The Hellenic subduction and related volcanism (Angelier 1979)

about 5 million years ago and volcanic zone. continues until now. The oldest The northwards movement of the (ca. I million years).

The most important active volcanoes of Greece form the so-called

The geologically most recent "South-Aegean volcanic arc", a 500 volcanic activity in Greece started km long and 20-40 km wide

volcanic events of this period African lithospheric plate and its occurred in Sousaki, Aegina and subduction under the Aegean Poros, where as the most recent subplate cause the melting of the volcanic centres are located in former, the production of large Methana, Santorini and Nisyros quantities of magma and the formation of a volcanic zone on the latter, parallel to the subduction zone.



The most recent volcanoes of Greece

Let's learn the most important Greek volcanoes!

I. Sousaki: today dormant, but with strong hydrothermal activity, the Sousaki volcano is an area with 2-4 former eruption centres, mostly active around 2 million years ago. The Loutraki thermal springs are probably connected to the presence of the "Sousaki magma chamber".

2. Aegina: the largest part of the island consists of volcanic rocks, the oldest volcanic rocks in the south Aegean volcanic arc with ages ranging from 3.87 to 4.4 million years. The volcano has shown no eruptive activity in the historic years and is thought to be dormant.

3. Methana: on the small peninsula of Methana, traces of more than 30 volcanoes can be found. Their activity started around 1.5 million years ago. An eruption around 230 BC was described by famous authors of antiquity, including Pausanias and Ovid. The most recent eruption in the region occurred 300 years ago, in the sea 1.5 km north of the peninsula. The volcanic activity results in strong hydrothermal activity, which is utilised in the famous spa town Methana.

4. Milos: the most recent large-scale eruption occurred 90,000 years ago. Today, steam and volcanic gases are released in fumaroles and hot springs abound on the island. Sudden release of geothermal fluids (e.g. in case of an earthquake) cause hydrothermal explosions, during which heated fluid, mud and rocks eject vertically, creating small craters, a typical characteristic of Milos' landscape.

5. Christiana: a small volcanic island south-west of Santorini.

6. Santorini: the most famous volcano in Greece that started its most active period around 400 thousand years ago. Since then, the volcanic reconstructiondestruction cycle has been repeated 12 times, approximately every 20,000 years.

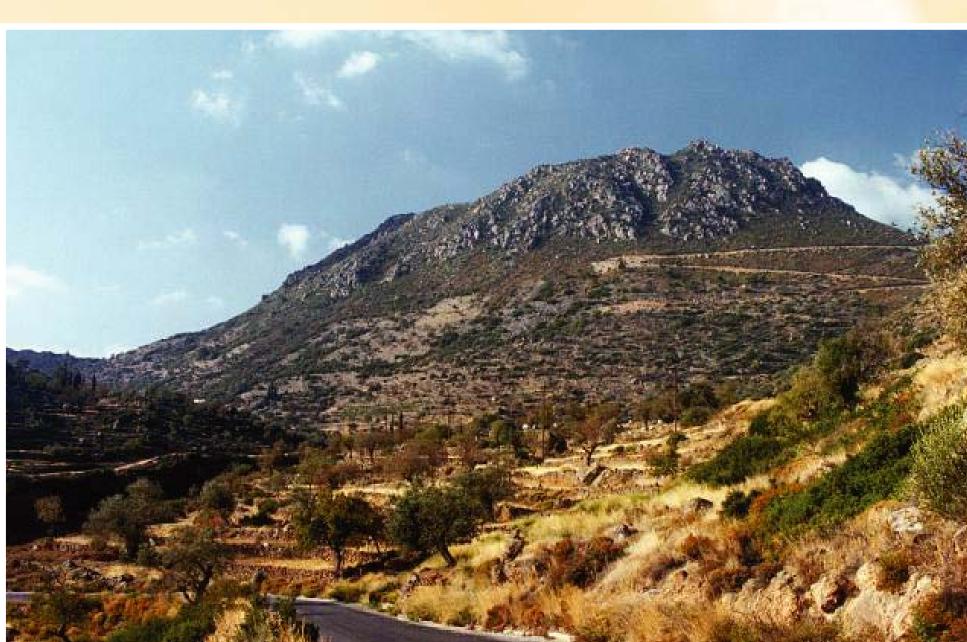
The most recent eruptive phases occurred in 1939-1941 and 1950 and gave the current form to the small islet Nea Kameni in the middle of the caldera that was formed during the famous Minoan eruption (1613 BC). The mild nature of the recent activity did not create serious problems for the residents of the island.

