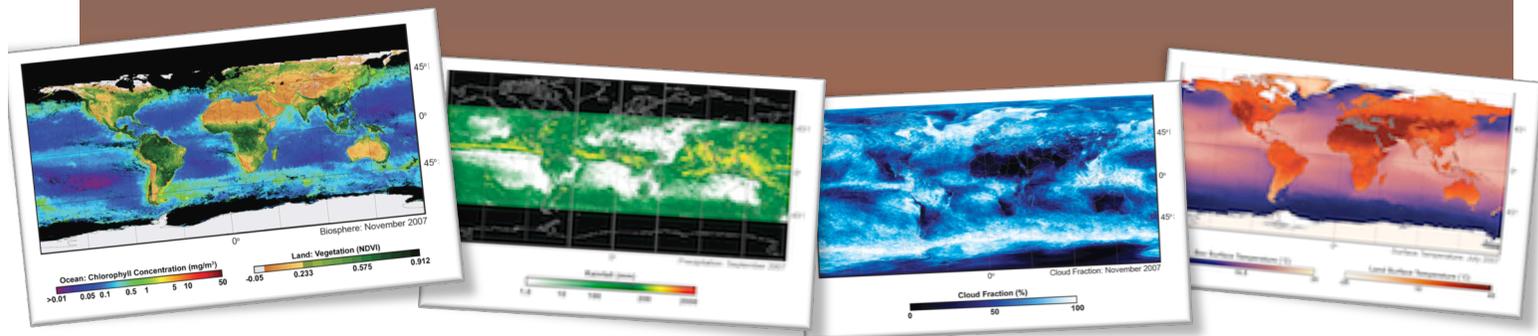


MY NASA DATA- GLOBE Digital Earth System Poster

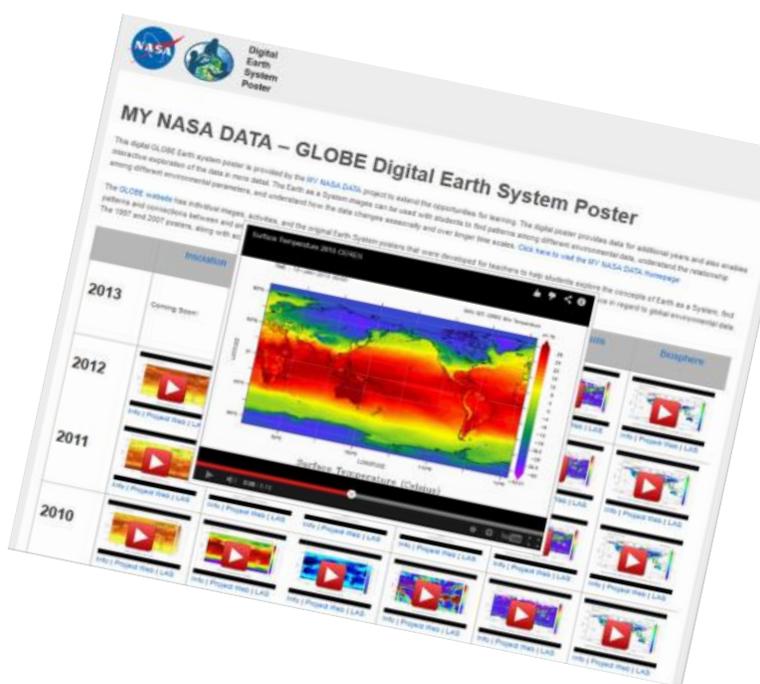
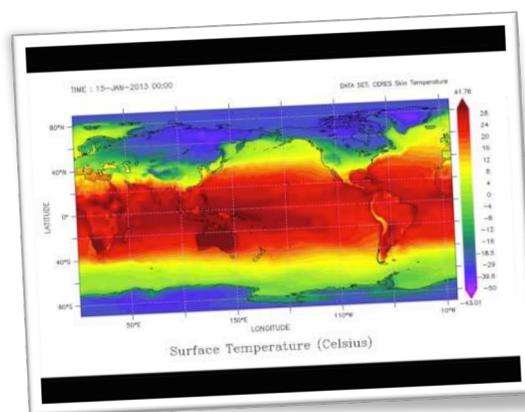
<http://mynasadata.larc.nasa.gov/globe/>

Implementing the NGSS Grades K-5

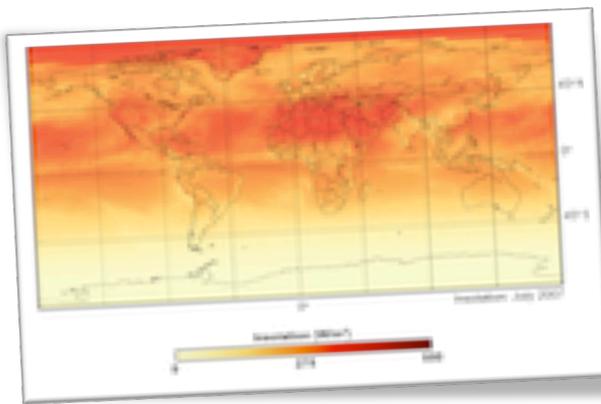


In the Classroom:

The GLOBE Digital Earth System Poster was designed to provide teachers and students an opportunity to explore data and provide them with the ability to identify relationships between/among the different components of the Earth system. It allows students to visualize how the different variables change throughout the course of a year, make comparisons between years to establish cause/effect relationships for a specific variable, identify patterns and determine relationships between variables. It can be used as a tool to implement the NGSS Science Practices, Disciplinary Core Ideas, and Crosscutting Concepts as they relate to the performance expectations. Activities ideas are provided on the next page for each of the identified performance expectation.



