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# AIRPORTS AND CLIMATE CHANGE: IDENTIFYING THE RISKS AND BUILDING RESISTENCE

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# CG13 Climate Change Risk and Resilience Task



## Objectives:

**Is climate change a risk for  
European aviation?**

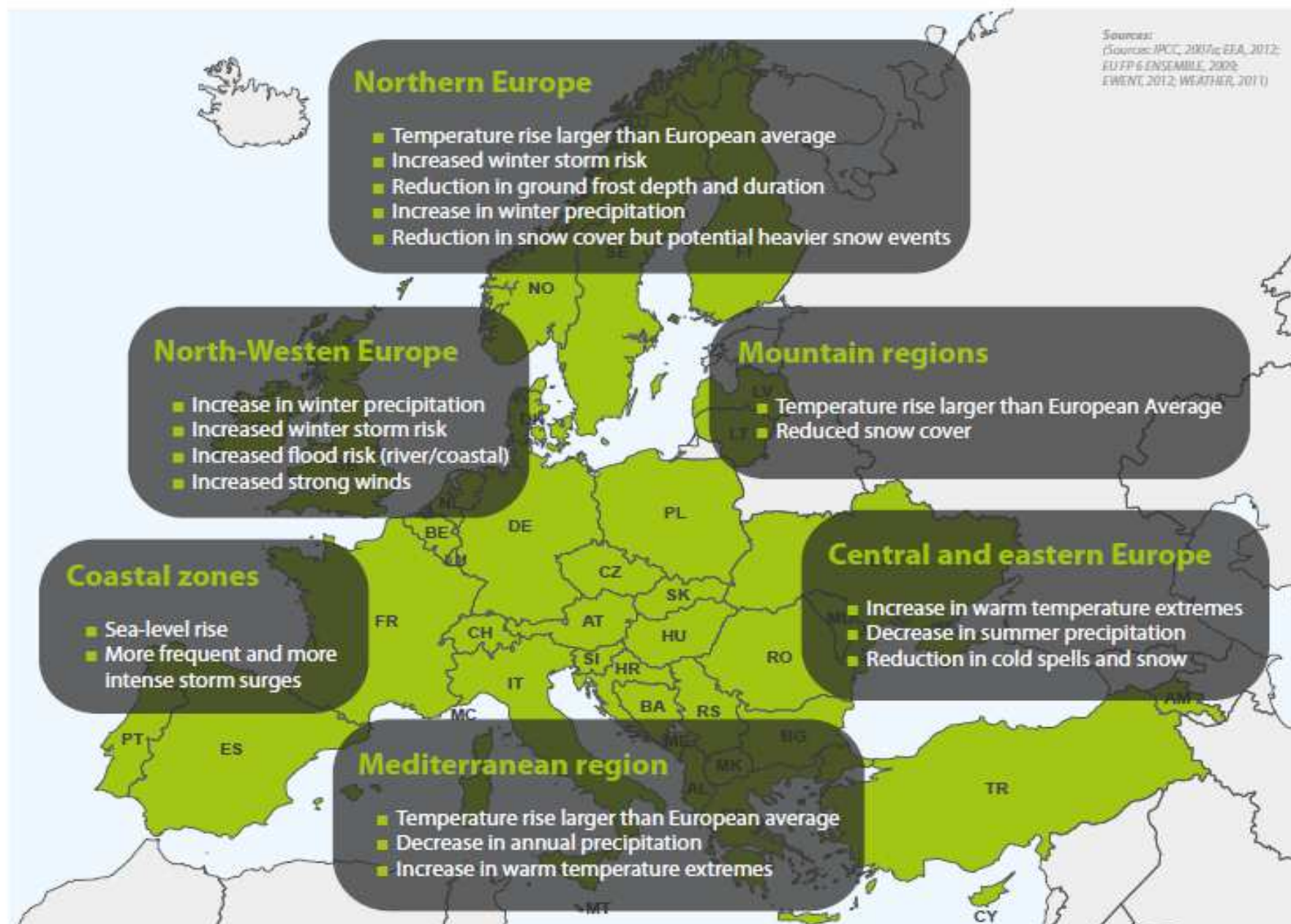
**Do we need to take action?**

**What, when, where and whom?**

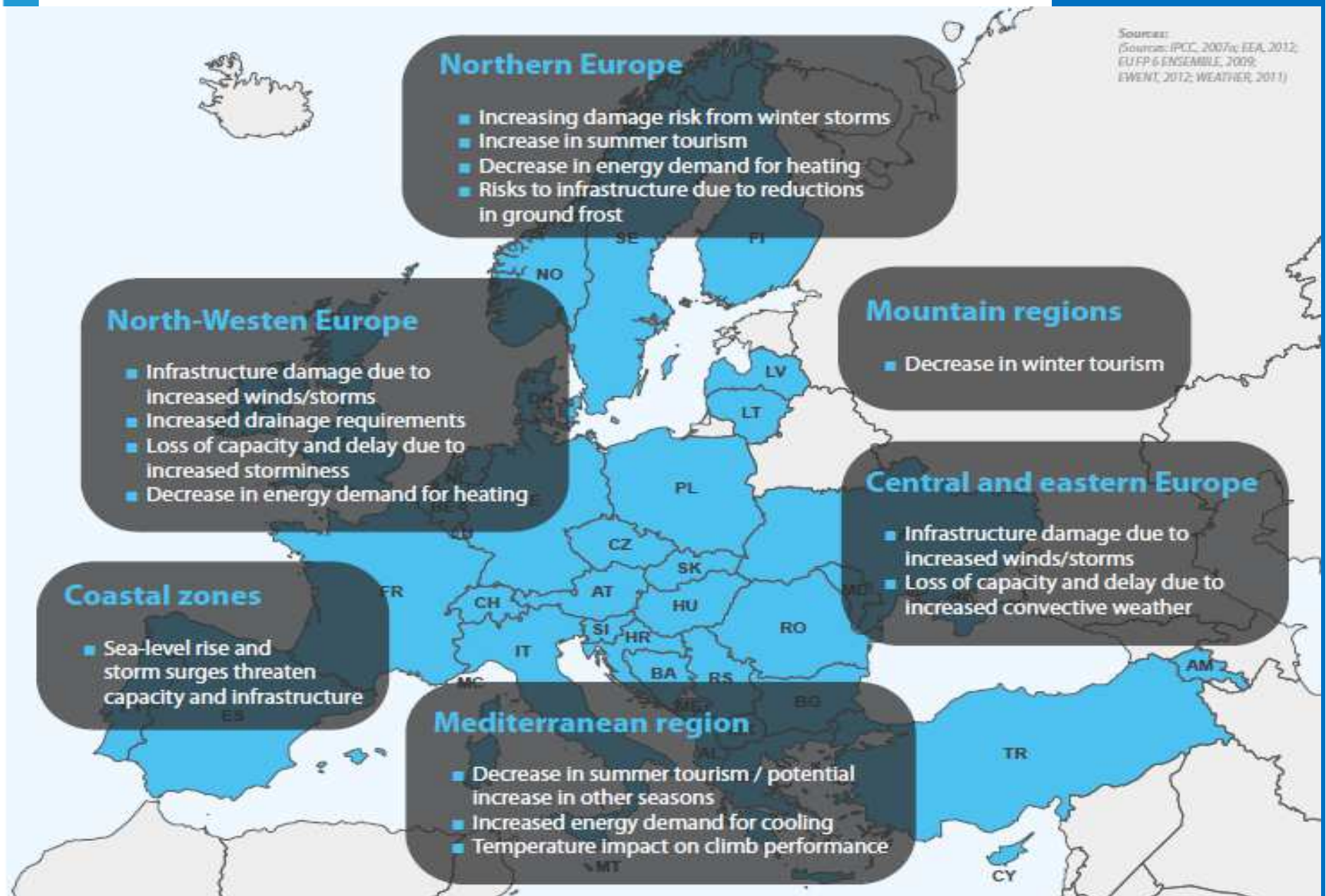




# Climate change by European climate zone



# Impacts for aviation by climate zone





# Many impacts affect airports

## **Changes in wind direction:**

- Increased crosswinds
- Capacity implications
- Potential procedure changes
- Potential changes to noise distribution

## **Flooding and sea-level rise:**

- Inundation of runways and taxiways
- Loss of ground transport access
- Inundation of electrical infrastructure

## **Increased precipitation:**

- Impacts on capacity/delay
- Inundation of runways and taxiways
- Inundation of electrical infrastructure

