# MOZAMBIQUE CIVIL AVIATION

# TECHNICAL STANDARDS


# MOZCATS PART 174

## Meteorological Service for International Air Navigation

## Effective as from September 2018

# FOREWORD

This MOZCATS 174 is issued by the President of the Civil Aviation Authority of Mozambique (IACM), in accordance with the power conferred on it by the Civil Aviation Authority, Article 71, Law, 05/2016, of June 6. The purpose of this MOZCATS 174 is to provide specifications / requirements for the establishment and operation of Aeronautical Meteorology services at national aerodromes, where the provision of meteorological information services is the responsibility of Mozambique in accordance with Regional Air Navigation agreements.

Standards and recommended Practices relating to meteorology were first adopted by the Council on de 16 de April 1948, pursuant to the provisions of Article 37 of the Convention on International Civil Aviation (Chicago, 1944) and designated as Annex 3 to the Convention with the title Standards and Recommended Practices — Meteorological Codes. The Standards and recommendations practices were based on the recommendations of the Special Session of the Meteorology Division, held in September 1947.

This revision of MOZCATS 174 is based in 77 amendments of 18 edition of Annex 3. In this context, this revision of MOZCATS 174 conformed with the 19 edition of Annex 3, published in July 2016.

This MOZCATS 174 serves as a standard operational reference document for use by the Meteorological Aeronautical Support Center (s) in the planning and execution of aeronautical meteorological information services, especially in aerodromes. The MOZCATS 174 should be interpreted with good sense, since no set of instructions can be applied to all meteorological situations. The aeronautical meteorological support center must, however, ensure that the planning of meteorological information does not conflict with this MOZCATS 174.

AUTORIDADE DE AVIAÇÃO CIVIL DE MOÇAMBIQUE

# APPROVAL

By Powers granted to the Chairman and CEO of the Instituto de Aviação Civil de Moçambique (IACM) through, n.° 2, Article 15 of Civil Aviation Law n.°5/2016 of 14 of June, this amendment of the Technical Standards (MOZCATS Part 174) is hereby approved and published for implementation, from the day of approval.

Comments and recommendations for revision/amendment action to this publication should be forwarded to the head of Legal Office of Instituto de Aviação Civil de Moçambique.

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Maputo, 05 September 2018

Approved by Board

Captain João Martins De Abreu

The Chairman and Chief Executive Officer

# AMENDMENT RECORD

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# SUBPART I GENERAL

## *174.01.1General*

Civil Aviation LAW 05/2016 empowers the CEO of the Civil Aviation IACM of the Republic of Mozambique IACM to issue technical standards for civil aviation on the matters prescribed by regulation.

### 174.01.2 Applicability

This Part prescribes the rules governing the approval and operation of organizations providing aeronautical meteorological services for Mozambique.

### 174.01.3 References

a) Lei de Aviação Civil 05/2016

b) ) I C A O Annex 3 19th Version July 2016

c) d) ICAO Annex 11

d) ICAO Doc 9859 Safety Management Manual

e) ISO 9000 (ISO 9001:2008) quality assurance standards

### 174.01.4 Abbreviations

**AIRMET** Airman's Meteorological information

**CMAA** Centro Meteorológico de Apoio Aeronáutico: central MET watch office.

**DAPT** Departamento de Análise e Previsão do tempo: analysis and forecasts department

**INAM** Instituto Nacional de Meteorologia,

**METAR** Coded Routine MET Report for Air Navigation purpose

**OPMET** Operational MET Information

**SIGMET**
Coded Significant Meteorological Report issued by a MET Watch Office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

**SPECI** Special MET observation for Air Navigation purposes

**SYNOP** Synoptical Surface Observation

**TAF** Terminal Aerodrome Forecast.

**TREND METAR or SPECI** Trend forecast for the next 2 hours issued with

**WMO** World Meteorological Observation.

**DD** Day of issuing

**D'D'** Day following the day of issuing.

**D – VOLMET** Data Link Service/ Data Link – VOLMET

**GAMET** An area forecast in abbreviation plain language for low-level flights for a flight information region.

**H24** continuous day and night service

**TCAC** Tropical cyclone advisory centre

**VAAC** volcanic ash advisory centres

**VOLMET** Meteorological information for aircraft in flight

**WAFC** World Area Forecast Centre

**WMO** World Meteorological Organization

## 174.01.05 Definitions

**Aerodrome climatological summary**. Concise summary of Specified meteorological elements at an aerodrome, based on statistical data.

**Aerodrome.** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

**Aerodrome climatological table.** Table providing statistical data on the observed occurrence of one or more meteorological elements at an aerodrome.

**Aerodrome control tower.** A unit established to provide air traffic control service to aerodrome traffic.

**Aerodrome elevation.** The elevation of the highest point of the landing area.

***Aerodrome meteorological office.*** An office designated to provide meteorological service for aerodromes serving international air navigation.

***Aerodrome reference point.*** The designated geographical location of an aerodrome.

***Aeronautical fixed service (AFS).*** A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

***Aeronautical fixed telecommunication network (AFTN).***
A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

***Aeronautical meteorological station.*** A station designated to make observations and meteorological reports for use in international air navigation.

