



Australian Government
Bureau of Meteorology

Aerodrome Weather Observer

Module 3

Module Completion Report



Bureau of Meteorology Training Centre

AWO Module 3: Module Completion Report

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AWO Module 3: Module Completion Report

Version 3.0, September 2015

BMTC, GPO Box 1289, Melbourne, Victoria, 3001

AWO Module 3: Practical Observations

Module Objective

To assess participant's competence to perform all tasks associated with the provision of Aerodrome Meteorological Observations and Reports.

Prerequisites

- AWO Module 1, or the recognised prior learning credit from an approved course, or recognised current competency; and
- AWO Module 2.

Relationship to Standards

- Complies with ICAO Annexe 3 International Standards and Recommended Practice – Meteorological Service for International Air Navigation (with Australian exceptions).
- Complies with WMO 49 Volume II Technical Regulations for International Air Navigation (with Australian exceptions).
- Forms part of the Basic Instructional Package for Meteorological Technicians (BIP-MT) as described in WMO 1083 – Manual on the Implementation of Education and Training Standards in Meteorology and Hydrology.
- Conforms to the WMO Implementation Guidance of Aeronautical Meteorological Observer Competency Standards.
- Accredited by the Meteorological Authority.

Reference Material

All operational documentation relevant and available for the observing location.

Assessment method and conditions

Competency is assessed during the provision of a continuous weather watch encompassing a minimum of 60 Aerodrome Meteorological Observations and Reports, conducted in a real or simulated workplace environment.

Guidance for participants and supervisors

AWO Module 3 places the AWO course participant in the company of an experienced observer to perform a practical demonstration, under supervision, of the knowledge and skills acquired during AWO Module 2. During this demonstration the participant will perform a continuous weather watch at their location and provide a minimum of 60 Aerodrome Weather Reports (Class A participants), or 60 Take-off and Landing Reports (Class B participants).

Class A or Class B?

Class A observers issue reports in the METAR/SPECI format. These observers are typically Bureau, Navy and Antarctic Division staff. Class A participants must have completed the Module 3 Class A Supplement quiz prior to commencing the practical observations component.

Class B observers issue Take-off and Landing Reports, normally in the ATIS broadcast format. These observers are Airservices Australia and RAAF Air Traffic Services staff.

For participants not associated with the above organisations, contact us to determine the class of certificate you require.

Role of the supervisor

The supervisor shall hold a current Aerodrome Weather Observer qualification for the class of certificate sought by the participant, with at least six months continuous experience providing Aerodrome Meteorological Observations and Reports. More than one person may perform the supervisor role for the participant during the course of the module.

While the supervisor's role will primarily involve the observance and evaluation of performance of the participant, it is expected a degree of coaching will be required to help the development of the required competence of the participant.

In addition to any coaching to assist with the participant's learning, some discussion will be required during the initial stages of this module relating to the logistics of performing an observation. These discussion areas may include, but not be limited to:

- the observations routine for the location
- the maintenance of the instrumentation
- the use of the display console and other computer software/hardware
- mechanisms for reporting and recording of observations
- location specific observing requirements

Notwithstanding the above points, the supervisor should always afford the participant the opportunity to provide their best interpretation of the meteorological elements when performing an observation in the initial instance. The supervisor should intervene with further discussion points and suggestions when necessary for the benefit of the participant to provide a more accurate assessment of these elements.

As the participant becomes more familiar with the observing location's environment and operating logistics, it is expected the supervisor's role will become more passive with minimal input. However, as the supervisor is considered the issuing officer for all disseminated weather reports, they shall always check and confirm the accuracy of an observation made by the participant prior to the transmission of a report.

Module Completion Report

The Module Completion Report paperwork is comprised of:

- the Module 3 Completion sign-off sheet
- Competency Checklists
- Log of observations

Every item within the *demonstration of skills* checklist must be completed:

- with a tick (✓) to indicate the standard has been demonstrated; or
- the words **N/A**, where a particular item is not applicable for the certificate class being sought.