Additional Lesson Plans: <http://mynasadata.larc.nasa.gov/lesson-plans/lesson-plans-elementary-educators/>

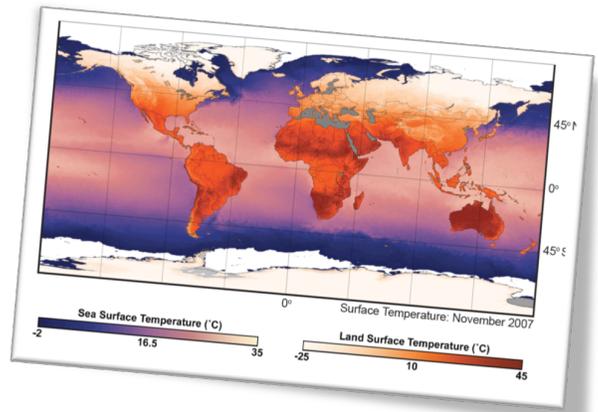


1-ESS1-2: Make observations at different times of year to relate the amount of daylight to the time of year.

There is a correlation between the changing seasons, the amount of insolation and the amount of daylight that a particular region receives during the year. Start by having students find out total daylight hours for their local area and compare that with the amount of insolation shown for their area in the animations. Next have students examine the animations to see how the amount of insolation changes between the two hemispheres as that relates to seasonal changes and the amount of daylight a particular area receives.

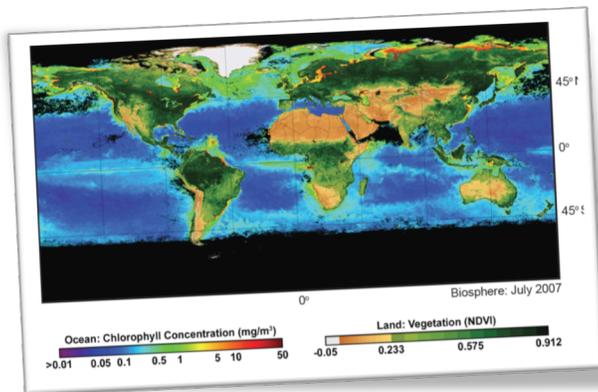
3-ESS2-1: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

Have students view the surface temperature, precipitation, and/or biosphere animation(s) to gather data related to typical weather conditions during the different seasons of the year. This can be completed for one year, for multiple years, as single factors/variables or as multiple factors/variables. Using the information they collect they can develop tables and/or graphs to display their findings. Additional data sets can be accessed on MY NASA DATA's Live Access Server: <http://mynasadata.larc.nasa.gov/las3/UI.vm>



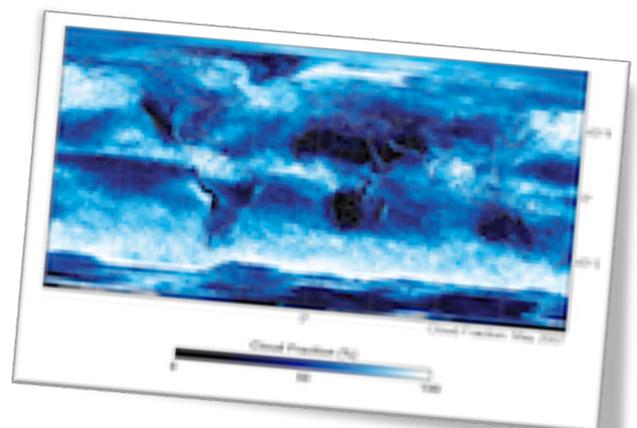
3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.

Compare animations for Insolation and the Biosphere to identify different climate regions around the world. In addition other variables can be used to identify how the various variables affect the climate for a particular region. It might also be helpful to look for cause/effect relationships between different variables, discussing how changes in one might affect the other.



5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Examine animations of the different spheres that make up Earth's system. Identify patterns that can be seen between different spheres as well as difference that occur among the different spheres (geosphere, biosphere, hydrosphere and atmosphere). Discuss with students how one sphere might experiences changes as a result of changes occurring in other spheres to establish cause/effect relationships and identify interactions between them. This could be used to encourage students to begin asking questions of their own based on the data they observe.



K-5 NGSS Performance Expectations Using the GLOBE Interactive Poster:

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.

<p>Science and Engineering Practices</p> <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2) <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-2) 	<p>Disciplinary Core Ideas</p> <p>ESS1.B: Earth and the Solar System</p> <ul style="list-style-type: none"> Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2) 	<p>Crosscutting Concepts</p> <p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-2)
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3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.

<p>Science and Engineering Practices</p> <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) <p>Obtaining, Evaluating, and Communicating Information</p> <ul style="list-style-type: none"> Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2) 	<p>Disciplinary Core Ideas</p> <p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2) 	<p>Crosscutting Concepts</p> <p>Patterns</p> <ul style="list-style-type: none"> Patterns of change can be used to make predictions. (3-ESS2-1), (3-ESS2-2)
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5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

<p>Science and Engineering Practices</p> <p>Developing and Using Models</p> <ul style="list-style-type: none"> Develop a model using an example to describe a scientific principle. (5-ESS2-1) 	<p>Disciplinary Core Ideas</p> <p>ESS2.A: Earth Materials and Systems</p> <ul style="list-style-type: none"> Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) 	<p>Crosscutting Concepts</p> <p>Systems and System Models</p> <ul style="list-style-type: none"> A system can be described in terms of its components and their interactions. (5-ESS2-1)
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