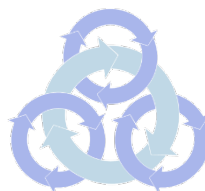




TAM SYMPOSIUM

A-CDM Challenges, Lessons, Perspectives
Paris CDG airport feedback

16 October 2013

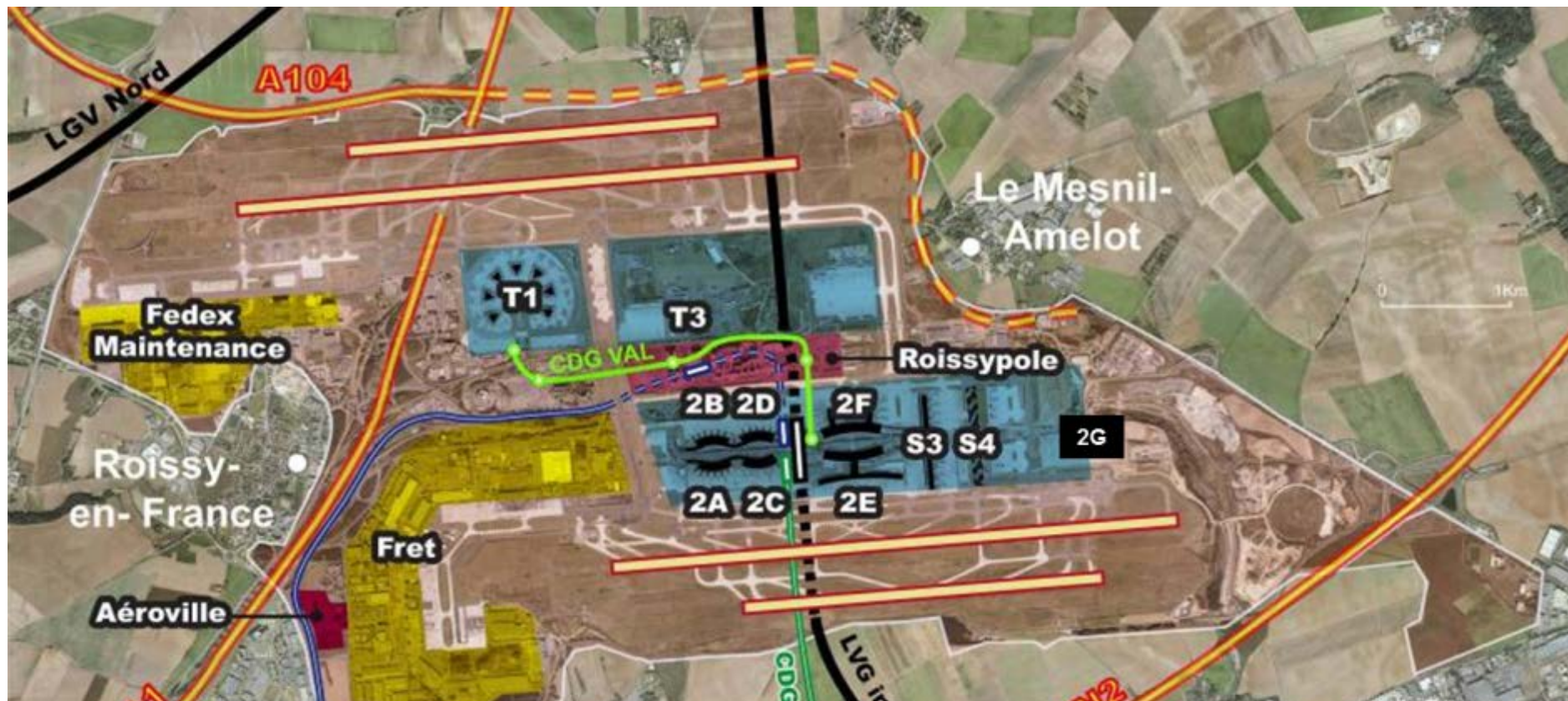


AGENDA

1. CDG airport overview
2. Challenges
3. Lessons
4. Perspectives

CDG Airport overview

Paris Charles De Gaulle Airport



Infrastructure

- 9 passenger and cargo terminals

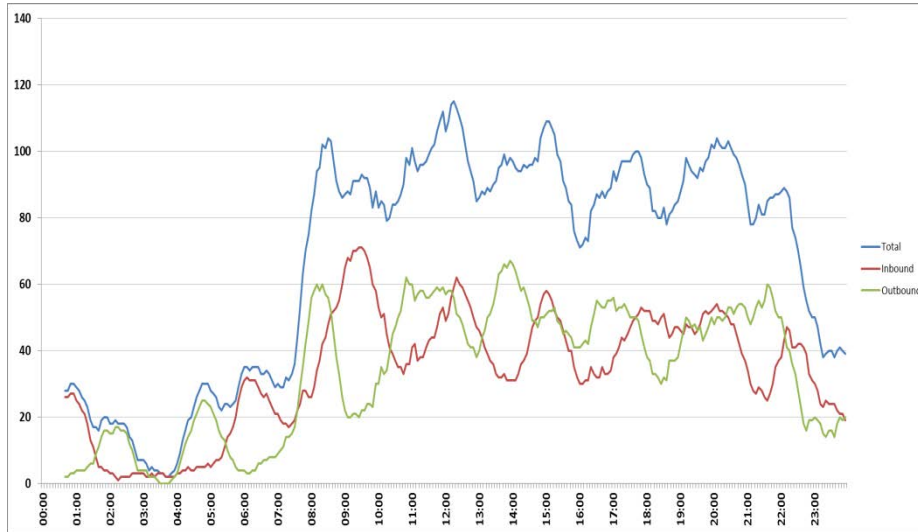
ATC facilities

- 1 Approach room, 3 Control towers, 2 Apron units
- 2 pairs of parallel runways, 80 kms taxiways