7. Columbo: it is a submarine volcano, 7 km northeast of Santorini. It was located after a huge eruption on September 27, 1650 AD, the largest eruption of the previous millennium for the Eastern Mediterranean, which caused 70 casualties in Santorini. Today, its crater stands, 18 m below sea level, and is associated with strong hydrothermal activity.

8. Kos: its activity started about 3.4 million years ago, when a large part of south Kos was formed, and was paused 161,000 years ago, with a huge eruption that released hundreds billions tones of volcanic ash.

9. Yali: a small volcano built recently, after the pause of the Kos volcano. No historical eruptions are known, but the most recent pumice eruptions overlie soils containing pottery and Neolithic obsidian artefacts.

10. Nisyros: famous mainly for its hydrothermal activity which create large sulphur crystals and cause strong odour of hydrogen sulphide. Its most recent large volcanic eruption, 40-35 thousands years ago, created an impressive huge caldera in the middle of the island, whereas hydrothermal explosions that release hot fluids during the past 5 thousands years have resulted in the formation of 5 small craters within the caldera. The most recent volcanic eruption occurred in 1888 and the most recent hydrothermal explosions happened in 1871-73 and 1887, creating the craters Alexander and Micros Polyvotis.



A lava dome on the eastern side of the Methana Peninsula.

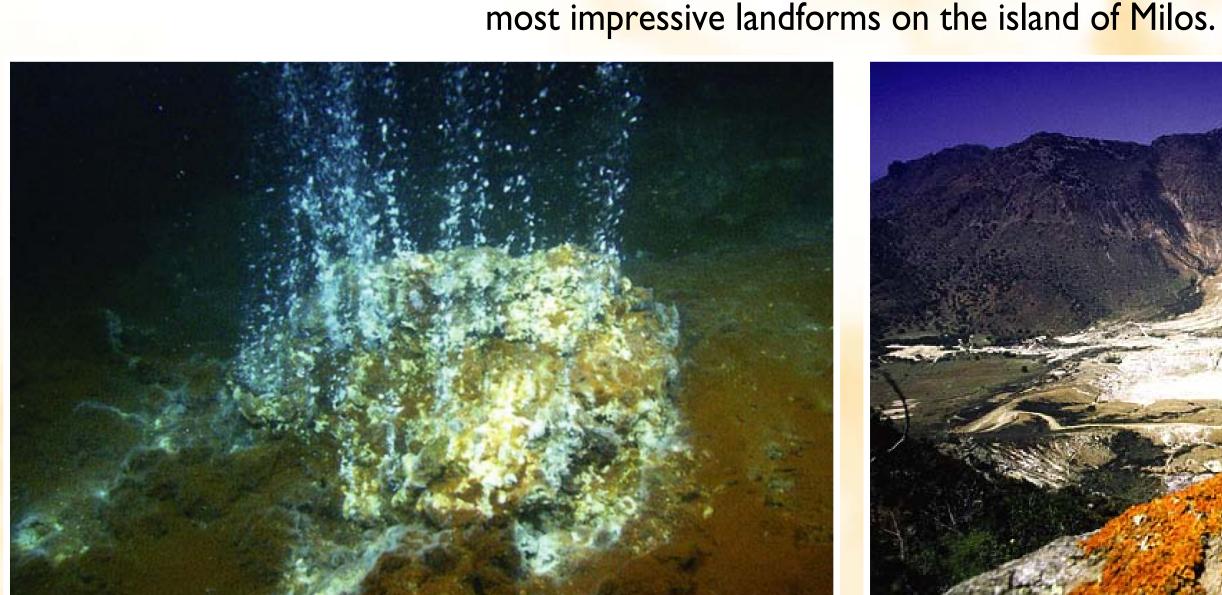


Thick successions of volcanic ash forms some of the



Overview of Santorini.

Hydrothermal vents at Columbo volcano release large quantities of hot fluids rich in dissolved minerals that crystallize when they contact the sea water.





The large Nisyros caldera contains smaller hydrothermal craters.

