CDM State of the Art and Review of Past Disruptive Events

Lynnette Dray

MetaCDM workshop 2

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UNIVERSITY OF CAMBRIDGE

Meta CDM

Multimodal, Efficient Transportation in Airports and Collaborative Decision Making

COOPERATION

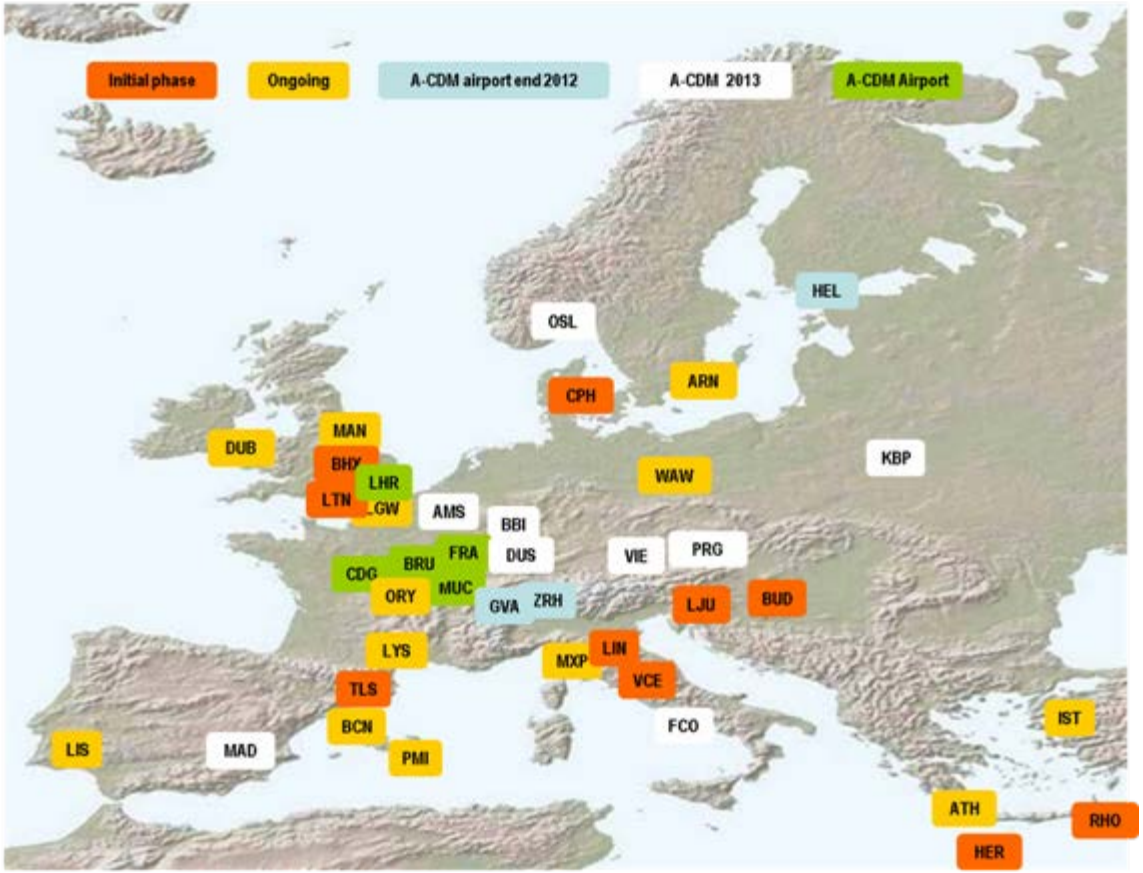
MetaCDM WP1 – CDM state of the art

OBJECTIVES

- Identification of the state of the art in airport CDM
  - Review of airside, landside and total airport CDM initiatives
    - European, US and elsewhere
    - Including existing initiatives, technology capabilities, and literature review on research into potential future initiatives
- Review of disruptive events affecting aviation
  - Informs selection of on-site interviews in WP2
- Review of passenger-centric methodologies for assessing and dealing with disruption
  - Including passenger-focussed KPIs

CDM State of the Art – the present day

- Many European airports adopting or using CDM
- Collaborative ATM a key part of SESAR, NextGEN
- Current CDM is mainly airside
- For information on current EU efforts see the Airport CDM Implementation Manual