Traffic

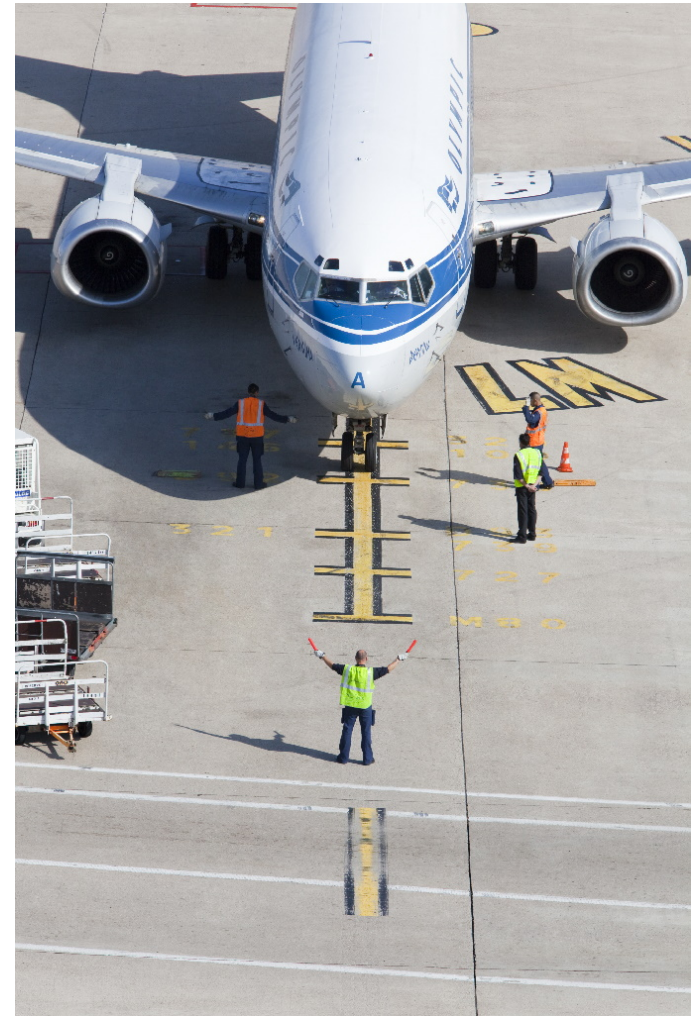
- 154 Airlines
- Air France-KLM and FedEx Hub

Daily traffic structure

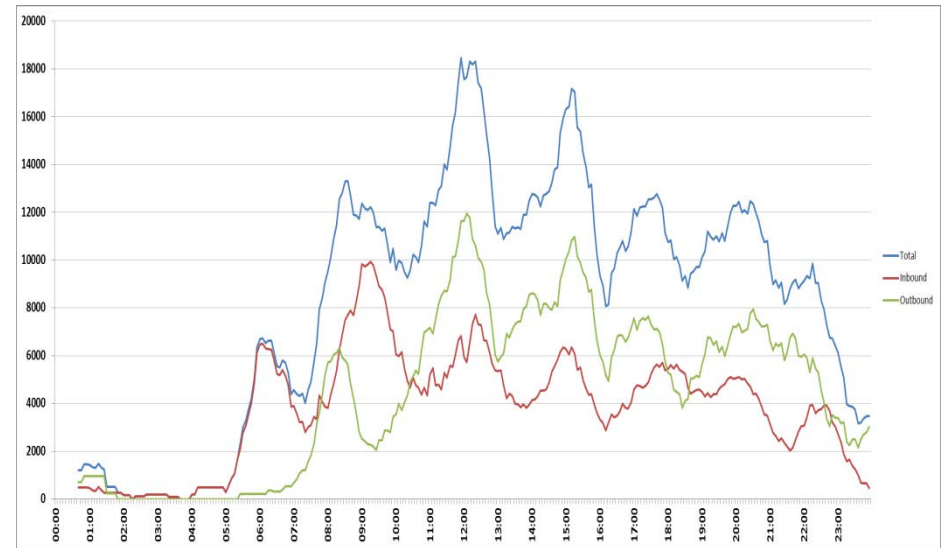


1600 flights/day

- Inbound/outbound : 120 flt/hour
- Inbound : +70 flt/h
- Outbound : +60 flt/h



Daily traffic structure



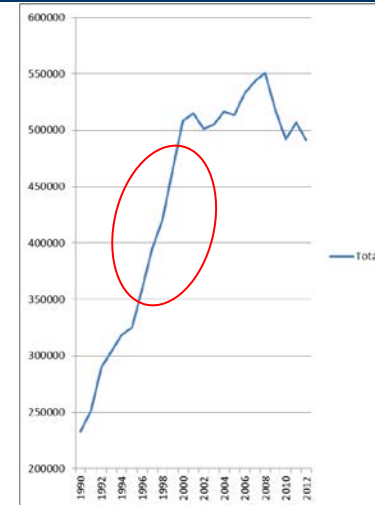
200 000 passengers/day

- **Inbound/outbound : 18000 p/hour**
- **Inbound : 10 000 p/hour**
- **Outbound : 12 000 p/hour**

