



**Aviation Emissions Report**  
**May 22**

# Emissions analysis for largest markets - May 22 vs prior years

## 25 largest markets by total emissions

Date	May 2020	May 2021	May 2022
Origin Country	Total CO2 (Tonnes)	Total CO2 (Tonnes)	Total CO2 (Tonnes)
United States	2,510,866	9,111,037	12,302,303
China	3,975,066	6,945,184	4,363,577
United Kingdom, UK	221,164	466,684	2,167,076
India	474,871	820,080	1,632,255
Germany	108,584	519,958	1,479,112
Spain and Canary Islands	66,244	454,478	1,457,244
United Arab Emirates	39,450	687,158	1,336,676
France	87,427	463,479	1,211,597
Turkey	36,960	494,224	1,151,962
Japan	587,332	773,121	1,131,454
Canada	134,649	259,538	1,079,036
Russian Federation	341,751	1,233,924	1,074,588
Australia	106,641	641,563	1,038,096
Brazil	89,031	518,676	990,624
Mexico	127,977	720,332	925,199
Italy	36,169	213,757	825,752
Indonesia	41,646	496,504	740,793
Qatar	116,138	468,679	679,115
Saudi Arabia	25,415	318,687	622,907
Netherlands	102,239	343,330	614,240
Singapore	34,453	220,655	496,248
Vietnam	173,608	327,219	431,692
Republic of Korea	279,942	383,485	414,954
Thailand	69,343	160,614	408,895
Portugal	10,187	124,923	385,361

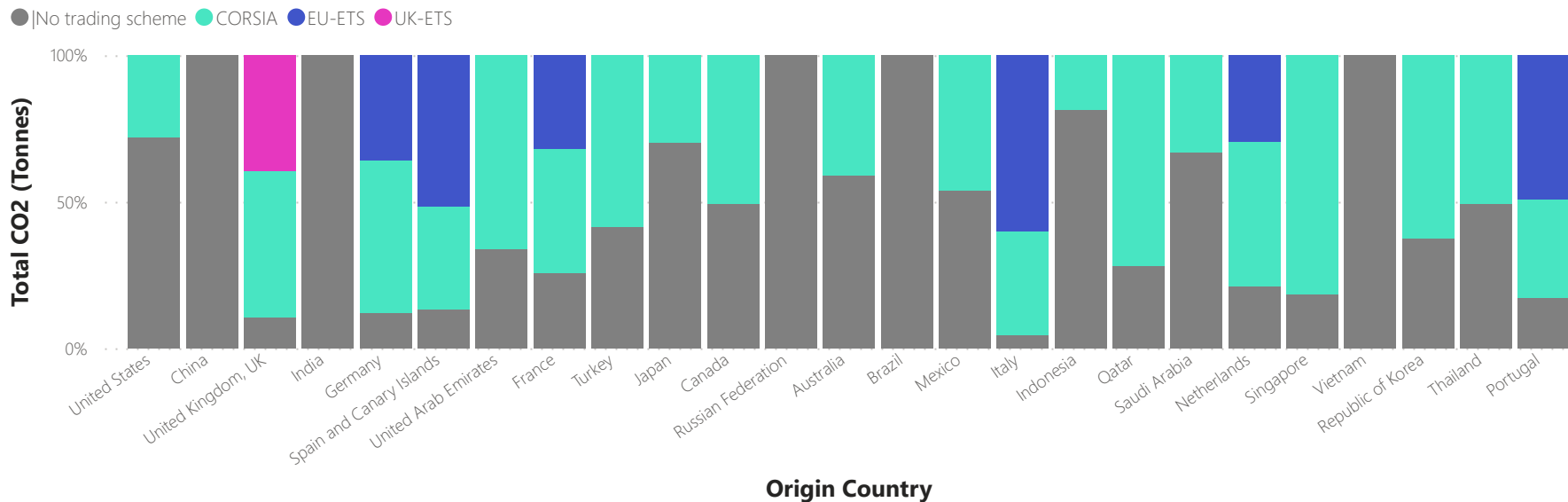
## Change in Emissions - Current month vs prior years

