

**Safety Forum 2024 'Aviation Weather Resilience'
19 & 20 June 2024, Brussels**

EASA climate change adaptation activities

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Working for sustainable aviation.
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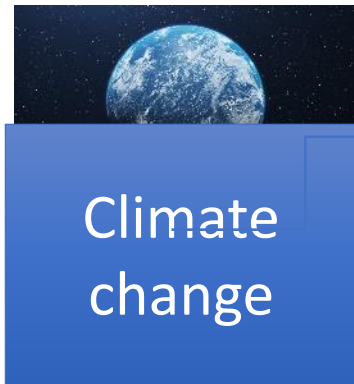
Content

1. The impact of climate change on European aviation safety
2. Climate Change Adaptation in the EU and EASA strategies
3. EASA climate change adaptation - working groups and outputs
4. How are outputs of EASA climate change adaptation activities used?

The impact of climate change on European aviation safety

(IPCC assessment report No 6)

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



Climate change

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*

Aircraft



- Operational safety
- Airworthiness

ATM and aerodromes



- Performance of safety services
- Workload of safety staff

EASA and its Member States share competence in the EU over these domains

The impact of climate change on European aviation safety – two examples

<i>Weather hazard or condition</i>	<i>Associated safety risks</i>	Potential effects of climate change
Hail	<i>Damage to the windshield, risk of multiple engine shutdown</i>	Average size of hailstones increasing
Clear-air turbulence caused by the jet streams	<i>Serious injuries to unfastened passengers or to cabin crew members. (in the worst case, loss of control in flight)</i>	More and more frequent severe clear air turbulence encounters in the Northern Hemisphere

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Climate Change Adaptation in the EU and EASA strategies

- [EU Strategy on Adaptation to Climate Change](#)* (Feb. 2021) - *Climate change adaptation is as important as climate change mitigation*
- [European Climate Law](#)** (June 2021) – Art 5. requires Union institutions and the Member States ‘to ensure continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change’
- Launch of the [European Climate Risk Assessment](#) (EUCRA) by the European Commission and the European Environmental Agency (May 2022)

(More information on [Climate-ADAPT platform](#))

* Communication of European Commission regarding [A new EU Strategy on Adaptation to Climate Change \(europa.eu\)](https://europea.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 in the EU and EASA strategies

- EASA Safety Committee's decisions:
 - 1. Make the management of impact of climate change a strategic priority***
 - 2. Gather more scientific knowledge and data***
 - 3. Launch a European network to federate initiatives***
 - 4. Establish an internal EASA team and a roadmap***

Climate Change Adaptation in the EU and EASA strategies

The European Plan for Aviation Safety (EPAS)



VOLUME I Strategic priorities

Strategic priority *'Managing the impact of climate change'*

VOLUME II EPAS actions 2024 Edition

Action RES.0059 *(review of scientific works on weather hazard trends)*

VOLUME III Safety Risk Portfolios 2024 Edition

Identifying the safety issues affected by climate change

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EASA climate change adaptation working groups – TF-ICCA

- TF-ICCA = ***Task Force of EASA’s Scientific Committee on Impact of Climate Change on Aviation and Extreme Weather***
- reviews scientific works on climate trends that are relevant for aviation safety

TF-ICCA composition in June 2024	
Prof Nicole Viola, Politecnico di Torino	
Prof Christiane Schmidt, Linköping University	
Prof Silas Michaelides, The Cyprus Institute	
Guillaume Aigoïn (EASA, TF Lead)	
Amela Jericevic (EASA, Meteorology Expert)	

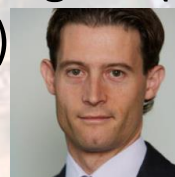
EASA climate change adaptation working groups – TF-ICCA

- Findings and recommendations of the TF-ICCA are published in the Scientific Committee *annual report* and its *appendices*
 - Available on ([EASA Scientific Committee](#) webpage)
 - Covering severe convective storms, clear air turbulence, high temperature events, airborne icing, dust and sand storms



EASA climate change adaptation working groups – EN-ICCA

- **EN-ICCA** = *European Network on Impact of Climate Change on Aviation*
- Kicked off in November 2023
- Co-chairs:
 - Pascal Kremer (Luxair), Mercedes Gonzalez-Rodriguez (AESA Spain)
 - Guillaume Aigoin & Emmanuel Isambert (EASA)



