

## Keeping an Eye on Climate Change

Do you know the difference between “climate” and “weather”?

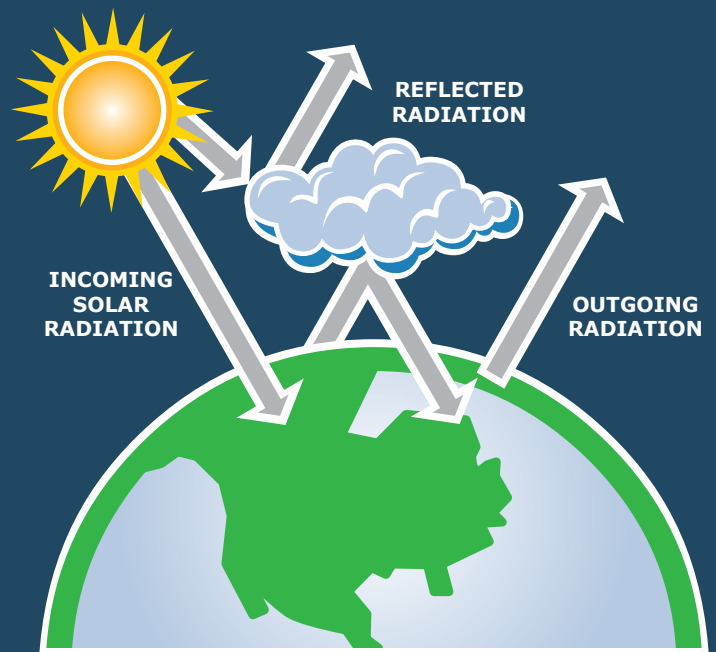
The weather is what you see outside your window right now—maybe cool and cloudy with rain, or warm and sunny with blue skies. Climate is like weather, except it covers a longer period of time... months, years, or even decades. It’s the combination of weather you typically “expect” at a certain place at a certain time of year.

For instance, summers in the Azores are usually warm and calm, with temperatures in the 70s or so. This is the summer *climate* in the Azores. However, you may get a few cool days in the 50s with some wind and rain. This is *weather*. Climate is what you expect, weather is what you get.

## Does climate matter? Yes!

Earth is the only planet—that we know of—that can sustain life. This is because its overall climate is flexible enough to support moderate changes in temperature. If Earth's climate changes beyond a certain point, it may no longer be able to support all the different kinds of life that it does today. Even now, coastal communities are noticing higher tides that are destroying ecosystems along the shorelines.

The U.S. Department of Energy (DOE) sponsors research that gives scientists the data they need to study Earth's climate and predict how it could change in the future.



## How do they get the data?



DOE operates a portable climate observatory, called the ARM Mobile Facility. It has lots of instruments for monitoring various elements of the climate, such as:

- Clouds – how big and thick and bright they are
- Aerosols – small particles in the air, such as soot, dust, and water vapor, that can grow into clouds
- Solar and thermal radiation – energy coming down from the sun and up from the earth
- Basic weather components – temperature, pressure and humidity.

The ARM Mobile Facility is operating on Graciosa Island until December 2010. To learn more about it, visit the ARM website at [www.arm.gov](http://www.arm.gov) and look under the “Sites” tab.



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