This year vs last year	This year vs two years ago
35%	390%
-37%	10%
364%	880%
99%	244%
184%	1262%
221%	2100%
95%	3288%
161%	1286%
133%	3017%
46%	93%
316%	701%
-13%	214%
62%	873%
91%	1013%
28%	623%
286%	2183%
49%	1679%
45%	485%
95%	2351%
79%	501%
125%	1340%
32%	149%
8%	48%
155%	490%
208%	3683%

## Percent of Emissions covered by Compliance Programmes

May 2020	May 2021	May 2022
% covered	% covered	% covered
-	16.75%	27.93%
-	-	-
31.75%	85.69%	89.27%
-	-	-
34.12%	82.14%	87.70%
42.01%	85.24%	86.83%
-	61.47%	66.15%
12.64%	74.64%	74.37%
-	54.93%	58.44%
-	34.62%	29.80%
-	41.82%	50.78%
-	-	-
-	26.06%	41.13%
-	-	-
-	43.30%	46.27%
57.83%	93.42%	95.37%
-	10.44%	18.52%
-	71.87%	71.80%
-	16.28%	33.30%
9.31%	71.96%	78.98%
-	85.84%	81.72%
-	-	-
-	55.56%	62.42%
-	56.27%	50.71%
47.21%	76.51%	82.70%

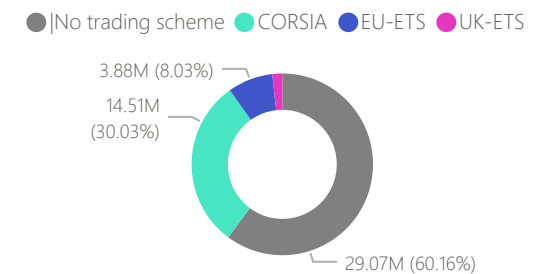
## 25 largest markets - emissions by Compliance Programme (current month)



## Global emissions (tonnes)

48.33M

## Emissions by compliance programme



# RDC Emissions analysis for largest markets - YTD to May 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	46,546,379	38,403,472	56,691,678
China	22,595,697	30,214,228	24,680,048
United Kingdom, UK	7,230,967	2,006,274	8,173,776
India	6,186,005	5,363,040	7,402,192
United Arab Emirates	5,522,232	3,301,333	6,287,148
Spain and Canary Islands	3,754,460	1,673,573	5,810,900
Germany	4,748,945	2,050,921	5,653,191
Japan	7,354,099	3,896,286	5,136,833
France	4,009,167	2,321,641	5,055,646
Russian Federation	4,799,334	4,624,500	5,013,633
Brazil	4,036,585	2,924,000	4,892,121
Mexico	3,459,544	3,348,916	4,600,371
Turkey	2,691,560	2,353,434	4,441,527
Canada	4,250,094	1,366,485	4,299,015
Australia	5,027,099	2,670,975	4,124,715
Indonesia	3,956,831	2,843,710	3,267,835
Qatar	2,518,542	2,224,488	3,207,663
Italy	2,141,661	783,192	2,977,131
Saudi Arabia	2,361,080	1,451,164	2,623,652
Netherlands	2,057,689	1,570,775	2,541,245
Singapore	2,661,066	994,285	2,071,748
Republic of Korea	3,303,951	1,870,076	1,931,245
Thailand	3,609,457	1,100,095	1,864,552
Vietnam	2,015,939	1,731,552	1,742,150
Colombia	932,057	783,649	1,520,807

