Research and Development of a Methodology to Calculate Student Travel to Study Emissions

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Table of Contents

List of Tables

List of Figures

Abbreviations and Acronyms

Abbreviation/Acronym	Description
GHG	Green House Gases
UK	United Kingdom
tCO2e	Tonnes (t) of carbon dioxide (CO2) equivalent (e)
UN	United Nations
EU	European Union
N America	North America
S America	South America
Brexit	'British exit' (referring to the withdrawal of the United Kingdom from the European Union)

Introduction

In 2020, the University launched Aberdeen 2040, a strategic plan which includes a commitment to be net-zero carbon emissions before 2040. To accomplish this, the University needs to develop an understanding of its annual carbon emissions.

These emissions are divided into 3 Scopes; Scopes 1 and 2 emissions deal with direct and indirect energy sources respectively, and such sources are relatively easily monitored and calculated.

Scope 3, however, encompasses emissions which are not produced by the University itself and this includes student travel emissions for the journey between their home address and the University at the beginning and end of term. This emissions source is a major missing item from the current emissions profile.

To get a better grasp of such emissions, a methodology for calculating student travel emissions is necessary, the process of creating such a methodology is described in this report.

Student Data

Student data from Registry was requested, initially using home address data as this was expected to produce the most accurate results.

However, after reviewing this data it was concluded that it is too convoluted, and processing would be overly time consuming considering the significance of the results. This was due to inconsistency in the data fields and that international students did not report postcodes. Overall, the data was not consistent in quality and responses and cannot be used for calculations. Therefore, the student domicile data was requested instead.

A methodology of using domicile data for international students and postcodes for UK students was also considered as the data from registry would allow for such calculations. However, the impact of emissions from UK students was deemed too insignificant compared to the emissions of international students and would not have a big influence on the overall calculations to justify two calculation methodologies.

In these calculations, we only considered the Aberdeen campus, and the same methodology was applied to on-campus and blended student alike, due to the small percentage of blended students, as seen in Table 1.

Study Method	2015 / 2016	2016 / 2017	2017 / 2018	2018 / 2019	2019 / 2020	2020 / 2021	2021 / 2022
On campus	14,090	14,297	14,550	14,697	14,563	14,010	15,040
Blended	81	104	154	172	164	148	145
Percentage Blended Students	0.57%	0.72%	1.05%	1.16%	1.11%	1.05%	0.95%

Table 1: Historic data of the student body comparing on campus to blended students

The impact of the coronavirus pandemic on university teaching during the academic years of 2019-2020 and 2020-2021 was also considered, however, no data is available for the proportion of in person and remote teaching. While we expect student travel to study habits to have changed during the years affected by the pandemic as some courses had classes in-person, hybrid or all online, no data is available for this. As such, calculations for the academic years influenced by the pandemic were made using the same methodology as all other years.

Country List

An initial country list was developed compromised of the UN list of member states. This list was then compared to countries listed by students from Registry and expanded accordingly. Additional territories and non-sovereign states were also added to make sure the list was comprehensive and would avert the need to extend the country list in the future. This fully comprised list is found in Appendix A.

Region Classifications

To assign travel methods, countries were divided into regions. An initial list of regions is compiled according to the UN geoscheme by revising its 17 subregional groups into the 6 continents:

- Africa
- Asia
- Europe
- North America
- Oceania
- South America

This list was then slightly revised as Cyprus and the Caucasus region were considered European – contrary to the UN geoscheme. Cyprus is an EU member state and because of the Eastern Partnership between the EU and the Caucasus region, they are included in Europe to see the effects of Brexit and the correlation between student recruitment and emissions.

A final revision was made which considers Scotland as one region and the rest of the UK as another due to their separate tuition categories and as we expected travel modes to be different for these two regions compared to the rest. The final region classification is seen in Figure 1 and the compiled list is found in Appendix B.

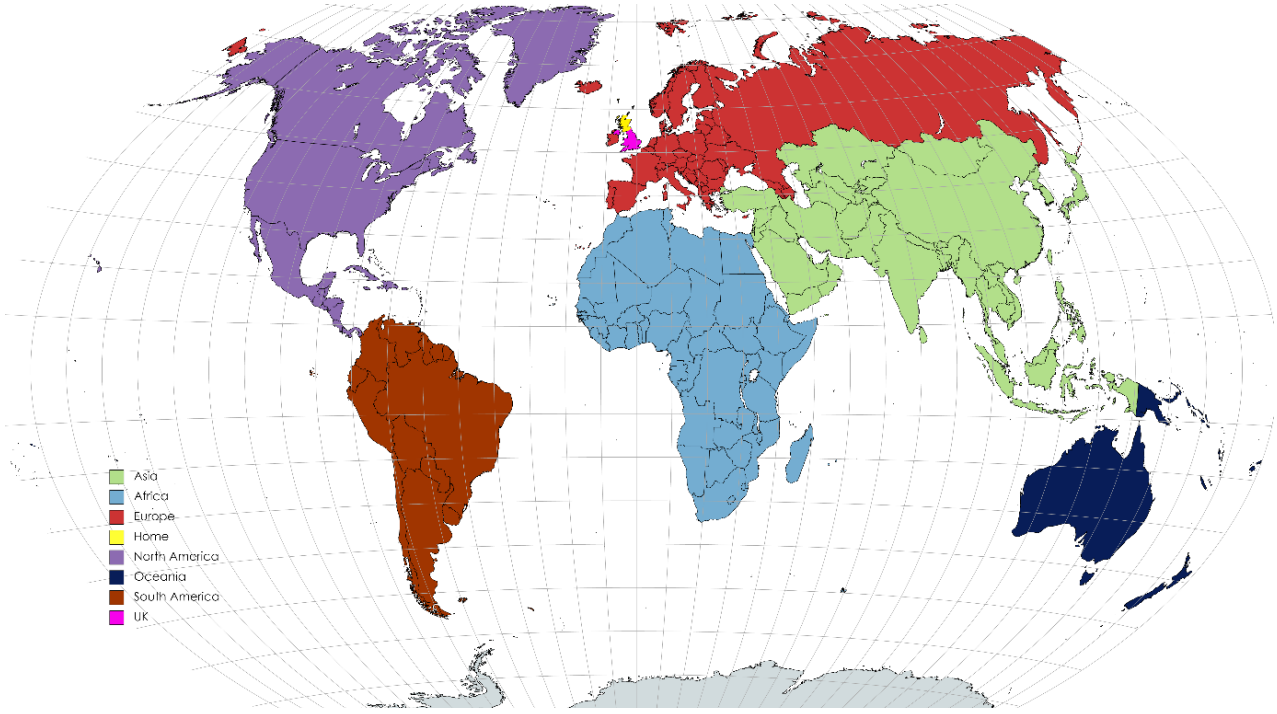

Figure 1. Colour coded map of region classification

By assigning region classifications to countries, historic data of student number split by region can be seen in Figure 2.

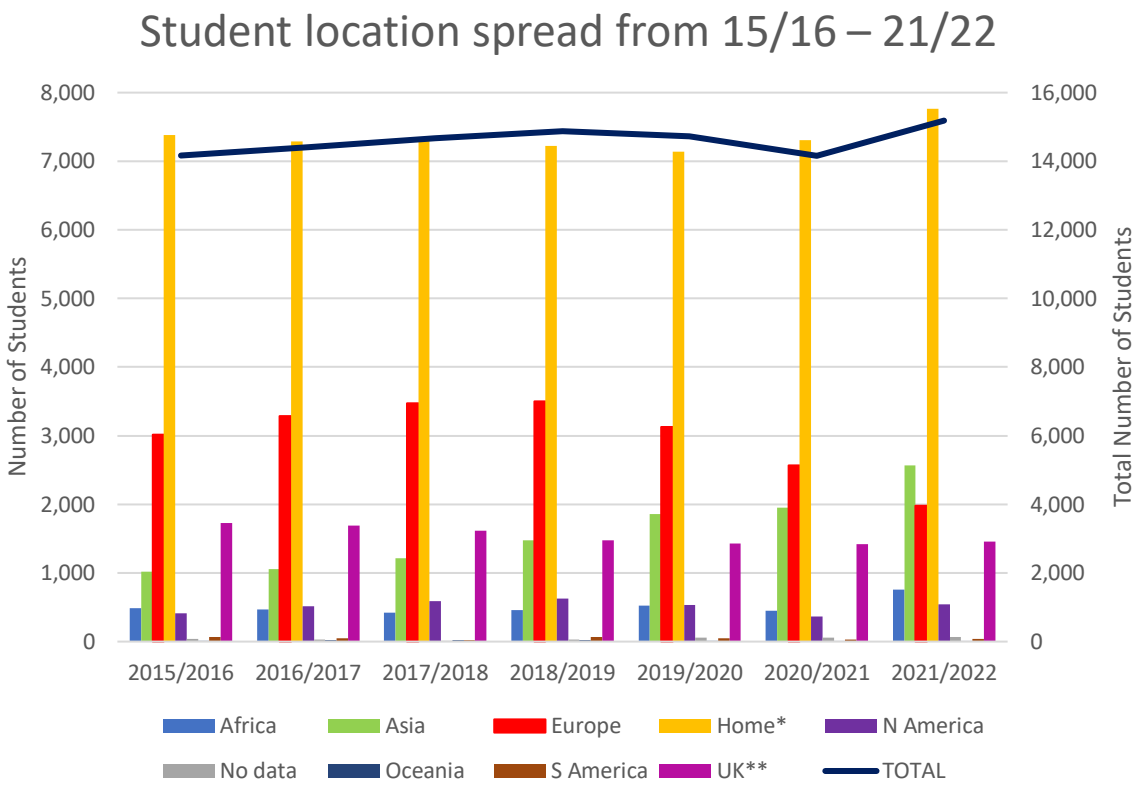

Figure 2. Historical student location spread

Travel Modes

A student's travel mode was determined by categorising the students by regions and based on this, the following initial assumptions were put forward:

Regions	Travel mode
Africa	Average passenger, Long-haul flight
Asia	
North America	
South America	
Oceania	
Europe	Average passenger, Short-haul flights
Home/UK	Average Car

Table 2: Travel Modes - Initial Assumptions

International (Non-Europe)

The routing for international long-haul flights had to be considered as part of the development of the methodology. There are 188 countries within the flight specific regions identified above, and it was deemed to have too many variables to consider change overs of flights for each country.