## **Increased convective weather:**

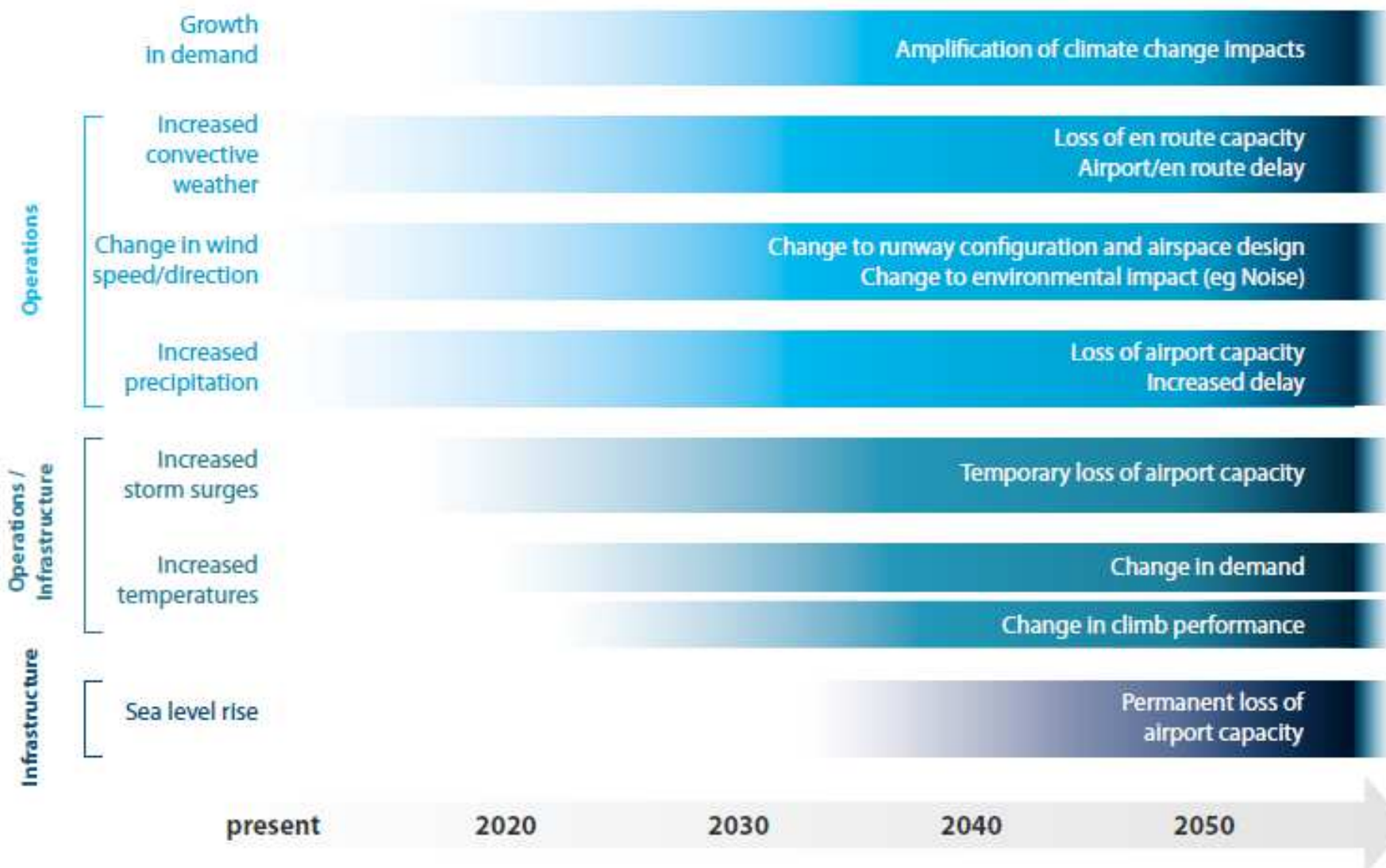
- Increased delay / loss of capacity
- Lack of capacity at diversionary airports

## **Higher summer temperatures:**

- Changes in summer demand patterns
- Heat damage to infrastructure
- Increased cooling requirements

