



Argentina
EANA
ATFM Update

Present

Part I: Estrategic

Using Declared Sector capacity, a variable is used to calculate arrivals and take offs.

The red squares shows D-C imbalances.

It is used by intervals of 15 minutes to distribute the capacity and based on these results, FMU gets different operation combination.

ARR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38			
DEP	DEP/ARR	0	1	3	4	5,2	6,4	7,7	9,0	10,3	11,6	12,9	14,2	15,5	16,8	18,1	19,3	20,6	21,9	23,2	24,5	25,8	27,1	28,4	29,7	30,9	32,2	33,5	34,8	36,1	37,4	38,7	40,0	41,3	42,6	43,8	45,1	46,4	47,7	49,0		
0	0,0	0	1	3	4	5	6	8	9	10	12	13	14	15	17	18	19	21	22	23	25	26	27	28	30	31	32	34	35	36	37	39	40	41	43	44	45	46	48	49		
1	0,8	1	2	3	5	6	7	9	10	11	12	14	15	16	18	19	20	21	23	24	25	27	28	29	30	32	33	34	35	36	37	38	40	41	42	43	45	46	47	49	50	
2	1,6	2	3	4	6	7	8	9	11	12	13	15	16	17	18	20	21	22	24	25	26	27	29	30	31	33	34	35	36	38	39	40	42	43	44	45	47	48	49	51		
3	2,5	2	4	5	6	8	9	10	11	13	14	15	17	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51		
4	3,3	3	5	6	7	8	10	11	12	14	15	16	17	19	20	21	23	24	25	26	28	29	30	32	33	34	36	37	38	39	41	42	43	45	46	47	48	50	51	52		
5	4,1	4	5	7	8	9	11	12	13	14	16	17	18	20	21	22	23	25	26	27	29	30	31	32	34	35	36	38	39	40	41	43	44	45	46	47	48	49	51	52	53	
6	4,9	5	6	7	9	10	11	13	14	15	17	18	19	20	22	23	24	26	27	28	29	31	32	33	35	36	37	38	40	41	42	44	45	46	47	49	50	51	53	54		
7	5,7	6	7	8	10	11	12	13	15	16	17	19	20	21	22	24	25	26	28	29	30	32	33	34	35	37	38	39	41	42	43	44	46	47	48	50	51	52	53	55		
8	6,5	7	8	9	10	12	13	14	16	17	18	19	21	22	23	25	26	27	28	30	31	32	34	35	36	37	39	40	41	43	44	45	47	48	49	50	52	53	54	56		
9	7,4	7	9	10	11	13	14	15	16	18	19	20	22	23	24	25	27	28	29	31	32	33	34	36	37	38	40	41	42	43	45	46	47	49	50	51	52	54	55	56	57	
10	8,2	8	9	11	12	13	15	16	17	18	20	21	22	24	25	26	28	29	30	31	33	34	35	37	38	39	40	42	43	44	46	47	48	49	51	52	53	55	56	57		
11	9,0	9	10	12	13	14	15	17	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39	40	41	43	44	45	46	48	49	50	52	53	54	55	57	58		
12	9,8	10	11	12	14	15	16	18	19	20	21	23	24	25	27	28	29	30	32	33	34	36	37	38	39	41	42	43	45	46	47	48	50	51	52	54	55	56	58	59		
13	10,6	11	12	13	14	16	17	18	20	21	22	24	25	26	27	29	30	31	33	34	35	36	38	39	40	42	43	44	45	47	48	49	51	52	53	54	56	57	58	60		
14	11,4	11	13	14	15	17	18	19	20	22	23	24	26	27	28	29	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51	53	54	55	57	58	59	60		
15	12,3	12	14	15	16	17	19	20	21	23	24	25	26	28	29	30	32	33	34	35	37	38	39	41	42	43	44	46	47	48	49	50	51	52	54	55	56	57	59	60		
16	13,1	13	14	16	17	18	20	21	22	23	25	26	27	29	30	31	32	34	35	36	38	39	40	41	42	43	44	45	47	48	49	50	51	53	54	56	57	58	59	61	62	
