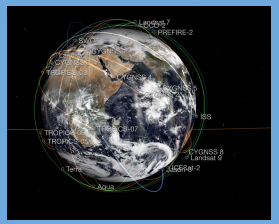
Using Authentic Data in the Classroom



my NASA data

THE GLOBE PROGRAM

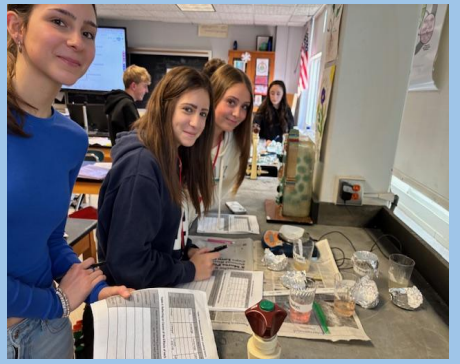
Data are becoming increasingly important in science and society, and thus data literacy is a vital asset to students as they prepare for careers in and outside science, technology, engineering, and mathematics and go on to lead productive lives.

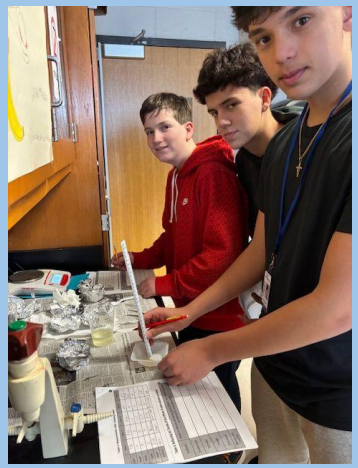
Kjelvik MK, Schultheis EH. Getting Messy with Authentic Data: Exploring the Potential of Using Data from Scientific Research to Support Student Data Literacy. CBE Life Sci Educ. 2019 Jun;18(2):es2. doi: 10.1187/cbe.18-02-0023. PMID: 31074698; PMCID: PMC6755219.

Why use authentic data in the classroom?

I chose to share the various sources for authentic data that NASA websites provide for teachers to enhance their lessons. Students need to be literate in data to understand the world around them. They need to use data to make determinations about the reliability of resources, how to interpret data to make decisions and to prepare them for future careers.

Teachers need resources that can be used to integrate the NGSS standards. Phenomena, 5 E lessons and data are key to fulfilling the NGSS standards.

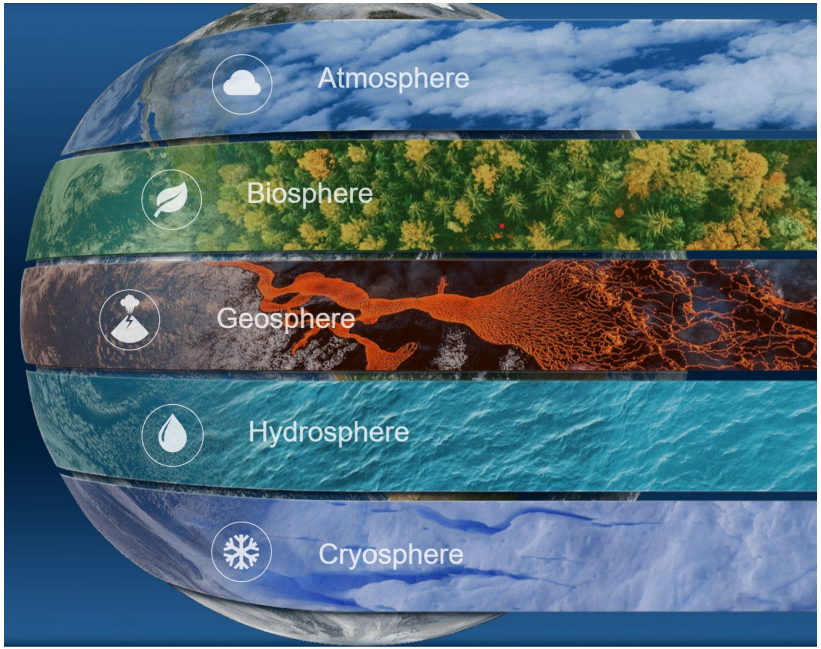




My NASA DATA Offers:

https://mynasadata.larc.nasa.gov/

1. Earth System Phenomena
2. Data Visualization Tools
3. Mini-lessons
4. Lesson Plans and Activities
5. STEM Career Connections
6. GLOBE Connections

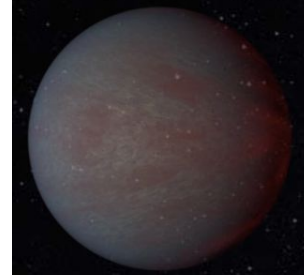


MISSIONS

ALL MISSIONS >

Exploring the Universe

Spacecraft developed at JPL have flown to every planet in the solar system and the Sun, and beyond.