Aviation Industry	Authorities	National Meteorological Services and Climate Scientists
6 Aerodrome Operators and associations 6 Aircraft Operators 5 ANSPs (+ EUROCONTROL) 4 Manufacturers 5 Industry Associations	EASA 13 National Aviation Authorities ECAC Secretariat 2 other Authorities	3 National Meteorological Services 11 Universities and Research Organisations

EASA climate change adaptation working groups – EN-ICCA

➤ Objectives of the EN-ICCA (summarized):

- Help aviation stakeholders to better understand and address the effects of climate change on safety;
- Inform the scientific community of priority research topics regarding impact of climate change on aviation;
- Help EASA and other authorities to manage the effect of climate change on aviation.

EASA climate change adaptation working groups – EN-ICCA

➤ EN-ICCA priority topics and planned tasks

Sequence	Methodological tasks	Priority topics
2024	<ul style="list-style-type: none">Assessing the state of knowledge regarding weather hazard trends	<ul style="list-style-type: none">Trends regarding airborne icing, including ice crystal icing
	<ul style="list-style-type: none">Recommendations to close knowledge gaps.Assessing the effects of weather hazard trends on the aviation safety domains	<ul style="list-style-type: none">Trends regarding severe convective storms and associated hazards
After 2024	<ul style="list-style-type: none">Identifying safety-effective climate change adaptation measures	<ul style="list-style-type: none">Trends regarding atmospheric conditions at low altitudeTrends regarding jet streams, clear air turbulence and persistent weatherTrends regarding dust-related threatsTrends regarding bird strikeTrends regarding storm surgeTrends regarding tropical and tropical-like cyclones

