

## **As Distribution List**

25 October 2011

Dear Colleague,

### **Letter of Consultation on changes to UK Meteorological Observing Practices for Civil Aviation**

There have been a number of recent developments within the field of aeronautical meteorological (Met) observing. At the international level, there have been changes to International Civil Aviation Organisation (ICAO) documentation and introduction of new European Regulations. In addition, the European Aviation Safety Agency is developing amendments to its Implementing Rules that will transpose Standards from ICAO Annex 3 into EU law. At the national level, there have been a number of changes to working arrangements at aerodromes and improvements in technology.

Together these have raised several key issues which require either revision to, or new policy, in respect of Met observing. The purpose of this consultation letter is to seek views and comments on CAA proposals for changes in the following areas:

1. Requirement for an Integrated Met Measurement System at Aerodromes operating CAT II and CAT III Runways
2. Approval Requirements for Meteorological equipment installed on aerodromes
3. Automated Observation Requirements for Present Weather Reporting and Cloud Type Reporting
4. METAR observations at Aerodromes operating 24 hours a day.
5. Continued Met Observer Accreditation and Refresher Training

Each issue is discussed below and the consultation process is then described. Responses to the consultation are required no later than 31 January 2012.

# 1. Requirement for an Integrated Met Measurement System at Aerodromes operating CAT II and CAT III Runways

## 1.1 Summary of proposal:

- Aerodromes that operate CAT II and III runways will be required to have sensors to measure and assess surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure. These measurements should be integrated within the Met Observing System and allow the Met Observer to validate the reports before issue.

### 1.1.1 ICAO Annex 3, Meteorological Service for International Air Navigation, details the following Standard:

#### Chapter 4 Para 4.1.5

At aerodromes with runways intended for Category II and III instrument approach and landing operations, automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure shall be installed to support approach and landing and take-off operations. These devices shall be integrated automatic systems for acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and take-off operations. The design of integrated automatic systems shall observe Human Factors principles and include back-up procedures

1.1.2 There are a number of benefits that can be derived from compliance with the ICAO Standard, which has resulted in the CAA giving further consideration to its implementation. These benefits include:

#### i. Improved efficiency in potentially high workload situations

CAT II and/or III operations inevitably bring higher potential workloads and a need to keep all stakeholders fully informed of the weather conditions, particularly if they are in a state of flux. The acquisition, processing, dissemination and display of a range of weather element inputs by integrated systems enables information to be disseminated quickly.

#### ii. Improved compliance with reporting requirements

There are certain elements that are only included in the Met Report under certain circumstances e.g. runway visual range (RVR). The RVR is required to be reported in the METAR either when the prevailing visibility is less than 1500 metres or the RVR is less than 1500 metres. Analysis by the Met Authority of aerodromes reporting RVR indicates that this does not always occur. There is a concern that during periods of low visibility, when workloads are higher, regular checking of the IRVR display by the duty observer is not always practicable.

#### iii. Reduction of typographical errors

At present systems that do not comply with this Standard require the observer to manually incorporate some or all of the required Met parameters. This leads to the potential for errors. Use of this facility should still enable the appropriate sensors for

all the meteorological visual elements to be validated by the Met observer, in addition use of this facility also ensures that automated integration and encoding of the weather report minimises potential for error and ensures timely dissemination.

1.1.3 It is noted that almost all CAT III aerodromes in the UK have integrated a visiometer within the Integrated Met Measurement System as per the requirement in ICAO Annex 3. In addition, all CAT II and III aerodromes have cloud base recorders.

1.1.4 Therefore in light of the above, the CAA proposes that all aerodromes that operate CAT II and III runways will be required to have sensors to measure and assess the following meteorological elements of the METAR, surface wind direction and speed, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure. These measurements should be integrated within the Met Observing System and allow the Met Observer to validate the reports before issue.

1.1.5 In addition, the CAA has developed some additional guidance relating to integrated Met measurement systems for inclusion within CAP 746, *Meteorological Observations at Aerodromes*, which is at Annex A.