***Aeronautical mobile service (RR S1.32).*** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

**Aeronautical telecommunication station.** A station in the aeronautical telecommunication service.

***Air traffic services unit.*** A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

***Aircraft.*** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

***Aircraft observation.*** The evaluation of one or more meteorological elements made from an aircraft in flight.

***AIRMET information.*** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

***Air-report.*** A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

***Alternate aerodrome.*** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use.
Alternate aerodromes include the following:
*Take-off alternate.* An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure. *En-route alternate.* An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.
*Destination alternate.* An alternate aerodrome at which an aircraft would be able to land should it become impossible or inadvisable to land at the aerodrome of intended landing.

***Altitude.*** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

***Approach control unit.*** A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

***Appropriate ATS authority.*** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

***Area control centre (ACC).*** A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

***Area navigation (RNAV).*** A method of navigation which permits aircraft operations on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

*Note. — Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.*

***Automatic dependent surveillance — contract (ADS-C)***. A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

***Briefing.*** Oral commentary on existing and/or expected meteorological conditions.

***Cloud of operational significance.*** A cloud with the height of cloud base below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.

***Consultation.*** Discussion with a meteorologist or another qualified person of existing and/or expected meteorological conditions relating to flight operations; a discussion includes answers to questions.

***Control area (CTA).*** A controlled airspace extending upwards from a specified limit above the earth.

***Cruising level.*** A level maintained during a significant portion of a flight.

***Elevation.*** The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

***Extended range operation.*** Any flight by an aeroplane with two turbine engines where the flight time at the one engine inoperative cruise speed (in ISA and still air conditions), from a point on the route to an adequate alternate aerodrome, is greater than the threshold time approved by the State of the Operator.

***Flight crew member.*** A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

***Flight documentation.*** Written or printed documents, including charts or forms, containing meteorological information for a flight.

***Flight information centre (FIC).*** A unit established to provide flight information service and alerting service.

***Flight information region (FIR).*** An airspace of defined dimensions within which flight information service and alerting service are provided.

***Flight level.*** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

***Forecast.*** A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

***GAMET area forecast.*** An area forecast in abbreviated plain language for low-level flights for a flight information region or sub-area thereof, prepared by the meteorological office designated by the meteorological authority concerned and exchanged with meteorological offices in adjacent flight information regions, as agreed between the meteorological authorities concerned.

***Grid point data in digital form.*** Computer processed meteorological data for a set of regularly spaced points on a chart, for transmission from a meteorological computer to another computer in a code form suitable for automated use.

***Height.*** The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

***Human Factors principles.*** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

***International airways volcano watch (IAVW).*** International arrangements for monitoring and providing warnings to aircraft of volcanic ash in the atmosphere.

***Level.*** A generic term relating to vertical position of an aircraft in flight and meaning variously height, altitude or flight level.

***Meteorological authority.*** The authority providing or arranging for the provision of meteorological service for international air navigation on behalf of a Contracting State.

***Meteorological bulletin.*** A text comprising meteorological information preceded by an appropriate heading.

***Meteorological information.*** Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

***Meteorological office.*** An office designated to provide meteorological service for international air navigation.

***Meteorological report.*** A statement of observed meteorological conditions related to a specified time and location.

***Meteorological satellite.*** An artificial Earth satellite making meteorological observations and transmitting these observations to Earth.

***Meteorological watch office (MWO).*** An office designated to provide information concerning the occurrence or expected occurrence of specified enroute weather and other phenomena in the atmosphere that may affect the safety of aircraft operations within its specified area of responsibility.

***Minimum sector altitude.*** The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in the area contained within a sector of a circle of 46 km (25 NM) radius centred on a radio aid to navigation.

***Navigation specification.*** A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:
*Required navigation performance (RNP) specification.* A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

***Area navigation (RNAV) specification****.* A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

***Observation (meteorological).*** The evaluation of one or more meteorological elements.

***Operational control.*** The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

***Operational flight plan.*** The operator's plan for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.

***Operational planning.*** The planning of flight operations by an operator.

***Operator.*** The person, organization or enterprise engaged in or offering to engage in an aircraft operation.

***Performance-based navigation (PBN).*** Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

***Pilot-in-command.*** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

***Prevailing visibility.*** The greatest visibility value, observed in accordance with the definition of "visibility", which is reached within at least half the horizon circle or within

at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors.

***Prognostic chart.*** A forecast of a specified meteorological element(s) for a specified time or period and a specified surface or portion of airspace, depicted graphically on a chart.

***Quality assurance.*** Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).

***Quality control.*** Part of quality management focused on fulfilling quality requirements (ISO 9000*).

***Quality management.*** Coordinated activities to direct and control an organization with regard to quality (ISO 9000*).

***Regional air navigation agreement.*** Agreement approved by the Council of ICAO normally on the advice of a regional air navigation meeting.

***Reporting point.*** A specified geographical location in relation to which the position of an aircraft can be reported.

***Rescue coordination centre.*** A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

***Runway.*** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

***Runway visual range (RVR).*** The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.

***Search and rescue services unit.*** A generic term meaning, as the case may be, rescue coordination centre, rescue sub centre or alerting post.

***SIGMET information*.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified enroute weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

***Standard isobaric surface.*** An isobaric surface used on worldwide basis for representing and analysing the conditions in the atmosphere.

***State volcano observatory***. A volcano observatory, designated by regional air navigation agreement, to monitor active or potentially active volcanoes within a State and to provide information on volcanic activity to its associated area control

centre/flight information centre, meteorological watch office and volcanic ash advisory centre.