Challenges

Main issues before CDM@CDG implementation

1. High and rapid growth of the traffic between 1996-2000, in particular with the new Air France Hub



Nominal

Adverse conditions

2. Pressure at peak times
3. Disruption during Adverse conditions
 - Snow event W03 (2 days)
 - Cancellation : 25%
 - Delays : +2h/flight
 - 5 000 passengers in terminal
 - 5 000 passengers in the hotels

Challenges

Shared needs

- Share information and create Trust between stakeholders.
- Harmonize process
- Improve collaboration decision process

Main goals

- Keep high level of safety
- Optimize available capacities,
- Improve regularity, predictability, and punctuality

Lessons

Main issues

Human factors

- Fear
- Lack of understanding
- Transparency
- New process , more constraints
- Share decision

Technical aspects

- Automation vs manual mode
- Improvements, bugs
- Connection to the Network

COST

- How much ? Who ?

Key factors of CDM@CDG implementation

- **Management**

- All stakeholder involved
- Involment of top level management
- Project team composed by 3 main partners
- Lead by ATC/Airport
- Just culture : transparency, and feedback

- **Communication plan : Everywhere, Everytime, Everyone !**

- Meetings with all stakeholders : management & operational staff
- Newsletters and leaflets on various media
- Surveys
- (cross) Training

- **Operations**

- « Quick wins » : 1 significative ops/year
- Co-developpment tools : Airport / ATC / Airlines
- Flexibility

- **Financing**

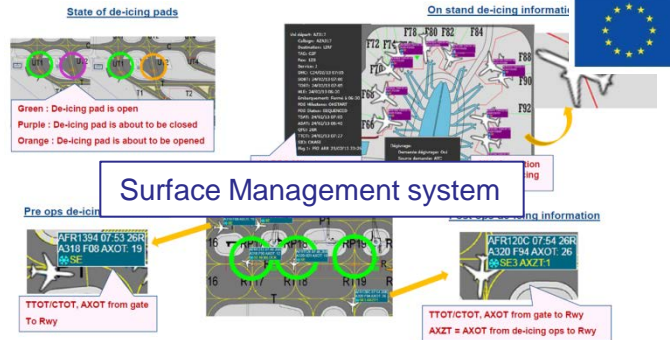
- Mainly support by Airport operator and ANSP.
- TEN-T, SESAR JU (Call for proposal)



CDM@CDG today's



Web site : Daily briefing report, KPI



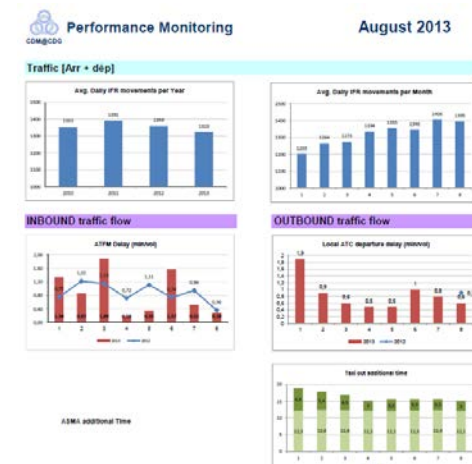
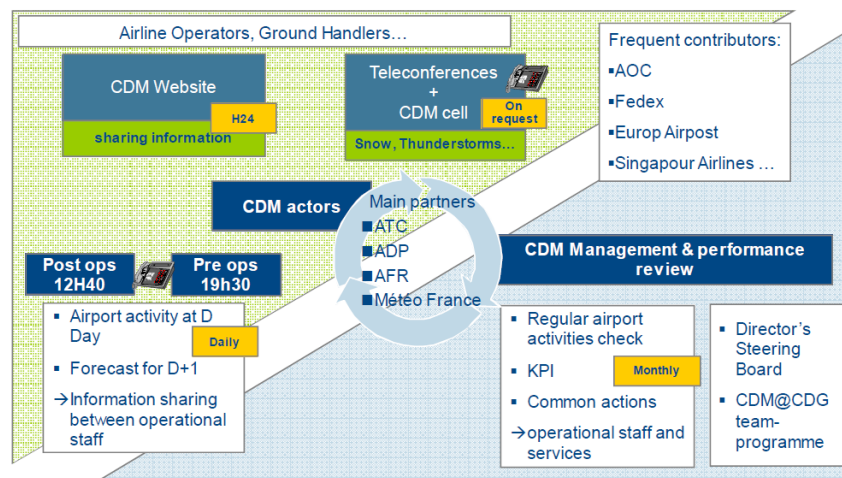
Surface Management system



