



Aviation Emissions Report
April 22



Emissions analysis for largest markets - April 22 vs prior years

25 largest markets by total emissions

Date	April 2020	April 2021	April 2022
Origin Country	Total CO2 (Tonnes)	Total CO2 (Tonnes)	Total CO2 (Tonnes)
United States	3,922,280	8,179,440	11,682,600
China	2,902,145	6,558,461	3,904,624
United Kingdom, UK	177,318	348,285	1,902,861
India	256,684	1,141,051	1,617,755
Spain and Canary Islands	41,062	339,379	1,379,584
Germany	84,624	450,014	1,314,953
United Arab Emirates	28,713	691,812	1,274,866
France	66,062	435,989	1,117,495
Japan	572,089	835,350	1,059,557
Australia	117,704	605,820	989,191
Turkey	37,618	526,772	949,899
Mexico	293,039	671,164	937,499
Brazil	79,417	436,855	921,870
Canada	154,330	240,975	907,299
Russian Federation	378,657	989,896	827,264
Italy	22,581	185,355	730,974
Indonesia	514,596	585,274	676,540
Qatar	153,270	438,609	658,914
Saudi Arabia	213,321	299,025	555,010
Netherlands	46,394	310,618	548,702
Singapore	52,425	206,786	457,583
Thailand	74,449	262,620	402,622
Republic of Korea	221,479	360,015	373,151
Vietnam	99,588	389,329	357,709
Portugal	7,436	93,595	356,179

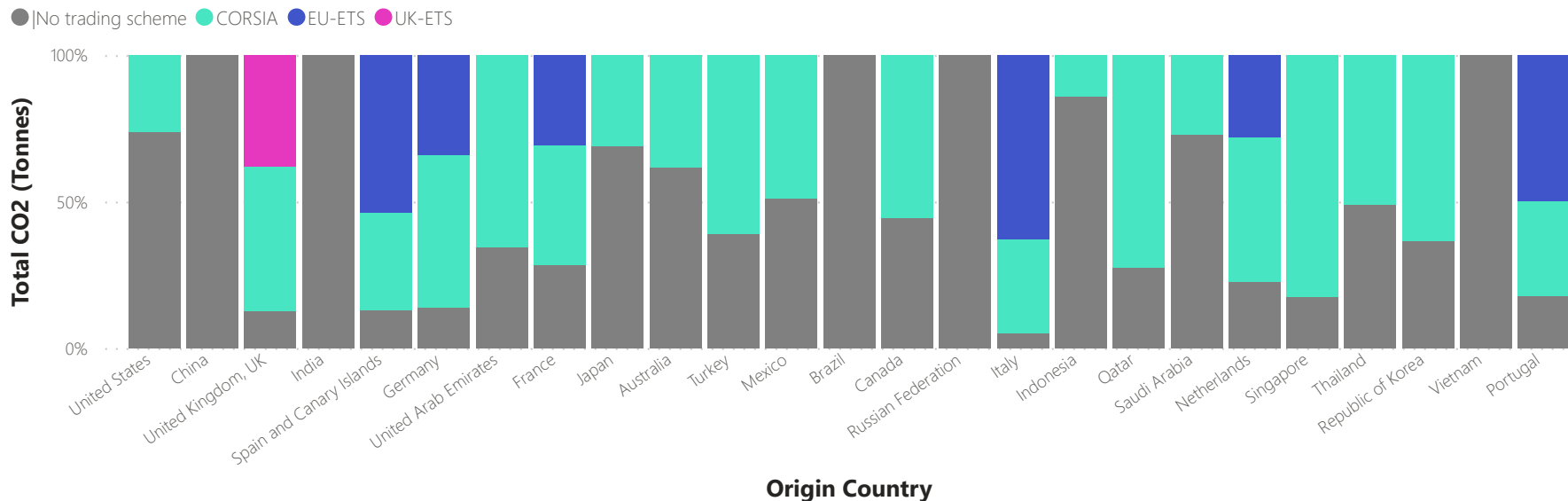
Change in Emissions - Current month vs prior years

