airservices australia

Integration of Airport Collaborative Decision Making (A-CDM) into ATFM in Australia

OVERVIEW

2025

Table of Contents

Purpose: An introductory pack providing an overview of the A-CDM Program in Australia.

Key Topics

A-CDM in Australia

ATFM planning and integration of systems

Airport Collaborative Decision Making (A-CDM)

Airservices, airlines and airports working together to optimise airport operations & air traffic predictability.

- Airservices is working in **partnership with our major airline and airport customers** to implement Airport Collaborative Decision Making (A-CDM) into Australia's four major airports – Brisbane, Perth, Sydney, and Melbourne.
- A-CDM will be delivered through a **staged rollout, one airport at a time**, with all four airports expected to be operational by end 2025.
- A-CDM is implemented in over 50 airports globally. This is a world first **multi-airport program** designed to harmonise operations across our four major airports, reduce implementation costs, and elevate the benefits of A-CDM to a whole-of-network perspective.
- A-CDM in Australia is enabled through the **A-CDM Aerobahn** suite of tools provided by Saab Sensis.

A-CDM PARTNERS

Integrated A-CDM

Integrated A-CDM is a new way of working to improve airport operations through the sharing of data via a common platform to make informed decisions to efficiently manage the arrival, turnaround and departure phases of aircraft across ATFM ports managed by the ANSP.

Arrivals Mgt

Common situational awareness of arrivals enabling resources (e.g. ground handlers) to be ready at the right time and place.

Surface Mgt

Increased visibility of aircraft status, gate assignment and conflicts plus bay planning.

Turnaround Mgt

Greater visibility of aircraft readiness to depart based on aircraft operators (or ground handlers) ensuring TOBTs are kept up to date.

Departure Mgt

Optimisation of the pushback sequence enabling aircraft operators to prioritise flights & have greater departure predictability

A-CDM Information Sharing Platform (ACISP)

Capturing data at every stage of a flight's progress and sharing this information for all airport stakeholders to improve operational efficiency and predictability and facilitate better decision making.

Integrated A-CDM?

An integrated platform for A-CDM delivers significant benefits and outcomes for individual operators and the industry overall.

Situational Awareness	Operational Efficiency	Asset & Resource Utilisation	Customer Experience	Cost Savings	Environmental Benefits
					
Common, real-time situational awareness of local / network pain points	Optimising the push-back sequence to reduce taxi-out times, improved ATFM compliance and network management	Better utilisation and unlocking of latent airspace, runway and gate capacity	Improved on time performance, customer experience, predictability and recovery from adverse events	Cost savings by reduced inefficiencies and improved operational predictability	Lowered CO2 emissions through reduced taxi time and fuel burn

