Environmental Geology 106

Homework 5

Examine the five time series plots handed out during Wednesday's lecture period. Observe the pattern of temperature change over the last 100 years for both tree ring and varve data. ***Prepare a short paragraph and answer the following*** : 1)What is the climatic pattern produced by tree ring and varve data over the last 400 years? . 2) Do the climatic patterns produced seem to vary significantly at all? 3) Are variations recognizable within the same type of data (ie. within only tree rings or varve data?)

Examine some of the other tree ring and varve data contained at the provided web address. Can you determine if either type of data is more sensitive to climatic changes? If so how can you tell this?

INSTRUCTIONS:

One can utilize different methods to answer these questions. The following is an outline of one method that you can use to produce an answer.

1. Analyze time series plots (4, 7, and 15) from tree ring data.
2. Analyze time series plots (17, and 24) from varve data.
3. Determine if the predicted temperature changes for the time interval 1900-2000 are similar for these two different types of data.
4. Compare the results of these data to that predicted by instrumental data.
5. How do the climatic predictions compare? What does this tell you about the recent increase in mean annual temperature?

Global Warming
Spring 2001
Homework 5

Name _____ TA_____

Objective: To determine if the drastic increase in mean annual temperature observed over the last century is due to natural causes or is merely a result of using different analysis techniques to generate climatic fluctuation patterns.

Skills employed: Analysis of time series plots

Task: Observe a total of at least 5 time series plots depicting mean surface temperature trends over the last 400 years (three will come from tree ring width data and two will come from varve thickness data) to determine:) Is last century's warming trend natural or a result of using different types of techniques to measure climate change?

Audience: Your T.A.

Guidelines:
Use the time series data provided during Wednesday's lecture to support your thesis statement.
Use the references provided and whatever additional resources you find on your own to support your argument.
Paper must be typed, a maximum of TWO pages total,.
Emphasis is on answering the question in an objective, logical fashion.

Evaluation:

The 75 points for this assignment are distributed as follows:
_____ 1. (12) The paper is honest, not plagiarized. Automatic ZERO if plagiarized.

_____ 2. (18) The paper enters the discussion at the appropriate level. Addresses audience in question.

_____ 3. The paper develops its thesis with a subthesis structure that

_____ (10) has relevant subtheses supporting each other
_____ (10) is a coherent piece of reasoning, linked by logical transitions.
_____ (10) addresses other interpretations or weaknesses.

_____ 4. For each subthesis, the writer furnished evidence/information that

_____ (10) is as great in quantity as is appropriate.
_____ (10) is as specific/concrete as is appropriate.
_____ (15) is relevant.

_____ 5. (10) The conclusion is thoughtful and cogent; it contributes more to the question than a mere summary

_____ 6. (10) Spelling/punctuation, and correct grammar.

_____ 7. (10) Proper citations.

Mandatory Web Resource:

http://www.ngdc.noaa.gov/paleo/sciencepub/front.htm

At this site you can find the time series plots provided in class (click on linked site map), additional time series plots that you can observe if you wish to do so (click on linked site map or individual time series), and the raw data that the time series plots were constructed from.

Plenty of additional information can be found via the web and you are encouraged to search through some sites on your own.