



FINAL INVESTIGATION REPORT ON SERIOUS INCIDENT OF
AIRPROX BETWEEN M/s SAUDI ARABIAN AIRLINES ,
SVA862 (B77W AIRCRAFT HZAK14)AND M/s UNITED
PARCEL SERVICE AIRLINES, UPS15 (B744 AIRCRAFT
N578UP) AT KOLKATA FIR ON 16/10/2018

KUNJ LATA
INVESTIGATOR-IN-CHARGE

K. RAMACHANDRAN
INVESTIGATOR

ABBREVIATIONS

AAIB	Aircraft Accident Investigation Bureau
ACC	Area Control
ADC	Aerodrome Control
APP	Approach Control
ATC	Air Traffic Controller
ASR	Approach Control Surveillance Approach Radar
ATPL	Airline Transport Pilot License
CCW	Current Conflict Warning
CPDLC	Controller Pilot Data Link Communication
CPL	Commercial Pilot License
DFDR	Digital Flight Data Recorder
DME	Distance Measuring Equipment
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rule
NM	Nautical Miles
OCC	Oceanic Control
PCW	Predicted Conflict Warning
SMGCS	Surface Movement Guidance and Control System
STCA	Short Term Conflict Alert
TCAS RA	Traffic Collision Avoidance System- Resolution Advisories
TCAS TA	Traffic Collision Avoidance System- Traffic Advisories
UBS	Upper Bhuvneshwar Sector
UTC	Co-ordinated Universal Time
VHF	Very High Frequency

VOR	VHF Omnidirectional Range
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AT KOLKATA FIR, ON 16/10/2018

1.	Aircraft Type	B77W	B744
2.	Nationality	SAUDI ARABIA	UNITED STATES OF AMERICA
3.	Registration	HZAK14	N578UP
4.	Owner	SAUDI ARABIAN AIRLINES	AMERICAN CARGO
5.	Operator	SAUDI ARABIAN AIRLINES	UNITED PARCEL SERVICE LTD
6.	Pilot – in –Command	ATPL HOLDER	ATPL HOLDER
	Extent of Injuries	NIL	NIL
7.	Co-Pilot	QUALIFIED ON TYPE	QUALIFIED ON TYPE
	Extent of Injuries	NIL	NIL
8.	Place of Incident	KOLKATA FIR	
9.	Co-ordinates of Incident Site(Location)	VICINITY OF WAYPOINT OLSOR	
10.	Last point of Departure	RIYADH	SUVARNBHUMI
11.	Intended place of Landing	MANILA	MUMBAI
12.	Date & Time of Incident	16/10/2018 AT TIME 0429 UTC	
13.	Extent of Injuries	NIL	NIL
14.	Phase of Operation	ENROUTE	ENROUTE
15.	Type of Incident	AIRPROX	

(ALL TIMINGS IN THE REPORT ARE IN UTC)

SYNOPSIS

The Serious Incident of breach of separation between M/s Saudi Arabian Airlines, SVA862 (Type- B77W, Registration- HZAK14) from Riyadh to Manila and M/s United Parcel Airlines, UPS15, (Type-B744, Registration- N578UP) from Suvarnabhumi to Mumbai occurred in Kolkata Airspace on 16/10/2018.

SVA862 was maintaining FL330 on L301 route while UPS15 was opposite traffic maintaining FL320. SVA862 was left of track due to weather. SVA862 requested a direct routing to DOGEM but Radar controller gave direct routing till way point URKOK.

UPS15 requested for a climb to FL340 when it was approaching waypoint OLSOR. Radar Controller didn't give climb to UPS15 due to traffic i.e. SVA862. UPS15 again requested for a climb to FL340 when SVA862 and UPS15 were approaching towards OLSAR from opposite direction, This time Radar Controller forgot the reciprocal traffic and gave the climb.

At 0428 UTC, STCA alert was generated and SVA862 reported getting Traffic Advisory. Neither aircraft reported receiving RA.

The minimum separation between the aircraft was 2.5 NM laterally and 300 feet vertically.