After a discussion session with the University of Strathclyde, a suggestion was made to measure distance between capital cities and London for international students and then add the distance between London and Aberdeen to account for layovers as this is the most probable flight route. The

main data source used to find these distances was found here: http://ksgleditsch.com/data-5.html. The "capdist.csv" dataset was downloaded, and this provided distances from capital cities to London, after which the distance from London to Aberdeen was added. For countries or territories which did not appear in the list or when data from capdist.csv was found not to be precise, Google Maps was used.

Following internal discussions, this approached was agreed to be an efficient implementation of layovers to the original methodology's starting point of capital city, as London is the most probable routing of long-haul flights and as such, the distances were updated. This can be found in Appendix D.

After a travel mode had been determined, emission factors from the GHG website concerning business travel could be sourced, however, this required a selection of ticket class type. An "Average" passenger ticket type compared to an "Economy passenger" resulted in an increase of emissions by over 20%.

Internal discussions, in addition to those with sector colleagues, determined that "Economy" would be a truer reflection of how the typical student would travel to the University. And until a travel survey can be performed on the student population, emission factors for economy passengers will be chosen for calculations.

International (Europe)

An analysis of different travel modes for European students was undertaken using a cost analysis on four different European countries to compare the use of short-haul flights and rail:

- Flight costs were calculated for the fastest travel route from the main airport of each country to Aberdeen International Airport.
- Train costs were calculated based on the fastest route from the main train station of each country to Aberdeen Railway Station.

Country	Main Airport	Distance (km) *	Cost of Flight (£)	Main Train Station	Distance (km)	Cost of Train (£)
France	Paris Charles de Gaulle Airport	996.2	135	Gare du Nord	1,183.7	185.7
Germany	Frankfurt Airport	1,058.2	138	Hamburg Central Station	1,557.7	270
Italy	Fiumicino Airport	1,989.0	77	Roma Termini	2,272.7	459.1
Denmark	Copenhagen Airport	922.2	168	Copenhagen Central Station	1,795.7	258

* Distance is the total distance covered by each travel method, including stop overs.

Table 3: Cost analysis of European travel modes

The analysis concluded that the use short-haul flights would be the main travel mode due to the convenience and cost. This conclusion was further supported by several institutions in the sector.

Similar to the long-haul flights analysis, a travel survey is suggested to get accurate data when considering the split between economy and business passengers for short-haul flights. But until such data is gathered, travel class for all short-haul flights will be assumed to be economy.

Home/UK

The final piece of analysis was the travel mode of UK students. This was done through a cost analysis, like that undertaken for European students, shown in Table 3.

As previously done, the fastest route was considered for both travel modes, and fuel cost was calculated based on that petrol is the most common fuel, with an average cost of 149.74p /litre and assuming the car gives 12.5 km per litre.

Country	Biggest train station	Cost (£)	Capital	Distance (km)	Fuel cost (£)
England	Waterloo Station	642.5	London	880.3	105.5
Isle of Man	N/A	N/A	Douglas	592.2	70.9
Northern Ireland	Belfast Great Victoria Street	372.6	Belfast	463.5	55.5
United Kingdom	Waterloo Station	642.5	London	880.3	105.5
Wales	Cardiff Central	636.4	Cardiff	844.9	101.2

Table 4: Cost analysis for UK travel modes

The cost analysis, shown in Table 4, showed that fuel cost was less than the cost of train, but research into the sector wide approach suggested a 50/50 split between the two was a better reflection of activities. As emissions made by UK student will have a very small effect on the total emissions, especially compared to international students, further research into this is not suggested as a priority. Domestic flights as well has ferries were also considered; however, these travel modes are not used by any other universities that were contacted during the development process.

As a result, calculation methodology was updated to reflect the 50/50 split between domestic rail and average car for domestic students.

Final Assumptions

Following the cost analysis and sector research detailed above, the final travel mode assumptions are as follows:

Regions	Travel mode
Africa	Economy passenger, Long-haul flight
Asia	
North America	
South America	
Oceania	
Europe	Economy passenger, Short-haul flights
Home/UK	50/50 split, national rail and average car

Table 5: Travel Modes - Final Assumptions

Number of Journeys

The consensus in the Higher Education Sector is to base the calculation on one return trip per academic year, however, this may be subjected to change as further research is done in the area which has potential to triple total student travel emissions or increase beyond this.

This methodology will base its calculations on one return trip per academic year, when the term opens and closes, and any potential travel by students outside of these dates will be considered the

responsibility of the student. This assumption is further supported by the fact that university owned student accommodation is open during the period between terms.

Regions	Number of Return Trips
Africa	1
Asia	
North America	
South America	
Oceania	
Europe	
Home/UK	

Table 6: Number of Journeys - Final Assumptions

Starting Point Location and Journey Routing

After the domicile data is received, the following geographical locations were investigated as potential starting points for calculations:

- Capital city
- Most populous city
- Mid-point
- Furthest away point
- Busiest airport

All starting points were calculated as the crow flies from the starting point to the University. Two different approaches were used for the starting points listed above. For specific locations, that is for capital city, most populous city, and busiest airport, a distance calculator was used, which in turn used Google Maps in the background. This calculator can be found on the following website: https://www.distancefromto.net/.

For mid-point and furthest away point, Google Maps was used to measure distances between starting point and the University. This had to be done with careful consideration due to map distortions, this was especially true for longer distances.

Distance data for each country can be found in Appendix C.

Initial Methodology Calculation

Initial conditions were applied to the calculations to investigate the impact of the starting point location, this included initial travel method assumptions for each region, shown below in Table 7.

Regions	Journey
Africa	Direct to Aberdeen
Asia	
North America	
South America	
Oceania	
Europe	
Home/UK	

Table 7: Initial methodology assumptions of travel modes to investigate starting point locations

With an initial assumption of one return trip per year and using the UK Government GHG emission factors for the travel methods mentioned in Table 7, the following figure was produced.

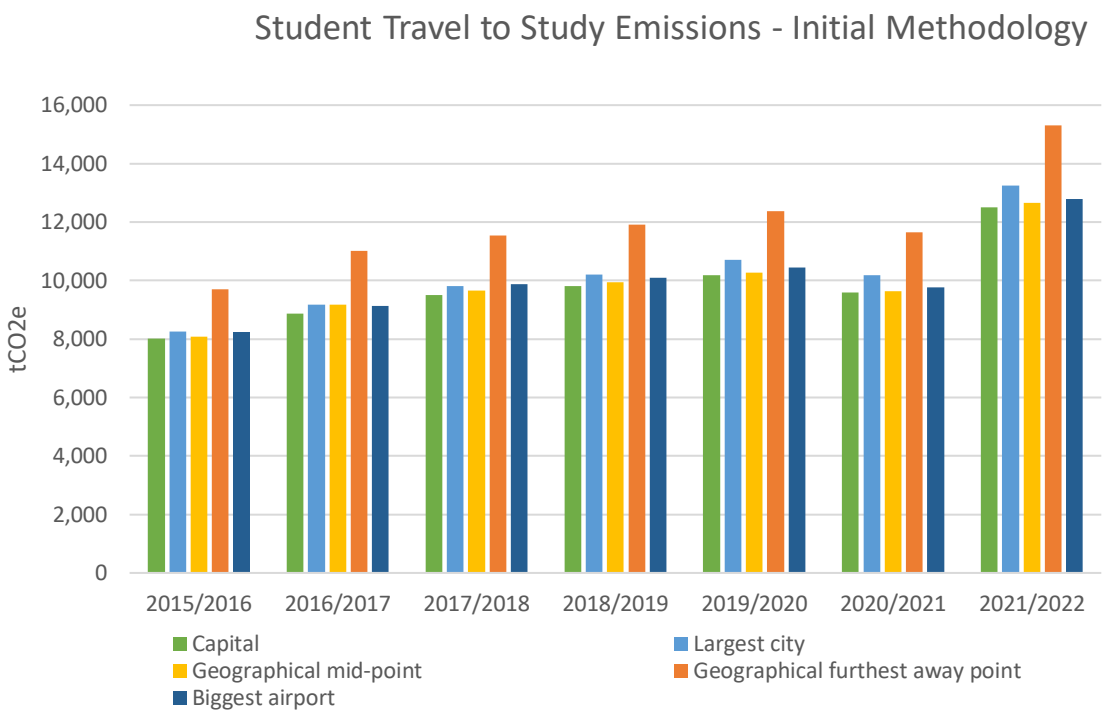

Figure 3: Historical emissions based on initial assumptions for five different starting points

An initial analysis of emissions levels highlighted that the furthest away geographical point was a clear outlier, whereas the discrepancy between the remaining locations appeared to be minimal.

While the furthest away point would ensure that all student home location were accounted for, it would represent a significant over estimation. As such, this was discarded as a potential starting point.

Updated Methodology Calculation

Analysis of current practices within Higher Education highlighted that the most common travel starting point used was a country's capital city. This appeared to be the most accurate starting point and ensures that over counting of emissions is avoided. As a result, this was taken forward as the starting point for the calculation methodology.

