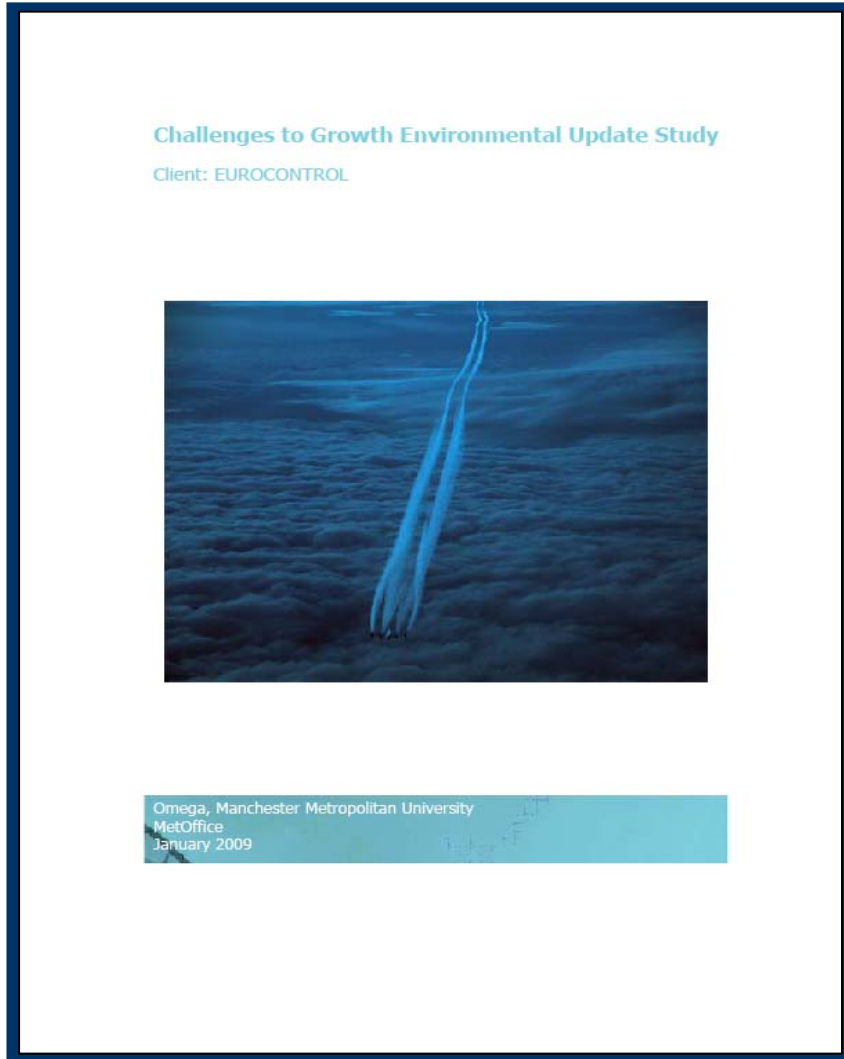


ATM Climate Change Adaptation

Update on EUROCONTROL's work

WEATHER Workshop, Rotterdam, May 2011

Rachel Burbidge
EUROCONTROL



Aim:

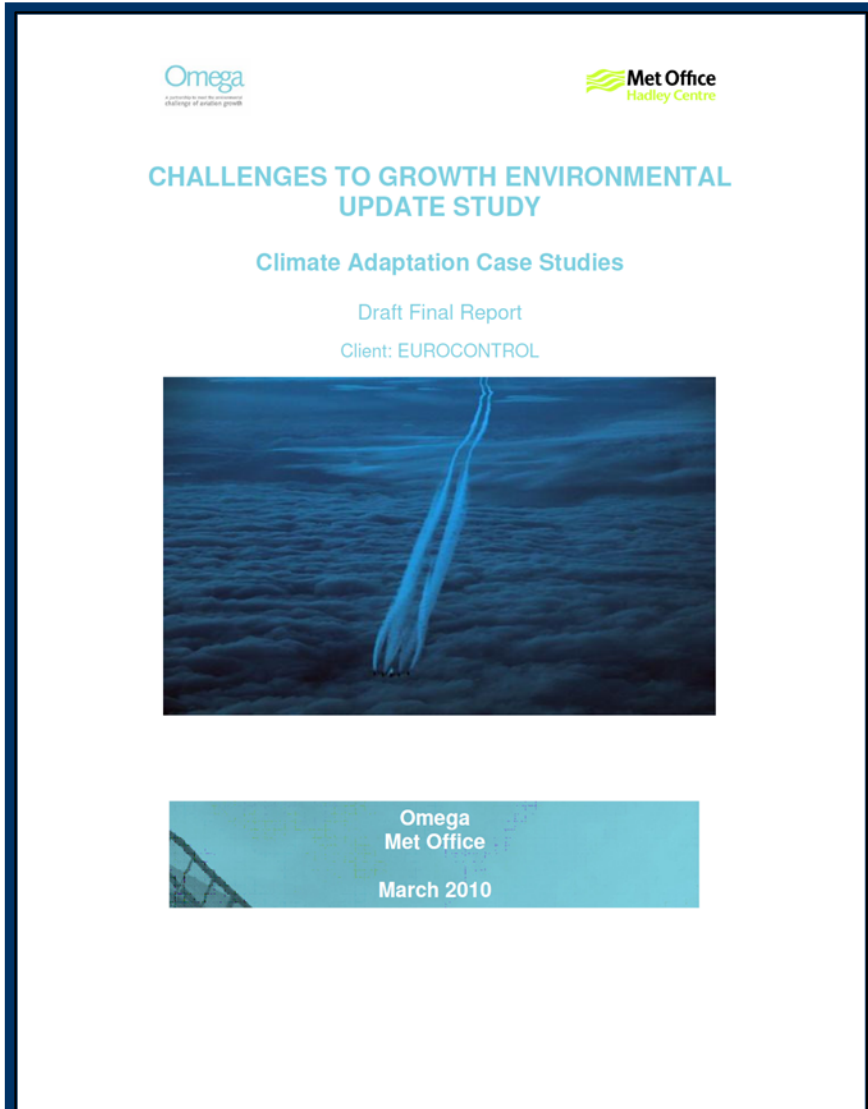
To **Scope** the environmental constraints which **may** impact the ability to meet demand

