



ICAO

ENVIRONMENT

Climate Adaptation Synthesis

Background information

Factsheet



2018

FACTSHEET COVER SHEET

During the CAEP/11 cycle from February 2016 until February 2019 the CAEP Working Group on Airports and Operations (WG2) was tasked with developing a Climate Adaptation Synthesis:

Synthesizing existing information on the range of projected climate impacts for the aviation sector to better understand risks to airport and Air Navigation Service Providers' planning, infrastructure and operations, including how they relate to safety, capacity and efficiency. [And to] identify impacts that are already being experienced and that may relate to climate change, on a local, regional and global level ... Examples of related adaptation and resiliency efforts/actions which are identified, or already being implemented, will also be provided.

The report was finalised in October 2018 and presented to the CAEP/11 Plenary in February 2019. The CAEP 11 meeting then tasked the working group to prepare the information in the report for ICAO to disseminate. The CAEP WG2 has prepared eight factsheets covering eight physical climate change impacts detailed in the 2018 Synthesis. The fact sheets cover the following physical impacts:

- sea level rise
- increased intensity of storms
- temperature change
- changing precipitation
- changing icing conditions
- changing wind
- desertification
- changes in biodiversity

The business and economic effects of these physical impacts, as well as more detailed information on climate change risk assessment and adaptation planning will be addressed in additional factsheets.

All material in the factsheets is drawn directly from the Synthesis report: *no new material has been added*. Therefore it is important to be aware of the parameters of the information included in the analysis.

Parameters of the 2018 Analysis

- For the purpose of the analysis, 'aviation sector' covers: aircraft operators, airport operators, air navigation service providers (ANSPs), and regulatory authorities. Aviation sector components included in this analysis are: infrastructure, aircraft operations (en-route and airport), airport operations (e.g. ground operations), and airport ground transportation access.
- The analysis uses the term 'impacts' to refer to physical climate change impacts (e.g., temperature change, sea level rise) and the term 'effects' to refer to the potential consequences of climate change impacts on the aviation system.
- Any regional analysis is based on ICAO regions. However, it is noted that even within regions there are differences in impacts and effects as there can be multiple climate zones within one ICAO region. Therefore, these analyses can only give a high-level indication of regional differences.
- The main part of the literature review for the 2018 Synthesis was completed in early 2017. However, as the global research community continued to produce new material on this topic the Task Group considered further updates to this analysis, as relevant. The full literature review was completed in February 2018.

Climate Change Science Background

- The Synthesis report, and thus the factsheets, draw on the scientific information presented in the Fifth Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR5) and other relevant literature.
- The IPCC AR5 covers many aspects of climate change that are not addressed in the CAEP climate adaptation synthesis report including the observed changes in climate in the past, and causes of climate change.
- This synthesis report, and thus the factsheets, examines only those projections of future climate change impacts which were identified as relevant for the global aviation sector by WG2 and the ICAO CAEP Impacts and Science Group during the CAEP/11 cycle (2016-2018).

It is important to note that most of the drafting of scientific information was completed in early 2017. Therefore, the information in the factsheets should be understood as being correct as of early 2017 and that there may be more up-to-date information available in some areas.

The drafting of the Synthesis also included a literature review of seventeen documents relevant to aviation climate adaptation issues and challenges. Some of the documents were global in context, while others were regionally or state-specific. Each document was analysed separately and the relevant information on climate impacts, effects on the aviation sector, adaptation and resilience measures and other pertinent information was extracted and synthesised so as to provide a high-level synthesis of the best available information rather than to reproduce the detailed information already available in other sources.