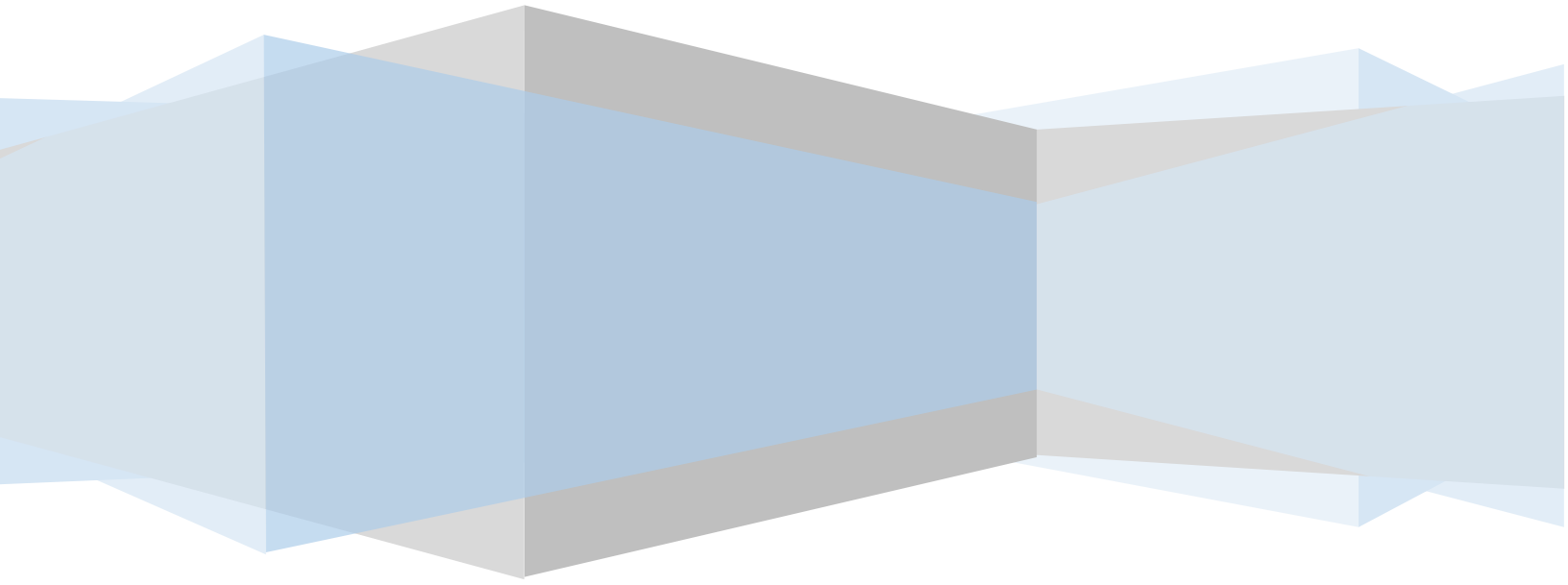
ANNUAL REPORT

ATFM OPERATIONS

(Jan 2018 to Dec 2018)

CENTRAL COMMAND CENTER, C-ATFM, DELHI



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Executive Summary

Airports Authority of India has implemented Central Air Traffic Flow Management (CATFM) in India on 27th April'17 vide AIP supplement 25/2017 wherein six (6) major airports i.e. Delhi, Mumbai, Chennai, Kolkata, Bengaluru and Hyderabad are consistently monitored for any demand capacity imbalance. In case of any imbalance, ATFM measures like Ground Stop or Ground Delay programs are implemented to regulate traffic to the constrained Airport.

The C-ATFM implementation process broadly consists of three phases

The focus in Phase I operations is towards airport demand-capacity analysis and applying ATFM measures such as GDP/GSP. In Phase-I, only Domestic arrivals to constrained Airports are regulated and the departures from the constrained Airport are regulated through the Airport CDM.
In Phase II operations, the C-ATFM system will develop procedures for handling airspace capacity issues. ATFM measures such as Route balancing, Fix balancing, Sector balancing, Miles-in-Trail, Minutes-in-Trail will be available for application as needed.
The C-ATFM system and ACDM systems integration operational trials are in progress. It is planned to gradually bring the various ACDM airports into the C-ATFM network over the next year.
Phase III implementation involves cross border application of ATFM measures and integration with Regional ATFM systems.

In its present phase-I implementation, the C-ATFM system network architecture consists of a Central Command Center (CCC), supported by 36 (thirty six) Flow Management Positions (FMP), located at 6 major Area Control Centers (ACC) and 30 (thirty) other major airports, which includes 8 (eight) Defence airports also.

During the Year 2018, 351 (Three Hundred Fifty one) times ATFM measures were applied for Delhi; 203(Two Hundred Three) number of times ATFM measures were applied for Mumbai and 54(Fifty Four) times for Bengaluru. CCC had applied measures to address imbalances occurring due to various reasons like airspace closure, non-availability of airport infra-structures (Runway), NAV-AIDs (ILS etc.) & inherent imbalance in flight scheduling etc. Flow measures were initiated for Delhi primarily to regulate imbalance created due to inefficient scheduling during peak hours. However, in Mumbai and Bengaluru the main reason for initiating ATFM measures was to address Demand Capacity Imbalance arising due to runway closure.

Major achievements and activities of CCC during the year 2018 are highlighted below:

In an endeavor to increase ATFM operational awareness, CCC has conducted several training programs in 2018, for all the stakeholders i.e. ANSPs, Airline operators, Airport operators & Defence officers. A total of 694 ATCOs, 30 Airline personnel, 22 AOCC personnel & 197 Defence officers were trained in the last two years.

Some best practices of the industry like *"Stand-Up briefing twice a day in CCC"*, *"continuous monitoring of applied CDM (w.r.t. compliance rate, CDM prediction accuracy & traffic flow)"*, "*recording of hourly Demand of three major ACC airports"* and *"preparation of CDM worksheet"* have been adopted in CCC. A pre-programed EXCEL tool 'Manual Slot Allocator' developed in-house by CCC officers, was also introduced for manually allocating revised CTOTs.

The accuracy and currency of 'Flight details' & 'Air Space data' in SKYFLOW has improved with active coordination with stakeholders. Constant efforts are being made to fine tune the ATFM Operational procedures by plugging the loopholes brought to the knowledge of CCC through regular feedback from stakeholders. CCC also carried out the exercise on collection & analysis of data on "Early departure / Arrival to 3 constrained airports (Delhi, Mumbai & Bengaluru)".The outcome of the analysis was presented to MoCA.

CCC officers were actively involved in ICAO Regional working Group / Task force, Slot Allocation meeting (Winter 2018-19). ATFM Dte. also hosted ATFM SG/8 meeting at Delhi in May 2018. ATFM officers from CCC also visited ATSCC, FAA in USA and also participated in various ATFM conferences, meetings & training programs.

ATFM documents like 'Operations Hand book'; SOPs for Operational Supervisor, Air Space Management (APM), Flight Plan Management (FPM), Traffic Flow Management (TFM), Collaborative Decision Making (CDM) & Operability management (OPM) were reviewed and amended by CCC officers prior to the ICVM audit. CCC hosted USOAP auditors and other delegations from Indian Statistical Institute, DGCA official of GCAA, UAE, IAF technical officers from MIT, Pune; officials from IIIT-Hyderabad; Honeywell engineers & ADB-SAFE GATE officials. All visiting dignitaries were appreciative of India's initiative in the field of ATFM.

ATFM SKYFLOW system software was upgraded to include Phase 2 functionalities. ATFM web portal is also being developed. CCC officers were trained on these new functionalities. Presently, testing of these phase 2 features in operational environment and web portal is in progress.

ATFM in Indian Scenario, faces many challenging tasks ahead. Some of the important Operational challenges for improvement in ATFM performance output are: -

- approval of *"Common Business Rule (CBR)"* and *Signing of "Letter of Agreement (LoA)"* with the stakeholders for proactive participation/continuous sharing of data & information;
- Incorporating ATFM requirements like *"filing of FPLs at least 6 hour in advance and timely initiation of CHG/DLA/CNL through AFTN messages"* in AIP, for better accuracy & currency of flight data;
- also to encourage participation & to meet high expectations of stakeholder *"preference to CTOT complied flights over CTOT non-complied flights in tactical ATC operational environment"* and
- *'Promulgation of new ATFM rules/regulations'* etc. to address current ATFM performance problem.

Some immediate technical challenges are: –

- *"customization of SKYFLOW as per Indian aviation scenario"* (by addressing RFCs)
- "*concept/design/implementation of IFPS"*;
- *"24X7 technical support for SKYFLOW"*;
- *"ATFM-ACDM integration*" and
- *"Translocation of CCC from present to new location*" in phased manner.

Finally, New C-ATFM building is ready at Vasant Kunj. The translocation & operationalization of CCC at new location, without any disruption to ongoing operations, with present manpower constraints and ensuring the availability of all required logistics at new location before shifting, are immediate administrative challenges.

Annual ATFM Operations Report (Jan 2018 – Dec 2018)

Introduction

Airports Authority of India (AAI), in accordance with ICAO guidelines has implemented Central Air Traffic Flow Management (CATFM). The C-ATFM system network architecture consists of a Central Command Center (CCC), supported by 36 (thirty six) Flow Management Positions (FMP), located at 6 major Area Control Centers (ACC) and 30 (thirty) other major airports, which includes 8 (eight) Defence airports also.

C-ATFM in India is being implemented in phased manner, broadly in three phases. ATFM phase-I regular operation commenced from 27th April, 2017 vide AIP supplement 25/2017. During phase-I operation the Demand-Capacity scenario of six (6) major ACCs airports i.e. Delhi, Mumbai, Chennai, Kolkata, Bengaluru and Hyderabad, is regulated by applying appropriate ATFM measures available in phase I i.e. Ground Delay & Airport Stop programs. Presently, ATFM measures are applied only to Domestic arrivals to constrained Airports.

