# New research reveals the deadly secrets of Mount Vesuvius eruption



Recent research from a team at Roma Tre University in Italy has shed new light on the catastrophic eruption of Mount Vesuvius, which devastated the ancient Roman city of Herculaneum nearly 2,000 years ago. The study revealed that the fierce ash cloud produced during the eruption was hot enough to convert the victims' brains into organic glass.

The researchers unearthed a piece of this dark-coloured organic glass within the skull of a deceased individual whose remains indicate they were lying in bed at the time of their death. The findings suggest that the individual died from an exceptionally hot ash cloud, which reached temperatures of 510°C (950°F), rather than merely being buried by the pyroclastic flows that engulfed the region.

Using advanced techniques such as X-ray and electron microscopy, the research team analysed glass samples extracted from the skull and spinal cord of the individual. They concluded that the preservation of the brain tissue as glass could only occur if it was subjected to rapid heating at a minimum temperature of 510°C, which exceeds the highest recorded temperatures of the pyroclastic flows—estimated at around 465°C (869°F).

In their published report in the journal *Scientific Reports*, the authors stated: "Although human brain preservation is documented in the archaeological record, it is a relatively infrequent phenomenon." They described the unique circumstances of the eruption, noting that the initial hot ash cloud left only a shallow layer of ash on the ground. Consequently, the bodies were effectively 'left virtually in open air', which allowed for the unusual preservation of the vitrified brains.

The findings highlight how the scorching ash cloud likely represented the first lethal event during the eruption, creating conditions that allowed for this extraordinary form of preservation. The team emphasized that this is the first documentation of such a process for human or animal tissue, a significant advancement in understanding preservation mechanisms in archaeological contexts.

The site of Herculaneum has provided archaeologists with a wealth of information, with over 2,000 bodies discovered thus far. These remains often show individuals in distressing positions; many are found curled in foetal shapes or seemingly in efforts to escape the eruption. The exceptional state of preservation at sites like Herculaneum allows for detailed study of the final moments of those affected by the eruption.

Just last month, a significant archaeological discovery at Pompeii revealed a luxurious private bathhouse, believed to be the largest within a private residence in the city. The site featured a plunge pool, multiple thermal rooms, intricate frescoes, and a marble mosaic floor, illustrating the wealth and lifestyle of its inhabitants before the disaster struck. Two individuals were also found at this site, having sought refuge in a small room before succumbing to the eruption—one crushed by a collapsed wall and the other asphyxiated by an influx of volcanic gases.

The interpretation of these events continues to evolve as ongoing archaeological efforts unearth further details of life and death during this pivotal moment in history, illustrating the profound impact of Mount Vesuvius on the region and its inhabitants.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.independent.co.uk/news/science/archaeology/pompeii-volcano-vesuvius-hot-brain-glass-b2705637.html> - This article supports the claim that the eruption of Mount Vesuvius turned a victim's brain into glass due to extremely high temperatures, and it explains how the skull protected the brain from complete thermal breakdown.
* <https://www.sciencealert.com/vesuvius-eruption-turned-a-victims-brain-to-glass-heres-how> - This article corroborates the formation of organic glass from brain tissue during the Vesuvius eruption, highlighting the need for rapid heating and cooling to achieve vitrification.
* <https://www.sciencenews.org/article/mount-vesuvius-ancient-brain-glass> - This article explains how the brain was transformed into glass due to an exceptionally hot ash cloud reaching temperatures of 510°C, which is higher than the temperatures of pyroclastic flows.
* <https://www.noahwire.com> - This source provides an overview of recent archaeological discoveries related to the eruption of Mount Vesuvius, including the preservation of human remains and the impact on ancient cities.
* <https://www.roma3.it/en/> - This is the official website of Roma Tre University, where the research team led by Guido Giordano is based. It indirectly supports the credibility of the research findings.