

A scenic view of a coastal town on Cephallonia Island, Greece. In the foreground, a fisherman in a grey sweater and cap sits in a red wooden boat, mending a yellow fishing net. The boat is filled with fishing gear, including a large white plastic bag and a yellow bucket. The water is clear and blue, reflecting the sky and the buildings. In the background, a small town with white buildings and a few trees is visible on a hillside. A small blue and white boat is anchored in the water near the shore.

# **CHAPTER 2**

## **Cephallonia Island and Areas Covered**

**GEER/EERI/ATC Cephallonia, Greece 2014**  
**Report Version 1**





## 2.1 Cephalonia island

Cephalonia is an island known for its natural beauty (Fig. 2.1.1), located in the Ionian Sea of Greece, next to the island of Ithaca, where the kingdom of Odysseus was in the Homeric poems of Odyssey and Iliad (Fig. 2.1.2). It is the sixth largest island in the country; the largest of the Ionian islands with area of 786 m<sup>2</sup> and population of 35,800 people according to the 2011 census.



**Figure 2.1.1.** Natural beauty of Cephalonia island (photo from web).

The capital of the prefecture of Cephalonia and Ithaca is Argostoli, home to 8,000 people. The name is derived from the Greek words "argo" and "stolos", which mean "slow fleet", since the port has been in operation since ships used oars to navigate. Lixouri is the second major town on the island, and combined with Argostoli they account for almost two thirds of the prefecture's population. The name originates from "lixis" and "ourion", which mean "termination of helpful stern wind", since offshore of Lixouri the southern stern winds drop due to the existence of tall mountains close by ([keffyroots.com](http://keffyroots.com) , 2014).



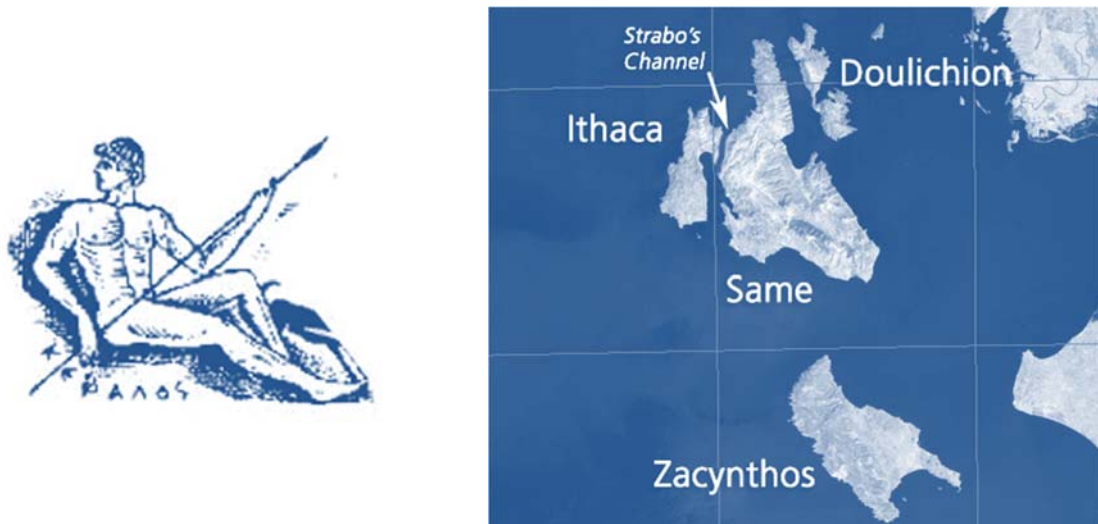


**Figure 2.1.2.** Maps showing Cephalonia island (a) in Europe and (b) in Greece ([nationsonline.org](http://nationsonline.org)); and (c) map of the island showing the capital Argostoli and the town of Lixouri ([kefallonia.gov.gr](http://kefallonia.gov.gr)).

The island was first inhabited around 10,000 BC. Based on Greek mythology, "Kefalos" (Fig. 2.1.3), a refugee from Athens, came to Cephalonia and conquered the western peninsula of the island (the southwest quadrant of present day Paliki) and, over a period of time, the entire island. King Kefalos had