The occurrence was classified as a "Serious Incident" in accordance with the Aircraft (Investigation of Accidents and Incidents) Rules, 2017. DG, AAIB ordered an investigation into this occurrence vide order no: 12012/2018-AAIB, Dated: 18/10/2018. A corrigendum was issued vide AAIB Order dated 28/05/2019 appointing Ms. Kunj Lata, Assistant Director as Investigator-in-Charge and Mr. K. Ramachandran, Assistant Director as an Investigator to investigate into the cause of the incident.

In accordance with the provisions of Annex 13, Initial notification of the occurrence was sent to ICAO on 20/10/2018.

1.0 FACTUAL INFORMATION

1.1 History of Flight

On 16/10/2018, SVA862 was scheduled to operate from Riyadh to Manila. It came in contact with Radar controller in Kolkata Airspace at 0338 UTC. It was maintaining FL330. At 0420 UTC, SVA862 requested deviation to left due to weather, which was approved by the Radar Controller. SVA862 requested a direct routing to DOGEM but Radar controller gave direct routing till way point URKOK.

UPS15 was scheduled to operate from Suvarnabhumi to Mumbai. It came in contact with Radar Controller at 0417 UTC. It was maintaining FL320.

At 0426 UTC, UPS15 requested for a climb to FL340, which was acknowledged by Radar Controller. Radar Controller advised UPS15 to standby due to traffic i.e. SVA862. Planning controller here also advised Radar Controller about the opposite traffic.

In the meantime, Radar controller got busy with the other traffic in its jurisdiction. As traffic density is normally very high in this sector, there is a possibility of missing the traffic.

Later, when UPS15 again asked for a climb, Radar Controller forgot the immediate traffic and gave the climb. He was in the impression that the traffic is UTP9948 which was in his Radar scope which was also maintaining FL330.

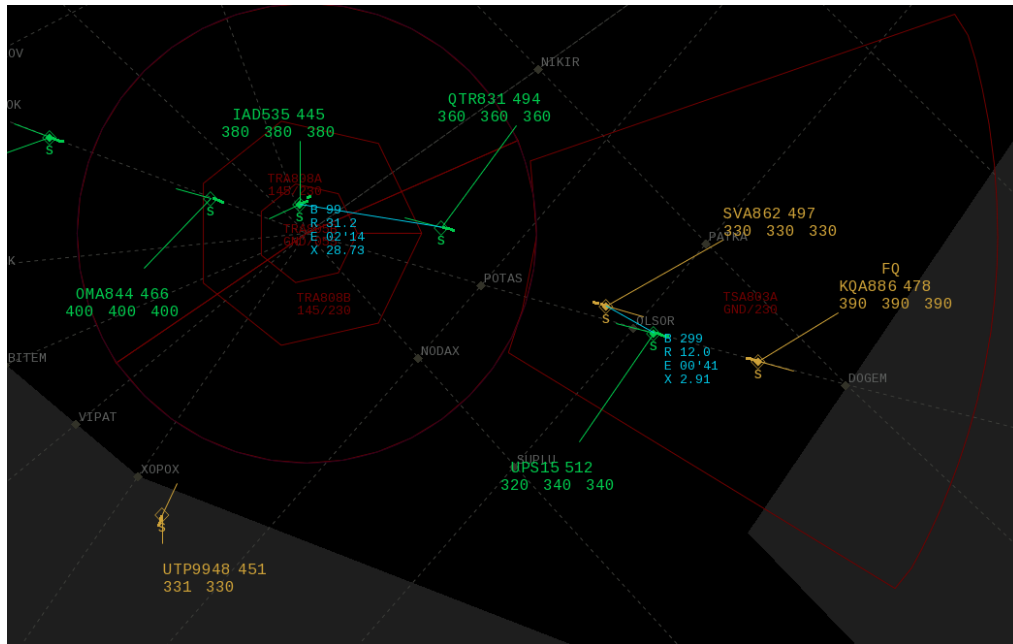


Figure showing UTP9948 near XOPOX and SVA330 near OLSOR, both aircraft maintaining FL330.