Traffic Scenario

The Monthly average traffic trend for three busiest Airports in India for year 2018 is as presented below:

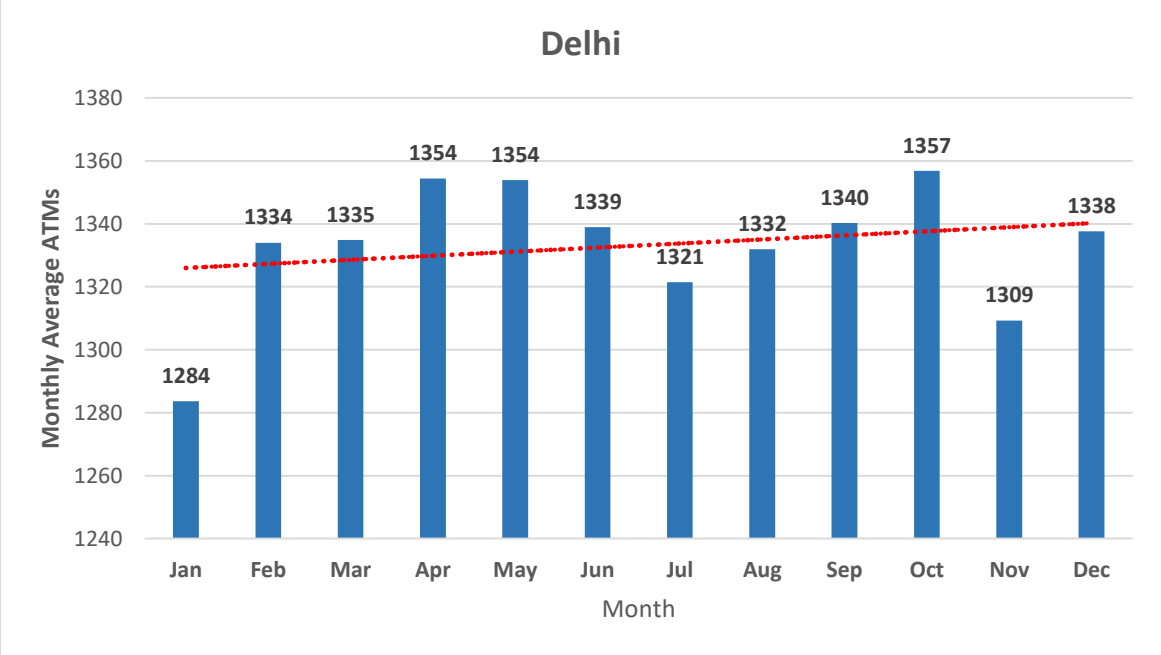

Figure 1-Traffic Trend –Delhi

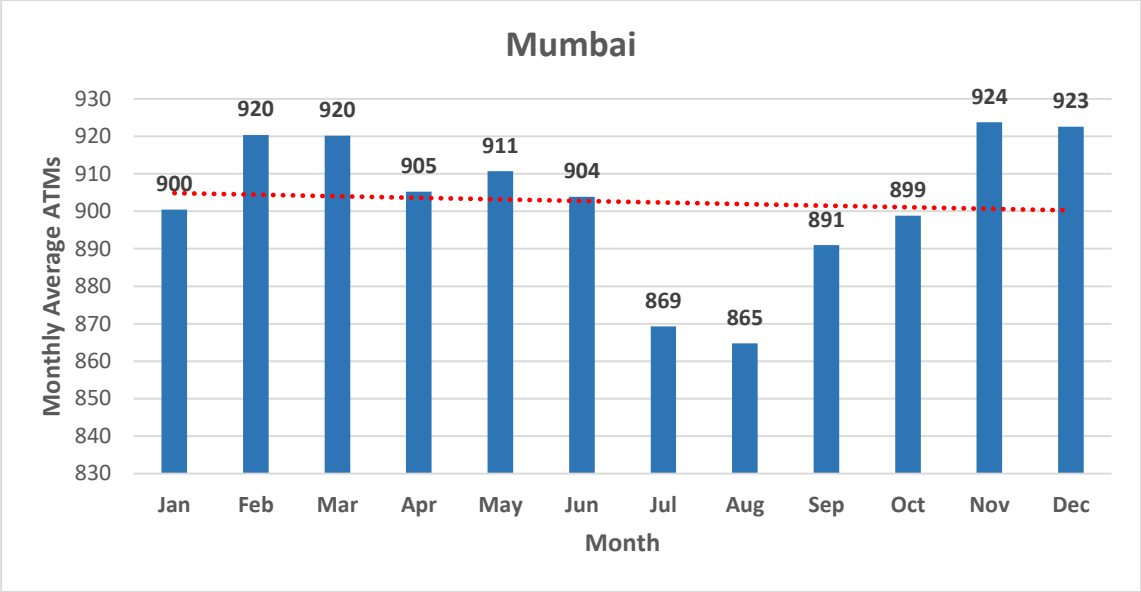

Figure 2-Traffic trend-Mumbai

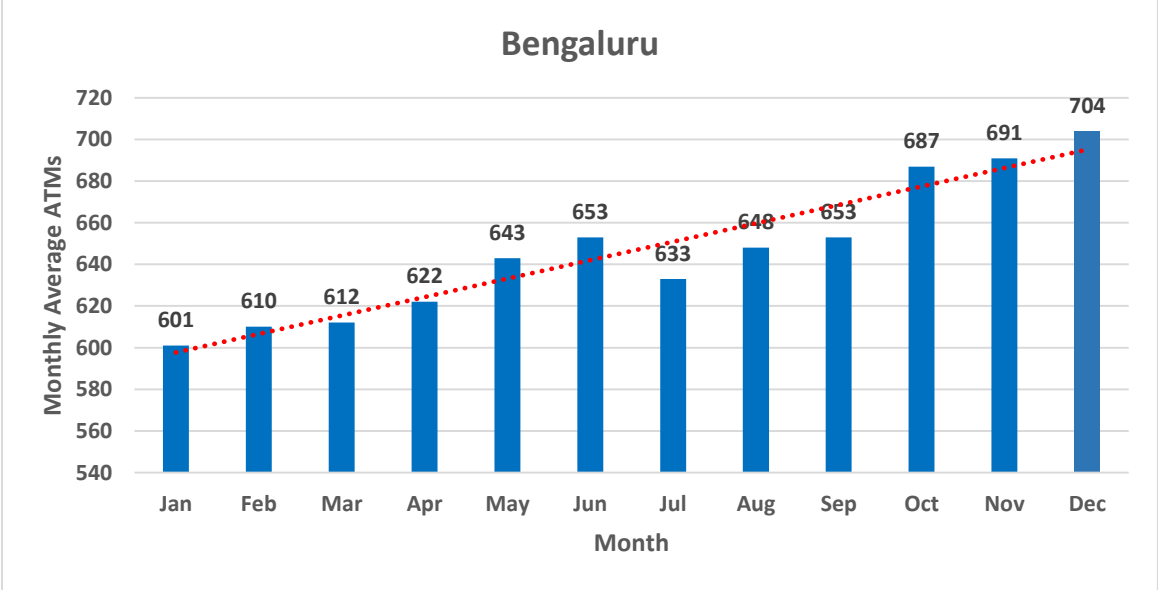

Figure 3-Traffic Trend-Bengaluru

Delhi Airport recorded a maximum of 42061 total movements in the Month of October whereas Mumbai recorded the maximum ATM of 28600 and in the month of December 2018. Bengaluru Airport recorded a highest average ATM of 704 in the month of December'18.

NOTE: *Air Traffic Movement (ATM) = Arrivals + Departures*

ATFM Measures:

During the Year 2018, 351 (Three Hundred Fifty one) times ATFM measures were applied for Delhi; 203(Two Hundred Three) number of times ATFM measures were applied for Mumbai and 54(Fifty Four) times for Bengaluru. It has been observed that usually the ATFM measures were initiated to resolve imbalance created by inherent scheduling problem followed by imbalance generated by planned runway closures.

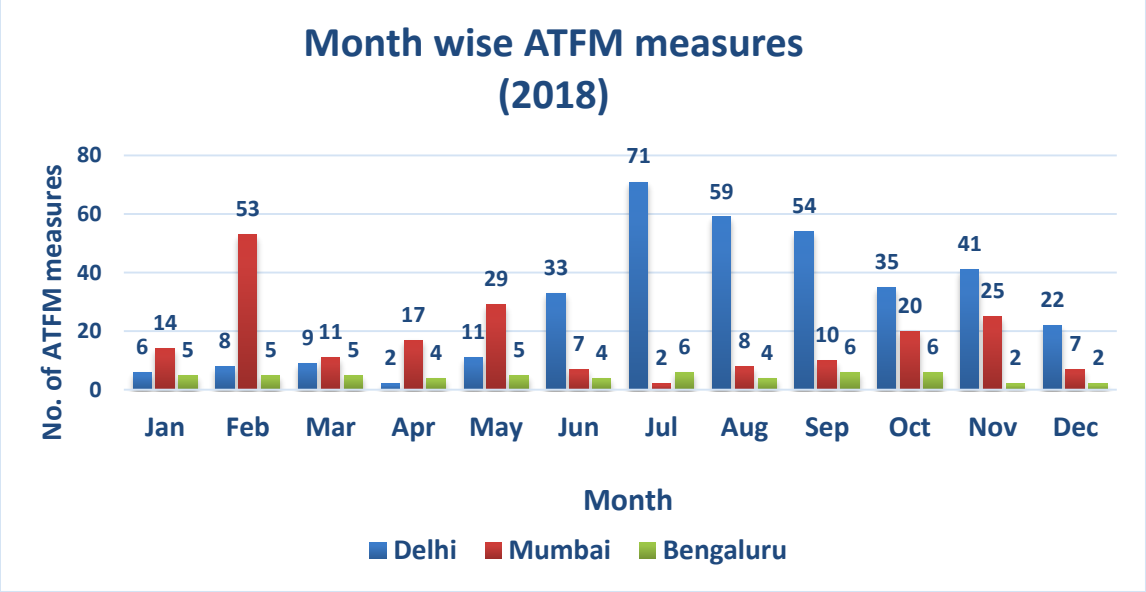

Figure 4-Month-wise ATFM measures

Analysis Period 1st Jan 2018 – 31st Dec 2018

Data source SKYFLOW, Delhi Automation system, Airport CDM data Mumbai and Bengaluru, Mumbai Automation system & feedback from stakeholders.

