My NASA Data - Mini Lesson/Activity

Relationship Between Surface Temperature and Vegetation: Student Activity

Student Directions

Vegetation

Surface Temperature
1. Review the Landsat mapped image showing Vegetation of the Atlanta, Georgia region May 1, 2018. It shows Vegetation Index; it is a measure of how much near-infrared radiation is reflected at the surface and can be used to identify the locations of plants.

2. Review the color bar below. On the legend below, areas with a vegetation index closer to 1 contain plant life, while areas less than 0 represent areas that do not contain plant life.
   1. What color represents the most vegetation? Least?

3. Select a quadrant to analyze in the image below and answer the questions.
1. Where do you find the largest and the smallest values in your quadrant.
2. What kinds of environments may exist in an urban environment like Atlanta that would include areas of more/less vegetation?
3. Predict which quadrant has the most urbanized (or developed landscape) and explain your thinking.
4. Using the vegetation map, make predictions about where you would likely find the hottest and coolest temperatures in the Atlanta metro area.

Now observe the surface temperature image from Landsat below and review the color bar. This image shows Surface Temperature of the Atlanta, Georgia region May 1, 2018; it represents the temperature of the Earth’s surface (expressed in degrees Fahrenheit).
1. Now analyze the same quadrant as with the previous map.
2. Students answer the following questions.

1. Are students' predictions correct? Why or Why not?
2. What patterns do students observe?
3. What are the tradeoffs to urban development?
4. What daily activities may be affected by the lack of vegetation?
5. What can be done to mitigate the impact on surface temperature?

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bellringer, exit slip, etc.

Teachers who are interested in receiving the answer key, please contact MND from your school email address at larc-mynasadata@mail.nasa.gov. We verify that requestors are teachers prior to sending access to the answer keys as we’ve had many students try to pass as teachers to gain access. To receive the keys please provide the following:

1. The link to the school/institution’s teacher directory where you are employed so we can verify that you are a teacher
2. Ensure that the school email address is provided in your response as we are unable to send to personal email accounts
Access and Explore Data

- Daytime Skin Temperature (degrees Celsius)
- Nighttime Skin Temperature (degrees Celsius)
- Monthly Normalized Difference Vegetation Index (dimensionless)
- Monthly Normalized Difference Vegetation Index (dimensionless)