17	13,9	14	15	16	18	19	20	22	23	24	25	27	28	29	31	32	33	35	36	37	38	40	41	42	44	45	46	47	48	49	50	51	53	54	55	56	58	59	60	62	63	
18	14,7	15	16	17	19	20	21	22	24	25	26	28	29	30	31	33	34	35	37	38	39	40	42	43	44	46	47	48	50	51	52	53	55	56	57	59	60	61	62	64		
19	15,5	16	17	18	19	21	22	23	25	26	27	28	30	31	32	34	35	36	37	39	40	41	43	44	45	46	48	49	50	52	53	54	55	57	58	59	61	62	63	65		
20	16,3	16	18	19	20	21	23	24	25	27	28	29	31	32	33	34	36	37	38	40	41	42	43	45	46	47	48	49	50	51	52	54	55	56	58	59	60	61	63	64	65	
21	17,2	17	18	20	21	22	24	25	26	27	29	30	31	33	34	35	36	38	39	40	42	43	44	46	47	48	49	50	51	52	53	55	56	57	58	60	61	62	64	65	66	
22	18,0	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51	53	54	55	57	58	59	61	62	63	64	66	67		
23	18,8	19	20	21	23	24	25	27	28	29	30	32	33	34	36	37	38	39	41	42	43	45	46	47	48	50	51	52	54	55	56	57	59	60	61	63	64	65	66	68		
24	19,6	20	21	22	23	25	26	27	29	30	31	32	34	35	36	38	39	40	42	43	44	45	47	48	49	50	52	53	54	56	57	58	60	61	62	63	65	66	67	69		
25	20,4	20	22	23	24	26	27	28	29	31	32	33	35	36	37	38	40	41	42	44	45	46	47	49	50	51	53	54	55	57	58	59	60	62	63	64	65	67	68	69		
26	21,2	21	23	24	25	26	28	29	30	32	33	34	36	37	38	39	41	42	43	44	46	47	48	50	51	52	54	55	56	57	59	60	61	62	63	64	65	66	68	69	70	
27	22,1	22	23	25	26	27	28	30	31	32	34	35	36	38	39	40	41	43	44	45	47	48	49	50	52	53	54	56	57	58	60	61	62	63	65	66	67	68	70	71		
28	22,9	23	24	25	27	28	29	31	32	33	34	36	37	38	40	41	42	43	45	46	47	48	49	50	51	52	54	55	56	57	59	60	61	62	63	64	65	66	67	68	69	71
29	23,7	24	25	26	28	29	30	31	33	34	35	37	38	39	40	42	43	44	46	47	48	49	50	52	53	55	56	57	58	60	61	62	63	64	65	66	67	68	70	71	73	
30	24,5	25	26	27	28	30	31	32	34	35	36	37	39	40	41	43	44	45	46	48	49	50	51	53	54	55	57	58	59	61	62	63	64	66	67	68	69	70	71	72	74	
31	25,3	25	27	28	29	30	32	33	34	36	37	38	40	41	42	43	45	46	47	49	50	51	52	54	55	56	58	59	60	61	63	64	65	67	68	69	70	72	73	74	75	
32	26,1	26	27	29	30	31	33	34	35	36	38	39	40	42	43	44	45	47	48	49	50	51	52	54	55	56	57	58	60	61	62	64	65	66	67	68	70	71	73	74	75	
33	27,0	27	28	30	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51	53	54	55	57	58	59	60	62	63	64	65	67	68	70	71	72	73	75	76	77	
34	27,8	28	29	30	32	33	34	36	37	38	39	41	42	43	45	46	47	48	50	51	52	54	55	56	57	59	60	61	63	64	65	66	68	69	71	72	73	74	75	77		
35	28,6	29	30	31	32	34	35	36	38	39	40	41	43	44	45	47	48	49	50	51	53	54	56	57	58	60	61	62	63	64	65	67	68	69	71	72	73	74	75	76	78	
36	29,4	29	31	32	33	35	36	37	38	40	41	42	44	45	46	47	48	49	50	51	53	54	56	57	58	59	60	62	63	64	66	67	68	69	71	72	73	75	76	77	78	
37	30,2	30	32	33	34	35	37	38	39	41	42	43	44	46	47	48	50	51	52	53	55	56	57	59	60	61	62	64	65	66	68	69	70	71	73	74	75	77	78	80		
38	31,0	31	32	34	35	36	37	39	40	41	43	44	45	47	48	49	50	52	53	54	56	57	58	59	60	61	62	64	65	66	67											

