

Letter of Agreement
between
India Meteorological Department
and
Airports Authority of India
for
provision of meteorological service
for international and national air navigation
in India.

15th November 2007

Letter of Agreement between India Meteorological Department and Airports Authority of India for the provision of meteorological service for international and national air navigation in India.

1. OBJECTIVE

1.1 The objective of this Letter of Agreement between India Meteorological Department (IMD) and Airports Authority of India (AAI) is to establish the directives for the necessary coordination between ATS(Air Traffic Services) units and meteorological offices and stations to ensure the provision of the meteorological service required for civil (international and national) air navigation, in accordance with international agreements (see 1.3 below) and Manual on Meteorological Services for Aviation in India.

1.2 This Letter of Agreement also specifies the responsibility of AAI in relation to

- a) The national and international exchange of aeronautical meteorological messages/data using AFTN.
- b) The transmission to aerodrome meteorological offices and aeronautical meteorological stations of air reports and other meteorological information obtained from aircrafts in flight.

1.3 This document is in accordance with the Standards and Recommended Practices and Procedures of ICAO, contained in Annex 3 — Meteorological Service for International Air Navigation, Annex 10 — Aeronautical communication, Annex 11 — Air Traffic Services, Annex 12 — Search and Rescue, Annex 15 — Aeronautical Information Services and the Aeronautical Information Publication of India (AIP-India). This document is also based on the guidance material in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377).

1.4 This Letter of Agreement includes two Appendixes appended at the end.

2. REVISIONS

The provisions of this Letter of Agreement may be amended by mutual agreement in writing from both the sides. Any revision to this Letter of Agreement may be made by the authorities who approve and sign this agreement.

3. GENERAL

3.1 The objective of meteorological service is to contribute to the safety, regularity and efficiency of civil air navigation.

3.2 IMD has responsibility for executing and coordinating activities to meet the meteorological requirements necessary for civil air navigation in India.

3.3 IMD has established Eighteen Aeronautical meteorological offices (AMOs) including Four Meteorological Watch Offices (MWOs) and Fifty Aeronautical Meteorological Stations (AMSs) (7 airports are not owned by AAI) to meet the requirements for the provision of meteorological service for civil air navigation. A *Tropical Cyclone Advisory Center (TCAC) of ICAO is also functioning at IMD New Delhi.*

3.4 The aeronautical meteorological service provided by these offices and stations to ATS units comprises the following:

3.4.1 Responsibilities of Aerodrome meteorological offices:

- (a) Preparation and/or obtaining forecasts and other relevant information for flights operating from their aerodromes.
- (b) Preparation and /or obtaining forecasts of local meteorological conditions.
- (c) Keeping a continuous watch over the meteorological conditions over their local aerodrome as well as over other aerodromes served by their associated Aerodrome Meteorological Stations.
- (d) Provision of briefing, consultation and flight documentation (*World Area Forecast System Products also will be utilised for documentation*) to flight crewmembers and/or other flight operations personnel.
- (e) Supply of other meteorological information to ATC units.

- (f) Display of available meteorological information.
- (g) Exchange of meteorological information with other meteorological offices.
- (h) Issue of landing and take-off forecasts.
- (l) Supply of flight planning information.
- (j) Supply of aerodrome forecasts of relevant aerodromes.
- (k) Supply of forecasts to their associated Aerodrome Meteorological Stations for flights operating from their aerodromes.
- (l) To issue aerodrome warnings for local aerodrome as well as for their associated Aerodrome Meteorological Stations.
- (m) Supply information received on pre-eruptive volcanic activity, a volcanic eruption or volcanic ash cloud to ATC units.