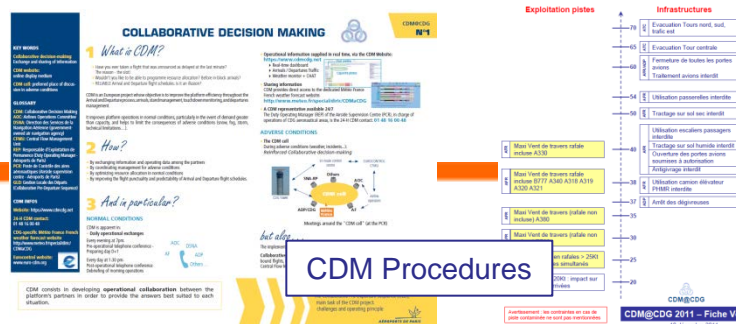
CDM Cell

The screenshot displays the Outbound/Inbound flight List, which is a table showing flight details. The table includes columns for flight number, airline, origin, destination, departure time, arrival time, and status. The data is organized into two main sections: Outbound and Inbound. A European Union flag is visible in the top right corner.

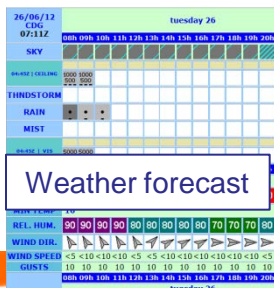
Outbound/Inbound flight List



Performance dashboard RP1/RP2



CDM Procedures

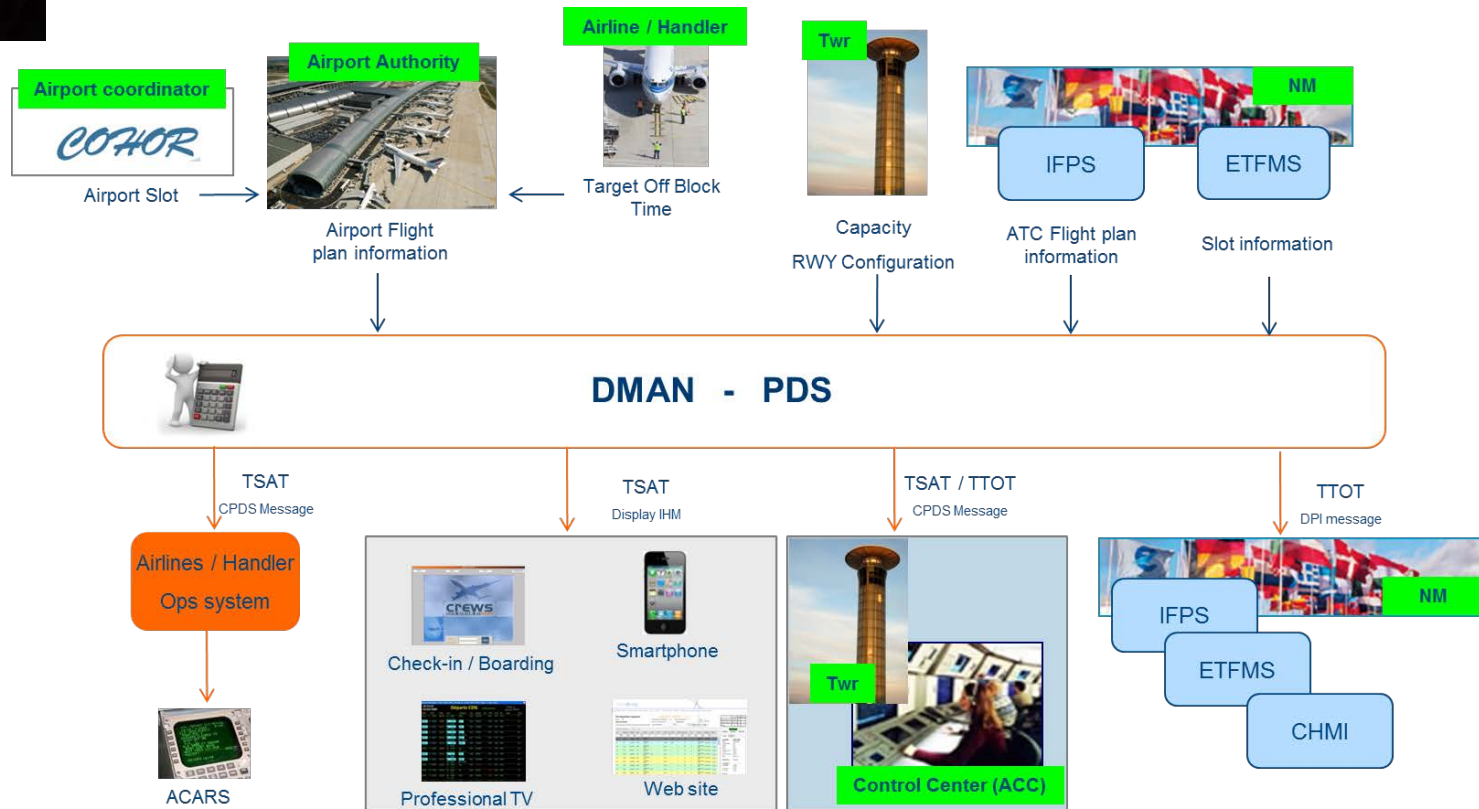


Weather forecast

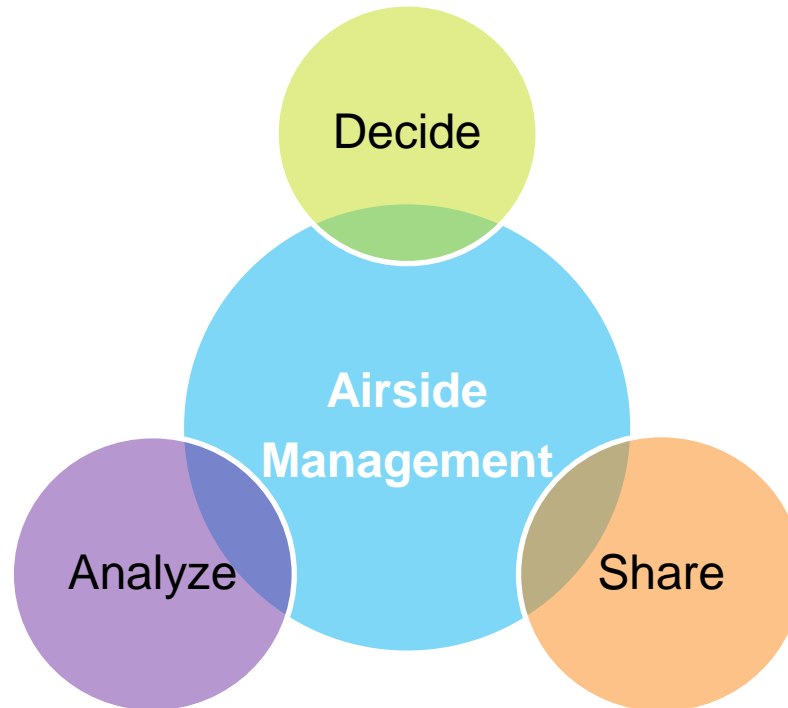
C-PDS Description



Start-up at TSAT 10:00 !



Decide together within the constraints of each

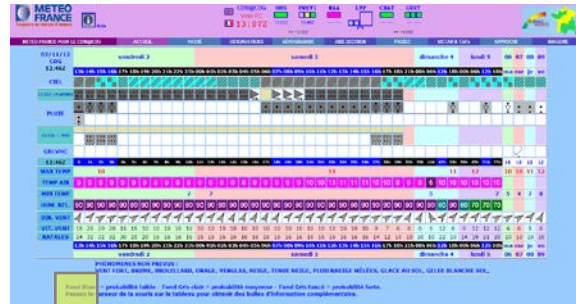


