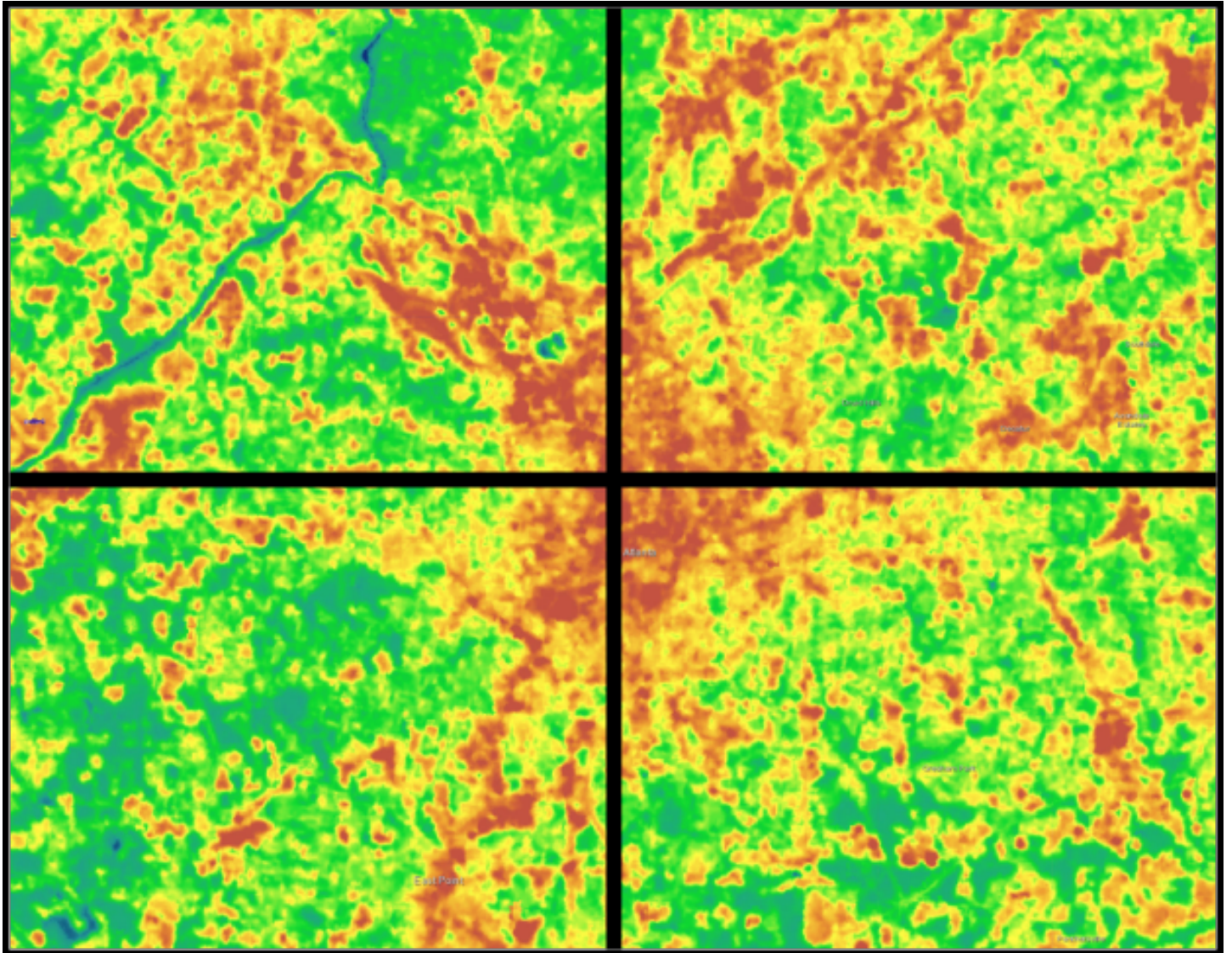# My NASA Data - Mini Lesson/Activity
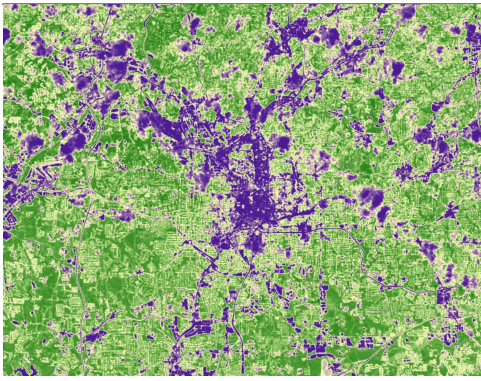
Relationship Between Surface Temperature and Vegetation