***Threshold.*** The beginning of that portion of the runway usable for landing.

***Touchdown zone.*** The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.

***Tropical cyclone.*** Generic term for a non-frontal synoptic scale Cyclone originating over tropical or sub-tropical waters with organized convection and definite cyclonic surface
Wind circulation.

***Tropical cyclone advisory centre (TCAC).*** A meteorological centre designated by regional air navigation agreement to provide advisory information to meteorological watch offices, world area forecast centres and international OPMET databanks regarding the position, forecast direction and speed of movement, central pressure and maximum surface wind of tropical cyclones.

***Upper-air chart.*** A meteorological chart relating to a specified upper-air surface or layer of the atmosphere.

***Visibility.*** Visibility for aeronautical purposes is the greater of:
a) The greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;

b) The greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background.

***Volcanic ash advisory centre (VAAC).*** A meteorological centre designated by regional air navigation agreement to provide advisory information to meteorological watch offices, area control centres, flight information centres, world area forecast centres and international OPMET databanks regarding the lateral and vertical extent and forecast movement of volcanic ash in the atmosphere following volcanic eruptions.

***VOLMET.*** Meteorological information for aircraft in flight.
*Data link-VOLMET (D-VOLMET).* Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

***World area forecast centre (WAFC).*** A meteorological centre designated to prepare and issue significant weather forecasts and upper-air forecasts in digital form on a global basis direct to States using the aeronautical fixed service Internet-based services.

***World area forecast system (WAFS).*** A worldwide system by which world area forecast centres provide aeronautical meteorological en-route forecasts in uniform standardized formats.

### *174.01.6 Quality requirements*

The Aeronautical Meteorological service provider shall be certified by an institution duly approved by ICAO or WMO, and IACM shall approve the certification made.

### 174.01.7 Staffing requirements

The Aeronautical Meteorological service provider shall:

a) Indicate a person as manager responsible for Aeronautical Meteorological Services;

b) Indicate a person as manager of quality and compliance;

c) Establish a procedure for initial assessment, to maintain the competence of authorized personnel and to collect, compile, verify, coordinate, edit and publish meteorological information;
d) ensure that authorized personnel have a combination of competence and experience appropriate to the level of competence required for the collection, compilation, verification, coordination, editing or publication;

e) Establish a program and training plan for aeronautical meteorological technical personnel;

f) Maintain training records for aeronautical meteorological technical personnel;

g) Provide written evidence to the authorized personnel and their scope of authority

## SUBPART II METEOROLOGICAL OBSERVATIONS AND REPORTS

### 174.02.1 Aeronautical meteorological stations and observations

a) Aeronautical meteorological stations shall make routine observations at fixed intervals as defined in Annex A.

b) At aerodromes, the routine observations shall be supplemented by special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and/or air temperature.

c) The observations shall form the basis for the preparation of reports to be disseminated at the aerodrome of origin and of reports to be disseminated beyond the aerodrome of origin.

### 174.02.2 Agreement between air traffic management authorities and meteorological authorities

An agreement between the meteorological authority and the appropriate ATM authority should be established to cover, among other things:

a) The provision in ATS units of displays for the meteorological

information

b) The calibration and maintenance of theses displays and

instruments

c) Instructions on the use to be made of these displays and instruments by ATS personnel

d) As and where necessary, supplementary visual observations (for example of meteorological phenomena of operational significance in the climb-out and approach areas); if and when made by ATS personnel, to update or supplement the information supplied by the meteorological station,

e) Meteorological information obtained from aircraft taking off or landing (for example wind shear), in accordance with ICAO Doc 9377 *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services.*

## 174.02.3 Routine observations and reports

a) Reports of routine observations shall be issued as:

I) Local routine reports, only for dissemination at the aerodrome of origin (intended for arriving and departing acft)

II) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning and VOLMET broadcasts).

b) At aerodromes that are not operational H24, METAR shall be issued prior to the aerodrome resuming operations as defined in Annex A.

## 174.02.4 Special observations and reports

a) A list of criteria for special observations shall be established by meteorological authority, in consultation with the appropriate ATS authority, operators and others concerned.

b) Reports of special observations shall be issued as:

I. Local special reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft);

II SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET) unless METAR are issued at half- hourly intervals.

c) At aerodromes, routine observations shall be made throughout the 24 hours of each day, unless otherwise agreed between the meteorological authority, the appropriate ATS authority and the operator concerned.

## 174.02.5 Contents of reports

Local routine and special reports and METAR and SPECI shall contain the following elements in the order indicated:

a) identification of the type of report;

b) location indicator;

c) time of the observation;

d) identification of an automated or missing report, when applicable;

e) surface wind direction and speed;

f) visibility;

g) runway visual range, when applicable;

h) present weather;

i) cloud amount, cloud type ( only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where measured, vertical visibility.

j) air temperature and dew-point temperature;

and k) QNH

## 174.02.6 Observing and reporting meteorological elements

a) Surface wind - the mean direction and the mean speed of the surface wind shall be measured, as well as significant variations of the wind direction and speed, and reported I degrees true and metres per second (or knots), respectively.

b) Visibility – the visibility shall be measured or observed, and reported in metres or kilometers.

