

## APPENDIX – D: Flight Level Occupancy in the EUR-SAM Corridor \_ 2017

Next table shows the number of flights per month belonging to EUR/SAM or random/transversal traffic (Canarias FIR). The total number of flights registered in the EUR/SAM area of Canarias FIR has been **2.422** flights. Most of them are considered traffics belonging to EUR/SAM Corridor (92.5 % of total).

	Canarias FIR	
	AUGUST 2018	%
EUR/SAM	2242	92.6%
TRANSVERSAL	26	1.1%
RANDOM	154	6.4%
<b>TOTAL</b>	<b>2422</b>	

**Table 1.** Global Figures of Flights – EUR/SAM Area – Canarias FIR

The following table shows, for the most significant airlines in terms of registered figures, the number of flights and percentage referred to the total number of registered flights in the EUR/SAM Area – Canarias FIR during the studied period.

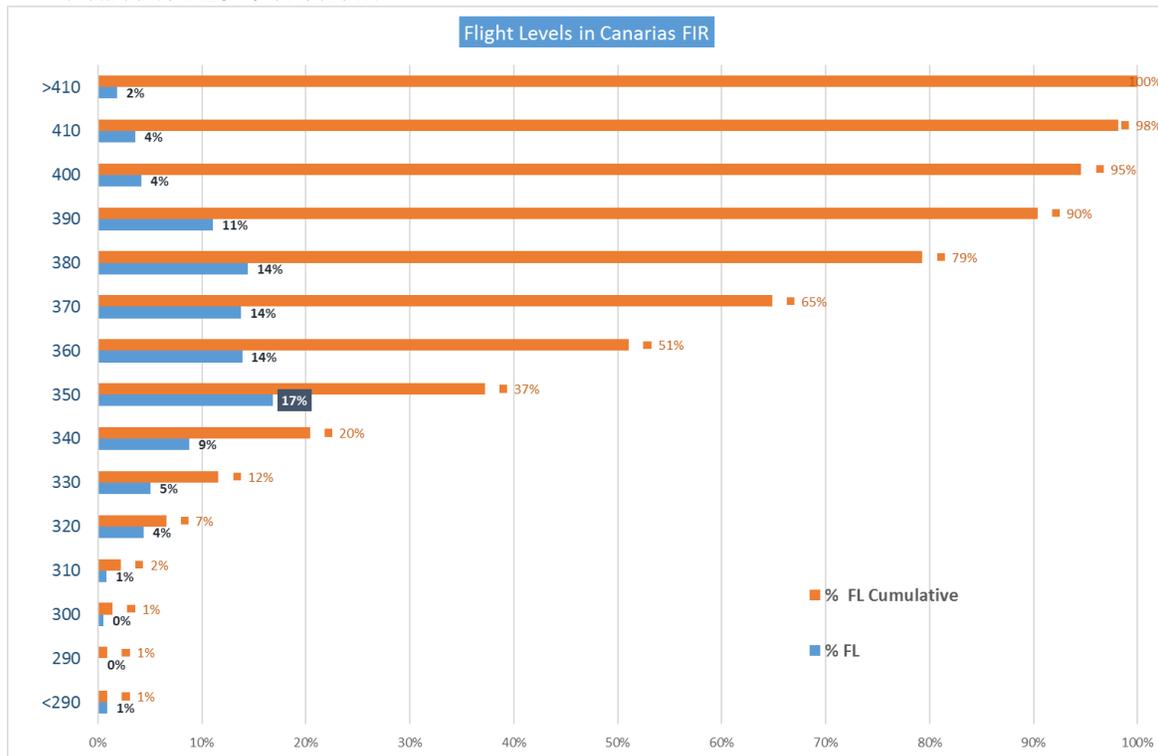
TRAFFIC PER AIRLINE IN CANARIAS FIR			
AIRLINE	FLIGHTS	% TOTAL	% EURSAM
TAP	586	24.2%	23.9%
IBE	211	8.7%	7.9%
AEA	168	6.9%	5.9%
TOM	126	5.2%	5.2%
TAM	122	5.0%	5.0%
AFR	104	4.3%	3.8%
DLH	82	3.4%	3.3%
TCV	72	3.0%	3.0%
AZU	61	2.5%	2.5%
KLM	58	2.4%	2.3%
TUI	54	2.2%	2.2%
RAM	54	2.2%	2.2%

**Table 2.** Global Figures per airline – Canarias FIR

On the other hand, considering the foreseen evolution of EUR/SAM Corridor, several additional analyses have been accomplished for each FIR:

- **Flight level distribution- Canarias FIR**

Flight level FL350 was the most required one. Likewise, the 20% of traffic in Canarias FIR was cleared to FL340 or below.