Stars and Galaxies

Current missions: 6

Past missions: 8

Earth

Current missions: 22

Past missions: 35

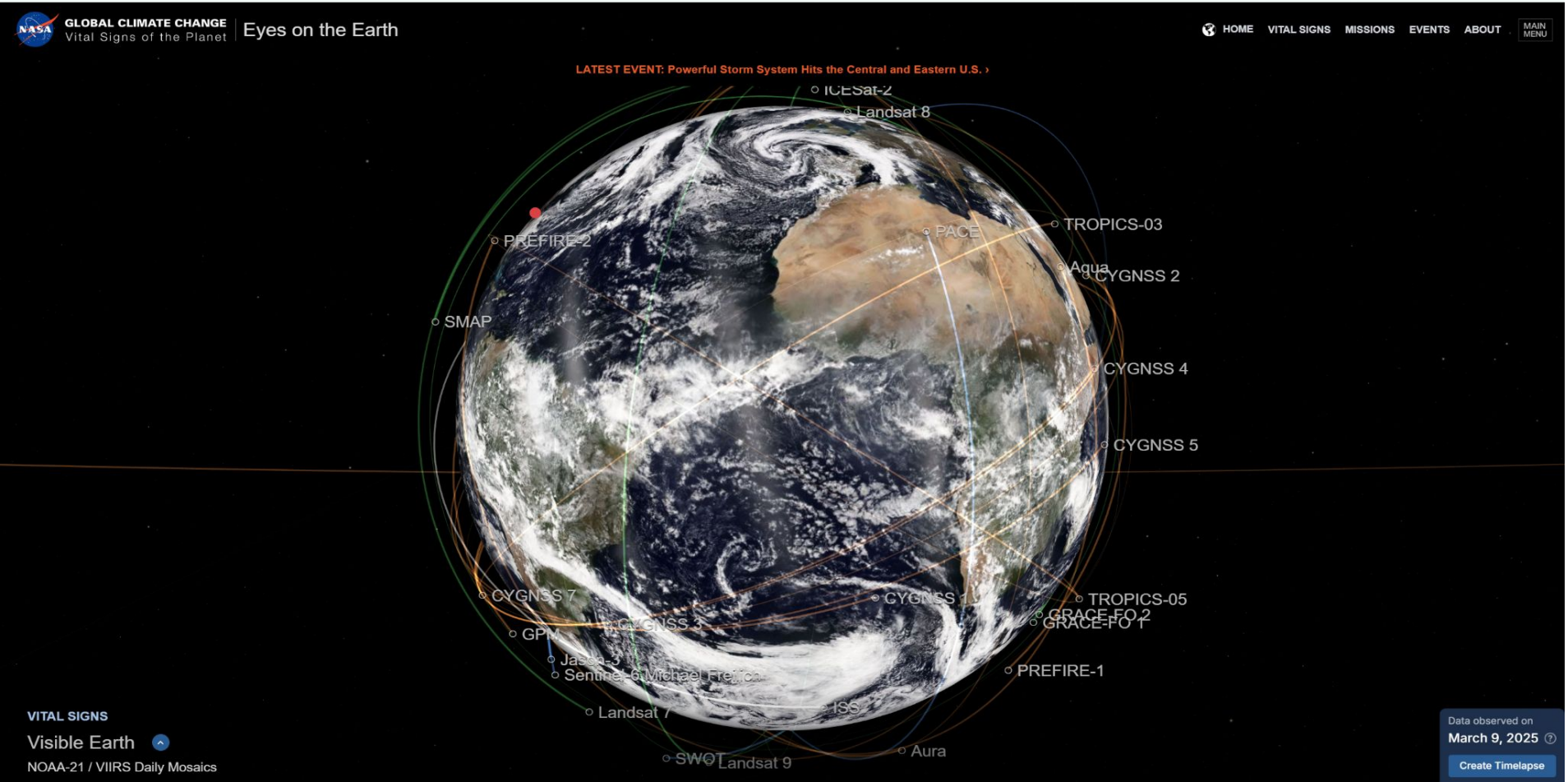
EXPLORE >

Earth's Moon

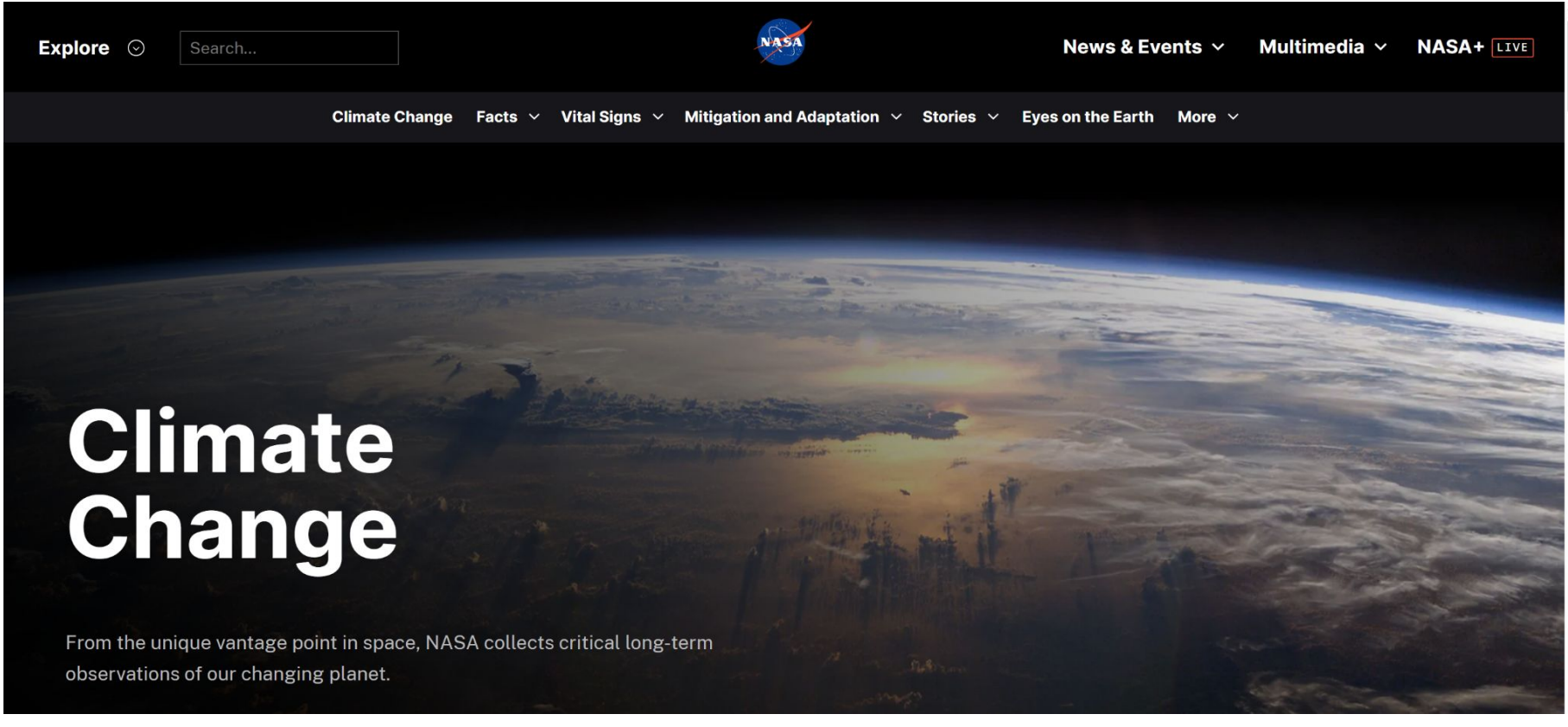
Current missions: 4

Past missions: 19

Eyes on Earth



NASA Climate Change Website



GLOBE Observer APP/ Program

https://observer.globe.gov/

Sharing NASA Resources with My Science Department

At the March Science Department Meeting, I presented to my sixteen colleagues in the high school science department. The teachers teach Earth Science (9), Biology (9 & 10) , AP Environmental Science (9 & 12) , Chemistry(11 & 12) , Physics (11 & 12) , Geology (11 & 12) , AP Biology (11 & 12) , AP Chemistry (11 & 12), AP Physics (11 & 12) , Forensics (11 & 12) and Anatomy & Physiology (11 & 12). Many teachers teach multiple subjects.

Summary of Project : Sharing NASA Resources

The purpose of my project was to share NASA's various resources so my colleagues have access to data sets, or lessons that allow for collection of authentic data. Prior to the presentation, I polled teachers to see if they have used any of the resources from NASA. During the presentation, I went through the following websites: My NASA Data, Jet Propulsion Lab, Eyes on Earth, NASA Climate Change, and Globe Observer. I highlighted activities particularly the interactive activities, what information can be found on each site and how to access the data sets on the various sites. Following the presentation, I polled the teachers again to ask which sites they were most likely to use and if they would like additional training.

Integration of NASA Assets, STEM Content & Pedagogy

