

## APPENDIX A

## SURVEYS TO STATES ON POSSIBLE DIFFICULTIES FOUND TO RNAV IMPLEMENTATION

Identified difficulties	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
1. Does your administration foresee difficulties in RNAV5 implementation on September 2011?		NO	YES					NO					YES	NO	Uruguay: in some areas Venezuela: no difficulties foreseen.
2. If so, please confirm which or which of the areas are difficulties foreseen: a) OPS b) AIR c) ATM d) AIS (Aeronautical Publications e) Others			AIS												Guyana: A training seminar is planned for ATCOs and AIS. Uruguay: AIS/ATM
3. Please confirm which are the specific problems identified?			*					*					YES		Brazil: depending on the information to be published in the AIP, more time in advance regarding implementation date, could be necessary Uruguay: AIS difficulties in the compliance with delivery target dates for documentation for publication. ATM lack of manuals, training, personnel.

Identified difficulties	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
4. Do you consider that any additional action by ICAO could help to resolve identified inconveniences?			-					-					YES		Uruguay: organize training workshops.

**Instrucciones para el llenado del formulario - Instructions to fill in the form**

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- No cumplida: colocar **NO** en el casillero correspondiente y, de ser el caso, hacer comentarios en columna de observaciones/ Not complied: place **NO** in the corresponding box and if such were the case, make comments in the remarks column

## APPENDIX B

## FOLLOW-UP OF ULTERIOR MEASURES OF RNAV5 SAFETY PLAN TO REDUCE RISKS

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
1. Non-RNAV5 aircraft flying on RNAV5 routes															
Inability of the aircraft to maintain RNAV5 route															
1.1 RNAV5 operational approval of aircraft with potential for approval.		YES	*										NO	YES	<b>Venezuela:</b> continuous
1.2 Direct access of ATS units to updated database of RNAV5-approved aircraft		NO	NO										NO	NO	<b>Brazil:</b> there are doubts as to whether this mitigating measure would be a problem that is not responsibility of the ATCO to supervise airspace. <b>Venezuela:</b> in process.
1.3 Improve surveillance in the necessary areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		NO	YES										YES	YES	<b>Uruguay:</b> in bidding process. New VHF AM stations and AMHS moved in addition to SSR Mode S for Montevideo. With the acquisition of 2100 ADS C will be implemented. Digital voice IP recently acquired.
1.4 Direct access of ARO/AIS units to updated database of RNAV5-approved aircraft		NO	NO										NO	YES	<b>Brazil:</b> data base could be outdated. This mitigating measure would only be possible if this data base were updated online by CADs. <b>Uruguay:</b> both the SIHA and the en-route navigation charts are updated and regularly suffer amendments. No data base for RNAV5 approved

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
															aircraft is available. <b>Venezuela:</b> radar coverage in all the territory.
1.5 Training of operators and air navigation service providers		NO	YES										NO	YES	<b>Venezuela:</b> in process.
1.6 Applicable contingency procedures upon identifying a non-RNAV5 aircraft on an RNAV5 route		NO	YES										NO	NO	<b>Brazil:</b> foreseen in AIP SUP Model prepared for SAM/IG/6.
1.7 Updating and, if applicable, development of the Operational Manuals of the ANSP, incorporating the appropriate procedures		NO	NO										NO	YES	
1.8 Designate a responsible party in each State to maintain the database of RNAV5-approved aircraft		YES	*										NO	YES	<b>Uruguay:</b> Lovrich and Ledesma but not in written. <b>Venezuela:</b> safety.
<b>2. Loss of RNAV5 capacity on board</b>															
<b>Inability of the aircraft to maintain the RNAV5 route</b>															
2.1 Standardization of operator procedures in case of loss of RNAV5 capability		NO	NO										NO	NO	<b>Uruguay:</b> in view that there is none approved.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
2.2 Improve surveillance in the necessary areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		NO	YES										YES	YES	<b>Uruguay:</b> in bidding process, new VHF AM moved and AMHS. Recently acquired Voice IP. <b>Venezuela:</b> radar coverage in all the territory.
2.3 Applicable contingency procedures upon identifying an aircraft that has lost RNAV5 capability		NO	YES										NO	YES	<b>Brazil:</b> foreseen in AIP SUP Model prepared for SAM/IG/6. <b>Venezuela:</b> in continental flight
2.4 Training of operators, including training of the crew in the application of contingency procedures		NO	*										NO	YES	<b>Venezuela:</b> continuous
2.5 Training of air navigation service providers		YES	NO										NO	YES	
2.6 ATC simulations		NO	NO										NO	YES	<b>Brazil:</b> ATC simulations will not be necessary. <b>Uruguay:</b> will be improved with a simulator acquired by the IAA (aeronautical training centre).
2.7 RNAV system integrity oversight plan													NO	NO	<b>Uruguay:</b> we have a surveillance plan. As approval is achieved, integration to the plan will occur.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
<b>3. Lack of GND NAVAID coverage</b>															
<b>Inability of the aircraft to maintain RNAV5 route</b>		NO	NO										NO		<b>Brazil:</b> depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids. <b>Uruguay:</b> in process.
3.1 Publish the areas with <b>no</b> GND NAVAIDS RNAV5 (DME/DME) and VOR/DME coverage													-	NO	<b>Venezuela:</b> next amendment to AIP
3.2 Ensure an appropriate coverage by:		YES	-										-	-	
a) Implementing the required GND NAVAIDs; or		YES	NO										-	NO	<b>Brazil:</b> depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids.
b) Establish GNSS and/or INS as requirement to use the route affected.		NO	YES										YES	YES	<b>Uruguay:</b> in bidding process, new VHF AM moved and AMHS. Recently acquired Voice IP
3.3 Improve surveillance in the required areas (implement VHF, HF, ADS-CPDLC, ADS-B, Radar and other types of communications)		YES	NO*										NO	YES	<b>Uruguay:</b> specific training received in acquired equipment, general training required on new technologies, networks, fiber, IP voice.
3.4 Training of operators and air		NO	NO										NO	YES	