**Figure 1.** Distribution the Flight Levels in EUR/SAM Corridor – Canarias FIR

Note that to prepare this assessment only FL in the border of FIR was considered.

- **Traffic load- Canarias FIR**

Next chart shows a summary of traffic load registered in Canarias FIR where bars represent the number of aircraft that entered in the FIR per hour. The green curve represents the maximum number of aircrafts that entered in the FIR per hour. The peak periods of traffic are 00-02 and 13-14 UTC. Likewise the peak hour was 01 with 16 flights.

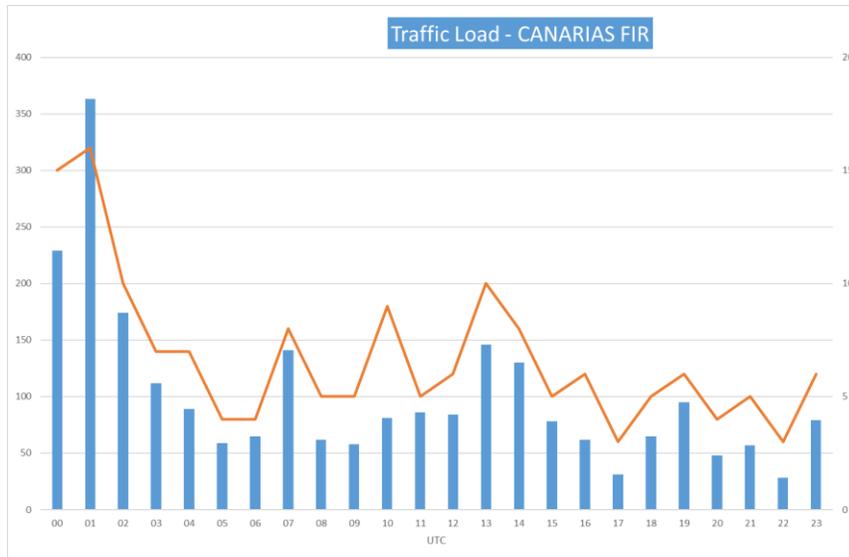


Figure 2. Traffic load in EUR/SAM Corridor – Canarias FIR

- **Traffic distribution per ATS Route– Canarias FIR:**

The following figures and tables try to sum up the operational data provided to SATMA. In Canarias FIR the main flow is via IPERA (UN873), afterwards this traffic planned other ATS routes depending on their origin/destination. UN741 and UN866 have also relevant figures but less than the first one due to their unidirectional characteristic. Note that UN857 figures have already overcome UN741 and UN866, even though it is a bidirectional route. Finally, it is remarkable that Canarias FIR registered several “random routes” which are based on published DCT.

TRAFFIC	RANDOM	UN741	UN866	UN873	UN857	TRANSVERSAL
NORTHBOUND	89	0	335	627	161	26
SOUTHBOUND	65	178	0	750	191	
TOTAL	154	178	335	1377	352	26