*I am Odysseus, Laertes' son, world-famed  
For stratagems: my name has reached the heavens.  
Bright Ithaca is my home: it has a mountain,  
Leaf-quivering Neriton, far visible.  
Around are many islands, close to each other,  
Doulighion and Same and wooded Zacynthos.  
Ithaca itself lies low, furthest to sea  
Towards dusk; the rest, apart, face dawn and sun.*  
*Odyssey 9.19-26*

four sons; Pali, Sami, Krani and Proni. He awarded his sons portions of the island, all of which gradually became autonomous democracies with their names still on towns of present-day Cephalonia. Kefallinia, as it was called by Herodotus, has also been suggested as the Homeric Ithaca, home of Odysseus, as opposed to the smaller island named Ithaca today. Indeed, in the Iliad Homer mentioned the Cephallenians as the people who lived there and the hypothesis of both islands being connected as one state under Cephalonia is being explored. According to another hypothesis, the island of Cephalonia was two different islands, with the Paliki Peninsula being ancient Ithaca and the remaining of Cephalonia being ancient Same. According to this hypothesis, the thin strip of sea separating the two islands is the channel that geographer Strabo (64/63 BC – c. AD 2) described when he visited the area (Fig. 2.1.3), that has been filled since with sediments, catastrophic rockfalls, co-seismic uplift events and relative sea-level change (Underhill, J. 2009).



**Figure 2.1.3.** Image of King Kefalos from the Greek mythology ([keffyroots.com](http://keffyroots.com), left). Map of the hypothesis that present-day Cephalonia was two islands and that the Paliki Peninsula was ancient Ithaca ([odysseus-unbound.org](http://odysseus-unbound.org)). Names shown are hypothesized ancient names used by Homer (right).





**Figure 2.1.4.** Old Argostoli port sketch from book of travels by Andre Grasset de Saint-Sauveur (1800).

Being at the cross roads of the Western and the Eastern worlds (Fig. 2.1.2), Cephalonia has experienced occupations by a number of different rulers. The island still exhibits traces of all the cultures that have been present on the island throughout its history that is expressed in the rich literature and music local history. From 1082 until 1479 AD (13 years before Columbus discovered America), the Normans dominated Cephalonia, followed by Turkish occupation in 1479 AD. In 1500 AD, twenty one years later, the Venetians captured St. George's castle, 7 km from Argostoli (Fig. 2.1.5), and ruled for the next 300 years. During this period, the cities of Argostoli and Lixouri began to grow. In 1757 AD, the Venetian Governor's House was moved from St. George's castle to Argostoli, thus elevating it to capital of Cephalonia.



**Figure 2.1.5.** St. George's castle from 12<sup>th</sup> century A.C., standing today near Argostoli (web photo).

In 1797 Napoleon abolished the Venetian State and the French, Russians, Turks and English ruled the Ionian islands over the next 18 years. In 1850 AD the first Greek Parliament, named the Ionian Parliament, was formed based on free elections. For the next 14 years the Cephalonians struggled to unite with unoccupied Greece (parts of which were still under Turkish occupation), which they achieved in 1864 AD. During World War II, the island was occupied by both Italians and Germans and immediately after, a Civil War broke out in Greece. Just a few years later, the earthquakes of 1953 AD hit the island, took hundreds of lives, and destroyed most of the homes.

The Ionian Islands, as described in Chapters 5 to 7 of this report, are located in one of the most tectonically active places in the world. Ten km west of Cephalonia the seabed drops from a depth of 300 m to 3 km. Consistently, every few decades there is a major earthquake in the area and big parts of the shoreline have been reclaimed using debris from the earthquakes. During the 2014 seismic events, liquefaction phenomena were mainly triggered in waterfront areas of Argostoli and Lixouri that reclaimed the sea following the destructive 1953 earthquake sequence and essentially destroyed most of the island's buildings. The urban area of Argostoli before the 1953 destruction was virtually reconstructed by Pavlidis et al. (2010), shown on Fig. 2.1.6 with the antithesis after the destruction in Fig. 2.1.7 (with social welfare stamps as insert). More details on historic earthquakes are provided in Chapter 5.





**Figure 2.1.6.** Argostoli before the 1953 earthquakes (from virtual walkthrough, Pavlidis et al., 2010).



**Figure 2.1.7** Argostoli after the 1953 earthquakes ([53vorini-gr](http://53vorini.gr)). Social welfare stamps issued by Greece after the 1953 earthquakes are shown on the bottom right insert ([catawiki.com](http://catawiki.com)).