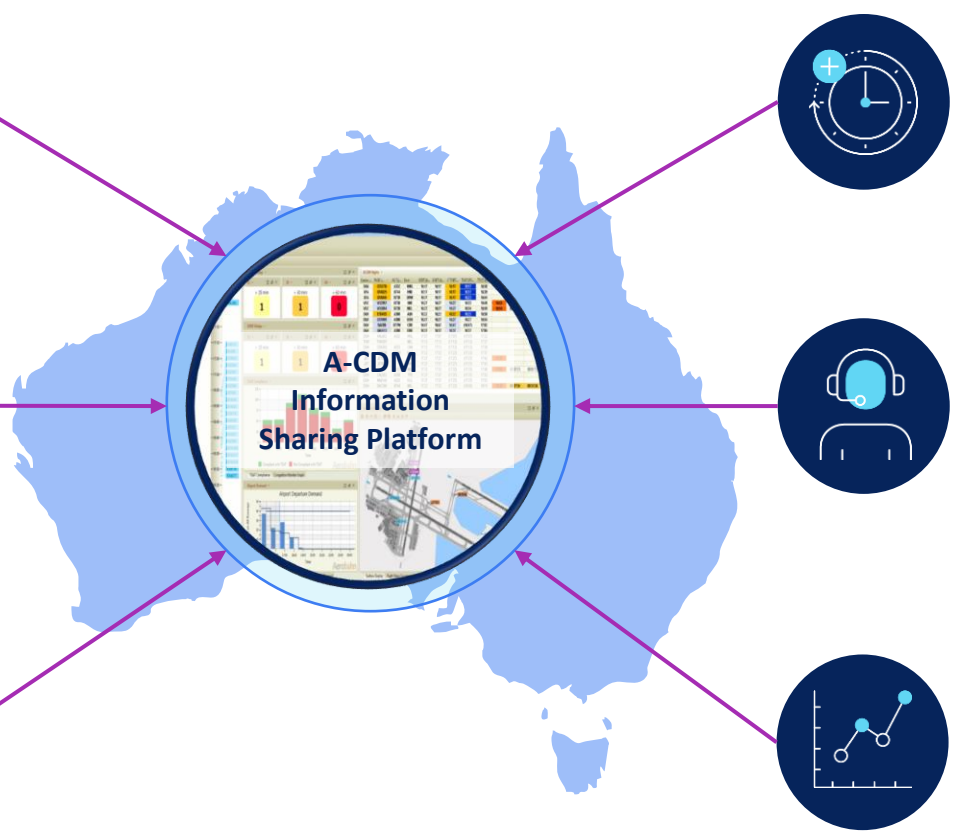
A-CDM Key Elements

A-CDM is underpinned an information sharing platform comprising six key elements*.

1. INFORMATION SHARING
A-CDM provides common situational awareness for all stakeholders (air traffic control, airlines, airports, ground handlers) – read more here.

2. MILESTONE APPROACH
A-CDM captures flight progress data in real time according to 16 standardized milestones – read more here.

3. PRE-DEPARTURE SEQUENCING
A-CDM uses data within the system to establish an optimised pre-departure sequence to reduce taxi out delays, provide predictability and reduce congestion – read more here.



4. VARIABLE TAXI TIME
A-CDM calculates the estimated time that an aircraft spends taxiing between parking bay/stand & runway thus providing predictable & accurate estimates of in blocks and take off times – read more here.

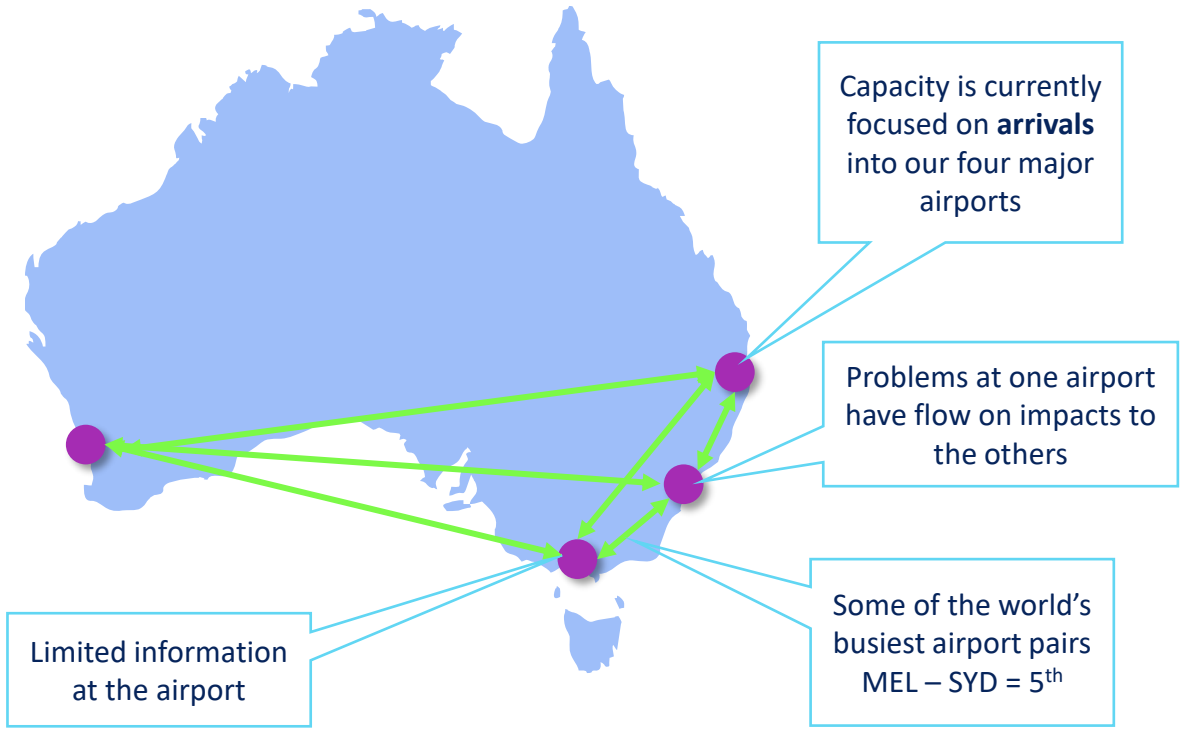
5. RECOVERY FROM ADVERSE EVENTS
Through information sharing and pre-departure sequencing, A-CDM enables a more timely recovery from adverse conditions considering arrival & departure demand – read more here.