However, as mentioned previously after a discussion with the University of Strathclyde, distance between capital cities and London for international students and then adding the distance between London and was suggested. As a result, the travel emissions were recalculated. Figure 4 highlights the difference between the five starting points using the original methodology and the updated methodology.

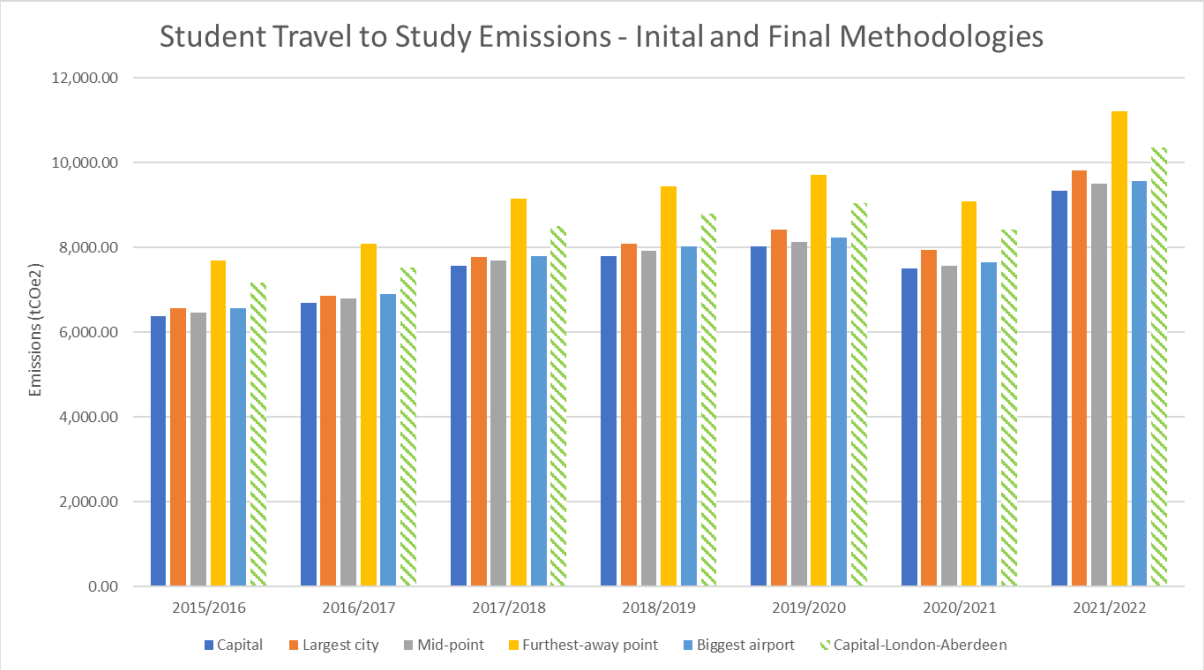

Figure 4: Historical emissions based on updated assumptions for six different starting points

As shown above in Figure 4, the starting point of Capital-London-Aberdeen resulted in emission levels that were higher than those of the original methodology.

To further highlight the changes in emissions due to the updated methodology, percentage difference of emissions for the updated methodology of Capital-London-Aberdeen were compared to the original which is seen in Table 8.

Year	Updated Methodology Emissions (tCO2e)	Percentage Difference Compared to Original Methodology				
		Capital	Largest city	Geographical mid-Point	Geographical furthest-away point	Busiest Airport
2015/2016	7,174.97	-10.9%	-8.5%	-9.9%	7.4%	-8.5%
2016/2017	7,529.61	-11.6%	-9.2%	-10.1%	7.9%	-8.8%
2017/2018	8,519.82	-13.3%	-10.2%	-11.4%	8.8%	-10.0%
2018/2019	8,798.06	-13.8%	-9.9%	-12.1%	8.9%	-10.7%
2019/2020	9,046.67	-14.2%	-8.6%	-12.8%	9.5%	-11.2%
2020/2021	8,421.34	-12.7%	-6.6%	-11.9%	9.3%	-10.6%
2021/2022	10,364.13	-14.2%	-7.5%	-11.8%	12.0%	-11.1%

Table 8: Percent difference between the original methodology starting point locations compared to the updated Capital-London-Aberdeen methodology

Table 8 shows that the starting point emissions, when compared to the Capital-London-Aberdeen methodology, are less for all considered locations except for geographical furthest-away point which was previously rejected as a potential starting point.

While emission levels increase with the updated methodology, by adding a stopover in London for international students, this accounts for flight patterns which would be too difficult to determine otherwise.

A finalised country list was then compiled containing a total of 251 defined countries and the distance between each country's capital to London with the distance between London and the University of Aberdeen added on (see Appendix D).

Final Assumptions

Regions	Starting Location	Journey
Africa	Country Capital	London then to Aberdeen
Asia		
North America		
South America		
Oceania		
Europe		
Home/UK		Direct to Aberdeen

Table 9: Final methodology assumptions of travel modes to investigate starting point locations

The issue of accuracy remains in these calculations since domicile data is used instead of home address. However, the calculation of total emissions each year will require a level of assumptions and will have some degree of error. By using an agreed methodology, it ensures that trends in CO2e emissions will be reliable and can be used to measure the University's progression towards net-zero.

Final Calculation Methodology

After research and advice from the sector, a final methodology for calculating student travel to study emissions has been produced.

This methodology bases its calculations on domicile data and, as a result, starting point for each country is to be considered to be from the capital of each country to London and then from London to Aberdeen. This was determined to be the preferred approach rather than Capital to Aberdeen as it accounts for layovers, which for most international students will be inevitable.

After these distances had been calculated, all countries were divided into regions based on their geographical locations. Travel modes and their corresponding emission factors were then assigned based on these regions, shown in Table 4.

The number of journeys per student was considered to be one return journey per academic year. After starting point, travel mode and number of journeys per academic year had been determined, calculations of emissions based on this methodology were performed.

<table>
<tr><th>Regions</th><th>Starting Location</th><th>Travel mode</th><th>Number of Return Trips</th><th>Journey</th></tr>
<tr><td>Africa</td><td rowspan="8">Country Capital</td><td rowspan="3">Economy passenger, Long-haul flight</td><td rowspan="8">1</td><td rowspan="7">London then to Aberdeen</td></tr>
<tr><td>Asia</td></tr>
<tr><td>North America</td></tr>
<tr><td>South America</td><td rowspan="2">Economy passenger, Short-haul flights</td></tr>
<tr><td>Oceania</td></tr>
<tr><td rowspan="2">Europe</td></tr>
<tr><td>Home/UK</td><td>50/50 split, national rail and average car</td><td>Direct to Aberdeen</td></tr>
</table>

Table 10: Final travel calculation methodologies based on region

Discussion

Through engagement with other higher education institutions, it is clear that many are facing the same challenges we are in terms of calculating student travel to study emissions. This allowed for discussions to be held within the sector to examine how our initial assumptions compared and finalise our own methodology which reflected the sector in a coherent manner.

No matter the assumptions, however, emissions have increased since the baseline year 2015. And data found through this methodology is, therefore, important for the University in order to comprehend their overall Scope 3 emissions.

From Figure 2, the total student population number has stayed relatively stable since 2015, yet, as seen in Figure 4, emissions have increased. This disproportional increase in emissions compared to student numbers is mainly due to two factors.

Firstly, since 2015 European student numbers have decreased by 34.3%. This is considered a result of Brexit, as EU students were charged international fees and lost their right to reside in the UK without a visa and is assumed to be the reason behind the steady decrease of EU students.

However, student numbers have remained stable since 2015 even with this decline of European students. And it is clear from Figure 2 that while there is a decrease of European students there is an increase of Asian students. And in 2021, Asian student numbers had increased by 151.9% since the

baseline year, resulting in Asia being the second largest region after Home students in terms of student numbers since 2018.

In 2021, emissions had increased by 44.5% compared to the baseline year due to the shift of the make-up of the student body with regards to regions as explained above. And as a result of these student recruitment strategies, emissions have increased since 2015 despite the agreement of Aberdeen2040. This prompts the consideration of the impact of student recruitment on emissions and the University's responsibility in student travel to study emissions.

Conclusion

The development of this methodology allows the University to get a better grasp of its Scope 3 emissions, needed to reach the goal of Net Zero by 2040. As such calculations become more common within the sector, it also allows the University to see how its performing compared to other institutions.

Throughout the development of this methodology, several assumptions had to be made. While these assumptions were supported through research and discussions within the sector, it must be noted that the effects of updated assumptions will have pivotal effects on emission calculations. It is, therefore, critical to have continuous contact with relevant parts of the sector and revise the current methodology accordingly.

Recommendations for Future Work

For future work related to this methodology, it is recommended that country lists are regularly verified. This will be partially resolved in the calculations of emissions as the calculation document includes a verification section of domicile data received from Registry. However, capital lists of domicile data will need to be verified manually. This is recommended to be preform every 10 years, the next update to be scheduled in 2033. This is scheduled decennially as it is more likely that new countries or territories form compared to a capital's location being changed. And as the country list will be checked annually, 10 years is deemed an adequate amount of time for any capital updates to be made.

Further, a travel survey is recommended to be developed as this will provide the University with data which reflects its own student body and their choice of travel mode. This would improve the methodology and resolve any assumptions made in the final methodology with regards to travel modes and journeys made by students.

Continuous internal discussions with regards to data collection and any changes which would allow for home address data to be collected is recommended. Persistent sector wide discussions to make sure assumptions are prevalent and reflects the sector wide assumptions accurately should also be continued.

