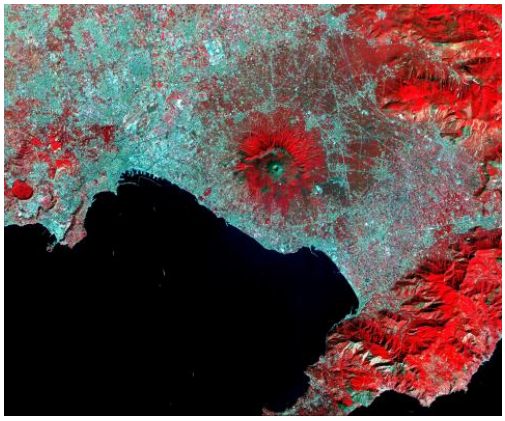
Vesuvius - On a Fault Line



Mt. Vesuvius, an Italian landmark and one of the most famous volcanoes in the world, exists because it is located on a fault line running across Italy.

Here, the crack in the Earth's crust occurs because of plate tectonics - where the African Plate is lying beneath the Eurasian Plate.

Because of subduction, between the plates, the Apennine Mountains are being uplifted and the Mediterranean Sea is shrinking. That process can also produce earthquakes.

This image of Italy, and Mt. Vesuvius, was produced by ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer), a NASA imaging instrument which flies on *Terra* (a satellite launched in December of 1999, as part of NASA's Earth Observing System).

According to NASA's ASTER web site:

> *ASTER is being used to obtain detailed maps of land surface temperature, reflectance and elevation. The three EOS platforms are part of NASA's Science Mission Directorate and the Earth-Sun System, whose goal is to observe, understand, and model the Earth system to discover how it is changing, to better predict change, and to understand the consequences for life on Earth.*

What are some important facts about Mt. Vesuvius?

- The only active volcano in mainland Europe, Vesuvius is one of the most-dangerous volcanoes in the world.

- It is a complex stratovolcano (meaning it has a gentle, lower slope and a peak through which explosive eruptions spew pyroclastic flows consisting of fluidized rock and gases moving at very high rates of speed).

- In the past, before massive eruptions, Vesuvius gave warnings (although the warnings were not always understood). In 63 AD, for example, the area around Vesuvius experienced a terrible earthquake sixteen years before the disastrous 79 AD eruption which destroyed Pompeii and Herculaneum.

- The catastrophic eruption in 79 AD lasted longer than 24 hours. Scholars today estimate that about six inches of ash fell about every hour before the massive pyrochlastic surges and flows began around midnight (on August 25).

- Pliny the Younger wrote about what he saw, as he witnessed the volcanic eruptions in 79 AD, in letters to his friend Tacitus (the historian). The only eyewitness accounts which are known to still exist, Pliny’s letters were rediscovered in the 16th century.

- At the time of the 79 AD eruption, about 20,000 people lived in Pompeii and around 5,000 lived in Herculaneum. Scholars believe the people who did not flee were buried alive by the falling ash and the molten material which descended on the city and town.

• Scholars believe that Pompeii was likely buried by ash to a depth of 14-to-17 feet. The volcanic ash helped to preserve the city. This also helped to make Pompeii a place that became frozen in time.

• Herculaneum was buried by a different type of debris - mud and volcanic material - at a depth of about 60 feet.

• Although Romans probably had no knowledge about prior eruptions, Vesuvius likely had at least two catastrophic events before the now-famous 79 AD disaster. Excavations lead scientists to conclude that one of those massive eruptions occurred around 1800 BC (when the volcano also destroyed nearby settlements).

• Mt. Vesuvius is still considered an active volcano. That means it could “blow” at any time, with potentially horrific consequences for the millions of people living in the area.

Click on the image for an even closer view.

Credits:

Image described above online, courtesy NASA.

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