***Note****: when local routine and special reports are used for departing aircraft, the visibility observation for these reports should be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the visibility observations for these reports should be representative of the touchdown zone of the runway*.

c) Runway visual range – runway visual range shall be assessed on all runway intended for category II and III instruments approach and landing operations.

d) Present weather - the present weather occurring at the aerodrome and/or its vicinity shall be observed and reported as necessary. The following present weather phenomena shall be identified, as a minimum: precipitation and freezing precipitation (including intensity thereof), fog, freezing fog and thunderstorms (including thunderstorms in the vicinity).

e) Clouds – clouds amount, cloud type and height of cloud base shall be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in metres or feet).

f) Air temperature and dew-point temperature – The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.

g) Atmospheric pressure – the atmosphere pressure shall be measured, and QNH and
QFE values shall be computed and reported in hectopascals HPa.

h) Supplementary information – observation made at aerodromes include the available supplementary information concerning significant meteorological

conditions. Particularly those in the approach and climb-out areas. Where practicable, the information should identify the location of the meteorological condition.

### 174.02.7 Reporting meteorological information from automatic observing systems

a) METAR and SPECI from automatic observing system may be used during non – operational hour of the aerodrome, and during operational hours of the aerodrome as determined by the meteorological authority in consultation with users based on the availability and efficient use of personnel.

b) Local routine reports, local special reports, METAR and SPECI from automatic observing systems shall be identified with the word ‘’AUTO”’.

### 174.02.8 Observations and reports of volcanic activity

The occurrence of pre-eruption volcanic activity, volcanic eruption and volcanic ash cloud should be reported without delay to the associated air traffic services unit, aeronautical information services unit and meteorological watch office. The reports should be made in the form of a volcanic activity report comprising the following information in the order indicated:

a) Message type, VOLCANIC ACTIVITY REPORT;
b) Station identifier, location indicator or name of station;
c) Date/time of message;
d) Location of volcano and name if known; and
e) Concise description of event including, as appropriate, level of intensity of volcanic activity, occurrence of an eruption and its date and time, and the existence of a volcanic ash cloud in the area together with direction of ash cloud movement and height.

***Note*** *– Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.*

## SUBPART III AIRCRAFT OBSERVATIONS AND REPORTS

### 174.03.1 Types of aircraft observation

The following aircraft observations shall be made:

a) Routine aircraft observations during en route and climb-out phases of the flight; and

b) Special and other no-routine aircraft observation during any phase of the flight.

### 174.03.2 Routine aircraft observation

a) when air-ground data link is used and automatic dependent surveillance (ADS) or secondary surveillance radar (SSR) Mode S is being applied, automated routine observation should be made every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase and for the first 10 minutes of flight.

b) for helicopter operation to and from aerodromes on offshore structure, routine observation should be made from helicopter at points and times as agreed between the meteorological authorities and the helicopter operators concerned.

c) Aircraft not equipped with air-ground data link shall be exempted from making routine aircraft observations.

### 174.03.3 Special aircraft observations

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

a) Moderate or severe turbulence; or
b) Moderate or severe icing; or
c) Severe mountain wave; or
d) Thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
e) Thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; orf) Heavy dust storm or heavy sand storm; or
g) Volcanic ash cloud; or
h) Pre-eruption activity or a volcanic eruption.

***Note**. Pre-eruption activity in this context means unusual and/or increasing volcanic activity which could p r e s a g e a volcanic eruption.*

### 174.03.4 Other non-routine aircraft observations

When meteorological conditions are encountered which, in the opinion of the pilot-in-command, may affect the safety or the efficiency of other aircraft operations the pilot-in- command shall advice the appropriate air traffic services unit as soon as practicable.

***Note**. – icing, turbulence and to a large extent, wind shear are elements which, for the time being, cannot be satisfactorily observed from the ground and for which in most cases aircraft observations represent the only available evidence.*

### 174.03.5 Reporting of aircraft observations during flight

a) Aircraft observation shall be reported by air-ground data link. Where air-ground data link is not appropriate, special and other non-routine aircraft observations during flight shall be reported by voice communications.

b) Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as practicable.

c) Aircraft observation shall be reported as air-reports.

### 174.03.6 Relay of air-reports by ATS units

The meteorological authority concerned shall make arrangements with the appropriate ATS authority to that, on receipt by the ATS units of:

a) Special air-reports by voice communications, the ATS units relay to their associated meteorological watch office; and
b) Routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office the WAFCs, and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service internet-based service

### 174.03.7 Recording and post-flight reporting of aircraft observations of volcanic activity

Special aircraft observations of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud shall be recorded on the special air-report of volcanic activity from. A copy of the form shall be included with the flight documentation provided to flights operating on routes which, in the opinion of the meteorological authority concerned, could be affected by volcanic ash clouds.

## SUBPART IV FORECASTS

### 174.04.1 Use of forecasts

The issue of the new forecast by a meteorological office, such as a routine aerodrome forecast, shall be understood to cancel automatically any forecast of the same type previously issued for the same place and for the same period of validity or part thereof.

