

Chapter 21 Climate

Section 21.3 Climate Changes

This section describes natural processes and human activities that affect climate.

Reading Strategy

Identifying Cause and Effect As you read, identify the causes and effects of climate change presented in this section in the table below. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Climate Changes	
Causes	Effects
a.	b.
c.	d.
e.	f.

Natural Processes That Change Climate

- ➡ How do aerosols from volcanic eruptions affect climate? _____

- ➡ Is the following sentence true or false? El Niño or a change in ocean circulation can result in short-term climate fluctuations.

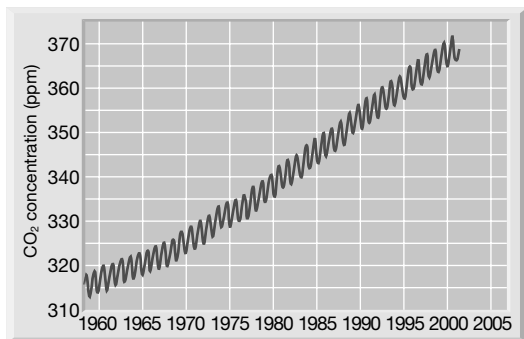
- The formation of sunspots appears to correspond with _____ periods in Europe and North America.
- ➡ Circle the letter of the motions of Earth that result in climatic changes.
 - rotations
 - plate tectonics
 - changes in the shape of Earth’s orbit
 - ocean waves

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Human Impact on Climate Changes

5. Circle the letter of the term for the natural warming of both Earth’s lower atmosphere and Earth’s surface.
 - a. greenhouse effect
 - b. tropical warming
 - c. transpiration
 - d. polar thawing
6. The major gases involved in the greenhouse effect are _____ and _____.
7. Explain why greenhouse gases are important for life on Earth.

8. Is the following sentence true or false? The burning of fossil fuels and the clearing of forests may have added to an increase of oxygen in the atmosphere. _____
9. Use the graph below to answer the following questions.



- a. What was the approximate concentration of carbon dioxide in the atmosphere in 1960? _____
- b. What was the approximate concentration of carbon dioxide in the atmosphere in 2001? _____
- c. What is the approximate difference in carbon dioxide concentration between 2001 and 1960? _____
10. What is global warming? _____

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WordWise

Solve the clues to determine which vocabulary terms from Chapter 21 are hidden in the puzzle. Then find and circle the terms in the puzzle. The terms may occur vertically, horizontally, or diagonally.

T	I	N	Z	W	L	Z	V	L	W	S	L	I	M
G	E	N	E	L	R	F	I	E	K	A	V	D	O
N	X	M	A	P	C	V	S	F	C	B	I	H	P
I	G	C	P	D	P	T	Q	I	R	M	S	B	S
M	V	M	K	E	C	O	P	X	U	Q	C	L	U
R	E	R	Q	O	R	O	K	H	D	K	G	K	B
A	E	T	A	K	R	A	P	J	Y	M	K	R	A
W	T	S	L	T	M	I	T	O	S	Y	M	A	R
L	T	U	B	Z	F	P	A	E	D	V	W	L	C
A	B	U	S	L	A	C	I	P	O	R	T	O	T
B	S	C	H	M	N	A	F	W	B	K	B	P	I
O	P	N	G	R	E	E	N	H	O	U	S	E	C
L	J	G	T	Y	S	S	I	O	T	C	V	L	J
G	U	R	L	B	U	K	L	X	A	V	T	Z	W

Clues

The _____ zone is a region that experiences warm weather year-round.

The natural warming of both Earth’s lower atmosphere and Earth’s surface is the _____ effect.

The region located north of the humid continental climate and south of the tundra has a _____ climate.

The _____ climate classification system uses mean monthly and annual values of temperature and precipitation.

The increase of global temperatures due to increased levels of greenhouse gases is known as _____.

The _____ zone is a region that experiences hot summers and cold winters.

The dry-summer _____ climate is sometimes referred to as a Mediterranean climate.

Coastal areas between about 40° and 65° north and south latitude have marine _____ climates.

The southeastern United States has a _____ subtropical climate.

The _____ zone is a region that experiences very cold temperatures year-round.