

6TH HUMANITARIAN AVIATION SAFETY CAMPAIGN

THE PORTO ALEGRE EXPERIENCE ON CONTINGENCY MANAGEMENT

THE RECOVERY PROCESS AFTER THE CLIMATIC EVENT OF MAY 3RD, 2024

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- Has a degree in Mechanical Engineer, Masters in Aeronautics (ITA); PhD in Mechanical Engineering (*Aeronautics Product Service Systems*) by McGill University, Canada.
- With 25 years of experience in aerospace and aviation industry, having worked in companies such as Embraer and Bombardier. Author of six scientific papers published in international Product Development journals and conferences. Currently working as Head of Airport Maintenance and Infrastructure at Fraport Brasil.

FRAPORT BRASIL

- Concession started in 2018
- Fortaleza and Porto Alegre, for 30 and 25 years, respectively
- Scope: operation and infrastructure expansion works.



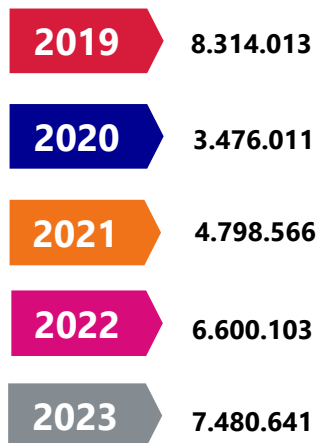
PORTO ALEGRE AIRPORT

This aerial photograph captures the Porto Alegre Airport (Aeroporto Internacional de Porto Alegre) under a clear blue sky. The central focus is the large, modern terminal building with a light-colored, flat roof. To the left of the terminal, the tarmac is active with several aircraft. Two smaller jets with red and white livery are parked near the terminal's left wing. In the center, a larger white jet with a red tail and 'TAM' branding is being serviced by ground crew and equipment. To its right, a white aircraft with a blue and red tail, marked 'LATAM', is also on the tarmac. In the foreground, another 'TAM' aircraft is visible. The background shows a sprawling urban landscape with various buildings, green spaces, and a distant horizon. A purple banner with the text 'PORTO ALEGRE AIRPORT' is overlaid at the bottom left.