Student Directions
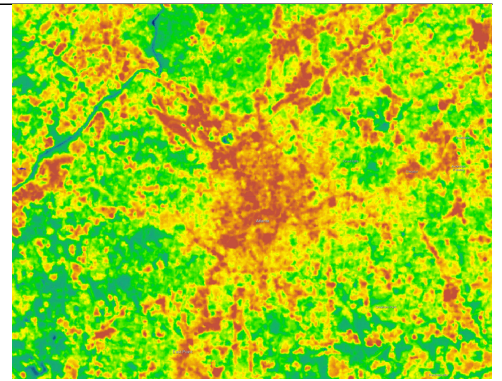
Vegetation   **Surface Temperature**

 Landsat Normalized Difference
Vegetation Index
Credit: U.S. Geological Survey
https://www.usgs.gov/landsat-mis
sions/landsat-normalized-
difference-vegetation-index


 Landsat Provisional Surface
Temperature
Credit: U.S. Geological Survey
https://www.usgs.gov/landsat-mis
sions/landsat-collection-2-surface-
temperature

Steps:

1. Answer the questions below. Check with your instructor on how to submit your answers.
2. 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.
3. 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.
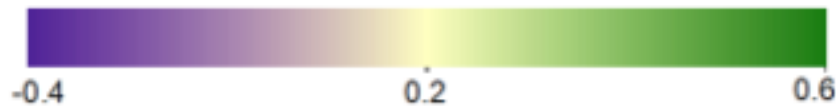
4. Select a quadrant to analyze in the image below and answer the questions.
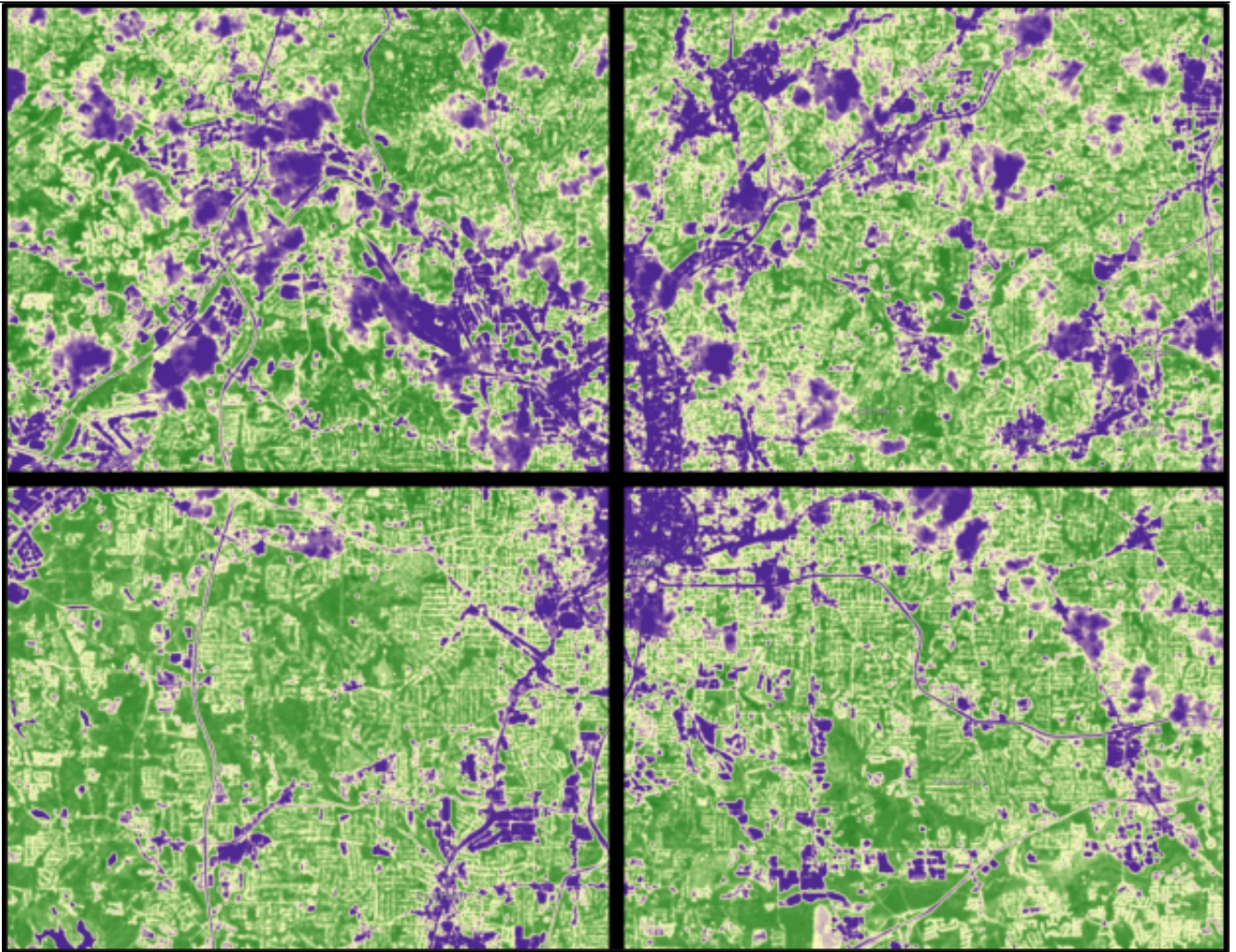
Landsat Normalized Difference Vegetation Index