Both the course participant and supervisor shall familiarise themselves with the details within each of the four key competencies for Module 3.

Each of the key competency areas also includes the section: ***Questions/scenarios to support demonstration of knowledge and skills.***

These questions/scenarios are provided to assist the supervisor to determine the competence of the participant to perform the job role, particularly where specific phenomena or circumstances are not encountered during the conduct of the module. Supervisors are not limited to the questions/scenarios provided; additional questions can be asked and opportunities offered that will challenge the participant, but setting excessive expectations beyond the experience level of the participant must be avoided.

Log of Observations

A Log of Observations pro forma is provided. This log shall be maintained by the AWO participant detailing each report that is issued. Each entry shall be authenticated by the signature of the supervisor.

The log shall show a minimum of 60 reports issued over a period of at least 30 hours. The observation sessions must have been performed over a minimum of three calendar days. These days do not have to be consecutive. An example log entry is provided.

An alternative observation log may be used to record the reports provided that it includes the same details as the attached log, including a signature area for the supervising observer.

Class A participants will normally use the Bureau's A37 Register of Weather Reports to record their observations. In this instance an extra column shall be ruled in the remarks section for the participant to initial each entry they make. Supervisors shall initial the column titled OFFICER as normal.



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AWO Module 3 Completion

Name of Participant: _____

Participant email (work): _____

Observing Location: _____

AWO Certificate Class sought (circle one): **Class A / Class B**

The above named participant has demonstrated their competence to provide Aerodrome Meteorological Observations and Reports in accordance with the AWO Module 3 key competencies. This demonstration was performed during the conduct of a continuous weather watch:

- encompassing a minimum of 60 Aerodrome Meteorological Reports;
- performed over a period of at least 30 hours;
- over a minimum of three separate calendar days or parts thereof (not necessarily consecutively).

The completed competency checklist and log of observations is appended.

Name of Supervisor: _____

Signature of Supervisor: _____

Date: _____

Scan and email completed documentation to: bmtc-awo@bom.gov.au

Or post to: Composite Operations Training Officer
Bureau of Meteorology
GPO Box 1289
Melbourne Victoria 3001

Competency Checklists

Competency 1:

Continuously monitor the weather situation

Competency description :	
Weather parameters are appraised to identify the significant and evolving weather phenomena that are affecting or will likely affect the area of responsibility throughout the watch period.	
Performance criteria :	
1. Analyse and describe the existing local weather conditions.	
Procedures :	
The participant makes a detailed study of available resources to assess the synoptic weather situation before taking the first observation, and when updates become available. He/she analyses the local and regional weather conditions and formulates the short-term change of weather parameters and phenomena. Appropriate action is taken when significant changes are observed or anticipated in the short term.	
During the demonstration of skills, did the participant :	✓ (Yes)
i. where available, study the weather charts, weather radar, satellite images and aerological diagrams	
ii. study observations from nearby automatic weather stations (AWS)	
iii. study relevant regional observations and forecasts from METAR/SPECI, TTF and TAF of neighbouring aerodromes as required	
iv. study the local forecasts indicated in the TAF and TTF, ARFOR and public weather forecast	

Questions/scenarios to support demonstration of knowledge and skills :
<ul style="list-style-type: none">• What is the direction of the synoptic background wind over the local area?• Any local effect on the wind flow?• Any significant weather affecting neighbouring aerodromes?• Any significant weather approaching the local area?• Any significant weather is expected during the shift judging from forecast or observed data and the possible timing?• Any weather parameters requiring particular attention during the shift?
Remarks :
Participant signature :
Supervisor signature :

Competency 2:**Observe and record aeronautical meteorological phenomena and parameters****Competency description :**

Observations of weather parameters and phenomena, and their significant changes, are made according to documented thresholds and regulations.