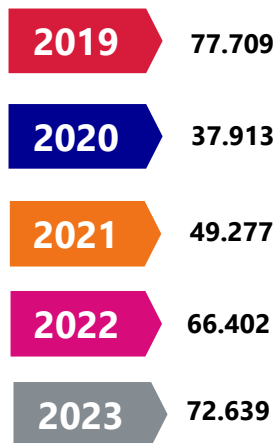
BUSINESS FIGURES



PAX

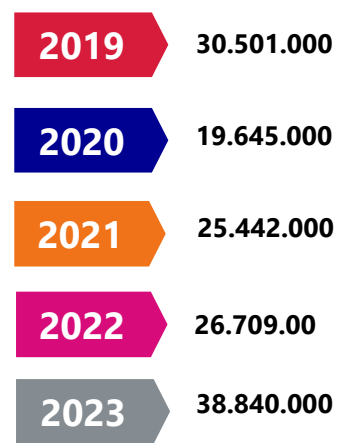


FLIGHTS

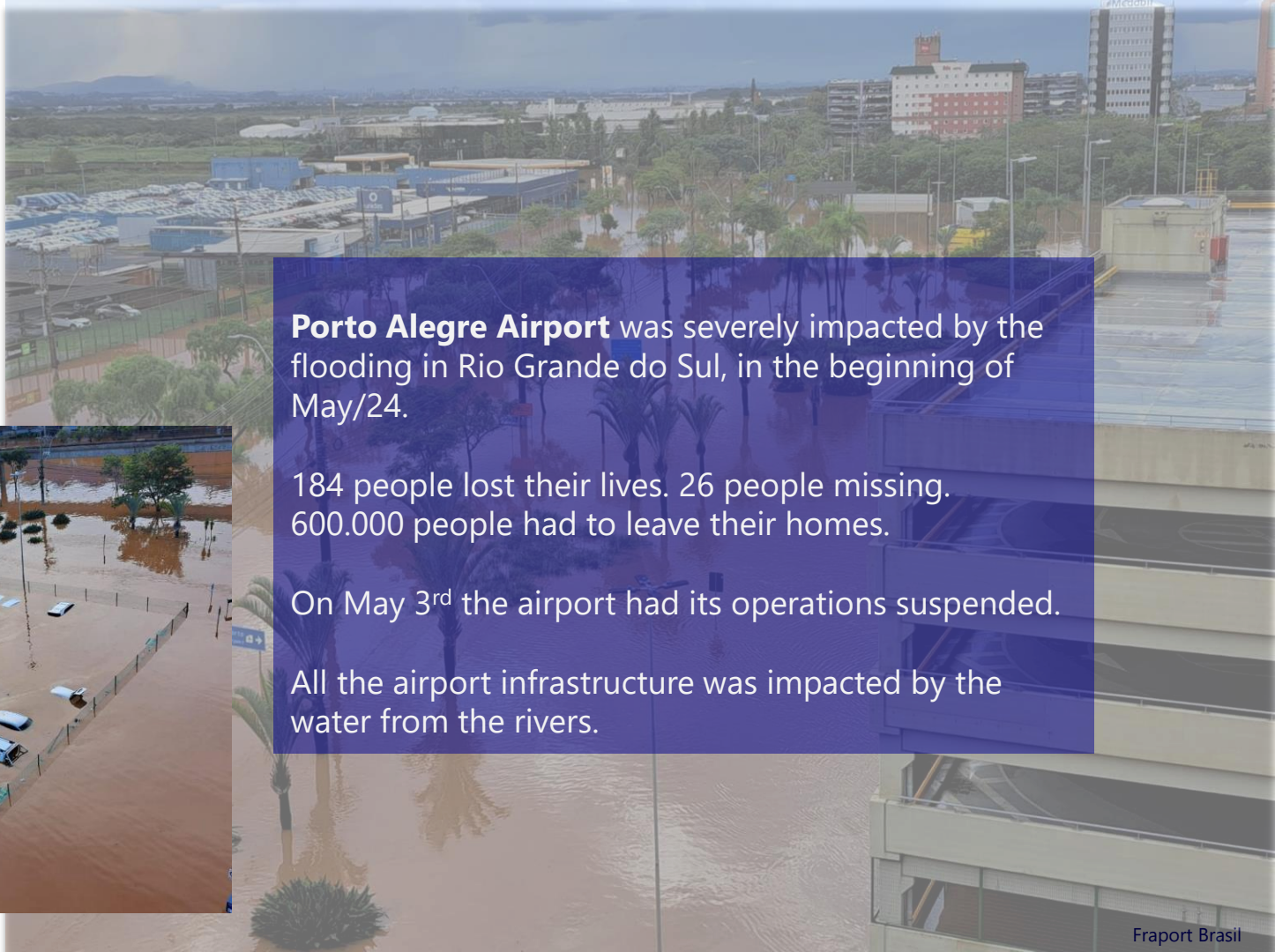


CARGO

(CARGAS, MALA POSTAL, COURIER) em Kg



THE FLOOD



Porto Alegre Airport was severely impacted by the flooding in Rio Grande do Sul, in the beginning of May/24.

184 people lost their lives. 26 people missing.
600.000 people had to leave their homes.

On May 3rd the airport had its operations suspended.

