

Abstract Submitted
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Timeseries Analysis of Seasonal Variations of Pacific Arctic Sea Ice-Cloud Cover Feedback¹ AANDISHAH TEHZEEB SAMARA, Clark University — It is predicted that by the year 2050, Arctic summers will be sea ice free. The complexity of the Earth's climate system and its feedback entails that the effects of melting of sea ice has coupled effects in the hydroclimate, especially for cloud cover. In my research, I have created a time-lapse of the sea ice and cloud cover in the same region to understand the extent of their relationship in the Arctic. An international consortium of scientists has implemented the Distributed Biological Observatory (DBO) which is a change detection array for the identification and consistent monitoring of biophysical responses to environmental change in the Pacific Arctic Region. The data for my project has been collected from the DBO sites. Sea Ice concentrations and Sea surface temperatures have been accumulated from their archives. The cloud fraction has been compiled from the NASA's MODIS AQUA satellite. This has been analyzed by using the Earth Trend's modeler using TerrSet software. By mapping annual trends, we understand whether climate change is causing a positive or negative feedback impact on the sea ice-cloud cover relationship. My findings show a negative feedback, that due to the decreasing sea ice there is increasing cloud cover. Since cloud cover is one regulator in minimizing temperatures, these feedbacks are crucial to understand for accurately modeling climate change and would help guide analysis in the future. My research is aimed at bridging the gap that exists in current research in identifying the extent of cloud cover in the Arctic Climate and the degree of its impact that inevitable sea ice disappearance is going to have.

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