

REVIEW OF THE WORK PROGRAMME IMPLEMENTATION

Expert Team Reports and Coordination of Tasks

Report of the Expert Team on Education, Training and Competency (ET-ETC)

(Submitted by Chris Webster and Kathy-Ann Caesar, ET-ETC Co-Chairs)

Summary and Purpose of Document

This document provides an overview of the activities of the ET-ETC since the last meeting of the CAeM Management Group held 8 to 10 November 2016 together with detailed information on the working arrangements and work plan of the expert team.

ACTION PROPOSED

The CAeM Management Group is invited to review the progress made by ET-ETC since November 2016, to review the working arrangements and work plan of the expert team and, as necessary, to formulate actions accordingly

1. EXECUTIVE SUMMARY

<Text to be included in the Final Report of the meeting>

Standards of AMP Competency and Qualification

1.1 The past four years has seen the passing of two significant milestones for aeronautical meteorological personnel (AMP). On 1 December 2013, the aeronautical meteorological observers (AMO) and aeronautical meteorological forecasters (AMF) competency standards came into force, and on 1 December 2016 the AMF qualification standard came into force.

1.2 A key role of the ET-ETC during this period has been to guide, coordinate and encourage all organisations in the international AMP community in their efforts to comply.

1.3 Because CAeM has pioneered this work, experts from other technical areas have looked to CAeM for advice on how they can implement comparable systems. The team has always been responsive to such needs.

WMO Guide on Competency

1.4 ET-ETC and the WMO ETR Office have developed a WMO Guide on Competency, under the expert leadership of Andrea Henderson of the Australian Bureau of Meteorology. The Guide will meet a great need within the international community.

1.5 The Guide will include general material on defining and writing competencies, implementing competency frameworks that meet organizational needs, assessing for competencies, competency-based training and QMS-compliance. It will interface with examples of competency frameworks.

Education, training and competency websites

1.6 The [CAeM Moodle website](#) has been progressively upgraded, and new materials added, with continued kind technical support from the UK Met Office. A review of the currency of material on this site is ongoing.

1.7 CAeM developed a Competency Assessment Toolkit in the previous intersessional period to assist with the introduction of the competency frameworks that were new at the time. In 2017 ET-ETC reviewed and updated this toolkit, with the kind assistance of Hong Kong Observatory. See: http://forum.14.caem.wmo.int/post14web/tt_cat/.

2. PROGRESS/ACTIVITY REPORT

<Text not to be included in the Final Report of the meeting>

WMO Guide on Competency (Tasks 2.1.1 and 4.1.4)

2.1 A final draft of this document was completed in 2017. Andrea Henderson led the work, in consultation with the WMO ETR Office and many other experts.

2.2 The document is currently with WMO Publications. It is anticipated to be published as an electronic document in English only by end January 2018. It has been decided to split the competency frameworks into a separate publication as these are likely to be more dynamic than the body of the Guide. The separate publication will be titled a Compendium of WMO Competency Frameworks (or similar) and given a separate document number.

2.3 ET-ETC has contributed to discussions on the introduction of competency-based frameworks for various areas where AMF may be working, e.g. Space weather and volcanic ash forecasting. More discussion will be required.

Maintenance and upgrade of moodle website (Task 2.1.3)

2.4 The CAeM education and training website (<http://www.caem.wmo.int/moodle/>) was upgraded to "moodle" version 3.1 in November 2016, under the supervision of Raf Windmolders and Ian Dale.

2.5 During 2017 the ET-ETC investigated transforming the website to a more contemporary version, based on valuable advice from Australian Bureau of Meteorology. Good progress was made in implementing the upgrade, kindly provided by colleagues of Kathy-Ann Caesar at CIMH. The work is viewable at <http://caem.cimh.edu.bb/moodle/>. Unfortunately, due to organisational staff changes, progress has recently stalled.

2.6 The team checked and updated all links from the moodle website in July 2017.

2.7 The UK Met Office College reviewed the content of publication WMO-No. 1390 "Aviation Hazards" (ETR-20) in April 2017. Their opinion was that it was in good shape, but that the lee wave/mountain wave section should be less location-specific. The document was subsequently updated in December 2017, and will shortly be uploaded to the moodle website.

