***Marine Weather Forecaster Performance Criterion 2.2: Experiential Questions***

***C2.2 Prepare forecast for weather phenomena, parameters and variables including spatial extent, onset and cessation, duration, intensity and temporal variations, where applicable***

***Performance criterion comments:***

The forecaster must apply meteorological knowledge to forecast weather phenomena, parameters and variables that are relevant to marine weather customers, including for high seas and coasts

**Scenario**:

During an assessment the forecaster is presented a series of evolving potentially severe weather situations changes commonly experienced within the area of responsibility. The forecaster must analyse that data as presented and determine the evolving state of the weather and prepare a forecast or warning, as appropriate.

Alternatively, the forecaster could describe a past situation in which they monitored and analysed incoming data to correctly forecast or warn for the evolving situation.

Scenarios chosen to assess should be among those most common or most impactful for the forecast area of responsibility

**Evidence of competency checklist**:

(Also see the full competency and consider your regional and national factors)

The forecaster analyses the presented meteorological data, which could include the following:

* scheduled bulletins (synoptic, ship observations (VOS), METAR, etc.)
* unscheduled data (in situ ocean observations, etc.)
* NWP analyses and forecasts
* remote sensed data (satellite, radar, lightning, etc.)
* non-standard data (seismological, hydrological, SST, snow/ice cover, volcanic ash, tropical cyclone, etc.)
* other relevant data and information
* advisories issued by other meteorological services and regional centers

to construct a comprehensive analysis of

* precipitation
* convective potential
* restrictions to visibility
* surface winds, including areas of strong winds
* areas of significant weather
* synoptic features, including large-scale motion
* boundary layer processes and evolution
* sea state
* interactions with tide and river run-off, especially near the coast
* other pertinent features

The forecaster uses their meteorological knowledge to

* describe plausible meteorological processes at work that explain the weather evolution.
* explain the meteorological processes at work
* describe the weather parameters and phenomena that might change as a result, including
  + clouds
  + precipitation
  + restriction to visibility
  + surface winds
  + state of the sea
  + tide and surge
  + other relevant information and impactful phenomena

The forecaster accurately develops forecasts or warnings for

* wind: speed, direction, gustiness, distribution and variability, as well as associated sea state
* pressure: surface pressure variations across an area or at a location, including a deepening low pressure system or blocking high pressure system, and the movement of pressure systems
* precipitation and associated visibility: precipitation type, amount, rate, phase, impacts to visibility (including heavy precipitation and blowing snow), freezing spray
* visibility: surface visibility, fog formation and cessation, mist, smoke, volcanic ash, dust, haze, sandstorms, climatology (seasonal and diurnal variations), impacts of low visibility to marine customers, obstructions to visibility near the coast
* thunderstorms: convective potential, development and motion of convective cells and systems, severity of convection and convective precipitation, risk of microbursts, hail, lightening, waterspouts, convective winds or other convective hazards
* sea state: wave height/direction for particular time frame (particularly damaging large waves or swell), wave height/direction for a critical location of marine activities, wave period, impacts to wave development and motion due to coastal layout and bathymetry, wave impacts on locations, activities and infrastructures
* tropical cyclones: predicted path, changing intensity, predicted impacts on coasts, impacts of associated severe weather (winds, large waves, storm surge, precipitation, etc.)
* icing on vessels or structures
* sea ice state and movement
* other international and national foreast requirements, as listed under Regional Variations

Forecasts or warnings include spatial extent, onset and cessation, duration, intensity and temporal variations of the forecast phenomena