



Agenda Item 2: Report of activities of the GESEA and Subgroups

b) ATM implementation. Progress of the Subgroups

IMPLEMENTATION OF DIRECT ROUTES IN BRAZIL

(Presented by Brazil)

SUMMARY

The purpose of this Information Paper is to summarize of the implementation of the concept of Direct Routes (Strategic Direct Routing) in the Brazilian airspace, the status of this process and the next steps foreseen.

Reference:

- SAM/IG meetings

1. Background

1.1 In March 2020, with the declaration of the pandemic by the World Health Organization (WHO), a drastic reduction in air movements was observed in all countries, especially in regular passenger air transport, affecting domestic flights and mainly international. In Brazil, one of the initiatives taken by the Air Space Control Department (DECEA) under the coordination of the Centro de Gerenciamento da Navegação Aérea (CGNA), to help mitigate the effects of the pandemic on national air traffic demand and to promote the recovery of the industry, was the implementation of the concept of Direct Routes (DCT Routes).

1.2 Direct Routes are established to provide airspace users with greater flexibility in relation to the fixed route network. In addition, the concept allows users to optimize the planning of their flights, aiming at efficiency and managing to reduce fuel consumption and, consequently, the emission of pollutants.

2. Analysis

2.1 The establishment of the concept of Direct Routes is one of the elements listed in the ICAO Global Air Navigation Plan (GANP-Doc 9750), inserted in Block 0 of ASBU implementations, receiving the identifier FRTO-0/1 in the GANP.

2.2 Therefore, after the declaration of the COVID-19 pandemic in March 2020, Brazil worked in collaboration with representatives of airlines and national ATC bodies on initiatives aimed at minimizing the impact of the drastic reduction in demand for airlines. In this sense, the collaborative decisions taken from the first analyzes were crucial, considering the needs of the users and the experience of the CGNA Control Center Controllers and Air Traffic Flow Managers.

2.3 Figure 1 shows the impact of the pandemic in air traffic demand in Brazil, with a strong reduction in the last weeks of March 2020, and the resuming of operations every week (52) of the year.

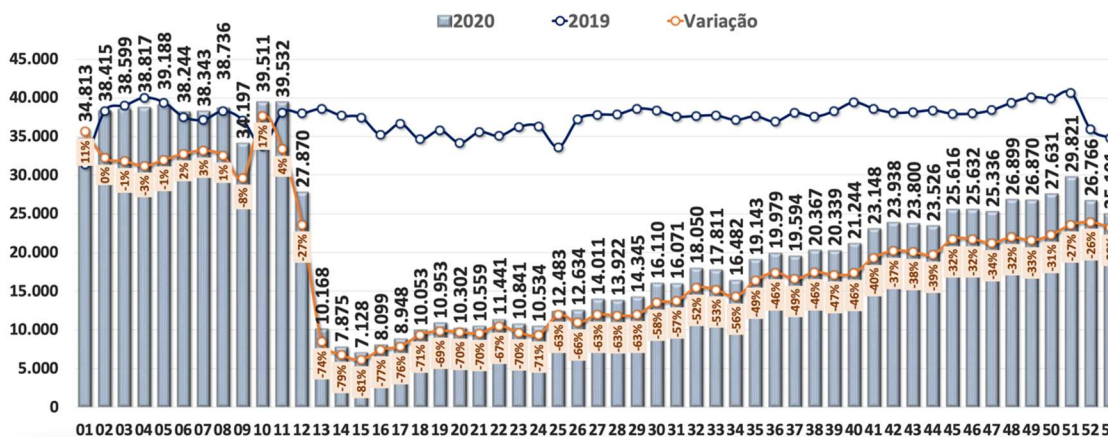


Figure 1 – Weekly variation of demand in 2020

2.4 After several virtual meetings, in which analyzes of risks were carried out for operational safety, technical feasibility and issues related to the workload of air traffic controllers, DECEA approved, on April 16, 2020, with temporary nature and through NOTAM, the airspace of Routes DCT in the FIR SBRE and SBAZ, in all its upper airspace (above FL250) and H24.

2.5 In the following months, work was carried out in order to make permanent what was approved on a temporary basis. New analyzes, considering the resumption of demand that grew every month, were carried out at the end of 2020, which made the implementation of DCT routes in Brazilian airspace a definite achievement. While the entire upper airspace of FIR SBRE maintained the application of DCT H24 routes, part of the FIR SBRE stopped using the H24 concept due to increased air traffic demand.