Part II: Pre tactical

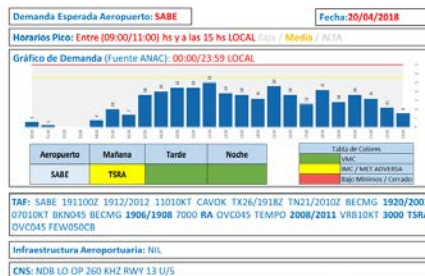
Since May 2018 FMU provide ATFM service to Ezeiza FIR H24
It also produces PDA and Post Ops Analysis on a daily basis.
Special reports are provided for specific dates.

FMU EZE: PDA



Publicado: 20 Abril de 2018 a las 05:00 UTC

Vigencia: Desde el 21 de Abril a las 05:00 UTC
Hasta el 21 de Abril a las 23:59 UTC



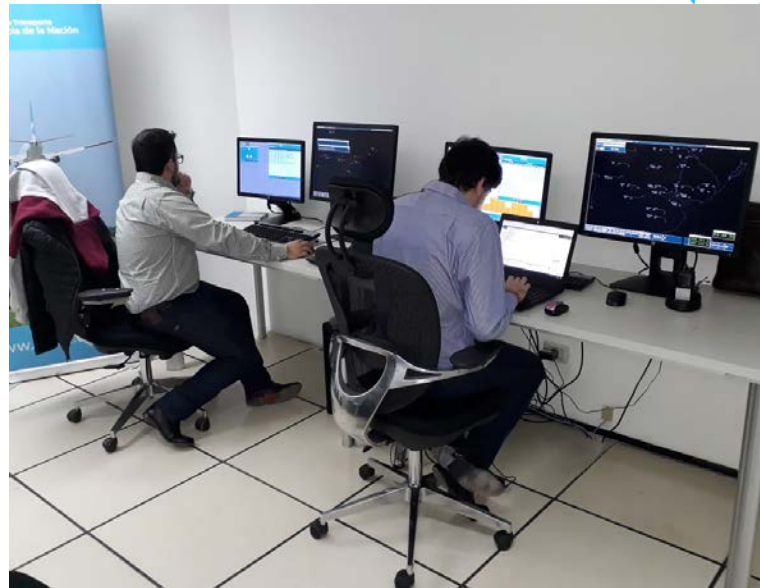
Medidas ATFM Recomendadas

Originador	Afectado	Tipo medida	Inicio (UTC)	Fin (UTC)
TMA Baires	SADF	MDI: 15min	14:00	15:00
		MDI: 7min	19:00	20:00
		MDI: 10min	23:00	01:00
SAEF	SACF	MIT 40 NM ISOPO/ROKER POINTS	10:00 19:00	14:00 23:59
SAEF	SUEO	MIT 30 NM KUKEN/PAPIX POINTS	11:00 21:00	14:00 23:59
SAEF	SAMF	MIT 40 NM ELABO/RAXUR POINTS	10:00 20:00	15:00 01:00
SAEF	SAVF	MINIT: 7 min KIMID/PADEX POINTS	11:00 19:00	17:00 23:59
SAEF	SARR	MINIT: 7 min TODES/RIOKA/KORTA POINTS	18:00	23:59



✔ Part II: Tactical

Physical presence in the Ezeiza ACC
Amendment of TMMs.
CDM methodology: ACC supervisors, Adjacent ACCs,
Users (CCO, Airlines)