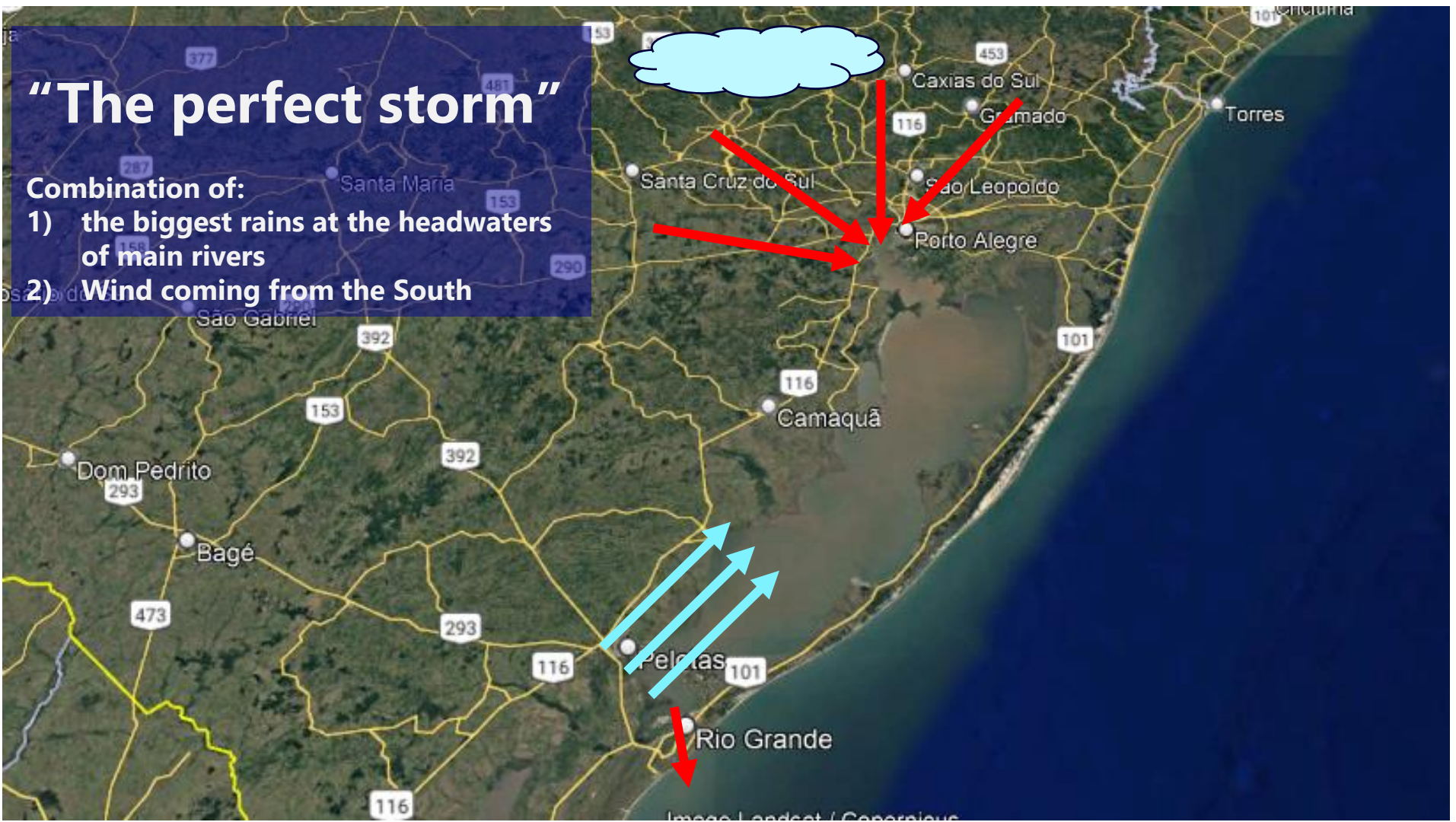
All the airport infrastructure was impacted by the water from the rivers.



"The perfect storm"

Combination of:

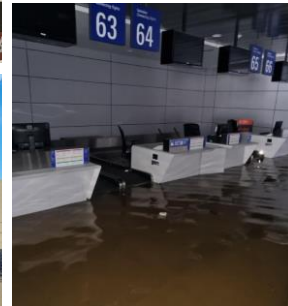
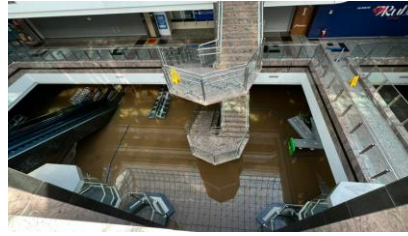
- 1) the biggest rains at the headwaters of main rivers
- 2) Wind coming from the South





DAMAGES

- RWY 2300m, TWYs, Aprons
- 10 Substations
- 18 buildings, including 33,000sqm of the ground floor of Terminal
- 10 X-Rays, 11 elevators, 6 escalators
- 15 PBBs
- 30% of BHS, 3 XCTs
- 4 Chillers and pumps HVAC
- Furniture
- 7 IT technical rooms, including the Data center
- 200km of cables
- 150,000 Tons of asphalt



MANAGEMENT OF THE CRISIS

IN THE HOURS PRECEDING THE FLOOD

Immediate actions

- The crisis mgnt group was called out
- Coordination with local authorities, airlines, ATC, ANAC
- Protection of the infrastructure, saving as much equipment as possible
- Extract as many people as possible
- Provide minimum source of electricity for people who were staying in the airport



And then, on May 3rd the operations were suspended

- Level of the water rose up to 2m in certain areas, blocking completely the access to the airport
- Access only by boat during about 20 days
- Secure the place, provide potable water, means to get food
- Start of contingency operations plan and planning the recovery process

WHAT'S THE EXTENSION OF THE DAMAGE?