2.8 Andrea Henderson and Michael Graf have agreed to review the currency of material on the website or linked from it, by end February 2018. In the future, this action will be scheduled to take place during each intersessional period.

Achieving 1 December 2016 qualification deadline for AMF (Task 3.1.1)

2.9 Jannie Stander reported an awakening and upswing of requests for guidance from mainly African states. The team has offered Jannie assistance as the need arises.

2.10 The ET-ETC is interested in the results of the survey sent by ET-GOV in 2016, as they pertain to qualifications and competency.

Review and Update of the Competency Assessment Toolkit (Task 3.2.1)

2.11 The original Competency Assessment Toolkit was developed by CAeM in the previous intersessional period to assist with the introduction of the competency frameworks that were new at the time. The team reviewed and updated the toolkit in August 2017, with the kind assistance of Queenie Lam and her colleagues at Hong Kong Observatory.

Workshops (Task 3.2.2)

2.12 Paul Bugeac and Jannie Stander delivered a successful competency assessment workshop in November 2016 at the RTC-Qatar.

3. WORKING ARRANGEMENTS AND WORK PLAN

Over page.

TEAM			
Commission	WMO Commission for Aeronautical Meteorology (CAeM)		
Expert Team on	Education, Training and Competency		
Start Date / End Date	August 2014	August 2018	
Stakeholders	Aeronautical meteorological personnel; aviation user community; educators and trainers at NMHSs and training institutes		
Team	Name	Organization / Country	E-mail
Co-chairs	Robert Rutledge	National Weather Service, NOAA	robert.rutledge@noaa.gov
	Chris Webster	MetService, New Zealand	chris.webster@metservice.com
	Kathy-Ann Caesar	Caribbean Institute for Meteorology and Hydrology, Barbados	kacaesar@cimh.edu.bb
Core Members	Paul Bugeac	Romanian Air Traffic Services Administration, Romania	paul.bugeac@gmail.com
	Kathy-Ann Caesar	Caribbean Institute for Meteorology and Hydrology, Barbados	kacaesar@cimh.edu.bb
	Michael Graf	National Weather Service, NOAA	Michael.Graf@noaa.gov
	Andrea Henderson	Bureau of Meteorology, Australia	A.Henderson@bom.gov.au
	Jan Stander	South African Weather Service, South Africa	Jannie.Stander@weathersa.co.za
	Raf Windmolders	Belgocontrol, Belgium	Raf_Windmolders@belgocontrol.be
ET/ETC Other (invited expert)	Queenie CC Lam	Hong Kong Observatory, Hong Kong, China	cclam@hko.gov.hk

DESCRIPTION	
Objective	Within the area of responsibility of the ET-ETC, to ensure the worldwide, reliable provision of high quality, timely, cost-effective and responsive meteorological service to users throughout the world in support of safe, regular and efficient aviation operations.
Background	The ET-ETC was first established by the 14th Session of CAeM (2010, Hong Kong, China) and re-established by the 15th Session of the CAeM (July 2014, Montreal, Canada).
Terms of Reference	<p>(a) To provide guidance on the implementation of WMO standards and recommended practices related to the competency and qualifications of aeronautical meteorological personnel (AMP);</p> <p>(b) To facilitate efficient methods of education and training in aeronautical meteorology by making education and training resources available online;</p>

	<p>(c) To encourage the sharing of education and training resources as well as best practices;</p> <p>(d) To look for cost-effective training opportunities and seek in-kind contributions to make these available in WMO official languages;</p> <p>(e) To coordinate with the WMO EC Panel of Experts on Education and Training in developing and updating WMO provisions on the competency and qualifications of AMP for inclusion in the WMO Technical Regulations and related guides;</p> <p>(f) To contribute to developing appropriate guidelines and other relevant material meeting aeronautical users' needs for training in aeronautical meteorology ;</p> <p>(g) To address emerging training and education needs for enhanced meteorological services stemming from the ICAO Global Air Navigation Plan (GANP) and the Aviation System Block Upgrades (ASBU);</p> <p>(h) To report regularly on progress to the president of CAeM.</p>
--	---

COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Work Plan	ET-ETC	Email	Initial, and updated as required	Co-chairs
General correspondence	ET-ETC	Email	Introductions, and as required	ET-ETC
Team Meetings	ET-ETC	Conference calls Email contact FtF	At least biannually At least quarterly At least one during intersessional period (December 2015)	ET-ETC
Reports	CAeM	Email	As required	CAeM
Final Report	CAeM	Email	As required	CAeM

MILESTONES / WORK PLAN					
Activity / Task	ET TOR(s)	Accountability	Deliverables	Dates	Status
ACTIVITY 1: COMMUNICATIONS					
<i>1.1: Establish communications</i>					
Task 1.1.1: Contact members and determine capability & interest in roles	-	Co-chairs	Welcome emails sent	Nov 2014	Closed, 2014 & February 2015
Task 1.1.2: Assign liaison responsibilities by Region to core team members and invited experts	(c)	Co-chairs	Assignments agreed and implemented	Nov/December 2014	Closed, February 2015
Task 1.1.3: Communicate regularly – see Comms strategies above	(h)	Co-chairs	Regular communications	Ongoing	Ongoing- Quarterly teleconferences, supplemented by emails as required. FtF joint meeting with ET-GOV, Wellington, Nov/December 2015. Input to new CAeM Newsletter, from 2016 onwards.
<i>1.2: FtF meetings</i>					
Task 1.2.1: Continue the global programme of workshops to assist Members with implementation of competency assessments.	(a), (c)	Co-chairs and workshop presenters	Successful completion of workshop(s)	Nov 2014, and beyond as required	Ongoing- - RA-III workshop completed, Nov 2014, KC & CW. - Workshop completed in Nov 2016, Qatar, PB & JS.
ACTIVITY 2: DOCUMENTATION					
<i>2.1: Develop, maintain and review documentation</i>					

Task 2.1.1: Prepare guidance material on AMP "second-level" competencies for formal publication, after consultation with ET-GOV. (relates to task 4.1.4 below)	(a)	AH, CW	Documents (& FAQs) reviewed and made available for WMO publication	March 2017	<p>Ongoing-</p> <ul style="list-style-type: none"> - Review of existing guidance completed, Sept 2016, including feedback from wider community & 'online compliance form'. - Working with ETR Office on general competency guide, for publication by end of 2017.
Task 2.1.2: Develop a consistent process for dealing with requests from NMHSs and similar agencies for reviews of AMP educational documentation.	(f)	KC, PB	Process created and implemented. Requests logged and reported at ET-ETC meetings	March 2016	<p>Creation of process: Closed. Use of process: Ongoing.</p>
Task 2.1.3: Maintain the ET-ETC Education & Training Website at http://www.caem.wmo.int/moodle/ , including posting of reviewed educational resources, and provision and moderation of discussion forums.	(b), (c), (d)	RW	<p>Website available and up-to-date</p> <p>Review content of WMO-No. 1390 "Aviation Hazards" (ETR-20)</p>	on-going	<p>Ongoing-</p> <ul style="list-style-type: none"> - Upgraded to moodle 2.6, Mar 2016, RW and Ian Dale (UK). Upgrade to moodle 3.1, Nov 2016. - Transforming website to a more contemporary version, 2017. Some progress by colleagues of KC at CIMH. - Links checked and updated, Jul 2017, PB, CW & RW. - In progress, with help of UK Met Office College.
Task 2.1.4: Maintain the AMP Competency Training Mapping Database at http://forum.14.caem.wmo.int/post14web/etet/master_list/web/ .	(b), (c), (d)	CCL	Database available and up-to-date	on-going	<p>Ongoing.</p> <ul style="list-style-type: none"> - SKYlibrary resources added, early 2015, CCL. - All links checked and rectified, Nov 2016.
ACTIVITY 3: SUPPORT					
3.1: Support Members on December 16 qualification requirement					