2.6 The detail of these parts of the Brazilian airspace in which the concept of Direct Routes is applied, as well as the description of the requirements to carry out the operation outside the airways, has been published in AIP BRAZIL since the modification of March 25, 2021, in ENR 1.9-4. Figure 2 shows the section of the FIR SBRE where DCT routes are authorized between 23:00 and 12:30 UTC. Outside of this period, flight planning is maintained using the ATS route network.

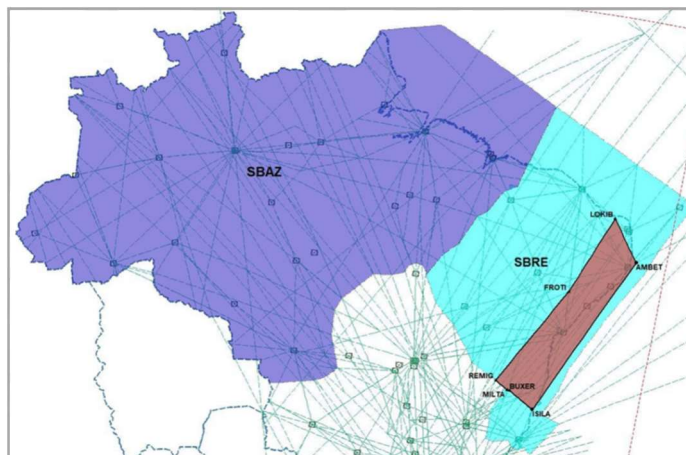


Figura 2 – Implementación de DCT en FIR SBAZ y SBRE.

2.7 At present, the Working Group coordinated by CGNA has been conducting studies related to the application of this concept in FIR SBBS and FIR SBCW, with the desired implementation until March 2022. Afterwards, the working programme plans to initiate discussions to verify the viability of the next step, the implementation of the Free Air Space Route (FRA), in accordance with FRTO-B1 / 1 of GANP.

2.8 Data from the representatives of the main Brazilian airlines, in a study coordinated by the International Air Transport Association (IATA), confirm the success of the implementation, as well as the other efforts of DECEA to reduce the distances flown during the pandemic, with significant results in terms of fuel economy. In the period between April 2020 and July 2021, IATA estimated savings of more than 20 tons of aviation fuel, with the equivalent of a reduction of 66 tons in the emission of polluting gases into the atmosphere.

3. Suggested actions

3.1 The Meeting is invited to:

- a) Take note on the progress made by Brazil in the implementation of Direct Routes; and
- b) consider the results obtained, in order to develop and guide the implementation of direct routes in States of the SAM Region.