**HOW LONG IS IT GOING TO TAKE TO RECOVER THE
INFRASTRUCTURE?**

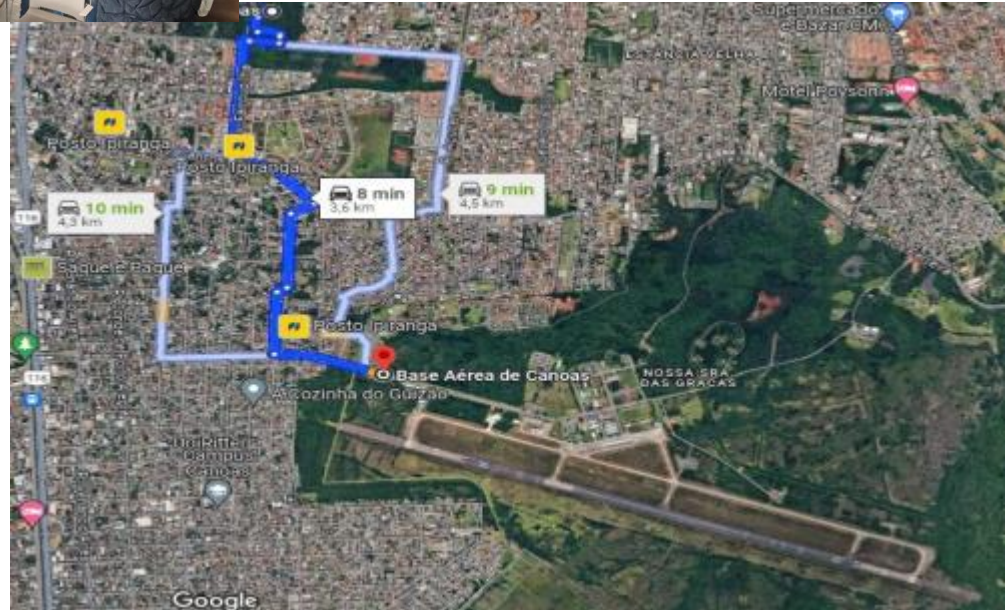
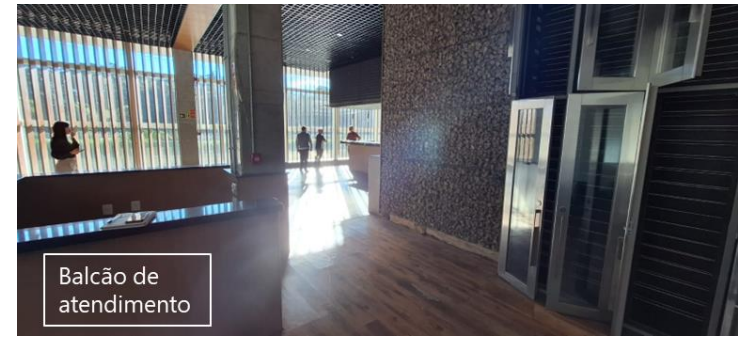
CAN WE MOVE OPERATIONS TO SOMEWHERE ELSE?

Planning of the reconstruction

Emergency Operation BACO

OPERATIONS IN AIR FORCE BASE MAY 27TH

3,6Km (8min by bus)
Starting with 5 flights per day



RECONSTRUCTION PLAN

Phase 01: Diagnosis

Cleaning and Damage Assessment

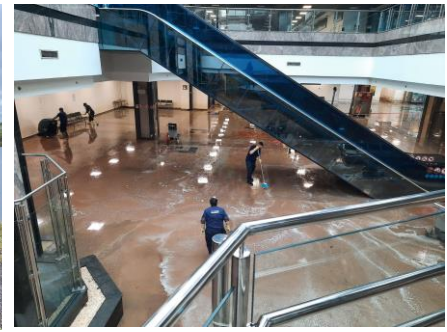
Phase 02: Partial recovery – Domestic flights only

Focus on reconstruction of minimum infrastructure (Airside and Terminal) to allow partial operations of domestic flights