3.4.1.1 The other meteorological information supplied under (e) above should include, some or all of the following:

- (i) Hourly/half hourly current weather observations and special reports.
- (ii) RVR Observations.
- (iii) Landing/take-off reports on request for the required elements.
- (iv) Meteorological information for VOLMET broadcasts, ATIS broadcasts, VOR broadcasts, etc.
- (v) Pressure data.
- (vi) Radar and Satellite Observations.
- (vii) SIGMETs of other FIRs.
- (viii) AIREPs available.
- (ix) METARs/ SPECIs of other stations as appropriate.
- (x) Low Level Wind Shear and temperature inversions.

3.4.2 The Aerodrome Meteorological Stations are responsible for:

- i) supply to aeronautical users, of current weather observations of their own stations and those of other stations as required, by obtaining them from the concerned stations.
- ii) providing documentation for flights originating from their stations after obtaining the forecasts from their associated Aerodrome Meteorological Office(s).
- iii) to supply aerodrome warnings to aeronautical users of their aerodrome after being received from their associated Aerodrome Meteorological Office.
- iv) to supply local aerodrome forecast to aeronautical users, of their aerodrome after being received from associated Aerodrome meteorological office.
- v) supply information received on pre-eruptive volcanic activity, a volcanic eruption or volcanic ash cloud to FIC.

3.4.3 The following are the responsibilities of the Meteorological Watch Offices:

- i) Maintain a continuous watch of meteorological conditions over their respective flights information regions.
- ii) Prepare SIGMET information messages for their FIRs.
- iii) Exchange SIGMET information with other MWOs in the neighbouring countries
- iv) Supply SIGMET information to their *associated air traffic services units* as well as SIGMET messages received from MWOs Disseminate their SIGMET information to other forecasting offices in India.
- v) Supply information received on pre-eruptive volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued to its associated Flight Information Centres/Area control center.

3.4.4 The responsibilities of TCAC New Delhi are:

- i) *Monitor the development of tropical cyclones in its area of responsibility, using geostationary and polar-orbiting satellite data, radar data and other meteorological information;*
- ii) *Issue advisory information concerning the position of the cyclone center, its direction and speed of movement, central pressure and maximum surface wind near the centre, to meteorological watch offices in its area of responsibility, other TCACs whose areas of responsibilities may be affected and to World Area Forecast Centers, International OPMET data banks etc.*

3.5 The objectives of ATS are to:

- a) prevent collisions between aircraft in the air or on the maneuvering area of an aerodrome;
- b) prevent collisions between aircraft on the maneuvering area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;
- d) provide advice and information useful for the safe and efficient conduct of flights; and
- e) notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

3.6 ATS comprises three services, as follows:

- a) air traffic control service;
- b) flight information service; and
- c) alerting service.

3.7 The air traffic control service includes the provision of:

- a) air traffic control service for controlled flights, except for those parts of such flights provided within the approach control service and the aerodrome control service;
- b) approach control service to that portion of controlled flights associated with the arrival of an aircraft at, or its departure from, the various controlled aerodromes; and
- c) aerodrome control service for aerodrome traffic, except for those parts of flights provided within approach control service.

3.8 The flight information service provides advice and information useful for the safe and efficient conduct of flights.

3.9 The alerting service notifies the appropriate organizations regarding aircraft in need of search and rescue aid and assists such organizations as required.

4. RESPONSIBILITIES

4.1 General

In order to provide an efficient air traffic service and in view of the fact that the ATS units are an important factor in the liaison between aircraft in flight and the aeronautical meteorological offices, IMD and AAI will collaborate to ensure a fast and efficient coordination.

4.2 Responsibilities of IMD

General

4.2.1 IMD, through the aeronautical meteorological offices and aeronautical meteorological stations listed in Annexure 1, is responsible for the provision of up-to-date information on existing and forecast meteorological conditions to those ATS units that need it in order to carry out their functions. The necessary meteorological information will be supplied to ATS units from the associated AMO/AMS.

4.2.2 Meteorological offices will be located at the airports (as far as practicable) so that meteorological briefings for ATS personnel, as well as consultations between meteorological and ATS personnel, are facilitated and fast and reliable communications are established in order to effect coordination in the most efficient manner possible.