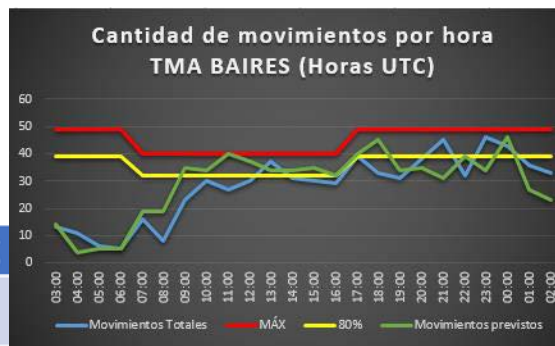
Present

☑ Parte III: Post operational

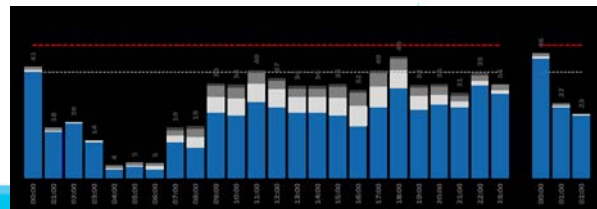
With the objective of continuous improvement, FMU elaborates Post ops analysis daily, comparing planned vs real demand, merely descriptive.

INFORME DIARIO POST OPERACIONES FMU EZE

Originador	Afectado	Medida ATFM	Inicio (UTC)
SAEF	SACF	MIT 40 NM ENTRE NTL FLT MIT 20 NM ENTRE INTL FLT Y ENTRE INTL-NTL FLT POR GRUPO DE PUNTOS (ISOPO/ROKER) MIT 25 NM VIA MUZ	10:00
SAEF	SAMF	MIT 50 NM POR GRUPO DE PUNTOS (ELABO/RAXUR – SINAL/LOLAS)	10:00 16:00 21:30
SAEF	SUEO	MIT 30 NM POR GRUPO DE PUNTOS (PAPIX/KUKEN)	11:00 14:00 22:00
SAEF	SUEO	MIT 40 NM VIA SARGO	12:00 01:30
SAEF	SARR	MINIT 10 MIN POR GRUPO DE PUNTOS (TODES/KORTA/RIOKA – VARES)	20:00 01:00
SAEF	SAVF	MINIT 10 MIN POR GRUPO DE PUNTOS (KIMID/SANBU – PUGLI)	14:00 16:00 19:00



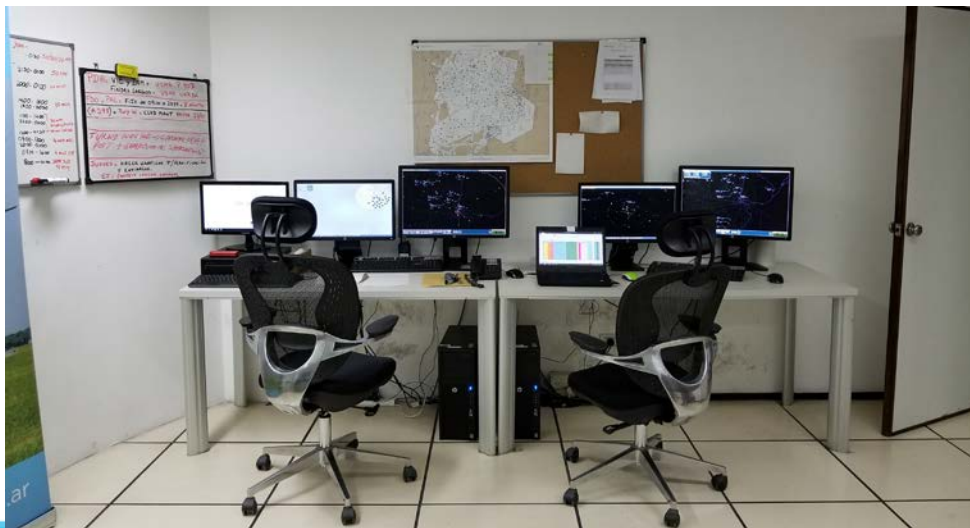
Hora UTC	DEMANDA PREVISTA	TRANSITO REAL	AVIAC. COM.	AVIACIÓN GENERAL							AVIACIÓN MILITAR					PRUCES	STAS		
				EZE	AER	FDO	MOR	PAL	PTA	OTRO	EZE	AER	MOR	PAL	FDO				
03:00	14	13	12	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	4	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	5	6	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	19	16	15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	19	8	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
09:00	35	23	22	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00	34	30	29	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	40	27	25	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	37	30	26	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0
13:00	34	37	30	2	0	3	2	0	0	0	0	0	0	0	0	0	0	0	1
14:00	34	31	25	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	1
15:00	35	30	28	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	32	29	27	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	40	39	27	1	2	6	1	0	0	0	0	0	0	1	0	0	0	1	0
18:00	45	33	30	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	34	31	26	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
20:00	35	38	33	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	31	45	35	0	1	7	2	0	0	0	0	0	0	0	0	0	0	0	0
22:00	39	32	30	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	34	46	39	1	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0
00:00	46	43	36	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	27	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	23	33	31	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	701	672	532	6	15	46	3	0	1	0	0	0	0	2	0	0	0	1	4