Phase 03: Complete recovery of the operations

Reconstruction of the remaining infrastructure

PHASE 01 25.05 – 15.07.2024



PHASE 01 25.05 – 15.07.2024



BHS – RECOVERY PROCESS



AIRFIELD LIGHTING SYSTEM

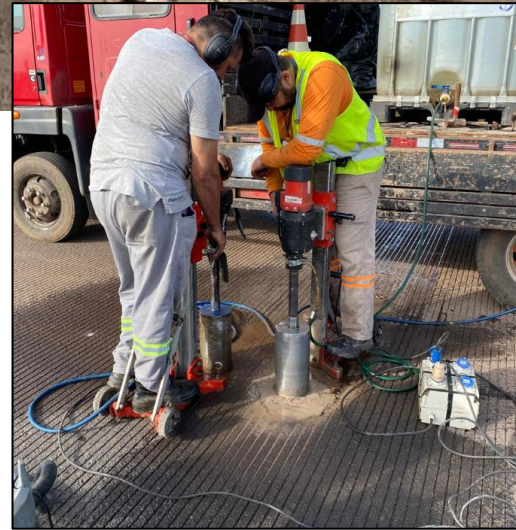


LEVEL OF THE WATER LOWERING



[illegible]

PAVEMENT TESTS



ASPHALT PAVEMENT IMPACTS

After an extensive campaign of tests (45 days) with the participation of three laboratories analyzing the hundreds of samples collected from field, the results have shown that the asphalt pavement material suffered a significant reduction of stiffness, caused by the prolonged period (23 days) of submersion in water.



Phases 02 / 03:

A "Two Steps" Reconstruction Approach

PHASES: DOM / INTER

PHASE 02: Only domestic operations in a short RWY (1730m)

Delivery date: 21/Out./24



PHASE 03: Resuming International Operations - RWY of 3200m

Delivery date: 16/Dez.24



RECONSTRUCTION

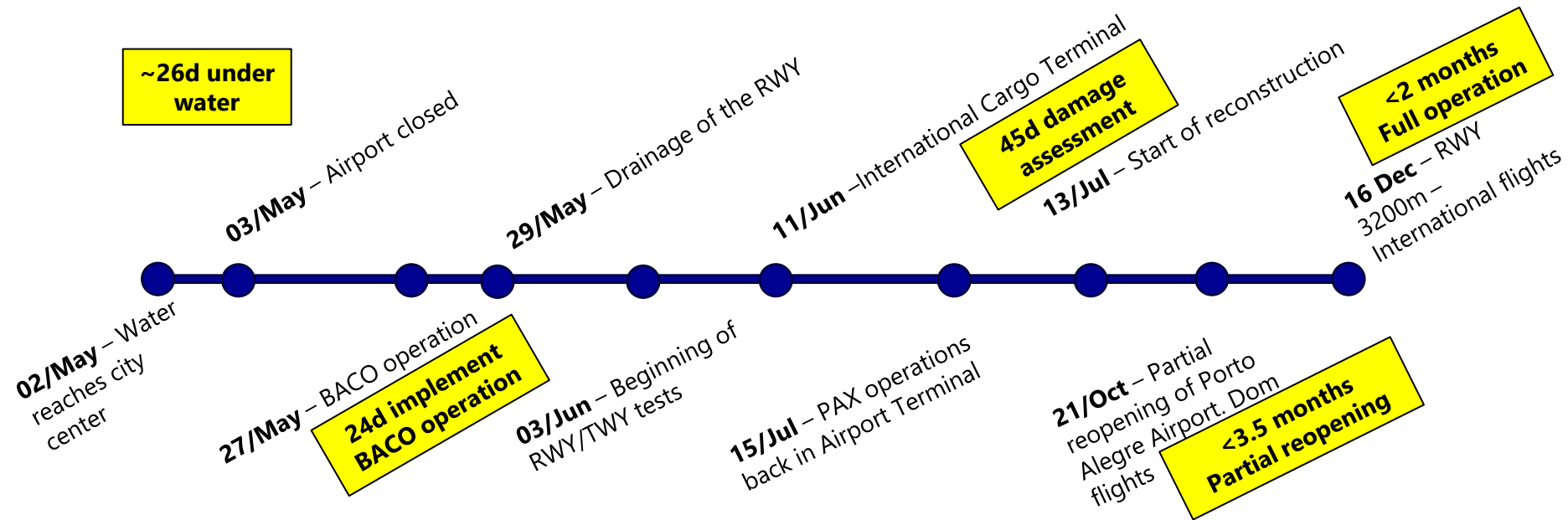


FIRST DELIVERY 21/10

- RWY: 1.730m
- Operation hrs: 8h til 22h
- 71 movements (TO and landings);
- Limited number of parking positions;



FROM FLOODING TO REOPENING



THANK YOU