## **2 Application of CAP 746 and the Approval Requirements for Meteorological equipment installed at Aerodromes providing Air Traffic Services (ATS)**

### 2.1 Summary of proposal:

- The title of CAP 746 will be changed to the “Requirements for Meteorological Observations at Aerodromes” to more adequately reflect the status of the document.
- Equipment for measuring the wind speed and direction, atmospheric pressure and air temperature will be required to be subject to safety assessment in accordance with the unit SMS, as required in CAP670 APP01. All Met equipment shall be installed, maintained and operated in accordance with CAP 746.
- An Integrated Met Measurement System is considered to be captured under the Interoperability Regulation when it provides information to other systems e.g. ATS working position displays and/or ATIS and will require a Declaration of Verification and Technical File to be submitted to the CAA in support of its introduction and use.

### 2.2 Application of CAP 746

2.2.1 To reflect the European Aviation Safety Agency (EASA) Common Requirements Regulation (Regulation 1035/2011) and the certification of Air Navigation Services Providers for ATS and MET, it is proposed to revise the applicability of CAP 746 to:

- All aerodromes with CAT I and above instrumented runways
- All aerodromes providing METAR reports

For aerodromes which are certificated as ATS ANSPs that do not operate CAT I and above instrumented runways nor provide METAR reports, CAP 746 requirements related to the provision of wind, pressure and temperature information will apply.

### 2.3 Approval of Met Equipment

2.3.1 Following a review of the process for approving Met equipment installed on aerodromes, and, taking into account ICAO Annex 11, *Air Traffic Services*, Chapter 7, it is proposed that certain meteorological equipment installed on aerodromes shall be required to be approved by SRG's Aerodrome and Air Traffic Standards Department before operational use.

2.3.2 Equipment for measuring the wind speed and direction, atmospheric pressure and air temperature will be required to be approved and included within a unit's safety assurance documentation and in the Unit Safety Case where applicable. Additionally where meteorological equipment is used in automatic mode without interaction from the Met observer in the provision of automated weather reports (i.e. units that are approved to disseminate AUTO METAR at any time), then this equipment and all the sensors used for this purpose will also be required to be approved and included in the unit's safety assurance documentation and Unit Safety Case.

2.3.3 All other meteorological equipment that is used operationally on the aerodrome by ATS or for providing METARs shall be installed, maintained and operated in accordance with the requirements in CAP 746.

### 2.4 Single European Sky Interoperability (IOP) Regulation EC No 522/2004.

2.4.1 Under the IOP Regulation there are 8 air navigation services systems that are considered as making up the EATMN European Air Traffic Management Network and are subject to National Supervisory Authority approval .

2.4.2 One of the systems identified is "Systems and Procedures for the use of meteorological information." The CAA proposes that the only Met-related system that falls into this category is an Integrated Met Measurement System (see para 1.2) and only when it provides information to other systems e.g. ATS working position displays and/or ATIS. Such systems will be subject to requirement to provide a Declaration of Verification along with a Technical File.

2.4.3 Where the Met processing system solely provides information to the Met Observers display IOP approval will not be required.

## **3. Automated Observation Requirements for Present Weather Reporting and Cloud Type Reporting**

### 3.1 Summary of proposal:

- AUTO METAR shall report, as a minimum, rain, drizzle, snow, rain and snow mixed, fog, freezing fog, mist, haze. In addition, when automated observations are used during the operational hours of the aerodrome, automated local routine and special reports and METAR shall report

additionally thunderstorm, thunderstorm in the vicinity, towering cumulus cloud and cumulonimbus cloud.

3.1.1 Currently there are no requirements in CAP 746 on the present weather or cloud type parameters that are required to be provided by automated Met observing systems. With developing interest in the use of fully automated observations and, taking into account recent amendments to ICAO Annex 3 and guidance documentation, it is proposed to include the following requirements for present weather information that is used when automated observations are provided.

3.1.2 When present weather detectors are used to provide present weather reports for AUTO METAR the following parameters are required to be provided:

- Rain (including intensity)
- Drizzle (including intensity)
- Snow (including intensity)
- Rain/Snow (Including intensity)
- Fog and Freezing Fog
- Mist
- Haze

Note: Where appropriate Unidentified Precipitation and Freezing Unidentified Precipitation (UP and FZUP), including intensity, may be provided when the present weather sensor is unable to distinguish the type of precipitation that is being observed.

3.1.3 During the operational hours of the aerodrome, automated local routine and special reports and AUTO METARs shall report, where required, the following additional information:

- Thunderstorm
- Thunderstorm in the vicinity
- Details of cloud type i.e Towering Cumulus (TCU) and Cumulonimbus (CB).

