



Australian Government

Department of Education, Employment and Workplace Relations

**TDMMH1407A APPLY WEATHER
INFORMATION WHEN NAVIGATING A
VESSEL WITHIN THE LIMITS OF
RESPONSIBILITY OF A MASTER 3**

Release: 1

TDMMH1407A APPLY WEATHER INFORMATION WHEN NAVIGATING A VESSEL WITHIN THE LIMITS OF RESPONSIBILITY OF A MASTER3

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to interpret and apply weather information when navigating a vessel within limits of responsibility of a Master 3 or Skipper 1, including taking measurements of relevant meteorological and oceanographic parameters, observing current weather and ocean conditions and cloud formations, acquiring weather charts, reports and satellite images, interpreting available weather and oceanographic data, making forecasts of local weather and oceanographic conditions and taking appropriate action to adjust vessel operations based on local weather predictions.

Application of the Unit

Application of the unit	<p>The unit has applications in qualifications for a Master 3/Skipper 1 operating a vessel:</p> <ul style="list-style-type: none">• less than 35 metres in length for unlimited domestic operations• less than 80 metres in length for ACMW operations (within 600 nm)• that is both less than 3,000 GT and less than 100 metres in length, for ACMW operations (within 600 nm) <p>i.e. Diploma of Transport&Distribution (Coastal Maritime Operations - Master 3).</p>
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant maritime regulations describing mandatory minimum requirements for a Master 3/Skipper 1. This includes applicable sections of State/Territory maritime licensing and regulatory requirements and the National Standard for Commercial Vessels (NSCV) and the USL Code.
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<p>.</p> <p>1 Collect and interpret weather and oceanographic data</p>	<p>.</p> <p>a Ocean and weather conditions are observed and correctly interpreted in accordance with established nautical and meteorological practice</p> <p>b Measurements of current local meteorological and oceanographic parameters are correctly made and recorded using appropriate shipboard instruments in accordance with established practice</p> <p>c Meteorological charts, publications and related documentation are updated, stored and maintained as per procedures and chart/publication publisher's instructions</p> <p>d Meteorological charts, publications and related</p>

ELEMENT	PERFORMANCE CRITERIA
	<p>documentation are handled and used in ways that ensure continued availability, utility and length of life</p> <p>e Observations of weather and cloud formations are made and interpreted in accordance with established practice</p> <p>f Weather charts and satellite images are acquired and interpreted</p>

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ELEMENT	PERFORMANCE CRITERIA
<p>1 Collect and interpret weather and oceanographic data (continued)</p>	<p>g Weather reports are obtained and interpreted</p>
<p>2 Forecast local weather and oceanographic conditions</p>	<p>a A wave forecast is made based on observation of ocean and weather conditions and collected weather data</p> <p>b Calculations are made for the height of the tide at a given time and place using appropriate tide charts and/or diagrams</p> <p>c The effects of local topographical features on wind flow and weather conditions are correctly predicted from available information</p> <p>d Forecasts of local weather and oceanographic conditions are correctly made using available weather information</p> <p>e Potentially dangerous weather conditions are identified and correctly predicted and appropriate action is taken to secure the vessel</p>

ELEMENT	PERFORMANCE CRITERIA
3 Maintain records of weather and oceanographic information	a Weather and oceanographic measurements, observations, reports and forecasts are recorded and filed as per procedures and regulatory requirements b Action on vessel operations initiated as a result of weather and oceanographic forecasts is documented as required

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Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant maritime regulations, codes and conventions applicable to a vessel within the limits of responsibility of a Master 3 or Skipper 1
- 2 Principles and procedures of weather forecasting using information obtained from observations, charts, satellite images, reports and instruments, including:
 - a vertical division of the atmosphere
 - b air masses and fronts
 - c cloud classifications
 - d heat exchange process
 - e synoptic chart analysis
 - f pressure systems, cold and warm fronts
 - g cyclones, storms and gales
 - h tropical meteorology
 - i ocean currents
 - j weather data provided by shipboard instruments

REQUIRED KNOWLEDGE

- k sea state
- l tide prediction and the use of tide tables

REQUIRED KNOWLEDGE

- 3 Basic principles and procedures for making meteorological and oceanographic measurements using appropriate instruments and interpreting and deciphering the results
- 4 Procedures for the calculation of the height of tide for a given time at any place listed using tide tables
- 5 Procedures for making a wave forecast
- 6 Procedures for predicting topographical effects on wind flow
- 7 Effects on navigation and vessel handling of wind, currents and bottom topography
- 8 Problems in forecasting of weather and oceanographic conditions and appropriate action and solutions
- 9 Sources of weather and oceanographic reports and methods for their interpretation
- 10 Procedures for the application of forecast of likely weather and ocean conditions to vessel operations
- 11 Procedures to be followed during gale conditions and cyclones, including securing a vessel in a cyclone
- 12 Procedures for storing and handling weather and oceanographic reports, records of observations and instrument readings
- 13 Maritime communication techniques

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Use relevant communication skills required when obtaining and interpreting weather information and applying it to the navigation of a small vessel within limits of responsibility of a Master 3 or Skipper 1
- 2 Read, interpret and apply weather information and oceanographic reports

REQUIRED SKILLS

- 3 Read and interpret standard procedures for making meteorological and oceanographic measurements using appropriate instruments and interpreting and deciphering the results
- 4 Observe, interpret and forecast weather and oceanographic conditions
- 5 Complete any required records
- 6 Work collaboratively with others when interpreting and applying weather and oceanographic information to navigation
- 7 Select and use relevant instruments and equipment as per instructions
- 8 Recognise problems that may occur when interpreting and applying weather information to navigation and take appropriate action
- 9 Adapt to differences in vessels, equipment and standard operating procedures
- 10 Interpret and apply weather information when navigating a small vessel within limits of responsibility of a Master 3 or Skipper 1