### 174.04.2 Aerodrome forecast

a) An aerodrome forecast shall be prepared, in accordance with regional air navigation agreement, by the meteorological office designated by the meteorological authority concerned.
b) An aerodrome forecast shall be issued at a specified time and consist of a concise statement of the expected meteorological conditions at an aerodrome for a specified period.
c) Aerodrome forecast and amendments there to shall be issued as TAF and include the following information in the order indicated:
    I. Identification of the type of forecast;
    II. Location indicator;
    III. Time of issue of forecast;
    IV. Identification of a missing forecast, when applicable;
    V. Date and period of validity of forecast;
    VI. Identification of a cancelled forecast, when applicable;
    VII. Surface wind;
    VIII. Visibility;
    IX. Weather;
    X. Cloud; and
    XI. Expected significant changes to one or more of these elements during the period of validity.

Optional elements shall be included in TAF in accordance with regional air navigation agreement.

*Note – the visibility included in TAF refers to the forecast prevailing visibility*.

d) Meteorological offices preparing TAF shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly. The length of the forecast messages and the number of changes indicated in the forecast shall be kept to a minimum.

e) TAF that cannot be kept under continuous review shall be cancelled.

f) The period of the validity of a routine TAF should be not less than 6 hours nor more than 30 hours; the period of validity should be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours should be issued every 3 hours and those valid for 12 to 30 hours should be issued every 6 hours.

*g)* When issuing TAF, meteorological offices shall ensure that not more than one TAF is valid at an aerodrome at any given time.

### 174.04.3 Landing forecast

*a)* A landing forecast shall be prepared by the meteorological office designated by the meteorological authority as determined by regional air navigation agreement; such forecast are intended to meet the requirements of local users and of aircraft within about one hour's flying time from the aerodrome.

*b)* Landing forecasts shall be prepared in the form of a trend forecast.

*c)* An trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine report, a local special report, METAR or SPECI. The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

### 174.04.4 Forecasts for take-off

*a)* A forecast for take-off shall be prepared by the meteorological office designated by the meteorological authority concerned as agreed between the meteorological authority and operators concerned.

*b)* A forecast for take-off should refer to a specified period of time and should contain information on expected conditions over the runway complex in regard to surface wind direction and speed and any variations thereof, temperature, pressure (QNH), and any other elements as agreed locally.

*c)* A forecast for take-off should be supplied to operators and flight crew members on request within the 3 hours before the expected time of departure.

*d)* Meteorological offices preparing forecasts for take-off should keep the forecast under continuous review and, when necessary, should issue amendments promptly.

# SUBPART V SIGMET AND AIRMET INFORMATION, AERODROME WARNING AND WIND SHEAR WARNINGS AND ALERTS

## 174.05.1 SIGMET information

*a)* SIGMET information shall be issued by the meteorological watch office and shall give a concise description in abbreviated plain language concerning and/or expected occurrence of specified en-round weather and other phenomena in the atmosphere that may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

*b)* SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

*c)* The period of validity of a SIGMET message shall be not more than 4 hours. In the special case of SIGMET message for volcanic ash cloud and tropical cyclones, the period of validity shall be extended up to 6 hours.

*d)* SIGMET message concerning volcanic ash cloud and tropical cyclones should be based on advisory information provided by VAACs and TACDs, respectively, designated by regional air navigation agreement.

*e)* Close coordination shall be maintained between the meteorological watch office and the associated area control centre/flight information centre to ensure that information on volcanic ash included in SIGMET and NOTAM message is consistent.

*f)* SIGMET message shall be issued not more than 4 hours before the commencement

of the period of validity. In the special case of SIGMET message for volcanic ash cloud and tropical cyclones, these message shall be issued as soon as practicable but not more than 12 hours before the commencement of the period of validity. SIGMET message for volcanic ash and tropical cyclones shall be updated at least every 6 hours.

## 174.05.2 AIRMET information

a) AIRMET information shall be issued by meteorological watch office in accordance with regional air navigation agreement, taking into account the density of air traffic operating below flight level 100. AIRMET information shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which have not been included in section I of the area forecast for low- level flights issued in accordance with chapter 6, section 6.5 and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.

b) AIRMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

c) the period of validity of an AIRMET message shall be not more than 4 hours.

### 174.05.3 Aerodromes warnings

*a)* Aerodrome warning shall be issued by the meteorological office designated by the authority concerned and shall give concise information of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services.

*b)* Aerodrome warnings should be cancelled when the condition are no longer occurring and/or no longer expected to occur at the aerodrome.

### 174.05.4 Wind shear warnings alert

*a)* Wind shear warnings shall be prepared by the meteorological office designated by the meteorological authority concerned for aerodromes where wind shear is considered a factor in accordance with local arrangements with the appropriate ATS unit and operator concerned. Wind shear warnings shall give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or take-off path or during circling approach between runway level and 500 m (1 600 ft) shall not be considered restrictive.

*b)* Wind shear warnings for arriving and/or departing aircraft should be cancelled when aircraft reports indicate that wind shear no longer exists or, alternatively, after an agreed elapsed time. The criteria for the cancellation of a wind shear warning should be defined locally for each aerodrome, as agreed between the meteorological authority, ATS authority and the operators concerned.

*c)* At aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems shall be issued. Wind shear alerts shall give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 7.5 m/s (15 kt) or more which could adversely affect aircraft on the final approach path or initial take-off path and aircraft on the runway during the landing roll or take-off run.