At 0428 UTC, UPS15 and SVA862 came in close proximity near waypoint OLSAR and STCA (Short Term Conflict Alert) was generated.

Minimum separation between SVA862 and UPS15 was 2.5 NM and 300 feet Vertical at 04:29:16 UTC. None of the aircraft reported getting RA.

1.2 Injuries to persons- There were no injuries.

1.3 Damage to the aircraft- NIL

1.4 Other damages- NIL

1.5 Personal Information-

1.5.1 Pilot-in-Command and Co-Pilot

Both Flight crew held valid licenses and were qualified to operate the flight.

1.5.2 ATC Controller

(a) The Radar Controller was rated for the following ATC units

at CSI Airport:

- (i) Tower Control- ADC/SMC/ASMGCS
- (ii) Area Control- RSR/CPDLC/ ADS
- (iii) Oceanic Control- OCC

- (b) The controller was not involved in any incident in the past.
- (c) Last proficiency check was done in Area control on 31/12/2017
- (d) English Language Proficiency Aptitude is Level 4.
- (e) There was no fatigue to the controller.

1.6 Aircraft Information

Boeing B777-300

The Boeing 777-300 is a long range, twin aisle, twin-engine jet manufactured by Boeing, the American aerospace company. B77W is the universal short hand for a B777-300ER.

Boeing B747-400

The Boeing 747-400 is a wide body, four-engine jet manufactured by Boeing. With its distinctive upper deck shape. The B747-400 is a proven performer with high reliability and incorporates major aerodynamic improvements over earlier B747 models, including the addition of winglets to reduce drag, new avionics, and a new flight deck.

1.7 Meteorological Information

There was bad weather over Kolkata airspace but weather was not the contributory factor in this case.

1.8 Aids to Navigation

All Automation Systems, VHF channel and ATS surveillance system at Kolkata Airport were reported to be working normal.

Kolkata airport has DVOR/DME called as CEA with frequency of 112.5 MHz.

1.9 Communication

A positive two way communication was always maintained between ATC unit and involved aircraft.

Tape Transcript of Area Control :

TIME	FROM	TO	COMMUNICATION
042019	SVA862	UBS	REQUEST HEADING 090 TO AVOID
042025	UBS	SVA862	HEADING APPROVED
042027	SVA862	UBS	HEADING 090 APPROVED SVA862
042316	UBS	SVA862	PROCEED DIRECT URKOK
042319	SVA862	UBS	DIRECT URKOK, SVA862 AFFIRM, THANK YOU
042652	UPS15	UBS	REQUEST CLIMB FL340
042657	UBS	UPS15	STANDBY
042808	UTP9948	UBS	GOOD MORNING (THIS AIRCRAFT WAS MAINTAINING FL330)
042814	UBS	UPS15	CLIMB TO FL340
042818	UPS15	UBS	CLIMB FL340
042824	UTP9948	UBS	GOOD MORNING UTP9948
042827	UBS	UTP9948	ACKNOWLEDGED
042833	UBS	UTP9948	IDENTIFIED CONFIRM LEVEL330
042835	STCA WAS GENERATED ON AUTOMATION SYSTEM		
042839	UBS	UPS15	EXPEDITE REACHING LEVEL 340 DUE TRAFFIC
042847	UPS15	UBS	EXPEDITING FL340 UPS15
042847			GARBLED
042849	UBS	UPS15	MAINTAIN FL320 SIR, MAINTAIN FL320
042855	UBS	UPS15	MAINTAIN FL320
042858	UBS	SVA862	DUE TRAFFIC CLIMB TO FL350
042902	SVA862	UBS	CLIMB 350 SVA862
042905	UBS	SVA862	AFFIRM SIR

042912	UBS	UPS15	DESCENT TO FL320
042915	UPS15	UBS	UPS5....15 FL320

Note: The transcript includes only the significant conversation between concerned Aircraft and Area Controller.

1.10 Aerodrome Information

Netaji Subhas Chandra Bose International Airport (IATA: CCU, ICAO: VECC) is an international airport located at Dum Dum, West Bengal, India, serving the Kolkata metropolitan area. It is located approximately 17 kilometer from the city center.

