

# Tracking Weather Over Time

Students take an in-depth look at weather around the world, exploring cloud cover, as during ISS EarthKAM missions, but also considering other conditions. Students regularly get on the Web and record information on temperature highs and lows, amount of precipitation, and cloud cover for different locations. As they accumulate data over time, they calculate weekly and monthly averages, create bar charts, and compare the different areas.

You might also want to make your own measurements of precipitation, temperatures, and cloud cover near your school.

## Materials/Resources

- Make copies of Student Handout 1: Tracking Weather Table.
- Arrange daily or weekly Internet access for your students. Teams can take turns, so a single computer is enough. Weather Web sites are accessible from the (password protected) SMOC Weather page:  
<http://www.earthkam.ucsd.edu/smoc>
- Optional: Gather supplies, such as a world map, clipboards, calculators, graph paper, and poster creation materials.
- Optional: Gather supplies, such as thermometers, probes, and rain gauges, for making local measurements.
- Optional: Contact your local NASA Educator Resource Center for information on how to find The Atmosphere Below, NASA Video Resource Guide, EV-1997-07-003-HQ.

**Time:** 2+ (50 minute) periods; 10-15 minutes for multiple days

**Level:** Intermediate

## Recommended Procedures:

1. Have each team identify a location they wish to study.
  - You want a diverse set of locations, so you may find it helpful to assign students to different regions of the world.
  - Have students check that at least one of the weather Web sites provides information on their location.
2. Have each team use weather Web sites to collect weather data on their location every day, every week, or other regular schedule.
  - The longer you can extend this collection, the better.

## STANDARDS

### Science

#### Science as Inquiry

- Use appropriate tools and techniques to gather, analyze, and interpret data.
- Understandings about Scientific Inquiry

#### Earth and Space Science

- Clouds, formed by the condensation of water vapor, affect weather and climate.
- Global patterns of atmospheric movement influence local weather.

### Geography

#### The World in Spatial Terms

- Standard 1: How to use maps and other geographic representations, tools, and techniques to acquire, process, and report information from a spatial perspective.

#### Physical Systems

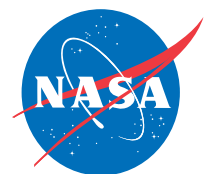
- Standard 7: The physical processes that shape the patterns of Earth's surface

### Mathematics

#### Data Analysis and Probability

- Select and use appropriate statistical methods to analyze data...

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3. Periodically have teams calculate averages, make bar charts of the data over time, and compare their data with data from other teams.
4. Lead a discussion on all the data, using a world map to help students think about how weather is related to geography.
5. Have teams prepare reports or presentations, focusing on their location but making comparisons with other locations.

## ISS EarthKAM

Tracking Weather Over Time

## STANDARDS (CONT.)

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### Communication

- Communicate their mathematical thinking coherently and clearly to peers, teachers, and others

### Representation

- Create and use representations to organize, record, and communicate mathematical ideas
- Use representations to model and interpret physical, social, and mathematical phenomena

### Technology

#### Technology research tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

