

# Weather and Climate Resources

## Activities

### Meteorology: An Educator's Resource for Inquiry-Based Learning for Grades 5-9

<http://www.nasa.gov/centers/langley/science/met-guide.html>

This book, with 16 chapters of activities and background information, is written as a supplement to existing Earth and space science curricula for grades 5-9.

### Explore: Jupiter's Family Secrets: Weather Stations

[http://www.lpi.usra.edu/education/explore/solar\\_system/activities/weatherStations/](http://www.lpi.usra.edu/education/explore/solar_system/activities/weatherStations/)

In this 1 1/2-hour series of brief station activities, children ages 9 to 13 take a closer look at Jupiter's distinct banded appearance, violent storms, and clouds of many different colors.

### My NASA DATA

<http://mynasadata.larc.nasa.gov/lesson-plans/lesson-plans-middle-school-educators/>

This site has a variety of data sets and suggested lesson plans relating to atmospheres, temperatures, and weather.

### National Weather Service Learning Lesson: Drawing Conclusions

[http://www.srh.noaa.gov/jetstream/synoptic/ll\\_analyze.htm](http://www.srh.noaa.gov/jetstream/synoptic/ll_analyze.htm)

Student connect data for pressure, temperature, dewpoint, and pressure change to discuss how to read a weather map.

## Energy, Currents, Convection Resources

- NASA Visualizes all the World's Ocean Currents  
<http://www.fastcodesign.com/1669361/better-than-a-van-gogh-nasa-visualizes-all-the-worlds-ocean-currents>  
This site has an image and video of the surface current flow of oceans around the world.
- Earth Observatory: Sea Surface Temperature and Net Radiation  
[http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MYD28M&d2=CERES\\_NETFLUX\\_M](http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MYD28M&d2=CERES_NETFLUX_M)  
This allows comparison of changes in the sea surface temperature and changes in the radiation Earth receives from the Sun, from July 2006 to February 2013. The areas that are receiving the most radiation are not where the oceans are warmest; they lag just a bit.
- Movie "The Ocean - a driving force for Weather and Climate":  
<http://svs.gsfc.nasa.gov/vis/a010000/a011000/a011056/index.html>  
This 6 minute video shares satellite data regarding winds, currents, temperatures, and more to discuss how the Earth's oceans are warmed and drive weather and climate.
- Examine Global Surface Currents  
[http://www.teachersdomain.org/assets/wgbh/ess05/ess05\\_int\\_globalsurf/index.html](http://www.teachersdomain.org/assets/wgbh/ess05/ess05_int_globalsurf/index.html)  
This interactive shows the global winds and the directions of surface currents. Information about the global wind patterns is at <http://kids.earth.nasa.gov/archive/nino/global.html>.

## Weather and Climate Resources

- National Geographic: Climate and Weather  
<http://video.nationalgeographic.com/video/science/earth-sci/climate-weather-sci/>  
This 3 minute video provides an overview of climate and weather.
- JetStream Global Weather  
[http://www.srh.weather.gov/jetstream/global/global\\_intro.htm](http://www.srh.weather.gov/jetstream/global/global_intro.htm)  
This site provides background information that might be useful to teachers, regarding circulation, the jet stream, climate, precipitation, and other weather information.
- Interactive Global Geostationary Weather Satellite Images  
<http://www.ghcc.msfc.nasa.gov/GOES/>  
This site has regional and global visible, infrared, and water vapor satellite data.

- An online source of your area's weather forecast is usually available through your local news station (ex: <http://houston.justweather.com/>). If a video source is unavailable, data is available online through NOAA and the National Weather Service at <http://www.nws.noaa.gov> (click on "Local Forecasts", find your region, and the "Forecast at a Glance" will show the predicted air temperature, wind speed, and precipitation).
- NASA Movie on Climate Models "Taking Earth's Temperature"  
<http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010530/index.html>  
This 4 minute video explores how NASA scientists take Earth's temperature.
- Earth Observatory  
<http://earthobservatory.nasa.gov/>  
This site has images and global maps of a variety of data sets, including land and sea surface temperatures, clouds, rainfall, and more.

## Hurricane movies and resources

- NASA Movie: Hurricanes:  
<http://svs.gsfc.nasa.gov/vis/a000000/a003200/a003228/index.html>  
This 8.6 minute video explores how NASA studies hurricanes.
- Miami Science Museum's Hurricane site:  
<http://www.miamisci.org/hurricane/>  
This site includes lots of information and several videos about hurricanes; it's written at an appropriate level for middle school students.
- Hurricane Hunters (interviews):  
<http://www.miamisci.org/hurricane/plane.html>  
This video of interviews with hurricane hunters is 2:45 minutes long.
- Movies of Hurricanes  
<http://rsd.gsfc.nasa.gov/rsd/movies/preview.html>  
A variety of very short movies of hurricanes (seconds each) made using NASA satellite data.
- Tropical Twister Website:  
<http://kids.earth.nasa.gov/archive/hurricane/>  
This NASA site was written for kids. It has some information about hurricanes, how they form, how they're names,, and some videos.
- Hurricane Strike: Create-A-Cane Game: –  
<http://www.meted.ucar.edu/hurricane/strike/orig/canelab.htm>  
Students get to change parameters to discover what ingredients are needed for a hurricane to form. (Users can create a free account/log-in)
- Ch. 11: The Hurricane  
<http://www.ems.psu.edu/~nese/ch11sec3.htm>  
Information on Hurricanes, part of a textbook written by two Penn State meteorologists. A little too detailed for middle school students and this chapter refers back to other chapters, but it can provide useful information for teachers.