

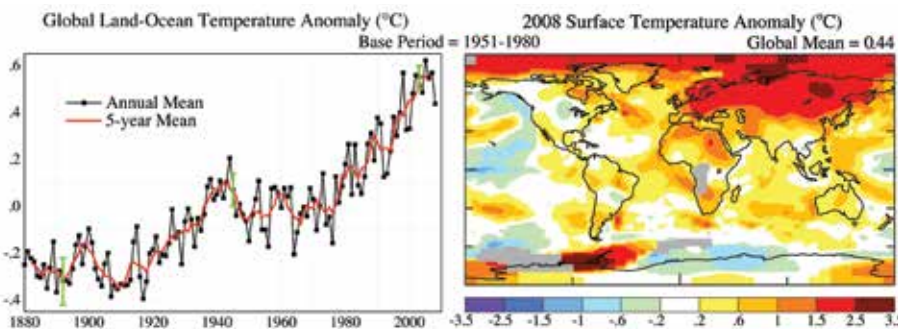
## Rapid Climate Change Research Packet 1

**Topic:** What is Climate? Our Planet's Climate is Changing

**Directions:** Read the following as a group. Create a newscast to explain what climate is and how our global climate is changing. Include a "special report" using information from the *Special Report: Our Living Home* section in your newscast.

**Weather** changes day to day, but **climate** is the pattern of weather in a large region over a long period of time. For example, within the desert regions of North Africa, the temperature will not always be the same, but it will on average be much hotter than in the tundra regions of Alaska and Northern Canada. A region's latitude, distinctive land features, like mountains and fresh or ocean waters, and the plant and animals who live there, all affect what the climate will be.

We know the weather will change, but we expect the climate to stay the same in our lifetime. In a temperate climate where there are different seasons, we expect the winter part of the year to be much colder than the summer. Likewise, in others parts of the world there is a predictable wet season when it rains frequently, and a dry season when there is much less rain.



Picture 1: Depicts the abnormal increase in global land-ocean temperature between 1800-2000. Picture 2: Illustrates unusually hot surface temperature of the Earth in 2008.

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Changes in our global climate usually happen over many thousands or even millions of years. When climates change rapidly, it alters everything in a habitat more quickly than the plants and wildlife can adapt to it. This has happened in past ages, long before there were human communities, and the result was the mass extinction of many plants and animals. Did you know that most of the dinosaurs became extinct due to climate rapid change?

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The **climate is changing rapidly** in all regions of our planet right now. Look at the map and notice what is happening to the average temperature.

### Special Report: Our Living Home: Monsoon Climates

The climate systems of different regions around the world create distinctive patterns of weather. Most people in North America are familiar with a seasonal pattern of winter and summer. In other parts of the world these seasonal changes are quite different.

In the tropical regions of Southeast Asia, the temperature doesn't change with seasons as dramatically as it does in more northern parts of the globe. The monsoon climate instead has seasonal winds that change their direction almost completely during their winter and summer months. Southwesterly winds blowing across the Indian Ocean are full of moisture and bring a rainy season during the summer. The northwesterly winds are blocked by the huge Himalayan mountain ranges, so most of South and Southeast Asia experience a dry season in winter. The weather patterns of the monsoon climate thus have a huge influence on human life, particularly on the farming methods that depend on predictable seasonal rains.

With our warming global climate, the monsoon rainy seasons in many recent years have brought destructive flooding to parts of Southeast Asia. Warmer air can hold more moisture than cold air, so the warmer air over the ocean brings too much rain to this region during monsoon season.