**COMPETENCY 2: FORECAST ICE CONDITIONS AND PARAMETERS**

**Competency Description**

Forecasts of ice conditions and parameters are prepared and issued in accordance with documented requirements, priorities and deadlines. Demonstrate a good working knowledge of the weather producing processes, characteristics and behaviour of synoptic and mesoscale weather systems and sea ice physics and dynamics. Use this knowledge in forecasting the ice movement, development, melt and destruction

**Performance Criteria**

(1) Analyse and diagnose the ice conditions and parameters as required for the preparation and issue of forecasts.

(2) Prepare forecasts for the relevant ice conditions and parameters such as (not limited to):

(a) Ice concentration;

(b) Ice floe size;

(c) Ice stage of development;

(d) Ice movement;

(e) Ice freeze up time;

(f) Ice break up time;

(g) Ice deformation;

(h) Iceberg movement and decay.

(3) Ensure that forecasts are prepared and issued in accordance with national standard operating procedures (SOPs) including format, codes and technical regulations on content, consistency, accuracy and timeliness.

(4) Ensure that forecasts of ice conditions and parameters are consistent (spatially and temporally) across boundaries of the area of responsibility as far as practicable, whilst maintaining scientific integrity. This will include monitoring forecasts/warnings issued for other regions, and liaison with adjacent regions as required.

**Background knowledge, skills and abilities**

 Knowledge of methods for predicting meteorological, oceanographic and ice conditions and their application (including those required by the application of regional variations)

 Knowledge of forecasting models (deterministic models and ensemble prediction systems) performance including weather, ocean, ice and wave models

 Knowledge of remote sensing applications

 Knowledge of uncertainties and confidence in derived or automated products used for input into routine ice products

 Knowledge of forecast preparation systems (including use of the software)

 Knowledge of areas of responsibility (local and regional), and in particular forecast boundaries and associated observation sites

 Knowledge of forecast issue times and work priorities

 Knowledge of types and characteristics of wave and swell, generation and decay of wave and swell, and shallow water wave characteristics

 Knowledge of sea ice and freshwater ice physics and dynamics

 Knowledge of sea/tidal currents and sea level

 The ability to forecast sea ice extent, thickness, concentration, stage of development, drift, deformation, growth and melting, and floe size

 The ability to forecast icebergs and their movement/decay