Data from SKYFLOW system and FMPs has been used for analysis. Where required, Delhi and Mumbai Automation System data and Bengaluru AOCC/ACDM data has been used to augment the available data. Flights with complete data i.e. ATOT(actual take off time), ATA(actual time of arrival), etc. are only taken into consideration. Out of the total domestic arrivals for which CTOTs(calculated take off time) were issued, 92.2% data has been considered for Compliance measurement. Rest 7.8% data include domestic arrivals that did not operate and flights with incomplete required information.

ATFM Parameters

1. ATFM Program Impact

-***ATFM Scenario***

(An overview of traffic scenario within CDM scenarios, representing the ratio of International traffic & domestic traffic to the constrained Airport.)

- ***Affected Flight statistics***

[An insight of participating traffic in the scenario i.e. pie chart of the domestic arrivals to constrained airport affected by ATFM measures (given delay by the Airport Delay Program) and that of domestic arrivals not affected by ATFM measures (not given any delay) within the CDM scenario.]

2. ATFM Ground delay

(ATFM ground delay defined as CTOT-ETOT)
i.e. Calculated take off time- Estimated take off time

- ***Total ATFM delay distribution***

(Value in minutes representing total ATFM delay)

- ***Total flights affected***

(Flight count in numerical value)

- ***Average ATFM delay***

(Total ATFM delay for twelve months / total number of domestic flights)

- ***Maximum ATFM delay***

(Maximum ATFM ground delay assigned by the system in the last twelve months)

- ***ATFM delay distribution in the band***

(No delay, 0-5, 6-10; 11-15; 16-20; >20 minutes)

(An overview of ground delay distribution in the different time bands)

3. ATFM Compliance Measurement

- ***Overall compliance rate***

(Defined as monthly ATFM departure slot adherence rate of regulated flights. Flights having ATOT within the ATFM Slot Tolerance Window (STW) of CTOT i.e. -5 to +10 minutes of CTOTs, are considered as compliant flights)

- ***ATFM departure slot adherence distribution***
  (An overview of regulated flight departures inside an ATFM slot tolerance window [ASTW], before ASTW & after ASTW)

- ***CTOT Adherence rate of Airline operators***
  (An overview of CTOT compliance rate of various Airline operators)

- ***CTOT Adherence rate of Regions***
  (An overview of CTOT compliance rate of 4 FIRs)

- ***CTOT Adherence rate of Airports within different Regions***
  (An overview of CTOT compliance rate of Airports within 4 FIRs)

4. Air delay statistics

{Air delay defined as difference between Actual elapsed time (AET) & estimated elapsed time(EET), where EET can be obtained from FPL or (CLDT-CTOT) and AET can be obtained from (ALDT-ATOT)}

- ***Distribution of (AET-EET) w.r.t. Compliant & non-compliant flights***
  (<=-30; -29 to -20; -19 to -10; -9 to -1; 0-10; 11-20; 21-30 & >31minutes)
  (An overview of Air delay distribution in the different time bands

- ***Cumulative distribution of difference (AET-EET)***

1. ATFM Program Impact

Data in this section helps to assess the impact of ATFM measure on overall flight operations in ATFM scenario & the extent of flights involved. Analysis provides:

- Picture of overall traffic mixture in the ATFM scenarios for **twelve months** and the percentage of participating flights to constrained airport.
- Percentage of participating flights given ATFM delay & its impact on overall flights in ATFM scenario.

1.1 ATFM Scenario

Total Flights	**77204**
International arrivals	7720
International departures	6628
Domestic arrivals	33552
Domestic departures	29304

Table-1

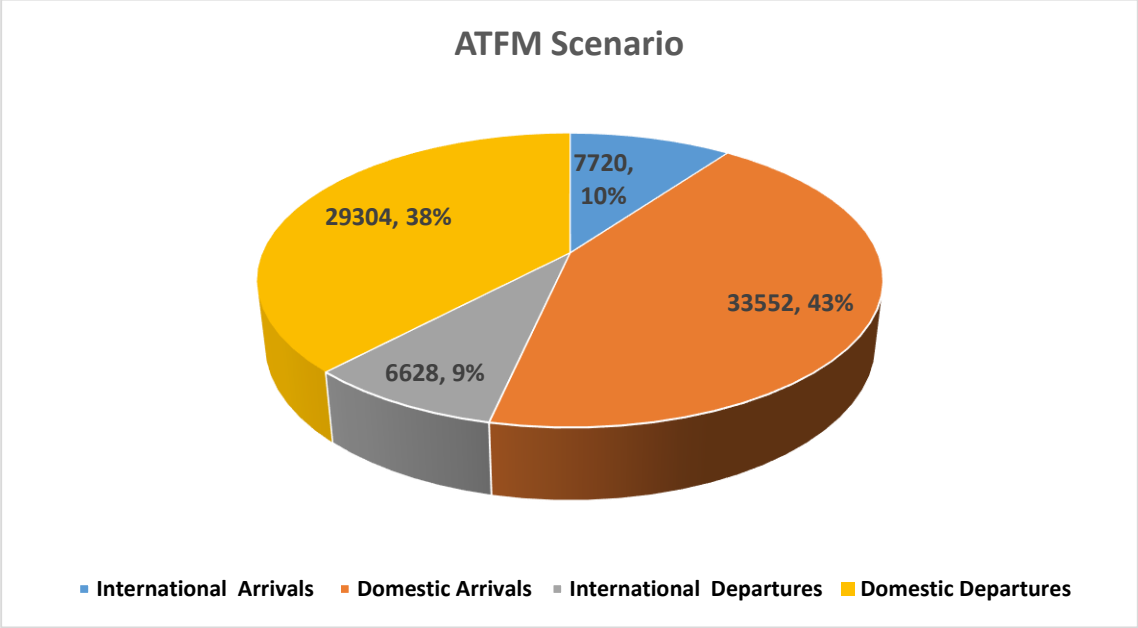

Figure 5 - ATFM Scenario

Within the CDM Scenario ,domestic departures from the constrained Airport are regulated through Airport CDM. International Arrivals and Departures are exempted from ATFM measures. Only Domestic Arrivals to the constrained airport are participating.

1.2 Affected Flight Statistics

Total affected flights in scenario (Domestic Arrivals to constrained Airport)	33552
Total Domestic Arrivals with ATFM delay	29671
Total Domestic Arrivals with zero ATFM delay	3881

Table-2

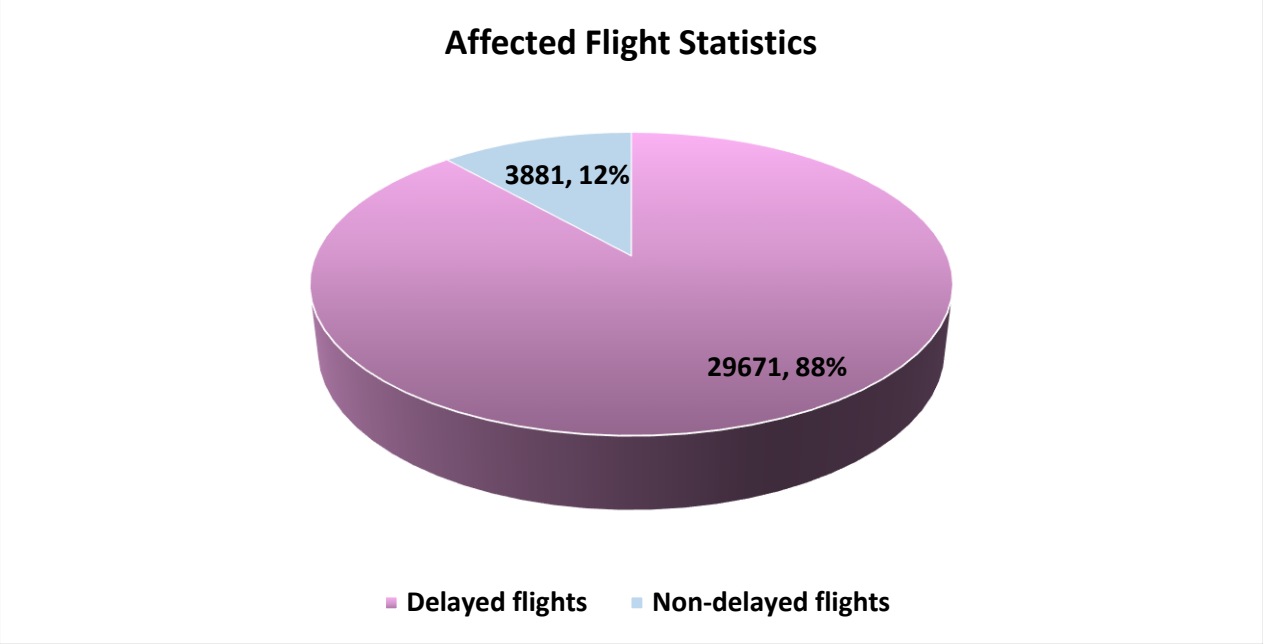

Figure 6 - Affected Flight Statistics

1.3 Inference

1. Out of the total arrivals captured to the constrained Airport during the CDM scenario (table-1), only 81.3% of flights i.e. Domestic arrivals are participating.

