THE EFFECT OF SEA ICE ON PEOPLE'S LIVES IN PAST AND FUTURE; A STUDY ON CLIMATE IMPACTS, ADAPTATION AND MITIGATION METHODS USING GEOGRAPHICAL INFORMATION SYSTEMS.


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A study on how the presence of sea ice has affected people's lives in Iceland from AD 1850 to the present day is proposed. The aim is to examine in what way people can be affected, and whether there are any differences through time and in different regions of Iceland. Furthermore, possible impacts of sea ice in the future are considered.

Miscellaneous data sources are used to establish the history of sea-ice impacts. These include farmers' diaries, various reports, questionnaires, autobiographies, newspapers and interviews with captains. A Geographical Information System (GIS) is used to build a databank where the various impacts are categorised and registered according to geographical location and time. At the same time, GIS is used to store information on the sea-ice extent each month during this period. The GIS allows the data to be viewed geographically and according to different attributes. It is thus possible to search the database for certain "appearances" of impacts, such as polar bear sightings or loss of fishing gear, view the results geographically and to study the connection of such events to the amount of sea ice.

The different types of sources allow comparison of what people mention on the impacts in their diaries and when asked directly about the impacts.

The project also considers people's reaction to the sea ice; how they tried to predict its arrival, adapt to the different environment that it shaped or mitigate the negative impacts. The role of satellite images and daily sea-ice charts in coping with the sea ice nowadays is contemplated.

By studying the past, including both severe and mild periods and identifying the "essence" of sea-ice impacts, possible future impacts could be predicted. As the sea ice conditions, the Icelandic society and the available technology have changed dramatically during this period it is believed to be useful to isolate the "appearance" of impacts and then attempt to project them into future. Both scenarios are considered, with less or more ice, even though predictions suggest the former. Under such circumstances the ice can still be a hazard as navigation in the Polar Regions is likely to increase (International Ice Charting Working Group). GIS has proven to be a valuable tool for impact studies and for understanding the connection between different factors of sea-ice impacts and sea-ice extent.

This project could be a model for other climate impact studies, where research on past conditions and impacts, as well as adaptation and mitigations methods, are used to predict future influence and reactions. As there is evidence for extensive climatic changes in the future, the way this will influence people and society is of great importance.