Performance criteria :

1. Perform and record routine and non-routine observations of the following (where applicable):
 - surface wind direction and speed, including spatial and temporal variations
 - visibility for aeronautical purposes, including spatial and temporal variations
 - RVR, including spatial and temporal variations
 - significant weather phenomena (as defined in ICAO Annex 3)
 - cloud amount, height of base, and type, including spatial and temporal variations
 - vertical visibility
 - temperature and humidity
 - atmospheric pressure; determining QFE and QNH
 - supplementary information, wind shear and special weather phenomena.
2. Interpret automatic observed parameters to ensure that observations remain representative of local conditions when differences occur between automatic sensor technologies and manual observing techniques.
3. Ensure that observations are prepared and issued in accordance with ICAO Annex 3, WMO-No.49, regional and national formats, codes and technical regulations on content, representativeness and timeliness.

Procedures :

The participant makes weather observations in accordance with the prescribed time schedule and procedures. The observation is prepared, issued and recorded in the prescribed format via the documented method.

During the demonstration of skills, did the participant :	✓ (Yes)
i. start the sequence of weather observations within the prescribed time preceding the meteorological report (where routine METAR/SPECI, 10 minutes)	
ii. record and check the consistency of wind data noting the current weather situation and local effects	
iii. determine the prevailing visibility and note any visibility sector reductions, with the assistance of a visibility marker diagram	
iv. identify weather phenomena at the aerodrome, in the vicinity, and in the distance where appropriate	

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v.	determine the precipitation type and intensity and conduct a consistency check with rainfall measurements, radar data and observation of clouds	
vi.	identify cloud type, cloud base and cloud amount of different types/layers where appropriate	
vii.	include any reports of windshear in accordance with prescribed procedures	
viii.	identify and consider the inclusion of recent weather phenomena in accordance with the prescribed procedures	
ix.	record and check the consistency of temperature, humidity and pressure data, noting the current weather situation and local effects	
x.	consider information for reporting as plain language where appropriate	
xi.	pay due attention to areas or directions which are likely to be affected by significant weather during the observation	
xii.	accurately interpret data from automated sensors to assist with performing the observation	
xiii.	re-check the accuracy of the components of the observation before issuance	
xiv.	verify the completeness of observation elements in the report before issuance	
xv.	issue the meteorological reports on time (where METAR/SPECI, not more than 5 minutes after observation time)	
xvi.	issue the meteorological reports using the correct coding and format	
xvii.	take special observations and issue SPECI according to documented thresholds	
xviii.	issue SPECI in a timely manner	
xix.	issue the meteorological reports via documented methods and dissemination channels	
xx.	check and confirm that the reports have been successfully disseminated	
xxi.	record the observation in accordance with documented procedures	

Questions/scenarios to support demonstration of knowledge and skills :

- From a series of 'visibility scenario diagrams' the participant demonstrates how the visibility is reported and recorded.
- If cumulus clouds were developing at the aerodrome, with a surface temperature of (x) and a dewpoint temperature of (y), what would the approximate cloud base height be?
- The participant is asked to identify images of various clouds from the Cloud Atlas or similar resource.
- What types of precipitation are associated with each of the basic cloud types?
- What are the visibility reporting requirements for FG, HZ, BR, FU, DU, DS, SS to be reported as present weather in a METAR/SPECI?
- What hourly rainfall rates are used to assist with determining the intensity of rain? Using the display console show how you would determine what the hourly rainfall rate equivalent is?
- What visibility reduction values are used as a guide for determining the intensity of drizzle and snow?
- What are criteria for the issue of a SPECI for:
 - Cloud and Visibility (including multiple minima criteria)?
 - Wind?
 - Weather?
 - Temperature and QNH?
- What are the HAM figures for cloud and visibility for (this) aerodrome? Where are these figures published? What does the term 25 nm MSA refer to? What is the 25 nm MSA for this aerodrome? How does the 25 nm MSA affect a weather observation?
- Where is the Plan of Visibility markers diagram for this location? How far away is (that) marker?
- Ask the participant to find information on the company intranet (Source reference handbooks, etc)