CDM State of the Art – the future

- One major trend is the integration of airside and landside CDM
  - Explored by two recent projects:

TAMS Total Airport Management – based on an Airport Operations Centre (APOC) using A-CDM and A-SWIM

- Interacting management systems for arrivals, taxi, departures, turnaround, boarding, stand and gate management
- Then integrated platforms for common situational awareness
- Plus airport simulation system for testing/validation

CDM State of the Art – the future

- One major trend is the integration of airside and landside CDM
  - Explored by two recent projects:

ASSET Aeronautic Study on Seamless Transport

- Focus on landside CDM
  - Developing integrated process improvements for passenger and baggage handling and turnaround
- Included a comprehensive review of requirements and bottlenecks
- Simulation approach to assess solutions (e.g. skip check-in)
- Quantifiable performance parameters to assess improvements

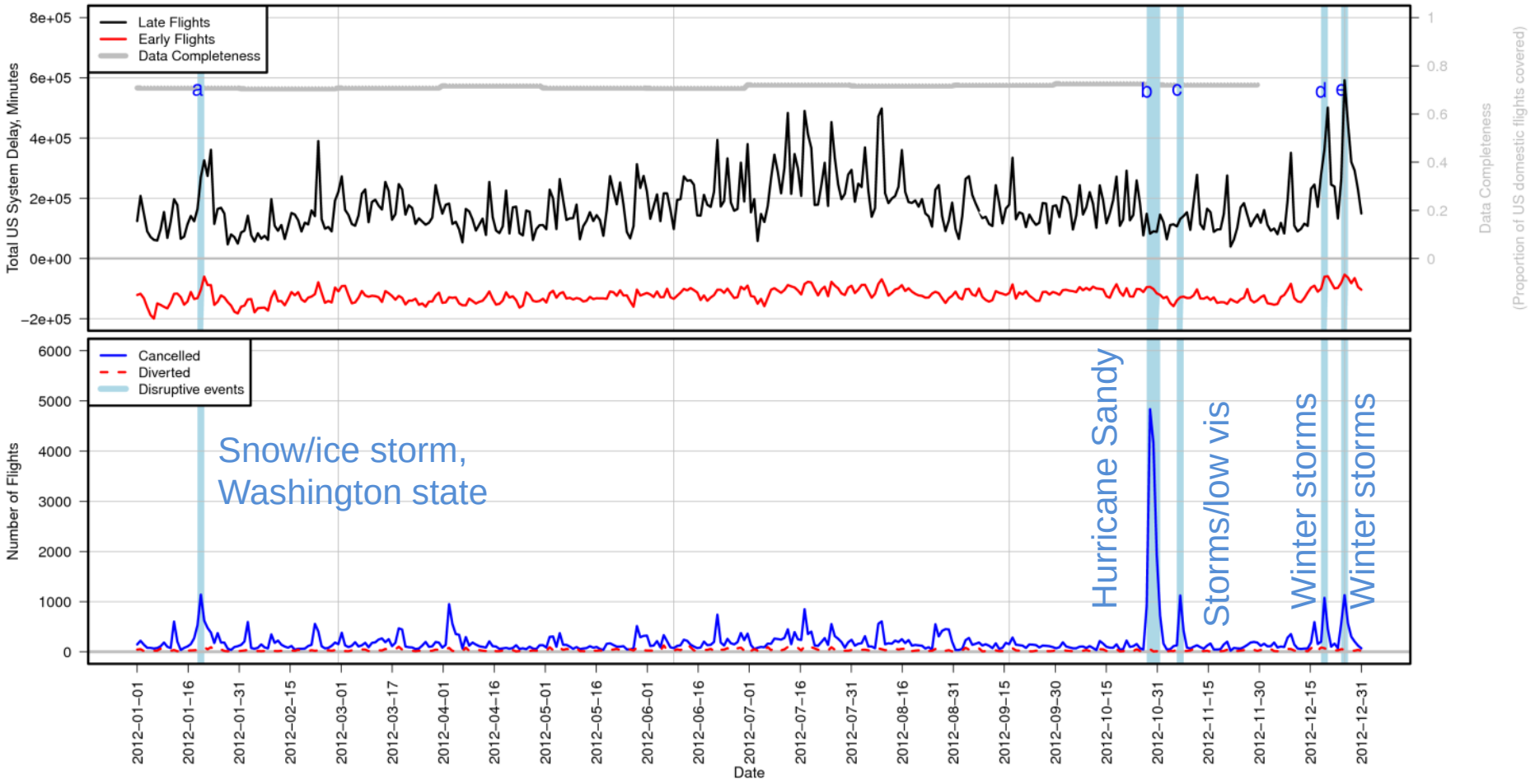
Disruptive events - some relevant EU regulations & communications

