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TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH



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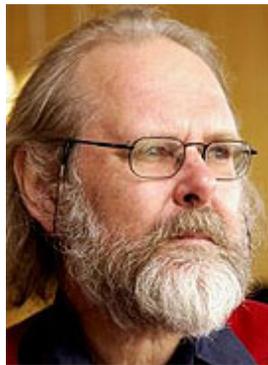
2008 : August 2008 : Nils Chr. Stenseth

EMERGING RESEARCH FRONTS - 2008

August 2008



Nils Chr. Stenseth talks with *ScienceWatch.com* and answers a few questions about this month's Emerging Research Front in the field of Environment/Ecology.


Article: Ecological effects of climate fluctuations

Authors: [Stenseth, NC](#); [Mysterud, A](#); [Ottersen, G](#); [Hurrell, JW](#); [Chan, KS](#); [Lima, M](#)

Authors: SCIENCE, 297 (5585): 1292-1296 AUG 23 2002

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(addresses have been truncated)

SW: Why do you think your paper is highly cited?

I think that there are two reasons, in that it covers a broad spectrum of biological systems as well as placing the climate-effect studies within a classical ecology setting, with a strong focus on population processes (and by so doing demonstrates how the effect of climate fluctuation might be understood within the conceptual setting of population-based ecological theory).

Classical population theory focuses upon how density-dependent and density-independent processes determine the temporal dynamics of populations. In this 2002 paper, we showed how climate fluctuations might affect the strength of the density-dependent and density-independent processes, and thereby how climate fluctuations might affect the temporal dynamics of populations.

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

The paper describes a synthesis across several ecological systems of how large-scale climate variation may affect ecological patterns and processes. We focused on the importance of large-scale climate variation, as measured by climate indexes like the North Atlantic Oscillation (NAO).

In two subsequent papers: (Stenseth NC, *et al.*, "Studying climate effects on ecology through the use of climate indices: the North Atlantic Oscillation, El Niño Southern Oscillation and beyond." *Proceedings of the Royal Society of London*, B 270: 2087-96, 2003. [See link below] and Stenseth NC & Mysterud A "Weather packages: finding the right scale and composition of climate in ecology," *Journal of Animal Ecology* 74: 1195-98, 2005), we launched the concept of "weather packages," claiming that such a

combination of weather factors across time and space—just like the NAO index and the like does—is highly appropriate for ecological studies.

SW: Would you summarize the significance of your paper in layman's terms?

We demonstrate that climate fluctuations affect the dynamics of populations through how the ways in which individuals within and between different species interact. Furthermore, since we do this within a classical ecology conceptual framework, we brought mainstream ecology and climate-effect studies together.

SW: How did you become involved in this research and were any particular problems encountered along the way?

I have always been interested in understanding how the environmental conditions affect the dynamics of populations. To me climate fluctuations are one way through which the environment is changing. Hence, climate-effect studies provided a splendid way for me to better understand how varying environmental conditions affect the dynamics of populations. It was quite rewarding that such studies were also of great potential value to a broad spectrum of people worldwide.

SW: Where do you see your research leading in the future?

I continue to follow up the 2002 study with more process-oriented studies, i.e., trying to understand the mechanisms behind how climate fluctuations affect the strength of density-dependent and density-independent processes.

SW: Do you foresee any social or political implications for your research?

Studies focusing on how climate fluctuations affect the dynamics of populations and other ecological systems are in great demand these days due to concerns regarding climate change.

Nils Chr. Stenseth

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"To me climate fluctuations are one way through which the environment is changing."

Related Information:

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- [Nils Chr. Stenseth](#) is featured in [ISI Highly Cited.com](#)
- [Fast Breaking Paper](#) comment from June 2008
- [New Hot Paper](#) comment from January 2004

Keywords: climate fluctuation, climate fluctuations, ecology, population-based ecological theory, large-scale climate variation, weather packages, mainstream ecology, climate-effect studies, climate change.



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