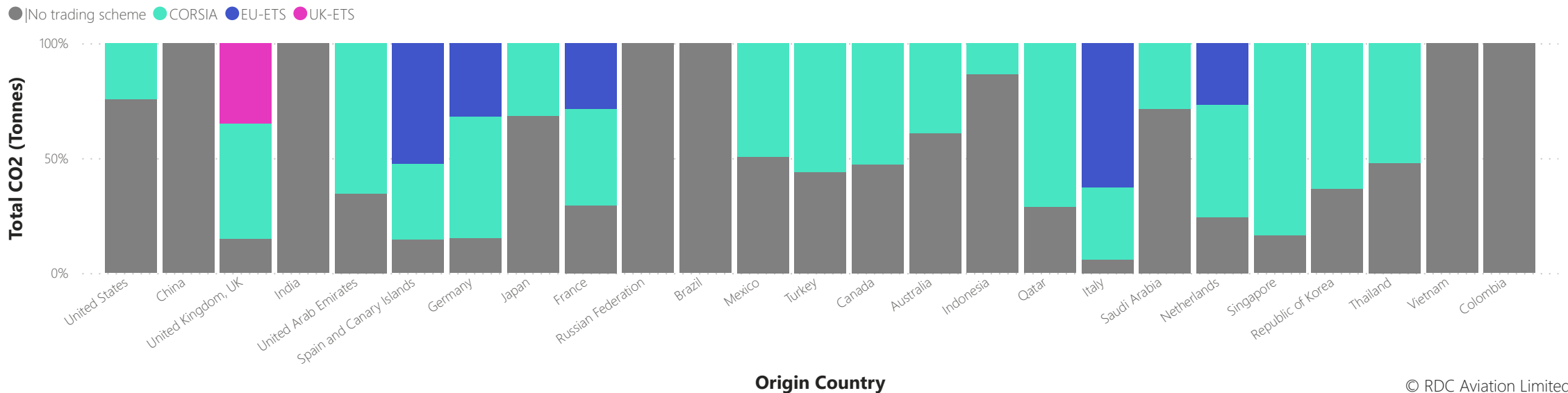
## Change in Emissions - Current month vs prior years

This YTD vs Last YTD	This YTD vs YTD two years ago
48%	22%
-18%	9%
307%	13%
38%	20%
90%	14%
247%	55%
176%	19%
32%	-30%
118%	26%
8%	4%
67%	21%
37%	33%
89%	65%
215%	1%
54%	-18%
15%	-17%
44%	27%
280%	39%
81%	11%
62%	23%
108%	-22%
3%	-42%
69%	-48%
1%	-14%
94%	63%

## Percent of Emissions covered by Compliance Programmes

YTD 2 years ago	YTD Last Year	YTD This Year
Trading scheme %	Trading scheme %	Trading scheme %
-	17.31%	24.34%
-	-	-
26.87%	78.97%	85.22%
-	-	-
-	59.22%	65.48%
46.45%	80.18%	85.26%
28.47%	78.57%	84.93%
-	32.81%	31.58%
22.97%	64.96%	70.59%
-	-	-
-	-	-
-	43.60%	49.42%
-	45.77%	56.07%
-	38.17%	52.79%
-	28.59%	39.22%
-	9.01%	13.37%
-	72.02%	71.13%
45.82%	90.15%	94.17%
-	13.89%	28.69%
19.52%	70.10%	75.72%
-	85.30%	83.47%
-	56.85%	63.27%
-	44.07%	52.25%
-	-	-
-	-	-

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





# RDC CARE Index by carrier and home continent - May 22

## Top 25 European Carriers

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

## Top 25 North American Carriers

Carrier Name	CARE Index
Flair Airlines	6.7
Volaris	6.7
Lynx Air	6.7
Sunwing Airlines	6.6
Frontier Airlines	6.6
Air Transat	6.6
Swoop	6.4
Sun Country	6.1
Allegiant Air	5.9
WestJet	5.8
Aeromexico	5.8
Spirit Airlines	5.6
VivaAerobus	5.5
Air Saint-Pierre	5.4
American Airlines	5.2
Avelo Air	5.2
Delta Air Lines	5.1
ConocoPhillips Alaska Inc	5.1
United Airlines	5.0
Alaska Airlines	5.0
Aeromar	4.8
JetBlue	4.7
Tailwind Air Service	4.6
Air Canada	4.3
Nolinor Aviation	4.3
Porter Airlines	4.1