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

## SUBPART VI AERONAUTICAL CLIMATOLOGICAL INFORMATION

### 174.06.1 General provisions

a) Aeronautical climatological information required for the planning of flight operations shall be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information shall be supplied to aeronautical users as agreed between the meteorological authority and the users concerned.

b) Aeronautical climatological information should be based on observations made over a period which should be indicated in the information supplied.

c) Climatological data related to sites for new aerodromes and the additional runways at existing aerodromes should be collected starting as early as possible before the commissioning of those aerodromes or runway.

### 174.06.2 Aerodrome climatological tables

a) Aerodrome climatological summaries - aerodrome climatological summaries shall follow the procedures prescribed by the World Meteorological Organization. Where computer facilities are available to store, process and retrieve the information, the summaries should be published or otherwise made available to aeronautical users on request. Where such computer facilities are not available, the summaries should be prepared using the models specified by the World Meteorological Organization and should be published and kept up to dada as necessary.

b) Copies of meteorological observational data – The national meteorological authority, on request and to the extent practicable, shall make available to any other meteorological authority, to operators and to others concerned with the application of meteorology to international air navigation meteorological observational data required for research, investigation or operational analysis.

c) To make available such climatological tables to an aeronautical user within a time period as agreed between the meteorological authority and the user concerned

## SUBPART VII SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

### 174.07.1 General provisions

At locations defined by the met following:

a) Meteorological information shall be supplied to operators and flight crew members for:
   I) Pre-flight planning by operators;
   II) In-flight re-planning by operators using centralized operational control of flight operations;
   III) Use by flight crew members before departure; and
   IV) Aircraft in flight.

b) Meteorological information supplied to operators and flight crew members shall cover the flight in respect of time, altitude and geographical extent. Accordingly, the information shall relate to appropriate fixed times, or periods of times, and shall extent to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodromes of intended landing and alternate aerodromes designated the operator.

### 174.07.2 Required information

Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as established by the meteorological authority in consultation with operators concerned:

a) Forecasts of:
   I) Upper wind and upper-air temperature;
   II) Upper-air humidity;
   III) Geopotential altitude of flight levels;
   IV) Flight level and temperature of tropopause;
   V) Direction, speed and flight level of maximum wind;
   VI) SIGWX phenomena; and
   VII) Cumulonimbus clouds, icing and turbulence.

**Note1.** – Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed.

**Nota2.** Forecasts of cumulonimbus clouds, icing and turbulence are intended to be processed and, if necessary, visualized according to the specific thresholds relevant to user operations.

b) METAR or SPECI (including trend forecasts as issued in accordance

with regional air navigation agreement) for the aerodromes of departure and intended landing, and take-off, en-route and destination alternate aerodromes;

c) TAF or amended TAF for the aerodromes of departure and intending landing, and for take-off, en-route and destination alternate aerodromes;

d) Forecasts for take-off;

e) SIGMET information and appropriate special air-reports relevant to the whole route;

Note. – Appropriate special air-reports will be those not already used in the preparation of SIGMET.

f) Volcanic ash and tropical cyclone advisory information relevant to the whole route;

g) As determined by regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;

h) Aerodrome warning for the local aerodrome;

i) Meteorological satellite imagens; and

j) Ground-based weather radar information.

### 174.07.3 Briefing, consultation and display

a) Briefing and/or consultation shall be provided, on request, to flight crew members and/or other flight operation personnel. Its purpose shall be to supply the latest available information on existing meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodrome and other aerodromes relevant, either to explain and amplify the information contained in the flight documentation or, as agreed between the meteorological authority and the operator concerned, in lieu of flight documentation.

b) If the meteorological office expresses an opinion on the development of the meteorological condition at an aerodrome which differs appreciably from the forecast included in the flight documentation, the attention of flight crew members shall be drawn to the divergence. The portion of the briefing dealing with the divergence recorded at the time of briefing and this record shall be made available to the operator.

c) The required briefing, consultation, display and/or flight document shall normally be provided by the meteorological office associated with the aerodrome of departure. At an aerodrome where these services are not available, arrangements to meet the requirements of flight crew members shall be as agreed between the meteorological authority and the operator concerned. In exceptional circumstances, such as an undue delay, the meteorological office associated with the aerodrome

shall provide or, if that is not practicable, arrange for the provision of a new briefing, consultation and/or flight documentation as necessary.

### 174.07.4 Flight documentation

a) Flight documentation to be made available should comprise information listed under 174.07.2

b) Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning in- flight re-planning, the operator shall be advised immediately and, if practicable, be supplied with the revised information as agreed between the operator and the meteorological office concerned.

c) In cases where a need for amendment arises after the flight documentation has been supplied, and before take-off of the aircraft, the meteorological office should, as agreed locally, issue the necessary amendment or updated information to the operator or to the local air traffic services unit, for transmission to the aircraft.

d) The meteorological authority shall retain information supplied to flight crew members, either as printed copies or in computer files, for a period of at least 30 days from the date of issue. This information shall be made available, on request, for inquiries or investigation and, for these purposes, shall be retained until the inquiry or investigation is completed.