Appendix A – Country List

A			
Aland islands	Angola	Andorra	Austria
Albania	Anguilla	Armenia	Azerbaijan
Algeria	Antigua and Barbuda	Aruba	Afghanistan
American Samoa	Argentina	Australia	
B			
Bahamas	Belgium	Bolivia	Brunei
Bahrain	Belize	Bosnia and Herzegovina	Bulgaria
Bangladesh	Benin	Botswana	Burkina Faso
Barbados	Bermuda	Brazil	Burundi
Belarus	Bhutan	Virgin Islands (British)	
C			
Cambodia	Cameroon	Canada	Canary Islands
Cape Verde	Cayman Islands	Central African Republic	Chad
Chile	China	Christmas Island (Australia)	Cocos (Keeling) Islands
Colombia	Comoros	Congo	Congo (Democratic Republic Of)
Cook Islands	Costa Rica	Croatia	Cuba
Curacao	Cyprus - EU	Cyprus - Non EU	Cyprus - Unspecified
Czech Republic			
D			
Denmark	Djibouti	Dominica	Dominican Republic
E			
East Timor	Ecuador	Egypt	England
El Salvador	Equatorial Guinea	Eritrea	Estonia
Eswatini	Ethiopia		
F			
Falkland Islands	Faroe Islands	Fiji	Finland
France	French Guiana	French Polynesia	
G			
Gabon	Gambia	Georgia	Germany
Ghana	Gibraltar	Greece	Greenland
Grenada	Guam	Guatemala	Guernsey
Guinea	Guinea-Bissau	Guyana	
H			
Haiti	Honduras	Hong Kong	Hungary
I			
Iceland	India	Indonesia	Iran

Iraq	Ireland	Isle of Man	Israel
Italy	Ivory Coast		
J			
Jamaica	Japan	Jersey	Jordan
K			
Kazakhstan	Kenya	Kiribati	Kosovo
Kuwait	Kyrgyzstan		
L			
Laos	Latvia	Lebanon	Lesotho
Liberia	Libya	Liechtenstein	Lithuania
Luxembourg			
M			
Macao	Madagascar	Malawi	Malaysia
Maldives	Mali	Malta	Marshall Islands
Mauritania	Mauritius	Mexico	Micronesia
Moldova	Monaco	Mongolia	Montenegro
Montserrat	Morocco	Mozambique	Myanmar (Burma)
N			
North Macedonia	Namibia	Nauru	Nepal
Netherlands	New Caledonia	New Zealand	Nicaragua
Niger	Nigeria	Niue	Norfolk Island
North Korea	Northern Mariana Islands	Northern Ireland	Norway
O			
Oman	Occupied Palestinian Territories		
P			
Pakistan	Palau	Panama	Papua New Guinea
Paraguay	Peru	Philippines	Pitcairn Islands
Poland	Portugal	Puerto Rico	
Q			
Qatar			
R			
Reunion	Republic of the Congo	Romania	Russia
Rwanda			
S			
Saint Barthelemy	Saint Helena, Ascension, and Tristan da Cunha	St Kitts and Nevis	Saint Lucia
Saint Martin	Saint Pierre and Miquelon (France)	Saint Vincent and the Grenadines	Samoa
San Marino	Sao Tome and Principe	Saudi Arabia	Scotland
Senegal	Serbia	Seychelles	Sierra Leone

Singapore	Sint Maarten (Netherlands)	Slovakia	Slovenia
Solomon Islands	Somalia	South Africa	South Korea
South Sudan	Spain	Sri Lanka	St Vincent and the Grenadines
Sudan	Suriname	Swaziland	Sweden
Switzerland	Syria		
T			
Taiwan	Tajikistan	Tanzania	Thailand
Togo	Tokelau	Tonga	Trinidad and Tobago
Tunisia	Turkey	Turkmenistan	Turks and Caicos Islands
Tuvalu			
U			
Uganda	Ukraine	United Arab Emirates	United Kingdom Unspecified
USA	United States Virgin Islands	Uruguay	Uzbekistan
V			
Vanuatu	Vatican City	Venezuela	Vietnam
W			
Wales	Wallis and Futuna (France)	Western Sahara	
X			
Y			
Yemen			
Z			
Zambia	Zimbabwe		

Appendix B – Regional Classifications

Africa			
Algeria	Angola	Benin	Botswana
Burkina Faso	Burundi	Cameroon	Canary Islands
Cape Verde	Central African Republic	Chad	Comoros
Congo	Congo (Democratic Republic Of)	Djibouti	Egypt
Equatorial Guinea	Eritrea	Eswatini	Ethiopia
Gabon	Gambia	Ghana	Guinea
Guinea-Bissau	Ivory Coast	Kenya	Lesotho
Liberia	Libya	Madagascar	Malawi
Mali	Mauritania	Mauritius	Morocco
Mozambique	Namibia	Niger	Nigeria
Republic of the Congo	Reunion	Rwanda	Sao Tome and Principe
Senegal	Seychelles	Sierra Leone	Somalia
South Africa	South Sudan	Sudan	Swaziland
Tanzania	Togo	Tonga	Tunisia
Uganda	Western Sahara	Zambia	Zimbabwe
Asia			
Afghanistan	Bahrain	Bangladesh	Bhutan
Brunei	Cambodia	China	Cocos (Keeling) Islands
East Timor	Hong Kong	India	Indonesia
Iran	Iraq	Israel	Japan
Jordan	Kazakhstan	Kiribati	Kosovo
Kuwait	Kyrgyzstan	Laos	Lebanon
Macao	Malaysia	Maldives	Mongolia
Myanmar (Burma)	Nepal	North Korea	Occupied Palestinian Territories
Oman	Pakistan	Philippines	Qatar
Saudi Arabia	Singapore	South Korea	Sri Lanka
Syria	Taiwan	Tajikistan	Thailand
Turkey	Turkmenistan	United Arab Emirates	Uzbekistan
Vietnam	Yemen		
Europe			
Aland islands	Albania	Andorra	Armenia
Austria	Azerbaijan	Belarus	Belgium
Bosnia and Herzegovina	Bulgaria	Croatia	Cyprus - EU
Cyprus - Non EU	Cyprus - Unspecified	Czech Republic	Denmark
Estonia	Faroe Islands	Finland	France
Georgia	Germany	Gibraltar	Greece
Hungary	Iceland	Ireland	Italy
Latvia	Liechtenstein	Lithuania	Luxembourg
Malta	Moldova	Monaco	Montenegro
Netherlands	North Macedonia	Norway	Poland

Portugal	Romania	Russia	San Marino
Serbia	Slovakia	Slovenia	Spain
Sweden	Switzerland	Ukraine	Vatican City
Home			
Scotland			
North America			
Anguilla	Antigua and Barbuda	Aruba	Bahamas
Barbados	Belize	Bermuda	Canada
Cayman Islands	Costa Rica	Cuba	Curacao
Dominica	Dominican Republic	El Salvador	Greenland
Grenada	Guam	Guatemala	Haiti
Honduras	Jamaica	Mexico	Montserrat
Nicaragua	Panama	Puerto Rico	Saint Barthelemy
Saint Lucia	Saint Martin	Saint Pierre and Miquelon (France)	Saint Vincent and the Grenadines
Sint Maarten (Netherlands)	St Kitts and Nevis	St Vincent and the Grenadines	Trinidad and Tobago
Turks and Caicos Islands	United States Virgin Islands	USA	Virgin Islands (British)
Oceania			
American Samoa	Australia	Christmas Island (Australia)	Cook Islands
Fiji	French Polynesia	Marshall Islands	Micronesia
Nauru	New Caledonia	New Zealand	Niue
Norfolk Island	Northern Mariana Islands	Palau	Papua New Guinea
Pitcairn Islands	Samoa	Solomon Islands	Tokelau
Tuvalu	Vanuatu	Wallis and Futuna (France)	
South America			
Argentina	Bolivia	Brazil	Chile
Colombia	Ecuador	Falkland Islands	French Guiana
Guyana	Paraguay	Peru	Saint Helena, Ascension, and Tristan da Cunha
Suriname	Uruguay	Venezuela	
UK			
England	Guernsey	Isle of Man	Jersey
Northern Ireland	United Kingdom Unspecified	Wales	