My project integrates the NASA resources since I was sharing with my colleagues the assets that NASA has available. By the nature of NASA assets, which are STEM based allows for individual teacher to access NASA resources on their own to enhance their lessons. The pedagogy in Endeavor strives for students to become data literate. Having teachers incorporating real data sets, or having students work with authentic data sets, the students become more comfortable reading and understanding data sets. Students who are data literate are more ready for the future. They are ready to be critical thinkers and be able to evaluate data to make decisions in the real world around them.

Reflection of Presentation

My colleagues were very receptive to using NASA resources and most importantly fifteen of the sixteen participants asked to have further training to use NASA resources. The teachers wanted more time to explore and to learn how to use the different website. Most of the teachers said they were very likely to use Eyes on Earth Vital Signs or Missions. Primarily 13 out of 16 teachers found that the NASA resources would help them to implement the NGSS standards or the new New York State Science Learning Standards that incorporate NGSS. They were likely to very likely to use NASA Climate Change, Earth System Data Explorer from My NASA Data but less were likely to use GLOBE. The three teachers that said they were not likely to use the resources asked for more training to see how it would be helpful for them for Chemistry.

Overall, the teachers felt that it was important to use authentic data in their lessons. They felt it was important for students to be literate in data.

Thank you to Ashley Hollern for helping me through this process. I would have been lost without your assistance.

Citations

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