

Air Calculator Comparison

Which calculator or data should I use to estimate my potential flight emissions?

Calculator or database	Flight distance	CO2e kg/hr ¹	CO2e g/km ¹	Radiative forcing ² , RFI	Notes
Carbonindependent.org		250	278 ³	2.78 incl. 0.78 for infrastructure	Easy to use, easy to change data. Input: annual flight hrs.
Coolclimate.berkeley.edu University of California Berkeley USA: input in miles, \$, etc	Short medium long extended unspecified	---- ³ 293 ³ 261 ³ 248 ³ 250 ³	406 326 290 275 278	2 incl. 0.1 for infrastructure)	Easy to use, easy to change data. Input: total annual flight miles or number of flights in each of 4 distance zones.
Chooseclimate.org	long	315 ³	345	3	Click two points on a world map, set class and cabin factor.
klimatkalkylatorn.se SEI Stockholm Environment Institute, WWF. In Swedish.	Short med long	---- ³ 194 ³ ? ⁴ 222 ³	378 216 ? ⁴ 247	2	Input: number of flights in 6 distance zones. Middle zone data is low, unreliable ⁴ .
Finnish emissions database LIPASTO	Short medium med long long	---- ³ 320 ³ 268 ³ 206 ³	518 356 298 228	2 used here. Original data provided with RFI=1	Domestic short <463km Domestic long >463km Europe long >463km International long
UK DEFRA database 2012 This dataset referred to by several calculators but middle data is uncertain, unreliable.	short medium long	---- ³ 176 ³ ? ⁴ 203 ³	344 196 ? ⁴ 225	1.89 used here, as recommended by DEFRA	Domestic (within UK) Short haul (within EU) Long haul (outside EU) All data for average passenger ⁵
Klimatkontot.se IML Swedish Environmental Research Institute. Swedish or English.		135	150 ³	2	Input: annual flight hours. Emission values are low!
Footprintnetwork.org www.footprintcalculator.org		110	122 ³	Not stated, apparently 1	Input: annual flight hours. Emission values are low!
Carbonfootprint.com Sells compensation!		~60 ³	~80	1 here by default 1.89 optional	Input: flight and class: Here LHR-JFK/economy.
ICAO calculator Airline industry organization		~58 ³	~65	Not stated, apparently 1	Input: flight and class. Here LHR-JFK/economy.

1. CO2e (equivalent) includes RFI but not infrastructure or other lifecycle costs unless stated.
2. For info on RFI, also called high altitude effects, see for example [IPCC RFI](#) and [What the heck is radiative forcing?](#)
3. Value derived assuming airspeed 900 km/hr using $g/km = kg/hr / 900 km/hr \times 1000 g/kg$. Not applicable short haul. Other data determined by testing the calculator and from calculator documentation.
4. Data here is suspiciously low. Should fall in between values above and below in table (for short and long haul).
5. Average passenger combines all classes economy through first class. Economy values slightly lower. See also: [Wikipedia](#), [Guardian](#), [Chester](#), [Peeters](#), [Higham](#), [Air travel or a stable climate?](#).

Comments: The data vary widely by class with economy least, business approximately double and first class three times the emissions or even higher ([World Bank](#))! Per capita emissions are proportional to how full the plane is so a half full plane has double the per capita emissions of a full plane. Larger aircraft have lower per capita emissions. Jet aircraft emit considerably more than propeller. Short flights have greater emissions per kilometer. The radiative forcing index (RFI) calculates the effects of water vapor and nitrogen oxides as a multiple of the carbon dioxide emissions. A minimum RFI is around 2 while 3 puts you on the safe side, and the true value may be as high as 4. **No one wants to underestimate the damage** caused by flying, except perhaps the airline/travel industry, whose calculators give extremely low estimates of emissions. A good rule of thumb for **economy class is 250 kg CO2e per flight hour** used by Carbonindependent.org and UC Berkeley (250kg/hr = ~450g/mile) when distance is not specified. Regardless of the data you use, eliminating a flight is a giant contribution to a stable climate, many times your weight in CO2!