Appendix C – Initial Country Starting Distances

Country	Capital (km)	Largest city (km)	Mid-point (km)	Furthest-away point (km)
Afghanistan	5,750.68	5,750.68	5,604.80	5,973.39
Aland islands	1,309.68	1,309.68	1,309.48	1,337.89
Albania	2,352.28	2,352.28	2,385.35	2,526.83
Algeria	2,299.30	2,299.30	3,241.35	4,236.50
American Samoa	15,149.71	15,149.71	15,149.63	15,157.17
Andorra	1,649.63	1,649.63	1,645.61	1,658.03
Angola	7,468.98	7,468.98	8,010.66	8,612.77
Anguilla	6,577.88	6,577.88	6,577.88	6,588.45
Antigua and Barbuda	6,609.22	6,609.22	6,610.77	6,620.39
Argentina	11,482.31	11,482.31	12,157.37	13,689.15
Armenia	3,807.25	3,807.25	3,830.43	4,028.36
Aruba	7,516.20	7,516.20	7,514.49	7,518.67
Australia	16,773.35	16,737.07	15,031.55	16,988.00
Austria	1,585.51	1,585.51	1,547.55	1,677.57
Azerbaijan	4,110.78	4,110.78	3,991.37	4,138.58
Bahamas	5,115.94	5,115.94	6,904.42	6,949.19
Bahrain	5,361.69	5,361.69	5,375.32	5,398.75
Bangladesh	7,959.03	7,959.03	7,955.12	8,274.12
Barbados	6,859.40	6,859.40	6,851.44	6,860.49
Belarus	1,885.17	1,885.17	1,917.54	2,188.66
Belgium	818.65	818.65	868.25	990.72
Belize	8,204.60	8,147.28	8,220.27	8,348.88
Benin	5,651.66	5,663.33	5,333.50	5,658.04
Bermuda	5,414.98	5,414.98	5,418.44	5,429.47
Bhutan	7,572.67	7,572.67	7,611.57	7,765.48
Bolivia	10,279.28	10,051.57	10,056.76	10,757.66
Bosnia and Herzegovina	2,056.24	2,056.24	2,025.14	2,172.27
Botswana	9,468.71	9,468.71	9,189.87	9,573.51
Brazil	9,143.90	9,888.84	8,918.12	11,027.95
Virgin Islands (British)	6,650.06	6,650.06	6,651.42	6,657.98
Brunei	11,121.70	11,121.70	11,147.40	11,189.12
Bulgaria	2,403.31	2,403.31	2,513.22	2,698.40
Burkina Faso	4,980.85	4,980.85	4,996.56	5,284.47
Burundi	7,301.11	7,301.11	7,319.25	7,422.13
Cambodia	9,920.12	9,920.12	9,833.71	10,052.27
Cameroon	6,046.89	5,995.94	5,908.35	6,339.74
Canada	5,013.91	5,361.04	5,718.18	7,089.48
Cape Verde	5,030.70	5,030.70	5,018.20	5,076.12
Canary Islands	3,393.69	3,393.69	3,406.65	3,436.18
Cayman Islands	7,572.68	7,572.68	7,564.27	7,575.87
Central African Republic	6,145.47	6,145.47	5,965.26	6,303.07
Chad	5,218.74	5,218.74	4,958.14	5,701.70
Chile	11,933.71	11,933.71	12,188.06	13,855.93
China	7,790.69	8,859.02	7,600.48	9,367.45

Christmas Island (Australia)	14,876.95	14,876.95	12,052.10	12,060.54
Cocos (Keeling) Islands	11,676.32	11,676.32	11,681.35	11,687.19
Colombia	8,497.75	8,497.75	8,468.14	9,050.60
Comoros	8,707.29	8,707.29	8,705.49	8,740.01
Cook Islands	15,621.73	15,621.73	15,625.45	15,628.14
Costa Rica	8,097.16	8,097.16	8,595.52	8,680.02
Croatia	1,766.87	1,766.87	1,821.56	2,101.98
Cuba	7,287.86	7,287.86	7,154.11	7,289.49
Curacao	7,490.55	7,490.55	7,488.46	7,489.16
Cyprus - EU	3,594.51	3,594.51	3,601.49	3,631.42
Cyprus - Non EU	3,594.51	3,594.51	3,601.49	3,631.42
Cyprus - Unspecified	3,594.51	3,594.51	3,601.49	3,631.42
Czech Republic	1,338.20	1,338.20	1,414.42	1,613.78
Congo	7,015.11	7,015.11	7,138.54	8,299.80
Congo (Democratic Republic Of)	7,015.11	7,015.11	7,138.54	8,299.80
Denmark	915.39	915.39	714.35	924.82
Djibouti	6,351.32	6,351.32	6,301.91	6,399.45
Dominica	6,753.34	6,753.34	6,741.90	6,759.33
Dominican Republic	6,753.34	6,753.34	6,950.16	7,122.18
East Timor	13,002.03	13,002.03	13,039.81	13,076.86
Ecuador	9,213.98	9,480.42	9,346.65	9,679.94
Egypt	3,961.58	3,961.58	4,253.33	4,991.90
England	642.51	642.51	444.58	826.79
El Salvador	8,557.09	8,557.09	8,529.89	8,606.83
Equatorial Guinea	6,013.32	6,239.39	6,269.26	6,353.77
Eritrea	5,773.75	5,773.75	5,820.92	5,820.92
Estonia	1,578.07	1,578.07	1,599.85	1,767.57
Eswatini	9,789.66	9,789.66	9,822.77	9,919.68
Ethiopia	6,395.99	6,395.99	6,470.71	6,958.24
Falkland Islands	13,126.58	13,126.58	13,194.86	13,276.09
Faroe Islands	599.35	599.35	591.32	634.86
Fiji	15,676.05	15,668.34	15,639.58	15,656.85
Finland	1,586.84	1,586.84	1,784.48	2,017.78
France	969.93	969.93	1,251.36	1,665.59
French Guiana	7,260.90	7,260.90	7,400.16	7,623.32
French Polynesia	14,850.55	14,836.36	14,858.45	14,867.06
Gabon	6,396.07	6,396.07	6,560.63	6,880.39
Gambia	5,012.93	5,016.92	4,988.85	5,051.52
Georgia	3,706.16	3,706.16	3,635.18	3,856.29
Germany	1,115.71	1,115.71	1,052.35	1,467.09
Ghana	5,739.86	5,739.86	5,471.93	5,817.45
Gibraltar	2,349.62	2,349.62	2,350.25	2,353.65
Greece	2,848.27	2,848.27	2,655.19	2,965.89
Greenland	2,734.09	2,734.09	2,452.47	3,225.48
Grenada	7,080.82	7,080.82	7,070.05	7,088.45
Guam	11,589.57	11,587.93	11,592.99	11,611.40
Guatemala	8,547.64	8,547.64	8,427.18	8,654.11
Guernsey	857.16	857.16	858.20	861.53

Guinea	5,392.61	5,392.61	5,291.00	5,575.58
Guinea-Bissau	5,168.51	5,168.51	5,165.42	5,255.33
Guyana	7,384.25	7,384.25	7,616.50	7,939.47
Haiti	7,097.57	7,097.57	7,054.16	7,229.60
Honduras	8,399.95	8,399.95	8,338.23	8,495.70
Hong Kong	9,392.32	9,392.32	9,388.23	9,402.39
Hungary	1,781.73	1,781.73	1,832.77	1,982.32
Iceland	1,322.17	1,322.17	1,251.17	1,484.67
India	6,738.95	7,340.40	7,571.34	8,583.26
Indonesia	11,717.90	11,717.90	11,614.20	12,427.49
Iran	4,586.13	4,586.13	4,997.08	6,038.09
Iraq	4,373.10	4,373.10	4,349.57	4,828.41
Ireland	499.86	499.86	569.78	789.19
Isle of Man	360.88	360.88	359.49	383.75
Israel	4,001.96	4,001.96	4,050.78	4,185.18
Italy	1,989.08	1,989.08	1,993.73	2,609.13
Ivory Coast	5,604.60	5,763.88	5,528.18	5,882.91
Jamaica	7,415.37	7,415.37	7,435.60	7,483.99
Japan	9,088.21	9,088.21	8,989.85	9,242.34
Jersey	887.30	887.30	884.05	888.22
Jordan	4,024.50	4,024.50	4,166.04	4,278.23
Kazakhstan	4,595.24	5,487.86	4,578.53	5,688.99
Kenya	7,365.48	7,365.48	7,281.29	7,777.79
Kiribati	13,495.65	13,495.65	13,492.54	13,492.90
Kosovo	2,296.52	2,296.52	2,289.28	2,380.14
Kuwait	4,929.01	4,929.01	4,905.99	5,024.78
Kyrgyzstan	5,387.56	5,387.56	5,531.52	5,757.14
Laos	9,189.09	9,189.09	9,003.92	9,758.44
Latvia	1,575.08	1,575.08	1,606.08	1,828.70
Lebanon	3,825.28	3,825.28	3,847.68	3,890.62
Lesotho	10,008.79	10,008.79	10,061.17	10,165.45
Liberia	5,705.43	5,705.43	5,677.83	5,890.26
Libya	2,938.17	2,938.17	3,755.31	4,645.84
Liechtenstein	1,363.72	1,361.05	1,362.98	1,474.18
Lithuania	1,715.75	1,715.75	1,613.76	1,758.45
Luxembourg	1,000.10	1,000.10	980.01	1,022.46
North Macedonia	2,369.54	2,369.54	2,427.66	2,505.95
Macao	9,368.20	9,368.20	9,368.20	9,377.41
Madagascar	9,625.45	9,625.45	9,586.19	10,201.93
Malawi	8,573.39	8,573.39	8,515.15	8,945.31
Malaysia	10,537.32	10,537.32	10,452.59	10,848.64
Maldives	8,753.79	8,753.79	8,753.77	8,754.51
Mali	4,974.65	4,974.65	4,397.18	5,233.81
Malta	2,668.17	2,661.64	2,659.64	2,678.32
Marshall Islands	12,842.38	12,842.38	12,839.69	12,850.21
Mauritania	4,494.45	4,494.45	4,084.36	4,764.39
Mauritius	10,211.49	10,211.49	10,227.27	10,249.56
Mexico	8,614.44	8,614.44	8,418.54	8,652.20
Micronesia	12,667.29	12,667.29	12,672.36	12,684.42