Centro de Gerenciamento
da Navegação Aérea



RUTAS DCT ENRUTAMIENTO DIRECTO ESTRATEGICO

CP Ricardo **David** Benedictis



1. INTRODUCCIÓN

2. ANÁLISIS

3. ACCIONES SUGERIDAS



GESEA

Grupo de Estudio
e Implantación del
Espacio Aéreo SAM



INTRODUCCIÓN



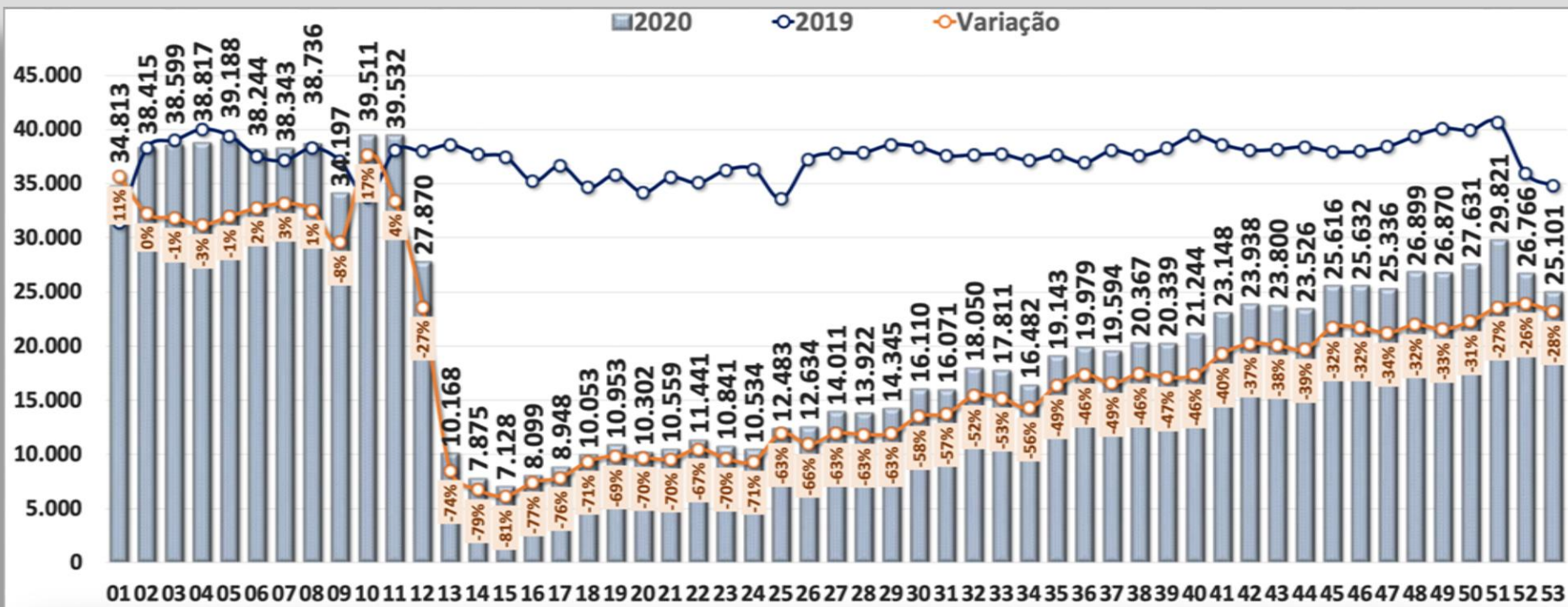
➤ EDE

- **PANDEMIA COVID-19** – La demanda en el espacio aéreo brasileño alcanza el - 81% en la tercera semana de abril de 2020, en comparación con el período prepandémico.
- **PLAN DE OPERACIONES – RECUPERACIÓN COVID-19**
- **RUTAS DCT** – Aprobación temporal por NOTAM
- **OTRAS ACCIONES**

INTRODUÇÃO



- **EDE:** Durante el 2020, se trabajó para hacer permanente lo que había sido aprobado de manera temporal. Se llevaron a cabo nuevos análisis, considerando la reanudación de la demanda que crecía cada mes, convirtiendo así la implementación del EDE en el espacio aéreo brasileño en un logro definitivo.



➤ FRTO – EDE Y FRA

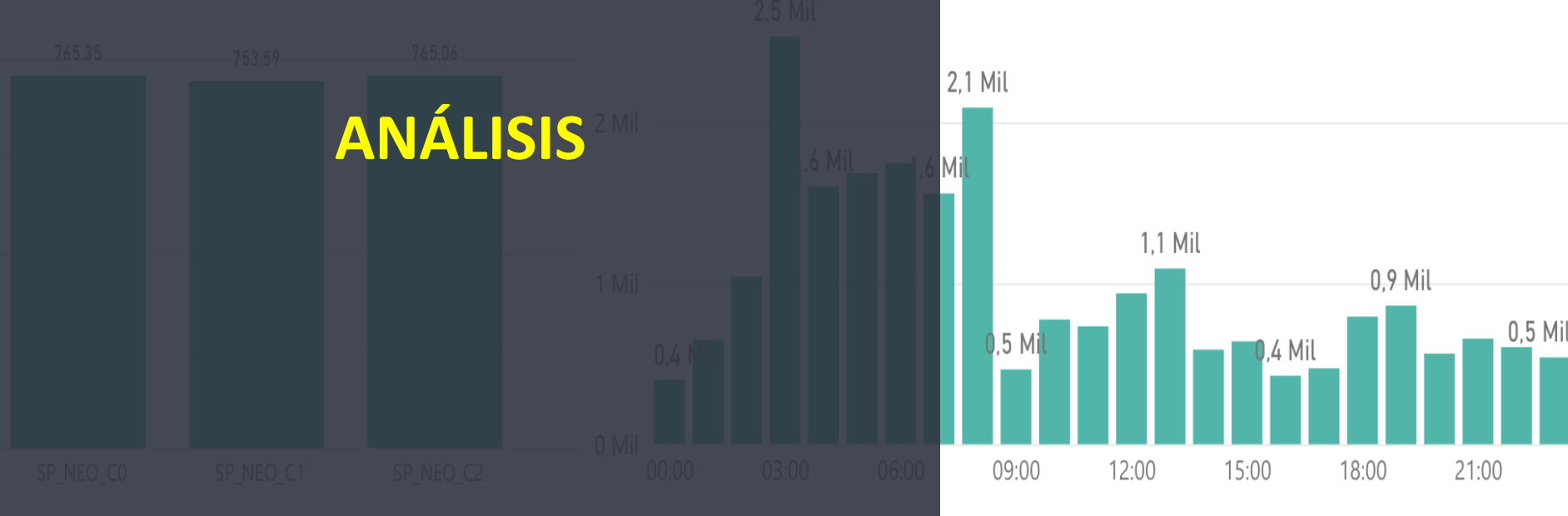
- i. Paso 1 (2020): FIR SBRE y FIR SBAZ – **terminado** (FRTO B0/1);
- ii. Paso 2 (2021): FIR SBBS y FIR SBCW – **en proceso** (FRTO B0/1);
- iii. Paso 3 (2022+): Free Route Airspace (FRA) – **no empezado** (FRTO B1/1).