6. COLLAB. MGT OF FLIGHT UPDATES
A-CDM integrates of airport operation information into whole-of-network mgt, providing improved visibility of real-time arrival and departure demand throughout the network – read more here.

**The Australian implementation is based on the Eurocontrol definition of A-CDM.*

Network Benefits

A-CDM optimises and unlocks runway and gate capacity and enables situational awareness across the network.



OUR UNIQUE NETWORK ENVIRONMENT

A-CDM becomes a new control lever to optimise whole of network performance by:

- Providing real time information at each major airport
- Reducing taxi delays through optimised departure sequencing
- Enabling more sophisticated departure management capability improving enroute flow
- Improving ATFM compliance as the departure sequence takes into account CTOTs
- Improving recovery from adverse events reducing the flow on impact at the other airports
- Providing strategic awareness of what's happening and what's coming across the whole network through the NOMC

ATFM planning

ATFM Planning

Assessing weather capacity for ATFM ports

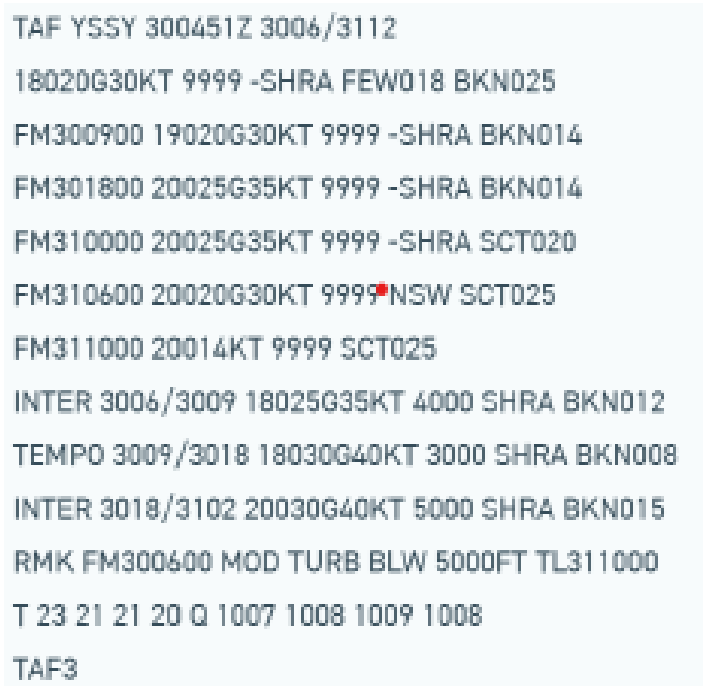
The pre-tactical MET-CDM weather assessment is completed by 3 Meteorology teams in collaboration. They also perform any reviews/updates on the day of operations as a collaborative unit.

The MET assessment team comprise of:

- **NOMC MET:** Forecasters embedded in the Airservices National Operations Management Centre (NOMC) but provided by the Bureau of Meteorology. They specialise in the MET-CDM process and taking the ICAO standard weather TAF information and expanding the assessment to the whole of the Terminal Control Unit and breaking it down in detail against business rules.

