



Fifth Meeting of the Programmes and Projects Review Committee (PPRC/5)
 Mexico City, Mexico, 16 to 18 July 2019

Agenda Item 3: Global, Intra- and Inter-Regional Air Navigation Activities
3.3 Follow-up to the implementation of inter- and intra-regional activities

**PROGRESS IN THE IMPLEMENTATION OF
 THE ATFM IN THE STATE OF CHILE**

(Presented by Chile)

EXECUTIVE SUMMARY	
This information paper presents the status on the implementation of the ATFM in Chile, indicates processes that have been carried out and the tasks planned to comply with an effective establishment of this service in the airspace of its jurisdiction.	
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
<i>References:</i>	<ul style="list-style-type: none"> • Doc. 9971 Manual on Collaborative Air Traffic Flow Management

1. Introduction

1.1 The increase in demand for air traffic, exerts on the ATM system the usual "domino" effect that come to pass to other States causing delays with economic consequences to the industry, as well as the overload in the performance of ATC units or facilities when these do not have management tools to mitigate the imbalance between capacity and demand. Taking this into consideration, the State of Chile implemented, as of March 13, 2012, the Air Traffic Flow Management Service (ATFM).

1.2 Recommendations of Chapter 3 of the DOC 4444 ATM ICAO (Air Traffic Management) and conclusions of the Second and Third Meeting of the Air Traffic Flow Management Task Group in CAR / SAM Regions of the ATM Committee of the ATM / CNS subgroup of GREPECAS (ATFM / TF / 2), carried out in the cities of Bogotá and San Andrés (Colombia) respectively, were taken into account.

1.3 Santiago FMP began its activities on November 1, 2012, with the main objective of regulating the IFR / VFR transit to and from the Santiago International Airport (AMB), as well as to other aerodromes located within Santiago TMA, whose operations could have an impact on the performance of Santiago International Airport.

2. Progress status of the ATFM implementation in the State of Chile

Training in Calculating Tracking Capacities

2.1 With the purpose of providing specialists in a short period of time that would enable runway capacity calculations in airports of interest for ATFM, two training courses were conducted to address these needs, with the main focus being: knowledge and use of all the phases of the Calculation Method developed by the CGNA (Air Navigation Management Centre) Brazil.

2.2 After these trainings, the qualification of 26 ATCO specialists was achieved, who perform calculation tasks in their respective airport units.

2.3 In the case of Santiago, calculation of runway capacity for AMB Airport and obtaining the balanced capacity value was carried out in 2012 by a specialist trained in the CGNA under the RLA / 06/901 program.

2.4 This work resulted in the implementation of the spacing obtained from the Brazilian calculation method (Regulatory Separation added from a safety separation) with the purpose of not using the “estimated coordination” between AMB control tower and Santiago ACC. This change in the "Modus Operandi" of both facilities allowed to improve the taxiing flow of traffic and reduction down to "zero" incidents because of loss of spacing agreed between the two control units.

2.5 Currently, the work model carried out in the ATC units of the city of Santiago, is under evaluation to be replicated in other control units over the country.

Tabla de unidades aeroportuarias con estudio de Capacidades de Pistas

2.6 As per December 2018, 12 airports and 1 aerodrome (VFR) have been calculated with their particular capacity updated. (Ref AIP Chile VOL I, Enr.1.9 Amnd.46)

Aeropuertos (AP) Aeródromos (AD)	Pista	Código		Capacidad horaria		
		IATA	OACI	DEP	ARR	TOTAL
AP Arturo Merino Benítez/Santiago SCEL	17R	SCL	SCEL	14	15	29
	17L			14	15	29
	AMBAS			20	20	40
AP Chacabuta/Arica SCAR	02/20	ARI	SCAR	7	7	14
AP Diego Aracena/ Iquique SCDA	01/19	IQQ	SCDA	12	12	24
AP Andrés Sabella/Antofagasta SCFA	01/19	FAG	SCFA	13	14	27
AD El Loa/ Calama SCCF	10/28	CFL	SCCF	8	9	17
AD Desierto de Atacama/ Caldera SCAT	17/35	CPO	SCAT	8	8	16
AD La Florida/La Serena SCSE	12/30	SER	SCSE	11	12	23
AD Viña del Mar / Viña del Mar SCVM	05/23	KNA	SCVM	13	14	27
AD Carriel Sur/ Concepción SCIE	02/20	CCP	SCIE	13	13	26
AD Araucanía / Freire SCQP	01/19	ZCO	SCQP	11	12	23
AP El Tepual/ Puerto Montt SCTE	17/35	PMC	SCTE	14	14	28
AP Carlos Ibáñez del Campo/ Punta Arenas SCCI	01/19 07/25 12/30	PUQ	SCCI	12	12	24