4.2.3 The meteorological information provided will be in an ICAO format and the frequency of meteorological reports, forecasts, warnings, etc., will cover the needs of each of the ATS units. Annexure I provides the list of meteorological offices providing current weather information and the frequency with which it is to be supplied to ATS units.

4.2.4 Meteorological offices and/or meteorological stations will provide other information as given in 3.4.1 to 3.4.3. Detailed information on the location, vertical extent, direction and speed of movement of significant meteorological phenomena in the proximity of aerodromes, which may present a danger to aircraft operations, particularly in the areas of the initial climb-out and approach, will be provided to the appropriate ATS units whenever available with the utmost speed. This information will be derived from weather radar observations, remote-sensing equipment and meteorological satellite data available in IMD.

4.2.5 Meteorological offices will provide the meteorological information needed to meet non-routine requests from aircraft in flight (e.g. requests from distant aerodromes for meteorological reports).

4.2.6 Copies of meteorological flight documentation supplied to flight crews will be kept for a period of at least 30 days, (i.e. stored as hard copies or in computer memory) from the date of issue and will be made available on request for inquiries or investigations and, for these purposes, will be retained until the inquiry or investigation is completed.

4.2.7 Aeronautical climatological information (i.e. in particular, aerodrome climatological tables and summaries) will be prepared by IMD.

Information for Aerodrome control towers (TWRs)

4.2.8 Up-to-date local reports with landing/TREND forecasts, including current pressure data for the setting of altimeters, will be provided to the aerodrome control tower of each aerodrome.

4.2.9 Local special reports with landing/TREND forecasts, including current pressure data for the setting of altimeters will be communicated to the tower as soon as they are issued, i.e. without waiting for the next local routine report or forecast.

4.2.10 Aerodrome warnings, wind shear warnings and relevant SIGMET information will be communicated to the tower without delay.

4.2.11 Towers will be equipped with indicators/ (displays) for surface wind and runway visual range (RVR), (other meteorological elements/phenomena as available). The indicators will relate to the same points of observation and will obtain data from the same sensors as those to which the corresponding indicators in the meteorological stations are connected.

4.2.12 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to the towers by the associated meteorological office at Chennai airport.

Information for approach control offices (APPs)

4.2.13 Up-to-date local reports with landing/ TREND forecasts, including current pressure data for the setting of altimeters, will be provided to the ATS units that provide approach control services.

4.2.14 Local special reports with landing/ TREND forecasts, including current pressure data for the setting of altimeters, will be communicated to approach control offices, as soon as they are issued (i.e. without waiting for the next local routine report or forecast).

4.2.15 Relevant SIGMET information and appropriate special air-reports, (if available), aerodrome warnings and wind shear warnings (if available) will be provided to approach control offices without delay.

4.2.16 Approach control offices providing the service for final approach, landing and take-off will be equipped wherever possible with displays for surface wind, RVR, and other meteorological elements/phenomena as available. The displays will relate to the same points of observation and will obtain data from the same sensors as those to which the corresponding displays in the meteorological station.

4.2.17 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to the approach control offices by associated meteorological office at Chennai airport.

Information for the area control centre/flight information centre (ACC/FIC)

4.2.18 Up-to-date routine and special reports (METARs and SPECIs with TREND forecasts) will be provided to the concerned ACC/FIC, giving special emphasis to significant meteorological conditions and weather deterioration occurring, as soon as it can be determined.

4.2.19 SIGMET information and available special air reports pertaining to the concerned FIR/UIR, and also to those FIRs/UIRs or portions of FIRs/UIRs which lie within two hours' flying time from the boundary, will be provided.

4.2.20 Current pressure data for setting altimeters (e.g. the lowest QNH in the FIR specified by the ACC/FIC) will be provided to the concerned ACC/FIC to be available for low level flight operations.

4.2.21 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to the Chennai FIC by MWO Chennai.