- **Q-MET:** H24 meteorology team with QANTAS. Similarly qualified forecasters for MET-CDM with additional airline focused activities outside of the MET-CDM process

- **V-MET:** H12 (usually 21-09utc) meteorology team with Virgin Australia. Same as Q-MET



ATFM Planning

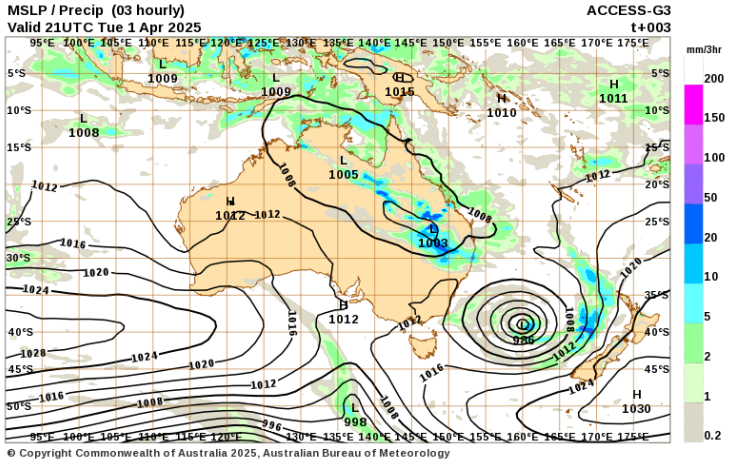
Pre-tactical weather assessment

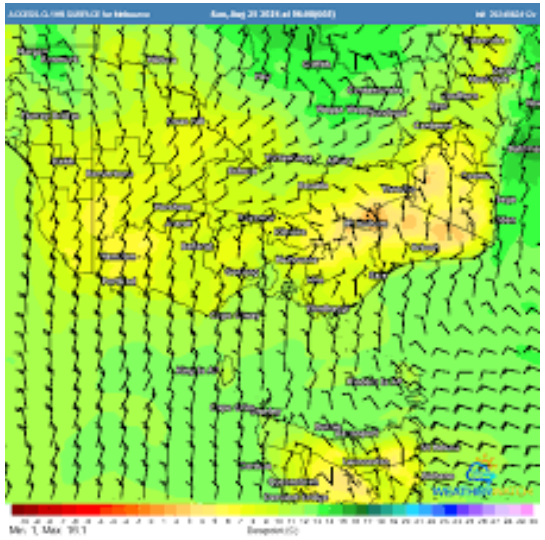
- The 3 teams use the TAF as the starting point for the assessment but then move to a wide variety of models for the assessment of the weather from dynamic models including:

  ACCESS-G, ACCESS-C, ECMWF and US-GFS, UKMO, JMA to ensemble models including: 52 member of EC, 18 per-run for ACCESS-CE, 12 per-runs for ACCESS-GE

- Through a collaborative approach to network management Airservices (Networks and ATC), Meteorology units, and Airline operations units (Virgin, QANTAS, REX, Alliance etc.) have built business rules based on ability to process arrivals in defined weather conditions known as arrival rates.

- These Business Rules and weather models are integrated into our Digital Twin used to assess capacity and demand profiles for ATFM ports





ATFM Planning

Capacity assessment

Following the meteorological assessment against weather models and business rules the ATFM team will run the Digital Twin Delay Management assessment.

This system takes an integrated approach to assessing network demand against capacity and assesses the whole of network not just the demand for an individual port.

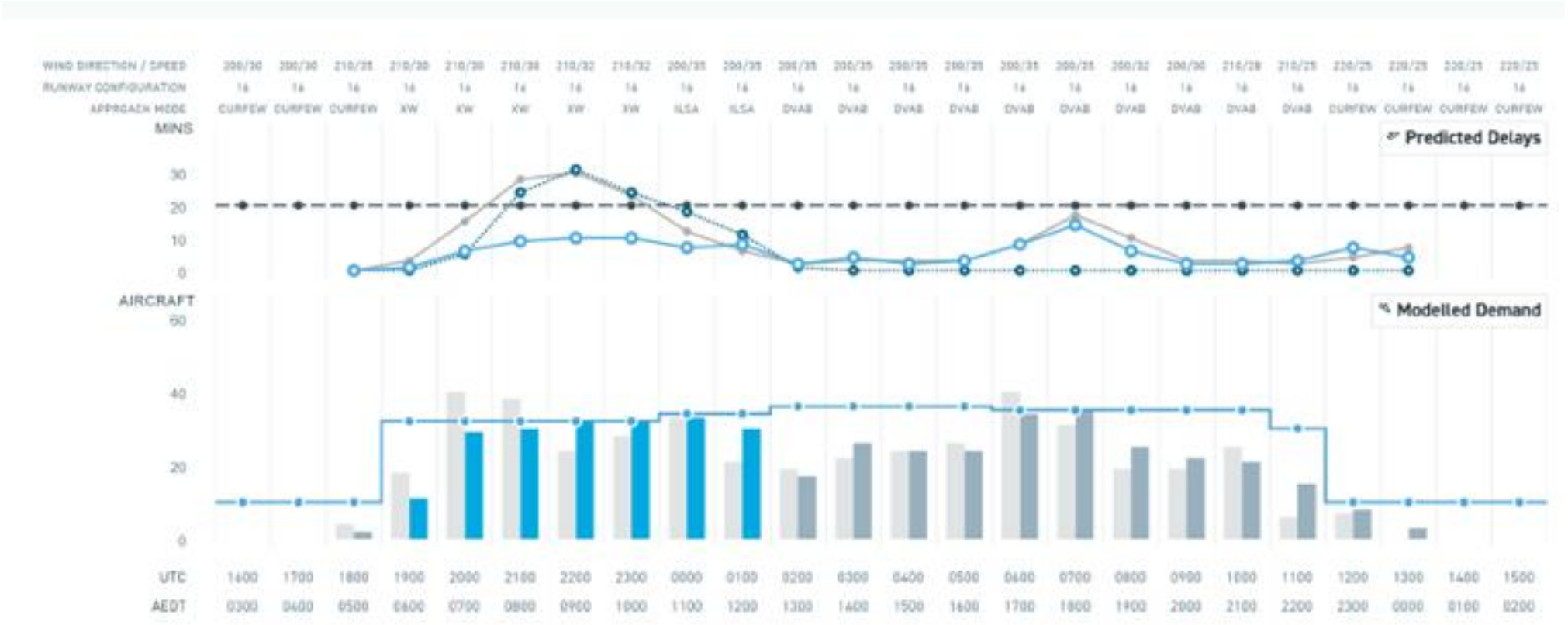
FINAL MET RATE	10	10	10	32	32	32	32	32	34	34	36	36	36	36	35	35	35	35	35	30	10	10	10	10
X-FACTOR	-	-	-	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	-1	-	-	-	-
BUSINESS RULE RATE	10	10	10	34	34	34	34	34	35	35	36	36	36	36	38	38	38	38	38	31	-	-	-	-
RUNWAY	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	-	-	-	-
TAILWIND	-27.8	-27.8	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-25.4	-25.4	-25.4	-25.4	-11.8	-11.8	-	-	-	-
CROSSWIND	11.3	11.3	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	16	16	16	16	7.5	7.5	-	-	-	-
APPROACH	CURFE'	CURFE'	CURFE'	ILSB	ILSB	ILSB	ILSB	ILSB	ILSA	ILSA	ILSA	ILSA	ILSA	ILSA	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	-	-	-	-
INITIAL MET RATE	10	10	10	34	34	34	34	34	36	36	38	38	38	38	38	38	38	38	38	31	10	10	10	10
WIND DIRECTION (°T)	200	200	210	210	210	210	210	210	200	200	200	200	200	200	200	200	200	200	210	210	220	220	220	220
WIND SPEED (SIGNIFICANT)	30	30	35	30	30	30	32	32	35	35	35	35	35	35	35	35	32	30	28	25	25	25	25	25
ANTICIPATED RUNWAY	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
TAILWIND (MAIN RWY)	-25.4	-25.4	-25.9	-22.2	-22.2	-22.2	-23.7	-23.7	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-29.6	-27.1	-25.4	-20.7	-18.5	-15.3	-15.3	-15.3	-15.3
CROSSWIND (MAIN RWY)	16	16	23.5	20.2	20.2	20.2	21.5	21.5	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	17.1	16	18.8	16.8	19.8	19.8	19.8	19.8
TAILWIND (CROSS RWY)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CROSSWIND (CROSS RWY)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANTICIPATED APPROACH	CURFE	CURFE	CURFE	XW	XW	XW	XW	XW	ILSA	ILSA	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	DVAB	CURFE	CURFE	CURFE	CURFE
FINAL SM RATE	10	10	10	32	32	32	32	32	34	34	36	36	36	36	35	35	35	35	35	30	10	10	10	10
X-FACTOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FINAL CDM RATE	10	10	10	32	32	32	32	32	34	34	36	36	36	36	35	35	35	35	35	30	10	10	10	10
X-FACTOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ATFM Planning

Demand assessment

The Digital Twin runs approx. 3.4 million calculations per simulation to assess airborne delay based off the capacity and demand profiles, flight trajectories and known airline behaviours to create the final plan for the next day of operations.

We can run multiple simulations to assess different capacity scenarios and allows us to assess “Plan B” scenarios for when weather events may arrive earlier or later than expected and then how that will impact airborne delays



ATFM Planning

Ingestion into Harmony

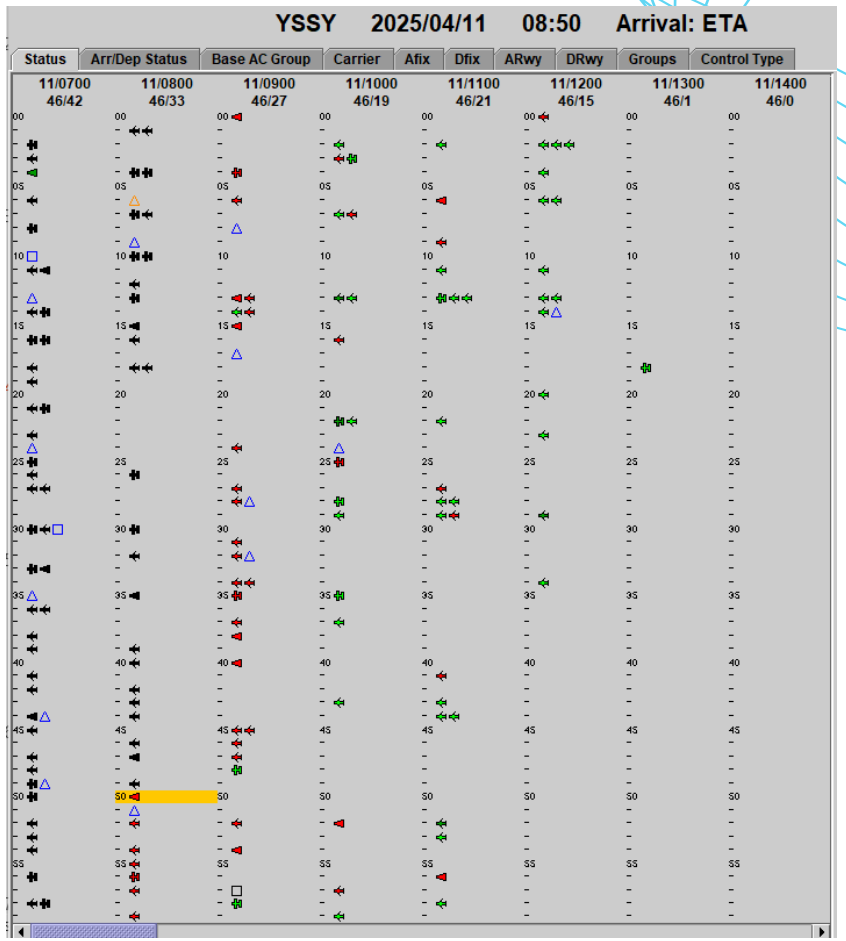
Once the assessment for demand and capacity is complete and the ATFM plan for the day of operations is agreed the NOMC transfer the plan from Digital Twin into the Metron Harmony system.

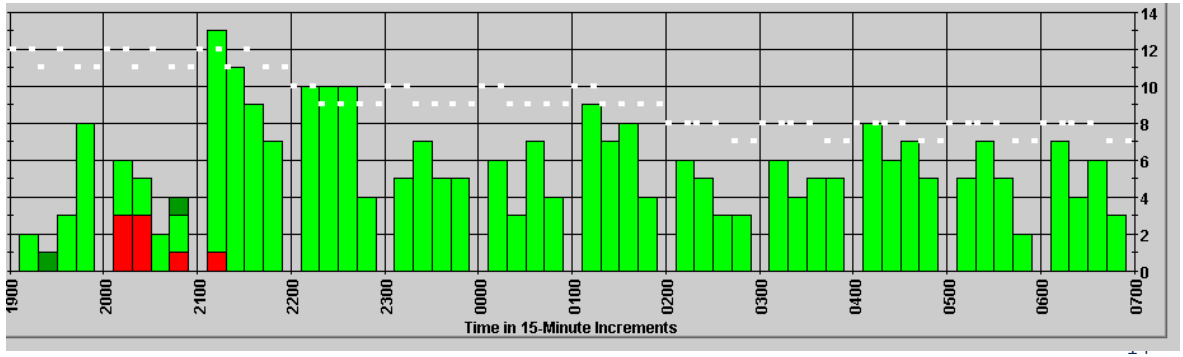
Metron Harmony is used by airlines and the NOMC for the assignment and manipulation of COBT's for the next day of operations.

Operators will follow set business rules for compliance with IATA and/or GDP slot assignment and can either interact with the system manually or through their own automated systems .

At a set time over night the plan from Harmony is transferred into the A-CDM system for day of operations activation of the plan.

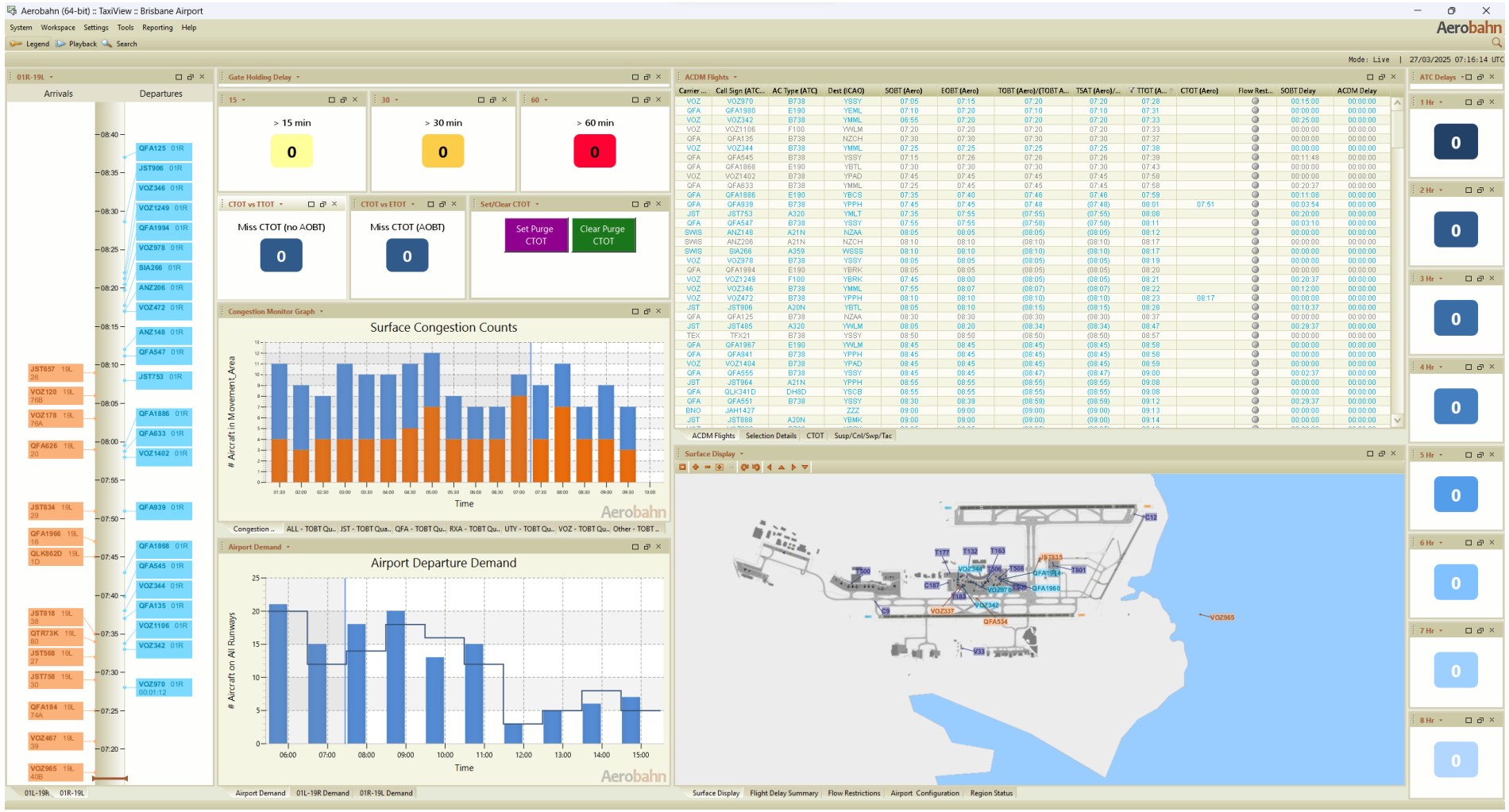
COBT's are transitioned through set algorithms into TSAT's and TOBT's





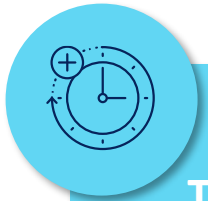
Ingestion into A-CDM

- Operators have individual accounts with customised dashboards to enable tracking of times and milestone progress of the flight.
- A-CDM displays arrival and departure sequences, demand and capacity, compliance and surface movement and is configurable for different types of users.
- If needed operators use the system to adjust flights to available slots if they cannot use the original time. The available slot accounts for departure and gate demand at the departure port as well as gate availability if they are flying to another A-CDM port.



ATFM Planning

A-CDM introduces new concepts to Australian operators to enable better awareness of readiness and to optimise departures and gate management.



TOBT = Target Off Block Time

- The time a plane is ready to depart, doors closed and ready for ATC clearance.
- Indicates aircraft's readiness for departure and is used to calculate the Target Start Up Approval Time (TSAT).

Aircraft operators (or ground handlers) must keep TOBTs updated within -5/+5 window.

TSAT = Target Start Up Approval Time

- The time a flight crew expects to receive start-up/pushback clearance by ATC.
- Calculated by the Pre-Departure Sequencer based on the optimum departure sequence for ALL departing aircraft.
- ATC will give pushback / startup clearance once flights are within the TSAT window.

Adhering to TOBT and TSAT enables change from
"FIRST COME, FIRST SERVED" to **"BEST PLANNED, BEST SERVED"**

ATFM Compliance Monitoring

airservices australia

The new A-CDM rules and how we monitor compliance

TOBT

- All IFR fixed wing (excl. exempt) flights responsible for complying with their Target Off Block Time (TOBT)
- Aircraft operators (or ground handlers) responsible for updating TOBT if not achievable within -5/+5 mins window
- Flight crews responsible for calling for ATC clearance within TOBT window (-5/+5 mins)
  - If early (*before* their TOBT window) ATC will advise to standby for ground
  - If late (*after* their TOBT window), ATC will advise to contact company for a new TOBT

TSAT

- ATC is responsible for issuing start up / pushback approval -5/+5 mins of TSAT

CTOT

- GDP compliance for flights departing from A-CDM airports shifts from COBT to CTOT
- CTOTs are included in the calculation of the TSAT in the pre-departure sequencer
- Flights cannot leave early non-compliant as adherence to TSAT prevents this
- Although flights won't be prevented leaving late non-compliant, onus is on aircraft operator to manage compliance

Thank you

If you have questions, please contact me via:

Simon.Godsmark@AirservicesAustralia.com