



ICAO

ENVIRONMENT

ENVIRONMENTAL TOOLS

Quick Guide A

GENERAL GUIDANCE TO USE THE ICEC APPLICATIONS



- The ICAO Carbon Emissions Calculator (ICEC) is a digital set of tools that provides standardized and transparent CO₂ emissions data for air travel.
- ICEC methodology was developed by international experts under ICAO's Committee on Aviation Environmental Protection (CAEP), it applies a globally harmonized methodology for both passenger and cargo emissions.
- Accessible via a web portal, API, MS Excel® application and products on demand, the ICEC turns complex emissions data into clear, usable information for all users.



The ICEC is intended for calculating aviation emissions only. Other types of travel emissions (e.g., rail, road, or ship) cannot be estimated using the ICEC.

Emissions allocation for passengers (by cabin class) and cargo

The ICEC distinguishes among four cabin classes: Economy, Premium Economy, Business, and First, to more accurately allocate carbon emissions per passenger. Also, the ICEC estimates emissions for freighter flights.



Data sources used

- Aircraft types and frequency of flights (global airline schedules data)
- Aircraft fuel consumption (Fuel Formulas developed by ICAO Secretariat)
- Passenger load factor, passenger to cargo ratio (ICAO Secretariat data)
- Aircraft seat configuration

Key features

- Transparent and easy-to-use
- Internationally reviewed and approved
- Delivers consistent CO₂ emissions estimates
- Estimated carbon emissions for **historical data** and **scheduled flights**

How the ICEC works

1



Enter origin & destination airports

2



Select passenger or cargo

3



Add trip details (passengers or freight weight)

4



Choose cabin class (if applicable)

5



Get your estimated CO₂ emission results

ICEC applications (for public)

ICEC WEB PORTAL

The ICEC portal offers a simple and accessible way to estimate CO₂ emissions from flights per passenger or cargo. Users can enter basic travel details, including origin, destination, and cabin class, and quickly receive results based on ICAO's standardized methodology. It is particularly suited for occasional users and awareness-raising.

ICEC API (APPLICATION PROGRAMMING INTERFACE)

The ICEC API enables organizations to integrate standardized emissions calculations into their systems and platforms. It is an ICAO service already used by leading Global Distribution Systems (GDSs) to provide consistent, scalable aviation emissions data.

ICEC applications (for United Nations organizations)

UN ICEC – MS EXCEL® App

The ICEC is also the official tool for UN organizations to quantify their CO₂ footprint from air travel, in support of their environmental commitments, through an MS Excel application for historical data. The use of a common, transparent, impartial, and internationally approved methodology across the UN system facilitates the aggregation of air travel emissions data from different organizations and guarantees the integrity and consistency of reported inventories under the “Greening the Blue” initiatives.

UN ICEC API (APPLICATION PROGRAMMING INTERFACE)

The ICEC API allows UN organizations to integrate standardized emissions calculations into their systems and platforms for historical data and scheduled flights.

For more information about the ICEC and other ICAO Environmental Tools

- Access the ICAO Environmental Tools website ([click here](#)) or send an email: icec@icao.int