Table 3. Distribution per ATS Route – Canarias FIR

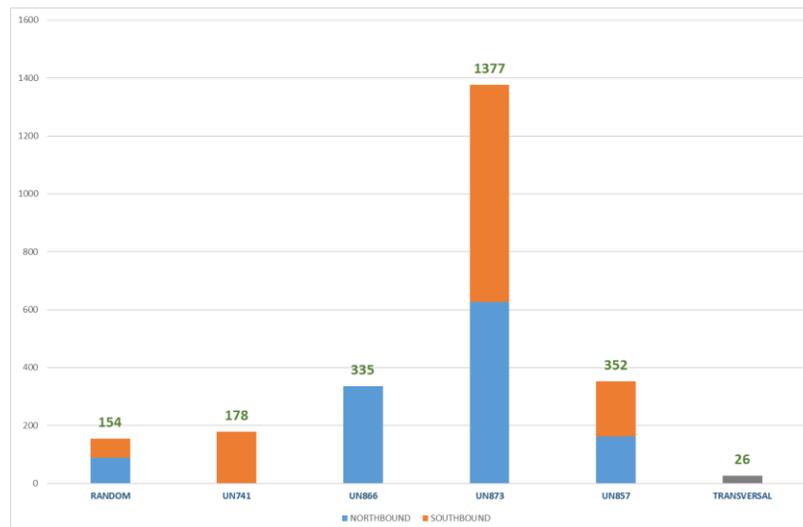


Figure 3. Distribution per ATS Route – Canarias FIR

- **Main Flows - Canarias FIR**

TRAFFIC FLOWS	FLIGHTS	%
SAMAR IPERA	626	25.8%
IPERA SAMAR	316	13.0%
IPERA VASTO	247	10.2%
TENPA KONBA	190	7.8%
NELSO EDUMO	160	6.6%
TERTO IPERA	103	4.3%
TERTO GUNET	90	3.7%
GUNET SOLNA	64	2.6%
TENPA BIMBO	62	2.6%
TENPA VASTO	53	2.2%
SAMAR GUNET	50	2.1%
SOLNA GUNET	49	2.0%

**Table 4.** TRAFFIC FLOWS – Canarias FIR

### AIR TRAFFIC STATISTICS IN THE EUR/SAM AREA – SAL OCEANIC FIR

Next table shows the number of flights per month belonging to EUR/SAM or random/transversal traffic (Sal Oceanic FIR). The total number of flights registered in the EUR/SAM area of Sal Oceanic FIR has been **4.021** flights. The number of flights belonging to EUR/SAM corridor is similar to Canarias FIR. However, the random traffic registered a significant figure to be taking into account by the SAT group.

	SAL OCEANIC FIR	
	AUGUST 2018	%
EUR/SAM	2350	58.4%
TRANSVERSAL	461	11.5%
RANDOM	1210	30.1%
<b>TOTAL</b>	<b>4021</b>	

**Table 5.** Global Figures of Flights – EUR/SAM Area – Sal Oceanic FIR

The following table shows, for the most significant airlines in terms of registered figures, the number of flights and percentage referred to the total number of registered flights in the EUR/SAM Area – Sal Oceanic FIR during the studied period.

<b>TRAFFIC PER AIRLINE IN SAL OCEANIC FIR</b>			
<b>AIRLINE</b>	<b>FLIGHTS</b>	<b>% TOTAL</b>	<b>% EURSAM</b>
TAP	817	20.3%	14.3%
IBE	298	7.4%	4.8%
TAM	294	7.3%	3.0%
AFR	266	6.6%	2.3%
AEA	192	4.8%	3.5%
BAW	157	3.9%	0.8%
DLH	140	3.5%	2.0%
KLM	139	3.5%	1.3%
TCV	136	3.4%	2.0%
SAA	124	3.1%	0.0%
TOM	124	3.1%	3.1%
DAL	115	2.9%	0.0%

**Table 6.** Global Figures per airline – Sal Oceanic FIR

On the other hand, considering the foreseen evolution of EUR/SAM Corridor, several additional analyses have been accomplished for each FIR:

- **Flight level distribution – Sal Oceanic FIR**

Flight level FL350 and FL370 were the most required one. Likewise, the 27% of traffic in SAL Oceanic FIR was cleared to FL340 or below.

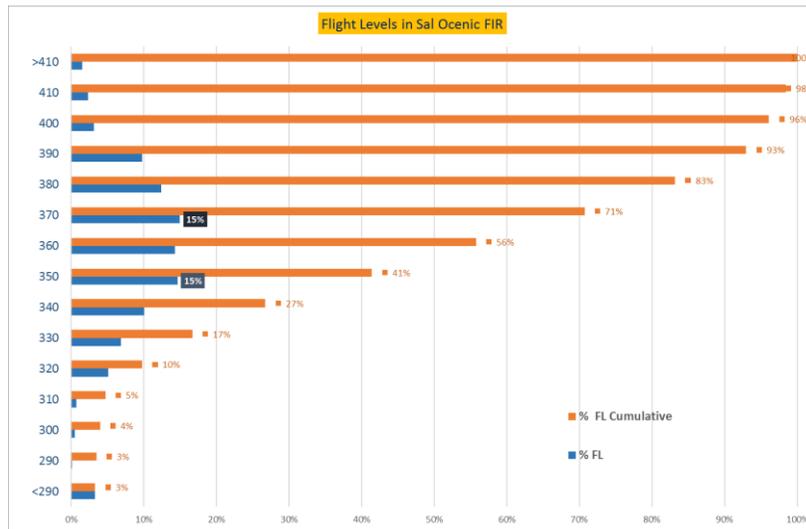


Figure 4. Distribution the Flight Levels in EUR/SAM Corridor – Sal Oceanic FIR

Note that to prepare this assessment only FL in the border of FIR was considered.