2. Out of these Domestic Arrivals, 88% of flights were assigned ATFM ground delay & 12% of flights were not assigned any ATFM delay (Figure-6).

3. Out of the total arrivals in ATFM scenario, only 71.9% of flights (domestic Arrivals with ATFM delay) are affected by ATFM measures.

2. ATFM Ground Delay

Data analysis of this section provides insight into the impact of ATFM measure i.e. Ground delay. The study of delay distribution will provide seriousness of the capacity constraint.

2.1 ATFM Delay statistics

Total affected flights in scenario (Domestic Arrivals)	33552
Total ATFM Delay (CTOT-ETOT)	489529 minutes (8158hrs:49mins)
Average ATFM Delay for affected flights	15 minutes
Maximum ATFM Delay	114 minutes

Table-3

Note:

$$*Average\ ATFM\ Delay = \frac{Total\ ATFM\ Delay}{Total\ Domestic\ Arrivals}$$

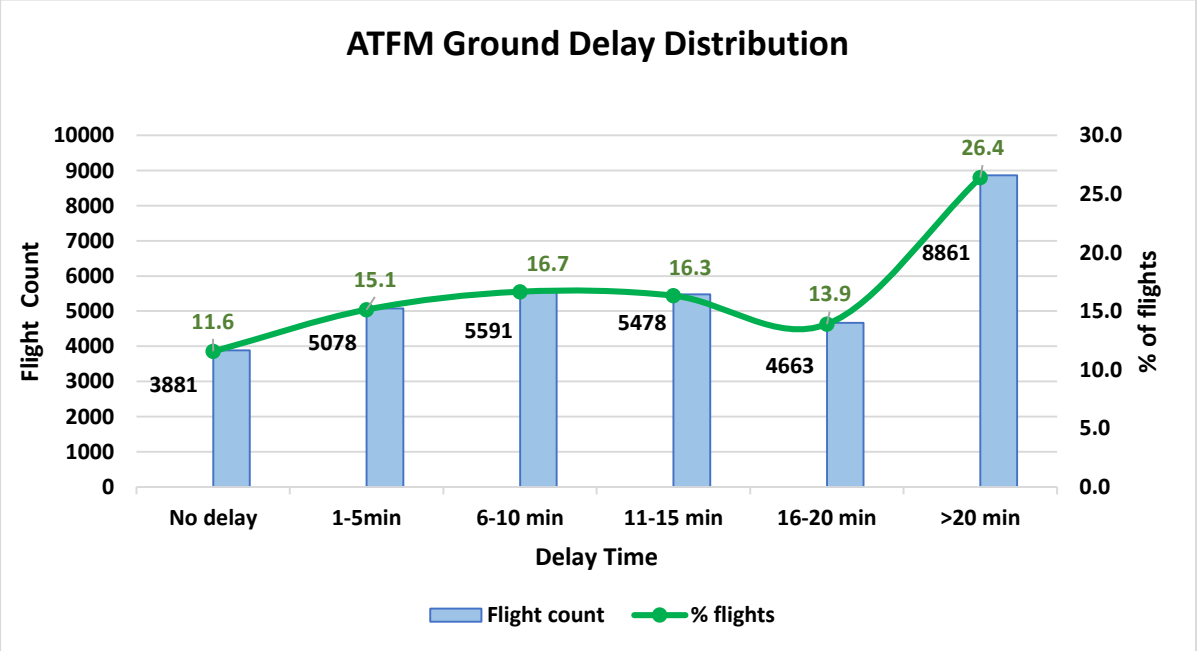

Figure 7 - ATFM Ground Delay Distribution

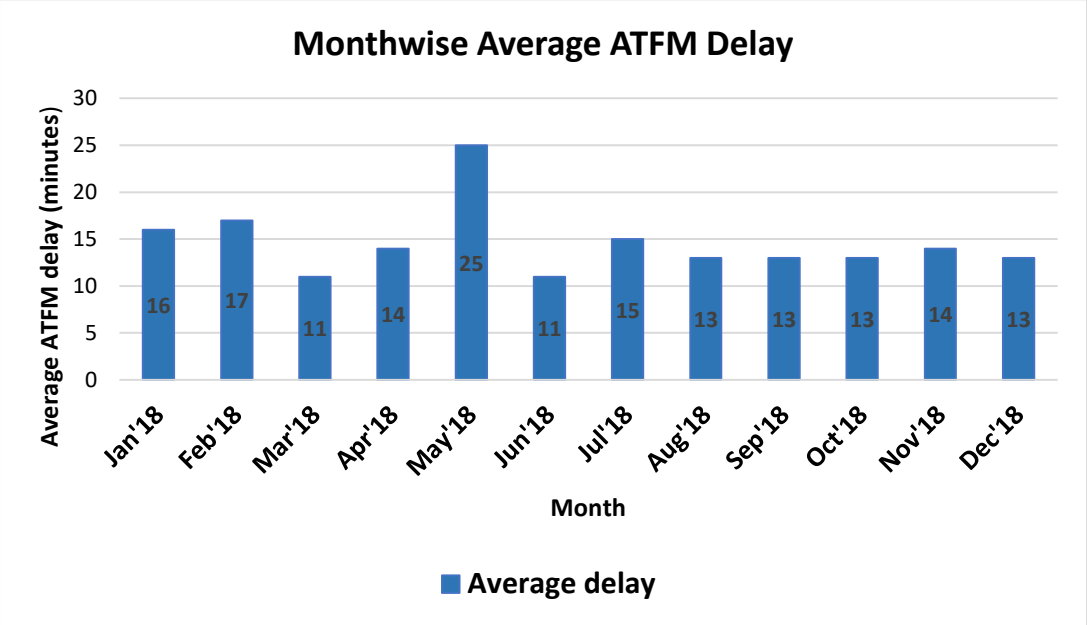

Figure 8 – Month wise Average ATFM Delay

2.2 Inference

1. Among the total affected flights, 11.6% of flights, were not given any ATFM delay.(Figure-7)
2. Among the total affected flights, 31.8% of flights, were given ATFM delay up to 10 minutes.
3. Among the total affected flights, 30.2% of flights were given ATFM delay in the range of 11 to 20 minutes.
4. Among the total affected flights, 26.4% of flights were given ATFM delay of more than 20 minutes.
5. Average ATFM delay is highest in Month of May when ground Stop measures were applied to resolve imbalance and congestion due to bad weather in Delhi.(Figure-8)

3. ATFM Compliance Measurement

Data in this section helps to assess the actual situation achieved at the constrained airport.

Analysis provides:

- Overall picture of flights operating within compliance window.
- Overview of regulated flight departures within ATFM slot tolerance window (ASTW), before ASTW & after ASTW
- Compliance rate Airline Operator wise , Region wise, Station wise within different Regions and Reasons for Non-Compliance

3.1 Overall Compliance

Total Flights (Domestic arrivals)	33552
Flights with complete data (ATOT)	30927
Flights with incomplete data/ Flights Not Operated	2625
Compliant	22950
Non-Compliant	7977

Table-4

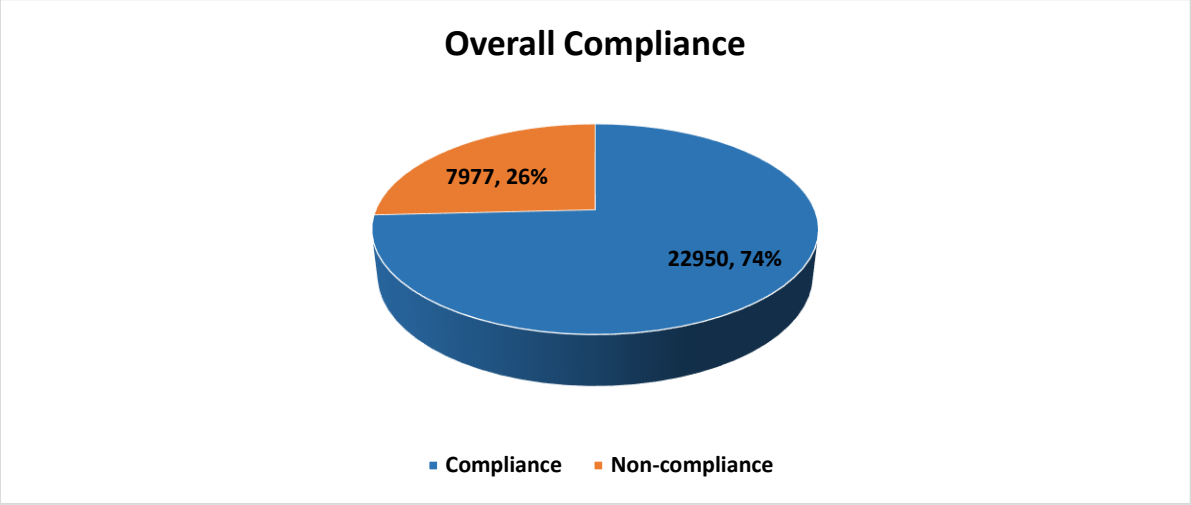

Figure 9 - Overall Compliance

NOTE: Flights with required data (i.e. ATOT) are only considered for compliance measurement

3.2 ATFM Slot Adherence distribution

ATFM Slot tolerance window (ASTW) is -5 to + 10 minutes of CTOT. The aircraft departing within this window shall be considered adhering to ATFM slots i.e. compliant flights.

Flight departing before 5 minutes & after 10 minutes of CTOT shall be considered out of ATFM slot tolerance window & accordingly termed as Non-Compliant i.e. before / after ASTW departures respectively.