Development of tactical solutions on resource utilization (runways, de-icing,...), and impact on traffic

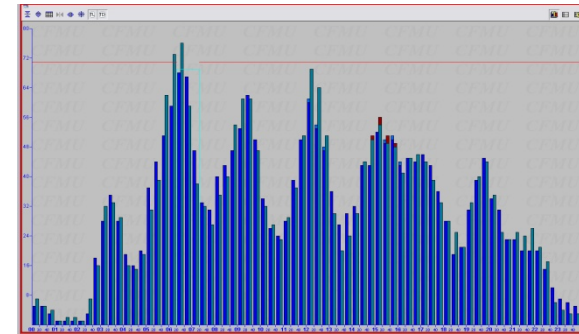
Continuous sharing of information available to all participants

Pre-tactical work (D-1) during winter conditions

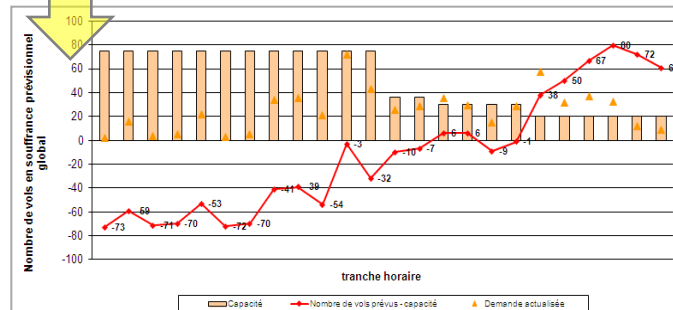
Meteorological forecast



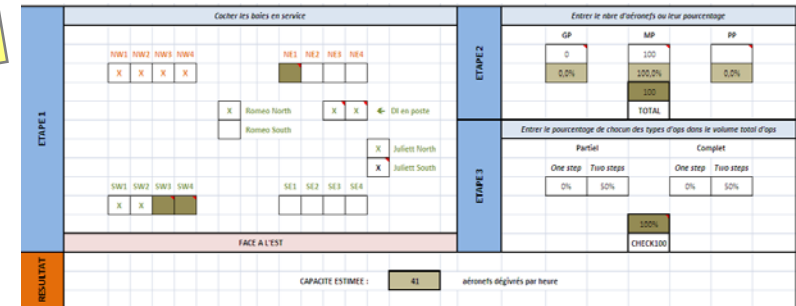
Global traffic forecast



Simtraffic : Airport capacity and departure forecast



Eskimo : Deicing capacity forecast



And other information or partner constraint that can impact traffic flow

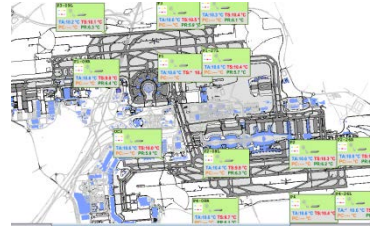
- Levels of operational collaboration
- Deicing & snow clearing means
- Proposition of reduction of flights (cancellations)

