

UNDERSTANDING PRESENT AND PAST ARCTIC ENVIRONMENTS

AN INTEGRATED APPROACH FROM CLIMATE CHANGE PERSPECTIVES



Edited by
Neloy Khare

About the book

Description

Understanding Present and Past Arctic Environments: An Integrated Approach from Climate Change Perspectives provides a fully comprehensive overview of the past, present and future outlook for this incredibly diverse and important region. Through a series of contributed chapters, the book explores changes to this environment that are attributed to the effects of climate change. The book explores the current effects climate change has had on Arctic environments and ecosystems, our current understanding of the effects climate change is having, the effects climate change is having on the atmospheric and ocean processes in this region.

The Arctic region is predicted to experience the earliest and most pronounced global warming response to human-induced climatic change, thus a better understanding is vital.

Key Features

- Presents a thorough understanding of the Arctic, its past, present and future
- Provides an integrated assessment of the Arctic climate system, recognizing that a true understanding of its functions lies in appreciating the interactions and linkages among its various components
- Brings together many of the world's leading Arctic researchers to describe this diverse environment and its ecology

Details

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Chapter 3 - Lakes and fjords of Polar regions—potential indicators of climate change

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minute changes to the environment. Variety of glacial landforms such as lakes and fjords that occur in Polar regions are considered potential indicators of climate change. Two sediment cores from the lake and fjord have been collected and analyzed for sediment components (sand, silt, and clay), organic components [total organic carbon (TOC), total nitrogen (TN), and total phosphorus (TP)], and major and trace elements to understand the sedimentary processes, depositional environment, and climate change. In both the cores, higher sand, high TOC, TN, TP, and high concentration of most of the elements in the upper portion indicated warming conditions in the region suggesting a high influx of meltwater in the recent years. In core LA, TOC and C/N ratios showed a peak between 8 and 4cm coinciding with a higher concentration of sand. Along with lower concentration of almost all the metals except Ca indicated cold climatic conditions suggesting relatively higher input of terrestrial organic matter resulted in a reduction in the lake production. In core K-1, sand, silt, TOC, TN, C/N, and almost all the elements showed a positive peak at 13cm indicating warming conditions in the region suggesting a higher influx of terrestrial material in the fjord from the weathering of rocks available in the catchment area.