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Agenda Item 4: Meteorological information received by ATS units from sources other than the associated meteorological offices and stations

OTHER METEOROLOGICAL INFORMATION RECEIVED BY ATS UNITS

(Presented by the secretariat)

Summary

This paper deals with coordination between air traffic services (ATS), the meteorological (MET) authorities and pilots in the implementation of updated procedures for special air reports, both by data link and air-ground voice communications.

It also addresses the future OPMET data uplink for aircraft and its impact on the necessary coordination in this regard.

References

• Annex 3 - Meteorological Service for International Air Navigation;
• Doc 9377AN/915 - Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services

1 Introduction

1.1 This paper refers to the responsibilities of Air Traffic Services (ATS) and those of Meteorological (MET) authority to ensure effective implementation of updated procedures for special air reports in the AFI region. It should be noted that the implementation of these procedures is of paramount importance and that all interested parties to respect fully the new procedures for two reasons:

a) Special air reports are an indispensable contribution to the numerical weather prediction models used by ICAO world area forecast centers (WAFC) and the quality of temperature and wind forecast depends largely on air reports received;

b) the timely issuance of SIGMET messages related to safety depends largely on the celerity with which the Special air-reports are issued.

2. Discussion

2.1 Amendment 75 to ICAO Annex 3 adopted by the 189th session of the Council in February 2010 and applicable from November 18, 2010, marks the termination of voice regular air reports related to weather condition. However, aircraft equipped with data link air-ground continue to provide these records in accordance with standards 5.3.3 and 5.4 of Annex 3. In addition, all aircraft are required to provide special air when moderate to strong turbulence and icing are encountered in accordance with standards 5.5 and 5.7 of Appendix 3.

2.2 Under Annex 3 Standard 5.8, Air Traffic Services (ATS) are required to forward, without delay, special air reports to the associated Meteorological Watch Offices (MWO).

3. Conclusion

3.1 The effective implementation of updated provisions on the issuance of air-reports depends primarily on good coordination between stakeholders, namely pilots, ATS and MET authorities.

3.2 The meeting is invited to note the other meteorological information received by the ATS and procedures highlighted for better coordination ATS/MET/Pilot.

APPENDIX A

OTHER METEOROLOGICAL INFORMATION RECEIVED BY ATS UNITS

1 Observing and Reporting of Meteorological Information by ATS Units

1.1 In view of their location on high towers, aerodrome controllers can often observe certain meteorological features of operational significance better than meteorological personnel. Such observations, which may include, for example, meteorological conditions in approach and climb-out directions, would not only be used by controllers to update or amplify observations provided by the meteorological station (where such actions are agreed), but would also normally be provided to the meteorological station or office.

1.2 Adequate basic training in meteorological observations is to be provided to the ATS personnel concerned. In some States ATS personnel are given training in meteorology to a level commensurate with their responsibilities in making these supplementary meteorological observations at aerodromes. These States may also issue specific "meteorological validations" to the air traffic controller licence on the basis of successful completion of concentrated meteorological-observing courses. This has the advantage of satisfying all concerned of their proficiency in this field.

> *Note 1.— The required qualifications for air traffic controllers making the meteorological observations described above are specified by WMO (Annex 1 —* Personnel Licensing*).*

2 Reports of Aircraft Observations Received in ATS Units

2.1 Detailed provisions for air-reporting, including those concerning automated air-reporting using data link in the CNS/ATM systems environment, are included in Annex 3, Chapter 5 and Appendix 4, and in Chapter 4 of the PANS-ATM. Specific instructions for air-reporting using voice communications are spelled out in Appendix 1 to the PANS-ATM. Procedures in the air navigation plans (ANPs) and the SUPPS-Air Traffic Services part of Doc 7030 provide the specifications applicable to individual ICAO Regions.

Air-reporting: action required by the parties involved

a) Pilots: CNS/ATM systems environment

2.2 When automatic dependent surveillance (ADS) or secondary surveillance radar (SSR) Mode S is being applied, pilots do not need to make routine air-reports since the reporting is part of the reporting contract and is controlled by the ATS.