4.3 Responsibilities of AAI

4.3.1 The AAI will make the necessary arrangements for:

- a) The necessary communication facilities for the speedy exchange of aeronautical meteorological messages/data over AFTN.
- b) Transmit routine and special air-reports received by voice communications to the concerned AMO/ MWO.
- c) Automatically transmit routine and special air-reports received by data link communications to the concerned MWO.

4.3.2 Reports of non-routine observations from aircraft in flight will be transmitted without delay to the concerned MWO and meteorological offices and stations concerned.

4.3.3 AAI, in coordination with IMD, shall establish a list of MET reporting points. This list should be coordinated with the ICAO Asia/Pacific Regional Office, Bangkok and it should be included in the aeronautical information publication of India.

4.3.4 Supplementary meteorological observations made by personnel in local ATS units, as well as the meteorological information that the meteorological offices and stations have requested them to obtain will be supplied without delay to the meteorological offices and stations concerned.

4.3.5 Meteorological information obtained from ATS radar will be provided to meteorological offices and stations whenever necessary and feasible and, in particular, when information from weather radar is not available. This information should be relayed to the associated meteorological offices and stations as soon as possible and should contain the time of observation, location, extent, distance and intensity of the identified significant weather areas. In this regard, it is recognized that it is not mandatory for radar controllers to maintain watch over significant weather areas.

4.3.6 ATS units will transmit to the associated meteorological offices and to the MWO, as appropriate, without delay, information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud for which SIGMET information has not been issued. (Annex 11, 2.19.1 c).

4.3.7 Within the frame of the FIS, relevant ATS units will transmit to aircraft pertinent:

- a) SIGMET information up to a distance normally corresponding to two hours' flying time and appropriate special air-reports for which SIGMET information has not been issued.
- b) as necessary, weather conditions at departure, destination and alternate aerodromes reported in relevant METAR and SPECI, with TREND forecasts and TAF.

4.3.8 As meteorological information is of vital importance to the safety of aircraft in flight, ATS shall always keep aircraft informed of the current weather conditions.

4.3.9 AAI will reimburse the cost of Meteorological services to IMD at all the AAI airports including green field airports as per the MOU signed between AAI and IMD on 17th July 2006, which is given as **Appendix II** to this Letter of Agreement. AAI will also provide facilities and amenities to IMD as agreed in the above mentioned MOU.

4.3.10 Vehicle will be provided to the met staff for reporting manual RVR whenever the situation warrants. Vehicle will also be provided for the purpose of maintenance of airport met instruments where ever needed.

5. Redressal of disputes

In case of any dispute arising out of the interpretation or the understanding of any of the clauses of this letter of agreement, the matter will generally be settled amicably by both the parties in the best interest, failing which the dispute(s) will be referred to arbitration under the Indian Arbitration and conciliation act, 1996 or soon thereafter.

In witness thereof, the parties hereto have set their hands and signed herein below on the day and date mentioned above.

Done at New Delhi on the 15th day of November 2007 in English language.

For & on behalf of

India Meteorological Dept.

(R. C. Bhatia)

Director General of Meteorology

For & on behalf of

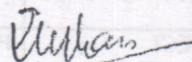
Airports Authority of India

(K. Ramalingam)

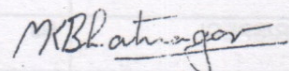
Chairman, AAI

Witness

1.

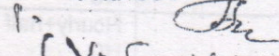

(LT. A. KHAN, Dy. Dir. (MOS))

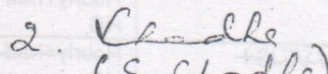
2.


(M.K. BHATNAGAR)

D.A.S.