- **Traffic load – Sal Oceanic FIR**

Next chart shows a summary of traffic load registered in Sal Oceanic FIR where bars represent the number of aircraft that entered in the FIR per hour. The green curve represents the maximum number of aircrafts that entered in the FIR per hour. The peak periods of traffic are 23-03 and 13-14 UTC. Likewise the peak hour was 01 with 20 flights.

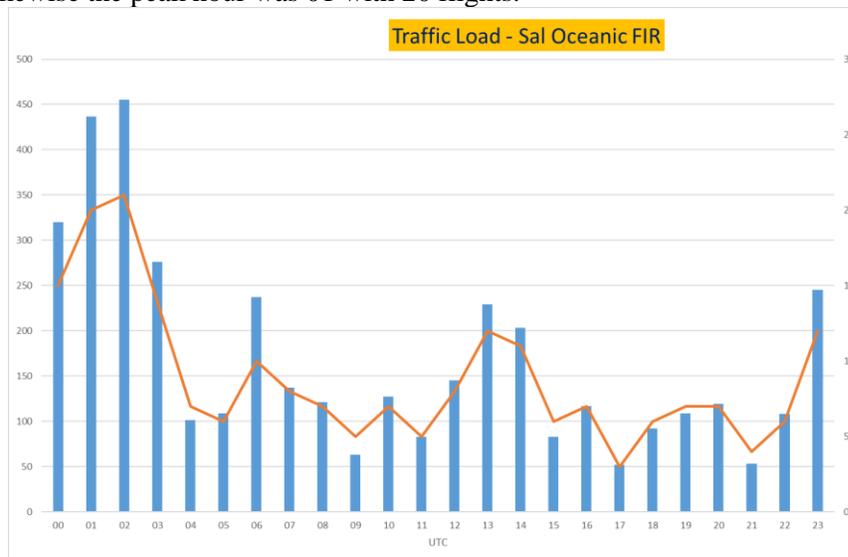


Figure 5. Traffic load in EUR/SAM Corridor – Sal Oceanic FIR

- **Traffic distribution per ATS Route– Sal Oceanic FIR:**

The following figures and tables try to sum up the operational data provided to SATMA. In Sal Oceanic FIR the main flow is via IPERA (UN873). In addition, it is remarkable that Sal Oceanic FIR registered a relevant traffic by random route.

TRAFFIC	RANDOM	UN741	UN866	UN873	UN857	TRANSVERSAL
NORTHBOUND	632	7	346	648	168	461
SOUTHBOUND	579	223	4	753	200	
TOTAL	1211	230	350	1401	368	461

Table 7. Distribution per ATS Route – Sal Oceanic FIR

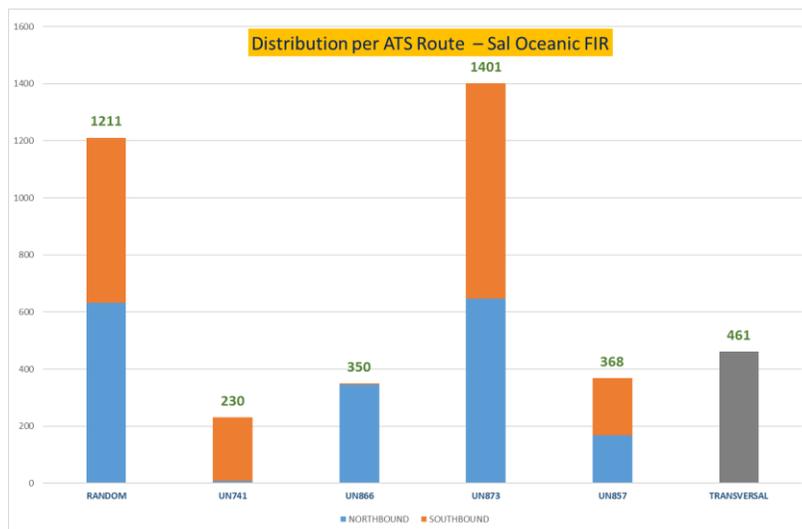


Figure 6. Distribution per ATS Route – Sal Oceanic FIR

- **Main Flows – Sal Oceanic FIR**

TRAFFIC FLOWS	FLIGHTS	%
IPERA POMAT	395	11.1%
AMDOL TENPA	309	8.7%
POMAT IPERA	297	8.3%
BIKOM ULTEM	286	8.0%
ULTEM XUVIT	220	6.2%
GARPO ERNEK	174	4.9%
CVS IPERA	168	4.7%
ULTEM BIKOM	143	4.0%
IPERA CVS	138	3.9%
EDUMO KENOX	134	3.8%
ERNEK GARPO	115	3.2%
GUNET BOTNO	100	2.8%

