

Sommersemester 2010

Gebäude GEO I
Hörsaal H6

BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung**Donnerstag 15.07.2010, 16:15 Uhr, H6****Anschließend Postkolloquium mit Bier und Brezeln im Foyer H6**

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How long is long enough in ecosystem observation?

It is a common fate of long-term ecosystem observation programs that, after some years, the merit of continuation is put to question. The reason for such doubt in their value is not due to operating costs alone, but is rooted in the common view that long-term observations smack of “monitoring”: simple stockpiling of data, endeavors that have little in common with the accepted way to conduct hypothesis or question driven research.

We argue that a comprehensive long-term observation program, with continuous data quality control, analysis and interpretation, combined with modeling, goes far beyond mere fishing for serendipity. Such programs are invaluable tools to detect the scales of environmental variability and long-term trends; they form the basis for the identification of anomalies and their underlying processes; they are the most important data source for the independent evaluation of Earth-system-climate models. The most obvious significance of continuous long-term observations is their utility for continuous evaluation of a model over long time periods.

A more subtle point arises from the recognition that every environmental observation site is to a certain extent unique. In consequence, every observation must be seen a-priori as a unique value in a non-stationary, non-homogeneous field. Without the availability of an associated value, to which it can directly be compared (e.g., a known reference) it is not possible to obtain a well constrained estimate of its uncertainty. Without a measure for uncertainty, the utility of such observations for comparison is jeopardized. However, if the data point is embedded in a comprehensive long-term series, it is possible to stratify the data set and objectively select a sample with comparable environmental conditions. Thus, long-term observations provide an essential tool for environmental science to escape a fundamental methodological dilemma.

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