ANÁLISIS

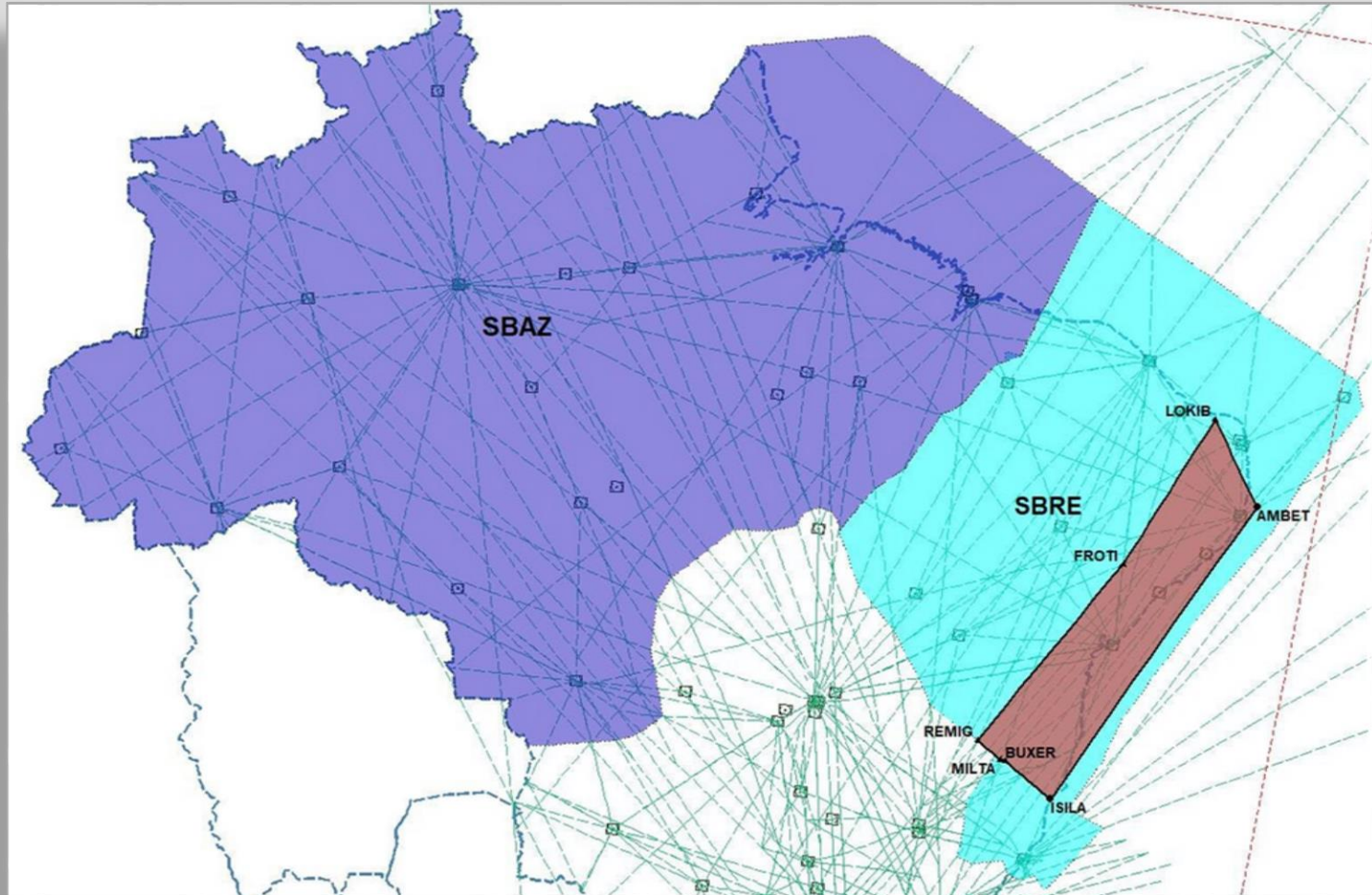
Indicador de Consumo Médio de Combustível