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Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
4.5 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the appropriate procedures		NO	NO										-	YES	<b>Brazil:</b> depends on the study to be carried out in order to determine coverage and geometry of radio navigation aids.
4.6 Disseminating information about solar storms that might affect the satellite and HF systems		NO	NO										-	NO	<b>Venezuela:</b> will request to MET on capacity to carry out this measure.
5. Volcanic eruption															
Volcanic ash															<b>Bolivia:</b> not applicable.
Reduced availability of the route network															
5.1 Re-routing of air traffic		-	NO										YES	YES	<b>Uruguay:</b> conventional ATS routes.
5.2 Training of operators, including training of the crew on the application of contingency procedures			*										NO	NO	<b>Venezuela:</b> in process
5.3 Determine ATC sector capacity		-	YES										NO	NO	<b>Venezuela:</b> in process
5.4 ATFM		-	YES										NO	NO	<b>Venezuela:</b> in process
5.5 Updating of LOAs between MET/ATM services		-	NO										NO	YES	
5.6 Develop regional contingency procedures		-	NO										-	YES	<b>Venezuela:</b> LOAs adjacent States.
5.7 Alternate routes		-	YES										YES	YES	<b>Venezuela:</b> agreements among States



Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
5.8 Updating of the operational manuals of the operator		-	*										NO	NO	
5.9 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the procedures foreseen in Chapter 15 (15.8 of Doc 4444)		-	NO										NO	YES	
<b>6. Adverse meteorological effects</b>															
<b>Large deviations</b>															
6.1 Updating of LOAs between MET/ATM services		YES	NO										NO	YES	
6.2 Alternate routes		NO	NO										YES	YES	
6.3 QMS/MET/AIS		YES	NO										YES	YES	<b>Bolivia:</b> in process. <b>Uruguay:</b> AIS has presented documentation of the QMS. The same is in an adjustment stage to external pre-audit process.
6.4 Updating of the operational manuals of the operator and the ANSP		NO	NO*										-	YES	<b>Venezuela:</b> ANSP
<b>7. Operational manuals of operators – ANSP not updated</b>															
<b>Wrong application of procedures</b>															
Implement SMS		NO	YES										NO	YES	

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
<b>8. Inadequate civil/military coordination</b>															
Unauthorised entry of civil aircraft in restricted airspaces		-	-										NO		<b>Uruguay:</b> the SIAA is updated and suffers amendments. Integrated system of aeronautical information (AIP, NOTAM, AIP Supplement, AIC, etc.)
Unauthorised entry of military aircraft from restricted airspaces into ATS routes		-	-										NO		
8.1 Updating of video charts		NO	YES										NO	YES	
8.2 Updating of LOAs and general civil/military ATM procedures		NO	YES										NO	YES	
8.3 ATFM		NO	YES										NO	NO	
8.4 Training of ATCOs and pilots		NO	YES										NO	YES	
8.5 Restructuring of segregated sectors/airspace		NO	YES										NO	YES	
8.6 Optimise or, if applicable, implement a civil/military coordination committee		NO	YES										NO	YES	
8.7 Flexible use of airspace		NO	YES										NO	NO	<b>Venezuela:</b> committee in process

