



Australian Government

MARH4001A Forecast weather and oceanographic conditions

Release 1

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Modification History

Release 1

This is the first release of this unit.

This unit replaces and is equivalent to TDMMH707B Apply weather information when navigating a small vessel within limits of responsibility of a Master 4.

Unit Descriptor

This unit involves the skills and knowledge required to forecast weather and oceanographic conditions during a near coastal voyage and to take appropriate actions based on predictions.

Application of the Unit

This unit applies to those working in the capacity of Master on a range of vessels up to 80 metres.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1 Interpret weather and oceanographic information

- 1.1 *Ocean and weather conditions* are observed and interpreted
- 1.2 Measurements of current local, meteorological and oceanographic parameters are made and recorded using appropriate **shipboard instruments**
- 1.3 Weather charts and satellite images are acquired and interpreted
- 1.4 Weather reports are obtained and interpreted

2 Use information to predict local weather and oceanographic conditions

- 2.1 Forecasts of local weather and oceanographic conditions are correctly made using available information
- 2.2 Wave height and swell forecast is made using available information
- 2.3 Effects of local topographical features on wind flow and weather conditions are estimated using available information
- 2.4 Potentially dangerous conditions are identified and **appropriate action** is taken to secure vessel

3 Maintain records of weather and oceanographic information and forecasts

- 3.1 Weather and oceanographic information and forecasts are recorded and filed according to organisational procedures
- 3.2 Action on vessel operations initiated as a result of weather and oceanographic forecasts is documented according to organisational procedures
- 3.3 Meteorological charts, publications and related documentation are updated and stored according to organisational procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required Skills:

- Observe, interpret and forecast weather and oceanographic conditions
- Read, interpret and apply weather and oceanographic information
- Recognise problems that may occur when interpreting weather and oceanographic information
- Select and use shipboard instruments to assist in forecasting weather and oceanographic conditions
- Use tide tables to calculate height of tide

Required Knowledge:

- Basic principles for making meteorological and oceanographic measurements
- Effects on navigation and vessel handling of wind, currents and bottom topography
- Heat exchange process
- Principles and procedures of weather forecasting using information obtained from observations, charts, satellite images, reports and instruments
- Procedures for filing and maintaining weather and oceanographic information
- Procedures to be followed during gale conditions and tropical revolving storms
- Sources of weather and oceanographic information, and methods for their interpretation
- Topographical effects on wind flow
- Typical problems in forecasting weather and oceanographic conditions
- Vertical division of the atmosphere
- Work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, the required skills and knowledge, the range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- supporting reasons for intended action with statistical data and observations of actual conditions
- ensuring currency of relevant reference material.

Context of and specific resources for assessment

Performance is demonstrated consistently over time and in a suitable range of contexts.

Resources for assessment include access to:

- industry-approved marine operations site where forecasting weather and oceanographic conditions may be conducted
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities
- range of relevant exercises, case studies and/or other simulated practical and knowledge assessments
- appropriate range of relevant operational situations in the workplace.

In both real and simulated environments, access is required to:

- relevant and appropriate materials and equipment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

Method of assessment

Practical assessment must occur in an:

- appropriately simulated workplace environment and/or
- appropriate range of situations in the workplace.

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate to this unit:

- direct observation of the candidate forecasting weather and oceanographic conditions
- direct observation of the candidate applying relevant

WHS/OHS requirements and work practices.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

In all cases where practical assessment is used it should be combined with targeted questioning to assess Required Knowledge.

Assessment processes and techniques must be appropriate to the language and literacy requirements of the work being performed and the capacity of the candidate.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below.

Ocean and weather conditions must include:

- Air masses and fronts
- Cloud classifications
- Cyclones, storms and gales
- Ocean currents
- Pressure systems and cold fronts
- Sea state
- Tide prediction

Shipboard instruments may include:

- Barograph
- Barometers
- Equipment for receiving weather maps and forecasts
- Wet and dry bulb thermometers

Appropriate action may include:

- Avoiding storm centres and dangerous quadrants by adjusting course and speed
- Ensuring all vessel equipment is properly secured
- Taking action to avoid extreme adverse weather conditions

Unit Sector(s)

Not applicable.

Competency Field

Navigation