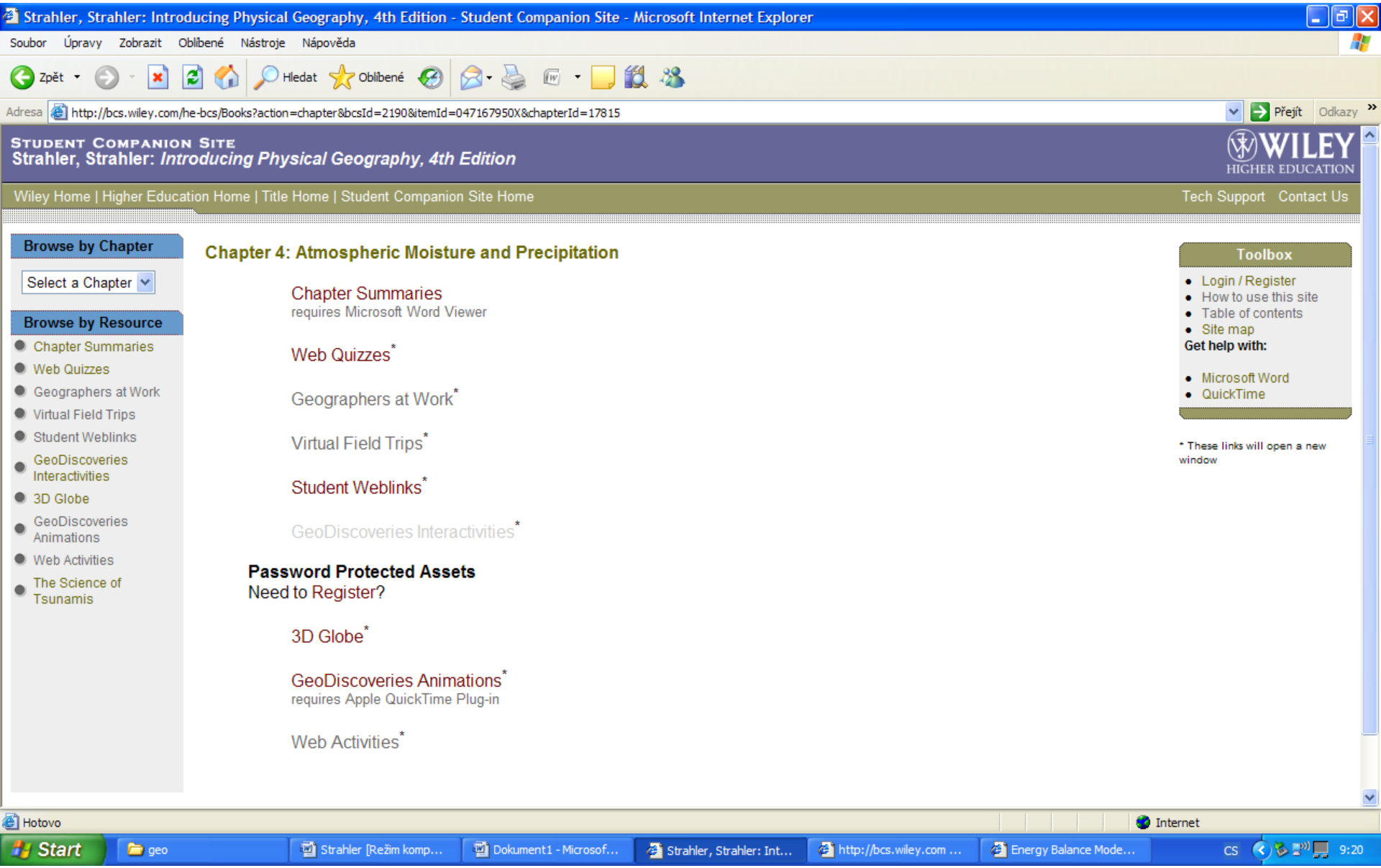
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Interactive Exercises

Earth/Sun Interactions

- Energy Balance Model Interactivity.

The Atmosphere and Oceans

- Weather Stations Interactivity.

Weather Systems and Global Climates

- Remote Sensing and Climate Interactivity.