Regulation	
261/2004	Requires passenger compensation and assistance to be provided **by the airline** for denied boarding, cancellations or long delays
EC 2027/1997 and **889/2002**	Sets out limits of air carrier liability for passengers and baggage (e.g. death, injury, delay, lost baggage)
Communication	
2011/174	Clarifies regulations on passenger compensation and assistance and suggests improvements in passenger information
2011/898	Reviews passenger rights by transport mode, including passenger information rights
Proposal	
2013/203	Air passenger rights revision, proposes improved passenger information, clarification of grey areas, increased enforcement

Review of Disruptive Events

- Detailed review of the last 10 years, plus selected earlier events
- Two main themes
  - How common and how disruptive are different types of event?
  - How were historical events dealt with, and what could be improved?
- Review concentrated on the EU and US due to data availability (Eurocontrol NOR, US OTP)

For example: US delays/cancellations 2012



EU Major Disruptive Events

- Based on a metric of delay and cancellation cost for a typical incident x incident frequency, the most important sources are:

Source	Type of Disruption	Typical warning time
Snow and ice	**Runway closure**	**Days**
Volcanic ash	**Closed airspace**	**Days**
High winds	Reduced throughput	Days
Strikes	Absent staff	Weeks-none
Infrastructure upgrades	Various	Months-years
Systems failures	Various	None
Fog / low visibility	Reduced throughput	Days
Incidents and accidents	Runway /taxiway closure	None

- Snow, ice, winds, low visibility, strikes and accidents may also affect local or regional ground transport

Lessons learned from past events

- Many ‘post-mortems’ of aviation disruptive events available in literature
  - E.g. Heathrow winter 2010 disruption (Begg 2011, CAA 2011, Quarmby 2011)
- Useful parallels also available from disruption in other modes
  - E.g. Eurostar winter 2009 disruption involved use of alternative modes to transport passengers, with varying success
- Several consistent messages:

Lessons learned from past events

- Accessibility of passenger information could be improved
- Regularly updated contingency plans with clear division of responsibilities are vital
  - All stakeholders should be consulted, buy-in and good relations between stakeholders are vital
  - A single physical control centre for major incidents
- Multimodal response will only work if the other modes have capacity and are less disrupted
  - Past attempts have often led to passengers being delayed or stranded a second time on trains, ferries or coaches

Lessons learned from past events

- Although passenger care is an airline responsibility airports have often had to step in
  - Some airlines ignore responsibilities, sometimes airline is not available (e.g. airline insolvencies)
- Need to balance flexibility in response with need for certainty from, e.g. airlines operating long-haul flights
  - Often a proactive approach to cancellations (as with rail 'snow timetables') can aid resilience
- Events with a long lead time are usually handled well (e.g. major sporting events)
- In general, need to be sure the benefits outweigh the costs for disruption preparation

The Passenger Experience

- Metrics such as delay minutes do not fully reflect passengers' experiences of disruption
  - How is door-to-door travel time affected?
  - Do passengers arrive with their baggage?
  - Are there missed connections or aborted trips?
  - Are refreshments and information provided?
- Passenger-centric criteria are used in aviation R&D studies and other modes, particularly rail – some examples:

Passenger-centric Performance criteria

- **EN 13816:2002**
  - Availability, accessibility, information, time, customer support, comfort, safety and environmental impact
- **Gallup (rail)**
  - Ticket access, information provision, security, transport connections, cleanliness, facilities, parking, complaint handling, journey time, comfort, punctuality, staff availability, assistance for elderly/disabled
- **DKMA**
  - Parking, baggage carts, wait at check-in/security, staff helpfulness, wayfinding, information, comfort, concessions, facilities, cleanliness, baggage delivery (etc.)
- Defining criteria to assess MetaCDM solutions is part of WP3

Further information:

www.meta-cdm.org

Including downloadable WP1 report