This year vs last year	This year vs two years ago
43%	198%
-40%	35%
446%	973%
42%	530%
307%	3260%
192%	1454%
84%	4340%
156%	1592%
27%	85%
63%	740%
80%	2425%
40%	220%
111%	1061%
277%	488%
-16%	118%
294%	3137%
16%	31%
50%	330%
86%	160%
77%	1083%
121%	773%
53%	441%
4%	68%
-8%	259%
281%	4690%

Percent of Emissions covered by Compliance Programmes

April 2020	April 2021	April 2022
% covered	% covered	% covered
-	16.52%	26.15%
-	-	-
18.10%	80.60%	87.43%
-	-	-
62.68%	83.64%	87.05%
34.25%	78.41%	86.02%
-	58.62%	65.65%
17.45%	68.67%	71.53%
-	32.31%	31.05%
-	24.00%	38.41%
-	45.22%	60.88%
-	41.25%	48.88%
-	-	-
-	34.49%	55.58%
-	-	-
53.87%	91.19%	95.05%
-	8.65%	14.20%
-	71.06%	72.39%
-	11.68%	27.04%
16.88%	70.05%	77.32%
-	84.96%	82.42%
-	35.61%	51.01%
-	53.57%	63.41%
-	-	-
48.69%	75.92%	82.28%

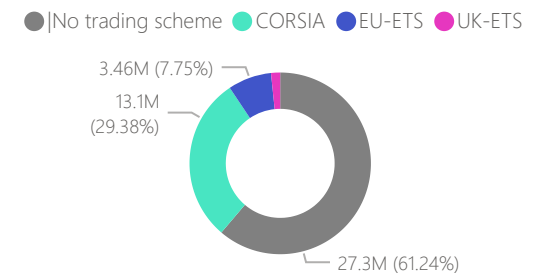
25 largest markets - emissions by Compliance Programme (current month)



Global emissions (tonnes)

44.59M

Emissions by compliance programme





Emissions analysis for largest markets - YTD to Apr 22 vs prior years

25 largest markets by total emissions

YTD Period	YTD 2 years ago	YTD Last Year	YTD This Year
Origin Country	Total CO2 (Tonnes)	Total CO2 (Tonnes)	Total CO2 (Tonnes)
United States	43,922,183	29,194,624	44,238,290
China	18,621,590	23,264,014	20,313,289
United Kingdom, UK	7,013,405	1,539,489	6,006,492
India	5,719,758	4,547,111	5,774,355
United Arab Emirates	5,482,371	2,613,579	4,949,522
Spain and Canary Islands	3,687,367	1,218,540	4,351,889
Germany	4,641,580	1,529,572	4,172,126
Japan	6,841,020	3,157,971	4,052,993
Russian Federation	4,456,501	3,389,700	3,938,049
Brazil	3,945,699	2,403,525	3,899,106
France	3,921,207	1,857,651	3,842,273
Mexico	3,320,497	2,617,235	3,660,274
Turkey	2,653,887	1,858,680	3,288,682
Canada	4,114,461	1,106,158	3,215,804
Australia	4,925,470	2,031,142	3,088,634
Indonesia	3,922,682	2,349,566	2,528,978
Qatar	2,401,645	1,755,266	2,527,818
Italy	2,105,638	569,303	2,150,658
Saudi Arabia	2,335,144	1,132,240	2,000,306
Netherlands	1,955,494	1,227,319	1,926,436
Singapore	2,630,062	773,951	1,575,768
Republic of Korea	3,025,205	1,485,754	1,514,989
Thailand	3,552,707	944,608	1,460,865
Vietnam	1,843,778	1,405,078	1,311,600
Colombia	929,314	617,529	1,196,892

