Career Spotlight

Climatologist

Climatologists study climate conditions averaged over a period of time. They use climate models for a variety of purposes, from the study of the dynamics of the weather and climate system to projections of future climate. In contrast to meteorology, which focuses on short term weather systems lasting up to a few weeks, climatology studies the frequency and trends of those systems. Climatology considers the past and can help predict future climate change.

EDUCATION

Climatologists need to have a strong background in mathematics and science. In fact, a bachelor's degree in mathematics provides excellent preparation for graduate study in climatology. Climatologists often pursue higher education by obtaining a master's degree and a Ph.D.

WHEN MATH IS USED

A climatologist uses mathematical skills in collecting climate data, investigating climate indicators, and making predictions regarding climate patterns. They may use computer models to study how Earth's climate changes with time, and sophisticated computer software programs that assist them in modeling the Earth's climate and check that data against known information. They conduct research to determine if humans are affecting Earth's present and future climate.

POTENTIAL EMPLOYERS

About 37 percent of atmospheric scientists are employed by the Federal Government; most of these work in the National Weather Service. Others worked for professional, scientific, and technical services firms, including private weather consulting services; radio and television broadcasting; air carriers; and State government.

FACTS

Climatologists are able to study and research special occurrences of the Earth's climate. For example, in 1995 climatologists declared that year "the hottest year on record." Four years later, the 1990s were confirmed as the hottest decade in 1,000 years. Atmospheric scientists use calculus, statistics, and other advanced topics in mathematics to develop models used to forecast the weather. They also use mathematical calculations to analyze the relationship between properties of the atmosphere, such as how changes in air pressure may affect air temperature.

MATH REQUIRED

- College Algebra
- Trigonometry
- Calculus I, II, III
- Probability and Statistics
- Linear Algebra
- Ordinary Differential Equations
- Partial Differential Equations
- Complex Analysis
- Numerical Methods

Low-end Salary: $45,050/yr
Median Salary: $87,780/yr
High-end Salary: $132,130/yr

CITATIONS

http://en.wikipedia.org/wiki/Climatology
http://www.bls.gov/oco/ocos051.htm
http://www.cnn.com/2008/TECH/science/03/31/Intro.timeline/index.
http://www.bls.gov/oes/current/oes192021.htm
http://moregrumbinescience.blogspot.com/2008/08/math-in-climatology
http://www.examiner.com/x-3132-Philadelphia-Conservative
http://www.bls.gov/ooh/life-physical-and-social-science/atmospheric-scientists-including-meteorologists.htm#tab-4