -81.4825, and 42.0640. Image 3 was taken on February 25, 2021 on the JSTAR Mapper with the coordinates 81.5315, and 42.0640. There are also many more clouds. The land is no longer dry in any part.

The Breeze:

Group Members:

- Habteyes, Mesgana
- Romero, Lorenzo
- Yu, Zachary

Sources we used for images/information:

1. EarthObservatory: <https://earthobservatory.nasa.gov>
2. JSTAR Mapper: <https://www.star.nesdis.noaa.gov/jpss/mapper/>