2.4 However, it is *essential* that pilots continue to make special air-reports when any of the following conditions are encountered or observed:

a) severe turbulence;

b) severe icing;

c) severe mountain wave;

d) thunderstorms, without hail, which are obscured, embedded, widespread or in squall lines;

e) thunderstorms, with hail, which are obscured, embedded, widespread or in squall lines;

f) heavy duststorm or heavy sandstorm;

g) volcanic ash cloud; or

h) pre-eruption volcanic activity or volcanic eruptions.

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

2.4 In spite of the fact that special air-reports will be included in the D-FIS applications in the future, it is worth emphasizing that these special air-reports will still have to be initiated by the pilot by selecting (from a menu displayed in the cockpit) the appropriate condition (e.g. heavy sandstorm). The additional information required by the MWOs (e.g. latitude, longitude, altitude, time, wind and temperature) is automatically included in the special air-report, without any pilot intervention.

Note.— Detailed information concerning D-FIS is provided in the ICAO Manual of Air Traffic Services Data Link Applications *(Doc 9694).*

b) Pilots: voice communications environment

2.5 Routine voice reports have been suppressed in accordance with Amendment 75 to ICAO Annex 3.

2.6 It should be pointed out that there is a continued requirement for pilots to continue to provide special air reports when moderate to strong turbulence or icing are encountered in accordance with provisions in ICAO Annex 3 standards 5.5 and 5.7.

c) ATS personnel: CNS/ATM systems environment

2.7 In the CNS/ATM systems environment, the requirement to make routine air-reports will be met by sending ADS or SSR Mode S reports with the basic ADS/SSR Mode S data block combined with the meteorological information data block. The appropriate ATS authority must ensure that the ADS/SSR Mode S contract is such that the meteorological information is provided every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase for the first 10 minutes of the flight.

2.8 There will be no exemptions in the CNS/ATM systems environment. However, similar designation procedures as those applicable to voice reporting are envisaged for high-density air routes.

2.9 In addition to the requirement to establish an ADS/SSR Mode S contract with the appropriate reporting frequency, the ATS authority concerned is obliged to route the relevant blocks of the ADS/SSR Mode S message (i.e. the basic ADS/SSR Mode S data block and the meteorological information data block) automatically to WAFCs London and Washington. Since the routing and processing of messages will be carried out by automated computerized communications systems, the ATS authority concerned need only ensure that the addresses of the WAFCs are included in the software and that the computer programme strips off the unnecessary blocks of the full ADS/SSR Mode S message (leaving only the basic ADS/SSR Mode S and meteorological information data blocks) before transmitting it to the WAFCs. Finally, it may be pointed out that there is no ICAO provision requiring ATS to pass on the automated routine air-reports to the local meteorological offices and MWOs. Such provisions were purposely omitted because it was foreseen that the number of ADS/SSR Mode S messages with meteorological information would be such that meteorological offices would not be able to cope with the data flow. On receipt of the air-reports, the WAFCs will make them available to States, as necessary, through the WMO global telecommunication system

(GTS), as basic data. It may also be noted that routine air-reports are increasingly being used in automated ATM systems (i.e. for accurate flight trajectory forecast purposes).

2.10 With regard to special air-reports in the CNS/ATM systems environment, ATS personnel have a two-fold responsibility:

a) to pass on the information to other aircraft concerned (for details on the methods to be used in the CNS/ATM systems environment); and

b) to route the information to the associated MWO and to WAFCs London and Washington. It is essential that, in addition to the WAFCs, the associated MWO be included as an addressee in the telecommunications software since the issuance of SIGMET is largely based on the timely receipt of special air-reports.

d) ATS personnel: voice communications environment

2.11 On receipt of air-reports (both routine and special) through voice communications, ATS personnel should compile a message and send it without delay to their associated MWO. To assist in the compilation of this message and to ensure a standard structure, instructions have been included in Appendix 1 to the PANS-ATM.