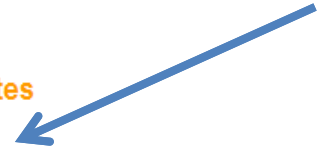
The Biosphere and Soils

- Remote Sensing and the Biosphere Interactivity.

Earth's Minerals and Rocks

- The Virtual Rock Lab Interactivity.

Globální cirkulace



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Global Climate

This interactive learning exercise uses imagery from GOES and MODIS. The GOES program is over 25 years old and provides not only up-to-date imagery but also a fascinating archive of important and influential climatic events. MODIS is a new satellite program which provides high resolution imagery on many aspects of the climate due to its sensors collecting data at 36 wavelengths.

Click on the "Start" button to begin this interactive learning exercise.

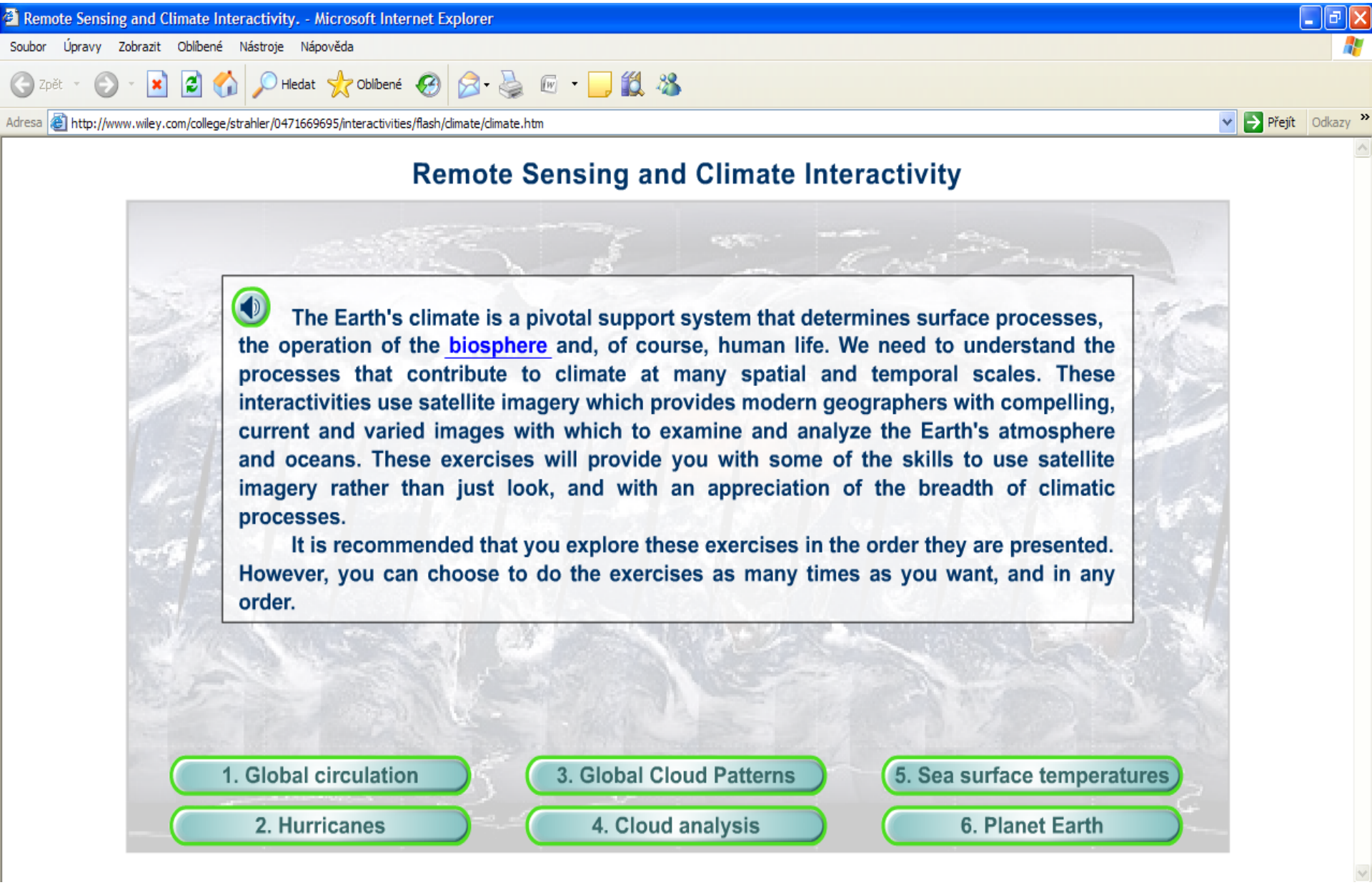
GOES Visible Image

MODIS Visible Image

GOES Infrared Image

START

Interactivity menu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Remote Sensing and Climate Interactivity
The Earth's climate is a pivotal support system that determines surface processes, the operation of the biosphere and, of course, human life. We need to understand the processes that contribute to climate at many spatial and temporal scales. These interactivities use satellite