

# Extending the Ice Watch system as a citizen science project for the collection of in-situ sea ice observations

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## Abstract

Ice Watch is a program coordinating routine visual observations of sea-ice including icebergs and meteorological parameters. The program has already collected over 5,600 records from numerous ship voyages and is complementary to the Antarctic platform ASPeCt. These observations will enhance satellite data from the Copernicus Sentinels and other missions where the lack of routine spatially and temporally coincident calibration/validation data from the Polar Regions hinders the development of automatic classification products. Photographic records of observations, a critical piece of information for operations and research, are often missing. The mobile phones in nearly everybody's pocket now feature high-quality cameras, capable of recording accurate ancillary timing and positional information. We will develop the IceWatchApp to aid users in supplementing observations with photographs.

The application will be developed in collaboration with the Polar Citizen Science Collective, which has successfully implemented similar observation projects within atmospheric and marine biology. The image database will aid the training of machine learning algorithms for automatic sea ice type detection and provide a mechanism to crowd-source classification ("ask a scientist"). The app will also have the capability to provide near real-time satellite and Copernicus services products back to the user, thereby educating them on Earth Observation and giving them an overview of the surrounding environment.

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