3.1.4 The use and dissemination of AUTO METAR is subject to approval of the UK Met Authority.

Note: Sensors located on the aerodrome may not be able to satisfactorily report some or all of these additional parameters and remote sensing techniques may be required to comply with these requirements.

#### **4. METAR observations at Aerodromes operating 24 hours a day.**

##### 4.1 Summary of proposal:

- Aerodromes that operate 24 hours a day are required to provide METAR, or where agreed, AUTO METAR observations at all times, and to ensure that the ATIS is updated as required.

4.1.1 Currently some aerodromes that operate 24 hours a day have permission from the Met Authority for the Met Observer to take a duty break overnight. It is proposed that aerodromes that make use of this facility will be required to provide

AUTO METAR reports during this time. Weather reports provided for ATS purposes ie those broadcast on the ATIS are also required to be provided and updated automatically during this time. It should be noted that since the aerodrome is operational during this time the above requirement (Para 3.3) will apply and reports of Thunderstorms, Thunderstorms in the vicinity and details of cloud type will be needed to be provided automatically when required.

## **5. Continued Met Observer Accreditation and Refresher Training**

### 5.1 Summary of proposal:

- The minimum number of observations that a Met Observer is required to make in any 90 day period is raised from 10 to 20.
- Met Observers who undertake the annual competency checking at an aerodrome will be required to attend a Met refresher training course as a minimum of every 5 years.

### 5.2 Ongoing Maintenance of Observing and METAR Coding Skills

5.2.1 Annual Met Liaison Visits are conducted at all aerodromes that disseminate METAR observations, as per CAP 746 Appendix A. This details that the quality and regularity of the METAR observations will be checked. Recently the CAA has noted that the quality of a number of Met reports has been below the required standard with missing elements or incorrect coding, which has been attributed to lack of current practice.

5.2.2 Part of the reason for this is that a number of aerodromes, Met observers are carrying out Met observations less regularly due to staffing arrangement changes. Although there is a requirement to provide a minimum number of observations in a 90 day period, this does not appear to be providing sufficient currency for some observers.

5.2.3 In order to encourage observers to maintain practice in observing and coding, it is therefore proposed to change the minimum number of observations that any Full or Restricted Met Observer is required to make in any 90 day period is raised from 10 to 20.

### 5.3 Refresher training

5.3.1 Refresher training is currently optional for Met Observers. However, the decrease in quality of a number of Met reports, in particular the relatively high incidence of incorrect reports during infrequent but high impact inclement weather such as thunderstorms, fog and snow, highlights the need for occasional refresher training on observing techniques and coding. In addition, staff acting in a contingency observer role may undertake fewer observations than a dedicated Met Observer. Therefore the CAA proposes that all personnel with the responsibility for Met competency checking at aerodromes attend refresher Met Observer training at least every 5 years. The course would concentrate on the reporting of the visual elements of the weather report, the requirements for the reporting of local special reports and updating Met Observers on changes to METAR coding. This would ensure that those carrying out the Met competency checks are up to date with

current Met practices and would enable them to more easily ensure all the other Met Observers at the aerodrome remain competent. While the Met Office currently provide a suitable course as detailed in the Accredited Meteorological Observer Training AIC, applications by ANSPs to use others providers, including in-house provision will be subject to approval by the CAA.

#### 5.4 Calibration of Wind and Pressure Measuring Equipment

The CAA has developed some additional guidance related to the calibration of wind and pressure measuring equipment installed on aerodromes for inclusion within CAP 746, which is given at Annex B.

## **6. Consultation**

6.1 Views and comments are sought on the above proposals. These can be provided in any format, however, to assist consultees in developing responses, suggested consultation questions are given at Annex C.

