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Development of Web-Based Iceberg Detection Using Deep Learning

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Abstract : Large pieces of ice that break from the glaciers are known as icebergs. The threat that icebergs pose to navigation, production of offshore oil and gas services, and underwater pipelines makes their detection crucial. In this project, an automated iceberg tracking method using deep learning techniques and satellite images of icebergs is to be developed. With a temporal resolution of 12 days and a spatial resolution of 20 m, Sentinel-1 (SAR) images can be used to track iceberg drift over the Southern Ocean. In contrast to multispectral images, SAR images are used for analysis in meteorological conditions. This project develops a web-based graphical user interface to detect and track icebergs using sentinel-1 images. To track the movement of the icebergs by using temporal images based on their latitude and longitude values and by comparing the center and area of all detected icebergs. Testing the accuracy is done by precision and recall measures.

Keywords : synthetic aperture radar (SAR), icebergs, deep learning, spatial resolution, temporal resolution
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