Remarks :

Participant signature :

Supervisor signature :

Competency 3:**Ensure the quality of the performance of systems and of meteorological information.**

Competency description :	
The quality of meteorological observations is maintained at the required level by the application of documented quality management processes.	
Performance criteria :	
1. Apply the organization's quality management system and procedures.	
2. Check and confirm the quality of meteorological observations before issuance, including relevance of content, time of validity and location of phenomena.	
3. In accordance with prescribed procedures:	
<ul style="list-style-type: none"> • identify errors and omissions in meteorological observations • correct and report errors and omissions • make and disseminate corrections in a timely manner. 	
Procedures :	
The participant monitors the performance of automated sensors. Appropriate techniques are applied to validate automated data against human observation. Where a discrepancy exists appropriate action is taken.	
During the demonstration of skills, did the participant :	✓ (Yes)
i. compare and verify the output from the anemometer with an estimation of the manually observed wind speed and direction	
ii. check the consistency and reliability of air temperature, humidity data and pressure given the current weather situation	
iii. monitor the performance of visibility sensors against human observations and take appropriate action where significant discrepancies are recognised	
iv. monitor the performance of the ceilometer against human observations and take appropriate action where significant discrepancies are recognised	
v. compare TBRG readouts with observed precipitation location, intensity and duration	
vi. compare manually read temperature, humidity, pressure and rainfall information where necessary to verify the accuracy of suspect data from automated sensors	
vii. rectify (where appropriate) any quality errors and warnings detected on the display console prior to issuing a report	

Questions/scenarios to support demonstration of knowledge and skills :

- What are the limitations of the visibility sensor?
- Demonstrate how to view the one minute visibility meter data on the display console.
- What is the current one minute and ten minute visibility meter output? Is this representative of the manually observed visibility?
- What are the limitations of the ceilometer and the sky condition algorithm?
- How accurate is the sky condition algorithm in predominantly convective skies?
- When will the sky condition algorithm often over-estimate cloud amount?
- When is the sky condition algorithm generally quite accurate?
- What readings on the display console would you expect to see if the wet-bulb reservoir was dry?
- Do the current temperature/dew point/humidity values look reasonable to you? How did you come to that conclusion?
- Does the current QNH figure look reasonable to you? How did you come to that conclusion?
- What actions would you take if suspicious data are identified?

Remarks :

Participant signature :

Supervisor signature :

Competency 4:**Communicate meteorological information to internal and external users****Competence description :**

All meteorological data and information are concise, complete and communicated in a manner that will be clearly understood by the users.

Performance criteria :

1. Ensure that all observations are disseminated through the authorised communication means and channels to designated user groups.
2. Present aeronautical meteorological data and information in a clear and concise manner using suitable terminology.
3. Alert forecasters to observed or imminent significant changes in the weather within the local area.

Procedures :

The participant confirms the dissemination of the aerodrome meteorological reports and adheres to any documented local alerting procedures to forecasting staff, observing staff, air traffic services staff, etc.

During the demonstration of skills, did the participant :**✓ (Yes)**

i. confirm availability of the meteorological report for users (METAR/SPECI, METARAWS/SPECIAWS, ATIS, etc)

ii. notify users of significant or hazardous phenomena by alternate means when required

iii. notify forecasters of any sustained significant difference in forecast conditions compared to actual conditions

Questions/scenarios to support demonstration of knowledge and skills :

- Describe your actions if you recognise a significant difference between the TAF for your local aerodrome and the actual observed conditions.
- Describe a situation where you would alert forecasters or users in order to provide more information than what is contained with the aerodrome meteorological report.
- What would you do if your normal dissemination system was not functioning? How would you notice and what action would you take?

Remarks :

Participant signature :

Supervisor signature :

Notes: