‘AMC and GM to Part-MET — Issue 1, Amendment 1’

Annex V to Decision 2017/001/R is amended as follows:

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

(a) deleted text is **struck through**;
(b) new or amended text is highlighted in **blue**;
(c) an ellipsis [...] indicates that the rest of the text is unchanged.
GM1 MET.OR.100 Meteorological data and information

DATA AND INFORMATION RELIABILITY

Owing to the variability of meteorological elements in space and time, to limitations of observing techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a forecast is understood to be the most probable value which the element is likely to assume during the period of the forecast. Similarly, when the time of occurrence or change of an element is given in a forecast, this time is understood to be the most probable time.

Owing to the variability of meteorological elements in space and time, to limitations of observing techniques, and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a meteorological report or in a forecast is understood to be the best approximation to the actual conditions at the time of observation or the most probable value that the element is likely to assume during the period of the forecast, respectively. Similarly, when the time of occurrence or change of an element is given in a forecast, this time is understood to be the most probable time.

AMC1 MET.OR.100(a) Meteorological data and information

INFORMATION TO BE PROVIDED

[...]

(a) the provision in air traffic services units of displays related to integrated semi-automatic observing systems or automatic observing systems;

[...]

GM1 MET.OR.105(b) Retention of meteorological information

GENERAL

The competent authority determines who may be provided with meteorological information about inquiries and investigations concerning aviation.

GM1 MET.OR.110 Meteorological information exchange requirements

GENERAL

Operational meteorological information is disseminated to international OPMET databanks and the centres for the operation of the aeronautical fixed service satellite distribution systems internet-based services.
GM2 MET.OR.110 Meteorological information exchange requirements

OPMETER DATABANK

The list of relevant meteorological exchange requirements for OPMET can be found in the TABLE MET II-1, TABLE MET II-2, TABLE MET II-3, and TABLE MET II-EUR-1 of Volume II of FASID tables in ICAO Doc 7754 (EUROPEAN (EUR) AIR NAVIGATION PLAN) (ANP).

GM1 MET.OR.120 Notification of discrepancies to the world area forecast centres (WAFCs)

REPORTING — SIGNIFICANT DISCREPANCIES

Guidance on reporting significant discrepancies is provided in the ICAO Doc 8896 'Manual of Aeronautical Meteorological Practice' (ICAO Doc 8896) as last amended.

GM1 MET.OR.200(a)(2) Meteorological reports and other information

LOCAL SPECIAL REPORTS

By agreement between the aeronautical meteorological station and the appropriate ATS unit, local special reports may not be required to be disseminated in respect of:

[...]

AMC2 MET.OR.200(a)(3) Meteorological reports and other information

METAR INTERVALS — NON-SCHEDULED INTERNATIONAL CAT

For aerodromes not serving scheduled international commercial air transport operations, the dissemination of hourly METAR and SPECI, as well as the criteria to provide SPECI, should be agreed between the competent authority and the meteorological services provider.

GM1 MET.OR.200(a)(3) Meteorological reports and other information

METAR INTERVALS — NON-SCHEDULED INTERNATIONAL CAT
(a) For aerodromes not serving scheduled international commercial air transport operations, an aeronautical meteorological station may disseminate hourly METAR.

(b) Such dissemination, as well as the criteria to provide SPECI, should be agreed between the competent authority and the meteorological services provider.

**AMC1 MET.OR.210 Observing meteorological elements**

**DISPLAY**

Where automated equipment forms part of an integrated semi-automatic observing system or automatic observing system, displays of data which are made available to the local ATS units should be a subset of and displayed parallel to those available in the aeronautical meteorological stations or meteorological offices. In those displays, each meteorological element should be annotated to identify, as appropriate, the locations for which the element is representative.

**AMC2 MET.OR.210 Observing meteorological elements**

**CLIMATOLOGICAL INFORMATION**

[...]

**GM2 MET.OR.215(c) Forecasts and other information**

**TAF CONTINUOUS REVIEW GUIDANCE**


**GM1 MET.OR.220(a) Aerodrome forecasts**

**DISSEMINATION OF TAF**

TAF and amendments thereto are disseminated to international OPMET databanks and the centres designated for the operation of the aeronautical fixed service satellite distribution systems internet-based services.
AMC1 MET.OR.235(b) Aerodrome warnings and wind shear warnings and alerts

**WIND SHEAR FOLLOW-UP**

Wind shear alerts should be updated at least every minute. They should be cancelled as soon as the headwind/tailwind change falls below 15 kt (7.5 m/s).

GM1 MET.OR.235(d) Aerodrome warnings and wind shear warnings and alerts

**WIND SHEAR ALERTS**

Wind shear alerts are expected to complement wind shear warnings and together are intended to enhance situational awareness of wind shear.

GM2 MET.OR.235(d) Aerodrome warnings and wind shear warnings and alerts

**CANCELLATION OF WARNINGS**

The criteria for the cancellation of wind shear warnings are defined locally for each aerodrome, as agreed between the aerodrome meteorological office, the appropriate ATS units and the operators concerned.

GM1 MET.OR.240(a)(2) Information for use by operator or flight crew

**GENERAL**

For aerodromes not serving scheduled international commercial air transport operations within European Union:

(a) an aeronautical meteorological station may disseminate METAR on an hourly basis, as well as SPECI, as necessary; and

(b) such information should be made available and may include TREND.

AMC1 MET.OR.250(a) SIGMET messages

**FIR AND CTA**
Meteorological watch offices whose area of responsibility encompasses more than one FIR and/or CTA should provide separate SIGMET messages for each FIR and/or CTA.

**AMC2.MET.OR.250(a) SIGMET messages**

**DIGITAL FORMAT**

In addition to the issuance of SIGMET information in abbreviated plain language, SIGMET information should be issued in a digital format.

**GM1 MET.OR.250(a) SIGMET messages**

**DISSEMINATION**

(a) SIGMET messages are disseminated to meteorological watch offices and WAFCs and to other meteorological offices. SIGMET messages for volcanic ash are also disseminated to VAACs.

(b) SIGMET messages are disseminated to international OPMET databanks and the centres designated for the operation of the aeronautical fixed service satellite distribution systems internet-based services.

**AMC1 MET.OR.250(c) SIGMET messages**

**SOURCE**

SIGMET messages concerning volcanic ash clouds and tropical cyclones should be based on advisory information provided by VAACs and Tropical Cyclone Advisory Centres (TCACs), respectively.

**AMC1.MET.OR.255(a) AIRMET messages**

**DIGITAL FORMAT**

In addition to the issuance of AIRMET information in abbreviated plain language, AIRMET information should be issued in a digital format.

**GM1 MET.OR.255(a) AIRMET messages**

**DISSEMINATION**
(a) AIRMET messages are disseminated to meteorological watch offices in adjacent flight information regions and to other meteorological watch offices or aerodrome meteorological offices, as agreed by the competent authorities concerned.

(b) AIRMET messages are transmitted to international operational meteorological databanks and the centres for the operation of the aeronautical fixed service internet-based services.

GM1 MET.OR.265(a) Volcanic ash advisory centres (VAACs) responsibilities

DISTRIBUTION OF METEOROLOGICAL DATA

The AFTN/AFS address to be used by the VAACs is given in the ICAO Doc 9766 ‘Handbook on the International Airways Volcano Watch (IAVW)’ (ICAO Doc 9766) which is available on the ICAO IAVWOPSG website.

AMC1 MET.TR.200(a) Meteorological reports and other information

TEMPLATE FOR LOCAL ROUTINE REPORTS AND LOCAL SPECIAL REPORTS

Local routine reports and local special reports should be issued in abbreviated plain language, in accordance with the below template.

<table>
<thead>
<tr>
<th>Element</th>
<th>Detailed content</th>
<th>Template(s)</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of the type of report (M)</td>
<td>Type of report</td>
<td>MET REPORT or SPECIAL</td>
<td>MET REPORT SPECIAL</td>
</tr>
<tr>
<td>Location indicator (M)</td>
<td>ICAO location indicator (M)</td>
<td>nnnn</td>
<td>YUDO</td>
</tr>
<tr>
<td>Time of the observation (M)</td>
<td>Day and actual time of the observation in UTC</td>
<td>nnnnnnZ</td>
<td>221630Z</td>
</tr>
<tr>
<td>Identification of an automated report (C)</td>
<td>Automated report identifier (C)</td>
<td>AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Surface wind (M)</td>
<td>Name of the element (M)</td>
<td>WIND</td>
<td>WIND 240/4MPS (WIND 240/8KT)</td>
</tr>
<tr>
<td>Runway (O)</td>
<td>Rwy nn[L] or Rwy nn[C] or Rwy nn[R]</td>
<td></td>
<td>WIND RWY 18 TDZ 190/6MPS (WIND RWY 18 TDZ 190/12KT)</td>
</tr>
<tr>
<td>Runway section (O)</td>
<td>TDZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wind direction (M)</td>
<td>nnn/</td>
<td>VRB BTN nnn/ AND nnn/</td>
<td>C A</td>
</tr>
<tr>
<td>Element</td>
<td>Detailed content</td>
<td>Template(s)</td>
<td>Examples</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Wind speed (M)</td>
<td>[ABV]n[n][n]MPS (or [ABV]n[n]KT)</td>
<td>L M</td>
<td>WIND VRB1MPS WIND CALM (WIND VRB2KT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WIND VRB BTN 350/ AND 050/1MPS (WIND VRB BTN 350/ AND 050/2KT)</td>
</tr>
<tr>
<td>Significant speed</td>
<td>MAX[ABV][nn][n] MNM[n]</td>
<td></td>
<td>WIND 270/ABV49MPS (WIND 270/ABV99KT)</td>
</tr>
<tr>
<td>variations (C)</td>
<td>VRB BTN nnn/ AND nnn/</td>
<td></td>
<td>WIND 120/3MPS MAX9 MNM2 (WIND 120/6KT MAX18 MNM4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WIND 020/5MPS VRB BTN 350/ AND 070/ (WIND 020/10KT VRB BTN 350/ AND 070/)</td>
</tr>
<tr>
<td>Runway section (O)</td>
<td>MID</td>
<td>C A L M</td>
<td>WIND RWY 14R MID 140/6MPS (WIND RWY 14R MID 140/12KT)</td>
</tr>
<tr>
<td>Wind direction (O)</td>
<td>nnn/</td>
<td></td>
<td>WIND RWY 27 TDZ 240/8MPS MAX14 MNM5 END 250/7MPS (WIND RWY 27 TDZ 240/16KT MAX28 MNM10 END 250/14KT)</td>
</tr>
<tr>
<td>Wind speed (O)</td>
<td>[ABV]n[n][n]MPS (or [ABV]n[n]KT)</td>
<td></td>
<td>VIS 350M CAVOK VIS 7KM VIS 10KM VIS RWY 09 TDZ 800M END 1200M VIS RWY 18C TDZ 6KM RWY 27 TDZ 4000M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RVR RWY 32 400M RVR RWY 20 1600M</td>
</tr>
<tr>
<td>Runway visual range (C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility (M)</td>
<td>Name of the element (M) VIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway (O)</td>
<td>RWAY nn[L] or RWAY nn[C] or RWAY nn[R]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway section (O)</td>
<td>TDZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility (M)</td>
<td>n[n][n][n]M or n[n]KM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway section (O)</td>
<td>MID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility (O)</td>
<td>n[n][n][n]M or n[n]KM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway section (O)</td>
<td>END</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visibility (O)</td>
<td>n[n][n][n]M or n[n]KM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway visual range (C)</td>
<td>Name of the element (M) RVR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway (C)</td>
<td>RWAY nn[L] or RWAY nn[C] or RWAY nn[R]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Element | Detailed content | Template(s) | Examples |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway section (C)</td>
<td>TDZ</td>
<td></td>
<td>RVR RWY 10L BLW 50M</td>
</tr>
<tr>
<td>Runway visual range (M)</td>
<td>[ABV or BLW] nn[n][n]M</td>
<td></td>
<td>RVR RWY 14 ABV 2000M</td>
</tr>
<tr>
<td>Runway section (C)</td>
<td>MID</td>
<td></td>
<td>RVR RWY 10 BLW 150M</td>
</tr>
<tr>
<td>Runway visual range (C)</td>
<td>[ABV or BLW] nn[n][n]M</td>
<td></td>
<td>RVR RWY 12 ABV 1200M</td>
</tr>
<tr>
<td>Runway section (C)</td>
<td>END</td>
<td></td>
<td>RVR RWY 12 TDZ 1100M MID ABV 1400M</td>
</tr>
<tr>
<td>Runway visual range (C)</td>
<td>[ABV or BLW] nn[n][n]M</td>
<td></td>
<td>RVR RWY 16 TDZ 600M MID 500M END 400M</td>
</tr>
<tr>
<td>Runway visual range (C)</td>
<td>[ABV or BLW] nn[n][n]M</td>
<td></td>
<td>RVR RWY 26 500M RWY 20 800M</td>
</tr>
<tr>
<td>Present weather (C)</td>
<td></td>
<td></td>
<td>MOD RA</td>
</tr>
<tr>
<td>Intensity of present weather (C)</td>
<td>FBL or MOD or HVy</td>
<td></td>
<td>HVY TSRA</td>
</tr>
<tr>
<td>Characteristics and type of present weather (C)</td>
<td>DZ or RA or SN or SG or PL or DS or SS or F2DZ or FZUP or FC or FZRA or SHGR or SHGS or SHRA or SHSN or SHUP or TSGR or TSGS or TSRA or TSSN or TSUP12 or UP</td>
<td></td>
<td>BLSN or DRDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FZFG or MIFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HVY TSRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FBL SNRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FBL DZ FG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HVY SHSN BLSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HVY TSUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>//</td>
</tr>
<tr>
<td>Cloud (M)</td>
<td>Name of the element (M)</td>
<td>CLD</td>
<td>CLD NSC</td>
</tr>
<tr>
<td></td>
<td>Runway (O)</td>
<td>RWy nn[L] or RWy nn[C] or RWy nn[R]</td>
<td>CLD SCT 300M OVC 600M (CLD SCT 1000FT OVC 2000FT)</td>
</tr>
<tr>
<td></td>
<td>Cloud amount (M) or vertical visibility (O)</td>
<td>FEW or SCT or BKN or OVC or ///</td>
<td>OBSC or NSC or NCD</td>
</tr>
<tr>
<td></td>
<td>Cloud type (C)</td>
<td>CB or TCU or ///</td>
<td>—</td>
</tr>
</tbody>
</table>
| Height of cloud base or the value of vertical visibility (C) | n[n][n][n]M (or n[n][n][n]FT) or ////M | [VER VIS n[n][n][n]M or VER VIS n[n][n][n]FT] or ////M | CLD OBSC VER VIS 150M (CLD OBSC VER VIS 500FT) CLD BKN TCU 270M (CLD BKN TCU 900FT) CLD RWY 08R BKN 60M RWY 26 BKN 90M (CLD RWY 08R BKN 200FT RWY 26 BKN 300FT)
<table>
<thead>
<tr>
<th>Element</th>
<th>Detailed content</th>
<th>Template(s)</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air temperature (M)</strong></td>
<td>Name of the element (M)</td>
<td>T</td>
<td>T17, TMS08</td>
</tr>
<tr>
<td></td>
<td>Air temperature (M)</td>
<td>[MS]nn</td>
<td></td>
</tr>
<tr>
<td><strong>Dew-point temperature (M)</strong></td>
<td>Name of the element (M)</td>
<td>DP</td>
<td>DP15, DPM518</td>
</tr>
<tr>
<td></td>
<td>Dew-point temperature (M)</td>
<td>[MS]nn</td>
<td></td>
</tr>
<tr>
<td><strong>Pressure values (M)</strong></td>
<td>Name of the element (M)</td>
<td>QNH</td>
<td>QNH 0995HPA, QNH 1009HPA</td>
</tr>
<tr>
<td></td>
<td>Name of the element (O)</td>
<td>QFE</td>
<td>QNH 1022HPA QFE 1001HPA</td>
</tr>
<tr>
<td></td>
<td>QFE (O)</td>
<td>[RWY nn[L] or RWY nn[C] or RWY nn[R]] nnnnHPA</td>
<td>QNH 0987HPA QFE RWY 18 0956HPA RWY 24 0955HPA</td>
</tr>
<tr>
<td><strong>Supplementary information (C)</strong></td>
<td>Significant meteorological phenomena (C)</td>
<td>CB or TS or MOD TURB or SEV TURB or WS or GR or SEV SQL or MOD ICE or SEV ICE or FZDZ or FZRA or SEV MTW or SS or DS or BLSN or FC</td>
<td>FC IN APCH WS IN APCH 60M-WIND 360/13MPS WS RWY 12 REFZRA CB IN CLIMB-OUT RETSRA</td>
</tr>
<tr>
<td></td>
<td>Location of the phenomena (C)</td>
<td>IN APCH [n[n][n][n][n]M-WIND nnn/n[n][n]MPS] or IN CLIMB-OUT [n[n][n][n]M-WIND nnn/n[n][n]MPS] (IN APCH [n[n][n][n]FT-WIND nnn/n[n][n]KT] or IN CLIMB-OUT [n[n][n][n]FT-WIND nnn/n[n][n]KT]) or RWY nn[L] or RWY nn[C] or RWY nn[R]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent weather (C)</td>
<td>RERASN or REFZDZ or REFZRA or REDZ or RE[SH]RA or RE[SH]SN or RESG or RESHGR or RESHGS or REBLSN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or REFC or REPL or REUP or REFZUP or RETSUP or RESHIP or REVA or RETS</td>
<td></td>
</tr>
<tr>
<td><strong>Trend forecast (O)</strong></td>
<td>Name of the element (M)</td>
<td>TREND</td>
<td>TREND NOSIG TREND BECMG FEW 600M (TREND BECMG FEW 2000FT)</td>
</tr>
<tr>
<td></td>
<td>Change indicator (M)</td>
<td>NOSIG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Period of change (C)</td>
<td>BECMG or TEMPO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wind (C)</td>
<td>FMnlnnn and/or TLnlnnn or ATnlnnn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visibility (C)</td>
<td>VIS n[n][n][n]M or VIS n[n]KM</td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Detailed content</td>
<td>Template(s)</td>
<td>Examples</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>Weather phenomenon: intensity (C)</td>
<td>FBL or MOD or HVY</td>
<td>—</td>
<td>NSW VOK TRENDBECMGAT1800 VIS10KM NSW TRENDBECMGTL1700 VIS800MFG</td>
</tr>
<tr>
<td>Weather phenomenon: characteristics and type (C)</td>
<td>DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHSN or TSGR or TSGS or TSRA or TSSN</td>
<td>FGBR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG</td>
<td>TRENDBECMGFM1030TL1130 TEMPOAT1800 FZRA TRENDBECMGAT1130 CLD OVC 300M TRENDBECMGFM1100MOD SN TEMPO FM1130 BLSN</td>
</tr>
<tr>
<td>Name of the element (C)</td>
<td>CLD</td>
<td>—</td>
<td>TRENDBECMGAT1130 CLD OVC 300M (TRENDBECMG AT1130 CLD OVC 1000FT)</td>
</tr>
<tr>
<td>Cloud amount and vertical visibility (C)</td>
<td>FEW or SCT or BKN or OVC</td>
<td>OBSC</td>
<td>NSC</td>
</tr>
<tr>
<td>Cloud type (C)</td>
<td>CB or TCU</td>
<td>—</td>
<td>TRENDBECMGAT1130 CLD OVC 300M (TRENDBECMG AT1130 CLD OVC 1000FT)</td>
</tr>
<tr>
<td>Height of cloud base or the value of vertical visibility (C)</td>
<td>n[n][n][n]M or n[n][n][n]F</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[VER VIS n[n][n]M or VER VIS n[n][n][n]FT]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GM1 MET.TR.200(a) Meteorological reports and other information**

**RANGES AND RESOLUTIONS — LOCAL ROUTINE REPORTS AND LOCAL SPECIAL REPORTS**

(a) The ranges and resolutions for the numerical elements included in local routine reports and local special reports are shown below.
Ranges and resolutions for the numerical elements included in local routine reports and local special reports.

<table>
<thead>
<tr>
<th>Element</th>
<th>Elements included in local routine reports and local special reports</th>
<th>Range</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runway</td>
<td>(no units)</td>
<td>01–36</td>
<td>1</td>
</tr>
<tr>
<td>Wind direction</td>
<td>*true</td>
<td>010–360</td>
<td>10</td>
</tr>
<tr>
<td>Wind speed: MPS</td>
<td></td>
<td>1–99* 1–99*</td>
<td>1</td>
</tr>
<tr>
<td>Wind speed: KT</td>
<td></td>
<td>1–199* 1–199*</td>
<td>1</td>
</tr>
<tr>
<td>Visibility: M</td>
<td></td>
<td>0–750 0–750</td>
<td>50</td>
</tr>
<tr>
<td>Visibility: M</td>
<td></td>
<td>800–4 900 800–4 900</td>
<td>100</td>
</tr>
<tr>
<td>Visibility: KM</td>
<td></td>
<td>5–9 5–9</td>
<td>1</td>
</tr>
<tr>
<td>Visibility: KM</td>
<td></td>
<td>10– 0 (fixed value: 10 KM)</td>
<td></td>
</tr>
<tr>
<td>Runway visual range: M</td>
<td></td>
<td>0–375 0–375</td>
<td>25</td>
</tr>
<tr>
<td>Runway visual range: M</td>
<td></td>
<td>400–750</td>
<td>50</td>
</tr>
<tr>
<td>Runway visual range: M</td>
<td></td>
<td>800–2 000</td>
<td>100</td>
</tr>
<tr>
<td>Vertical visibility: M</td>
<td></td>
<td>0–75**</td>
<td>15</td>
</tr>
<tr>
<td>Vertical visibility: M</td>
<td></td>
<td>90–600</td>
<td>30</td>
</tr>
<tr>
<td>Vertical visibility: FT</td>
<td></td>
<td>0–250**</td>
<td>50</td>
</tr>
<tr>
<td>Vertical visibility: FT</td>
<td></td>
<td>300–2 000</td>
<td>100</td>
</tr>
<tr>
<td>Clouds: height of cloud base: M</td>
<td></td>
<td>0–75**</td>
<td>15</td>
</tr>
<tr>
<td>Clouds: height of cloud base: M</td>
<td></td>
<td>90–3 000 970</td>
<td>30</td>
</tr>
<tr>
<td>Clouds: height of cloud base: FT</td>
<td></td>
<td>0–250**</td>
<td>50</td>
</tr>
<tr>
<td>Clouds: height of cloud base: FT</td>
<td></td>
<td>300–10 000 900</td>
<td>100</td>
</tr>
<tr>
<td>Clouds: height of cloud base: FT</td>
<td></td>
<td>10 000–20 000</td>
<td>1 000</td>
</tr>
<tr>
<td>Air temperature: °C</td>
<td></td>
<td>80–+60–80–60</td>
<td>1</td>
</tr>
<tr>
<td>Dew-point temperature: °C</td>
<td></td>
<td>0500–1 100</td>
<td>1</td>
</tr>
<tr>
<td>QNH; QFE: hPa</td>
<td></td>
<td>0500–1 100</td>
<td>1</td>
</tr>
</tbody>
</table>

* There is no aeronautical requirement to report surface wind speeds of 100 kt (50 m/s) or more; however, provision has been made for reporting wind speeds up to 199 kt (99 m/s) for non-aeronautical purposes, as necessary.

** Under circumstances as specified in AMC1 MET.TR.205(e)(13); otherwise a resolution of 100 ft (30 m) is to be used.

(b) The explanations for the abbreviations can be found in the [ICAO Doc 8400](https://www.icao.int) Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC) [ICAO Doc 8400].
AMC1 MET.TR.200(a)(4) Meteorological reports and other information

AUTOMATED REPORTING

Local routine reports and local special reports and METAR from automatic observing systems should be identified with the word ‘AUTO’.

GM1 MET.TR.200(a)(4) Meteorological reports and other information

AUTOMATED REPORTING

METAR, local routine reports and local special reports from automatic observing systems may be used as agreed between the aeronautical meteorological stations and the users.

AMC1 MET.TR.200(a)(12) Meteorological reports and other information

SUPPLEMENTARY INFORMATION — SEMI-AUTOMATIC OBSERVING SYSTEM

(a) In local routine reports and local special reports and in METAR when reported by a semi-automatic observing system, the following recent weather phenomena should be reported, up to a maximum of three groups, in the supplementary information:

[...]

(b) In local routine reports and local special reports when reported by a semi-automatic observing system, the following significant meteorological conditions, or combinations thereof, should be reported in the supplementary information:

[...]

AMC2 MET.TR.200(a)(12) Meteorological reports and other information

SUPPLEMENTARY INFORMATION — AUTOMATIC OBSERVING SYSTEM

In local routine reports and local special reports and in METAR reported by an automatic observing system, the following recent weather phenomena should be reported, up to a maximum of three groups, in the supplementary information:

[...]
AMC3 MET.TR.200(a)(12) Meteorological reports and other information

SUPPLEMENTARY INFORMATION — WIND SHEAR

Information on wind shear should be included as supplementary information in local routine reports and local special reports and in METAR, where local circumstances so warrant.

AMC4 MET.TR.200(a)(12) Meteorological reports and other information

SUPPLEMENTARY INFORMATION — SEA-SURFACE TEMPERATURE AND STATE OF THE SEA AND OF THE RUNWAY

In METAR, information on sea-surface temperature and the state of the sea or the significant wave height, from aeronautical meteorological stations established on offshore structures in support of helicopter operations, should be included in the supplementary information.

GM1 to AMC13 MET.TR.200(a)(12) Meteorological reports and other information

SUPPLEMENTARY INFORMATION — LOCAL CIRCUMSTANCES

Local circumstances include but are not necessarily limited to wind shear of non-transitory nature such as might be associated with low-level temperature inversions or local topography.

GM1 MET.TR.200(b) Meteorological reports and other information

EXAMPLE OF LOCAL SPECIAL REPORT

Local special report:

SPECIAL YUDO 151115Z WIND 050/25KT MAX37 MMN10 VIS 1200M RVR RWY 05 ABV 1800M HVY TSRA CLD BKN CB 500FT T25 DP22 QNH 1018HPA TREND TEMPO TL1200 VIS 600M BECMG AT1200 VIS 8KM NSW NSC

Meaning:

Special report for Donlon/International* issued on the 15th of the month at 11:15 UTC; surface wind direction 050 degrees; wind speed 25 knots gusting between 10 and 37 knots; visibility 1 200 metres along the runway; Runway visual range above 1 800 metres at the threshold on runway 05; thunderstorm with heavy rain; broken cumulonimbus cloud at 500 feet; air temperature 25 degrees Celsius; dew-point temperature 22 degrees Celsius; QNH 1 008 hectopascals; TREND during next 2 hours; visibility along the runway temporarily 600 metres
from 11.15 to 12.00, becoming at 12.00 UTC visibility along the runway 8 kilometres, thunderstorm ceases and nil significant weather and nil significant cloud.

* Fictitious location

[...]

AMC1 MET.TR.200(c)(2) Meteorological reports and other information

**METAR — DIGITAL FORM**

METAR should be disseminated in a digital form.

GM1 MET.TR.200(e)(5) Meteorological reports and other information

**NOISE ABATEMENT PROCEDURES**

Noise abatement procedures are those in accordance with 7.2.6 of the ICAO Doc 4444 ‘Procedures for Air Navigation Services (PANS-ATM)’ (ICAO Doc 4444) as last amended.

GM1 MET.TR.205(a)(3)(iii)(A) Reporting of meteorological elements

**NOISE ABATEMENT PROCEDURES**

Noise abatement procedures are those in accordance with 7.2.6 of the ICAO Doc 4444 ‘Procedures for Air Navigation Services (PANS-ATM)’ (ICAO Doc 4444).

AMC2 MET.TR.205(b)(1) Reporting of meteorological elements

**VISIBILITY**

In METAR, visibility should be reported as prevailing visibility. When the visibility is not the same in different directions and:

(a) when the lowest visibility is different from the prevailing visibility, and (1) less than 1 500 m or (2) less than 50 % of the prevailing visibility, and less than 5 000 m, the lowest visibility observed should also be reported and, when possible, its general direction in relation to the aerodrome reference point indicated by reference to one of the eight points of the compass;

[...]
AMC1 MET.TR.205(d) Reporting of meteorological elements

PRESENT WEATHER PHENOMENA — AUTOMATIC OBSERVING SYSTEM

In local routine reports and local special reports and in METAR reported by an automatic observing system, the following types of present weather phenomena should be reported, using their respective abbreviations and relevant criteria, as appropriate:

(a) Precipitation:
   (1) drizzle (DZ);
   (2) rain (RA);
   (3) snow (SN); and
   (4) Unidentified precipitation (UP)

(b) Obscurations (hydrometeors);
   (1) Fog (FG): reported when visibility is less than 1 000 m;
   (2) Mist (BR): reported when visibility is at least 1 000 m, but not more than 5 000 m;
   (3) Obscurations (lithometeors). Haze (HZ) should be used when the obscuration consists predominantly of lithometeors and the visibility is 5 000 m or less; and
   (4) Temporary failure of system/sensor: the present weather should be replaced by ‘//’ when it cannot be observed due to a temporary failure of the system/sensor.

AMC2 MET.TR.205(d) Reporting of meteorological elements

PRESENT WEATHER PHENOMENA — SEMI-AUTOMATIC OBSERVING SYSTEM

In local routine reports and local special reports and in METAR reported by a semi-automatic observing system, the following types of present weather phenomena should be reported, using their respective abbreviations and relevant criteria, as appropriate:

(...)

AMC3 MET.TR.205(d) Reporting of meteorological elements

PRESENT WEATHER PHENOMENA — UNIDENTIFIED PRECIPITATION (UP)

In automated local routine reports and local special reports and in METAR, in addition to drizzle (DZ), rain (RA) and snow (SN), the abbreviation ‘UP’ should be used for unidentified precipitation when the type of precipitation cannot be identified by the automatic observing system.

AMC1 MET.TR.205(d)(3) Reporting of meteorological elements

PRESENT WEATHER PHENOMENA — ADDITIONAL CHARACTERISTICS
In local routine reports and local special reports and in METAR, only when reported by a semi-automatic observing system, the following characteristics of present weather phenomena, as necessary, should be reported using their respective abbreviations and relevant criteria, as appropriate:

(a) 1. Shower (SH): used to report showers. Showers observed in the vicinity of the aerodrome should be reported as ‘VCSH’ without qualification regarding type or intensity of precipitation.

(b) 2. Blowing (BL): used with types of present weather phenomena raised by the wind to a height of 6 ft (2 m) or more above the ground.

(c) 3. Low drifting (DR): used with types of present weather phenomena raised by the wind to less than 6 ft (2 m) above ground level.

(d) 4. Shallow (MI): less than 6 ft (2 m) above ground level.

(e) 5. Patches (BC): fog patches randomly covering the aerodrome.

(f) 6. Partial (PR): a substantial part of the aerodrome covered by fog while the remainder is clear.

(b) In automated local routine reports, local special reports and in METAR, when showers (SH) referred to above cannot be determined based upon a method that takes account of the presence of convective cloud, the precipitation should not be characterised by ‘SH’.

AMC2 MET.TR.205(d)(3) Reporting of meteorological elements
PRESENT WEATHER PHENOMENA — INTENSITY
In local routine reports and local special reports and in METAR, the relevant intensity or, as appropriate, the proximity to the aerodrome of the reported present weather phenomena should be indicated as follows:

[...]

GM1 MET.TR.205(d)(3)(i) Reporting of meteorological elements
PRESENT WEATHER PHENOMENA — TS LIGHTNING DETECTION EQUIPMENT
(a) At aerodromes with human observers, lightning detection equipment may supplement human observations.

(b) For aerodromes with automatic observing systems, guidance on the use of lightning detection equipment intended for thunderstorm reporting is given in the ICAO Doc 9837 'Manual on Automatic Meteorological Observing Systems at Aerodromes'.
AMC1 MET.TR.205(e)(1) Reporting of meteorological elements

**CLOUD — HEIGHT OF CLOUD BASE**

In local routine reports and local special reports and in METAR:

[...]

AMC1 MET.TR.210(a) Observing meteorological elements

**SURFACE WIND**

(a) When local routine reports and local special reports are used for departing or arriving aircraft, the surface wind observations for these reports should be representative of conditions along the runway or the touchdown zone respectively.

[...]

AMC1 MET.TR.210(a)(1) Observing meteorological elements

**SURFACE WIND — SITING**

[...]

(c) Sensors for surface wind observations for local routine reports and local special reports should be sited to give the best practicable indication of conditions along the runway and touchdown zones.

[...]

AMC1 MET.TR.210(a)(3) Observing meteorological elements

**SURFACE WIND — AVERAGING**

The averaging period for measuring variations from the mean wind speed (gusts) reported in accordance with MET.TR.205(a)(3)(iii) should be 3 seconds for local routine reports, local special reports, METAR, and for wind displays used for depicting variations from the mean wind speed (gusts) in ATS units.

AMC1 MET.TR.210(b)(1) Observing meteorological elements

**VISIBILITY — GENERAL**

[...]

(c) When local routine reports and local special reports are used for departing aircraft, the visibility observations for these reports should be representative of the conditions along the runway.
(d) When local routine reports and local special reports are used for arriving aircraft, the visibility observations for these reports should be representative of the touchdown zone of the runway.

[...]

GM1 MET.TR.210(c) Observing meteorological elements

RUNWAY VISUAL RANGE (RVR) — ASSESSMENT

A detailed understanding of the assessment of RVR is described in ICAO Doc 9328 'Manual on ‘RVR — Observing and reporting practices’.

AMC1 MET.TR.210(c)(2) Observing meteorological elements

RUNWAY VISUAL RANGE (RVR) — RUNWAY LIGHT INTENSITY

(a) Instrumented systems should consider the runway light intensity.

(b) When instrumented systems are used for the assessment of RVR, computations should be made separately for each available runway.

(c) For local routine reports and local special reports, the light intensity to be used for the computation should be:

   (1) for a runway with the lights switched on and a light intensity of more than 3% of the maximum light intensity available, the light intensity actually in use on that runway;

   (2) for a runway with the lights switched on and a light intensity of 3% or less of the maximum light intensity available, the optimum light intensity that would be appropriate for operational use in the prevailing conditions; and

   (3) for a runway with lights switched off (or at the lowest setting pending the resumption of operations), the optimum light intensity that would be appropriate for operational use in the prevailing conditions.

(d) In METAR, the RVR should be based on the maximum light intensity available on the runway.

GM1 MET.TR.210(c)(2) Observing meteorological elements

RUNWAY VISUAL RANGE (RVR) — USE OF INSTRUMENTED SYSTEMS

[...]

(c) Guidance on the use of transmissometers and forward-scatter meters in instrumented Runway Visual Range systems is given in the ICAO Doc 9328 ‘Manual of Runway Visual Range Observing and Reporting Practices’. 
AMC1 MET.TR.210(d)(1) Observing meteorological elements
PRESENT WEATHER — GENERAL
(a) For local routine reports and local special reports, the present weather information should be representative of the conditions at the aerodrome.

AMC1 MET.TR.210(e) Observing meteorological elements
CLOUDS — GENERAL
(a) Cloud observations for local routine reports and local special reports should be representative of the runway threshold(s) in use.

AMC1 MET.TR.210(e)(2) Observing meteorological elements
CLOUDS — SITING
(b) For local routine reports and local special reports, in the case of aerodromes with precision approach runways, sensors for cloud amount and height of cloud base should be sited to give the best practicable indications of the cloud amount and height of cloud base at the threshold of the runway in use. For that purpose, a sensor should be installed at a distance of less than 4 000 ft (1 200 m) before the landing threshold.

AMC1 MET.TR.210(f) Observing meteorological elements
AIR TEMPERATURE AND DEW-POINT TEMPERATURE
Observations of air temperature and dew-point temperature for local routine reports and local special reports and for METAR should be representative of the whole runway complex.

AMC3 MET.TR.215(a) Forecasts and other information
AUTOMATED PRE-FLIGHT INFORMATION SYSTEMS
(c) use access and interrogation procedures based on abbreviated plain language and, as appropriate, ICAO location indicators, and aeronautical meteorological code data-type designators prescribed by WMO, or based on a menu-driven user interface, or other
appropriate mechanisms as agreed between the meteorological services provider authority and the operators concerned; and

[...]

**GM1 to AMC3 MET.TR.215(a) Forecasts and other information**

**AUTOMATED PRE-FLIGHT INFORMATION SYSTEMS**

(a) ICAO abbreviations and codes and location indicators are given respectively in the ICAO Doc 8400 'Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC)', ICAO Doc 8400 and ICAO Doc 7910 'Location Indicators (ICAO Doc 7910)'.

(b) Aeronautical meteorological code data-type designators are given in the WMO Publication No 386, 'Manual on the Global Telecommunication System'.

**AMC1 MET.TR.215(e) Forecasts and other information**

**FLIGHT DOCUMENTATION**

(a) Where the forecasts are supplied in chart form, flight documentation for low-level flights, including those in accordance with the visual flight rules, operating up to flight level 100 or up to flight level 150 in mountainous areas or higher, where necessary, should contain the following as appropriate to the flight:

(1) information from relevant SIGMET and AIRMET messages;

[...]

**AMC1 MET.TR.215(f) Forecasts and other information**

**CHARTS**

Charts included in flight documentation should have a high standard of clarity and legibility and should have the following physical characteristics:

(a) For convenience, the largest size of charts should be about 42 × 30 cm (standard A3 size) and the smallest size should be about 21 × 30 cm (standard A4 size). The choice between these sizes should depend on the route lengths and the amount of detail that needs to be given in the charts as agreed between the aerodrome meteorological office authorities and the users concerned;

[...]
GM1 MET.TR.215(g) Forecasts and other information

**CONCATENATED ROUTE-SPECIFIC FORECASTS IN CHART FORM**

(a) The flight documentation charts related to concatenated route-specific upper wind and upper-air temperature forecasts should be provided as agreed between the meteorological service provider and the operator concerned.

(b) Guidance on the design, formulation and use of concatenated charts is given in the ICAO Doc 8896 Manual of Aeronautical Meteorological Practice (ICAO Doc 8896) as last amended.

GM2 MET.TR.215(i) Forecasts and other information

**CLIMATOLOGICAL SUMMARIES — MODELS**

Models of climatological summaries related to (a) to (e) of AMC6 MET.TR.215(i) are given in the WMO Publication No 49, Technical Regulations, Volume II, Part III — ‘AERONAUTICAL CLIMATOLOGY’ C.3.2.

GM1 MET.TR.220 Aerodrome forecasts

**EXAMPLE OF TAF — EXAMPLES**

**TAF for YUDO (Donlon/International)*:**

TAF YUDO 152300Z 1600/1706 13010KT 9000 BKN025 BECMG 1606/1608 BKN014CB BKN020 TEMPO 1608/1612 17015G25KT 1000 TSRA BKN009CB BKN020 FM161230 15008KT 9999 BKN020

Meaning of the forecast:

TAF for Donlon/International* issued on the 15th of the month at 23.00 UTC valid from 00.00 UTC to 06.00 UTC on the 17th of the month; surface wind direction 130 degrees; wind speed 10 knots; visibility 9 kilometres, broken cloud at 2500 feet; becoming between 06.00 UTC and 08.00 UTC on the 16th of the month, broken cumulonimbus cloud at 1400 feet and broken cloud at 2000 feet; temporarily between 08.00 UTC and 12.00 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 15 knots gusting to 25 knots; visibility 1000 metres in a thunderstorm with moderate rain, broken cumulonimbus cloud at 900 feet and broken cloud at 2000 feet; from 12.30 UTC on the 16th of the month, surface wind direction 150 degrees; wind speed 8 knots; visibility 10 kilometres or more; and broken cloud at 2000 feet.

* Fictitious location

**TAF for YUDO (Donlon/International)**:

TAF YUDO 152300Z 1600/1618 13010KT 9000 BKN025 BECMG 1606/1608 BKN014CB BKN020 TEMPO 1608/1612 17015G25KT 1000 TSRA BKN009CB BKN020 FM161230 15008KT 9999 BKN020

Meaning of the forecast:

TAF for Donlon/International* issued on the 15th of the month at 23.00 UTC valid from 00.00 UTC to 06.00 UTC on the 17th of the month; surface wind direction 130 degrees; wind speed 10 knots; visibility 9 kilometres, broken cloud at 2500 feet; becoming between 06.00 UTC and 08.00 UTC on the 16th of the month, broken cumulonimbus cloud at 1400 feet and broken cloud at 2000 feet; temporarily between 08.00 UTC and 12.00 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 15 knots gusting to 25 knots; visibility 1000 metres in a thunderstorm with moderate rain, broken cumulonimbus cloud at 900 feet and broken cloud at 2000 feet; from 12.30 UTC on the 16th of the month, surface wind direction 150 degrees; wind speed 8 knots; visibility 10 kilometres or more; and broken cloud at 2000 feet.
cloud at 800 feet; temporarily between 0800 UTC and 1200 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 15 knots gusting to 25 knots; visibility 1 000 metres in a thunderstorm with moderate rain, scattered cumulonimbus cloud at 300 metres and broken cloud at 2 000 feet; from 1230 UTC on the 16th of the month, surface wind direction 150 degrees; wind speed 4 knots; visibility 10 kilometres or more; and broken cloud at 2 000 feet.

* Fictitious location

GM2 MET.TR.220 Aerodrome forecasts
EXAMPLE OF CANCELLATION OF TAF — EXAMPLE OF CANCELLATION

Cancellation of TAF for YUDO (Donlon/International)*:
TAF AMD YUDO 161915Z 1618/1703 CNL

Meaning of the forecast:
Amended TAF for Donlon/International* issued on the 16th of the month at 19.00 UTC cancelling the previously issued TAF valid from 180.0 UTC on the 16th of the month to 03.00 UTC on the 17th of the month.

* Fictitious location

Cancellation of TAF for YUDO (Donlon/International)*:
TAF AMD YUDO 161500Z 1600/1618 CNL

Meaning of the forecast:
Amended TAF for Donlon/International* issued on the 16th of the month at 1500 UTC cancelling the previously issued TAF valid from 0000 UTC to 1800 UTC on the 16th of the month.

* Fictitious location

GM3 MET.TR.220 Aerodrome forecasts
ACCURACY OF TAF — ACCURACY

<table>
<thead>
<tr>
<th>Element to be forecast</th>
<th>Operationally desirable accuracy of forecasts</th>
<th>Minimum percentage of cases within range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind direction</td>
<td>± 20°</td>
<td>80 % of cases</td>
</tr>
<tr>
<td>Wind speed</td>
<td>± 2.5 m/s (5 kt)</td>
<td>80 % of cases</td>
</tr>
<tr>
<td>Visibility</td>
<td>± 200 m up to 800 m</td>
<td>80 % of cases</td>
</tr>
<tr>
<td></td>
<td>± 30 % between 800 m and 10 km</td>
<td></td>
</tr>
<tr>
<td>Precipitation</td>
<td>Occurrence or non-occurrence</td>
<td>80 % of cases</td>
</tr>
<tr>
<td>Cloud amount</td>
<td>One category below 450 m (1 500 ft)</td>
<td>70 % of cases</td>
</tr>
<tr>
<td></td>
<td>Occurrence or non-occurrence of BKN or OVC between 450 m (1 500 ft) and 3 000 m (10 000 ft)</td>
<td></td>
</tr>
<tr>
<td>Cloud height</td>
<td>± 30 m (100 ft) up to 300 m (1 000 ft)</td>
<td>70 % of cases</td>
</tr>
</tbody>
</table>
AMC1 MET.TR.220(b) Aerodrome forecasts

**TAF — DIGITAL FORM**

TAF should be disseminated in a digital form.

GM1 MET.TR.220(b) Aerodrome forecasts

**TAF — DIGITAL FORM**

When TAF is disseminated in a digital form, this is in addition to the TAF code form.

**AMC1 MET.TR.220(c) Aerodrome forecasts**

**PERIOD OF VALIDITY**

(a) The periods of validity for an up to 9-hour TAF should commence at 00, 03, 06, 09, 12, 15, 18 and 21 UTC and for a 24- and a 30-hour TAF at 00, 06, 12 and 18 UTC or 03, 09, 15, and 21 UTC.

(b) The 24- and 30-hour TAF periods of validity should be determined based on the types of operations, as agreed between the aerodrome meteorological office and the operators concerned.

At aerodromes with limited hours of operation, the beginning of the period of validity of a TAF should commence at least 1 hour prior to the aerodrome resuming operations, or more as agreed between the aerodrome meteorological office and the operators concerned, to meet planning requirements for flights that arrive at the aerodromes as soon as it is opened for use.

(c) A Routine TAF valid for up to 9 hours should be issued every 3 hours, and those valid for 24 or 30 hours should be issued every 6 hours.

(d) At aerodromes with limited hours of operation, the beginning of the period of validity of a TAF should commence at least 1 hour prior to the aerodrome resuming operations, or more as agreed between the aerodrome meteorological office and the operators concerned, to meet planning requirements for flights that arrive at the aerodromes as soon as it is opened for use.

**GM1 MET.TR.220(d) Aerodrome forecasts**

**TAF — DIGITAL FORM**

**FORMAT OF TAF**

<table>
<thead>
<tr>
<th>+/- 30% between above 300 m (1 000 ft) and 3 000 m (10 000 ft)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Air temperature</td>
<td>+1°C</td>
</tr>
<tr>
<td></td>
<td>70% of cases</td>
</tr>
</tbody>
</table>

(a) When a TAF is disseminated in digital form, this is in addition to the TAF code form.

(b) Guidance on the information exchange model, GML, and metadata profile is provided in ICAO Doc 10003 'Manual on the ICAO Meteorological Information Exchange Model'.

**GM1 MET.TR.225(c)(2)(iii) Forecasts for landing**

**VISIBILITY**

In TREND forecasts appended to local routine reports and local special reports, visibility refers to the forecast visibility along the runway(s).

**AMC1 MET.TR.235 Aerodrome warnings and wind shear warnings and alerts**

**AERODROME WARNINGS — FORMAT**

[...]

Template for aerodrome warnings

*Key:*

- **M** = inclusion mandatory, part of every message;
- **C** = inclusion conditional, included whenever applicable.

[...]

**GM1 MET.TR.235 Aerodrome warnings and wind shear warnings and alerts**

**RANGES AND RESOLUTIONS — AERODROME WARNINGS**

[...]

(b) The explanations for the abbreviations can be found in the ICAO Doc 8400 Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC), ICAO Doc 8400.

[...]

**AMC21 MET.TR.235(a) Aerodrome warnings and wind shear warnings and alerts**

**FORMAT OF AERODROME WARNINGS — FORMAT**
GM1 MET.TR.235 Aerodrome warnings and wind shear warnings and alerts

RANGES AND RESOLUTIONS — AERODROME WARNINGS

[...]

Ranges and resolutions for the numerical elements included in volcanic ash and tropical cyclone advisory messages, SIGMET/AIRMET messages and aerodrome warning and wind shear warnings

[...]

GM1 MET.TR.235(a) Aerodrome warnings and wind shear warnings and alerts

WIND SHEAR TYPES

Following reported encounters by both arriving and departing aircraft, two different wind shear warnings may exist: one for arriving aircraft and one for departing aircraft.

GM2 MET.TR.235(a) Aerodrome warnings and wind shear warnings and alerts

REPORTING THE INTENSITY OF WIND SHEAR

Specifications for reporting the intensity of wind shear are still under development. It is recognised, however, that pilots, when reporting wind shear, may use the qualifying terms ‘moderate’, ‘strong’ or ‘severe’, based to a large extent on their subjective assessment of the intensity of the wind shear encountered.

GM31 MET.TR.235(c) Aerodrome warnings and wind shear warnings and alerts

DETECTION OF WIND SHEAR

AMC1 MET.TR.250(a) SIGMET messages

FORMAT
SIGMET, when issued in graphical format, should be as specified below:

(a) **SIGMET FOR TROPICAL CYCLONE — MODEL STC**

(b) **SIGMET FOR VOLCANIC ASH — MODEL SVA**
Fictitious FIR.
(c) SIGMET FOR PHENOMENA OTHER THAN TROPICAL CYCLONE AND VOLCANIC ASH — MODEL SGE
AMC1 MET.TR.250(a) SIGMET messages

AIRSPACE

In cases where the airspace is divided into a flight information region (FIR) and an upper-flight information region (UIR), the SIGMET message should be identified by the location indicator of the ATS unit serving the FIR.

GM1 MET.TR.250(a) SIGMET messages

FLIGHT INFORMATION REGION

The SIGMET message applies to the whole airspace within the lateral limits of the FIR, i.e. to the FIR and to the UIR. The particular areas and/or flight levels affected by the meteorological phenomena causing the issuance of the SIGMET message are given in the text of the message.

GM2 MET.TR.250(a) SIGMET messages

EXAMPLE OF SIGMET MESSAGES, AND THE CORRESPONDING CANCELLATIONS

<table>
<thead>
<tr>
<th>SIGMET</th>
<th>Cancellation of SIGMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUDD SIGMET 2 VALID 101200/101600 YUSO—</td>
<td></td>
</tr>
<tr>
<td>YUDD SHANLON FIR/UIR OBSC TS FCST S OF N54</td>
<td>YUDD SIGMET 3 VALID 101345/101600 YUSO—</td>
</tr>
<tr>
<td>AND E OF W012 TOP FL390 MOV E WKN FCST</td>
<td>YUDD SHANLON FIR/UIR CNL SIGMET 2</td>
</tr>
<tr>
<td>1600Z S OF N54 AND E OF W010</td>
<td>101200/101600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUDD SIGMET T02 VALID 101200/101600 YUSO—</td>
</tr>
<tr>
<td>YUDD SHANLON FIR/UIR OBSC TS FCST S OF N54 AND E OF W012 TOP FL390 MOV E 20 KT WKN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cancellation of SIGMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUDD SIGMET T03 VALID 101345/101600 YUSO—</td>
</tr>
<tr>
<td>YUDD SHANLON FIR/UIR CNL SIGMET T02 101200/101600</td>
</tr>
</tbody>
</table>

GM3 MET.TR.250(a) SIGMET messages

EXAMPLE OF SIGMET MESSAGE FOR TROPICAL CYCLONE

<table>
<thead>
<tr>
<th>SIGMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUCC SIGMET C03 VALID 251600/252200 YUDO.—</td>
</tr>
</tbody>
</table>

Annex V to ED Decision 2020/008/R
Meaning:
The third tropical cyclone SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 00.01 UTC; the SIGMET is valid from 16.00 UTC to 22.00 UTC on the 25th of the month; tropical cyclone Gloria at 27 degrees 6 minutes north and 73 degrees 6 minutes west; cumulonimbus was observed at 16.00 UTC within 250 nautical miles of the centre of the tropical cyclone with top at flight level 500; no changes in intensity are expected; at 22.00 UTC, the centre of the tropical cyclone is forecast to be located at 27 degrees 40 minutes north and 73 degrees 45 minutes west.

* Fictitious locations

GM4 MET.TR.250(a) SIGMET messages
EXAMPLE OF SIGMET MESSAGE FOR VOLCANIC ASH

Meaning:
The second volcanic ash SIGMET issued for the SHANLON* flight information region (identified by YUDD Shanlon area control centre/upper flight information region) by the Shanlon/International* meteorological watch office (YUSO) since 00.01 UTC; the SIGMET is valid from 12.00 UTC to 18.00 UTC on the 10th of the month; volcanic ash eruption of Mount Ashval* located at 43 degrees 15 minutes north and 21 degrees 15 minutes east; volcanic ash cloud observed at 12.00 UTC within an area bounded by 43 degrees 15 minutes north and 21 degrees 15 minutes east to 43 degrees 30 minutes north and 22 degrees 15 minutes east to 42 degrees 45 minutes north and 22 degrees 30 minutes east to 42 degrees 30 minutes north and 21 degrees 45 minutes east to 43 degrees 15 minutes north and 21 degrees 15 minutes east between flight levels 250 and 370, weakening, and forecast at 18.00 UTC to have dissipated with no volcanic ash expected.

* Fictitious locations
Meaning:
The second SIGMET message issued for the SHANLON* flight information region (identified by YUDD Shanlon area control centre/upper flight information region) by the Shanlon/international* meteorological watch office (YUSO) since 0001 UTC: the message is valid from 1100 UTC to 1700 UTC on the 21st of the month; volcanic ash eruption of Mount Ashval* located at 15 degrees south and 73 degrees 48 minutes east; volcanic ash cloud observed at 1100 UTC in an approximate area of 220 km by 35 km between 15 degrees south and 73 degrees 48 minutes east, and 15 degrees 30 minutes south and 76 degrees 42 minutes east; between flight levels 310 and 450, the volcanic ash cloud is expected to move south-eastwards at 35 knots; at 1700 UTC the volcanic ash cloud is forecast to be located approximately in an area bounded by the following points: 15 degrees 6 minutes south and 75 degrees east, 15 degrees 18 minutes south and 81 degrees 12 minutes east, 17 degrees 12 minutes south and 83 degrees 30 minutes east, and 18 degrees 24 minutes south and 78 degrees 36 minutes east.

* Fictitious locations

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**EXAMPLE OF SIGMET MESSAGE FOR RADIOACTIVE CLOUD**

YUCC SIGMET RO2 VAL201200/201600 YUDO—
YUCC AMSWELL FIR RDOACT CLD OBS AT 1155Z WI S5000 W14000 — S5000 W13800 — S5200 W13800 — S5200 W14000 — S5000 W14000 SFC/FL100 STNR WKN FCST AT 1600Z WI S5200 W14000 — S5200 W13800

**Meaning:**
The second radioactive cloud SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC: the message is valid from 1200 UTC to 1600 UTC on the 20th of the month; radioactive cloud was observed at 1155 UTC within an area bounded by 50 degrees 0 minutes south and 140 degrees 0 minutes west to 50 degrees 0 minutes south and 138 degrees 0 minutes west to 52 degrees 0 minutes west to 52 degrees 0 minutes south and 140 degrees 0 minutes west to 50 degrees 0 minutes south and 140 degrees 0 minutes west and between the surface and flight level 100; the radioactive cloud is expected to remain stationary and to weaken in intensity; at 1600 UTC, the radioactive cloud is forecast to be located within an area bounded by 52 degrees 0 minutes south 140 degrees 0 minutes west to 52 degrees 0 minutes south 138 degrees 0 minutes west to 53 degrees 0 minutes south 138 degrees 0 minutes west to 53 degrees 0 minutes south 140 degrees 0 minutes west to 52 degrees 0 minutes south 140 degrees 0 minutes west.

* Fictitious locations

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**EXAMPLE OF SIGMET MESSAGE FOR SEVERE TURBULENCE**

YUCC SIGMET U05 VAL221215/221600 YUDO—
YUCC AMSWELL FIR SEV TURB OBS AT 1210Z N2020 W07005 FL250 MOV E 20KT WKN FCST 1600Z S OF N2020 E OF W06950

**Meaning:**
The fifth severe turbulence SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 00.01 UTC; the message is valid from 12.15 UTC to 16.00 UTC on the 22nd of the month; severe turbulence was observed at 12.10 UTC 20 degrees 20 minutes north and 70 degrees 5 minutes west at flight level 250; the turbulence is expected to move eastwards at 20 knots and to weaken in intensity; forecast position at 16.00 UTC, the severe turbulence is forecast to be located south of 20 degrees 20 minutes north and east of 69 degrees 50 minutes west.

* Fictitious locations

**AMC1 MET.TR.250(c) SIGMET-messages**

**SEQUENCE NUMBER**

(a) The three-character sequence number should be constructed using a single letter identifying the phenomenon, followed by two numeric characters corresponding to the number of SIGMET issued for that phenomenon for the specified flight information region since 00.01 UTC on the day concerned.

(b) The letters to be used as the first character for the SIGMET sequence number to indicate the specified en-route weather phenomena which may affect the safety of aircraft operations for which the SIGMET has been issued should be:

[...]
CRITERIA RELATED TO PHENOMENA

[...]

SIGMET messages should be disseminated in a digital form, in addition to the abbreviated plain language.

SIGMET messages should be disseminated in a digital form, this is in addition to the SIGMET code form.


