

Impact of Climate Change on Aviation Safety

Overview of EASA actions

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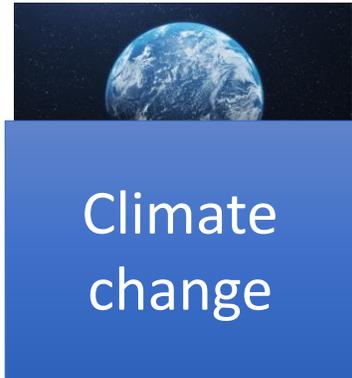
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Your safety is our mission.

How climate change impacts aviation safety (and EASA)

(refer to [IPCC assessment report No 6](#))

- *Storms & hurricanes*
- *Heatwaves*
- *Heavy precipitations*
- *Flooding, drought*
- More frequent and stronger
- New areas and new timings
- More combinations



Increasing impact of extreme weather events

Increasing impact of other phenomena

- *Clear air turbulence*
- *Airborne icing*
- *Wildlife behaviour*
- More frequent and stronger
- New areas and new timings

Increasing exposure to hazards

- *severe turbulence*
- *hail*
- *heat*
- *ice*
- *lightning strike*
- *sand & dust*
- *water*
- *extreme wind*
- *wildfire*
- *bird strike*

- **Operational safety**
- **Airworthiness**



Climate Change Adaptation– a EU strategic objective

➤ 2021

- [EU Strategy on Adaptation to Climate Change](#)* (Feb. 2021) - *Climate change adaptation is as important as climate change mitigation*
- [European Climate Law](#)** (June 2021) - Requires Union institutions and the Member States ‘to ensure continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change’
- More information on [Climate-ADAPT platform of EC/EEA](#)

* Communication of European Commission regarding [A new EU Strategy on Adaptation to Climate Change \(europa.eu\)](#)

** [Regulation \(EU\) 2021/1119](#) of the European Parliament and of the Council of 30 June 2021, establishing the framework for achieving climate neutrality

Climate Change Adaptation– EASA actions

➤ 2021

- Preliminary internal analysis of the impact of climate change on aviation safety and of existing initiatives (ICAO, WMO, EUROCONTROL, etc)
- **EASA decided to:**
 - Gather more knowledge and data on impact of climate change;
 - Add climate change adaptation to the EPAS strategic priorities;
 - Evaluate leading or co-leading a dedicated group with stakeholders.

* Communication of European Commission regarding [A new EU Strategy on Adaptation to Climate Change \(europa.eu\)](https://european-council.europa.eu/media/en/press-summaries/Pages/11891.aspx)

** [Regulation \(EU\) 2021/1119](https://eur-lex.europa.eu/eli/reg/2021/1119/oj) of the European Parliament and of the Council of 30 June 2021, establishing the framework for achieving climate neutrality

Climate Change Adaptation– EASA actions

➤ 2022

- Impact of climate change included into [European Plan for Aviation Safety \(EPAS\) 2023-2025](#)
 - added to strategic priorities in EPAS Volume I
 - Safety Issues tagged « **CC effect** » in EPAS Volume III.



SciComm Task Force on Impact of Climate Change – investigated the following trends in 2022

➤ 2022

- [EASA Scientific Committee](#), *Task Force on Impact of Climate Change on Aviation Safety*
- Started a review of scientific works on climate trends relevant for aviation safety

Climate trend	Effect on weather hazards investigated by the task force in 2022
Changes to severe convective storms	Changes to frequency of severe convective storms (<i>source of very strong wind, hail, turbulence, lightning strikes, low-level windshears, etc</i>) Changes to hail characteristics and frequency (<i>damage to aircraft</i>)
Changes to clear-air turbulence caused by jet streams	Changes to location/severity of clear-air turbulence (<i>serious injuries to unfastened passengers, risk of loss of control in flight</i>)



Climate Change Adaptation– EASA on-going actions

➤ 2023

- *Set up of an internal Climate Change Adaptation Team with all EASA Directorates*
- **Scientific Committee Task force on Impact of Climate Change on Aviation Safety**
 - gather more research results on clear-air turbulence, hail, severe convective storm
 - (planned) investigate trends regarding airborne icing, heavy precipitations and flooding, dust storms
- **(on-going) Analysis of ECR data** regarding occurrence with a severe-weather encounter
 - CAT operations with large aeroplanes of EU-based operators, period 2010 to 2022
 - 49 accidents, 172 serious incidents, 51 000 reported occurrences
- **Exchange with PhD student** studying the effect of climate change on take-off performance
- **Analyse the effect of climate change on safety issues** in EASA safety risk portfolios (EPAS Volume III)
 - Current focus is on CAT aeroplane operations

Climate Change Adaptation– EASA actions (planned)

➤ 2023

- (planned) Launch of a ***European network on impact of climate change on aviation (EN-ICCA)***, to
 - Foster cooperation between aviation stakeholders and scientists;
 - Help aviation stakeholders to better understand the effect of climate change, and to define actions and good practice to maintain safety;
 - Inform the scientific community of priority topics for aviation stakeholders regarding climate change;
 - Help EASA to monitor the effect of climate change on aviation and to identify priority topics.

Thank you!

Your safety is our mission.