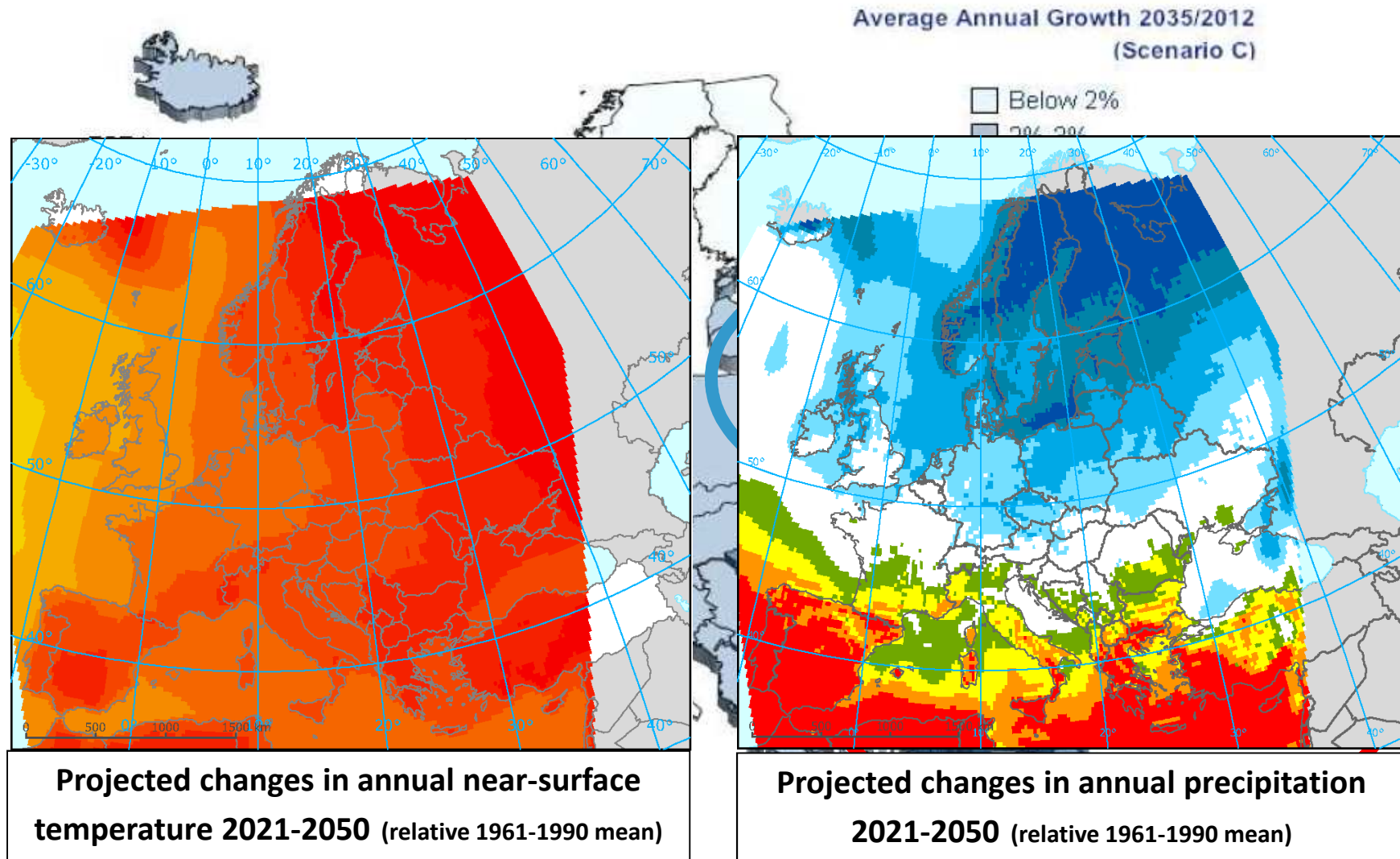


# Overview of impacts





# Growth and adaptation: a double challenge





# So, are we prepared?

## Two-stage stakeholder consultation:

### Stage 1: Survey

*Operational stakeholders: ANSPs, airport operators, aircraft operators, industry associations, CAAs*

### Stage 2: Workshop

*Operational stakeholders, decision-makers, research community*





# So, are we prepared?



## Survey Objectives:

What does the European aviation sector think?

- Might climate change affect its business and operations?
- Should we consider taking measures to adapt?

What actions and initiatives are planned or underway?