Calculation of capabilities of ATC Sectors

2.7 Taking into account the objective of finding the balance between demand and capacity, from 2018 onwards, the calculation of ATC Sectors Capacities has been carried out in ACCs and APPs of ATFM interest.

2.8 The method used for these purposes is the one developed by Brazil (CGNA) and focuses on the evaluation of the workload of the radar controller, adding, on the one hand, the time spent on routine or secondary tasks (perceptible tasks) and on the resolution of conflicts (perceptible); and on the other hand, the time spent in planning tasks (not perceptible).

2.9 The process was calculated for an interval of sixty minutes, taking into account the current regulations (separations applicable between aircraft) and internal directives (Local Procedures Manual), as well as parameters of communication time with the aircraft and time taken by controller's secondary activities, which significantly interfere with the capacity of the ATC sector.

2.10 With this method of calculation, the capacities of the ATC Sectors of Iquique ACC, Santiago ACC and Oceanic ACC were determined.

2.11 It is expected that by the end of 2019, sector capacities for Puerto Montt ACC and Punta Arenas ACC will be calculated. In the same way, by 2020, Antofagasta, Concepción and Temuco APP's capacities will be calculated.

ATFM training for ATC personnel

2.7 As described in 2.1 above, two training courses aimed for ATFM specialists were carried out. These trainings were conducted by ATCOs that achieved competency in the subject in CGNA Brazil, having as main orientation, Doc. 9971, reaching qualification for 26 ATCO.

2.8 For the last quarter of 2019 a new training course is scheduled with the purpose of having the necessary personnel for the establishment of Traffic Management Posts (FMP) in ACCs and APPs.

3. Determination of Metrics of ATFM Interest

3.1 In order to achieve effective management by future FMPs to be established in the different ACCs in Chile, proper establishment of metrics has been determined for the main airports in each FIR and flow control NOTAM inappropriate practice it's been eliminated.

3.2 In light of the above, work is being done to obtain the following data:

- Movements per hour of the main traffic flows to and from the main airports.
- Daily volume and time of air traffic.
- Comparison of Demand with Itineraries.
- Times of Runway Occupation by Company.
- Final approach section speed (4NM)
- Aircraft ground operating time (Taxi in time and Taxi out Time)
- Parking a rotation time (Turn A round)

4. Purchase of Arrivals and Departures Management Technologies (AMAN / DMAN)

4.1 Taking into account the tasks derived from the GANP, the State of Chile has included in its Air Navigation Plan (PNAI) developed by the DGAC, among other matters, the purchase of technologies to improve Air Traffic Management and coherent with the ASBU modules, in order to obtain operational advantages in all phases of flight, that is, on the ground, during taxiing to the runway, during climb to cruise level, en route, during descent, until arrival and movement to its parking place.

4.2 Consistent with the modules considered by the SAM Region associated with the Efficiency Improvement Area 1, RSEQ thread, the State of Chile tendered and awarded a contract, during the first quarter of 2019, for the acquisition and implementation of an Arrival and Departure Management System (AMAN / DMAN) to be installed, operating and integrated to current ATM systems, with the purpose of improving traffic flow management by automating the flow and sequencing of aircraft in Santiago Terminal (TMA), optimizing the use of available resources.

4.3 The deadlines to have this tool in operation have already started, signing the contract in mid-June 2019 it is considered that the testing phase at final site should take place during second quarter 2020.

4.4 All of the above mentioned shows the permanent and sustained commitment of the State of Chile to increase levels of safety and to grant users a quality service, where human resources, technology and procedures come together to achieve this goal.

5 Action

5.1 The meeting is invited to note the information contained in this paper.