Credit: U.S. Geological Survey
https://www.usgs.gov/landsat-missions/landsat-normalized-difference-vegetation-index
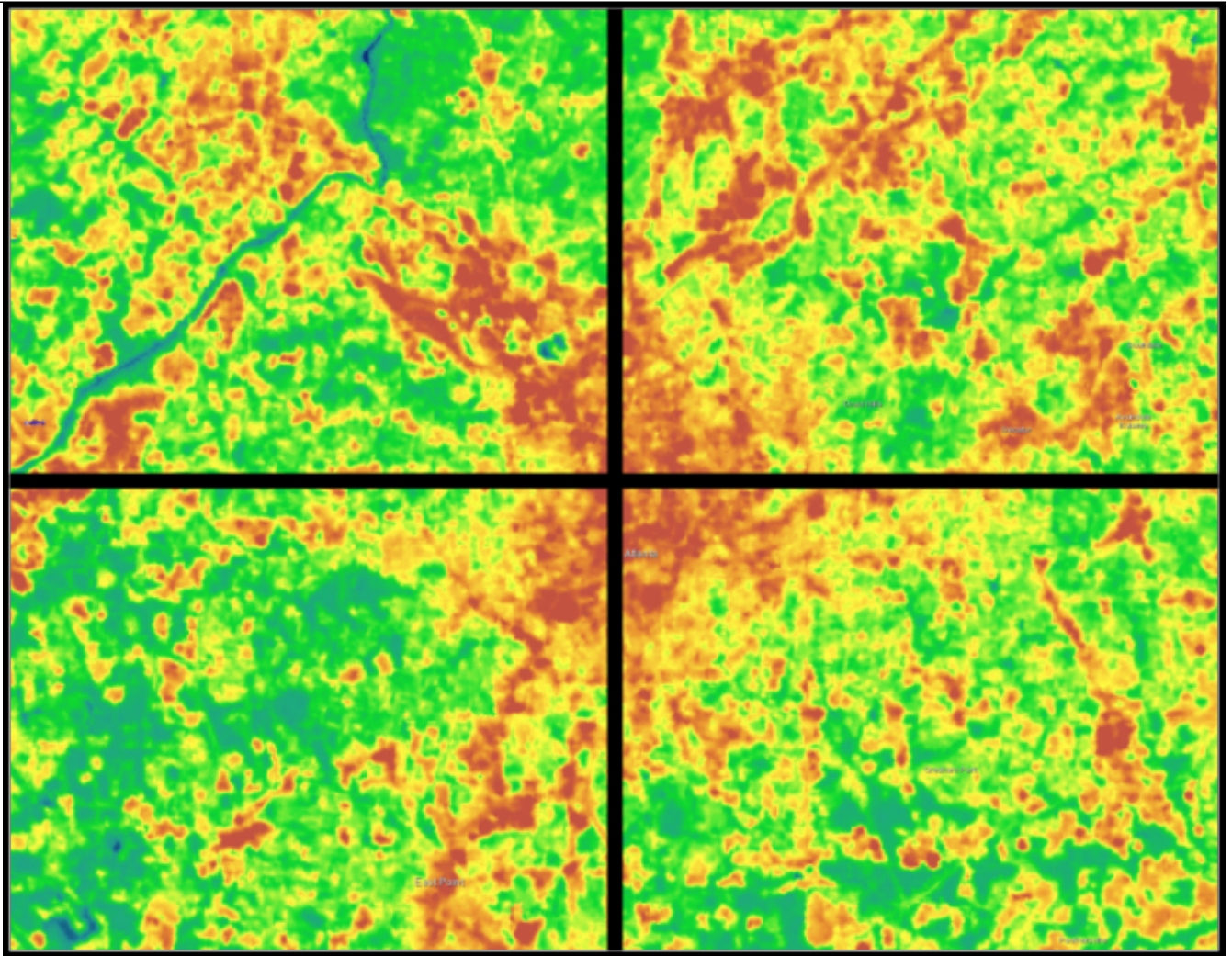
1. Where do you find the largest and the smallest values in your quadrant.
2. What kinds of environments may exist in an urban environment like Atlanta that would include areas of more/less vegetation?
3. Using the vegetation map, make predictions about where you would likely find the hottest and coolest temperatures in the Atlanta metro area.

5. Now observe the surface temperature image from Landsat below and
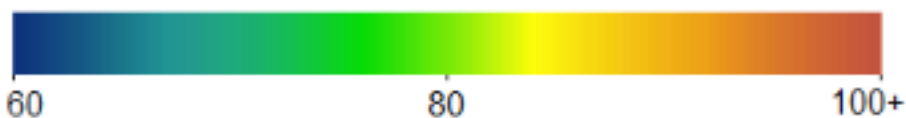
review the color bar. This image shows **Surface Temperature** of the Atlanta, Georgia region May 1, 2018; it represents the temperature of the Earth's surface (expressed in degrees Fahrenheit).

6. Now analyze the same quadrant as with the previous map.

Landsat Provisional Surface Temperature
Credit: **U.S. Geological Survey**
https://www.usgs.gov/landsat-missions/landsat-collection-2-surface-temperature

7. Students answer the the following questions.

    1. Are your predictions correct? Why or Why not?
    2. What patterns do you observe?
    3. What are the tradeoffs to urban development?

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bellringer, exit slip, etc. They take less than a class period to complete. Learn more on the "My NASA Data What are Mini Lessons?" page.

Teachers who are interested in receiving the answer key, please complete the Teacher Key Request and Verification Form. 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.

My NASA Data Visualization Tool

* Earth System Data Explorer