Moldova	2,366.36	2,366.36	2,312.84	2,479.82
Monaco	1,634.86	1,634.86	1,634.60	1,635.81
Mongolia	6,633.38	6,633.38	6,580.70	7,266.67
Montenegro	2,224.65	2,224.65	2,205.40	2,250.29
Montserrat	6,661.22	6,661.22	6,665.50	6,670.72
Morocco	2,597.96	2,653.62	2,846.83	3,367.31
Mozambique	9,797.67	9,797.67	9,125.43	9,863.74
Myanmar (Burma)	8,658.91	8,922.33	8,442.02	8,982.93
Namibia	9,045.02	9,045.02	9,115.23	9,767.12
Nauru	13,644.24	13,644.24	13,642.30	13,644.96
Nepal	7,299.41	7,299.41	7,169.12	7,568.25
Netherlands	695.58	695.58	733.63	881.02
New Caledonia	16,024.40	16,024.40	15,920.77	16,082.38
New Zealand	18,235.49	17,744.88	18,194.41	18,697.86
Nicaragua	8,524.87	8,524.87	8,393.47	8,587.20
Niger	4,867.40	4,867.40	4,479.83	5,003.83
Nigeria	5,412.58	5,659.23	5,383.41	5,912.57
Niue	15,659.79	15,659.79	15,658.65	15,669.74
Norfolk Island	16,793.05	16,793.05	16,792.97	16,795.08
North Korea	8,262.48	8,262.48	8,196.17	8,413.64
Northern Mariana Islands	11,437.76	11,437.76	11,447.07	11,464.25
Northern Ireland	371.98	371.98	379.96	482.10
Norway	803.83	803.83	708.75	1,667.52
Oman	6,067.59	6,067.59	6,259.71	6,457.86
Pakistan	6,050.40	6,456.38	6,113.62	6,723.25
Palau	11,828.59	10,242.51	11,823.78	11,841.49
Occupied Palestinian Territories	3,989.44	3,989.44	3,991.03	4,003.93
Panama	8,396.93	8,396.93	8,529.04	8,658.62
Papua New Guinea	14,092.07	14,092.07	13,638.09	14,332.56
Paraguay	10,528.04	10,528.04	10,380.85	10,766.78
Peru	10,247.05	10,247.05	9,860.54	10,478.24
Philippines	10,484.89	10,484.89	10,901.98	11,580.28
Pitcairn Islands	14,586.07	14,586.07	14,421.11	14,424.05
Poland	1,573.49	1,573.49	1,481.98	1,851.58
Portugal	2,115.40	2,115.40	2,024.41	2,286.93
Puerto Rico	6,733.56	6,733.56	6,775.99	6,845.42
Qatar	5,502.72	5,502.72	5,475.87	5,555.80
Reunion	10,185.03	10,185.03	10,211.72	10,243.97
Republic of the Congo	7,009.29	7,015.11	6,579.88	7,060.91
Romania	2,407.26	2,407.26	2,226.02	2,596.31
Russia	2,410.53	2,410.53	5,406.61	6,279.87
Rwanda	7,173.89	7,173.89	7,167.50	7,244.02
Saint Barthelemy	6,595.48	6,595.48	6,594.09	6,596.25
Saint Helena, Ascension, and Tristan da Cunha	10,521.73	10,521.73	8,138.82	8,145.19
St Kitts and Nevis	6,644.53	6,644.53	6,641.55	6,655.07
Saint Lucia	6,852.06	6,852.06	6,861.19	6,878.59
Saint Martin	6,592.57	6,592.57	6,589.89	6,597.59

Saint Pierre and Miquelon (France)	3,768.09	3,768.09	3,767.70	3,777.19
Saint Vincent and the Grenadines	6,946.21	6,946.21	6,934.62	6,966.17
Samoa	15,118.09	15,118.09	15,114.99	15,124.44
San Marino	1,786.72	1,783.47	1,786.26	1,791.72
Sao Tome and Principe	6,367.71	6,367.71	6,382.99	6,399.71
Saudi Arabia	5,283.58	5,283.58	5,267.66	6,015.07
Scotland	150.42	195.73	148.44	308.68
Senegal	4,895.58	4,895.58	4,858.59	5,124.19
Serbia	2,075.01	2,075.01	2,171.00	2,382.33
Seychelles	8,579.67	8,579.67	8,587.30	8,601.80
Sierra Leone	5,497.91	5,497.91	5,480.44	5,643.62
Singapore	10,838.57	10,838.57	10,830.90	10,845.59
Sint Maarten (Netherlands)	6,594.30	6,594.30	6,591.94	6,597.50
Slovakia	1,628.68	1,628.68	1,728.60	1,880.92
Slovenia	1,677.00	1,677.00	1,690.74	1,766.35
Solomon Islands	14,488.01	14,488.01	14,515.02	14,555.22
Somalia	7,408.72	7,408.72	7,143.06	7,603.22
South Africa	10,310.78	9,690.48	10,034.39	10,428.06
South Korea	8,455.35	8,455.35	8,651.44	8,782.32
South Sudan	6,520.28	6,520.28	6,296.49	6,698.99
Spain	1,865.68	1,865.68	1,860.88	2,366.09
Sri Lanka	8,883.78	8,875.80	8,844.09	9,007.13
St Vincent and the Grenadines	6,945.99	6,945.99	6,935.55	6,946.16
Sudan	5,452.10	5,452.10	5,364.19	6,023.02
Suriname	7,321.01	7,321.01	7,552.23	7,760.26
Swaziland	15,108.36	15,108.36	9,821.80	9,917.45
Sweden	1,199.46	1,199.46	1,160.80	1,708.05
Switzerland	1,307.34	1,307.34	1,347.30	1,468.75
Syria	3,903.11	3,903.11	3,936.81	4,032.44
Taiwan	9,474.62	9,474.62	9,581.18	9,747.29
Tajikistan	5,392.93	5,392.93	5,513.91	5,716.20
Tanzania	7,829.70	8,038.02	7,816.24	8,453.50
Thailand	9,466.37	9,466.37	9,295.97	10,277.70
Togo	5,681.65	5,681.65	5,403.89	5,683.40
Tokelau	15,963.71	15,963.71	14,597.30	14,606.55
Tonga	15,969.72	15,969.72	15,973.84	15,983.53
Trinidad and Tobago	7,200.15	7,207.79	7,211.06	7,281.23
Tunisia	2,439.90	2,439.90	2,733.94	3,115.99
Turkey	3,155.19	2,846.83	3,400.80	4,048.41
Turkmenistan	4,818.86	4,818.86	4,810.19	5,344.82
Turks and Caicos Islands	6,759.70	6,759.70	6,768.44	6,825.67
Tuvalu	14,605.09	14,605.09	14,605.02	14,604.20
Uganda	7,029.91	7,029.91	6,909.66	7,113.12
Ukraine	2,244.20	2,244.20	2,410.64	2,908.19
United Arab Emirates	5,739.20	5,723.52	5,807.63	5,945.56

United Kingdom Unspecified	642.51	642.51	444.58	826.79
USA	5,604.88	5,280.82	6,825.00	8,339.43
United States Virgin Islands	6,678.13	6,678.13	6,674.41	6,681.54
Uruguay	11,420.33	11,420.33	11,166.13	11,444.22
Uzbekistan	5,202.95	5,202.95	4,920.60	5,453.32
Vanuatu	15,559.69	15,559.69	15,278.31	15,304.86
Vatican City	1,986.58	1,986.58	1,986.51	1,986.84
Venezuela	7,524.06	7,524.06	7,891.40	8,413.65
Vietnam	9,077.45	10,100.42	9,882.24	10,205.62
Wales	635.64	635.64	569.76	640.85
Wallis and Futuna (France)	15,108.36	15,108.36	15,236.18	15,238.45
Western Sahara	3,449.69	3,449.69	3,764.41	4,147.65
Yemen	6,035.74	6,035.74	6,244.28	6,383.23
Zambia	8,545.12	8,545.12	8,487.19	8,770.01
Zimbabwe	8,887.17	8,887.17	8,993.25	9,360.32

Appendix D – Updated Country Starting Distances

Country	Capital-London-Aberdeen (km)	Capital (km)	Largest city (km)	Mid-point (km)	Furthest-away point (km)
Afghanistan	6,366.90	5,750.68	5,750.68	5,604.80	5,973.39
Aland islands	2,211.04	1,309.68	1,309.68	1,309.48	1,337.89
Albania	2,509.90	2,352.28	2,352.28	2,385.35	2,526.83
Algeria	2,319.90	2,299.30	2,299.30	3,241.35	4,236.50
American Samoa	16,432.56	15,149.71	15,149.71	15,149.63	15,157.17
Andorra	1,596.90	1,649.63	1,649.63	1,645.61	1,658.03
Angola	7,470.15	7,468.98	7,468.98	8,010.66	8,612.77
Anguilla	7,212.12	6,577.88	6,577.88	6,577.88	6,588.45
Antigua and Barbuda	7,223.08	6,609.22	6,609.22	6,610.77	6,620.39
Argentina	11,693.90	11,482.31	11,482.31	12,157.37	13,689.15
Armenia	4,240.90	3,807.25	3,807.25	3,830.43	4,028.36
Aruba	8,176.01	7,516.20	7,516.20	7,514.49	7,518.67
Australia	17,623.73	16,773.35	16,737.07	15,031.55	16,988.00
Austria	1,876.94	1,585.51	1,585.51	1,547.55	1,677.57
Azerbaijan	4,610.90	4,110.78	4,110.78	3,991.37	4,138.58
Bahamas	5,745.90	5,115.94	5,115.94	6,904.42	6,949.19
Bahrain	5,713.19	5,361.69	5,361.69	5,375.32	5,398.75
Bangladesh	8,646.24	7,959.03	7,959.03	7,955.12	8,274.12
Barbados	7,420.67	6,859.40	6,859.40	6,851.44	6,860.49
Belarus	2,513.51	1,885.17	1,885.17	1,917.54	2,188.66
Belgium	954.90	818.65	818.65	868.25	990.72
Belize	9,026.90	8,204.60	8,147.28	8,220.27	8,348.88
Benin	5,647.90	5,651.66	5,663.33	5,333.50	5,658.04
Bermuda	6,190.38	5,414.98	5,414.98	5,418.44	5,429.47
Bhutan	8,280.85	7,572.67	7,572.67	7,611.57	7,765.48
Bolivia	10,581.90	10,279.28	10,051.57	10,056.76	10,757.66
Bosnia and Herzegovina	2,262.38	2,056.24	2,056.24	2,025.14	2,172.27
Botswana	9,484.92	9,468.71	9,468.71	9,189.87	9,573.51
Brazil	9,327.90	9,143.90	9,888.84	8,918.12	11,027.95
Virgin Islands (British)	7,301.40	6,650.06	6,650.06	6,651.42	6,657.98
Brunei	11,906.44	11,121.70	11,121.70	11,147.40	11,189.12
Bulgaria	2,656.41	2,403.31	2,403.31	2,513.22	2,698.40
Burkina Faso	4,994.62	4,980.85	4,980.85	4,996.56	5,284.47
Burundi	7,352.18	7,301.11	7,301.11	7,319.25	7,422.13
Cambodia	10,653.20	9,920.12	9,920.12	9,833.71	10,052.27
Cameroon	6,048.42	6,046.89	5,995.94	5,908.35	6,339.74
Canada	6,042.90	5,013.91	5,361.04	5,718.18	7,089.48
Cape Verde	5,211.71	5,030.70	5,030.70	5,018.20	5,076.12
Canary Islands	3,533.48	3,393.69	3,393.69	3,406.65	3,436.18