Tactical work during winter conditions

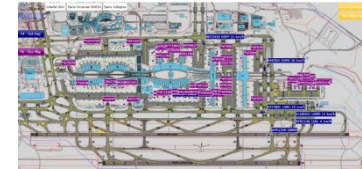
Meteorological forecast



Runway freezing point



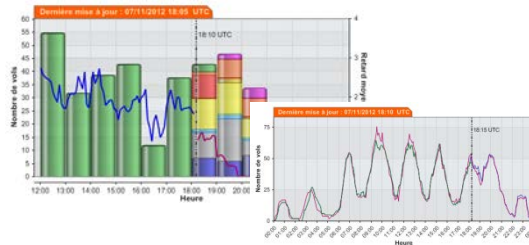
Ground movements



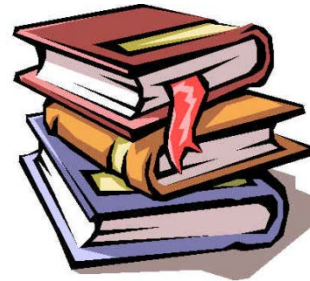
Local ATC data



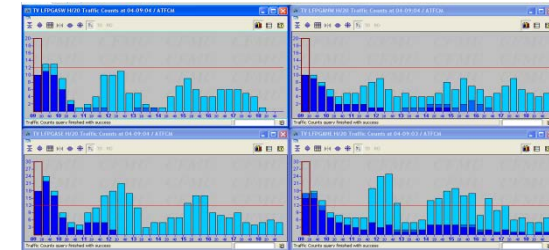
Real-time indicators : Traffic load
deicing indicators, ...)



Snow plan



Network data



And other information!

- Airport capacity strategy (DMAN and deicing manager settings)
- Runway snow cleaning strategy

CDM Website

C-PDS



Real time KPI



- Traffic load
- Taxitime
- Stand occupation
- De-icing

Daily Debriefing

17/05/2010	Prévision 19 H 30
Participants	CA REP CCO
Compte-rendu	SOUTHERN TWIN RUNWAYS WILL BE CLOSED FROM 22H30 TO 03H00 U.T.C NO RUWAY CHANGE EXPECTED.
16/05/2010	Prévision 19 H 30
Participants	CA PCR CCO CCHUB
Compte-rendu	NORTHERN TWIN RUNWAYS WILL CLOSE FROM 00 30 TO 05 00 UTC. WESTBOUND CONFIGURATION EXPECTED TONIGHT AND TOMORROW MORNING
15/05/2010	Prévision 19 H 30
Participants	DSNA, ADP, CCO et CCHUB AFR
Compte-rendu	No work on the airfield tonight. Tomorrow, low ceiling and poor visibility are forecast but nothing that could lower at this time the capacity in the morning. CDG Arrival capacity will be updated by tower supervisor tonight in case of evolution.

Documentation

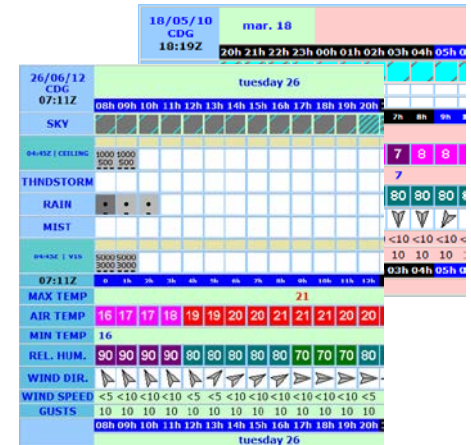
- Procedures
- Aeronautical Information

FAQ

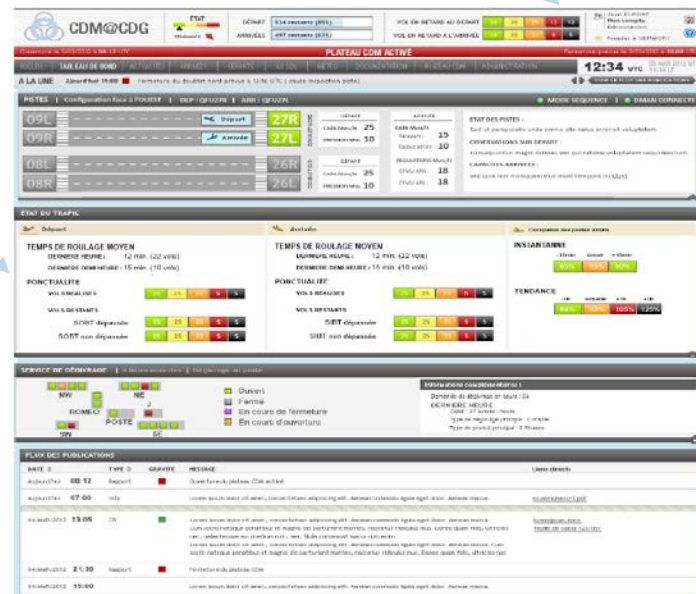
- 1. CDM
- 1. Qu'est-ce que le CDM?
- 2. Généralités
- 1. Première question
- 2. Deuxième question
- Gestion Locale des Départs (GLD)
- 1. Qu'est-ce que la GLD?
- Publications officielles
- 1. Où trouver la son information aéronautique officielle pour CDG?