ANÁLISIS



➤ EDE: SBRE y SBAZ.



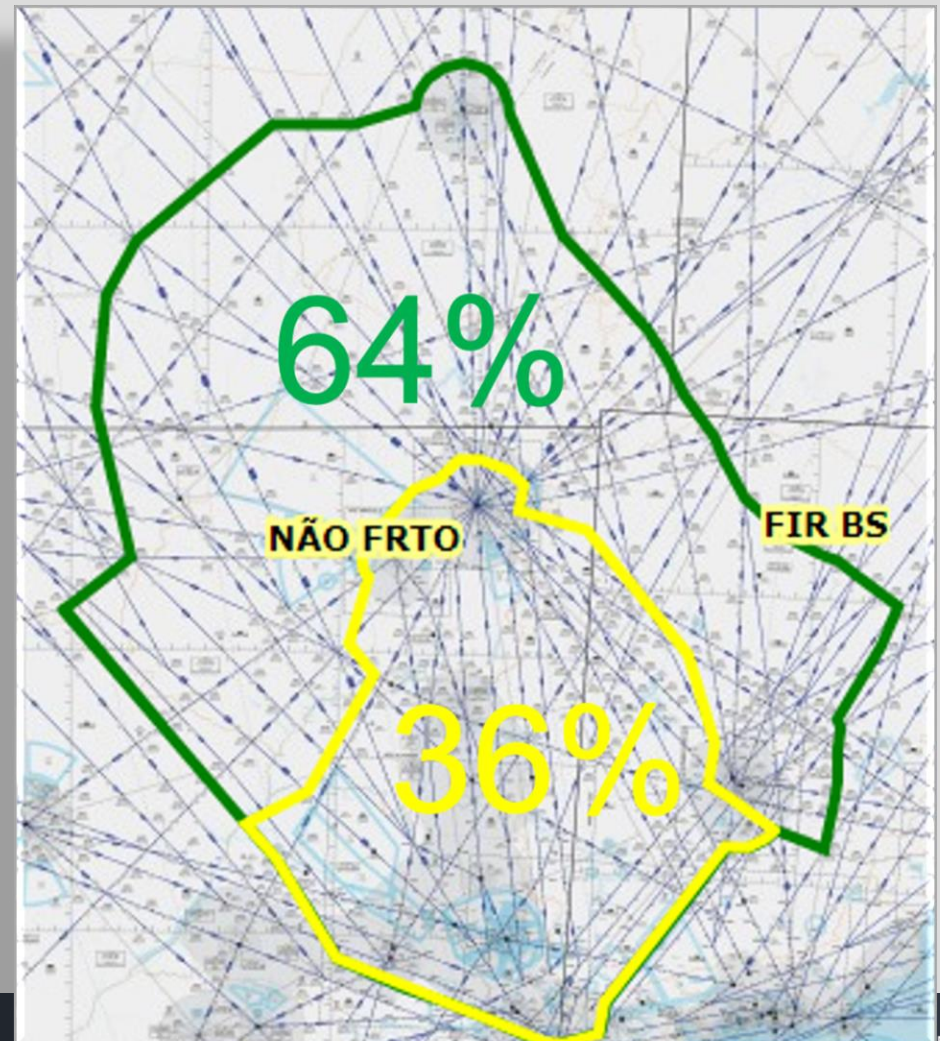
➤ FRTO – ROTAS DCT E FRA: AIP BR – enmienda de 25 MAR 2021.

