COMPETENCY 2: FORECAST MARINE WEATHER PHENOMENA, VARIABLES AND PARAMETERS

Competency description

Forecasts of meteorological parameters and phenomena are prepared and issued in accordance with documented requirements, priorities and deadlines.

Performance criteria

1. Analyse and diagnose the marine weather situation as required for the preparation and issue of forecasts;
2. Prepare forecasts for the following weather phenomena, parameters and variables, including spatial extent, onset and cessation, duration, intensity and temporal variations, where applicable;

\*For high seas, coastal forecast requirements:

* + Wind including directional variability, speed and wind gusts;
  + Sea state;
  + Damaging large waves or multiple swell systems;
  + Precipitation and associated horizontal visibility;
  + Fog or mist, and associated horizontal visibility;
  + Other types of obscuration to visibility, including smoke, dust, haze, sandstorms, duststorms, blowing snow, volcanic ash and rock, and associated horizontal visibility;
  + Sea-ice state;
  + Synoptic situation for tropical, subtropical, temperate and polar climate zones as required;
  + Thunderstorms, heavy precipitation with poor horizontal visibility, downburst and microburst, squalls or gust front, hail, tornadic and waterspout activity;
  + Freezing spray or precipitation, snowfall;
  + Icing on vessels or structures;
  + Tropical cyclones, hurricanes, typhoons and their movement;
  + Icebergs and their movement;
  + Other international and national forecast requirements, as listed under Regional Variations.

1. Ensure that forecasts are prepared and issued in accordance with the *Manual on Marine Meteorological Services* (WMO-No. 558), Volumes I and II, and/or national standard operating procedures (SOPs) including format, codes and technical regulations on content, accuracy and timeliness;
2. Ensure that forecasts of weather parameters and phenomena are consistent (spatially and temporally) across boundaries of the area of responsibility as far as practicable, while maintaining meteorological integrity. This will entail monitoring forecasts and warnings issued for other regions, and liaising with adjacent regions as required.

Background knowledge and skills

* Knowledge of methods for predicting meteorological and oceanographic conditions, and their applications, including those required by the application regional variations;
* Knowledge of forecasting models (deterministic models and EPS) including wave models;
* Knowledge of remote-sensing applications;
* Knowledge of forecast preparation systems (including use of software);
* Knowledge of local and regional areas of responsibility, 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 tropical cyclones, hurricanes and typhoons and their impact on marine

activities;

* Knowledge of sea and tidal currents, sea level (including storm surges and tsunami) and drifting of objects or pollutants;
* The ability to forecast sea-ice extent, thickness, concentration, stage of development, drift, deformation, growth and melting;
* The ability to forecast icebergs and their movement, as required.