imagery which provides modern geographers with compelling, current and varied images with which to examine and analyze the Earth's atmosphere and oceans. These exercises will provide you with some of the skills to use satellite imagery rather than just look, and with an appreciation of the breadth of climatic processes.
It is recommended that you explore these exercises in the order they are presented. However, you can choose to do the exercises as many times as you want, and in any order.
1. Global circulation
2. Hurricanes
3. Global Cloud Patterns
4. Cloud analysis
5. Sea surface temperatures
6. Planet Earth

Remote Sensing and Climate Interactivity. - Microsoft Internet Explorer

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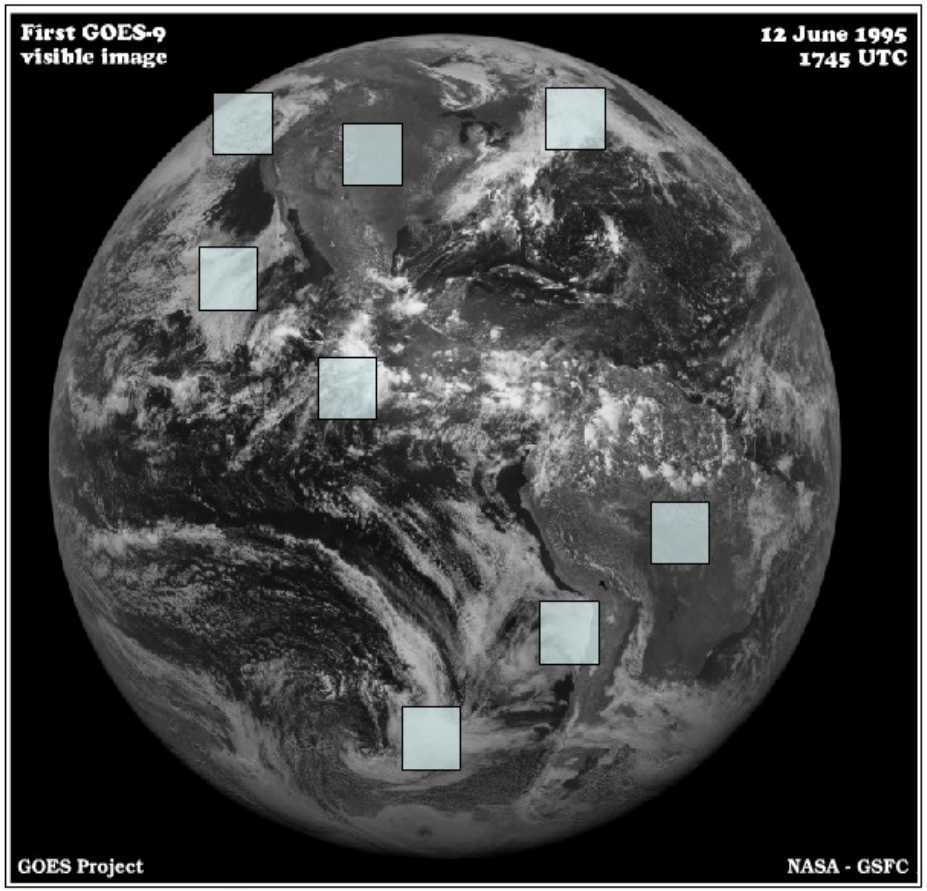

Global Circulation

Take a look at the satellite image on the left. It shows a full-disk image of the Earth in the visible wavelength. Using the icons presented below, label the Earth's circulation and cloud features that are apparent. Answers may be used more than once. Any icons that do not belong on this image should be placed in the trash can.
You might want to find out more about the image before proceeding, so click on "About this image".

