

Ad Hoc Expert Meeting on

**Climate Change Adaptation for  
International Transport:  
Preparing for the Future**

16 to 17 April 2019

**Adaptation: key issues and experiences,  
recent initiatives and developments –  
Airports and Aviation**

Presentation by

**Rachel Burbidge**  
Environment and Climate Change  
Eurocontrol

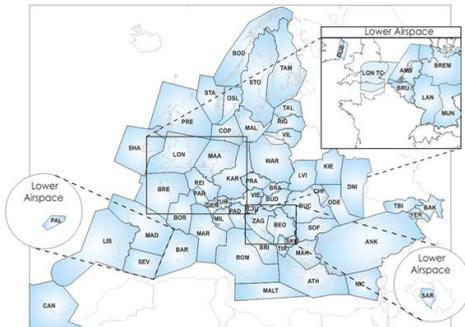
# Adaptation: key issues, and experiences, recent initiatives and developments – Airports and Aviation

UNCTAD Ad Hoc Expert Meeting on Climate Change Adaptation for International Transport: Preparing for the Future

Rachel BURBIDGE  
Policy Officer: Environment and Climate  
16-17 April 2019, Geneva

## ATM Today Air Transport – Air Navigation - Europe

**ICAO:** The contracting States recognise that every State has complete and exclusive sovereignty over the airspace above its territory.



### EUROCONTROL

- 41 Member States, typically each with its own ANSP
- Approximately 64 Area Control Centres (ACC)
- Over 700 sectors when at full capacity
- Approx. 17,000 Air Traffic Controllers
- 14.2 million flight hours controlled

## EUROCONTROL's work on climate adaptation



**35** CAEP  
1983 - 2018  
Years  
Greening Aviation

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## Right here, right now?



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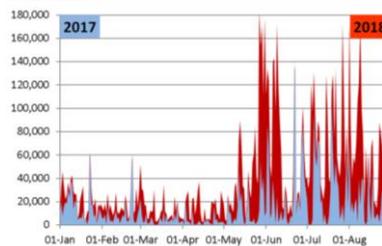
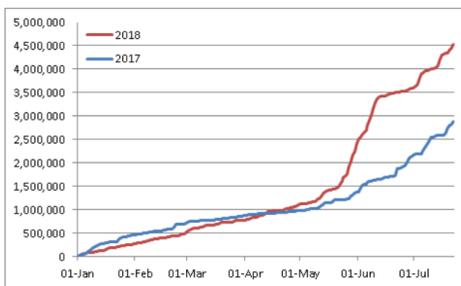
## Climate Change: is it happening now?



Well we *can't* associate it with specific events...

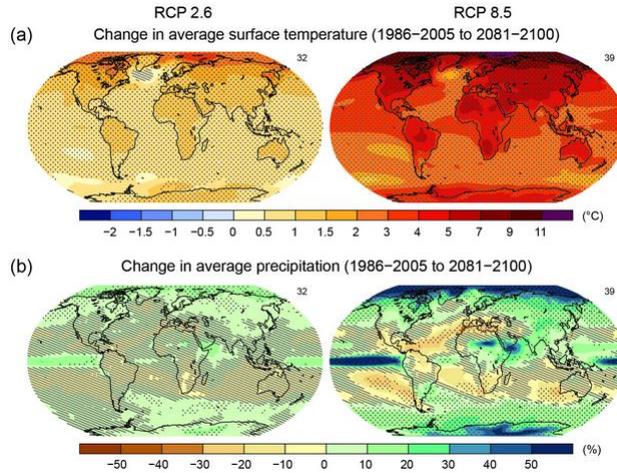
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## Weather impact in Europe is increasing



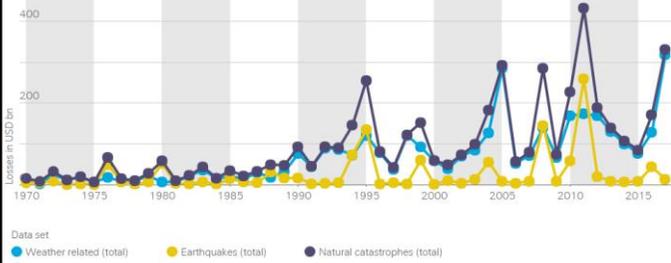
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# Aviation is used to disruptive weather – but if it's going to get worse?



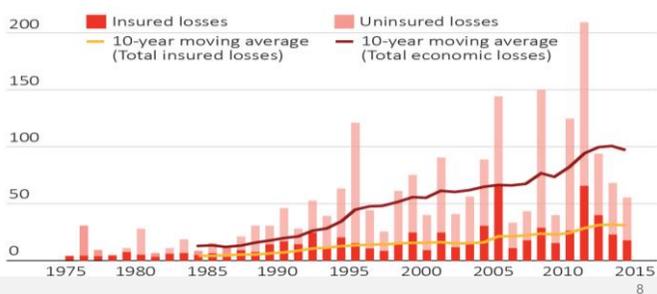
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## Risk Assessment – Financial Impact



## Risk Allocation – Insurance and Contracts

**Rising insurance protection gap to natural disasters 1970-2014**



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# Potential climate impacts for aviation



AIRPORT OPERATORS

## Precipitation change

- Disruptions to operations (e.g. airfield flooding, ground subsidence)
- Reduction in airport throughput
- Inundation of transport access (passengers and staff)
- Loss of local utilities provision (e.g. power)
- Inadequate drainage system capacity
- Inundation of underground infrastructure (e.g. electrical)