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
8.8 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating the procedures foreseen in Chapter 16 (16.1) of Doc 4444 and the standards and recommended practices of Annex 2 and 11		NO	YES										NO	YES	Venezuela: in process
<b>9. Discrepancy of aeronautical information concerning the route network</b>															
<b>Lack of integrity of the data published by the States</b>															
<b>Loss of separation</b>															
9.1 Implement quality management system (QMS) in AIS		NO	NO										NO	YES	Uruguay: the AIS has presented the document on QMS. The same is in stage of adjustment to external pre-audit process.
9.2 Comply with AIRAC cycles States ANSPs		YES	YES										YES	YES	Uruguay: compliance of AIRAC cycles is carried out for more than 10 years.
<b>Outdated airborne navigation database, if used</b>													-		
<b>Loss of separation</b>		YES	YES										YES		Uruguay: compliance of AIRAC cycles is carried out for more than 10 years.

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
9.3 Comply with AIRAC cycles		YES	YES										YES	YES	<b>Uruguay:</b> the GIS/TF/1 generated model documents to exchange information among States and with other organizations.
9.4 Improve and/or formalise coordination between States and navigation database providers		NO	NO										NO	YES	
9.5 Publish specific navigation database regulations		YES	*										YES	YES	<b>Uruguay:</b> DNA has an inspection programme for users.
9.6 Schedule operator inspections		NO	*										-	YES	
9.7 Comply with navigation database regulations established by the States		YES	YES										YES	YES	<b>Uruguay:</b> AIS has already presented QMS documentation. The same is in a state of adjustment to external pre-audit process.
9.8 Increased ATCO workload		NO	NO										NO	No	<b>Uruguay:</b> compliance of AIRAC cycles is carried out for more than 10 years. <b>Venezuela:</b> in process
<b>10. Inadequate airspace design</b>															
10.1 Analyse sector workload after route optimisation		YES	YES										NO	NO	<b>Venezuela:</b> in process
10.2 Provide a sufficient number of air traffic controllers		NO	NO										NO	NO	<b>Venezuela:</b> in process
10.3 Drafting of the safety plan for sectors		NO	NO										NO	NO	<b>Venezuela:</b> in process

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[illegible]

Hazard specific component and ulterior measures	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN	REMARKS
12.4 Training of ATCOs in the application of procedures to avoid ATC coordination errors and completion of the lateral deviation reporting form		-	-										-	NO	
12.5 Use of data available in CARSAMMA to visualise potential errors		NO	NO										YES	NO	Uruguay: YES by the administration NO by ATCOs.
12.6 Updating and, if applicable, drafting of the operational manuals of the ANSP, incorporating procedures to reduce operational errors in the ATC coordination loop between adjacent ACCs		NO	NO										YES	YES	
12.7 Implement ATC system alarms to detect lateral deviations		NO	NO										NO	NO	Venezuela: survey on automation
12.8 Implement AIDC		NO	NO										NO	NO	