- fog
- H — high pressure
- STH — subtropical high pressure
- L — low pressure
- C — intertropical convergent zone

About image

Global Climate - Visible Image

Help / Hint

Remote Sensing and Climate Interactivity. - Microsoft Internet Explorer

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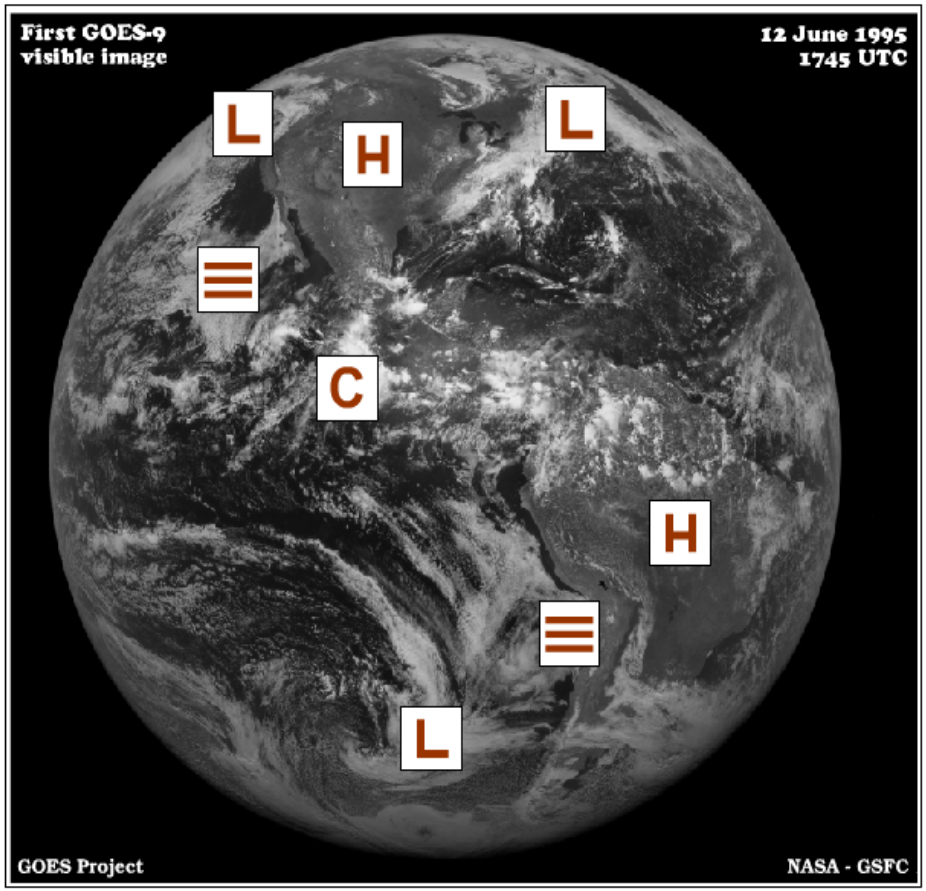

Global Circulation

The Geostationary Operational Environmental Satellite (GOES) is a geostationary satellite. In other words, it flies in an orbit above the equator at the same rate as the rotation of the Earth; consequently, its view remains constant. As it is a visible image, some parts of the Earth are in darkness at some times and therefore weather phenomena cannot be seen. However, by using thermal infrared images, we can continue to view a wide variety of atmospheric phenomena 24 hours a day.

Click on "Next Image" to take a look at an infrared image.