For the first time:

Climate change impacts identified as a potential constraint

More research required

3 Case Studies



Aim:

To make risks more tangible and specific (as far as possible)

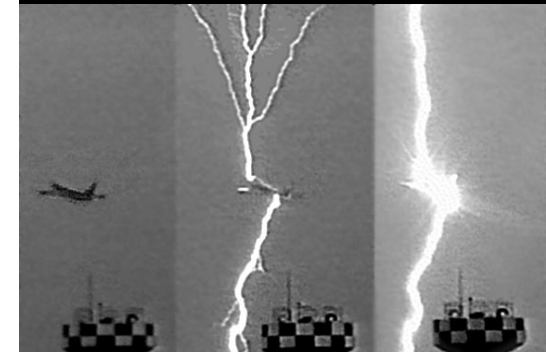
Case studies:

Sea level rise and flooding at airports
Increased storminess
Climate-driven demand changes

Will feed in to SESAR WP 16.3.7
Environmental Regulation and Risk

Increased storminess risk - Maastricht Upper Airspace

- June 2010 – 28% of ECAC flow management delay due to weather
- Convective Available Potential Energy (CAPE) is a useful indicator
- Summer:- increase of around 3-4 days in the potential for significant storminess by 2020, potentially falling below present day levels by 2050.
- Spring-Autumn: increase of around 1-3 days 2020 with the potential for significant storminess by 2050.



CS3: Significance for ATM?

ATM already deals with extreme weather

BUT

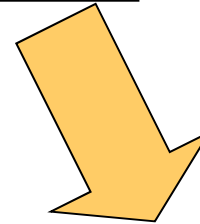
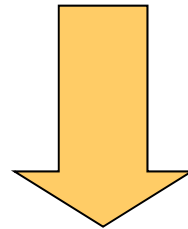
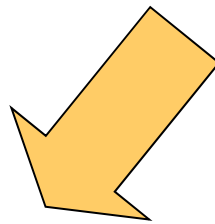
Increased extreme weather events may impact performance:

- Increased track miles/decreased route efficiency
- Increased delay
- Loss of network capacity
- Decreased flexibility *and* predictability
- Environmental *and* economic impacts

Single European Sky ATM Research Programme (SESAR) already addressing some of these issues.



European level policy =
decarbonisation of transport



SES-legislation

Performance

SESAR

The four targets of SESAR

Enabling EU skies
to handle **3 times
more traffic**

Improving safety
by a factor of 10

**Reducing
the environmental
impact**
per flight by 10%

**Cutting ATM
costs by 50%**

SESAR and the Environment

Target: 10% reduction in impact per flight

WP 16.3 Environment

- Environmental/Integrated Management Systems
- Performance indicators
- Impact assessment
- Best practice repository

And throughout the work programme

- Continuous Descent Approach
- Collaborative Environmental Management
- Trained and aware workforce
- More effective community relations
- System Wide Information Management
 - Environmental parameters
 - Enviro-SWIM

Target 2020

Together, we will save



8 to 14 minutes



300 to 500 kg of fuel



948 to 1575 kg of CO₂

on average per flight.



SESAR Project 16.3.7

P16.3.7 Environmental regulation and risk

Environmental risk project objectives:

2011

- Base line review: what is the current situation

2012

- Scenarios: emerging environmental risks
- Drivers of environmental risk
- Guidance

SESAR next steps

- Consider hard and soft infrastructure and its design
- Improve information flows; System Wide Information Management
- Improve forecasting/predictive and planning capabilities – Dynamic Management
- Improve resilience to perturbation that cannot be avoided
- Improve system flexibility

Conclusions

- Significant risk for climate change-related impacts to affect European ATM system,
- Risk increases over time
- Timescales vary from 2020 to 2090
- Begin considering in current medium/long-term planning
- Combined scenarios: climate change-driven impacts coincide / system-wide impact
- Further research required



Thank you for your attention

Questions?



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