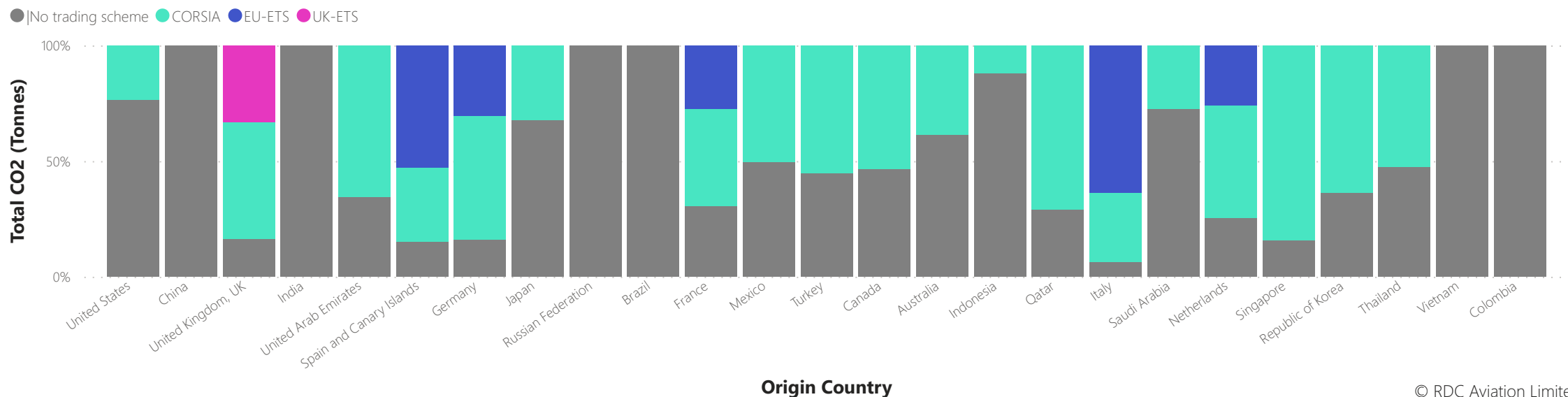
Change in Emissions - Current month vs prior years

This YTD vs Last YTD	This YTD vs YTD two years ago
52%	1%
-13%	9%
290%	-14%
27%	1%
89%	-10%
257%	18%
173%	-10%
28%	-41%
16%	-12%
62%	-1%
107%	-2%
40%	10%
77%	24%
191%	-22%
52%	-37%
8%	-36%
44%	5%
278%	2%
77%	-14%
57%	-1%
104%	-40%
2%	-50%
55%	-59%
-7%	-29%
94%	29%

Percent of Emissions covered by Compliance Programmes

YTD 2 years ago	YTD Last Year	YTD This Year
Trading scheme %	Trading scheme %	Trading scheme %
-	17.51%	23.39%
-	-	-
26.70%	76.91%	83.74%
-	-	-
-	58.63%	65.30%
46.53%	78.29%	84.74%
28.33%	77.31%	83.94%
-	32.37%	32.04%
-	-	-
-	-	-
23.20%	62.54%	69.39%
-	43.70%	50.20%
-	43.34%	55.24%
-	37.33%	53.46%
-	29.37%	38.55%
-	8.71%	11.89%
-	72.06%	70.95%
45.60%	88.92%	93.71%
-	13.22%	27.26%
20.05%	69.54%	74.65%
-	85.15%	84.03%
-	41.85%	52.55%
-	-	-
-	-	-

25 largest markets - emissions by Compliance Programme (current YTD)





RDC CARE Index by carrier and home continent - April 22

Top 25 European Carriers

Carrier Name	CARE Index
Novair	7.7
TUIfly Nordic	7.6
World 2 Fly	7.5
Jonair	7.4
French Bee	7.2
TUI Airways	7.1
PLAY	7.0
La Compagnie	7.0
Jet2	7.0
Sunclass Airlines	6.9
SmartWings	6.9
Wizz Air UK	6.8
SunExpress	6.8
Iberojet	6.8
Enter Air	6.7
SkyUp Airlines	6.7
Freebird Airlines	6.7
TUIfly Deutschland	6.6
SmartLynx Airlines	6.6
Sundair	6.5
Corendon Airlines	6.5
Corendon Airlines Europe	6.5
Georgian Airways	6.5
HiSky Europe SRL	6.4
Azores Airlines	6.4
Corendon Dutch Airlines	6.4

Top 25 North American Carriers

Carrier Name	CARE Index
Flair Airlines	6.7
Frontier Airlines	6.7
Volaris	6.7
Air Transat	6.7
Swoop	6.6
Sunwing Airlines	6.6
Lynx Air	6.5
Sun Country	6.2
WestJet	5.9
Allegiant Air	5.9
Spirit Airlines	5.7
VivaAerobus	5.5
Air Saint-Pierre	5.5
Aeromexico	5.4
Avelo Air	5.4
American Airlines	5.2
Delta Air Lines	5.1
ConocoPhillips Alaska Inc	5.1
Aeromar	4.9
Air Canada Rouge	4.8
JetBlue	4.8
United Airlines	4.7
Tailwind Air Service	4.5
Nolinor Aviation	4.3
Air Canada	4.3
WestJet Encore	4.2

