Climate Change Adaptation Action in Europe

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Key climate effects and impacts for aviation in Europe

Aviation has always been influenced by weather conditions. However, due to climate change, we are now witnessing more frequent and intense climate-related hazards, resulting in greater impact on the sector. Therefore, it is essential to prepare for these impacts to ensure the resilient functioning of the air transport sector in the years ahead.

In Europe, key climate change impacts for the sector include operational disruption and damage to infrastructure due to stronger storms, heat stress for passengers and personnel due to higher average and extreme temperatures and an increase in en-route turbulence. Find out more about effects and impacts in ICAO Secretariat and Climate Adaptation Synthesis Report articles within this Chapter.

Climate adaptation action in Europe

At European level, in 2021 the European Union adopted a 'Strategy on Adaptation to Climate Change' which addresses the need to improve the existing knowledge and management of the uncertainties associated with climate change. This will be followed by a European Climate Change Adaptation Plan, which is currently under development. In parallel, the Corporate Sustainability Reporting Directive (CSRD), which entered into force in 2023, requires companies to disclose their climate adaptation strategies, actions, targets, and risk assessments-including scenario analyses-to demonstrate how they address climate-related risks and ensure resilience.

At aviation sector level, three European organisations, ACI EUROPE, EASA and EUROCONTROL have established two cross-sector working groups which promote collaboration among stakeholders to tackle the increasing impacts of climate change and promote the adaptation action across the sector.

Established in 2022, EUROCONTROL and ACI EUROPE co-chair the European Aviation Climate Change Adaptation Working Group (EACCA-WG). The group currently has 40 member organisations including airport operators, air navigation service providers (ANSPs), aircraft operators, European aviation industry associations, and aircraft manufacturers. The objective of the Working Group is to provide aviation stakeholders with guidance, peer support and good practices on carrying out climate change risk assessments and adapting the European aviation sector to the impacts of climate change. The group has already released three valuable outputs that support action and serve as helpful resources. The first two, "Aviation Preparations for Summer Adverse Weather" and "Aviation Preparations for Winter Adverse Weather," provide tangible recommendations for European aviation organisations to prepare for the possibility of both extreme summer and winter weather events. The third deliverable is a "Briefing on Adapting Aviation to a Changing Climate" which provides information on key effects and impacts for European aviation and an overview of the key steps in climate change risk assessment and adaptation action. The group is currently developing a region-specific guidance material to support them in taking action.

Simultaneously, in 2023, EASA launched the European Network on Impact of Climate Change on Aviation (EN-ICCA) to assess weather hazard trends, their effect on aviation safety and effectiveness of mitigation measures. The EN-ICCA aims to support aviation stakeholders in better understanding and addressing the impacts of climate change on safety. It also seeks to inform the scientific community about priority research topics related to the

effects of climate change on aviation and assists EASA and other relevant authorities in managing the consequences of climate change for the aviation sector. Comprising of relevant experts from national competent authorities, the aviation industry, weather and climate scientists, the work plan of the EN-ICCA includes work on future trends of severe convective storms, hail and heavy precipitation and safety concerns resulting from those trends. In addition, trends regarding airborne icing conditions are being investigated and dedicated methodologies for assessing the scientific knowledge on weather hazard trends are being developed. The latter will be a first key deliverable due to be released in 2025. The two groups work closely together, holding regular coordination meetings and sharing key findings. In 2026 the groups plan to have a joint workshop to further increase collaboration and share knowledge and experiences to drive adaptation action across the sector.

Climate change is a present reality, and its impacts are already being felt by the aviation sector around the globe. European aviation stakeholders have started to take action, but with climate-related hazards intensifying and occurring more frequently, much more action is needed to ensure the sector's resilience to future impacts. Moreover, given the interconnectedness of the aviation network, a disruption in one location can have a much wider impact. This challenge cannot be tackled by any single part of the industry alone. Therefore, it's essential that all aviation stakeholders start to take action so as to achieve the highest levels of climate resilience possible and to maintain aviation safety. As an industry we need to work together to manage and minimise the negative outcomes. Proactively taking action now will reduce future damage, costs and disruption for all stakeholders.