#### Instrucciones para el llenado del formulario - Instructions to fill in the form

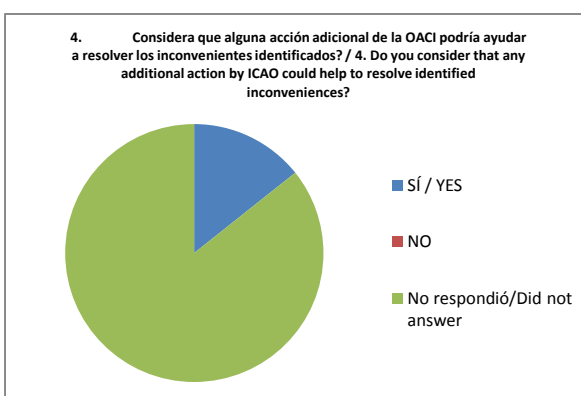
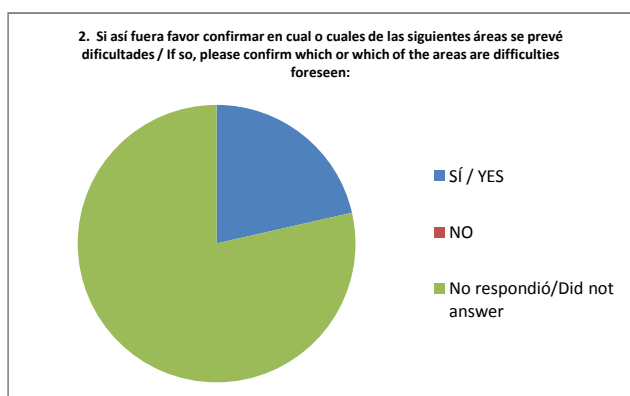
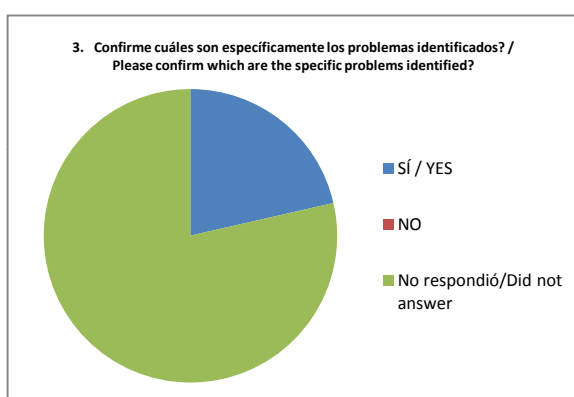
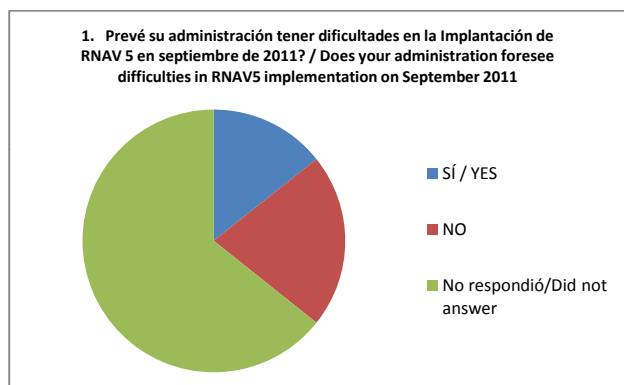
- Cumplida: colocar **SÍ** en el casillero correspondiente. / Accomplished: place **YES** in the corresponding box
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APÉNDICE/APPENDIX C

Dificultades identificadas	SÍ / YES	NO	No respondió/Did not answer
1. Prevé su administración tener dificultades en la Implantación de RNAV 5 en septiembre de 2011? / Does your administration foresee difficulties in RNAV5 implementation on September 2011	2	3	9
2. Si así fuera favor confirmar en cual o cuales de las siguientes áreas se prevé dificultades / If so, please confirm which or which of the areas are difficulties foreseen:	3	0	11
a) OPS			
b) AIR			
c) ATM			
d) AIS (Publicaciones aeronáuticas/Aeronautical publications)			
e) Otros/Other			
3. Confirme cuáles son específicamente los problemas identificados? / Please confirm which are the specific problems identified?	3	0	11
4. Considera que alguna acción adicional de la OACI podría ayudar a resolver los inconvenientes identificados? / 4. Do you consider that any additional action by ICAO could help to resolve identified inconveniences?	2	0	12

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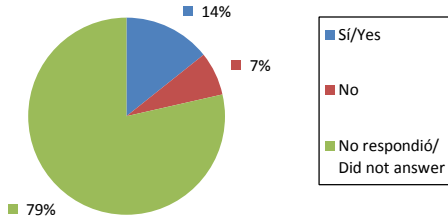




APÉNDICE/APPENDIX C

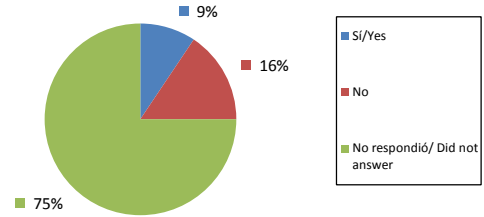
TOTAL 1

1. Vuelo de ACFT sin Aprobación RNAV-5 en Rutas RNAV-5 / Incapacidad de la aeronave de mantener la ruta RNAV5 / 1. Non-RNAV5 aircraft flying on RNAV5 routes / Inability of the aircraft to maintain RNAV5 routes



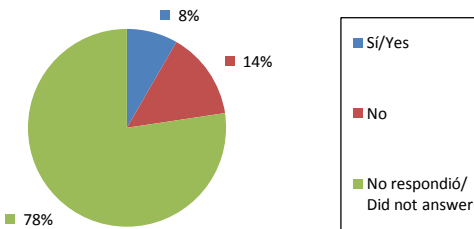
TOTAL 2

2. Pérdida de capacidad RNAV-5 a bordo - Incapacidad de la aeronave de mantener la ruta RNAV-5 / 2. Loss of RNAV5 capacity on board