Top 25 Asian Carriers

Carrier Name	CARE Index
STARLUX Airlines	6.7
ZIPAIR Tokyo	6.7
AirAsia X	6.6
Pan Pacific Airlines	6.6
Scoot	6.6
T'Way Air	6.5
Nordwind Airlines	6.4
Tigerair Taiwan	6.4
airblue	6.3
Air India Express	6.2
Royal Brunei Airlines	6.2
NordStar Airlines	6.2
Aero Nomad Airlines	6.1
Nepal Airlines	6.1
Air Seoul	6.0
Ural Airlines	6.0
Pobeda	6.0
Serene Air	5.9
Somon Air	5.9
West Air	5.9
Azur Air	5.9
Qingdao Airlines	5.9
Grand China Air	5.9
Himalaya Airlines	5.9
Longjiang Airlines	5.9
MIAT Mongolian Airlines	5.9

Top 25 RoW Carriers

Carrier Name	CARE Index
Wizz Air Abu Dhabi	6.8
SalamAir	6.6
Air Tahiti Nui	6.5
flydubai	6.5
Arkia Israel Airlines	6.3
El Al	6.3
Syrian Air	6.2
Israir Airlines	6.1
LATAM Paraquay	6.1
Air Cairo	6.0
FlyEgypt	6.0
Surinam Airways	5.9
Copa Airlines	5.9
UR Airlines	5.9
Tarco Aviation	5.8
JetSmart Airlines S.A.	5.8
Nesma Airlines	5.8
Airmax Cargo	5.8
Badr Airlines	5.8
Flybondi	5.8
Air Arabia Abu Dhabi	5.8
JetSmart	5.8
Nile Air	5.7
Air Arabia	5.7
Sky Prime Aviation Services	5.7
Viva Air Peru	5.7

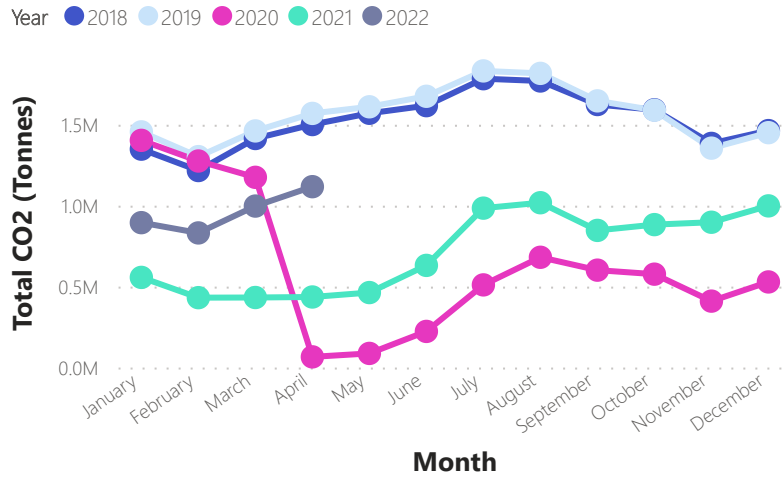
The CARE Index is a measure of airline route sustainability, based around our emissions methodology and various other factors, that has been developed to give business and consumers the best information on which to make their purchasing decisions - particularly when it comes to making more environmentally friendly choices. Most 'efficiency measures' use CO2 per passenger, per seat or per available seat kilometre (ASK), which can be hard to understand for consumers. The CARE Index creates a score between 0 (worst) to 10 (best) for any air route, airline and aircraft combination, taking into account:

- fuel burn and **efficiency of the aircraft type**
- **efficiency of the airline** – using specific seat capacity, configuration and overall occupancy rates (load factor)
- use of **Sustainable Alternative Fuels (SAF)**
- if the route is part of a **compliance or regulatory emissions programme** such as EU ETS etc
- whether the **operator offsets any emissions over and above that which is legally required**

