



Analyze a Technical Article

Earth Science – Topic 25
Volcanoes and Climate

Objectives

From this lesson, you should be able to:

- Summarize the selected article's thesis
- Identify key concepts presented
- Recognize unfamiliar expressions
- Explain selected illustrations or graphs
- Read the conclusion with understanding

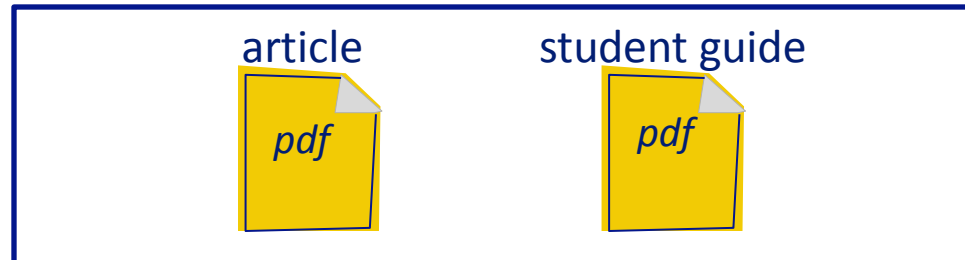


Overview

This article includes highly complex concepts and expressions.



The activity web page includes the source article and a student guide.



The activity page has several useful web links:

- Review additional information for new concepts.
- Clarify previously learned concepts.

Technical Paper – Earth Science

Title

Global temperature response to the major volcanic eruptions in multiple reanalysis data sets. ¹

Author

M. Fujiwara

Published

December 9, 2015

Publisher

Atmospheric Chemistry and Physics

Pages

12

URL

www.atmos-chem-phys.net



¹ Fujiwara, M. (2015). Global temperature response to the major volcanic eruptions in multiple reanalysis data sets. Atmospheric Chemistry and Physics, 15 (13507-13515), pp 1-12.

Prerequisite Concepts

Longitude & Latitude

A coordinate system allowing the location of any place on Earth's surface to be determined and described.

Scatter Diagrams

A scatter diagram graphs pairs of numerical data, with one variable on each axis. These assist in the identification of a relationship between pairs.

Degrees Kelvin

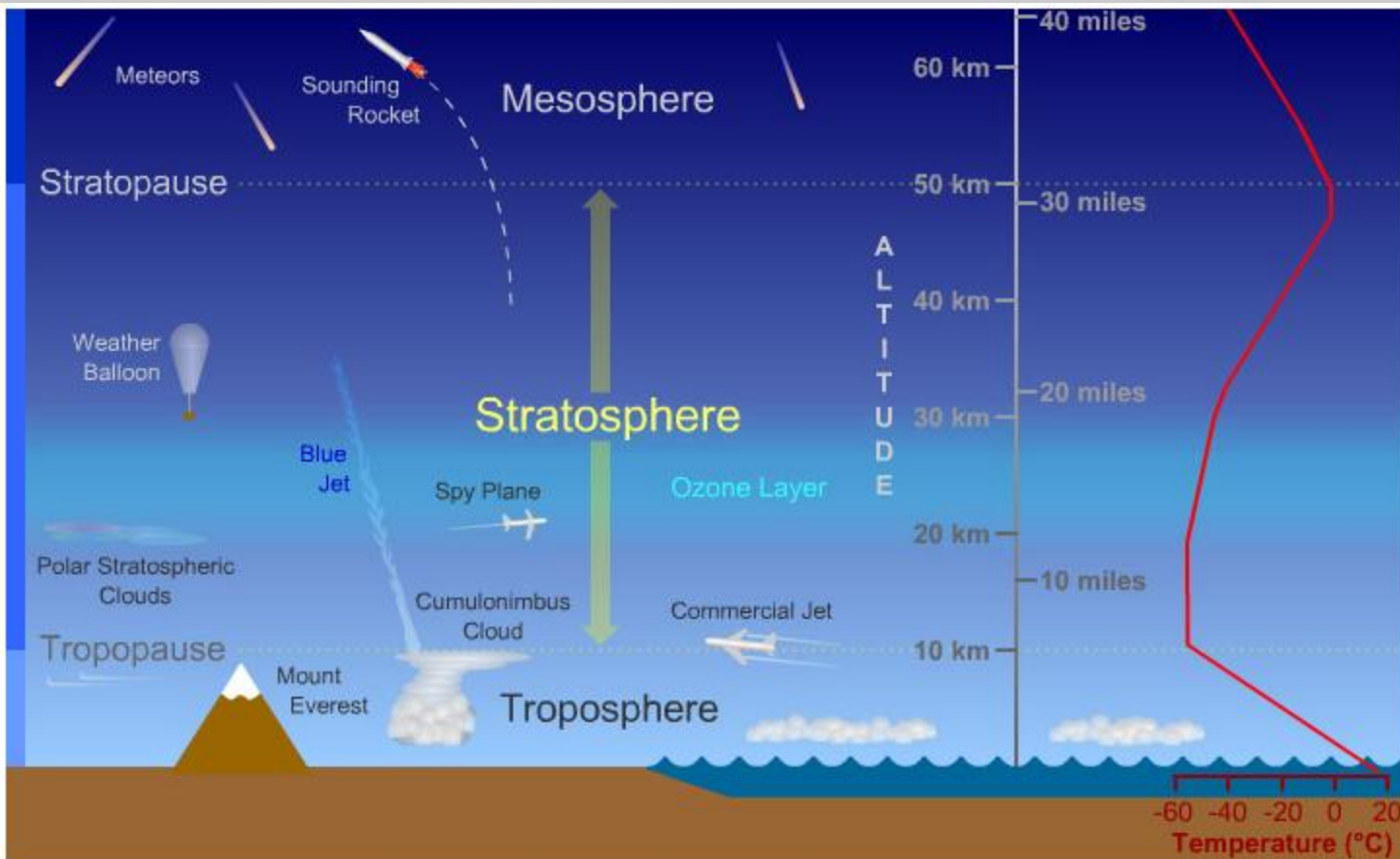
The kelvin is the base unit of temperature in the International System of Units (SI), having the unit symbol K.

Stratosphere

The stratosphere is a layer of Earth's atmosphere. It is the second layer of the atmosphere as you go upward. The troposphere, the lowest layer, is right below the stratosphere. The next higher layer above the stratosphere is the mesosphere.



Stratosphere (10-50 km)



The stratosphere is the second layer (going upward) of Earth's atmosphere. It is above the troposphere and below the mesosphere. The ozone layer is within the stratosphere. The temperature gets warmer as you go higher in the stratosphere. Credit: Randy Russell, UCAR

<https://scied.ucar.edu/shortcontent/stratosphere-overview>

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Key Terms

Volcanic Aerosols

Volcanic eruptions can inject sulfate aerosols into the lower stratosphere. Sulfates are compounds related to sulfuric acid, H_2SO_4 .

hPa and Altitude

hPa is the abbreviated name for hectopascal (100 x 1 pascal) pressure units which are exactly equal to millibar pressure unit (mb or mbar)

Regression Analysis

Regression analysis, in statistical modeling, is a way of mathematically sorting out a series of variables.

Residual following Regression Analysis

A residual is the difference between the measured value and the predicted value of a regression model.



Instructions

Launch the activity at:

- [Honeycuttscience.com](https://honeycuttscience.com)
 - **Activity 11**
 - **Earth science**
 - **Topic 25**
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1. Launch, then scan the article.
2. Launch, then scan the student guide.
3. Follow additional instructions found on the student guide cover page.
4. Prepare to thoughtfully discuss the article in a small groups or as a class.