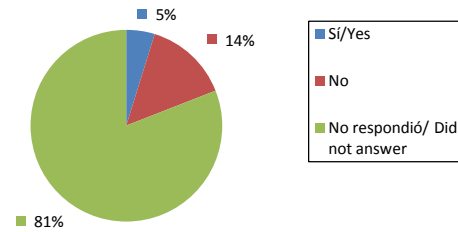
TOTAL 3

3. Falta de cobertura de GND NAVAID / Incapacidad de la aeronave de mantener la ruta RNAV 5 / Lack of GND NAVAID coverage / Inability of aircraft to maintain RNAV5



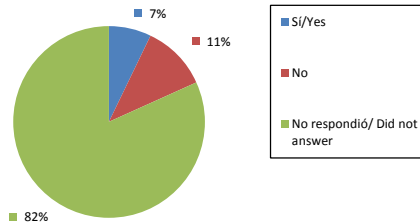
TOTAL 4

4. Falta de cobertura de NAVAID / Incapacidad de la aeronave de mantener la ruta RNAV 5 / 4. NAVAID coverage failure / Inability of the aircraft to maintain RNAV5 route



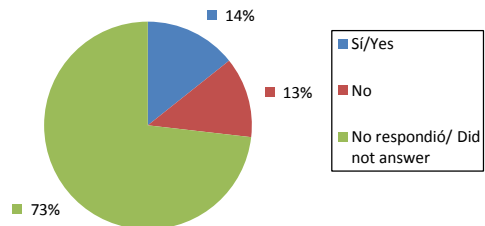
TOTAL 5

5. Erupción volcánica / Cenizas Volcánicas / Disminución de la disponibilidad de la red de rutas / Volcanic ash / Reduced availability of the route network



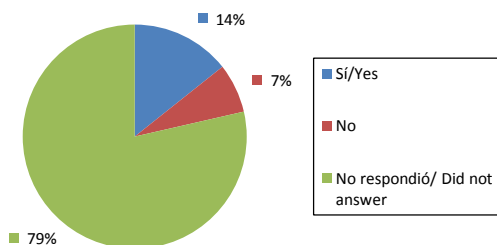
TOTAL 6

6. Efectos meteorológicos adversos / Grandes desviaciones / Adverse meteorological effects / Large deviations



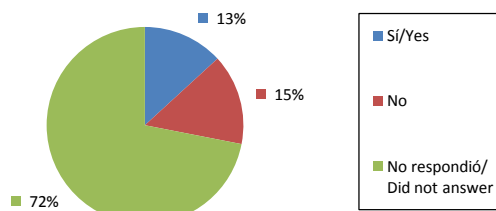
**TOTAL 7**

**7.1 Implementar SMS/ Implement SMS**



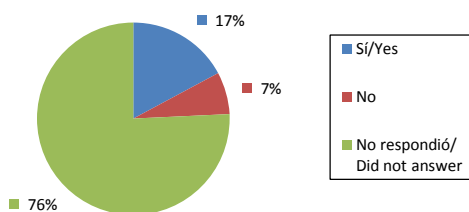
**TOTAL 8**

**8. Coordinación Civil/Militar inadecuada / Ingreso sin autorización de aeronaves civiles en los Espacios Aéreos restringidos / Ingreso sin autorización de aeronaves militares**



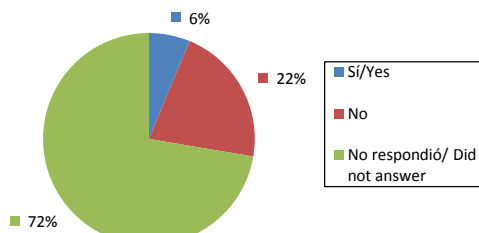
**TOTAL 9**

**9. Discrepancia de las informaciones aeronáuticas relacionadas a la RNAV- Falta de integridad de los Datos publicados por los Estados / Base de datos de navegación**



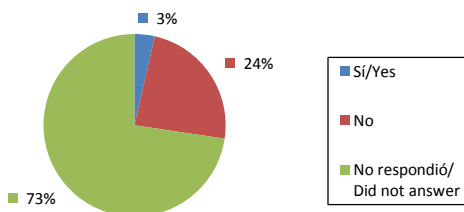
**TOTAL 10**

**10. Diseño inadecuado del espacio aéreo / Aumento de la carga de trabajo del ATCO / Inadequate airspace design / Increased ATCO workload**



**TOTAL 11**

**11. Desvíos de Navegación, debido a errores técnicos / Desviación debido a falla del equipo / Desviación debido a evento de contingencia / Navigation deviations due to technical errors / Deviation due to engine failure / Deviation due to a contingency**



**TOTAL 12**

**12. Desvíos de Navegación, debido a errores operacionales / Falta de coordinación entre ACC / Navigation deviations due to operational errors / Lack of coordination between ACCs**