The co-ordinates of ARP are 223914 N 0882648 E. The Elevation of airport is 23 feet.

Runway Orientation and Dimension are as below:

Runway 01L/19R Dimension-3270 x 45 meters

Runway 01R/19L Dimension-2871 x 45 meters

1.11 Flight Recorders

Flight data recorders where installed on both aircraft.

1.12 Wreckage and Impact Information

There was no damage.

1.13 Medical and Pathological Information

Not applicable

1.14 Fire

Nil

1.15 Survival Aspects

The incident was survivable.

1.16 Tests and Research

Nil

1.17 Organizational and Management Information

Airports Authority of India

Airports Authority of India (AAI) is a statutory body working under the Ministry of Civil Aviation, Government of India. AAI is responsible for creating, upgrading, maintaining and managing civil aviation infrastructure in India. It provides Communication Navigation Surveillance / Air Traffic Management (CNS/ATM) services over Indian airspace and adjoining oceanic areas.

Saudi Arabian Airlines

Saudi Arabian Airlines, also known as Saudi ,It is the national carrier airline of Saudi Arabia, based in Jeddah. It operates Domestic and International scheduled flights to over 85 destinations in the Middle East, Africa, Asia, Europe and North America.

United Parcel Airlines

UPS Airlines is an American cargo airline based in Louisville, Kentucky. UPS Airlines flies to 779 destinations worldwide.

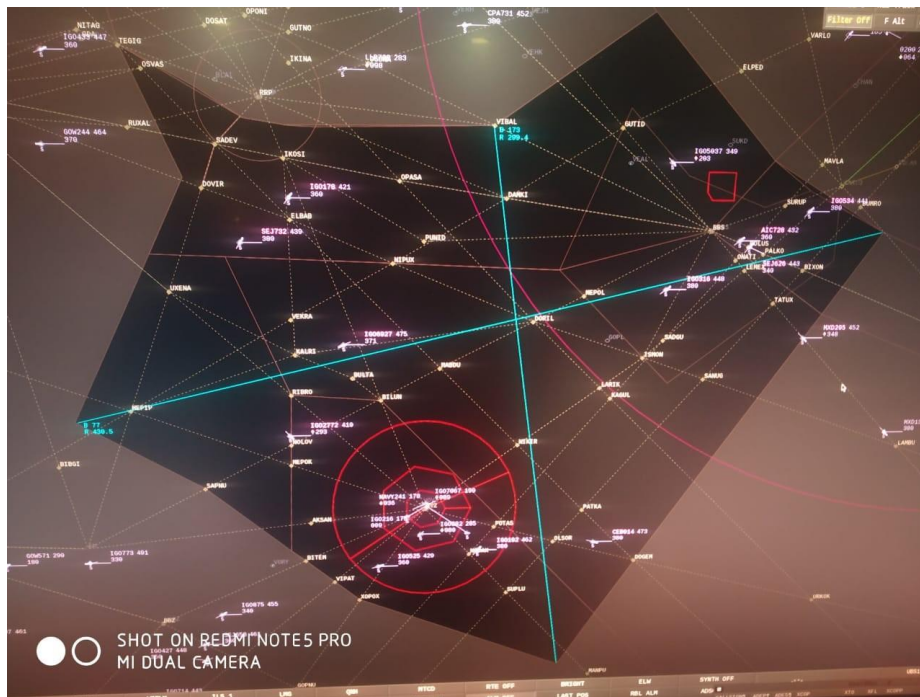
UPS Airlines is operating Boeing 757 and 767, McDonnell Douglas MD-11F, and Airbus A300.