Witness

1. 
(V. SOMASUNDARAM)
ED (ATM)

2. 
(S. Chadha)
JE. GM (ATM-DPS)

APPENDIX I

METEOROLOGICAL OBSERVATORIES AND REPORTS

1. Name of Station/ Location Indicator	2. Type and Frequency of Observations	3. Type of MET reports and supplementary information included	4. Hours of Operation
1. Agartala/ VEAT	Hourly+half hourly from 2300-0730	METAR/SPECI/TREND	H24
2. Agatti /VOAT	Hourly+half hourly during HS	METAR/SPECI	HJ
3. Ahmedabad/ VAAH	Half hourly	METAR/SPECI/TREND	H24
4. Aizwal/ VEAZ →	Half hourly during HO	METAR/SPECI	HO
5. Amritsar/ VIAR	Hourly+half hourly	METAR/SPECI	H24
6. Aurangabad/ VAAU	Hourly+half hourly from 0030-0530 hrs	METAR/SPECI	H24
7. Bangalore /VOBG →	Hourly+half hourly during H24	METAR/SPECI/TREND	H24
8. Belgaum (Sambre)/ VABM	Hourly+half hourly during HS	METAR/SPECI	HO
9. Bhavnagar/ VABV	Hourly+half hourly from 0630-0800 hrs	METAR/SPECI	HJ
10. Bhopal (Bairagarh)/ VABP	Hourly+half hourly during HO	METAR/SPECI	H24
11. Bhubaneshwar /VEBS	Hourly+half hourly HO	METAR/SPECI/TREND	H24
12. Coimbatore/ VOGB	Hourly+half hourly during HO	METAR/SPECI	HO
13. Chennai / VOMM (Madras)	Hourly+half hourly during H24	METAR/SPECI/TREND	H24
14. Cooch- Behar// VECO	Hourly+ half hourly	METAR/SPECI	HJ
15. Dehradun /VIDN	A/R	METAR/SPECI	HJ
16. Delhi /VIDP	Half hourly	METAR/SPECI/TREND	H24
17. Delhi (SFD)/ VIDD	Hourly+half hourly	METAR/SPECI	HJ
18. Dimapur/ VEMR	Hourly+half hourly	METAR/SPECI	HJ
19. Dubari (Rupsi)/ VERU	Hourly	METAR/SPECI	HJ
20. Fursatganj (Raibareilly)/ VIRB →	A/R	METAR/SPECI	HJ
21. Gaya	Half hourly in HJ	METAR/SPECI	HJ
22. Guwahati/ VEGT	Hourly+half hourly	METAR/SPECI/TREND	H24
23. Hubli/ VAHB	Hourly+half hourly during HS	METAR/SPECI	HS
24. Hyderabad/ VOHY	Hourly+half hourly during H24	METAR/SPECI/TREND	H24
25. Imphal /VEIM	Hourly+half hourly during HO	METAR/SPECI	HJ
26. Indore /VAID	Hourly+half hourly during HO	METAR/SPECI	H24
27. Jabalpur/ VAJB	Hourly	METAR/SPECI	HS
28. Jaipur /VIJP	Hourly+half hourly during HO	METAR/SPECI/TREND	H24
29. Jamshedpur/ VEJS →	Hourly+half hourly during HO	METAR/SPECI	HJ
30. Jharsuguda		METAR/SPECI	
31. Kailashahar /VEKR	Hourly+half hourly during	METAR/SPECI	HJ