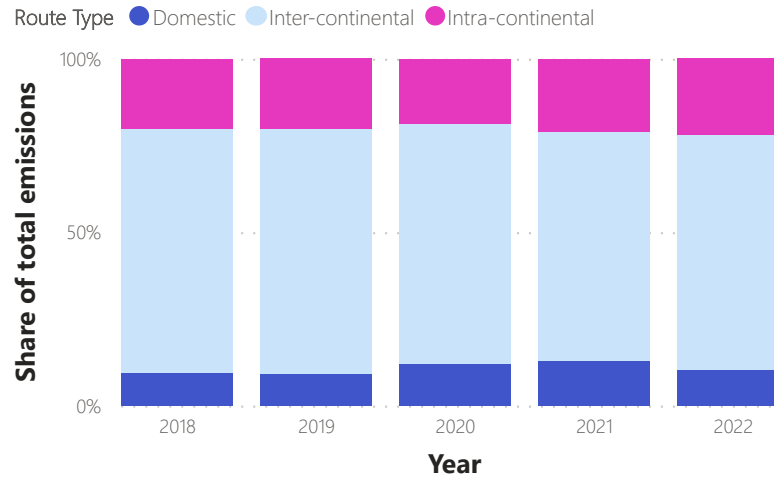
The CARE index has been designed to be a force for change, giving consumers better insight into the environmental impact of their chosen airline that will also help to shape airline sustainability strategies.

This month's focus country: France

Total CO2 (Tonnes) by Month and Year



CO2 by Year and Route Type



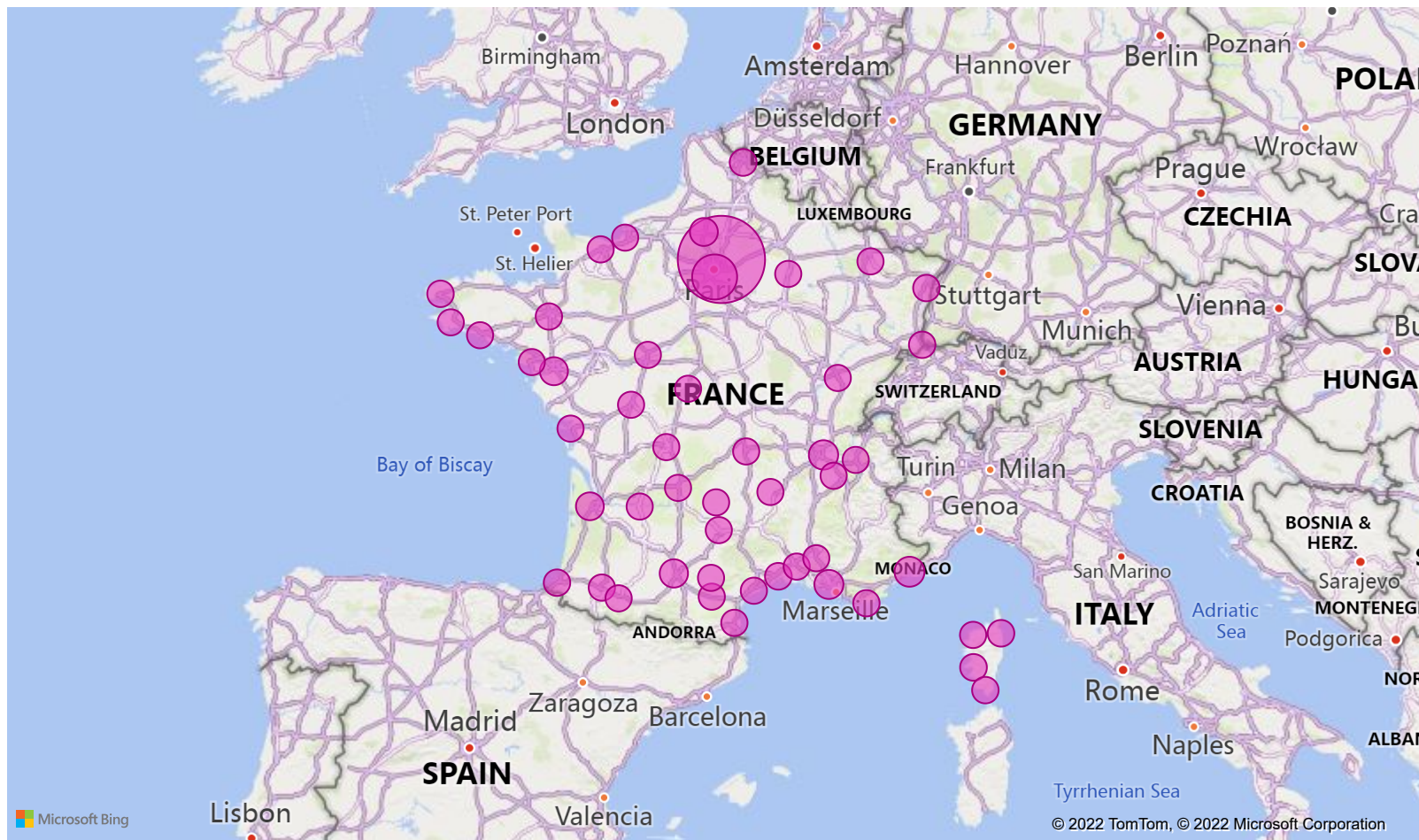
10 largest markets by seat capacity ranked by lowest Emissions per ASK - last 12 months