# So, are we prepared?

## Two-stage stakeholder consultation:

### Stage 1: Survey

*Operational stakeholders: ANSPs, airport operators, aircraft operators, industry associations, CAAs*

### Stage 2: Workshop

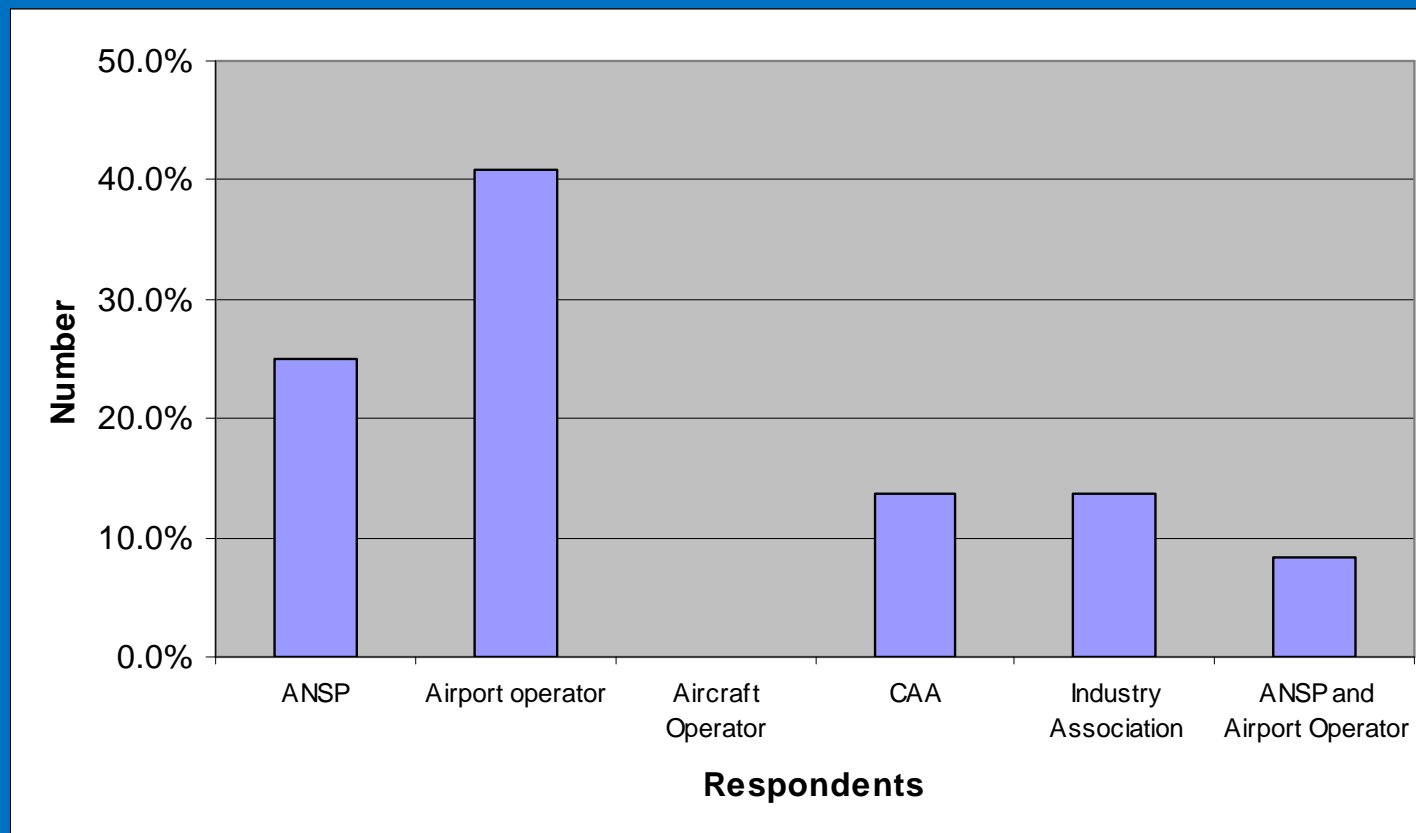
*Operational stakeholders, decision-makers, research community*