2.12 ATS personnel must ensure that special air-reports are passed on to all aircraft concerned without delay. Special air-reports should be treated as the equivalent of SIGMET until such time that a corresponding SIGMET, superseding the special air-report, is received from the associated MWO.

e) MET personnel: CNS/ATM systems environment

2.13 MWOs receive routine air-reports through the WMO GTS and use them as any other basic meteorological data (e.g. upper-air soundings). No ICAO provisions exist concerning the use of routine air reports by local meteorological offices; the previous aeronautical requirement to use routine air-reports as briefing material has been deleted from Annex 3.

2.14 On receipt of special air-reports, the MWO has two options:

a) to issue corresponding SIGMET information; or

b) to decide that the issuance of SIGMET information is not warranted and to so inform the ACC/FIC (e.g. the phenomenon concerned is of a transient nature).

2.15 In the former case, no further distribution of the underlying air-report is required; in the latter case, the MWO has to disseminate the special air-report in the same way as a SIGMET for a period of sixty minutes after its issuance to ensure that recipients, including the ACCs/FICs concerned, are aware that the phenomenon has been reported by an aircraft.

f) ***MET personnel: voice communications environment***

2.16 Special air-reports received by the MWO through voice communications must be routed without delay to WAFCs London and Washington. Furthermore, as in the case of special air-reports received through data link, the MWO must decide whether or not the special air-report warrants the issuance of SIGMET information. If it does not, the special air-report itself must be distributed in the same manner as SIGMET information and the ACC/FIC informed accordingly.

2.17 Finally, if the MWO receives a special air-report related to pre-eruption volcanic activity, volcanic eruptions or volcanic ash cloud, it has the additional obligation to transmit that message without delay to the associated VAAC.

2.18 Table 1 summarizes the action to be taken on air-reports received by ATS units.
Manual on Coordination between Air Traffic Services,

Table -1. Action to be taken on air-reports received by ATS units

Action	***Via data link (CNS/ATM environment)***		***Via voice communications***	
	Routine	***Special***	***Routine***	***Special***
Received in	ATS data link centre	ATS data link centre ACC/FIC APP/TWR		ACC/FIC[1] APP/TWR
Used by:	—[2]	ACC/FIC[3] APP/TWR[4]		ACC/FIC[3] APP/TWR[4]
Relayed to:	WAFC[5]	MWO[5] WAFC[5]		MWO WAFCs6)

Notes:
1) Routine and special air-reports may be received by an air-ground control radio station related, in particular, to certain ACCs/FICs. All the special air-reports received by such a station must be transmitted without delay to the ACC/FIC concerned and to the MWO associated with the ACC/FIC. Routine air-reports should be transmitted to the MWO concerned and to the ACC/FIC concerned if so required by these centres.
2) Air-reports (e.g. winds reported from the climb-out phase of flight) could be used in ATM automated systems for the sequencing of aircraft approaches.
3) Pass on all special air-reports received to all aircraft concerned until the ACC/FIC receives the corresponding SIGMET superseding the special air-reports, or for a period of 60 minutes.
4) Pass on all special air-reports received (including non-routine reports) to all aircraft concerned, for a period of 60 minutes.
5) Automatic relay by the ATS data link centre.
6) The MWO or the meteorological authority arranges for the transmission of the air-reports to WAFCs.

2.19 In addition to the requirements for aircraft observations and air-reports discussed in the previous paragraphs, a requirement also exists for non-routine aircraft observations. These are prompted when meteorological conditions are encountered that are not on the list of criteria for special aircraft observations and special air-reports and which, in the opinion of the pilot-in-command, may markedly affect the safety or efficiency of other aircraft operations (e.g. wind shear). Reports of these meteorological conditions should, on their receipt in ATS units, be transmitted without delay to all aircraft concerned and to associated meteorological offices and stations (as agreed locally).