SIGMET, when issued in graphical format, should be as specified below:

SIGMET FOR TROPICAL CYCLONE — MODEL STC
(b) **SIGMET FOR VOLCANIC ASH — MODEL SVA**

Note: ——— Fictitious FIR.
Fictitious FIR.
(c) SIGMET FOR PHENOMENA OTHER THAN TROPICAL CYCLONE AND VOLCANIC ASH — MODEL SGE
**GM1 MET.TR.255(a) AIRMET messages**

**EXAMPLE OF AIRMET MESSAGE FOR MODERATE MOUNTAIN WAVE**

<table>
<thead>
<tr>
<th>YUCC AIRMET 2 VALID 221215/221600 YUDO—</th>
<th>YUCC AMSWELL FIR MOD MTW OBS AT 1205Z N48 E010 FL080 STNR NC</th>
</tr>
</thead>
</table>

Meaning:

The second AIRMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 00:01 UTC; the AIRMET is valid from 12:15 UTC to 16:00 UTC on the 22nd of the month; moderate mountain wave was observed at 12:05 UTC at 48 degrees north and 10 degrees east at flight level 080; the mountain wave is expected to remain stationary and not to undergo any changes in intensity.

* Fictitious locations

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**GM2 MET.TR.255(a) AIRMET messages**

**EXAMPLE OF AIRMET MESSAGES, AND THE CORRESPONDING CANCELLATIONS**

<table>
<thead>
<tr>
<th>AIRMET</th>
<th>Cancellation of AIRMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUDD AIRMET 1 VALID 151520/151800</td>
<td>YUDD AIRMET 2 VALID 151650/151800 YUSO—</td>
</tr>
<tr>
<td>YUSO—YUDD SHANLON FIR ISOLTS OBS N OF S50 TOP ABV FL100 STNR WKN</td>
<td>YUDD SHANLON FIR CNL AIRMET 1 151520/151800</td>
</tr>
</tbody>
</table>

**CANCELLATION OF AIRMET**

<table>
<thead>
<tr>
<th>AIRMET</th>
<th>Cancellation of AIRMET</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUDD AIRMET 2 VALID 151650/151800 YUSO—</td>
<td></td>
</tr>
<tr>
<td>YUDD SHANLON FIR CNL AIRMET 1 151520/151800</td>
<td></td>
</tr>
</tbody>
</table>

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**GM1 MET.TR.255(b) AIRMET messages**

**FIR**

[...]

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GM1 MET.TR.255(c) AIRMET — DIGITAL FORM

CRITERIA RELATED TO PHENOMENA

[...]

AMC1 MET.TR.255(d) AIRMET — DIGITAL FORM

CRITERIA RELATED TO PHENOMENA

[...]

GM1 MET.TR.255(e) AIRMET — DIGITAL FORM

(a) When AIRMET is disseminated in digital form, this is in addition to the AIRMET code form.

(b) Guidance on the information exchange model, GML, and metadata profile is provided in ICAO Doc 10003 ‘Manual on the ICAO Meteorological Information Exchange Model’.

AMC1 MET.TR.260 Area forecasts for low-level flights

AMENDMENT OF LOW-LEVEL FORECASTS

(...)  

(c) The graphical part of an SIGWX chart should depict the weather situation at the beginning of the validity period. Significant changes of initial weather parameters should be depicted together with time intervals determining the duration of expected changes.

GM1 MET.TR.265(a) Volcanic ash advisory centres (VAACs) responsibilities

EXAMPLES OF ADVISORY MESSAGE FOR VOLCANIC ASH

VA ADVISORY
DTG: 20160614/0925Z
VAAC: LONDON
VA ADVISORY
DTG: 20171010/1200Z
VAAC: TOULOUSE
VOLCANO: CAMPI FLEGREI 211010
PSN: N4049 E01408
AREA: ITALY
SUMMIT ELEV: 458M
ADVISORY NR: 2017/03
INFO SOURCE: INGV
AVIATION COLOUR CODE: RED

RMK: T+0 CONFIDENCE HIGH, PLUME HEIGHT OBTAINED BY MOBILE RADAR
NXT ADVISORY: WILL BE ISSUED BY 20160614/1200Z
ERUPTION DETAILS: THE VOLCANO ACTIVITY CONTINUES

OBS VA DTG: 10/0600Z


RMK: VA CLD EVIDENT ON SATELLITE IMAGERY

NXT ADVISORY: NO FURTHER ADVISORY

ERUPTION DETAILS: ERUPTION AT 20080923/0000Z REPORTED

OBS VA DTG: 23/0100Z


GM1 MET.TR.265(b) Volcanic ash advisory centre responsibilities

VOLCANIC ASH ADVISORY — DIGITAL FORM

(a) When a volcanic ash advisory is disseminated in digital form, this is in addition to the volcanic ash advisory code form.

(b) Guidance on the information exchange model, GML, and metadata profile is provided in ICAO Doc 10003 ‘Manual on the ICAO Meteorological Information Exchange Model’.

GM1-MET.TR.265(b)(2) Volcanic ash advisory centres (VAACs) responsibilities

BUFR CODE

The BUFR code form is contained in the WMO Publication No 306, Manual on Codes, Volume I.2, Part B — Binary Codes.

AMC1 MET.TR.265(c) Volcanic ash advisory centre responsibilities

VOLCANIC ASH ADVISORY INFORMATION — GRAPHICAL FORMAT

The volcanic ash advisory information listed in Appendix 6 to Annex V (Part-MET) to Regulation (EU) 2017/373, when prepared in graphical format, should be as specified below.
Example of volcanic ash advisory in graphical format from the London VAAC.  
Note: The example above is fictional.

Example of volcanic ash advisory in graphical format from the Toulouse VAAC.  
Note: The example above is fictional.
AMC1-MET.TR.270(b) Tropical cyclone advisory centres (TCACs) responsibilities

FORMAT OF ADVISORY INFORMATION ON TROPICAL CYCLONES

The tropical cyclone advisory information listed in Table 8 of Appendix 1, when prepared in graphical format, should be as specified below and should be issued using:

(a) the portable network graphics (PNG) format; or

(b) the BUFR code form, when exchanged in binary format.

GM1 MET.TR.270(b) Tropical cyclone advisory centres (TCACs) responsibilities

EXAMPLE FOR ADVISORY FOR TROPICAL CYCLONES — EXAMPLE CODE FOR ADVISORY INFORMATION ON TROPICAL CYCLONES

The BUFR code form is contained in the WMO Publication No 306, Manual on Codes, Volume I.2, Part B — Binary Codes.
### TC ADVISORY

| DTG:  | 20040925/1600Z |
| TCAC: | YUFO          |
| TC:   | GLORIA        |
| NR:   | 01            |
| PSN:  | N2706 W07306  |
| MOV:  | NW 12KT       |
| C:    | 965HPA        |
| MAX WIND: | 73KT         |
| FCST PSN +6 HR: | 25/2200Z N2748 W07350 |
| FCST MAX WIND +6 HR: | 73KT |
| FCST PSN +12 HR: | 26/0400Z N2830 W07430 |
| FCST MAX WIND +12 HR: | 73KT |
| FCST PSN +18 HR: | 26/1000Z N2852 W07500 |
| FCST MAX WIND +18 HR: | 70KT |
| FCST PSN +24 HR: | 26/1600Z N2912 W07530 |
| FCST MAX WIND +24 HR: | 60KT |
| RMK: | NIL           |
| NXT MSG: | 20040925/2000Z |
GM1 MET.TR.270(c) Tropical cyclone advisory centre responsibilities

TROPICAL CYCLONE ADVISORY — DIGITAL FORM

(a) When a tropical cyclone advisory is disseminated in digital form, this is in addition to the tropical cyclone advisory code form.

(b) Guidance on the information exchange model, GML, and metadata profile is provided in ICAO Doc 10003 ‘Manual on the ICAO Meteorological Information Exchange Model’.

AMC1 MET.TR.270(d) Tropical cyclone advisory centre responsibilities

TROPICAL CYCLONE ADVISORY INFORMATION — GRAPHICAL FORMAT

The tropical cyclone advisory information listed in Appendix 7 to Annex V (Part-MET) to Regulation (EU) 2017/373, when prepared in graphical format, should be as specified below.

Example of tropical cyclone advisory in graphical format from the La Réunion TCAC.

Note: The example above is based on a real event.