## 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	6.5
Tigerair Taiwan	6.4
T'Way Air	6.4
Nordwind Airlines	6.4
airblue	6.3
Air India Express	6.2
Aero Nomad Airlines	6.2
NordStar Airlines	6.0
Air Seoul	6.0
Ural Airlines	6.0
Grand China Air	6.0
Serene Air	6.0
Pobeda	5.9
Qingdao Airlines	5.9
Longjiang Airlines	5.9
Himalaya Airlines	5.9
Nepal Airlines	5.9
West Air	5.9
SMARTAVIA	5.9
Izhavia	5.9
Azur Air	5.9
China United Airlines	5.8

## Top 25 RoW Carriers

Carrier Name	CARE Index
Wizz Air Abu Dhabi	6.8
flydubai	6.5
SalamAir	6.5
Air Tahiti Nui	6.4
El Al	6.3
Syrian Air	6.2
LATAM Paraguay	6.1
FlyEgypt	6.0
Sudan Airways	6.0
Copa Airlines	5.9
Air Arabia Abu Dhabi	5.9
Israir Airlines	5.9
UR Airlines	5.9
Tarco Aviation	5.9
Badr Airlines	5.8
Nouvelair Tunisie	5.8
JetSmart Airlines S.A.	5.8
Flybondi	5.8
Air Cairo	5.8
Surinam Airways	5.8
Airmax Cargo	5.8
JetSmart	5.7
Air Arabia	5.7
Sky Prime Aviation Services	5.7
Jetstar Airways	5.7
Viva Air Peru	5.7

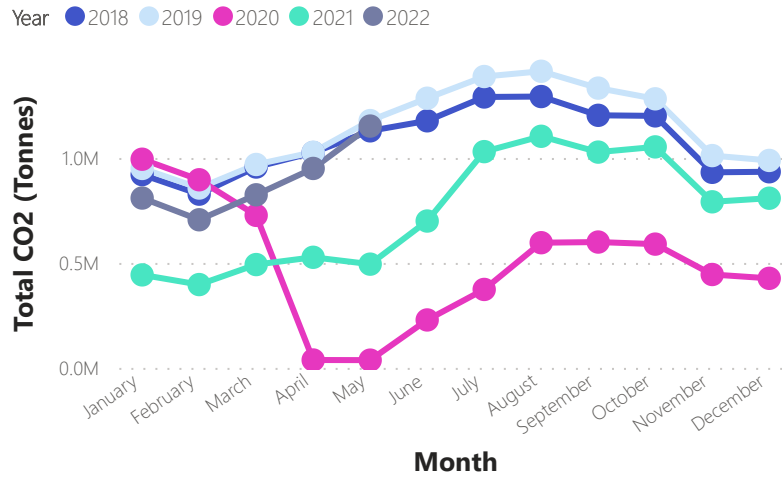
The CARE Index is a measure of airline route sustainability, based around our emissions methodology and various other factors, that has been developed to give business and consumers the best information on which to make their purchasing decisions - particularly when it comes to making more environmentally 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**

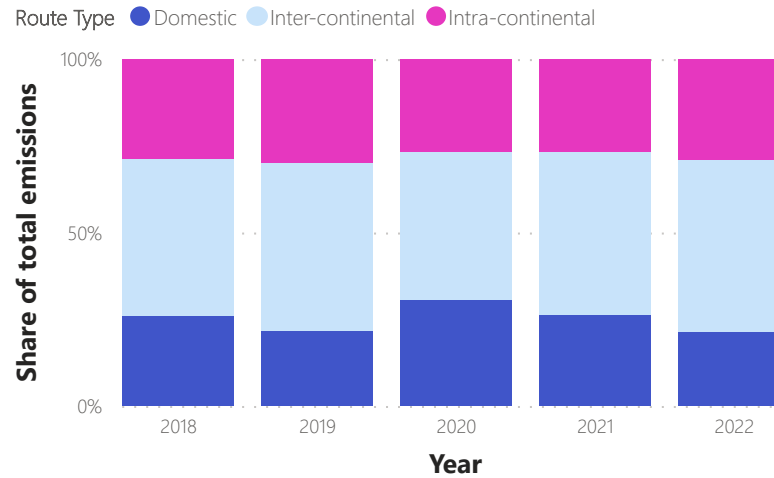
The CARE index has been designed to be a force for change, giving consumers better insight into the environmental impact of their chosen airline that will also help to shape airline sustainability strategies.