Evidence Guide

Evidence Guide

TDMMH1407A APPLY WEATHER INFORMATION WHEN NAVIGATING A VESSEL WITHIN THE LIMITS OF RESPONSIBILITY OF A MASTER 3

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: <ol style="list-style-type: none">a Make relevant measurements of meteorological and oceanographic parametersb Acquire and interpret relevant weather and oceanographic information from appropriate sourcesc Use available weather and oceanographic information to make a local forecast of weather and oceanographic
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	<p>conditions</p> <p>d Take appropriate action to adjust vessel operations based on a local forecast of weather and oceanographic conditions</p>
<p>2 Evidence required for demonstration of consistent performance</p>	<p>a Performance is demonstrated consistently over a period of time and in a suitable range of contexts</p> <p>b Consistently applies underpinning knowledge and skills when:</p> <ol style="list-style-type: none"> 1 observing weather and ocean conditions 2 using shipboard instruments to collect basic meteorological and oceanographic data 3 obtaining and deciphering weather and oceanographic data collected from observations, charts, satellite images, reports and basic measurements 4 forecasting weather and ocean conditions and applying the forecasts to vessel operations 5 identifying and evaluating weather forecasting problems and determining appropriate solutions <p>c Shows evidence of application of relevant workplace and regulatory procedures, including:</p> <ol style="list-style-type: none"> 1 relevant regulations, codes and conventions 2 procedures for the use of meteorological instruments, observations, reports and the forecasting of local weather and oceanographic conditions 3 use of relevant meteorological publications and charts 4 procedures for the storage of meteorological publications and charts <p>d Action is taken promptly to report and act upon adverse weather forecasts in accordance with established procedures</p>

Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)	<ul style="list-style-type: none"> e Work is completed systematically with required attention to detail f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others
3 Context of assessment	<ul style="list-style-type: none"> a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation: <ul style="list-style-type: none"> 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and 2 Appropriate practical assessment must occur: <ul style="list-style-type: none"> i at the registered training organisation; and/or ii on an appropriate working or training vessel
4 Specific resources required for assessment	<p>Access is required to opportunities to:</p> <ul style="list-style-type: none"> a a range of suitably simulated practical and knowledge assignments and exercises that demonstrate the ability to collect appropriate weather and oceanographic data from observations, charts, satellite images, reports and basic measurements and make forecasts of local weather and oceanographic conditions; and/or b collect weather and oceanographic data from observations, charts, satellite images, reports and basic measurements and make forecasts of local weather and oceanographic conditions when on an operational commercial or training

vessel

Range Statement

Range Statement

TDMMH1407A APPLY WEATHER INFORMATION WHEN NAVIGATING A VESSEL WITHIN THE LIMITS OF RESPONSIBILITY OF A MASTER 3

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE

SCOPE

1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with relevant maritime regulations, codes and conventions
b. Work is performed:	1 relatively independently under broad operational requirements, with accountability and responsibility for self and others in achieving the prescribed outcomes
c. Work involves:	1 the application of interpretation of meteorological information, observations, reports and instrument measurements to the forecasting of weather and ocean conditions

2. WORKSITE ENVIRONMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

<p>a Vessel may include:</p>	<ol style="list-style-type: none"> 1 a commercial vessel <ul style="list-style-type: none"> • less than 35 metres in length for unlimited domestic operations • less than 80 metres in length for ACMW operations (within 600 nm) • that is both less than 3,000 GT and less than 100 metres in length, for ACMW operations (within 600 nm)
<p>b Sources of weather and oceanographic data may include:</p>	<ol style="list-style-type: none"> 1 measurements using appropriate instruments 2 observations of local weather and ocean conditions and cloud formations 3 weather charts 4 visible and infra red satellite images 5 weather reports 6 tide tables and/or diagrams 7 information on the effects of local topographical features on wind flow and weather
<p>c Instruments may include:</p>	<ol style="list-style-type: none"> 1 air and sea thermometers 2 barometers 3 hydrometers

Range Statement (continued)

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VARIABLE	SCOPE
c Instruments may include: (continued)	<ul style="list-style-type: none"> 4 anemometers 5 wind strength and direction instruments 6 instruments for measuring sea swell height, direction and period
d Meteorological and oceanographic parameters may include:	<ul style="list-style-type: none"> 1 atmospheric pressure 2 pressure gradient 3 air temperature 4 relative humidity 5 wind strength 6 wind direction 7 swell height, direction and period 8 visibility 9 cloud cover
e Documentation and records may include:	<ul style="list-style-type: none"> 1 operational orders 2 navigational charts of coastal waters 3 meteorological and oceanographic publications 4 coastal weather reports 5 annual and weekly notices to mariners

VARIABLE	SCOPE
	6 navigational warning records 7 relevant regulations, codes and conventions 8 vessel's log 9 company procedures 10 ship manufacturer's instructions and recommended procedures 11 instructions of relevant maritime authorities 12 relevant Australian and international standards
f Applicable legislation, regulations and codes may include:	1 IMO STCW 95 Convention and Code 2 relevant sections of AMSA Marine Orders 3 relevant sections of State and Territory marine regulations, NSCV and USL Code 4 International Regulations for Preventing Collisions at Sea 5 relevant international, Commonwealth, State and Territory OH&S legislation

Unit Sector(s)

Not applicable.

Field

Field MH Navigation

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
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