



The yearlong celebration of science continues...

Weather and Climate: The YoS2009 August Theme



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➤ Being Climate Science Literate

People who are climate science literate know that climate science can inform our decisions that improve our quality of life. They have a basic understanding of the climate system, including the natural and human-caused factors that affect it. Climate science literate individuals understand how climate observations and records as well as computer modeling contribute to scientific knowledge about climate. They are aware of the fundamental relationship between climate and human life and the many ways in which climate has always played a role in human health. They have the ability to assess the validity of scientific arguments about climate and to use that information to support their decisions.

➤ The Essential Principles of Climate Science Literacy

- Principle 1.** The Sun is the primary source of energy for Earth's climate system.
- Principle 2.** Climate is regulated by complex interactions among components of the Earth system.
- Principle 3.** Life on Earth depends on, is shaped by, and affects climate.
- Principle 4.** Climate varies over space and time through both natural and man-made processes.
- Principle 5.** Our understanding of the climate system is improved through observations, theoretical studies, and modeling
- Principle 6.** Human activities are impacting the climate system.
- Principle 7.** Climate change will have consequences for the Earth system and human lives

[From the introduction to the *Climate Literacy Handbook*, lead author Mark McCaffrey; Retrieved 2009 July 28. http://www.eoearth.org/article/Climate_Literacy_Handbook]

➤ How do weather and climate affect society?

- * During the 20th century, Earth's globally averaged surface temperature rose by approximately 1.08°F (0.6°C). Additional warming of more than 0.25°F (0.14°C) has been measured since 2000. Though the total increase may seem small, it likely represents an extraordinarily rapid rate of change compared to changes in the previous 10,000 years.
- * Over the 21st century, climate scientists expect Earth's temperature to continue increasing, very likely more than it did during the 20th century. Two anticipated results are rising global sea level and increasing frequency and intensity of heat waves, droughts, and floods. These changes will affect almost every aspect of human society, including economic prosperity, human and environmental health, and national security.
- * Scientific observations and climate model results indicate that human activities are now the primary cause of most of the ongoing increase in Earth's globally averaged surface temperature.
- * Climate change will bring economic and environmental challenges as well as opportunities, and citizens who have an understanding of climate science will be better prepared to respond to both.
- * Society needs citizens who understand the climate system and know how to apply that knowledge in their careers and in their engagement as active members of their communities.
- * Climate change will continue to be a significant element of public discourse. Understanding the essential principles of climate science will enable all people to assess news stories and contribute to their everyday conversations as informed citizens.

Are we talking weather or climate?

NASA suggests an easy way to remember: "climate is what you expect, like a very hot summer, and weather is what you get, like a hot day with pop-up thunderstorms."

For more resources to explore weather and climate, please visit: http://www.yearofscience2009.org/themes_weather_climate/