

Chapter 3: Google Earth Exercise

Exercise 1 Refugee Flows

The origin of refugees varies widely depending on socio-economic conditions and the geography of conflict. Here we examine data from 2010.

The task: Using Google Earth, examine the choropleth maps of emigration by refugee claimants and undernourished populations.

Step 1: Disable all layers in Google Earth, except for “Borders and Labels.” Load the [Chapter 3.1.kmz](#) file that contains the following layers derived from 2010 World Bank data:

- Percent of Population Leaving as Refugees in 2010
- Proportion of Population with greater than 5 per cent undernourished citizens

Note: clicking on any country while the above layers are enabled will indicate the exact statistic for that layer.

Step 2: Enable the “Proportion Undernourished” layer. Note that some countries lack data. Scan the globe with the above layer enabled, and compare the distribution of the world’s malnourished population to Figure 3.7 on page 99 in your textbook. The Brandt Report was produced in 1980, while our data are from 2010. Describe the differences and similarities between the choropleth map and Figure 3.7 and suggest reasons for the differences observed. Refer to Chapter 3 for context.

➤ **Question 1:** How do the World Bank data here compare to the Brandt Report data in your textbook?

Step 3: Enable the “Percent of Population Leaving as Refugees in 2010” layer.

➤ **Question 2:** Is there a correlation between large-scale refugee flows and food security? Indicate two countries experiencing major refugee emigration that also have food security issues. What are some exceptions? Drawing on Chapter 3 for context, what do you think is a primary reason for emigration from these countries?

Step 4: Locate the Kingdom of Bhutan. In the *layers* sidebar in the *Global Awareness* section, enable the “UNDP: Millennium Development Goals” layer, click on the MDG icon to read the complete article.

➤ **Question 3:** Based on the population reported by the UN, how many refugees left Bhutan in 2010? Where did most of them emigrate to (provide country and region)? What territory did they have to cross to get to their destination? Refer to Chapter 3, the layers, and search in Google Earth.

Exercise 2

Mapping the Migrant Crisis in Europe

The world is experiencing the highest level of human displacement ever recorded. According to the United Nations refugee agency (UNHCR), close to 60 million people around the world have been forcibly displaced from their home as of 2015. Each day 42,500 flee their homes to avoid conflict or persecution. Over half of globally displaced people are under the age of 18. While the top countries of origin for refugees are primarily in Central Asia and the Middle East, Europe—particularly countries bordering the Mediterranean Sea—has seen a tremendous surge in migrants seeking refuge. The unprecedented flow of migrants has created a global humanitarian crisis, and is straining the institutions, agencies and operations that support them.

The task: Using Google Earth, examine the flow maps illustrating the impact of the refugee crisis in Europe’s Mediterranean region.

Step 1: Disable all layers in Google Earth, except for “Borders and Labels.” Load the [Chapter 3.2.kmz](#) file that contains the following layers derived from MAREM data (2014):

- Instructions for using the MAREM map
- Situation of asylum seekers and refugees from non-European Areas.
 - Individual stories
 - Routes of irregular entry
 - Fatalities of refugees and asylum seekers
- Countries of Arrival
 - Main countries of origin

Step 2: Enable the About MAREM layer and the Instructions for using MAREM Map to familiarize yourself with the maps, purpose, and data sources.

Step 3: Enable the “Main countries of origin” layer in the “Countries of Arrival” folder and click on each country layer to examine differences in where asylum seekers originate.

- **Question 1:** Which country has the largest percentage of Syrian asylum seekers? Use the ruler tool to measure the shortest route by sea between the coasts of these two countries. Which country has the highest percentage of refugees from the African continent? Examine the location of the origin and arrival countries to help explain why these percentages are relatively higher.

Step 4: Next enable the “Routes of irregular entry” layer.

- **Question 2:** Undocumented refugees are often forced to take more dangerous routes of migration to their destination countries. What are the two most common irregular entry routes for refugees traveling to Greece? Why are more refugees now choosing the more dangerous of the two?
- **Question 3:** Examine the routes of irregular entry for Italy. Why do so many converge on the island of Lampedusa?
- **Question 4:** Despite its close proximity to the African continent, why are there so few irregular entry points to Spain?

Step 5: Enable the layer “Fatalities of refugees and asylum seekers.” Compare the Routes of irregular entry layer with the on fatalities layer.

- **Question 5:** Where is the largest number of fatalities? Is there a correlation between the location of the routes and the number of fatalities? What is the primary cause of deaths for asylum seekers?

Step 5: Enable the “Individual stories layer” and read about L’s journey between Cameroon and Cyprus. Use the ruler tool to measure the total distance L traveled to escape persecution.

- **Question 6:** How far did L travel?

Answers

Exercise 1

- **Question 1:** A notable exception to the correlation between the global south as described in 1980 and the distribution of malnourishment in 2010 is Mexico—which no longer experiences widespread nutritional deficiencies. Conversely, Tajikistan, which is described as being part of the global north, experiences very high levels of malnourishment, on par with parts of Africa. This may be related to the collapse of the Soviet Union.
- **Question 2:** The countries of sub-Saharan Africa have particularly close link between emigration by refugees and food security. Examples include the Central African Republic, Eritrea, Sudan, Congo, and Angola. Afghanistan and Iraq experienced major outflows of refugees due to military conflicts as did countries of the former Yugoslavia (Croatia, Bosnia, Serbia, Montenegro) and Somalia.
- **Question 3:** In 2010, 10.3 per cent of the population left the country as refugees representing about 70,000 people. As indicated in the text, approximately 100,000 refugees (cumulatively) have migrated to Nepal. A search in Google Earth indicates a number of refugee camps specifically for the Bhutanese in Nepal, primarily in the south-eastern regions of the country—namely Mechi and Koshi. Refugees would have had to traverse a section of India on their way to Nepal.

Exercise 2

- **Question 1:** Cyprus holds the largest percentage of Syrian refugees. It is the closest country by sea to Syria, measuring a distance of 55.75 nautical miles. The highest percentage of refugees from Italy originates in the African continent.
- **Question 2:** The two routes are a land route through Turkey that passes through Istanbul, and a sea route that traverses the Aegean Sea. The sea route is now used more frequently because of a 10.2km border fence built between Greece and Turkey.
- **Question 3:** Because of the island's relative proximity to Libya and Tunisia.
- **Question 4:** Agreements between Spanish and Moroccan border police have enhanced border controls, enhanced electronic surveillance, and erected higher fences to deter migrant crossings.
- **Question 5:** Yes, most fatalities occur in close proximity to the routes of irregular entry. While the number of individual incidents is highest in the Aegean Sea route near Greece, the actual number of fatalities is highest off the coast of Sicily. Most migrants die from drowning or are presumed missing at sea.
- **Q6:** L travelled approximately 18,382 km.

[Please contact your instructor for the answers to these exercises]