Table 8. TRAFFIC FLOWS – Sal Oceanic FIR

## AIR TRAFFIC STATISTICS IN THE EUR/SAM AREA – DAKAR OCEANIC FIR

Next table shows the number of flights per month belonging to EUR/SAM or random/transversal traffic (Dakar Oceanic FIR). The total number of flights registered in the EUR/SAM area of Dakar Oceanic FIR has been **3.458** flights. The random traffic registered a significant figure, similar to Sal Oceanic FIR, to be taking into account by the SAT group.

	DAKAR OCEANIC FIR	
	AUGUST	2018
EUR/SAM	1965	56.8%
TRANSVERSAL	1455	42.1%
RANDOM	38	1.1%
<b>TOTAL</b>	<b>3458</b>	

**Table 9.** Global Figures of Flights – EUR/SAM Area – Dakar Oceanic FIR

The following table shows, for the most significant airlines in terms of registered figures, the number of flights and percentage referred to the total number of registered flights in the EUR/SAM Area – Dakar Oceanic FIR during the studied period.

TRAFFIC PER AIRLINE IN DAKAR OCEANIC FIR			
AIRLINE	FLIGHTS	% TOTAL	% EURSAM
TAP	653	18.9%	14.4%
TAM	374	10.8%	5.3%
IBE	337	9.7%	6.2%
AFR	291	8.4%	5.1%
AEA	211	6.1%	4.5%
AZA	203	5.9%	0.8%
DLH	173	5.0%	2.4%
BAW	161	4.7%	2.6%
KLM	146	4.2%	2.7%
ARG	121	3.5%	0.8%
LAN	76	2.2%	0.1%
AZU	65	1.9%	1.9%

**Table 10.** Global Figures per airline – Dakar Oceanic FIR

On the other hand, considering the foreseen evolution of EUR/SAM Corridor, several additional analyses have been accomplished for each FIR:

- **Flight level distribution – Dakar Oceanic FIR**

Flight level FL370 was the most required one. Likewise, the 25% of traffic in Dakar Oceanic FIR was cleared to FL340 or below.

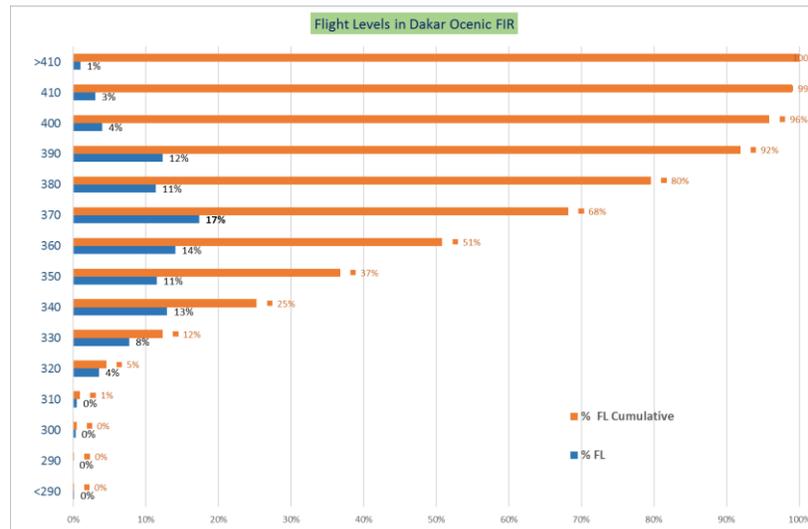


Figure 7. Distribution the Flight Levels in EUR/SAM Corridor – Dakar Oceanic FIR

Note that to prepare this assessment only FL in the border of FIR was considered.

- **Traffic load – Dakar Oceanic FIR:**

Next chart shows a summary of traffic load registered in Dakar Oceanic FIR where bars represent the number of aircraft that entered in the FIR per hour. The green curve represents the maximum number of aircrafts that entered in the FIR per hour. The peak periods of traffic are 01-03 and 22-23 UTC. Likewise the peak hour was 02 with 22 flights.