Interactivity menu

Global Climate - Visible Image

Next Image

Remote Sensing and Climate Interactivity. - Microsoft Internet Explorer

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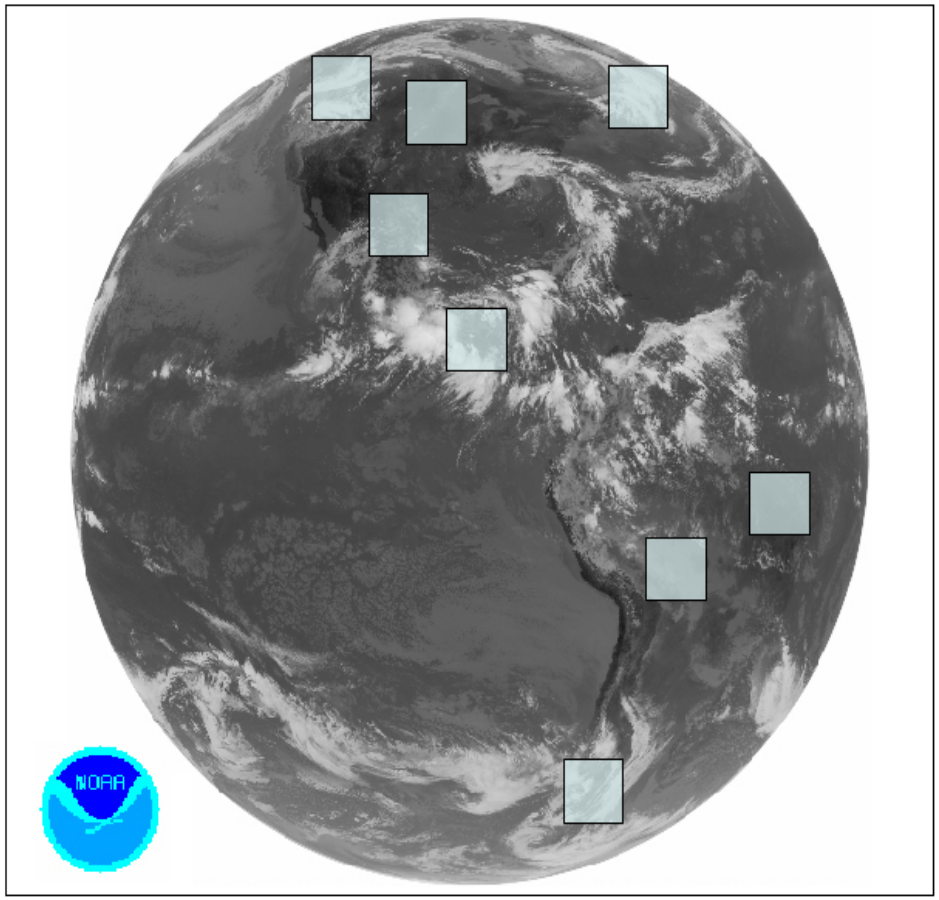

Global Circulation

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About image

Global Climate - Infrared Image

Help / Hint

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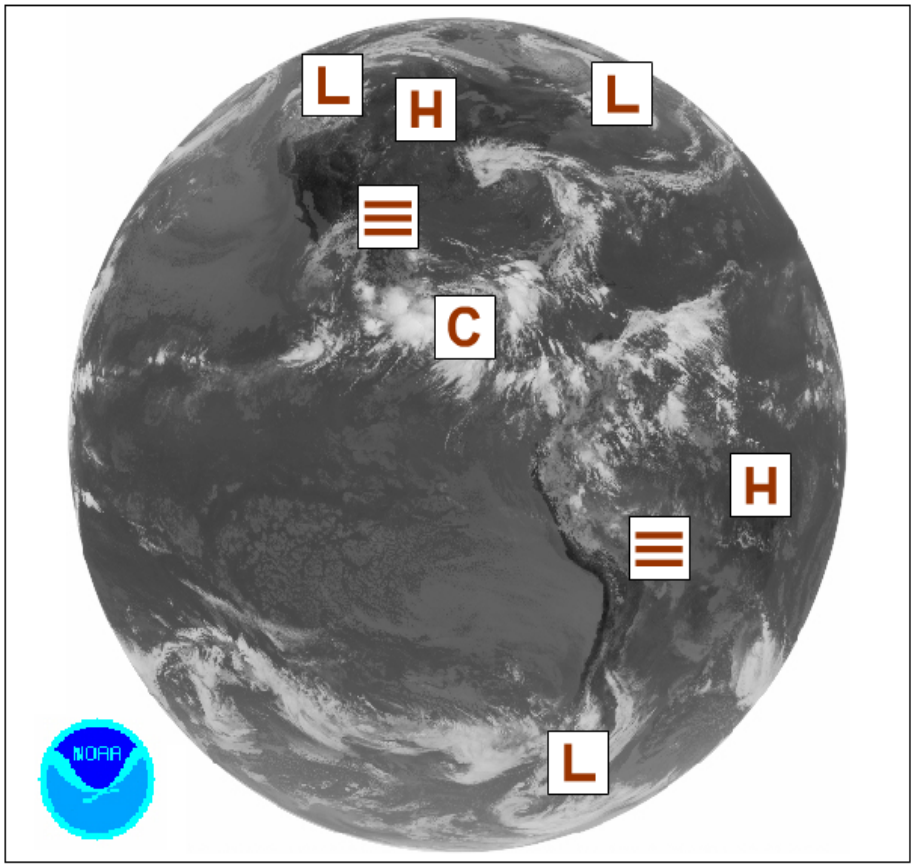