ENR 1.9-4 25 MAR 21	AIP BRASIL/BRAZIL
<p>4 REGISTRO DOS SERVIÇOS DE TRANSPORTE AÉREO</p> <p>Os procedimentos para registro das etapas de voos dos serviços de transporte aéreo e o calendário de atividades para cada temporada (winter/summer) serão estabelecidos por meio de legislação específica da Agência Nacional de Aviação Civil - ANAC (www.anac.gov.br).</p> <p>Cada etapa de voo somente poderá ser registrada na ANAC após prévio acordo do operador aéreo com os operadores aeroportuários envolvidos e com o Centro de Gerenciamento da Navegação Aérea (CGNA) acerca do uso da infraestrutura aeroportuária e aeronáutica exigidas para o período planejado.</p> <p>Procedimentos para reserva de infraestrutura:</p> <p>a) aeroportuária - cada operador aeroportuário envolvido na etapa de voo disponibiliza procedimentos específicos; e</p> <p>5 ESPAÇO AÉREO DE ROTAS DIRETAS (ROTAS DCT)</p> <p>5.1 As Rotas Diretas (DCT) proporcionam aos usuários do espaço aéreo maiores opções de planejamento de rotas, em nível de FIR, de modo que a distância nominal diminua em comparação com a rede de rotas ATS fixas.</p> <p>5.2 As Rotas Diretas (DCT) estarão disponíveis observando-se as seguintes condições operacionais:</p> <p>a) Em casos de voos procedentes de aeródromos situados fora das SBAZ e SBRE, a rota DCT deve começar (ponto de entrada) em um waypoint no limite entre as FIR;</p> <p>b) Em casos de voos com destino a aeródromos situados fora das SBAZ e SBRE, a rota DCT deve terminar (ponto de saída) em um waypoint no limite entre as FIR;</p> <p>c) Os planos de voo que envolvam decolagens de aeródromos situados nas SBAZ e SBRE deverão incluir o último ponto da SID correspondente, se aplicável;</p> <p>d) Os planos de voo que envolvam chegadas para aeródromos situados nas SBAZ e SBRE deverão incluir o primeiro ponto da STAR correspondente, se aplicável;</p> <p>e) A Rota DCT deverá ser indicada no item 15 do plano de voo;</p> <p>f) A distância entre os waypoints inseridos no plano de voo não deverá ser maior que 300NM; e</p> <p>g) O plano de voo deverá ser preenchido obedecendo-se a tabela de níveis de voo de cruzeiro do Apêndice 2 do Anexo 2 da OACI.</p> <p>5.3 As Rotas DCT poderão ser suspensas após coordenação entre CGNA e ACC, na porção de espaço aéreo sujeita a:</p> <p>a) ativação dos planos de contingência parcial ou total;</p> <p>b) degradação do serviço de vigilância ATS; ou</p> <p>c) degradação da comunicação VHF.</p> <p>5.4 Aplica-se o conceito de Rotas Diretas (DCT) no espaço aéreo das FIR Amazônica e Recife, acima do FL250 (inclusive).</p> <p>5.5 O período de aplicação do conceito de Rotas DCT na SBAZ é H24.</p>	<p>4 REGISTRATION OF AIR TRAFFIC SERVICES</p> <p>The procedures to register the phases of air traffic services and the calendar of activities for each season (winter/summer) are established by specific legislation published by the National Civil Aviation Agency - ANAC (www.anac.gov.br).</p> <p>Each phase of flight may only be registered at ANAC after previous agreement of the air operator with the involved airport operators and with the Air Navigation Management Center (CGNA) on the use of airport and aeronautical infrastructure required for the planned period.</p> <p>Procedure for the infrastructure reservation:</p> <p>a) airport – each airport operator involved in the phase of flight makes specific procedures available; and</p> <p>5 DIRECT ROUTE AIRSPACE (DCT ROUTING)</p> <p>5.1 Direct Routing (DCT) provide airspace users with more planning options, at the FIR level, so that the routes nominal distance decreases compared to the fixed ATS route network.</p> <p>5.2 Direct Routing (DCT) will be available subject to the following operational conditions:</p> <p>a) In case of flights departing from aerodromes outside SBAZ and SBRE, the DCT route must start (entry point) at a waypoint at FIR boundaries;</p> <p>b) In case of flights proceeding to aerodromes outside SBAZ and SBRE, the DCT route must end (exit point) at a waypoint at FIR boundaries;</p> <p>c) Flight plans involving departures from aerodromes located at SBAZ or SBRE shall include the last point of the corresponding SID, if feasible;</p> <p>d) Flight plans involving arrivals to aerodromes located at SBAZ or SBRE shall include the first point of the corresponding STAR, if feasible;</p> <p>e) The DCT Route must be indicated in item 15 of the flight plan;</p> <p>f) The distance between the waypoints inserted in the flight plan shall not be greater than 300 NM; and</p> <p>g) The flight plan shall be filled out in accordance with the cruise flight level table in Appendix 2 to the ICAO Annex 2.</p> <p>5.3 DCT Routing may be suspended after coordination between CGNA and ACC, in the airspace subject to:</p> <p>a) partial or total contingency plans activation;</p> <p>b) ATS surveillance service degradation; or</p> <p>c) VHF communication degradation.</p> <p>5.4 The Direct Routing (DCT) concept is applied in the airspace of the Amazônica and Recife FIR, above FL250 (inclusive).</p> <p>5.5 The DCT Routing concept at SBAZ is available H24.</p>
AMDT AIRAC AIP 03/21	DECEA