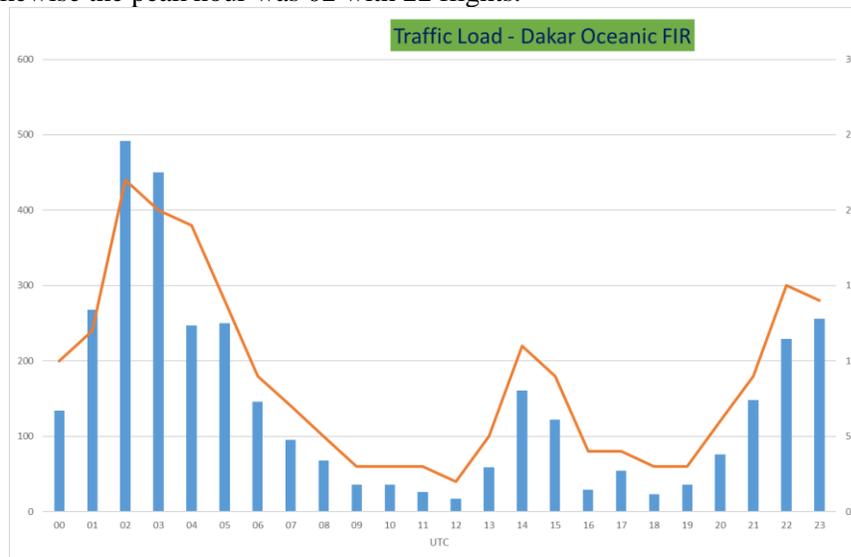


Figure 8. Traffic load in EUR/SAM Corridor – Dakar Oceanic FIR

- **Traffic distribution per ATS Route – Dakar Oceanic FIR:**

The following figures and tables try to sum up the operational data provided to SATMA. In Dakar Oceanic FIR the main flow is random route.

TRAFFIC	RANDOM	UN741	UN866	UN873	UN857	TRANSVERSAL
NORTHBOUND	770	8	445	353	126	38
SOUTHBOUND	685	469	2	442	120	
TOTAL	1455	477	447	795	246	38

Table 11. Distribution per ATS Route – Dakar Oceanic FIR

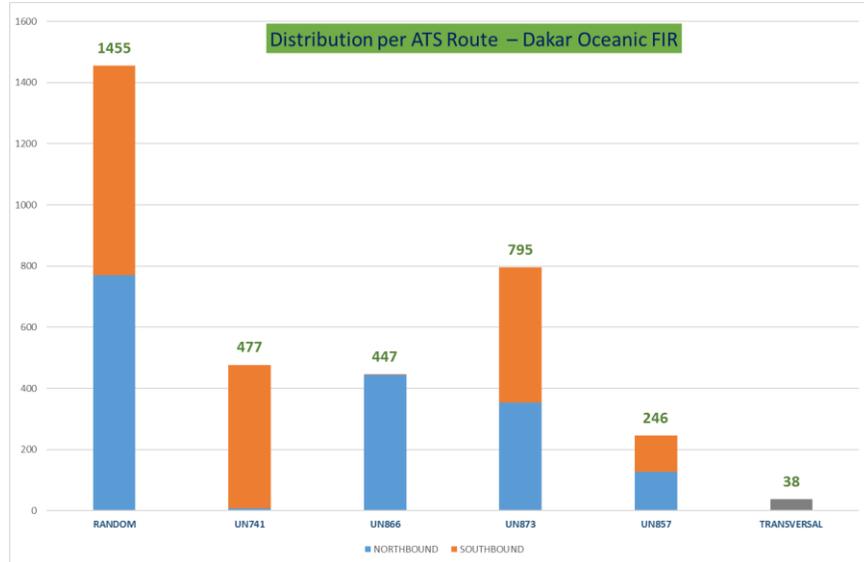


Figure 9. Distribution per ATS Route – Dakar Oceanic FIR

- Main Flows – Dakar Oceanic FIR

TRAFFIC FLOWS	FLIGHTS	%
POMAT TASIL	418	12.2%
DEKON AMDOL	410	12.0%
TASIL POMAT	352	10.3%
KODOS TAROT	334	9.8%
TAROT KODOS	327	9.6%
XUVIT NANIK	255	7.5%
MOVGA BIKOM	204	6.0%
KENOX NANIK	170	5.0%
ERETU BOTNO	121	3.5%
BOTNO ERETU	119	3.5%
GOGSO GARPO	119	3.5%
BIKOM MOVGA	110	3.2%