In progress

Tasks

- Elaborate statistic data
- Improving Procedures Manual
- Participating in the process of evaluation and approval of itineraries. CDM



Future

☑ Action items

Analysis of improving possibilities in:

- PDA in spanish and english
- Analytic Post operational report: the objective is to generate an enhancement and overcome the descriptive aspect analyzing situations and looking for better practice.

Itineraries approval: Slots policy (ANAC)



ANAC | AVIACIÓN CIVIL
ARGENTINA



Ministerio de Transporte
Presidencia de la Nación

📌 Metrics

Rwy Capacity:

Take-off Runway Ocupancy Time (By ACFT category)

Arrival Runway Ocupancy Time (By ACFT category)

Final Approach Time (By ACFT category)

ACFT Mix

Physical, Teoretical and Declared Runway Capacity

Sector Capacity:

Average Remaining Time in Sector (and standard deviation)

Average Secondary Tasks Time (and standard deviation)

Average Communication Time (and standard deviation)

Reference Number

Peak Number

Sector Time Capacity

Demand calculation

It is calculated based on itineraries approved by aeronautical authority plus an inferred number of general aviation.

This methodology shows for an airport or group of airports the following data:

- Number of comercial-non comercial aircraft by time interval
- Number of total daily operations
- Distribution of notification points and sectors

N° Vuelo	Tipo de Vuelo	Naturaleza de Vuelo	Matricula	Equipo	Configuración	Dias que Opera							Desde	Hasta	Origen	STD	Destino	STA
						1	2	3	4	5	6	7						
FO 5001	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/10/2018	31/10/2018	COR	08:55	EPA	10:10
FO 5002	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/10/2018	31/10/2018	COR	18:10	EPA	19:25
FO 5400	REG	PAX/CAR	TBD	B738	Y189				X				4/10/2018	25/10/2018	COR	07:30	MDZ	08:35
FO 5400	REG	PAX/CAR	TBD	B738	Y189	X					X		2/10/2018	30/10/2018	COR	07:15	MDZ	08:20
FO 5404	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/10/2018	31/10/2018	COR	20:15	MDZ	21:20
FO 5432	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/10/2018	31/10/2018	COR	13:20	IGR	15:10
FO 5444	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/10/2018	31/10/2018	COR	07:00	BRC	09:15
FO 5001	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	08:55	EPA	10:10
FO 5002	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	18:00	EPA	19:15
FO 5400	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	06:30	MDZ	07:35
FO 5404	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	20:15	MDZ	21:20
FO 5432	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	13:10	IGR	15:00
FO 5444	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/11/2018	30/11/2018	COR	07:55	BRC	10:10
FO 5480	REG	PAX/CAR	TBD	B738	Y189	X		X	X	X			1/11/2018	30/11/2018	COR	15:05	CNQ	16:25
FO 5001	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/12/2018	30/3/2019	COR	08:55	EPA	10:10
FO 5002	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/12/2018	30/3/2019	COR	18:00	EPA	19:15
FO 5400	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	1/12/2018	30/3/2019	COR	06:30	MDZ	07:35
FO 5404	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	2/12/2018	29/3/2019	COR	20:15	MDZ	21:20
FO 5432	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	2/12/2018	29/3/2019	COR	13:10	IGR	15:00
FO 5444	REG	PAX/CAR	TBD	B738	Y189	X	X	X	X	X	X	X	2/12/2018	29/3/2019	COR	07:55	BRC	10:10