1.18 Additional Information

Upper Bhuvneshwar Sector (UBS)

Kolkata area is a large area in which separation is to be provided by the controller. It is divided into two sectors Lower Bhuvneshwar Sector (LBS) and Upper Bhuvneshwar Sector (UBS). They are divided in terms of Flight levels. LBS controls flights from FL105 to FL255 and UBS controls flights from FL255 to FL460.UBS covers the area of approx. 440 NM in East-West direction and 300 NM in North-South direction (Blue lines and the area in dark shade shown below is the area to which the separation is to be provided by the

controller handling UBS)



UBS showing area to be scanned

UBS is surrounded by Upper Raipur Area, Nagpur Area, Upper Eastern Region, Chennai Control and Kolkata Oceanic Region. It has a narrow channel through which aircraft are handed over and taken over to and from Guwahati Control Region. Either side of this channel is Nepal control and Bangladesh control. Due to narrow channel and International boundaries, the controller is required to be more vigilant while handling aircraft in this area.

UBS coordinates with Chennai Area and Nagpur Area. It also coordinates with internal airports like Bhuvneshwar, Vizag, Jharsuguda etc. UBS coordinates with internal sectors also.

UBS Controller has to provide separation in larger area and normally traffic density is high. In this scenario, the controller has to be more vigilant as chance of committing error is more.

In this incident also, the controller misjudged the immediate traffic and gave the climb which resulted in breach of separation.

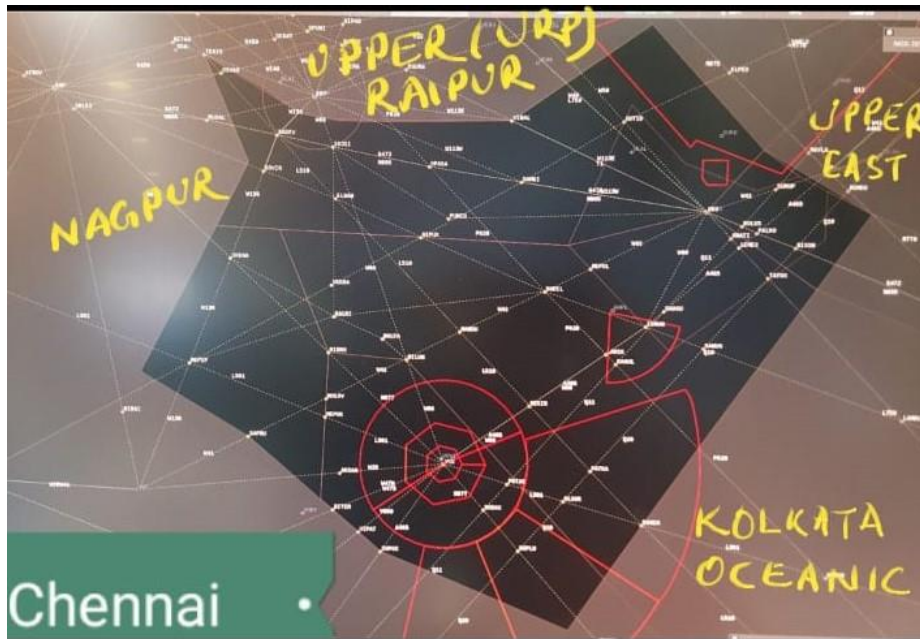


Figure showing different sector bounded by Kolkata UBS

1.19 Useful or Effective Investigation Techniques: Nil

2.0 ANALYSIS

On 16/10/2018, UPS Airlines Flight UPS15, scheduled from Suvarnabhumi (VTBS) to Mumbai (VABB) was maintaining FL320 on ATS route L301. Saudi Arabian Flight SVA862, was scheduled from Riyadh (OERK) to Manila (RPLL) and was maintaining FL330 on ATS route L301.

As per the R/T communication between Aircraft (SVA862) and Radar Controller, it was found that the aircraft requested for a deviation to left of track after encountering bad weather on its assigned path. Prior to SVA862 few aircraft also reported bad weather overhead Kolkata airspace. At 0420 UTC, SVA862 asked for a heading H090 to avoid the weather. It was acknowledged and granted by the Radar Controller.

At 0423 UTC, SVA862 requested direct routing to DOGEM but Radar Controller gave direct routing to URKOK.