Table 12. TRAFFIC FLOWS – Dakar Oceanic FIR

**AIR TRAFFIC STATISTICS IN THE EUR/SAM AREA – ATLANTICO FIR**

Next table shows the number of flights per month belonging to EUR/SAM or random/transversal traffic (Atlantico FIR). The total number of flights registered in the EUR/SAM area of Atlantico FIR has been **3.387** flights. Eastern –Western flows are based on ATS Routes, that afterwards entry/exit in random areas Dakar Oceanic FIR.

	ATLANTICO FIR		
	AUGUST	2018	%
EUR/SAM	1856		54.8%
TRANSVERSAL	42		1.2%
EASTERN-WESTERN	1373		40.5%
RANDOM	116		3.4%
<b>TOTAL</b>	<b>3387</b>		

**Table 13.** Global Figures of Flights – EUR/SAM Area – Atlantico FIR

The following table shows, for the most significant airlines in terms of registered figures, the number of flights and percentage referred to the total number of registered flights in the EUR/SAM Area – Atlantico FIR during the studied period.

TRAFFIC PER AIRLINE IN DAKAR OCEANIC FIR			
AIRLINE	FLIGHTS	% TOTAL	% EURSAM
TAP	653	18.9%	14.4%
TAM	374	10.8%	5.3%
IBE	337	9.7%	6.2%
AFR	291	8.4%	5.1%
AEA	211	6.1%	4.5%
AZA	203	5.9%	0.8%
DLH	173	5.0%	2.4%
BAW	161	4.7%	2.6%
KLM	146	4.2%	2.7%
ARG	121	3.5%	0.8%
LAN	76	2.2%	0.1%
AZU	65	1.9%	1.9%

**Table 14.** Global Figures per airline – Atlantico FIR

On the other hand, considering the foreseen evolution of EUR/SAM Corridor, several additional analyses have been accomplished for each FIR:

- **Flight level distribution – Atlantico FIR**

Flight level FL380 was the most required one. Likewise, the 29% of traffic in Atlantico FIR was cleared to FL340 or below.

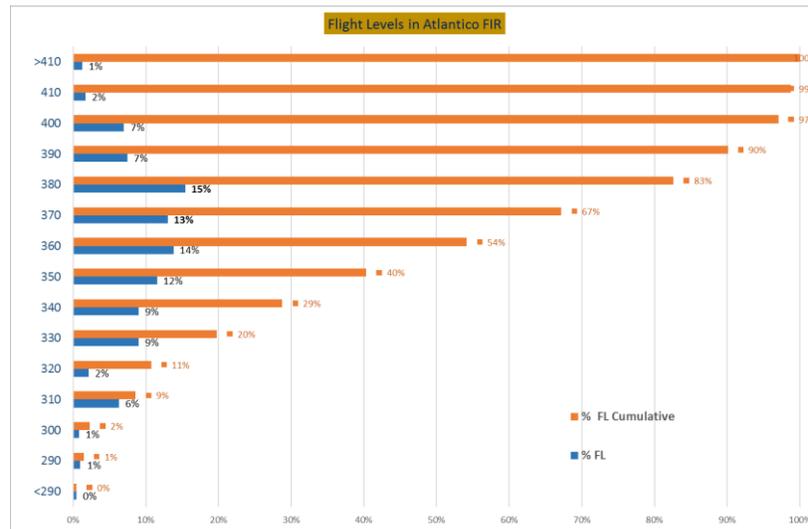


Figure 10. Distribution the Flight Levels in EUR/SAM Corridor – Atlantico FIR

Note that to prepare this assessment only FL in the border of FIR was considered.

- **Traffic load – Atlantico FIR:**

Next chart shows a summary of traffic load registered in Atlantico FIR where bars represent the number of aircraft that entered in the FIR per hour. The green curve represents the maximum number of aircrafts that entered in the FIR per hour. The peak period of traffic is 03-04. Likewise the peak hour was 04 with 29 flights.