### 174.07.5 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

Where the meteorological authority uses automated pre-flight information systems to supply and display meteorological information to operators and flight crew members for self-briefing, flight documentation purposes, the information supplied and displayed shall comply with the relevant provisions 174.07.1-4

### 174.07.6 Information for aircraft in flight

a) Meteorological information for use by aircraft in flight shall be supplied by a meteorological office to its associated air traffic services unit and through D-VOLMET or VOLMET broadcasts as determined by regional air navigation agreement. Meteorological information for planning by the operator for aircraft in flight shall be supplied on request, as agreed between the meteorological authority or authorities and the operator concerned.

b) Meteorological information for use by aircraft in flight shall be supplied to air traffic services units in accordance with the specifications of subpart VIII.

## SUBPART VIII INFORMATION FOR AIR TRAFFIC SERVICES, SEACH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

### 174.08.1 Information for air traffic services units

a) The meteorological authority shall designate a meteorological office to be associated with each air traffic services unit. The associated meteorological office shall, after coordination with air traffic services unit, supply, or arrange for the supply of, up-to-date meteorological information to the unit as necessary for the conduct of its functions.

b) The associated meteorological office for an aerodrome control tower or approach control unit should be an aerodrome meteorological office.

c) The associate meteorological office for a flight information centre or an area control centre shall be a meteorological watch office.

d) Any meteorological information required by an air traffic services unit in connection with an aircraft emergency shall be supplied as rapidly as possible.

### 174.08.2 Information for search and rescue services units

Meteorological offices designated by the meteorological authority in accordance with regional air navigation agreement shall supply search and rescue services units with the meteorological information they require in a form established by mutual agreement. For that purpose, the designated meteorological office shall maintain liaison with the search and rescue services unit throughout a search and rescue operation.

### 174.08.3 Information for aeronautical information services units

The meteorological authority, in coordination with the appropriate civil aviation authority, shall arrange for the supply of up-to-date meteorological information to relevant aeronautical information services unit, as necessary, for the conduct of their functions.

## SUBPART IX - REQUIREMENTS FOR AND OF COMMUNICATIONS

### 174.09.1 Requirements for communication

a) Suitable telecommunications facilities shall be made available to permit aerodromes meteorological office and, as necessary, aeronautical meteorological stations to supply the required meteorological information to air traffic services units on the aerodromes for which those offices and stations are responsible, and in particular to aerodrome control towers, approach control units and the aeronautical telecommunication station serving these aerodromes.

b) Suitable telecommunications facilities shall be made available to permit meteorological watch offices to supply the required meteorological information to air traffic services end search and rescue services units in respect of the flight information regions, control areas and search and rescue regions for which those offices are responsible and particular to flight information centre, area control centre and rescue coordination centre and the associated aeronautical telecommunications stations.

c) Suitable telecommunications facilities shall be made available to permit world area forecast centre to supply the required world area forecast systems products to meteorological offices, meteorological authorities and other users.

d) Telecommunications facilities between meteorological offices and , as necessary, aeronautical meteorological stations and aerodrome control towers or approach control units shall permit communications by direct speech, the speed with which the communications can be established being such that the required points may normally be contacted within approximately 15 seconds.

e) Telecommunications facilities between meteorological offices and flight information centre, area control centre, rescue coordination centre and aeronautical telecommunications station should permit:

I) Communication by direct speech, the speed with which the communications can be established being such that the required points may normally be contacted within approximately 15 seconds, and

II) Printed communication, when a record is required by the recipients; the message transit time should not exceed 5 minutes.

f) As agreed between the meteorological authority and the operators concerned, provision should be made to enable operators to establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological offices or other appropriate sources.

g) Suitable telecommunications facilities shall be made available to permit meteorological offices to exchange operational meteorological information with other meteorological offices.

h) The telecommunication facilities used for the exchange of operational meteorological information should be the aeronautical fixed service Internet-based services, operated by the World Area Forecast Centres, providing for global coverage are used to support the global exchange of operational meteorological information.

### 174.09.2 Use of aeronautical fixed service communications and the public internet – Meteorological bulletins

Meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service or the public Internet shall be originated by the appropriate meteorological office or aeronautical meteorological station.

### 174.09.3 Use for aeronautical mobile service communication

The content and format of meteorological information transmitted to aircraft and by aircraft shall be consistent with the provisions of this Annex.

### 174.09.4 Use of aeronautical data link service – contents of D-VOLMET

D-VOLMET shall contain current METAR and SPECI, together with trend forecast where available, TAF and SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET.

### 174.09.5 Use of aeronautical broadcasting service – contents of VOLMET broadcasts

a) Continuous VOLMET broadcasts, normally on very high frequencies (VHF), shall contain current METAR and SPECI, together with trend forecasts where available.

b) Scheduled VOLMET broadcasts, normally on high frequencies (HF), shall contain current METAR and SPECI, together with trend forecasts where available and, where so determined by regional air navigation agreement, TAF and SIGMET.