Around waypoint DOGEM, UPS15 came in contact with UBS control and

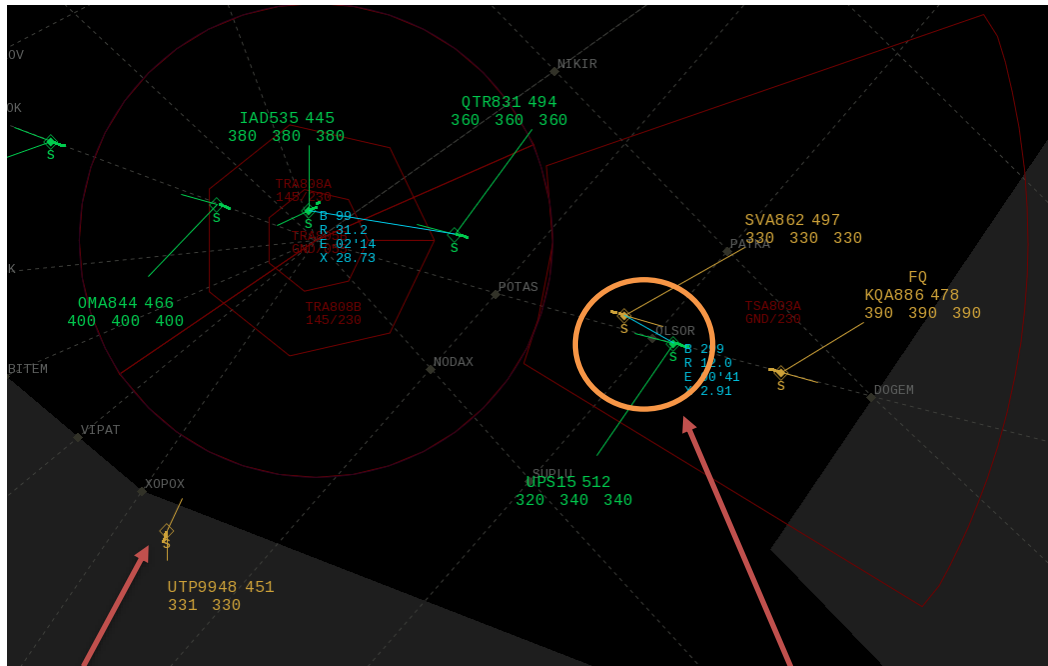
asked for a climb to FL340 but the controller did not give climb as the immediate opposite traffic SVA862 was maintaining FL330. As per Radar Controller's statement, he was aware of the opposite traffic and Procedural controller also informed him about the traffic.

UBS control has a large area to scan and it deals with the aircraft coming from Raipur Control, Chennai Control, Nagpur Control and North East Control . There is a small channel in which handing over and taking over takes place between Kolkata FIR and Guwahati FIR also to this channel one side is Nepal Control and other side is Bangladesh Control. Thus more concentration is required on this channel.

Since, there is much coordination to be done within the area, UBS normally has large volume of aircraft to which separation is to provided. The Radar controller was handling 24 aircraft when the incident occurred. In between the controller was handing over and accepting aircraft from other ATC units. UBS Radar Controller had to scan large area and provide separation.

At 0428 UTC, UTP9948 which was South West of the Radar scope near XOPOX came in contact with Radar Controller. UTP9948 was maintaining FL330.

At 0428 UTC, UPS15 again asked for a climb to FL340 and Radar Controller missed the immediate traffic which was on reciprocal track and 2.9 NM apart. The separation of 2.9 NM could be established at this particular time because SVA862 was slightly offset of track. As UPS15 started its climb and reached FL322, Traffic Advisory alert got generated at 04:29:16 UTC.