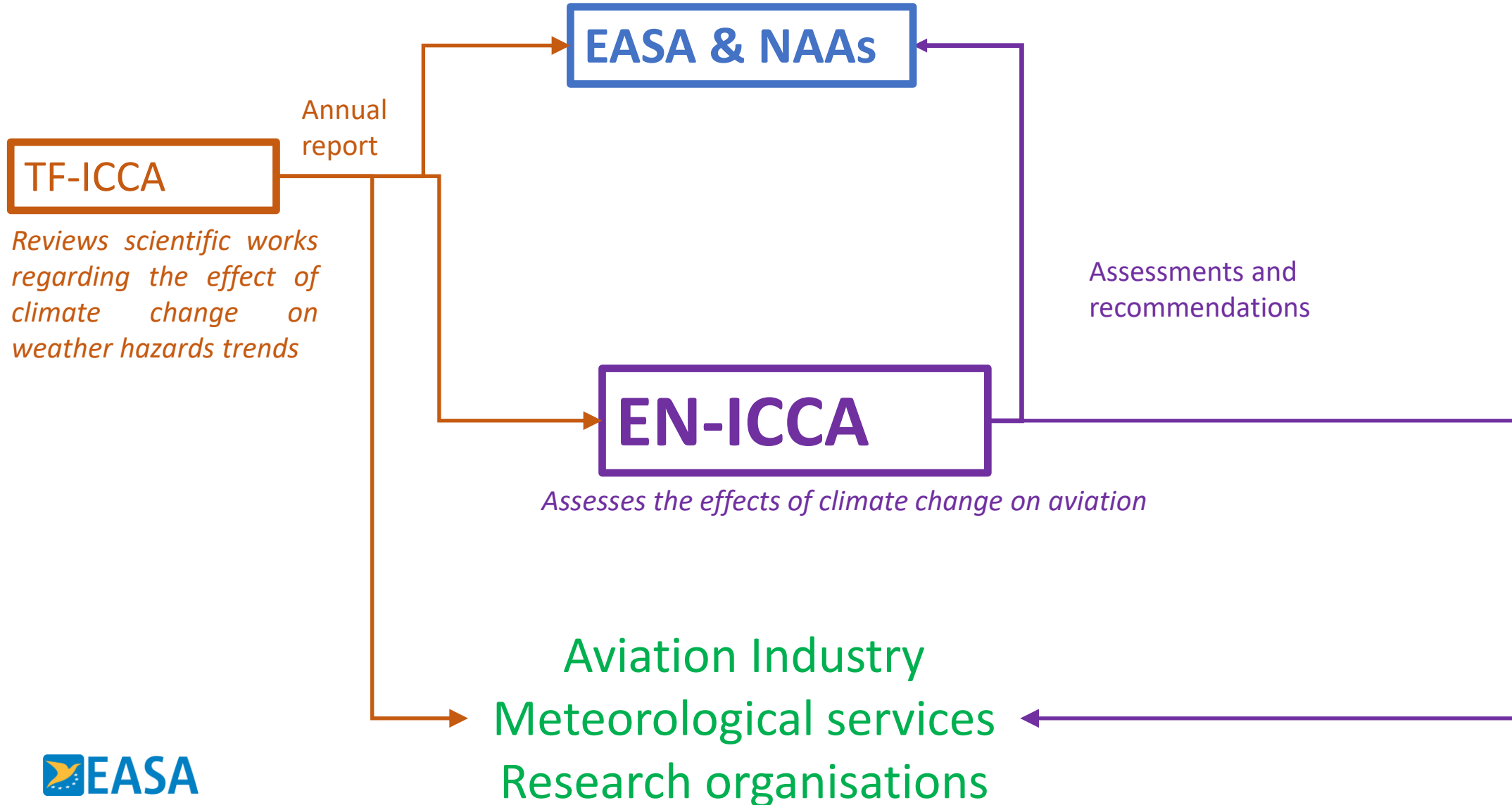
Task Team
led by Marc
Wetterwald
Airbus



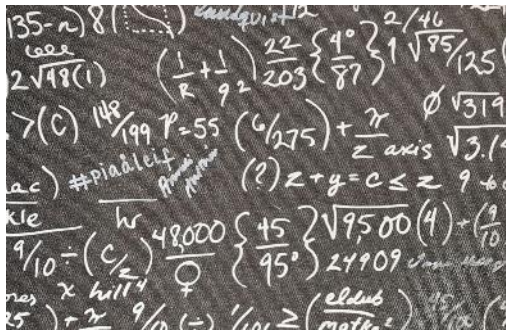
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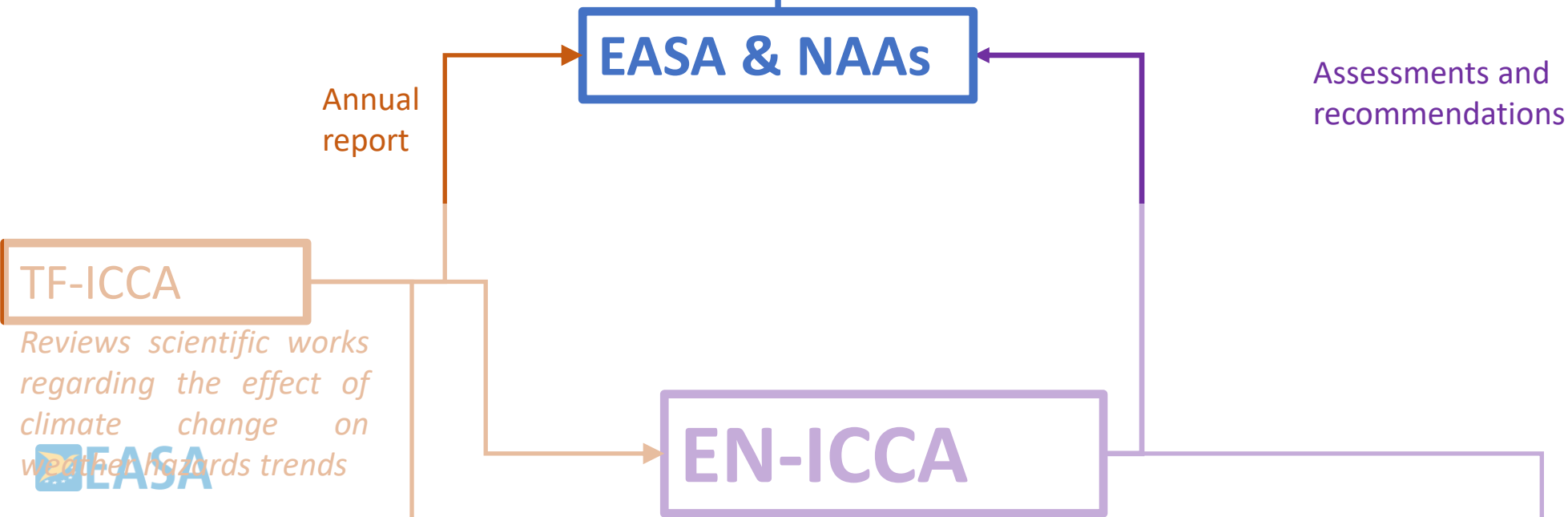
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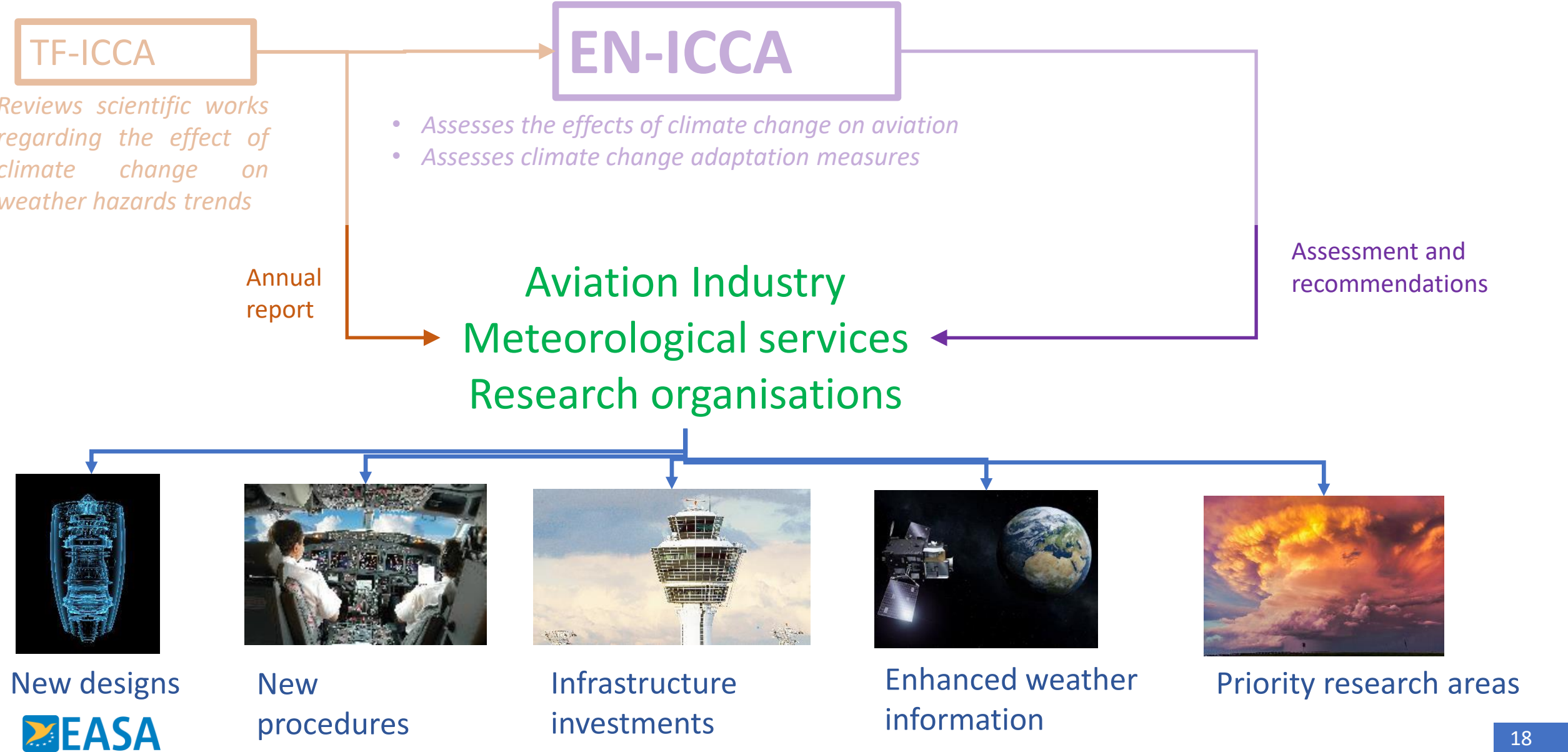
How are outputs of EASA climate change adaptation activities used?



Inform SRM process Priority research and study topics Promote best practice



How are outputs of EASA climate change adaptation activities used?



Information on EASA climate change adaptation activities can be found at:

[Managing the impact of climate change on aviation | EASA \(europa.eu\)](https://easa.europa.eu/management-of-climate-change-impact-on-aviation)



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Working for quieter and cleaner aviation.

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easa.europa.eu/connect



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