Cayman Islands	8,384.64	7,572.68	7,572.68	7,564.27	7,575.87
Central African Republic	6,162.81	6,145.47	6,145.47	5,965.26	6,303.07
Chad	5,231.13	5,218.74	5,218.74	4,958.14	5,701.70
Chile	12,313.92	11,933.71	11,933.71	12,188.06	13,855.93
China	8,866.90	7,790.69	8,859.02	7,600.48	9,367.45
Christmas Island (Australia)	15,850.64	14,876.95	14,876.95	12,052.10	12,060.54
Cocos (Keeling) Islands	12,181.97	11,676.32	11,676.32	11,681.35	11,687.19
Colombia	9,141.68	8,497.75	8,497.75	8,468.14	9,050.60
Comoros	8,812.97	8,707.29	8,707.29	8,705.49	8,740.01
Cook Islands	16,855.12	15,621.73	15,621.73	15,625.45	15,628.14
Costa Rica	9,369.52	8,097.16	8,097.16	8,595.52	8,680.02
Croatia	1,979.10	1,766.87	1,766.87	1,821.56	2,101.98
Cuba	8,134.73	7,287.86	7,287.86	7,154.11	7,289.49
Curacao	8,137.06	7,490.55	7,490.55	7,488.46	7,489.16
Cyprus - EU	3,858.89	3,594.51	3,594.51	3,601.49	3,631.42
Cyprus - Non EU	3,858.89	3,594.51	3,594.51	3,601.49	3,631.42
Cyprus - Unspecified	3,858.89	3,594.51	3,594.51	3,601.49	3,631.42
Czech Republic	1,674.57	1,338.20	1,338.20	1,414.42	1,613.78
Congo	6,930.90	7,015.11	7,015.11	7,138.54	8,299.80
Congo (Democratic Republic Of)	6,930.90	7,015.11	7,015.11	7,138.54	8,299.80
Denmark	1,597.85	915.39	915.39	714.35	924.82
Djibouti	6,539.08	6,351.32	6,351.32	6,301.91	6,399.45
Dominica	7,348.66	6,753.34	6,753.34	6,741.90	6,759.33
Dominican Republic	7,660.87	6,753.34	6,753.34	6,950.16	7,122.18
East Timor	13,808.86	13,002.03	13,002.03	13,039.81	13,076.86
Ecuador	9,867.83	9,213.98	9,480.42	9,346.65	9,679.94
Egypt	4,152.76	3,961.58	3,961.58	4,253.33	4,991.90
England	642.51	642.51	642.51	444.58	826.79
El Salvador	9,380.47	8,557.09	8,557.09	8,529.89	8,606.83
Equatorial Guinea	4,981.41	6,013.32	6,239.39	6,269.26	6,353.77
Eritrea	5,945.28	5,773.75	5,773.75	5,820.92	5,820.92
Estonia	2,422.51	1,578.07	1,578.07	1,599.85	1,767.57
Eswatini	9,820.68	9,789.66	9,789.66	9,822.77	9,919.68
Ethiopia	6,538.42	6,395.99	6,395.99	6,470.71	6,958.24
Falkland Islands	13,328.00	13,126.58	13,126.58	13,194.86	13,276.09
Faroe Islands	1,437.61	599.35	599.35	591.32	634.86
Fiji	16,970.90	15,676.05	15,668.34	15,639.58	15,656.85
Finland	2,468.90	1,586.84	1,586.84	1,784.48	2,017.78
France	984.64	969.93	969.93	1,251.36	1,665.59
French Guiana	7,694.10	7,260.90	7,260.90	7,400.16	7,623.32
French Polynesia	16,022.78	14,850.55	14,836.36	14,858.45	14,867.06
Gabon	6,378.90	6,396.07	6,396.07	6,560.63	6,880.39
Gambia	5,128.90	5,012.93	5,016.92	4,988.85	5,051.52
Georgia	4,180.78	3,706.16	3,706.16	3,635.18	3,856.29
Germany	1,573.98	1,115.71	1,115.71	1,052.35	1,467.09

Ghana	5,753.90	5,739.86	5,739.86	5,471.93	5,817.45
Gibraltar	2,398.92	2,349.62	2,349.62	2,350.25	2,353.65
Greece	3,034.24	2,848.27	2,848.27	2,655.19	2,965.89
Greenland	3,889.52	2,734.09	2,734.09	2,452.47	3,225.48
Grenada	7,656.10	7,080.82	7,080.82	7,070.05	7,088.45
Guam	12,676.99	11,589.57	11,587.93	11,592.99	11,611.40
Guatemala	9,407.15	8,547.64	8,547.64	8,427.18	8,654.11
Guernsey	857.16	857.16	857.16	858.20	861.53
Guinea	3,644.07	5,392.61	5,392.61	5,291.00	5,575.58
Guinea-Bissau	5,267.40	5,168.51	5,168.51	5,165.42	5,255.33
Guyana	7,888.49	7,384.25	7,384.25	7,616.50	7,939.47
Haiti	7,823.97	7,097.57	7,097.57	7,054.16	7,229.60
Honduras	9,227.02	8,399.95	8,399.95	8,338.23	8,495.70
Hong Kong	10,270.41	9,392.32	9,392.32	9,388.23	9,402.39
Hungary	2,090.90	1,781.73	1,781.73	1,832.77	1,982.32
Iceland	2,564.90	1,322.17	1,322.17	1,251.17	1,484.67
India	7,388.90	6,738.95	7,340.40	7,571.34	8,583.26
Indonesia	12,324.90	11,717.90	11,717.90	11,614.20	12,427.49
Iran	5,063.90	4,586.13	4,586.13	4,997.08	6,038.09
Iraq	4,718.90	4,373.10	4,373.10	4,349.57	4,828.41
Ireland	1,137.90	499.86	499.86	569.78	789.19
Isle of Man	360.88	360.88	360.88	359.49	383.75
Israel	4,250.73	4,001.96	4,001.96	4,050.78	4,185.18
Italy	2,076.63	1,989.08	1,989.08	1,993.73	2,609.13
Ivory Coast	5,633.15	5,604.60	5,763.88	5,528.18	5,882.91
Jamaica	8,177.72	7,415.37	7,415.37	7,435.60	7,483.99
Japan	10,295.90	9,088.21	9,088.21	8,989.85	9,242.34
Jersey	887.30	887.30	887.30	884.05	888.22
Jordan	4,282.40	4,024.50	4,024.50	4,166.04	4,278.23
Kazakhstan	5,406.25	4,595.24	5,487.86	4,578.53	5,688.99
Kenya	7,461.04	7,365.48	7,365.48	7,281.29	7,777.79
Kiribati	14,746.44	13,495.65	13,495.65	13,492.54	13,492.90
Kosovo	2,519.38	2,296.52	2,296.52	2,289.28	2,380.14
Kuwait	5,283.65	4,929.01	4,929.01	4,905.99	5,024.78
Kyrgyzstan	6,117.44	5,387.56	5,387.56	5,531.52	5,757.14
Laos	10,013.90	9,189.09	9,189.09	9,003.92	9,758.44
Latvia	2,318.47	1,575.08	1,575.08	1,606.08	1,828.70
Lebanon	4,098.60	3,825.28	3,825.28	3,847.68	3,890.62
Lesotho	10,025.20	10,008.79	10,008.79	10,061.17	10,165.45
Liberia	5,757.74	5,705.43	5,705.43	5,677.83	5,890.26
Libya	2,974.76	2,938.17	2,938.17	3,755.31	4,645.84
Liechtenstein	1,447.90	1,363.72	1,361.05	1,362.98	1,474.18
Lithuania	2,364.88	1,715.75	1,715.75	1,613.76	1,758.45
Luxembourg	1,090.90	1,000.10	1,000.10	980.01	1,022.46
North Macedonia	2,584.13	2,369.54	2,369.54	2,427.66	2,505.95
Macao	10,240.61	9,368.20	9,368.20	9,368.20	9,377.41
Madagascar	9,735.15	9,625.45	9,625.45	9,586.19	10,201.93
Malawi	8,626.85	8,573.39	8,573.39	8,515.15	8,945.31
Malaysia	11,188.32	10,537.32	10,537.32	10,452.59	10,848.64