UTP9948, FL330 near XOPOX

SVA862,FL330 and UPS15, FL320 near OLSAR

Figure showing positions of aircraft before Traffic Advisory came

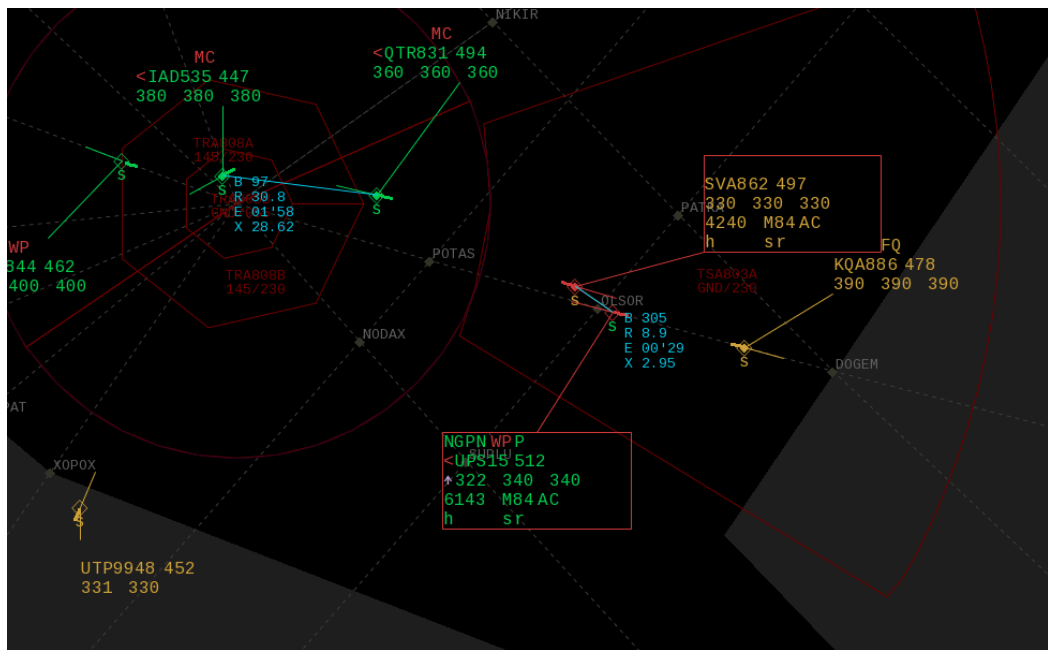


Figure showing breach of separation between SVA862 and UPS15

Minimum lateral separation between aircraft was 2.5 NM and vertically 300 feet, whereas Standard Minimum Separation between the aircraft prescribed is 1000 feet vertical and 10 NM horizontal. Neither of the aircraft reported RA. The aircraft reported “Clear of traffic ” at 04:29:58 UTC when UPS15 descended to FL320.

3.0 CONCLUSIONS

3.1 Finding

Serious incident happened in the vicinity of way point OLSAR on route L301 in Kolkata airspace when two aircraft were approaching each other. SVA862 and UPS15 were on reciprocal track and got TA. None of the aircraft reported getting RA.

UBS has a large area in which Controller has to provide separation and normally traffic density is also high.

Both SVA862 and UPS15 were following the instructions of ATC. SVA862 was left off the track due to weather and it was well known by the controller.

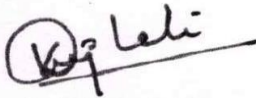
Incident happened due to momentarily loss of situational awareness by Radar Controller while issuing climb to UPS15. The controller got himself engaged in other traffic and forgot the immediate traffic on reciprocal track i.e. SVA862. While he was aware that it is a traffic to UPS15 and did not give a climb when UPS15 asked for a climb for the first time.

3.2 Probable Cause

- a. Radar Controller lost his situational awareness in spite of reminder given by procedural controller about the immediate traffic i.e. SVA862.
- b. Large scan area for UBS control resulted in larger volume of traffic in peak hours.
- c. Controller assumed UTP9948 which was maintaining FL330, though it was very far (near reporting point XOPOX) from UPS15 is a potential traffic and gave climb to UPS15 through the level of SVA862.

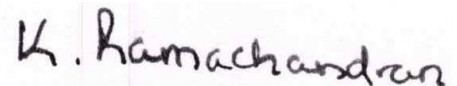
4.0 SAFETY RECOMMENDATIONS

1. Suitable corrective training may be imparted to Radar controller giving emphasis on different traffic situations specially in peak hours.
2. Airports Authority of India may study the volume of traffic in all sectors during peak hours for bifurcating or merging of the airspace.



KUNJ LATA

INVESTIGATOR-IN-CHARGE



K RAMACHANDRAN

INVESTIGATOR