## Sea-level rise

- Loss of airport capacity
- Loss of airport infrastructure

## Temperature change

- Changes in noise impact due to changes in aircraft performance
- Heat damage to airport surface (e.g. runway, taxiway)
- Increased heating and cooling requirements

## Wind changes

- Convective weather: disruption to operations
- Local wind patterns: potential disruption to operations and changes to distribution of noise impact
- Crosswinds: reduction in capacity

## Extreme events

- Disruptions to operations
- Disruption to ground transport access
- Disruption to supply of utilities

AIR NAVIGATION SERVICE PROVIDERS

## Precipitation change

- Disruptions to operations (e.g. airfield flooding, ground subsidence)
- Reduction in airport throughput
- Inundation of transport access (passengers and staff)
- Loss of local utilities provision (e.g. power)

## Sea-level rise

- Loss of airport capacity
- Impacts on en-route capacity due to lack of ground capacity
- Loss of ground transport access

## Temperature change

- Changes in aircraft performance
- Changes in noise impacts due to changes in aircraft performance

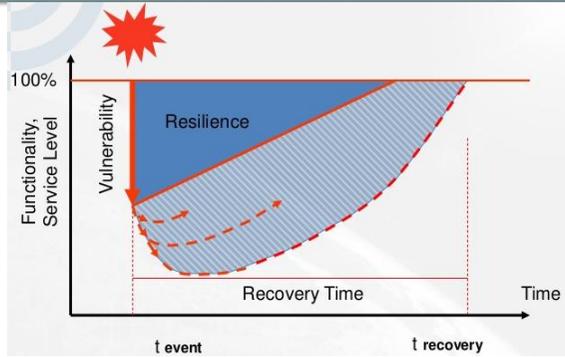
## Wind changes

- Convective weather: disruptions to operations
- Convective weather: route extensions

## Extreme events

- Disruptions to operations
- Disruption to ground transport access
- Disruption to supply of utilities

## Systematic Response – Resilience



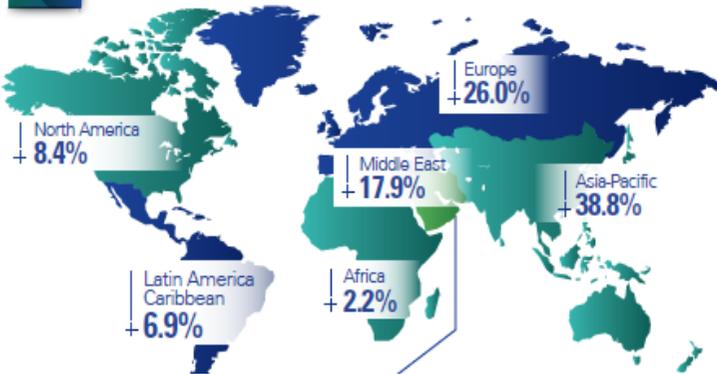
Recovery curve with/without Business Continuity Planning

Sources: GRF

**Indirect impacts at airports not directly affected:** flights that cannot land in destination airport: capacity/ equipment / size of (larger) aircraft / prioritization of flights / surplus of donations



## REGIONAL CONTRIBUTION TO INTERNATIONAL PASSENGER TRAFFIC GROWTH 2016-2040



## ICAO work on Climate Adaptation



ICAO

### Resolution A39-2: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

- n) identify the potential impacts of climate change on international aviation operations and related infrastructure and identify adaptation measures to address the potential climate change impacts, in cooperation with other relevant international organizations and the industry; and



If you've seen one airport...



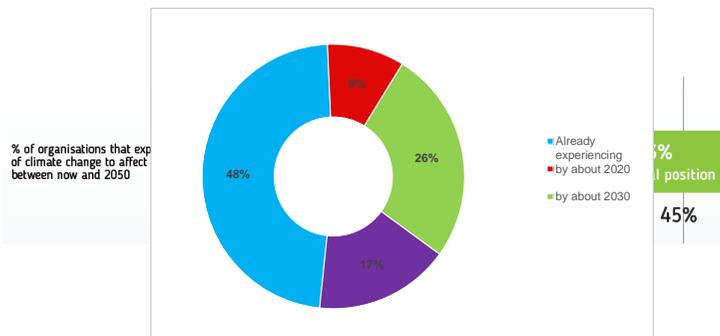
Different organisations:  
different challenges, different solutions...

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## EUROCONTROL Challenges of Growth 2018 - Adaptation survey

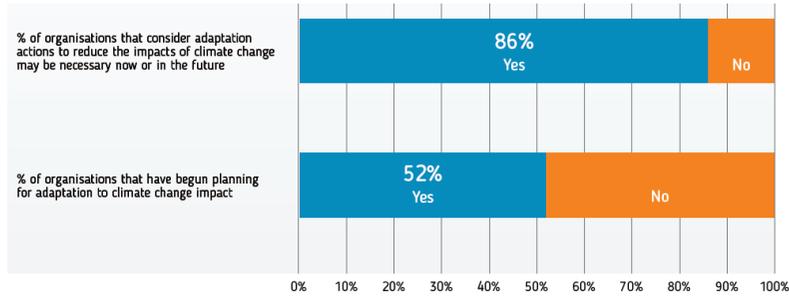


- Follow up to 2013 survey: what do we think now and what climate adaptation action are we taking?
- 90 responses



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## So are we ready?



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## Conclusions



- Awareness is growing and more aviation sector organisations are taking action
- We can do more, and more quickly
- Learn from other sectors, but -
- Aviation is a hugely diverse sector: no-one size fits all
- Individual solutions for individual organisations, but –
- *We **all** need to take action*

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