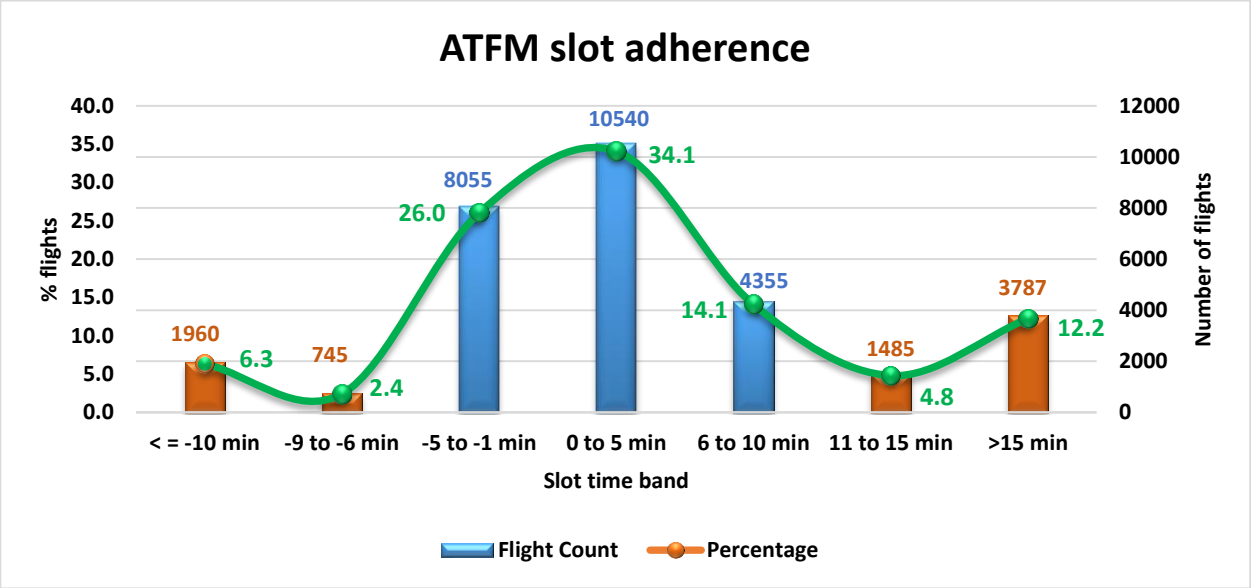

Figure 10 - ATFM Slot Adherence

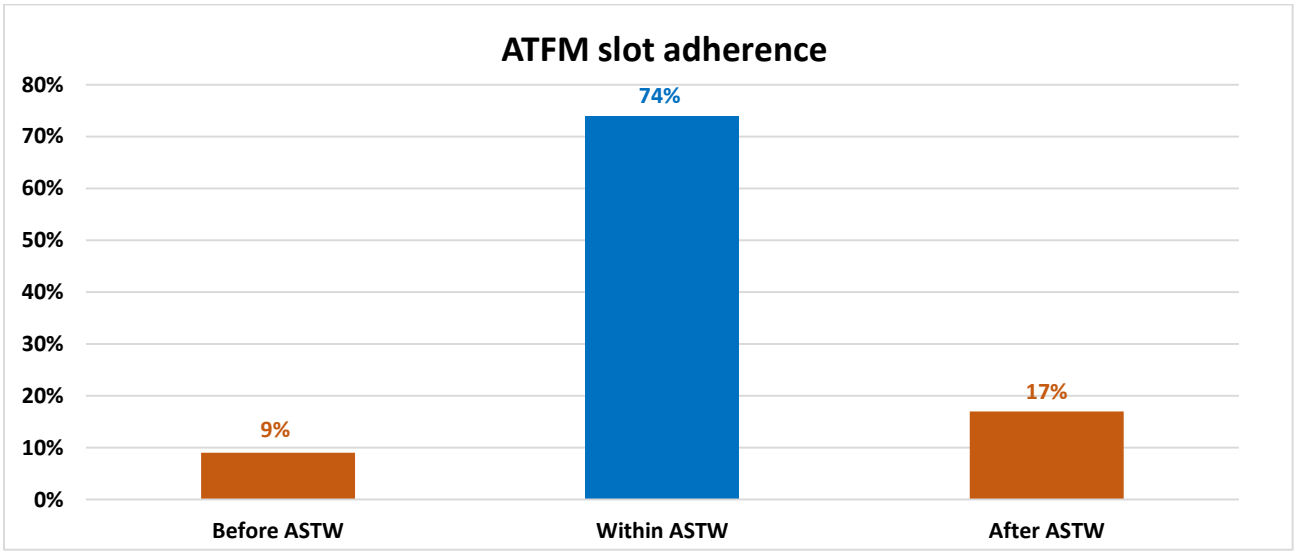

Figure 11 - ATFM Slot Adherence

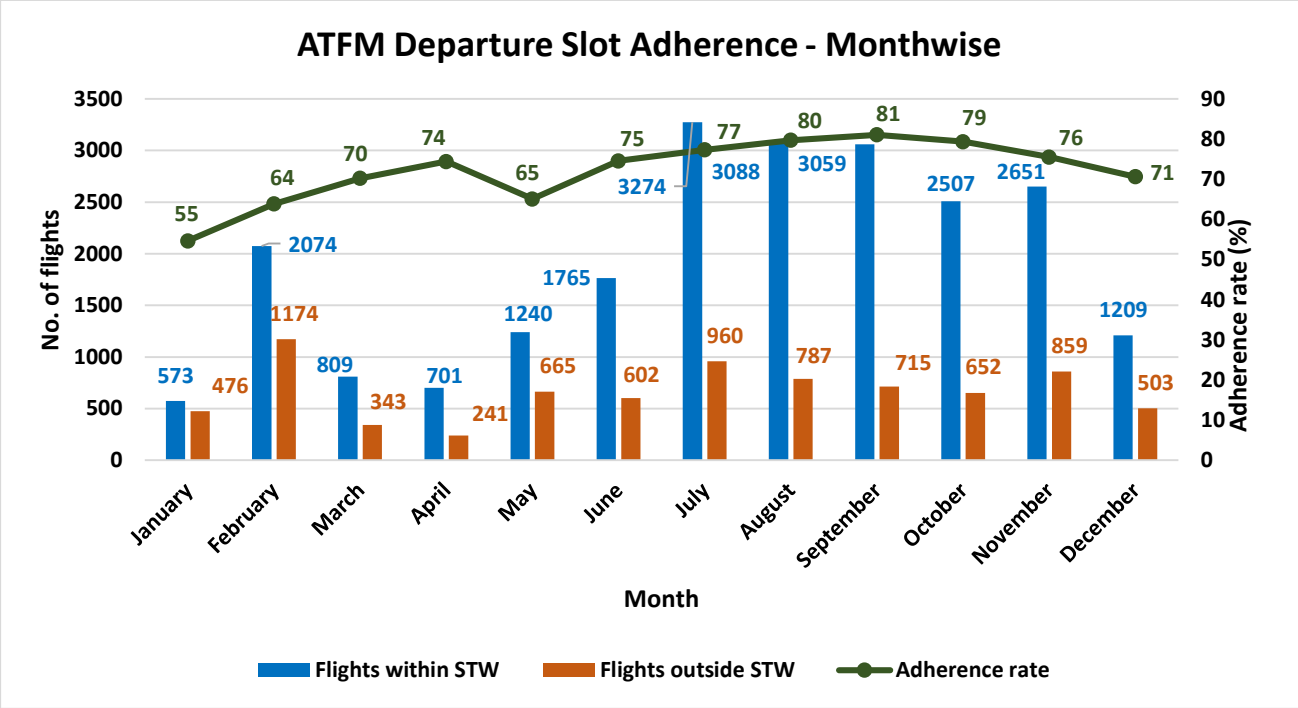

Figure 12 - ATFM Departure Slot Adherence – Month wise

3.3 CTOT Adherence rate of Airline Operators

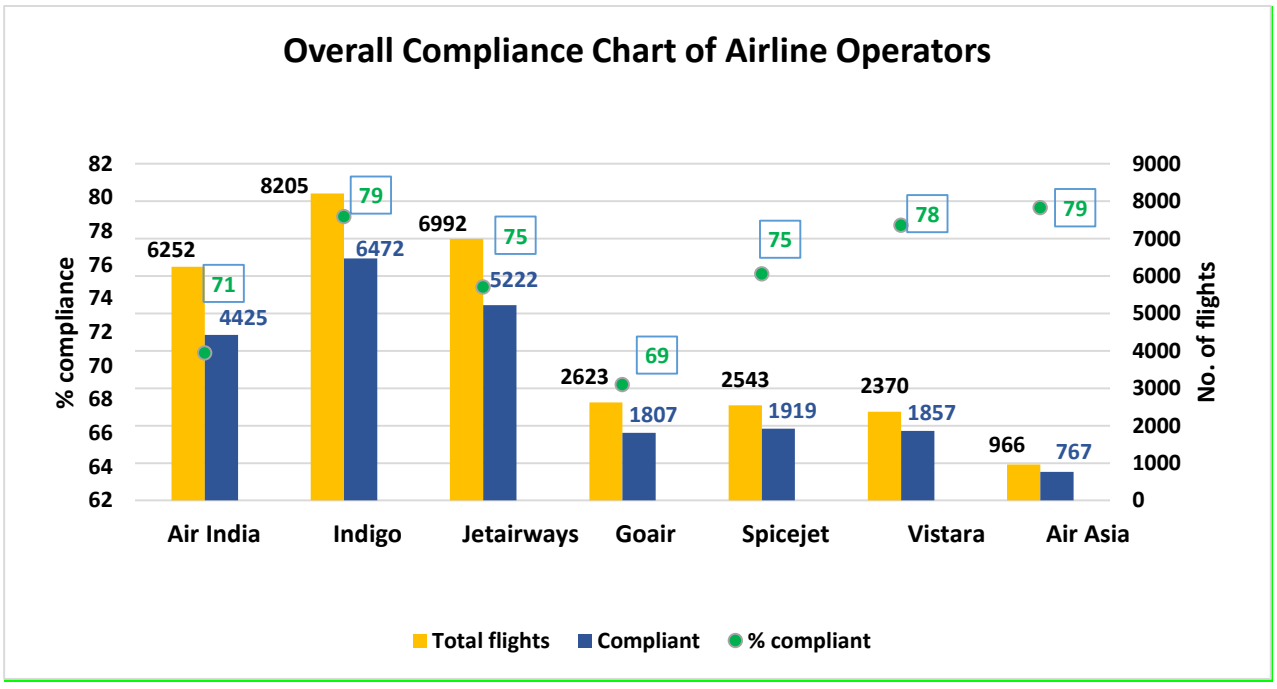

Figure 13 - Overall Compliance Chart of Airline Operators

3.4 CTOT Adherence rate by FMPs (Region wise)

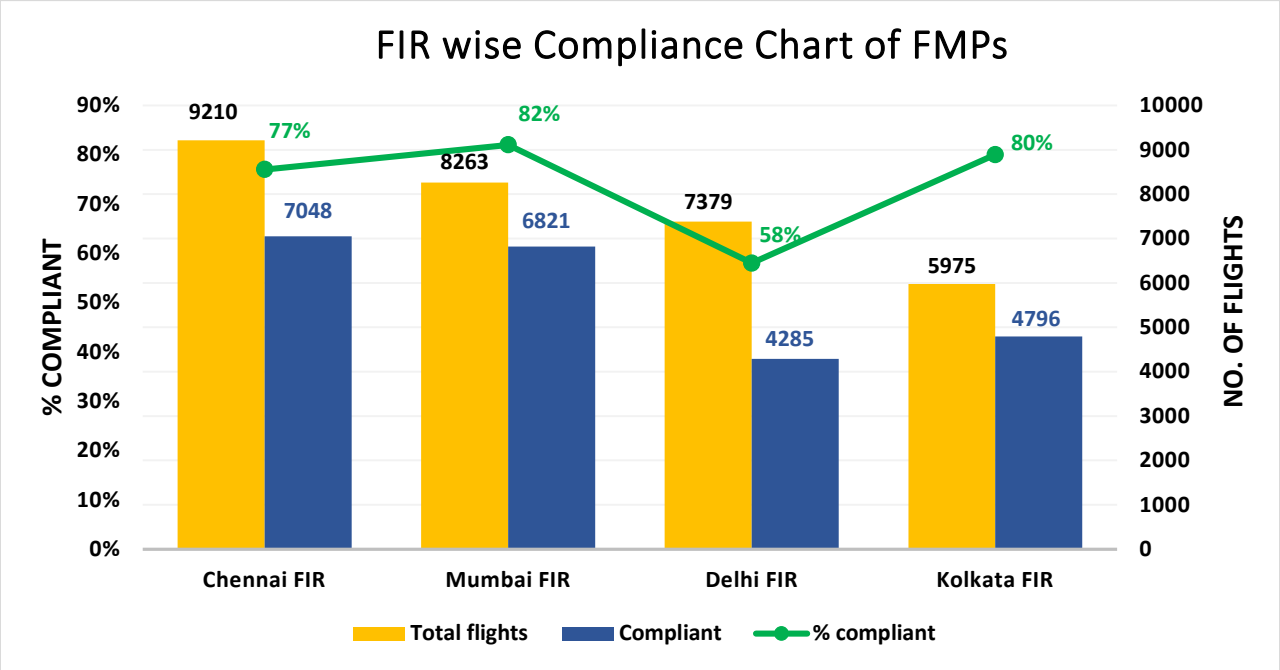

Figure 14 - FIR wise Compliance Chart of FMPs

3.5 CTOT Adherence rate - Airport wise

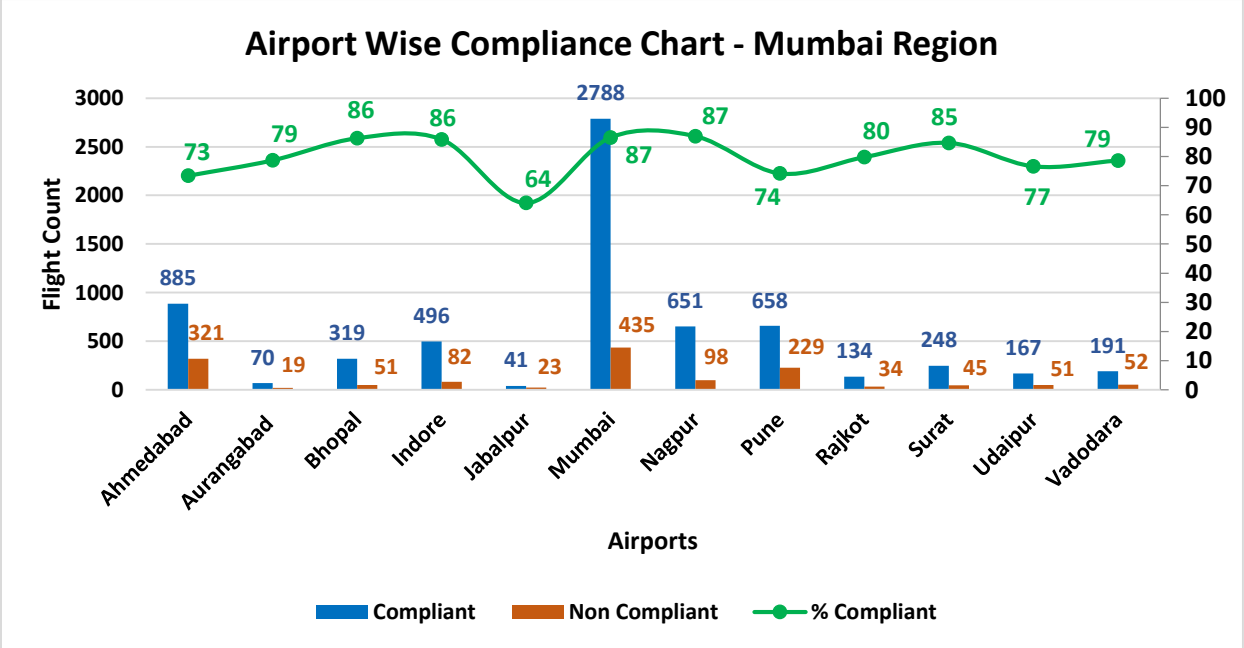

Figure 15- Airport Wise Compliance Chart - Mumbai Region

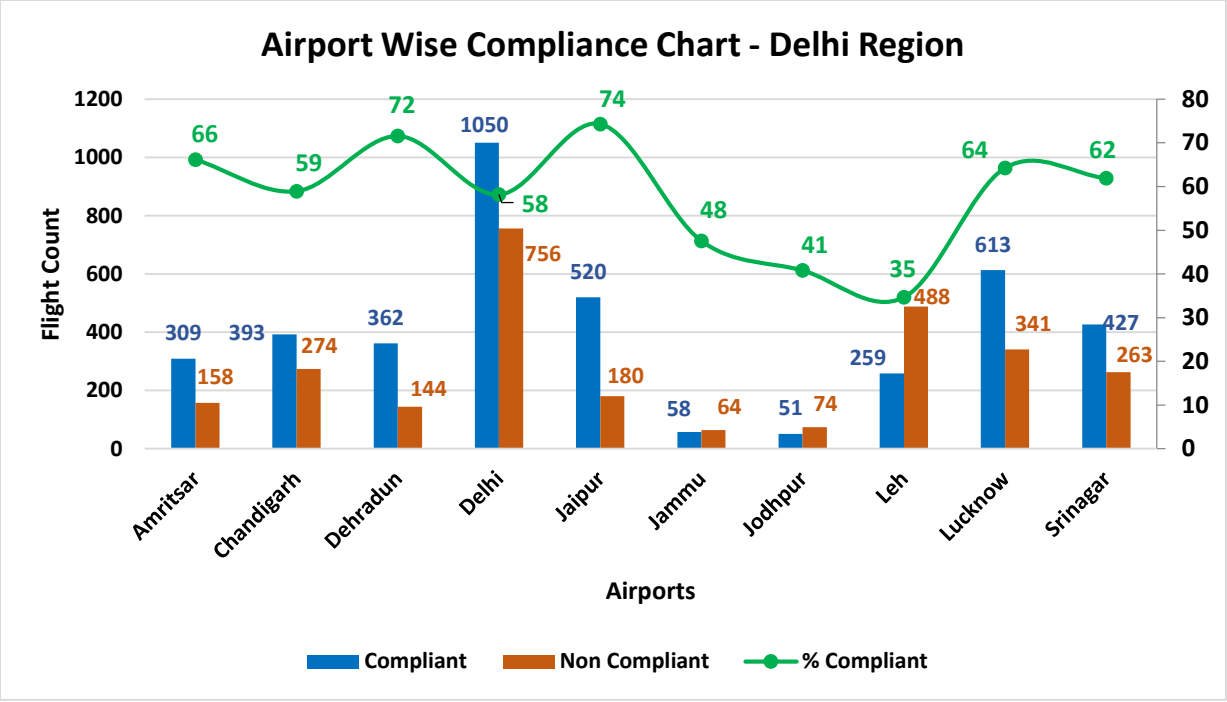

Figure 16 - Airport Wise Compliance Chart - Delhi Region

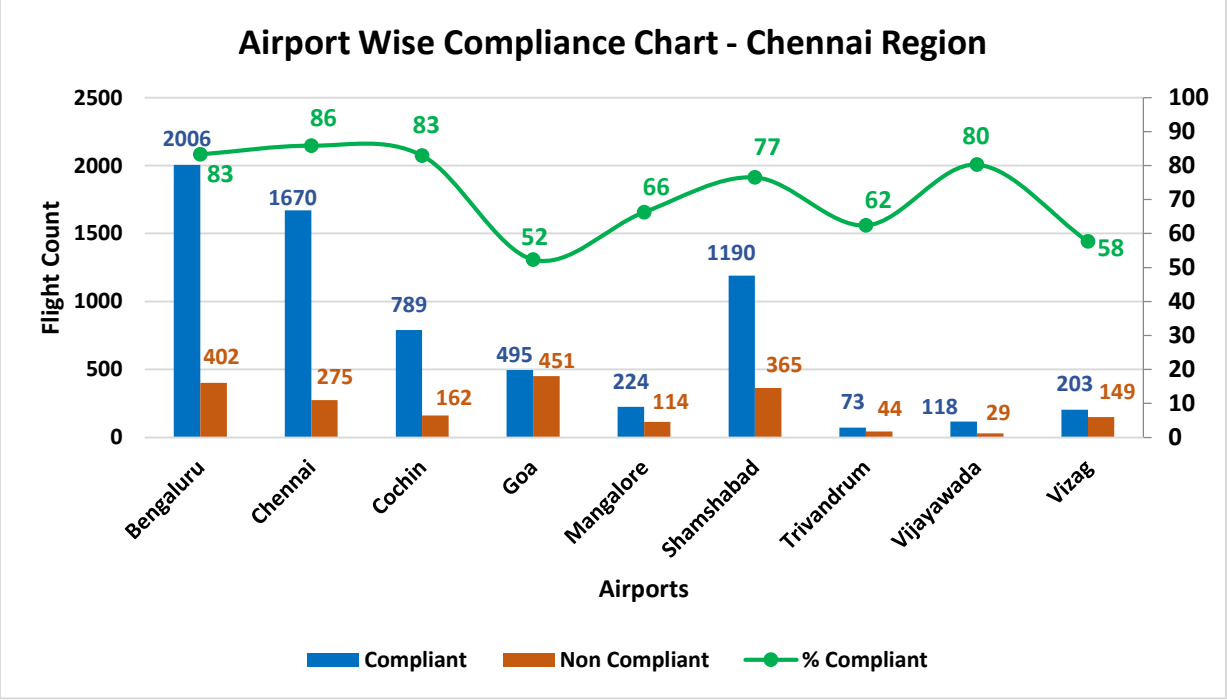

Figure 17 - Airport Wise Compliance Chart - Chennai Region

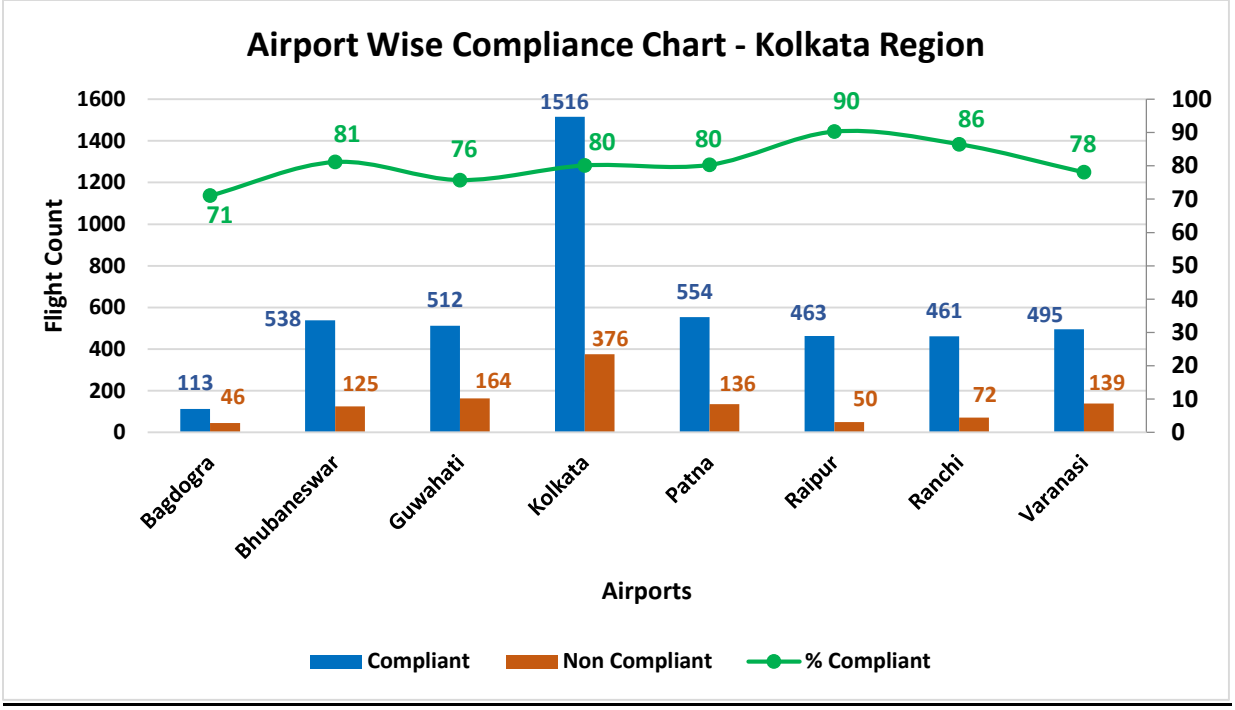