Maldives	9,158.72	8,753.79	8,753.79	8,753.77	8,754.51
Mali	5,019.16	4,974.65	4,974.65	4,397.18	5,233.81
Malta	2,729.69	2,668.17	2,661.64	2,659.64	2,678.32
Marshall Islands	14,088.06	12,842.38	12,842.38	12,839.69	12,850.21
Mauritania	4,609.59	4,494.45	4,494.45	4,084.36	4,764.39
Mauritius	10,374.39	10,211.49	10,211.49	10,227.27	10,249.56
Mexico	9,597.90	8,614.44	8,614.44	8,418.54	8,652.20
Micronesia	13,838.00	12,667.29	12,667.29	12,672.36	12,684.42
Moldova	2,870.02	2,366.36	2,366.36	2,312.84	2,479.82
Monaco	1,672.61	1,634.86	1,634.86	1,634.60	1,635.81
Mongolia	7,700.90	6,633.38	6,633.38	6,580.70	7,266.67
Montenegro	2,374.90	2,224.65	2,224.65	2,205.40	2,250.29
Montserrat	7,283.49	6,661.22	6,661.22	6,665.50	6,670.72
Morocco	2,715.90	2,597.96	2,653.62	2,846.83	3,367.31
Mozambique	9,779.90	9,797.67	9,797.67	9,125.43	9,863.74
Myanmar (Burma)	9,669.90	8,658.91	8,922.33	8,442.02	8,982.93
Namibia	8,929.90	9,045.02	9,045.02	9,115.23	9,767.12
Nauru	14,862.35	13,644.24	13,644.24	13,642.30	13,644.96
Nepal	8,014.90	7,299.41	7,299.41	7,169.12	7,568.25
Netherlands	981.90	695.58	695.58	733.63	881.02
New Caledonia	17,206.04	16,024.40	16,024.40	15,920.77	16,082.38
New Zealand	19,458.90	18,235.49	17,744.88	18,194.41	18,697.86
Nicaragua	9,351.90	8,524.87	8,524.87	8,393.47	8,587.20
Niger	4,868.90	4,867.40	4,867.40	4,479.83	5,003.83
Nigeria	5,650.90	5,412.58	5,659.23	5,383.41	5,912.57
Niue	16,940.02	15,659.79	15,659.79	15,658.65	15,669.74
Norfolk Island	17,971.57	16,793.05	16,793.05	16,792.97	16,795.08
North Korea	9,306.11	8,262.48	8,262.48	8,196.17	8,413.64
Northern Mariana Islands	12,537.17	11,437.76	11,437.76	11,447.07	11,464.25
Northern Ireland	371.98	371.98	371.98	379.96	482.10
Norway	1,755.90	803.83	803.83	708.75	1,667.52
Oman	6,481.90	6,067.59	6,067.59	6,259.71	6,457.86
Pakistan	6,702.90	6,050.40	6,456.38	6,113.62	6,723.25
Palau	12,811.90	11,828.59	10,242.51	11,823.78	11,841.49
Occupied Palestinian Territories	4,250.73	3,989.44	3,989.44	3,991.03	4,003.93
Panama	9,145.90	8,396.93	8,396.93	8,529.04	8,658.62
Papua New Guinea	15,097.90	14,092.07	14,092.07	13,638.09	14,332.56
Paraguay	10,799.90	10,528.04	10,528.04	10,380.85	10,766.78
Peru	10,804.90	10,247.05	10,247.05	9,860.54	10,478.24
Philippines	11,431.90	10,484.89	10,484.89	10,901.98	11,580.28
Pitcairn Islands	15,534.67	14,586.07	14,586.07	14,421.11	14,424.05
Poland	2,091.90	1,573.49	1,573.49	1,481.98	1,851.58
Portugal	2,259.90	2,115.40	2,115.40	2,024.41	2,286.93
Puerto Rico	7,399.71	6,733.56	6,733.56	6,775.99	6,845.42
Qatar	5,783.90	5,502.72	5,502.72	5,475.87	5,555.80
Reunion	10,331.87	10,185.03	10,185.03	10,211.72	10,243.97

Republic of the Congo	6,930.90	7,009.29	7,015.11	6,579.88	7,060.91
Romania	2,728.90	2,407.26	2,407.26	2,226.02	2,596.31
Russia	3,153.90	2,410.53	2,410.53	5,406.61	6,279.87
Rwanda	7,090.90	7,173.89	7,173.89	7,167.50	7,244.02
Saint Barthelemy	7,225.21	6,595.48	6,595.48	6,594.09	6,596.25
Saint Helena, Ascension, and Tristan da Cunha	8,159.15	10,521.73	10,521.73	8,138.82	8,145.19
St Kitts and Nevis	7,268.48	6,644.53	6,644.53	6,641.55	6,655.07
Saint Lucia	7,433.77	6,852.06	6,852.06	6,861.19	6,878.59
Saint Martin	7,226.51	6,592.57	6,592.57	6,589.89	6,597.59
Saint Pierre and Miquelon (France)	4,652.01	3,768.09	3,768.09	3,767.70	3,777.19
Saint Vincent and the Grenadines	7,524.18	6,946.21	6,946.21	6,934.62	6,966.17
Samoa	16,401.96	15,118.09	15,118.09	15,114.99	15,124.44
San Marino	1,900.98	1,786.72	1,783.47	1,786.26	1,791.72
Sao Tome and Principe	6,367.43	6,367.71	6,367.71	6,382.99	6,399.71
Saudi Arabia	5,607.90	5,283.58	5,283.58	5,267.66	6,015.07
Scotland	150.42	150.42	195.73	148.44	308.68
Senegal	5,046.90	4,895.58	4,895.58	4,858.59	5,124.19
Serbia	2,343.90	2,075.01	2,075.01	2,171.00	2,382.33
Seychelles	8,750.90	8,579.67	8,579.67	8,587.30	8,601.80
Sierra Leone	5,578.90	5,497.91	5,497.91	5,480.44	5,643.62
Singapore	11,501.90	10,838.57	10,838.57	10,830.90	10,845.59
Sint Maarten (Netherlands)	7,227.03	6,594.30	6,594.30	6,591.94	6,597.50
Slovakia	1,909.90	1,628.68	1,628.68	1,728.60	1,880.92
Slovenia	1,833.90	1,677.00	1,677.00	1,690.74	1,766.35
Solomon Islands	15,640.67	14,488.01	14,488.01	14,515.02	14,555.22
Somalia	7,525.90	7,408.72	7,408.72	7,143.06	7,603.22
South Africa	9,538.90	10,310.78	9,690.48	10,034.39	10,428.06
South Korea	9,500.51	8,455.35	8,455.35	8,651.44	8,782.32
South Sudan	6,600.02	6,520.28	6,520.28	6,296.49	6,698.99
Spain	1,899.90	1,865.68	1,865.68	1,860.88	2,366.09
Sri Lanka	9,394.90	8,883.78	8,875.80	8,844.09	9,007.13
St Vincent and the Grenadines	7,524.18	6,945.99	6,945.99	6,935.55	6,946.16
Sudan	5,580.90	5,452.10	5,452.10	5,364.19	6,023.02
Suriname	7,780.90	7,321.01	7,321.01	7,552.23	7,760.26
Swaziland	9,730.90	15,108.36	15,108.36	9,821.80	9,917.45
Sweden	2,074.90	1,199.46	1,199.46	1,160.80	1,708.05
Switzerland	1,402.90	1,307.34	1,307.34	1,347.30	1,468.75
Syria	4,179.90	3,903.11	3,903.11	3,936.81	4,032.44
Taiwan	10,445.90	9,474.62	9,474.62	9,581.18	9,747.29
Tajikistan	6,058.90	5,392.93	5,392.93	5,513.91	5,716.20
Tanzania	8,007.90	7,829.70	8,038.02	7,816.24	8,453.50

Thailand	10,220.90	9,466.37	9,466.37	9,295.97	10,277.70
Togo	5,646.90	5,681.65	5,681.65	5,403.89	5,683.40
Tokelau	15,889.31	15,963.71	15,963.71	14,597.30	14,606.55
Tonga	17,253.89	15,969.72	15,969.72	15,973.84	15,983.53
Trinidad and Tobago	7,750.90	7,200.15	7,207.79	7,211.06	7,281.23
Tunisia	2,483.90	2,439.90	2,439.90	2,733.94	3,115.99
Turkey	3,496.90	3,155.19	2,846.83	3,400.80	4,048.41
Turkmenistan	5,399.90	4,818.86	4,818.86	4,810.19	5,344.82
Turks and Caicos Islands	7,497.07	6,759.70	6,759.70	6,768.44	6,825.67
Tuvalu	15,877.47	14,605.09	14,605.09	14,605.02	14,604.20
Uganda	7,073.90	7,029.91	7,029.91	6,909.66	7,113.12
Ukraine	2,771.90	2,244.20	2,244.20	2,410.64	2,908.19
United Arab Emirates	6,125.90	5,739.20	5,723.52	5,807.63	5,945.56
United Kingdom Unspecified	642.51	642.51	642.51	444.58	826.79
USA	6,573.90	5,604.88	5,280.82	6,825.00	8,339.43
United States Virgin Islands	7,331.82	6,678.13	6,678.13	6,674.41	6,681.54
Uruguay	11,583.90	11,420.33	11,420.33	11,166.13	11,444.22
Uzbekistan	5,888.90	5,202.95	5,202.95	4,920.60	5,453.32
Vanuatu	16,767.47	15,559.69	15,559.69	15,278.31	15,304.86
Vatican City	2,073.17	1,986.58	1,986.58	1,986.51	1,986.84
Venezuela	8,189.90	7,524.06	7,524.06	7,891.40	8,413.65
Vietnam	9,876.51	9,077.45	10,100.42	9,882.24	10,205.62
Wales	635.64	635.64	635.64	569.76	640.85
Wallis and Futuna (France)	16,391.03	15,108.36	15,108.36	15,236.18	15,238.45
Western Sahara	3,562.75	3,449.69	3,449.69	3,764.41	4,147.65
Yemen	6,233.90	6,035.74	6,035.74	6,244.28	6,383.23
Zambia	8,486.90	8,545.12	8,545.12	8,487.19	8,770.01
Zimbabwe	8,785.90	8,887.17	8,887.17	8,993.25	9,360.32