6.2 Consultation responses should be sent to the following:

Colin Hord  
Met Authority, CAA  
K6G1 CAA House  
45-59 Kingsway  
London  
WC2B 6TE

E-mail: [Metauthority@caa.co.uk](mailto:Metauthority@caa.co.uk)

6.3 Should you wish to discuss any aspect of the consultation, my telephone number is 020 7453 6527.

6.4 The consultation closes on 31 January 2012.

Yours sincerely,



Colin Hord  
Met Authority

## **Distribution List**

Action addressee:

Mr J Proudlove, GM ATS, Heathrow Airport  
Mr S Anderson, GM ATS, Gatwick Airport  
Mr J Mayhew, GM ATS, Aberdeen Airport  
Mr M Ruddy, GM ATS, Belfast International Airport  
Mr P Healey, GM ATS, Edinburgh Airport  
Mr T West, GM ATS, Glasgow Airport  
Mr D Healey, Manager ATS, Cardiff International Airport  
Mr G Dixon, GM ATS, London City Airport  
Mr A Young, SATCO, Belfast City Airport  
Mr P Mirams, M ATS, Biggin Hill Airport  
Mr M Gregory, GM ATS Manager, Birmingham International Airport  
Ms C Willoughby-Crisp, Manager ATS, Bournemouth International Airport  
Mr G Paterson, General Manager ATS, Bristol International Airport  
Mr T Billings, SATCO, Cranfield Aerodrome  
Mr N James, Manager ATS, East Midlands International Airport  
Ms D Zost, Deputy Air Traffic Control Manager, Humberside Airport  
Mr D Smillie, Manager ATS, Leeds Bradford Airport  
Mr K Cooper, ATC Manager, Liverpool John Lennon Airport  
Mrs G Clark, General Manager ATS, London Luton Airport  
Mr Peter Snell, General Manager Air Traffic Operations, Newcastle International Airport  
Mr A Kenyon, GM ATS, Southampton Airport  
Mr T Clark, SATCO, Southend Airport  
Mr K Cooper, SATCO, Durham Tees Valley Airport  
Mr N Warner, GM ATS, Prestwick Airport  
Mr D Foster, Manager ATS, Farnborough Airport  
Mr P Templeman, GM ATS, London Stansted Airport  
Mr D MacCamley, SATCO, Blackpool Airport  
Mr Michael McDowell, Operations Manager, City of Derry Airport  
Mr D Lewington, SATCO, Gloucester Airport  
Mr J Lamont, Airport Manager, Campbeltown Airport  
Mr M Morgan, Airport Manager, Cambridge Airport  
Mr P Langley, SATCO, Norwich Airport  
Mr D Thomas, SATCO, Exeter Airport  
Mr P Thompson, Manager ATS, London-Manston Airport  
Mr P Jones, Manager ATS, Manchester Airport  
Mr A Hicks, Airport Manager, St. Mary's Airport  
Mr I Nunan, SATCO, Scatsta Airport  
Mr A Wang, Manager ATS, Shoreham Airport  
Mr D Dalrymple, SATCO, Kirkwall Airport  
Mr A Smith, SATCO, Sumburgh Airport  
Mr I Craighead, SATCO, Wick Aerodrome  
Mr B Warrender, SATCO, Inverness Airport  
Mr D MacGillivray, Airport Manager, Islay Airport  
Mr K O'Brien, SATCO, Benbecula Airport  
Mr I MacIver, SATCO Stornoway Airport  
Mr A MacInnes, Airport Manager, Tiree Airport  
Mr T Gulson, SATCO, Dundee Airport  
Mr B May, Manager ATS, Bristol Filton Airport  
Mr K Packer, SATCO, Carlisle Airport  
Mr S Underhill, SATCO, Hawarden Airport  
Mr T Brown, SATCO, Plymouth City Airport  
Mr T Maskens, Manager ATS, Lydd Airport  
Mr M Wilshaw-Rhead, SATCO, Robin Hood Airport Doncaster Sheffield  
Mr T Eddleston, Station Manager, Oban Airport  
Ms K Williamson, SATCO, Warton Aerodrome  
Mr D Heaselgrave, SATCO, Coventry Airport  
Ms A Evans, SATCO, Oxford Airport

**Civil Aviation Authority**

CAA House K6G1 45-59 Kingsway London WC2B 6TE www.caa.co.uk  
Telephone 020 7453 6527 Fax 020 7453 6565 colin.hord@caa.co.uk