Figure 18 - Airport Wise Compliance Chart - Kolkata Region

3.7 Inference

1. Out of the total domestic arrivals with complete data in ATFM scenario, 74% flights are compliant. (Figure-9)
2. Indigo, Spice jet, Vistara , Jet Airways and Air Asia airlines have a compliance rate of more than average recorded 74% compliance. (Figure13)
3. Within the Indian FIRs, Mumbai region is having highest compliance rate of 82% whereas Delhi region is the lowest with compliance rate of 58%. (Figure-14)

4. Air Delay

Air delay can be computed by comparing flights' **Actual Elapse Time (AET)** against **Estimated Elapse Time (EET)**. EET can be obtained from flight plans or by calculating (CLDT – CTOT), whereas AET can be obtained from the difference between actual landing time (ALDT) and actual take-off time (AET = ALDT – ATOT).

Therefore, Air delay = AET-EET

This data provides effectiveness of ATFM program in facilitating traffic flow into the constrained airport (without excessive delay)

In most months of the report, EET was obtained by calculating CLDT-CTOT (SKYFLOW system), as it is cumbersome to extract EET from FPL of each flight. Since April 2018, EET is extracted from RPL/FPL.

Distribution of difference between AET & system EET

AET-EET min (time band)		<= -10	-9 to -6	-5 to -1	0 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	>30
Compliant	Flt. count	883	828	2426	6040	4015	2768	1990	1341	869	1706
	% flight	3.9	3.6	10.6	26.4	17.6	12.1	8.7	5.9	3.8	7.4
Non-compliant	Flt. count	533	312	710	1634	1112	897	712	538	386	1039
	% flight	6.8	4	9	20.8	14.1	11.4	9	6.8	4.9	13.2

Table-5

NOTE:

1. ATOTs have been taken from feedback received from FMPs.
2. ALDTs have been taken from Delhi automation data, Bengaluru AOCC and Mumbai Airport CDM

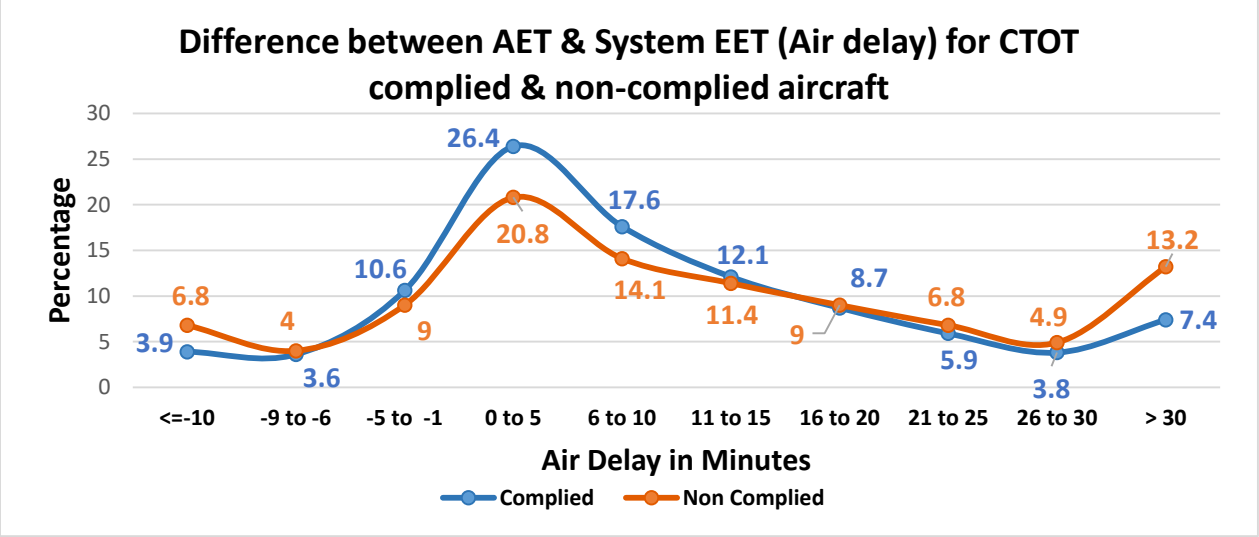

Figure 19 - Difference between AET & System EET (Air delay) for CTOT complied & non-complied aircraft