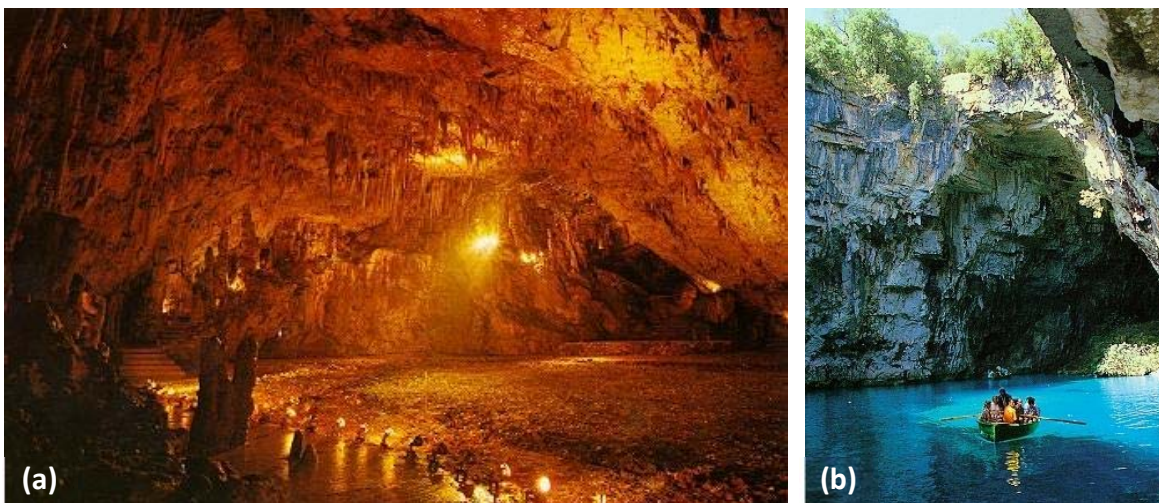


In recent years, construction and tourism are on the rise, and Cephalonia is one of the most visited islands in Greece that includes an international airport. The famous bays of Myrtos (Fig. 2.1.8), Athera (north), Lourdata (south) attract many visitors that enjoy the unique combination of roman, venetian and byzantine ruins, side by side with beautiful beaches.



**Figure 2.1.8.** Myrtos bay beach.

The island's interesting morphology is known for its lakes and caves. Fig. 2.1.9a shows the Drogarati cave, a large stalagmitic cavern of rare beauty and Fig. 2.1.9b shows the nearby semi-underground lake of Melissani, with the characteristic deep blue waters. Local traditions include wine production and culinary specialties. The island has rich biodiversity with few sites listed in the EU Natura 2000 network. Sightseeing includes museums (Archaeological, Naval and Environmental, Natural History, Ecclesiastical) and many notable churches dating back to the renaissance that have survived numerous earthquakes as described in Chapters 5 and 11.



**Figure 2.1.9.** (a) Stalagmitic cavern of Drogarati; (b) Melissani lake ([students.ceid.upatras.gr](http://students.ceid.upatras.gr)).

## 2.2 Focus Reconnaissance Locations

The epicenters of the 2014 earthquakes were located off the southwest coast of the island for the 1<sup>st</sup> event and around the town of Lixouri for the 2<sup>nd</sup> event. The earthquake damage was mainly concentrated within the Paliki peninsula area, and more specifically in the vicinity of two of the four main ports of the island, Argostoli and Lixouri. All of our reconnaissance teams focused their work in that area. Few of the teams extended their visits to towns and ports in the eastern region to cover the whole island, only to verify that in this area, damage from the earthquake was negligible. The reconnaissance focus towns and their coordinates are listed in Table 2.2.1 and mapped on Fig. 2.2.1, where the first map shows the area of significant damage concentration, and the second the area of no major damage.

**Table 2.2.1.** Cephalonia focus towns of the GEER/EERI/ATC reconnaissance and their coordinates.

Visited Town	Coordinates	
Atheras	38.31794	20.416595
Zola	38.310538	20.469251
Makriotika/ Aghios Gerasimos	38.309041	20.556465
Agkonas	38.301944	20.49036
Kardakata	38.280027	20.469138
Livadi	38.256958	20.422909
Sami	38.251415	20.647169
Aghia Thekli	38.244734	20.385005
Kourouklata	38.243057	20.475852
Vlichata	38.242204	20.393102
Skineas	38.242204	20.393102
Aghios Dimitrios	38.230482	20.429838
Grizata	38.220997	20.645586
Lixouri	38.202221	20.436967
Soullari	38.184739	20.416078
Drapano	38.181888	20.498616
Lepeda	38.178671	20.438256
Vouni	38.178065	20.40316
Kontogennada	38.175368	20.569218
Havdata	38.175368	20.569218
Havriata	38.175368	20.569218
Argostoli	38.173168	20.489973
Aghios Nikolaos	38.167527	20.71506
Poros	38.153965	20.771284





**Figure 2.2.1.** Cephalonia locations visited by the GEER/EERI/ATC reconnaissance teams. Top map shows the main focus towns around the Paliki peninsula at the western part of the island where most of the damage was observed. Bottom map shows remaining towns at the eastern part, where minor or no damage was identified.

