From: Bob Keeland <Bob_Keeland@USGS.GOV>

To: ITRDBFOR@LISTSERV.ARIZONA.EDU

Subject: Re: verification and uniformitarianism

Date: Wed, 2 Dec 1998 16:13:08 -0700

Reply-to: grissino@VALDOSTA.EDU

Frank is correct in that we need to define 'abrupt climatic change' or even just 'climate change.'

Using Jim's Schulman Grove example suppose that the area supported a stand of bristlecone pine 9,000 or more years ago, hence the scattered remnants. Either a major catastrophic event or a fluctuation in climate (call it climate change if you want) resulted in conditions that killed the mature trees and eliminated any further recruitment for up to 1,000 years. This site may be near the limits of recruitment and with a major (or minor perhaps) change in climate it could easily be beyond the limits of recruitment. About 8,000 years ago climate again became favorable for bristlecone pine recruitment and a new stand(s) developed and have existed ever since. Some or most of the material remaining from the original stand may be buried down in the valley, or the original stand may have been small or sparse. The amount of time between the loss of the original stand and the beginning of the new stand would depend on the period of unfavorable weather and the amount of time needed for bristlecone pine to re-invade the area. I am out on a limb here, so to speak, as I an somewhat ignorant of prehistoric climate patterns for the area and of bristlecone pine ecology, but this seems like a relatively reasonable scenario.

I guess that my point is that climate continues to fluctuate within broad bounds. Everything that we are now calling 'climate change' is well within the bounds observed within the prehistoric record of climate fluctuations. Do we call any variation 'climate change' or should we limit the term climate change for anything considered to be caused by humans? To my mind it is not so much what we call it, but rather that we keep a clear idea of what we actually talking about.

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