# This month's focus country: Turkey

**Total CO2 (Tonnes) by Month and Year**



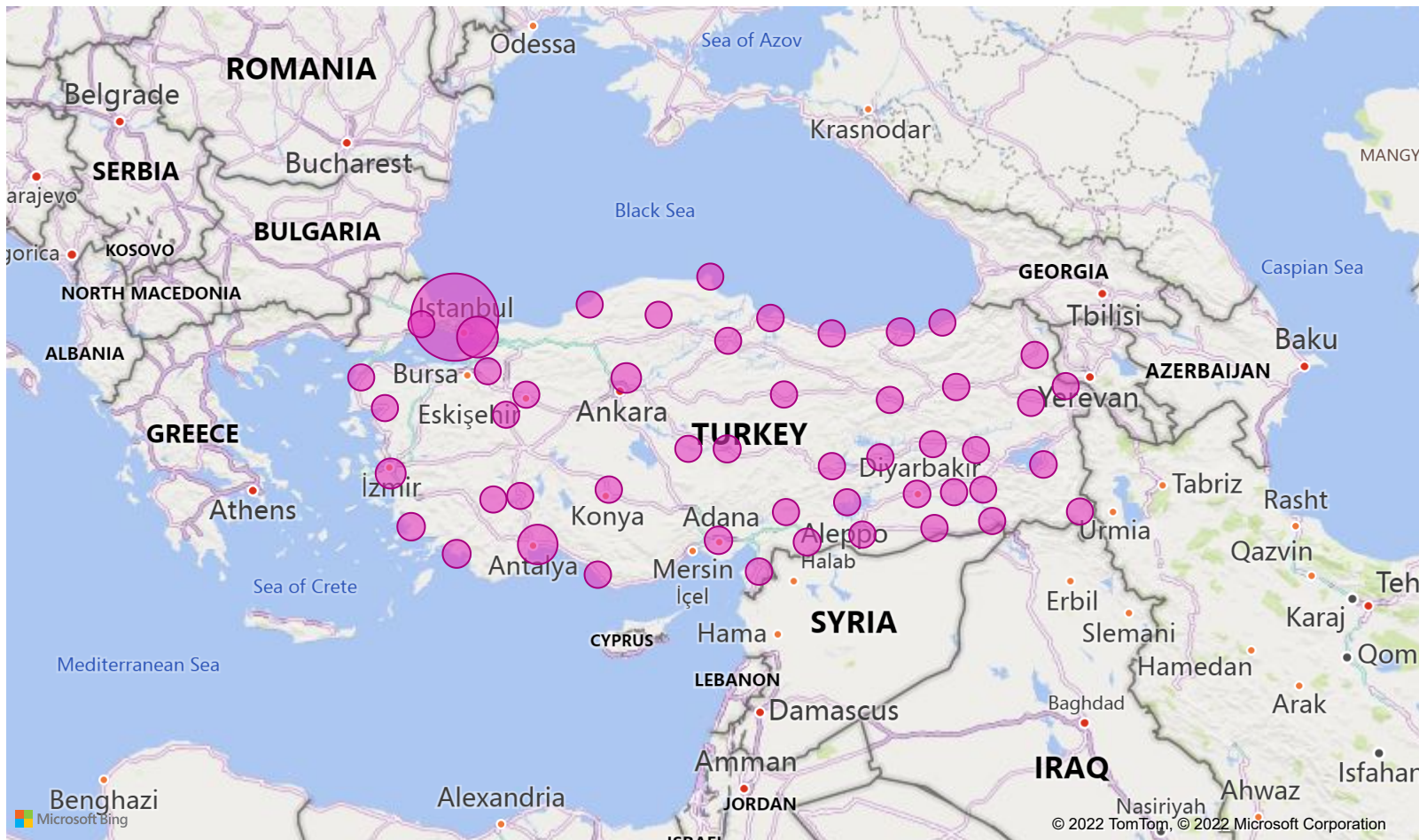
**CO2 by Year and Route Type**



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

Destination Country	Emissions per ASK (g)	Total CO2 (Tonnes)
United Kingdom, UK	58.95	385,035
Germany	59.61	1,115,386
Netherlands	60.31	181,804
France	61.10	180,258
Russian Federation	64.80	692,224
United States	66.40	1,142,278
Ukraine	68.58	114,110
Iran	69.60	198,780
Turkey	77.20	2,566,958
Cyprus	78.25	71,687

**Largest origin airports by total emissions - last 12 months**



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

Carrier Name	Emissions per ASK (g)	Total CO2 (Tonnes)
Turkish Airlines	67.96	5,833,889
Pegasus	67.13	1,503,222
AnadoluJet	68.85	1,069,869
SunExpress	58.49	610,905
Corendon Airlines	60.34	258,984
Azur Air	63.94	164,845
Nordwind Airlines	62.56	97,321
Qatar Airways	69.22	85,104
Emirates	74.51	82,349
Jet2	58.00	71,310

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

Carrier Name	Aircraft	Origin	Destination	CARE Index
SunExpress	B737 MAX 8	AYT	AAL	7.7
SunExpress	B737 MAX 8	AYT	ARN	7.7
SunExpress	B737 MAX 8	AYT	BHX	7.7
TUI Airways	B737 MAX 8	DLM	BHX	7.7
TUI Airways	B737 MAX 8	AYT	BRS	7.7
TUI Airways	B737 MAX 8	BJV	BRS	7.7
TUI Airways	B737 MAX 8	DLM	BRS	7.7
SunExpress	B737 MAX 8	ADA	DUS	7.7
SunExpress	B737 MAX 8	EZS	DUS	7.7
SunExpress	B737 MAX 8	AYT	EDI	7.7



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:

**Iain Smith**  
Global Account Director  
[iain.smith@rdcaviation.com](mailto:iain.smith@rdcaviation.com)

Disclaimer!

**Confidentiality**

This document and any analysis, opinions, results, evaluations or recommendations herein or accompanying it (the "Report") and its contents are confidential.