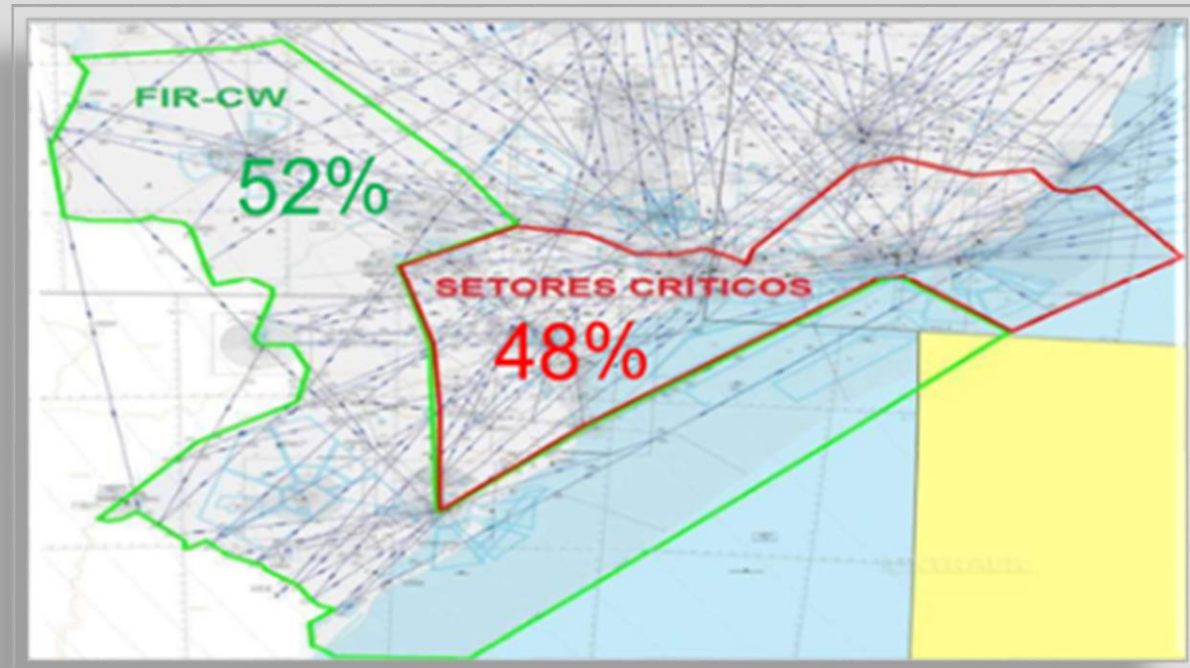
AIP BRASIL/BRAZIL	ENR 1.9-5 25 MAR 21
<p>5.6 O período de aplicação do conceito de Rotas DCT na SBRE é H24, exceto na porção de espaço aéreo contida no polígono formado pelas coordenadas S 05 15 49.93, W 036 13 38.44 (LOKIB); S 10 16 37.20, W 038 23 15.60 (FROTI); S 16 36 11.00, W 042 22 19.00 (REMIG); S 17 08 08.40, W 041 30 29.40 (MILTA); S 17 09 22.20, W 041 20 47.40 (BUXER); S 18 11 46.42, W 039 37 43.53 (SILA); S 07 45 34.20, W 034 26 44.40 (AMBET), dentro do qual será aplicado entre 2300 UTC e 1230 UTC. No referido polígono, no período entre 1230 UTC e 2300 UTC, será utilizada a rede de rotas ATS fixas, observando-se o Playbook de Rotas estabelecido no Portal AISWEB do DECEA (https://aisweb.decea.gov.br/?i=espaco-aereo&i=playbook).</p>	<p>5.6 The DCT Routing concept at SBRE is available H24, except in the portion of airspace contained in the polygon formed by coordinates S 05 15 49.93, W 036 13 38.44 (LOKIB); S 10 16 37.20, W 038 23 15.60 (FROTI); S 16 36 11.00, W 042 22 19.00 (REMIG); S 17 08 08.40, W 041 30 29.40 (MILTA); S 17 09 22.20, W 041 20 47.40 (BUXER); S 18 11 46.42, W 039 37 43.53 (SILA); S 07 45 34.20, W 034 26 44.40 (AMBET), within which it will be applied between 2300 UTC and 1230 UTC. Inside this polygon, in the period between 1230 UTC and 2300 UTC, the fixed ATS routes network shall be used, observing the Route Playbook established at the DECEA AISWEB Portal (https://aisweb.decea.gov.br/?i=espaco-aereo&i=playbook).</p>
DECEA	AMDT AIRAC AIP 03/21

