Climate warming affects entire lakes

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Canadian scientists in a University of Alberta study indicate global warming is producing major ecological changes in remote arctic lakes at an alarming rate.

The research is said to be the first to demonstrate a whole lake biological response to warming in the arctic.

Neal Michelutti, a post-doctoral science fellow, said even in the most remote, pristine parts of the Earth -- far from the direct influence of human activities -- changes are occurring in entire ecosystems.

He and his research team used a technique called reflectance spectroscopy to allow them to "see" in wavelengths that the human eye cannot -- the chemical composition of the sediment in six lakes on Baffin Island.

They found major increases in chlorophyll-a concentrations, a good indicator of overall ecosystem production.

What alarms the researchers is the magnitude and timing of the changes. "For the last several thousand years, chlorophyll-a concentrations in our study lakes were very low and showed little variability, until approximately 150 years ago when chlorophyll-a increased rapidly and reached unprecedented levels. The timing of these changes corresponds to the start of the Industrial Revolution," said Michelutti.

The research appears in the current issue of Geophysical Research

Letters.