**Limitations**

This document and any analysis, opinions, results, evaluations or recommendations herein or accompanying it (together, the "Report"), was prepared by RDC Aviation Limited (RDC) for the personal use of the recipient. Any statements made in the Report that are not historical fact are based on data and information provided by others or calculated by RDC. RDC has not verified the accuracy of any such data and information unless otherwise specified by RDC in writing. This document may contain forward-looking statements regarding future events including, but not limited to, 'forecast', 'expect', 'believe', 'estimate', 'anticipate', 'will', 'could', 'may' or 'might' and the negative of such terms or similar expressions. By their nature, forward-looking statements involve risks and uncertainties, because they relate to events and depend on circumstances that may or may not occur in the future and that are beyond the control of RDC. Forward-looking statements are not guarantees of future performance. In particular no allowance has been made for changes in government policy or regulation; economic performance; price; taxation; company failure; strategic change; ownership change; or other external factors that could cause actual results to differ materially from those shown in the Report. The information contained in the Report was produced on the date of issue and is based on the conditions encountered and information available at that time. RDC make no representations, warranties or guarantees, whether express or implied, in relation to the base data, forecasts, estimates and projected outcomes in the Report. Unless otherwise specified in writing, no reliance may be placed on this Report.

**Copyright**

All rights reserved. No part of this work may be reproduced, stored in a retrieval system of any nature, or transmitted, in any form or by any means including photocopying and recording, without the prior written permission of RDC, the copyright owner. If any unauthorised acts are carried out in relation to this copyright work, a civil claim for damages may be made and/or a criminal prosecution may result.