➤ **EDE: SBBS e SBCW – En proceso.**

- Analisis preliminar SBBS: →
- Area verde H24.



- **EDE: SBBS e SBCW – En proceso.**
- Analisis preliminar SBCW: →
- Area verde H24.

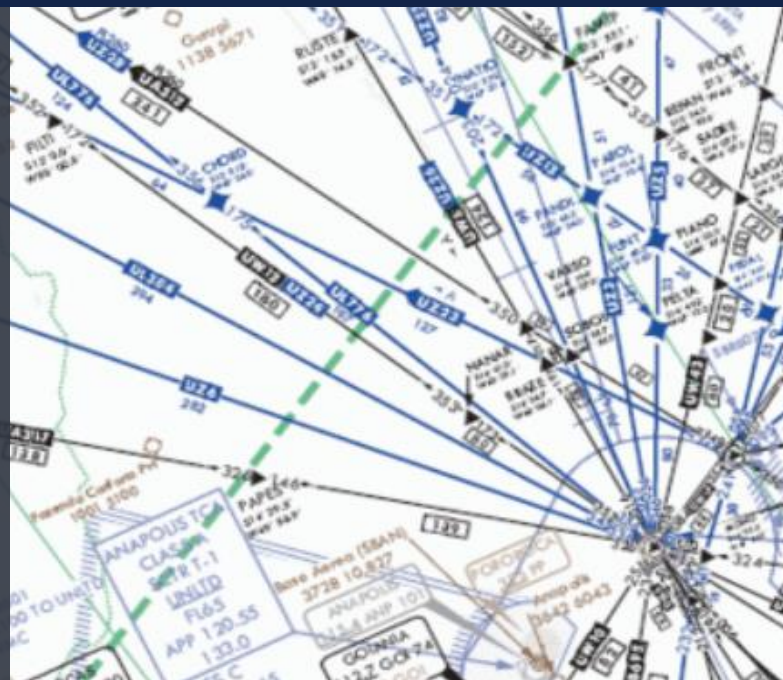




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ACCIONES SUGERIDAS



➤ **La reunión está invitada a:**

a) conocer el trabajo realizado por Brasil para la implementación de Rutas Directas; y

b) considerar los resultados obtenidos, a efectos de desarrollar y orientar la implantación de rutas directas en Estados de la Región SAM.

MUCHAS GRACIAS



**Centro de Gerenciamento
da Navegação Aérea**



**Departamento
de Controle do Espaço Aéreo**



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