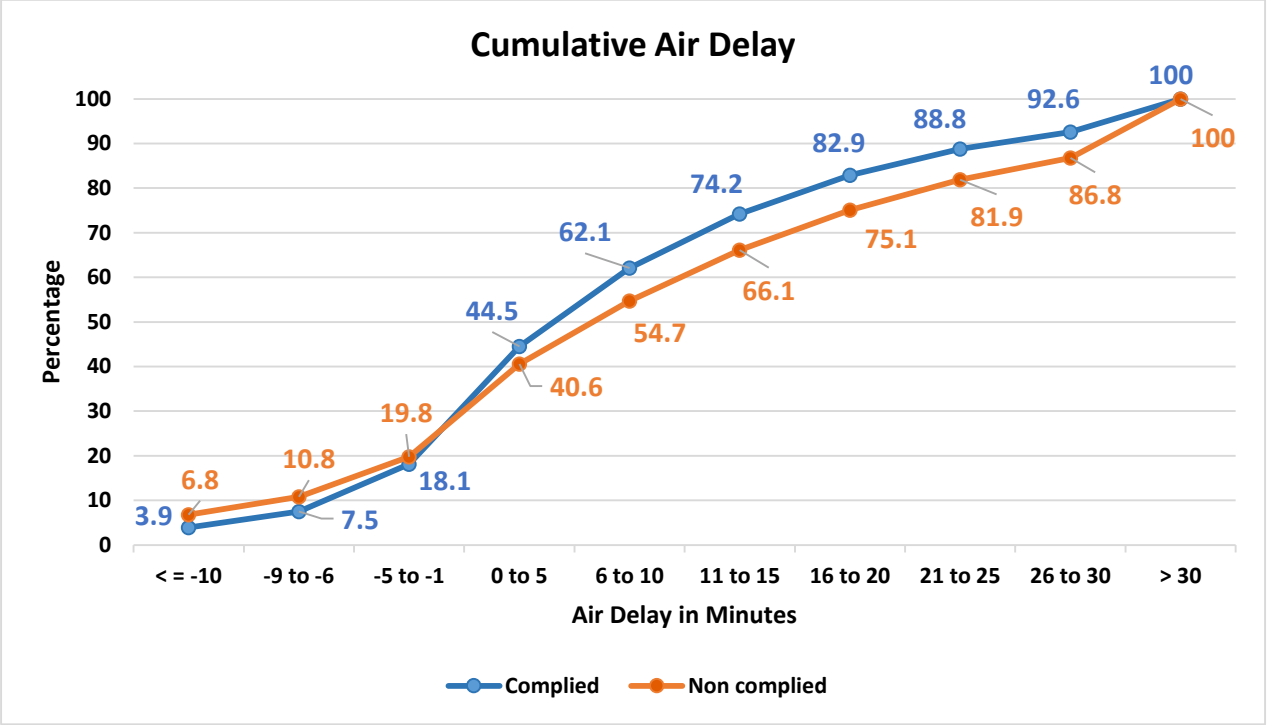

Figure 20 - Cumulative Air Delay

4.1 Inference

- 74.2% of compliant flights have AET, not more than 15 minutes, than system EET.(Figure-20)
- 66.1% of non-compliant flights have AET, not more than 15 minutes than system EET.
- 25.8% of compliant flights faced delay of more than 15 minutes.
- 33.9% of non-compliant flights faced delay more than 15 minutes.

5. Challenges

5.1 System related issues

1. "Watch Hours" of all the Airports is entered in the system. However, the system does not consider these watch hours while issuing CTOTs and issues CTOTs beyond the watch hours of the Airport.

2. "Partial Update" feature of updating the demand in tactical environment leads to large delays to a new FPL or any "CHG" message received for any FPL (irrespective of the change , e.g. an aircraft type, route, EOBT change etc. is likely to affect the profile of the aircraft, whereas a change in navigation capability, squawk change does not have any influence on the profile)

3. System creates different flight Profiles depending on filed FPL. For International flights the system reads the Estimated elapse time till our Indian FIR boundary for profile generation.
   Wrong profile is generated for flights entering Indian airspace via "ANSOS","IBITA" etc.
   All this reflects the flights at wrong timings as compared to their actual entry into the constrained Airport.

4. Departure and Arrival messages received through AFTN by ATS automation system are at times, rejected by the SKYFLOW system(due synchronization issue). In such cases, SKYFLOW system will not be able to update the flight plan information for the concerned flights. SKYFLOW is also capturing the wrong ATOT because of multiple departure messages received. (issue already raised to ATECH) .The surveillance system at bigger airports capture departures from the satellite stations after the flight has passed through a particular altitude. In absence of "DEP" messages from these stations, the system wrongly updates the ATOT as the time it is picked up by a surveillance unit.

5. In some instances, for the flights activated by "COR" the system is not populating the ATOT field though corresponding "DEP" messages have been received.

6. After using "APPLY" feature to a CDM scenario, Delay messages (DLA) are being sent by SKYFLOW system resulting in revision of EOBT of the delayed flight in ATS automation system .This is incorrect, as the initiation of a DLA message is the prerogative of the originator. The issue is already taken up with ATECH.

7. The system does not have any feature to put independently Airport Arrival rate (AAR) and Airport Departure rate (ADR) to regulate the demand against the practiced capacity.

8. System functionalities are limited to balancing demand against capacity of an individual Aerodrome**. In case of two constrained Airports with overlapping timings, the SKYFLOW system Algorithm may not be able to give an acceptable solution. (refer ATECH e-mail dated 28th April, 2017).**

9. Once the CDM is applied , the system does not update the CDM Scenario. Lack of dynamic update presents stale demand information through the CDM.

5.2 Operational Issues

1. The present means of communicating the application of ATFM measures is through instant messaging followed by an email addressed to all stations. This has proved to be an inefficient means of information broadcast as many stations are unaware of the measures till CTOTs are actually passed to them from the main FMP units.

2. The existing means of CTOT dissemination by FMPs to different ATS units and ATCs within their jurisdiction leads to delays in timely dissemination of CTOTs for ensuring compliance. The Airline operators are also falling short in their responsibility of sharing the CTOTs received with their Air crew.

3. FMPs installed at Defence and few satellite Airports have been trained on ATFM "SKYFLOW" but still have CTOT accessibility issues. Information sharing regarding commencement of ATFM measures and ADP is still an issue with these stations.

4. A lead in time of at least 3 hours is required for preparation of CDM, in order to disseminate CTOTs at least 2 hours prior to EOBT. Airports with flying time of more than 2 and half hours face the difficulty in dissemination of the CTOT information to Airlines in time for CTOT compliance. This leads to non-compliance of CTOT timings, as with passengers on board the flights, it becomes difficult for Airlines to comply with the CTOT restriction.

5. Airlines are preponing their EOBTs with ATC by filing a fresh FPL with revised EOBT. These FPLs do not enter the "SKYFLOW" system due to the presence of duplicate RPL in SKYFLOW with differing EOBT. Such flights take off for constrained Airport without a valid CTOT.

6. The RPLs and FPLs in SKLYFLOW get annulled after 120 minutes of their EOBT in absence of timely origination of "DLA" messages by airlines, This leads to display of wrong demand in the System. Any CDM prepared for post Fog or post disruption will reflect wrong demand until and unless the Airlines amend their flight intentions by generating appropriate AFTN message addressed to VIDPCTFM.

7. SKYFLOW system is not receiving DEP messages from all the domestic and international Airports. In such cases, the demand is not correctly reflected for a constrained Airport.

8. Tactical ATFM measures implemented by ATC of constrained Airport in addition to ATFM measures enforced is not communicated to CCC in time, leading to confusion and conflicting instructions for Airline operators. Tactical ATFM measures initiated by constrained Airport cannot be incorporated in the SKYFLOW system which causes wrong depiction of demand.

9. Requests for revised CTOT has increased but the airlines are still not updating their flight intent in SKYFLOW by originating an appropriate AFTN message addressed to VIDPCTFM. Genuine requests for revision of slot allocation are handled manually by CCC as there is no provision of revision of CTOT in SKYFLOW system after the use of " APPLY " feature. This leads to over delivery of flights to a constrained Airport during such hours. The slots vacated cannot be assigned to others through the system. This leads to under delivery during that period. SKYFLOW system does not have facility of dynamic CTOT allocations. (refer ATECH e-mail dated 28th July, 2017)

10. Due to lack of understanding at many Airports, flights following ATFM Ground delay for a constrained Airport are held on ground and made to depart within their CTOT tolerance window whereas flights which are actually planned to operate after the ATFM Scenario period to the same constrained Airport are not restricted at all.

11. Many operators mostly non-scheduled operators and Military flights are not filing their FPLs, three (03) hours prior to their EOBTs leading to wrong demand prediction.

12. The flights given exemption(accommodated in the CDM with no delay) on operational grounds are at times not following the allotted CTOT (which is same as filed EOBT plus default taxi time). It is essential for all stakeholders to note that these exempted flights are accorded priority over others but even these flights need to adhere to the issued CTOT, within the permissible tolerance window of minus 5 to plus 10 minutes.

13. Increasing number of exemption requests on various reasons like VIPs on board, FDTL, watch hour restrictions, Sunset restrictions , operational Constraints etc. leads to undue delays to other flights. This problem becomes grave when the constrained Airport has a grid lock lasting for more than an hour.

14. The RPLs received from Airlines on fortnightly basis does help CCC in strategic decision making. Very few domestic airlines share their "No ops" information or send an associated AFTN CNL or CHG message. As SKYFLOW utilizes, RPL for Demand projection, absence of correct information leads to wrong demand prediction.

    In some cases, the EOBT filed in RPLs with CCC and FPL filed on the day does not match leading to long error queues.

15. The CDMs prepared to cater to demand capacity imbalance towards the end of a day usually reflects wrong demand as the Flight intentions are not timely updated by Airlines in the SKYFLOW i.e. by originating appropriate ATS messages through AFTN.

16. CTOT compliant flights are not receiving any preference over non-compliant flights while arriving at constrained airport, therefore getting substantial ground as well as airborne delay.

17. **CDMs prepared to cater to post Weather disruption or post exigency period**, even with few hours prior notice might not capture actual scenario, as for a correct demand prediction updated information on delayed and diverted flights in the SKYFLOW system is essential. Airport operators are also unable to provide advance flight information due to uncertainty in such situation.

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