Destination Country	Emissions per ASK (g)	Total CO2 (Tonnes)
Morocco	59.06	328,590
Portugal	61.44	272,704
United States	62.48	1,546,561
Tunisia	64.19	151,799
Spain and Canary Islands	64.66	435,039
Italy	68.53	284,331
United Kingdom, UK	71.15	168,069
France	78.18	1,288,955
Germany	79.08	158,011
Switzerland	84.03	68,417

10 largest carrier by emissions ranked by highest total emissions - last 12 months

Carrier Name	Emissions per ASK (g)	Total CO2 (Tonnes)
Air France	64.50	4,407,304
easyJet	68.32	590,979
Transavia France	57.01	427,410
Delta Air Lines	66.09	279,444
Corsair	60.16	274,652
Air Caraibes	53.32	271,615
Hop!	105.92	269,835
Emirates	76.43	229,532
Ryanair	61.67	200,992
Volotea	75.63	187,082

Largest origin airports by total emissions - last 12 months



10 most efficient routes according to RDC's CARE Index - current month

Carrier Name	Aircraft	Origin	Destination	CARE Index
SunExpress	B737 MAX 8	CDG	AYT	7.6
SunExpress	B737 MAX 8	LYS	AYT	7.6
French Bee	A350-900	ORY	EWR	7.5
Flyr	B737 MAX 8	NCE	OSL	7.5
Air Transat	A321neo	CDG	YQB	7.5
Air Transat	A321neo	CDG	YUL	7.5
Air Transat	A321neo	MRS	YUL	7.5
Arkia Israel Airlines	A321neo	CDG	TLV	7.4
easyJet	A321	CDG	TLV	7.4
Norwegian Air	B737 MAX 8	NCE	CPH	7.3



RDC is a UK-based data and technology provider to the international air transport industry. The company has over 300 clients of its **Apex** and **AirportCharges.com** products, which provide market intelligence to operators of aircraft and airports, as well as investors, OEMs and regulators.

For decades RDC have been monitoring and modelling the CO2 emissions arising from the growing aviation industry. We have the ability to calculate and report detailed airline operating expenses - including fuel burn, which in turn gives us the CO2 output from flying. For accuracy on CO2 emissions data, our accredited and independent methodology can't be beaten.

We passionately believe that business and consumers should be armed with the best information on which to make their purchasing decisions - particularly when it comes to making more environmentally friendly choices - this is why we developed our **CO2 calculator** and **CARE Index**.

INPUTS

- Aircraft Type
- Engine
- Age
- Fuel burn
- Route**
- Airline
- Sustainable fuels
- Carbon offsets
- Load factors



Two-dimensional output



Our output

INPUTS

- Aircraft Type
- Engine
- Age
- Fuel burn
- Route**
- Airline
- Sustainable fuels
- Carbon offsets
- Load factors

To find out more about how RDC can deliver CO2 emissions data for your business services, get in touch with:

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 Global Account Director
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