Statistics

☑ Metrics

Delays:

Nowadays they are focused on departure operations. Airlines inform the amount of minutes of delay. EANA analyses this information,.

Example of the use of metrics:

Comparison between interannually in order to evaluate the impact of atfm implementation:

June 18 vs June 17:

- Take-off Variation: +4.7%
- Toatal minutes of delay Variation: +5.4%
- Delayed Flights Variation: +56%
- Average Delay Variation: -6%



📌 Metrics

AIRCON (Indra) Data: EANA will continue working with a “Billing” file:

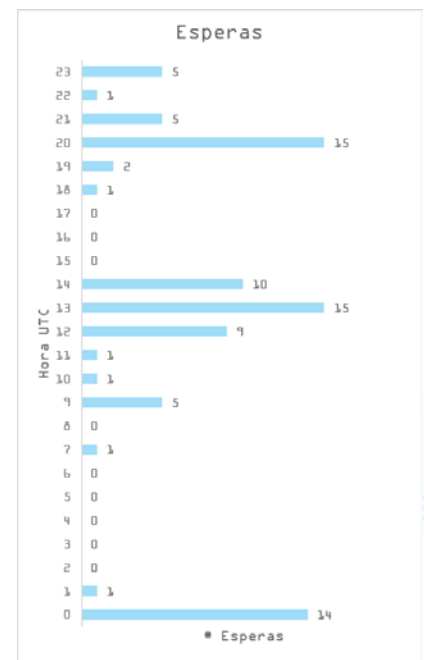
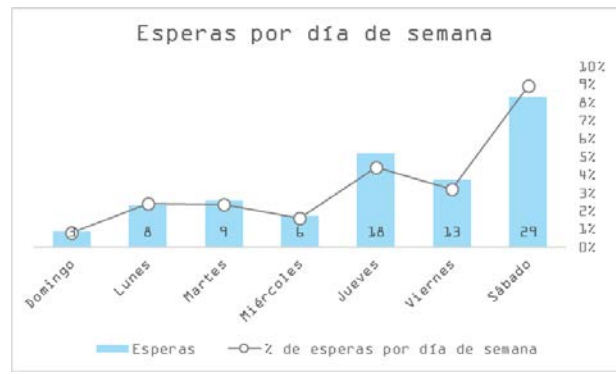
Metrics to obtain:

- Flight distance / time efficiency
- FL efficiency (climb)
- Distance flown
- Directs
- Variation of Flight Plan (Route)
- Variation of Flight Plan (FL)
- Air holdings
- Distance taxiing after Arrival/Time efficiency
- FL efficiency (descent)

Statistics

Metrics

Statistic data: Sectors combination.
Air holdings.
Comparison and study of relations.



FMU EZE



TEL: +54 (011) 4480 – 2318 / RTI 57318

EMAIL: fmueze@eana.com.ar

EANA | NAVEGACIÓN
AÉREA ARGENTINA



Ministerio de Transporte
Presidencia de la Nación



THANK YOU!

EANA | NAVEGACIÓN
AÉREA ARGENTINA



Ministerio de Transporte
Presidencia de la Nación