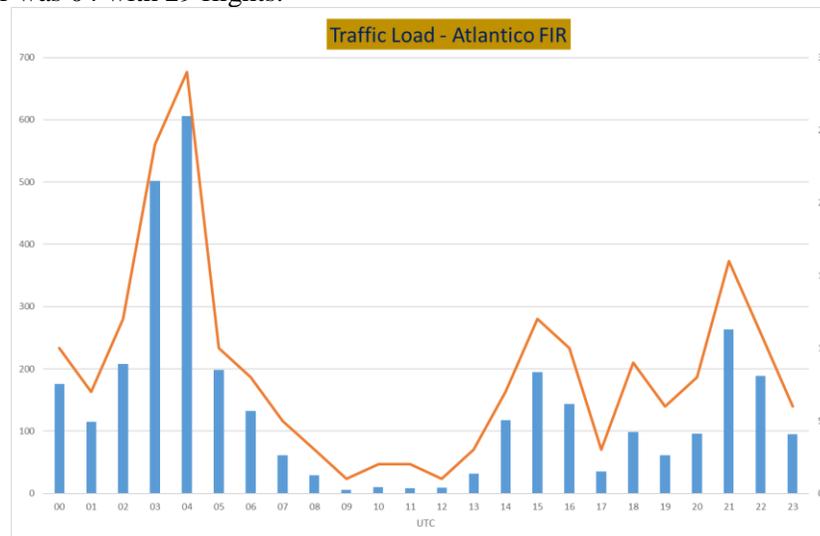


Figure 11. Traffic load in EUR/SAM Corridor – Atlantico FIR

- **Traffic distribution per ATS Route – Atlantico FIR:**

The following figures and tables try to sum up the operational data provided to SATMA. In Atlantico FIR the main flow is via IPERA (UN873). Note that western –eastern flow cover a huge area with several routes.

TRAFFIC	EASTERN-WESTERN	UN741	UN866	UN873	UN857	TRANSVERSAL	RANDOM
NORTHBOUND	694		362	371	117	42	67
SOUTHBOUND	679	456		451	99		49
TOTAL	1373	456	362	822	216	42	116

Table 15. Distribution per ATS Route – Atlantico FIR

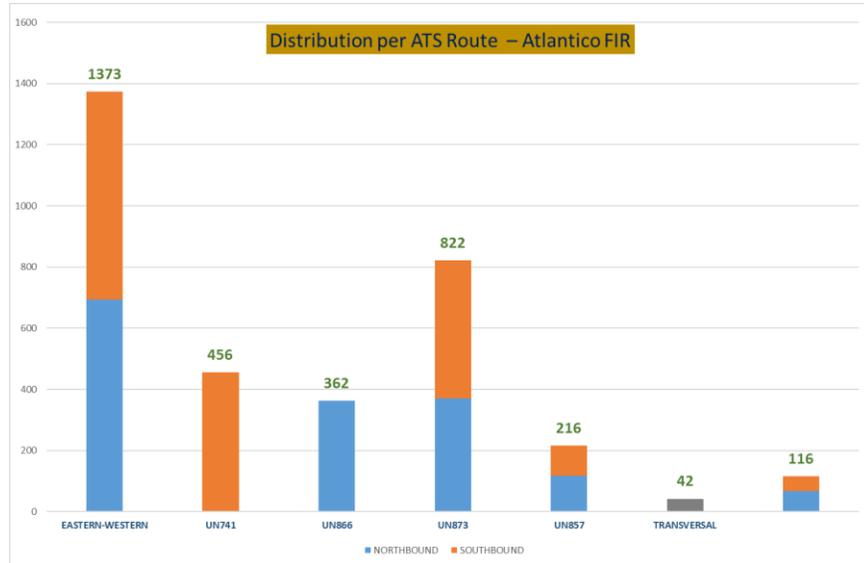


Figure 12. Distribution per ATS Route – Atlantico FIR

- **Main Flows – Atlantico FIR**

TRAFFIC FLOWS	FLIGHTS	%
NANIK JOBER	450	13.5%
TASIL VUNOK	445	13.4%
VUNOK TASIL	370	11.1%
MAGNO DEKON	361	10.8%
BUTAP CALVO	280	8.4%
DAKAP MOVGA	277	8.3%
CALVO BUTAP	219	6.6%
BUTAP VURBI	115	3.5%
ERETU UTRAM	95	2.9%
UTRAM ERETU	83	2.5%
MOVGA ESLEL	73	2.2%
MOVGA DAKAP	68	2.0%

Table 16. TRAFFIC FLOWS – Atlantico FIR