Task 3.1.1: Support Members and training institutes in achieving the 1 December 2016 qualification requirement for AMFs.	(a), (b), (c), (f)	JS, CW	Raised profile of deadline, all requests for support responded to, and guidance developed on what will be required to be compliant	up to & beyond December 2016	Ongoing- Example of good practice in RA-I (S Africa/ Tanzania) shared with ETR focal points and RTCs, Aug 2015. - Guidance and flow-chart widely distributed to all Members of WMO, in collaboration with ETR Office, Jan 2016. - Plan to use results from CAeM member survey to steer future actions, 2017/18.
<i>3.2: Support Members on competency requirements</i>					
Task 3.2.1: Support Members and training institutes by advising on achieving, demonstrating, assessing and documenting AMP competency requirements, including provision of examples of good practices.	(a), (c), (f)	PB, KC	Guidance document on supporting Competency Management	Mar 2016 Dec 2015 March 2016 Sept 2017	Ongoing- Document on Competency Management Systems prepared (PB), reviewed (CW), posted to ET-ETC website, Jun 2016. - FAQs updated, Dec 2015 (see ET-ETC website) - Competency Assessment Toolkit (developed by CAeM in previous intersessional period) reviewed and updated, Aug 2017.
Task 3.2.2: Support Members in continuing to meet the AMP Competency requirements through a series of workshops as follow-ups to previous workshops dedicated to competency.	(a), (c), (f)	PB	Develop blended workshops dedicated to Competency implementation and assessment (to run in 2017)	December 2016	See task 1.2.1 above.
<i>3.3: Provide support in other areas</i>					

Task 3.3.1: Investigate translation of further educational materials into official WMO languages.	(d)	RW, CCL	Translation of some materials into another language	on-going	Ongoing- - Modules in Spanish on atmos. phenomena reviewed & added to ET-ETC website, Apr 2015. - Module on VA from Argentine Met Service posted onto ET-ETC website, Jun 2016.
Task 3.3.2: Follow up any relevant action items resulting from Cg-17 in May 2015.	-	Co-chairs	Covered in other Tasks	as required	See other tasks
Task 3.3.3: Keep up to date with developments in the ICAO Global Air Navigation Plan and Aviation System Block Upgrades, and coordinate related meteorological education and training resources as plans emerge, e.g. AvXML, ICAO Annex 3, PANS-MET.	(g)	Co-chairs	Advise on resources and advertise as plans emerge	as required	Ongoing. Discuss at MG meeting, Nov 2016. ET-ETC briefed on WMO Global Campus developments.
ACTIVITY 4: RELATIONSHIPS					
<i>4.1: Advise on AMP education & training issue</i>					
Task 4.1.1: Advise and assist ET-GOV and other bodies, such as RTCs, Regional Associations, Global Campus initiative and the EC Panel of Experts on Education & Training, on matters relating to AMP education and training.	(e)	CW, AH, Co-chairs	- Input into a new version of WMO-No.732. - Input into Competency Standards for the 'Met Inspectorate' - Other requests for advice responded to	- As in ET-GOV work plan - As above - on-going	Ongoing- Advice to ET-GOV, Feb/Mar 2016 Not started- Nil to date Ongoing.
Task 4.1.2: Provide advice and, where possible, experts for other relevant workshops that are not under the direct control of ET-ETC.	(c), (d)	Co-chairs	All requests for advice responded to and experts provided if available	on-going	See Task 1.2.1. No other known workshops.

Task 4.1.3: Support other Technical Commissions and bodies by providing guidance on implementation of competency standards outside the aviation area (e.g., marine, PWS, DRR, tropical cyclones).	relates to (a)	Co-chairs	Requests for advice fully answered	Tba As required	Advice to EC Panel on ETR, CW, March 2016.
Task 4.1.4: Assist the EC Panel of Experts on Education & Training with a new WMO Guide on Competency Management (to relate to Ch 5 of a future edition of WMO-No. 49).	relates to (e)	AH, CW	Leadership and Input provided to the new Guide	Outline done by March 2016 See task 2.1.1	Ongoing- Visit to Secretariat, AH, Sept 2016. - Telecons with Secretariat in 2016, (AH & CW), and EC Panel on ETR, Mar 2016 (CW).