Weather forecasts



News



Benefits

Relationship

- Process are more visible, as **Responsabilities**
- **Equity and Trust**

Operations efficiency

- Slot adherence +10%
- De-icing activity (49acft/h)
- Adverse conditions
- Delay reduction
- **Predictability**: Airport, Network, and Customers

On behalf of China Southern CDG airport ,we are very satisfy about this new process, we noticed a strong improve with the prior situation with raise and increase of puntuality of our daily flight rotation and specially our specials charter flights as ONU type the CDG is a real tool for our operations ,now we can feel and trust it to achieve perfectly our operations, this knowledge is for us a good guaranty to work efficiently to aim our main target :respect our schedule.

CDG IS A REAL AND RELIABLE PARTNER

Luo Ming – China Southern representative

Safety

- Adverse conditions
- Ground ops more fluid, and less Bottleneck at the threshold (till 35% reduction)

Environnement

- 12 000 tons/year reduction emissions of CO2

Cost efficiency :

- 4000 tons/year fuel reduction
- Business airlines oriented (Dflex)

A better management of our departure sequence flow, more particularly in constrained capacity period at night. Thus a reduced ground fuel burn overall, allowing us to save 210,000 gallons of fuel and 1,700 tons of CO2 emissions annually compared to the pre-ACDM era

FEDEX

Data Reliability

- local information consolidation
- Better Network-Airport integration

Perspectives

Perspectives : Continue Airside improvements...

Simulation

NOP - AOP
TMA : DCB/STAM

Ground operations

Load runway capacity balancing

$$\text{Retard total} = \sum_f (TSAT(f) - TOBT(f))$$

$$\forall f, \quad TTOT(f) \leq CTOT(f) + 600 \quad (4)$$

$$\forall f, \quad TTOT(f) = TSAT(f) + y(f, 1) * EXOT(f, 1) + y(f, 2) * EXOT(f, 2) + ERWT(f) \quad (5)$$

$$\forall f_1 \neq f_2, |TTOT(f_1) - TTOT(f_2)| \geq \max(SEP(f_1, f_2), CAPA) \quad (6)$$

Perspectives : ... and develop TAM concept

Airside

Landside

Cellules de Commandement ADP/DGAC...

PC Crise
DO DSNA

Airport OCC

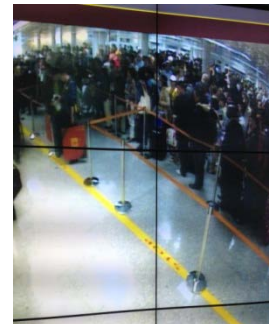
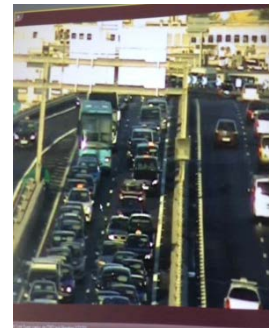
Access
OCC

