**NAAVI: A MULTISCALE ENVIRONMENT ANALYSIS**

**ASSESSING THE IMPACT OF POLAR CLIMATE CHANGES ON THE URBAN HEAT ISLANDS**

**ABSTRACT**

The project aims to explore the interconnectedness between the global sea ice dynamics and the Urban Heat Island (UHI) effect in cities. With climate change accelerating polar ice melt, this approach is to investigate how these changes influence atmospheric circulation patterns and contribute to the intensification of UHI in urban environments. This focuses on two main areas monitoring and predicting sea ice changes, and analysing the UHI effect. Using satellite data, such as NASA’s MODIS and Sentinel-1, sea ice extent, thickness and seasonal variation will be tracked. Advanced machine learning models will be employed to predict future changes in the glaciers based the available climatic data. This will also assess how sea ice loss affects atmospheric patterns like jet streams, intensifying heatwaves and urban warming. By creating a relationship between polar climate changes in the urban areas. The outcome will be predictive model based on these factors. The development process involves in the collection of the large amount of the data which includes the images of the glaciers and sea ice from the satellites and the historical data of the climatic changes and weather. All the collected dataset will be pre-processed using the apt techniques such as image classification algorithms for the image data from the satellites and the time series analysis procedures for the climatic data. Our project will be helpful to gain a broad knowledge and it tries to bridge the gap between global climate science and urban climatology by the utilizing the comprehensive understanding of multiscale environmental interactions.

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