## Annex A - Routine MET Observations and Reports

<table>
<tr><th>N$^0$</th><th colspan="3">Activities</th></tr>
<tr><td>1</td><td colspan="3">Organisation: the CMAA is organised in 3 shifts: morning shift from 06:00 to 13:00, afternoon shift from 13:00 to 20:00 and night shift from 20:00 to 06 :00 next day. A compulsory handover shall be performed in the presence of the incoming and leaving MET officers. The MET officer on duty is not authorised to leave the service until such handover has taken place.</td></tr>
<tr><td rowspan="4">2</td><td colspan="3">Activities during the shift: For each shift, the MET officers shall elaborate and interprete the surface and altitude synoptical charts, elaborate the MET aeronautical forecasts and issue TAFs valid 30 hours for Maputo, Beira and Nampula, 24 hours for Inhambane, Vilankulo, Chimoio, Tete, Quelimane, Pemba and Lichinga.</td></tr>
<tr><td>TM - Morning shift</td><td>TT – Afternoon shift</td><td>TN – Night shift</td></tr>
<tr><td>Elaborate the surface synoptic charts 06:00 hours.</td><td>Elaborate the surface synoptic charts 12:00 hours.</td><td>Elaborate the surface synoptic charts<br>00:00 hours.</td></tr>
<tr><td>TAF<br><br>DD06-D’D’12 e DD12-D’D’18 – FQMA, FQBR, FQNP<br><br>DD06-D’D’06 – FQIN, FQVL, FQCH, FQTT, FQQL, FQPB, FQLC</td><td>TAF<br><br>DD18-D’D’24 – FQMA, FQBR, FQNP<br><br>DD18-D’D’18 – FQIN, FQVL, FQCH, FQTT, FQQL, FQPB, FQLC</td><td>TAF<br><br>DD00-D’D’06 – FQMA, FQBR, FQNP<br><br>DD00-DD24 – FQIN, FQVL, FQCH, FQTT, FQQL, FQPB, FQLC</td></tr>
<tr><td></td><td colspan="3">Note: only the latest TAF issued for each aerodrome is valid!</td></tr>
<tr><td>3</td><td colspan="3">MET officers on duty shall also elaborate SIGMET as required, special reports compliant with the recommendations of the WMO and ICAO. SIGMET are issued in coded form as defined in the work instruction IT 75.11.</td></tr>
<tr><td>4</td><td colspan="3">MET officers on duty shall elaborate trend forecasts (TREND) to be included in the METAR e SPECI in line with the work instruction IT 75.09. MET officers shall assess the impact of the alterations of the weather conditions and decide when to switch to a periodicity of 30 minutes for METAR reports.</td></tr>
<tr><td>5</td><td colspan="3">MET officers on duty at FQMA shall prepare the pre-flight briefings (flight folders) on request of the aircraft operators 2 hours before the planned departure. Flight folders shall include the TAF and METAR for the aerodromes on the route and alternates,</td></tr>
</table>

| | |
|---|---|
| | wind and temperature charts for the altitude and flight levels required, Significant Weather Chart SFC and satellite pictures. |
| 6 | Provide a briefing to pilots on the weather en-route a significant weather phaenomena to be expected |
| 7 | Prepare MET Reports and ensure their diffusion in the aerodrome control tower. |
| 8 | Report to the Head of DAPT the occurrences and failures, with the request for intervention form R 63.02 as required. |
| 9 | Ensure the aeronautical and synoptical MET observations as prescribed and required. |
| 10 | Record all observations on the appropriate form (104/P). |
| 11 | Prepare the thermometers for minimum and maximum temperature. |
| 12 | Issue METAR and MET Reports hourly or every 30 minutes when required by the weather conditions. |
| 13 | Elaborate the SPECI in case of sudden alteration of the weather conditions. |
| 14 | Elaborate the synoptical surface and altitude charts at the hours recommended by the WMO. |

## ANNEX B – Record of Notifications on the occurrence of Wind Shear

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| **Date** | **Time (UTC)** | **Aircraft Identif.** | **Aircraft type** | **Pilot Notification** | **Aircraft Action** | **Runway** | **Altitude Variation** | **Speed Variation** | **Observ.** |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## ANNEX C- filling instructions of Annex B

| | | | |
|---|---|---|---|
| Column 1 | Date | Date of occurrence of the phenomenon | Format dd/mm/yyyy |
| Column 2 | Time (UTC) | Time UTC of occurrence phenomenon | Format hh/mm |
| Column 3 | Aircraft identification | Characters corresponding to the marks nationality and registration number of the aircraft. | Example C9 |
| Column 4 | Aircraft Type | Characters corresponding to the type of aircraft in question. | 737-300), F100 (Focker 100), A202 (Airbus 202) etc. |
| Column 5 | Pilot Notification | Reason for notification | Wind Shear (GRAD VNT)<br>Wind gusty (BRS GRAD VNT)<br>Strong wind shear<br><br>Turbulence (TURB)<br>Strong turbulence (FRT TURB)<br>Loss of speed (LOST SPEED) |
| Column 6 | Aircraft Action | Procedure performed by the aircraft, during the occurrence of the phenomenon. | Approach (AP)<br>Landing (P)<br>Take-off (D)<br><br>Rush (AR) |
| Column 7 | Runway | Characters corresponding to the headboard of the runway on which the aircraft performed the procedure described for Column 6. | Example 05R, 23 |
| Column 8 | Altitutude variation | Value of the altitude variation of the aircraft, in feet, by virtue of the phenomenon. | Example. 1.000 ft (1000); 700 ft (700). |
| Column 9 | Speed Variation | The value of the positive or negative variation of the speed of the aircraft in us, when informed, preceded by the signal (+) or the signal (-), respectively, due to the phenomenon | Example. + 28; - 15 |
| Column 10 | Observations | Name of the ATS Operator who provided the information; operational indicator of the Meteorological Observer who received the information and other relevant information. | Example .FQMA; FQBR |