Mr A Ormshaw, SATCO, Newquay Cornwall Airport  
Mr F Ramage, Managing Director, Penzance Heliport  
Mr C Pearson, SATCO, Lands End / St Just Aerodrome  
Mr G Jones, SATCO, North Denes Heliport  
Mr F Frost, SATCO, Lasham Aerodrome  
Mr P Wright, SATCO, Redhill Aerodrome  
Mr D Higginbottom, SATCO Manchester Woodford Aerodrome  
Mr J Browne, SATCO, London Heliport  
Ms C Dyer, SATCO, Wycombe Air Park  
Mr B Forster, Aerodrome Manager, West Wales / Aberporth Airport  
Mr M Galbraith, Airport Manager, Barra Airport  
Mr A Miles, ATS Manager Blackbushe Aerodrome  
Mr M Husband, Aerodrome Manager, Chichester / Goodwood Aerodrome  
Miss A Paul, Aerodrome Manager, Denham Aerodrome  
Mr F Marson, Airfield Manager, Duxford Aerodrome  
Mr M Murphy, Aerodrome Manager, Elstree Aerodrome  
Mr R Nicholson, FISO Manager, Fenland Aerodrome  
Mr A Wang, Operations Manager, Fairoaks Aerodrome  
Mr N Duriez, Operations Manager, Manchester Barton Airport  
Mr G Bell, Aerodrome Manager, Northampton / Sywell Aerodrome  
Mr K Carr, Airport Manager, Rochester Airport  
Mr M Stocker, Aerodrome Manager, Shobdon Airport  
Mr T Rowlands, MATS, Wolverhampton Halfpenny Green Airport  
Mr N Loxton, SATCO, Yeovil Aerodrome  
Mr N Howard, Airport Manager, Kemble / Cotswold Airport  
Mr J DeMain, Aerodrome Manager, Shuttleworth Old Warden Aerodrome  
Mr G Morrison, Aerodrome Manager, Tingwall Airport  
Mr J Ismay, Aerodrome Manager, Walney Island Aerodrome  
Mr P Holley, Manager ATC Ops, Jersey Airport  
Mr F McMeiken, Manager ATS, Guernsey Airport  
Mr A Hisscott, S Met O, Ronaldsway Airport, Isle of Man  
Mr N Gait, Regulated Aviation Services Manager, Met Office  
Mr A Pallot, Principle Met Officer, States of Jersey Airport

Info Addressee:

Mr A Wells, Hd UK Met Authority, CAA  
Mr P Brook, Flight Operations, CAA  
Mr P Fraser-Bennison, Aerodrome Standards, CAA  
Mr K Crowley, Air Traffic Standards, CAA  
Mr T Perry, Air Traffic Standards, CAA  
Mr D Cockburn, General Aviation, CAA  
Mr S Dingle, CACC Operations, NATS  
Mr M Skipper Operations Manager, Copperchase Ltd  
Mr D Lynd, Technical Manager, Stonefield Systems (Europe) plc  
Mr B Mott, Met Engineering UK Ltd,  
Ms A Craig, Regulatory Compliance Manager, Muir Matheson Ltd  
Mr P Robson, Business Manager, AGI Ltd.  
Mr M Brettle, Campbell Scientific Ltd.  
Mr P Goodall, Managing Director, StormGeo Ltd  
Mr D Hardy, Senior National Aviation Met Advisor, Met Office  
Mr A Kerr, Senior Airport Met Advisor, Met Office  
Mr I Simpson, Airport Met Advisor, Met Office  
Mr D Handley, Airport Engineering, Heathrow Airport, NATS

## **Annex A: Proposed Guidance Relating to Integrated Met Measurement Systems**

### **Integrated Met Measurement Systems**

These systems enable all the Met sensor data to be measured, processed and made available for subsequent display and use in other systems, in addition these systems enable the METAR to be coded and disseminated on the AFTN. As well as routing information to other systems and displays the Integrated Met Measurement System enables the production and dissemination of the weather reports if required in the METAR format. Typically measurements of wind, pressure, runway visual range, air and dew-point temperature are used directly with the ability for the human observer to modify or accept the cloud height and amount, visibility and present weather reports.

The meteorological parameters that are received by the Integrated Measurement System often require processing before they can be used by the Met Observer or ATS staff. It should be noted that there are different processing, display and averaging requirements for Met information used for ATS purposes from that being used to compile meteorological reports.

The CAA will ensure that the relevant regulatory requirements for Met information used for ATS purposes and Met reporting are implemented appropriately and, where the requirements are processed/output simultaneously, there is no adverse impact for either purpose.

