

IceNet

British Antarctic Survey, September 2024 SIPN Submission

IceNet is a probabilistic, deep learning sea ice forecasting system. The reference implementation utilises ensemble modelling of U-Net networks to generate daily forecasts of sea ice condition, trained on climate reanalysis and sea ice observational data. Forecasts from the original IceNet research model submitted in a previous contribution call with the identifier of “IceNet1”. At the time, it was based on code developed for publication in Nature Communications which trained on climate simulations and observational data to forecast the next 6 months of monthly-averaged sea ice concentration maps. The latest operational IceNet library generates daily forecasts for a 93-day lead time which is being used for outlook generation. An updated introductory run-through of the refactored library can be found in the [EDS Book](#) [Byrne and Ubald, 2024]

For the September contribution, full Sea Ice Concentration fields have been submitted for the pan-Arctic and Antarctic regions (forecasting from 1st of September 2024 to 2nd of December 2024).

References:

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- Byrne, J., Ubald, B. N. and This EDS book notebook contributors (2024) ‘Sea ice forecasting using the IceNet library (Jupyter Notebook) published in the Environmental Data Science book’. Zenodo. doi: 10.5281/zenodo.12640158.
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