	HO		HJ
32. Kandla / VAKE	A/R	METAR/SPECI	HJ
33. Keshod / VAKS	Hourly+half hourly during HO	METAR/SPECI	HJ
34. Kochi →	Hourly+half hourly during H24	METAR/SPECI/TREND	H24
35. Kozhikode (Calicut)/VOCL	Hourly+half hourly during H24	METAR/SPECI	H24
36. Khajuraho/ VAKJ	Hourly	METAR/SPECI	HJ
37. Kolkata (Calcutta) /VECC	Half hourly	METAR/SPECI/TREND	H24
38. Kota / VIKO	Hourly	METAR/SPECI	HJ
39. Kulu (Bhuntar) / VIBR	Hourly	METAR/SPECI	HJ
40. North Lakhimpur/ VELR	Hourly+half hourly during HO	METAR/SPECI	HJ
41. Ludhiana /VILD	A/R	METAR/SPECI	HJ
42. Lucknow /MILK	Hourly+half hourly during HO	METAR/SPECI/TREND	H24
43. Madurai/ VOMD	Hourly+half hourly during HO	METAR/SPECI	HO
44. Mangalore (Bajpe)/ VOML	Hourly+half hourly during HO	METAR/SPECI	HO
45. Mohanbari /VEMN	Half hourly	METAR/SPECI/TREND	H24
46. Mumbai / VABB	Half hourly	METAR/SPECI/TREND	H24
47. Mumbai (Juhu) / VAJJ	Hourly+half hourly during HO	METAR/SPECI	HJ
48. Nagpur /VANP	Hourly+half hourly during HO	METAR/SPECI/TREND	H24
49. Pantnagar/ VIPT	A/R	METAR/SPECI	HJ
50. Passighat/ VEPG	Hourly+half hourly	METAR/SPECI	HJ
51. Patna /VEPT	Hourly+half hourly during HO	METAR/SPECI/TREND	H24
52. Pondicherry /VOPC	Hourly+half hourly during HS	METAR/SPECI	HJ
53. Porbandar/ VAPR	Hourly+half hourly during HO	METAR/SPECI	HJ
54. Puttaparthi/ VOPN — (Sri Satya Sai) →	Hourly+half hourly A/R	METAR/SPECI	A/R
55. Raipur/ VARP	Hourly+half hourly during HO	METAR/SPECI	0300-1430
56. Rajahmundry/ VORY	Hourly+half hourly during HS	METAR/SPECI	HO
57. Rajkot /VARK	Hourly+half hourly during HO	METAR/SPECI	H24
58. Ranchi /VERC	Hourly+half hourly during HO	METAR/SPECI	HJ
59. Shillong/ Barapani/ VEBI	Hourly+half hourly during HO	METAR/SPECI	HJ
60. Surat /VASU →	A/R	METAR/SPECI	HJ
61. Tiruchirapalli/ VOTR	Hourly+half hourly during HO	METAR/SPECI	HO
62. Tirupathi VOTP	Hourly+half hourly during HS	METAR/SPECI	HJ
63. Thiruvananthapuram/VOTV	Hourly+half hourly during H24	METAR/SPECI/TREND	H24
64. Tuticorin /VOTK	Hourly+half hourly during HS	METAR/SPECI	HJ
65. Udaipur /VAUD	Hourly+half hourly during HO	METAR/SPECI	HJ

66. Vadodara/ VABO	Hourly+half hourly during HO	METAR/SPECI	HJ
67. Varanasi /VABN	Hourly+half hourly during HO	METAR/SPECI	H24
68. Vijaywada (Gannavaram)/ VOBZ	Hourly+half hourly during HS	METAR/SPECI	HO

→ Not owned by AAI

Notes

1. Observations are recorded at:

- i) Ahmedabad, Mumbai, Hyderabad, Chennai, Nagpur, Tiruchirapalli and Thiruvananthapuram at HH + 40 min. and HH + 10 min.
- ii) Kolkata, Patna, Bangalore, Kochi and Kozhikode at HH + 50 min. and HH + 20 min.
- iii) Delhi, Lucknow, Amritsar, Varanasi and Jaipur at HH+30 min. and HH+00
- iv) At all other stations: HH + 00 min, HH + 30 min

2. SPECIs and ADDITIONAL REPORTs are prepared whenever warranted, throughout the hours of watch.

ABBREVIATION AND LEGEND

- H24: Continuous day & night service.
- HO: Service available to meet operational requirement including extended watch during night and early hours.
- HJ: Observations from Sunrise to Sunset.
- HS: Service available during hours of scheduled operations
- A/R: As and when required.