# Survey Parameters

1st October to 21 November 2012

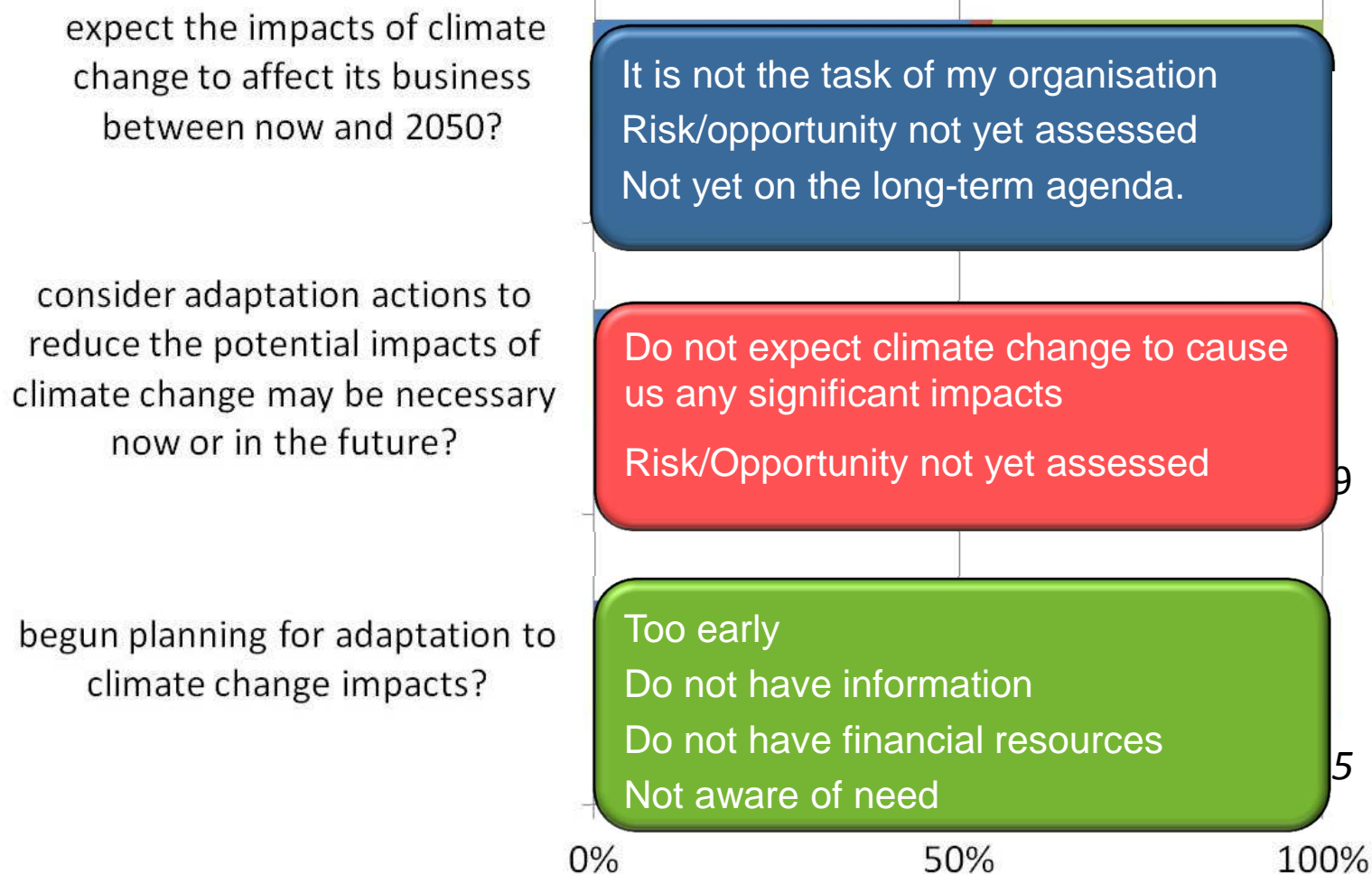


*35% response rate*

All climate zones covered



# Does your organisation.....





# Challenge: Climate Resilience

**Solutions:** integrate resilience to climate change as routine part of operational and business planning

- Identify risks and vulnerabilities (regional, network, local)
- Identification/implementation of local and network resilience measures
- Build resilience into *current* infrastructure and operations planning.
- No-regrets measures (e.g. SESAR OIs)
- Cost-effective measures (e.g. training)
- Increased collaboration with MET (advanced forecasting techniques)

***Early action is cost-effective***





# Building Airport Resilience



- Risk assessments: regional climate forecasts, location and operational specifics
- Identify resilience measures: develop adaptation plan
- Address resilience as part of ongoing operational / infrastructure improvements
- No regrets and soft measures (e.g. training)
- Integrate airports into regional / intermodal adaptation planning



## 12 months later...

- Some stakeholders carrying out risk assessments. *But* others are not yet ready to move....



- Uncertainties remain: changes in demand; noise distribution; quantification of impacts.
- What do we need? Metrics, guidance, tool kit?



# Conclusions

- Diverse range of potential climate impacts identified
- Some taking action: Many organisations not yet considering this risk
- Local and network resilience is required
- Identify no-regrets and cost-effective measures
- Integrated airports into regional adaptation planning
- Early action is the key to cost-effective resilience

**Thank you for your attention**

**Questions?**