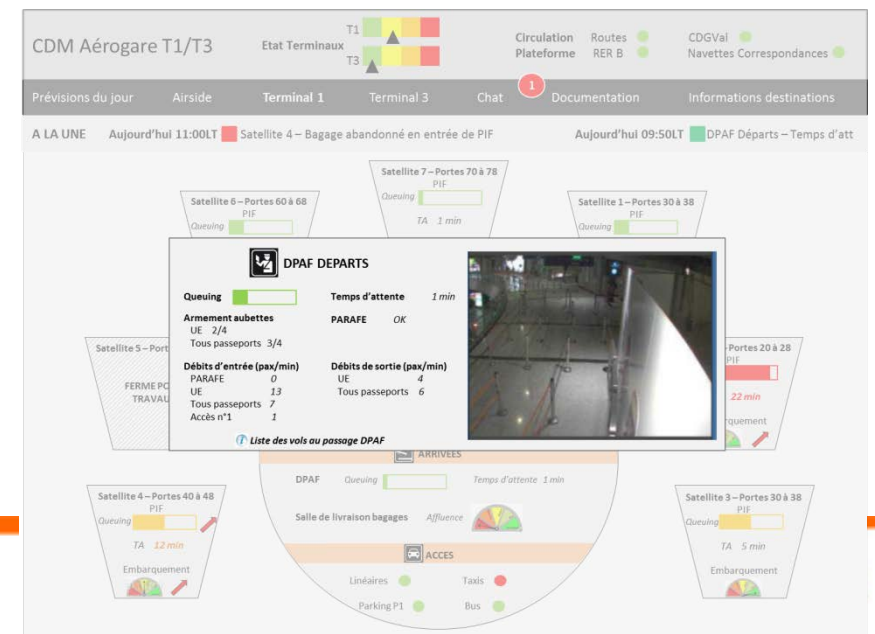
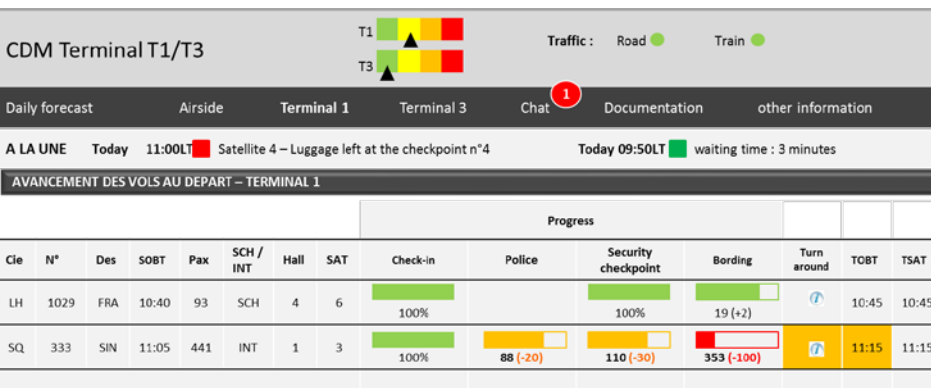
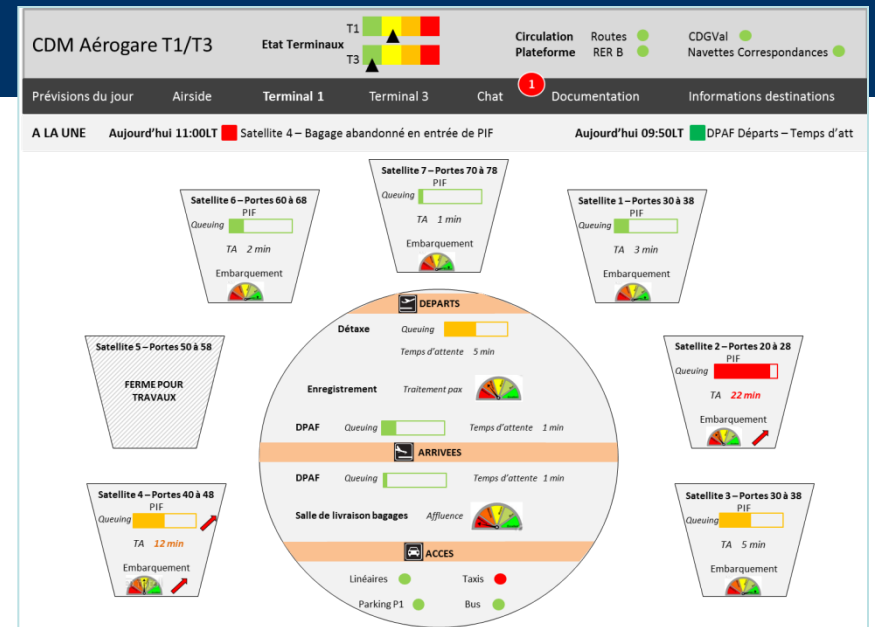
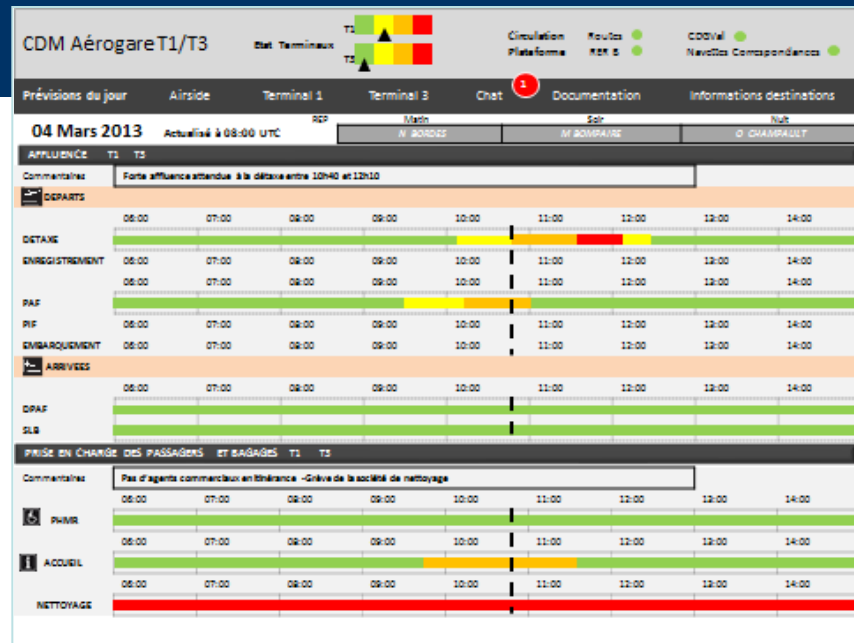
CDM Cell
Airport/ATC/Airlines

Stakeholders

Terminal
OCCs

Coordination Airside / Landside !





Thank You !