Global Circulation

Notice that the mid-latitude depression off western Canada and Washington State has moved inland - it has also elongated as it developed.
As this is an infrared image, in which whitest clouds are the highest and coldest clouds. Note the extremely bright cumulus still apparent across Central America. This shows the convective nature of these clouds, causing air to rise to high altitudes where clouds are coldest and therefore in this image also the brightest
Over Central South America, it is warm and so their clear skies are not as readily apparent in this image
Similarly the fog off the coast of Chile, being low is therefore relatively warm and so is also darker
Unlike the visible image, this thermal infrared image presents a full-disk and is not limited by the darkness of the Antarctic regions.

Click on "Next Image" to take a look at an MODIS image.

Interactivity menu

Global Climate - Infrared Image

Next Image

Remote Sensing and Climate Interactivity. - Microsoft Internet Explorer

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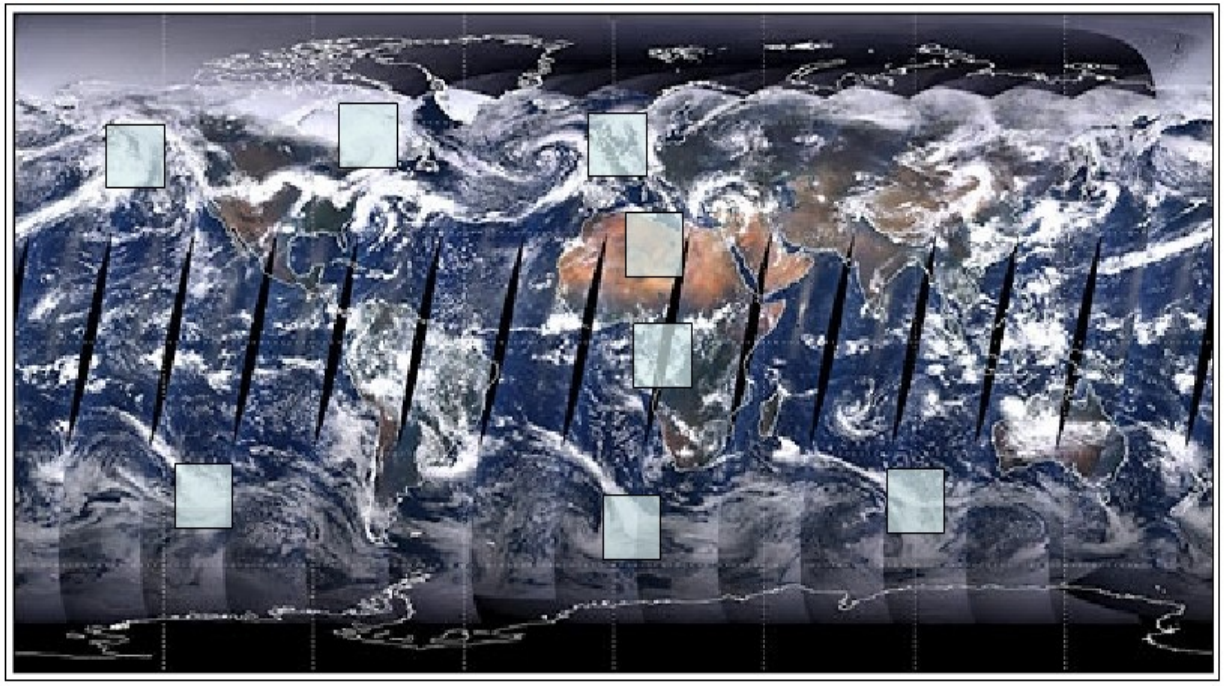
Global Circulation