Evolution of the Greek volcanism

A & B. 40 million years ago - Volcanic centres in North-east Greece

Around 20 million years ago - Volcanic centres in the North Aegean Around 15 million years ago - Volcanic centres in the Central Aegean

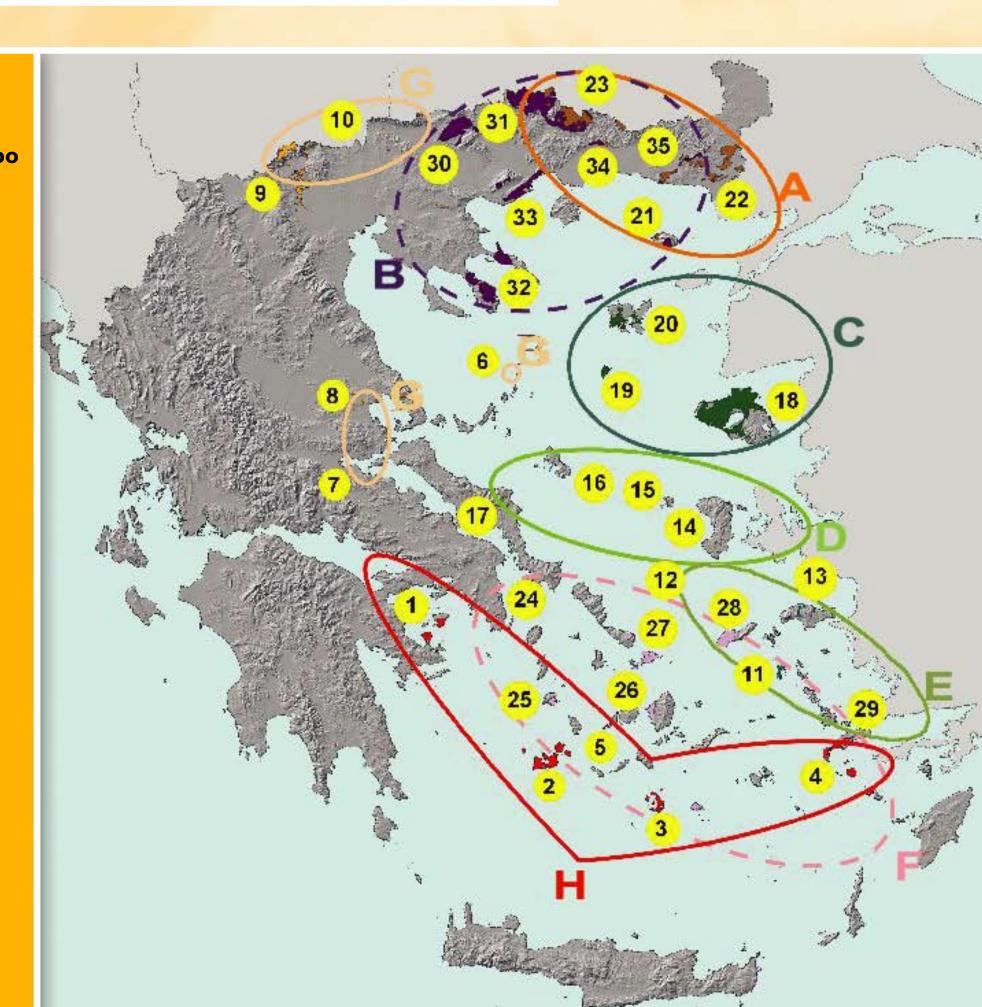
Around 10 million years ago - Volcanic centres in the Eastern Aegean

Around 5 million years ago - Scattered volcanic centres The last 2 million years - South Aegean Volcanic Arc

Volcanic complexes I. Sousaki, Aegina, Methana 2. Milos, Kimolos, Antimilos 3. Christiana, Santorini, Columbo 4. Kos, Nisyros, Yali 5. Antiparos 6. Psathoura 7. Lichades 8. Achillio, Microthives 9. Almoria 10. Strymoniko, Aggistro II. Patmos 12. Kalogeroi 13. Samos 14. Chios 15. Psara 16. Skyros 17. Oksylithos 18. Lesvos 19. Agios Efstratios 20. Lemnos 21. Samothraki 22. Feres, Dadia 23. Zarkadenia, Kalotycho **Plutonic complexes** 24. Lavrio 25. Serifos 26. Naxos 27. Delos, Mykonos, Tinos 28. Ikaria 29. Kos 30. Vrontou 31. Paranesti 32. Sithonia 33. Kavala

34. Xanthi

35. Maronia



The mapping of magmatic rocks in Greece shows a southward migration of the volcanic activity during the past 40 million years.