## **Annex B: Proposed Guidance Related to the Calibration of Wind and Pressure Measuring Equipment Installed on Aerodromes**

### 1. Wind Measuring Equipment

#### i) Analogue Cup or Vane Systems

Calibration of analogue cup or vane anemometers must be carried out in a wind tunnel. Every anemometer in use on the aerodrome whether for use solely for ATS purposes or use in Met reports must be calibrated at a minimum of every 2 years. It should be noted that if operational experience indicates a need, the calibration should be carried out more frequently.

It is recommended that while the cup or vane system is being calibrated it is serviced in order that the bearings and other moving parts are replaced. This prevents the system from seizing up or providing inaccurate wind readings due to the cup or vane system requiring a greater starting speed before providing a valid wind speed reading. Each cup or vane system should have a calibration certificate that details the cup and vane sensor serial number(s), the date of calibration, the company or organisation that carried out the calibration and the calibration source (detailing the standard to which it is traceable).

#### ii) Digital Cup or Vane Systems

Servicing of digital cup or vane anemometers should be carried out on an annual basis. Where the sensors are refurbished to an as new condition as part of the service, wind tunnel calibration is not required; otherwise calibration in a wind tunnel is required.

#### iii) All Cup or Vane Systems

Where cup or vane systems are stored as a replacement for those systems undergoing calibration these should also have been calibrated no more than 3 years previously before use.

Where required, maintenance checks may be carried out on each cup and vane anemometer system in use, these checks should include ensuring that the vane direction system is aligned with magnetic north by  $\pm 3$  degrees. It should be noted that the requirement for the actual reporting of the wind direction is  $\pm 10$  degrees

Where a comparison is made with a hand held anemograph this should be used to indicate that the instrument is functioning correctly, it should not be considered a calibration.

#### iv) Ultrasonic Wind Sensors

Ultrasonic wind sensors should be calibrated in accordance with the manufacturers recommendation. It should be noted that as these systems do not use bearings or have moving parts and consequently do not need as frequent maintenance as the cup and vane systems. Therefore recalibration in a wind tunnel is not usually required. During any maintenance inspection a speed zero check and an alignment check of all the vertical transducers should be performed. An orientation check

should also be carried out to ensure the sensor is aligned with magnetic north by  $\pm 3$  degrees.

For each anemometer and wind vane (direction sensor) a record should be kept which details the serial number(s) and date of installation as well as the location on the aerodrome.

## 2. Pressure Measuring Equipment

All pressure sensors that are used at an aerodrome as primary or as contingency devices are required to be calibrated on an annual basis.

The calibration should be against traceable national or international standards. It should be noted that where a pressure sensing device consists of 2 or more pressure sensors these individual sensors are required to be calibrated in order to ensure the corrections used within the device are accurate.

The calibration should ensure that a range of pressure values are tested, these should be between 900 hPa and 1050 hPa, it is recommended that as a minimum 5 values are used. Any difference between the barometer under test and the check barometer should be less than  $\pm 0.5$  hPa. Therefore the barometer that is used as the checking device should have an accuracy greater than  $\pm 0.2$  hPa.

The calibration certificate should detail the barometer's serial number, the date of calibration, the company or organisation that carried out the calibration and the calibration source (detailing the standard to which it is traceable). It should also provide a copy of the calibration report that shows the pressure values that were tested and the resulting values from the barometer being calibrated.

## Annex C: Consultation Questions

**Consultation Question 1:** Do you agree with the proposal that aerodromes operating with CAT II and III runways should have a visibility sensor along with an Integrated Met Observing System ? If not please indicate your reasons.

**Consultation Question 2:** Do you consider that the proposed approval requirements for Met equipment are proportional ?

**Consultation Question 4:** Do you concur that the proposed inclusion of specific parameters required to be reported as Present Weather is justified ?

**Consultation Question 5:** Do you agree that when the aerodrome is operational and AUTO METARs are being issued that information on thunderstorms and cloud types should be included ?

**Consultation Question 6:** Do you agree with the proposal to increase the minimum number of observations to remain current from 10 to 20? If not what alternative arrangements would you propose to ensure that personnel who make less frequent Met Observations remain competent to do so.

**Consultation Question 6:** Do you agree with the proposal to mandate refresher Met Observer training every 5 years for those responsible for competency checking? If not how best do you suggest that those responsible for carrying out the competency checks are able to provide assistance to other Met Observers at the aerodrome make accurate and good quality observations.

**Consultation Question 7:** Are there any technical issues associated with the calibration guidance (Annex B) that you wish to raise ?