Take a look at the satellite image on the left. It shows a MODIS image of the Earth in the visible wavelength. Using the icons presented below, label the Earth's climate features that are apparent. Answers may be used more than once. Any icons that do not belong on this image should be placed in the trash can. You might want to find out more about the image before proceeding, so click on "About this image".



ITCZ intertropical convergent zone

fog

L low pressure

H high pressure

STH subtropical high pressure

About image

Global Climate - MODIS Visible Image

Help / Hint

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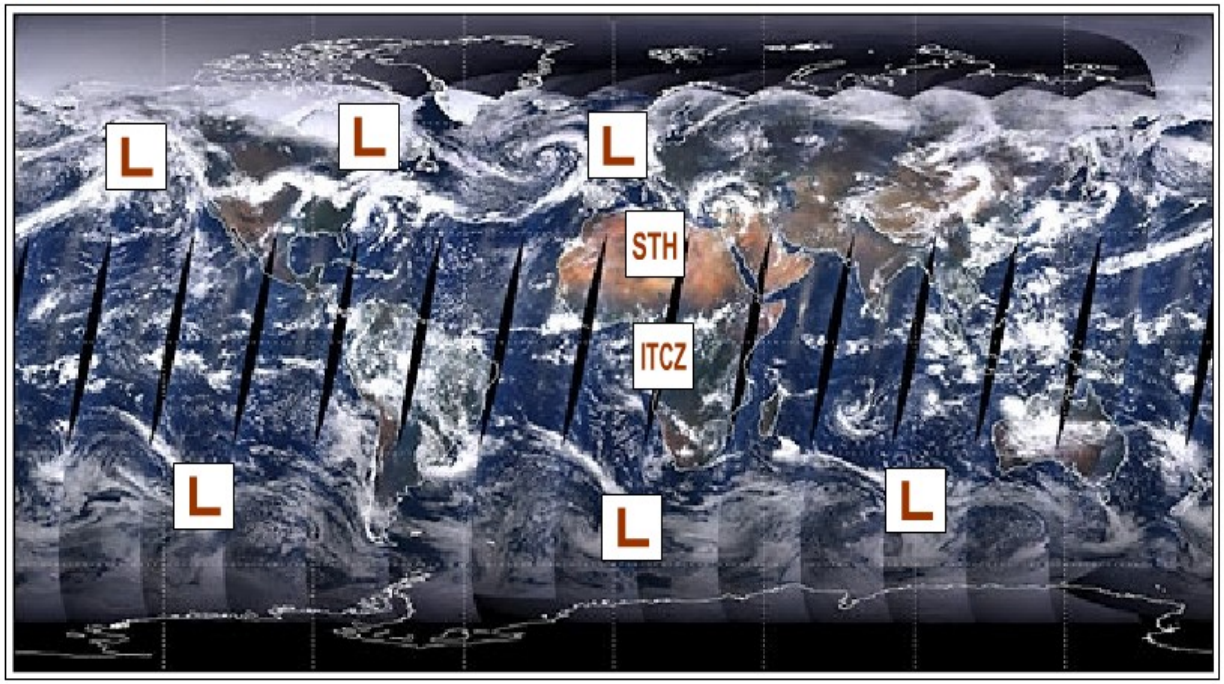
Global Circulation

The Moderate-resolution Imaging Spectroradiometer (MODIS) is that unlike any other meteorological satellite. It is capable of direct broadcast so that although the satellite stores the data it collects and then delivers it to recording stations, it also transmits its data as it collects it to anyone with the appropriate equipment. This kind of technology is speeding up the process of monitoring the environment and has huge potential for quicker and more accurate severe weather warnings.



Interactivity menu

Global Climate - MODIS Visible Image