



the story of the Vaiont landslide

told through the photographs of Edoardo Semenza

The geologist **Edoardo Semenza** (1927-2002) discovered an ancient landslide mass on the southern slope of the Vaiont Valley, just upstream of the dam that was under construction in the late 1950s.

The geologic and geomorphic evidence that led Dr. Semenza to recognize this ancient landslide in 1959 – before the first reservoir filling – and to state that it was potentially hazardous is illustrated in a selection of his photographs taken during the period 1959-1961.

The photographs help us understand the geological complexity of the area and the peculiar aspects of the valley. These complexities contributed a lack of understanding of what previous and contemporaneous researchers were seeing. Above all, they hindered the recognition of the potential danger of the slope.

The discovery of the ancient landslide was the result of a detailed field survey and Semenza's geological instinct. His work, undertaken with passion and care, was only later recognised internationally for providing the foundation of our present understanding of the October 9, 1963 catastrophe.

Edoardo Semenza firmly believed in the fundamental role of geology in the realization of civil engineering projects and in the importance of good communication among different specialists working on large projects.

Geologists strive to understand natural processes and the mechanisms that drive them. Edoardo's photographs provide the viewer a portal into his personal and professional life.

The Vaiont landslide is still subject of scientific research and debate, in part due to the extraordinary amount of geological and slope monitoring data collected during the three years preceding the tragedy.

Translated and modified from
La Storia del Vaiont
La conoscenza della frana
attraverso le foto di Edoardo Semenza, 2013

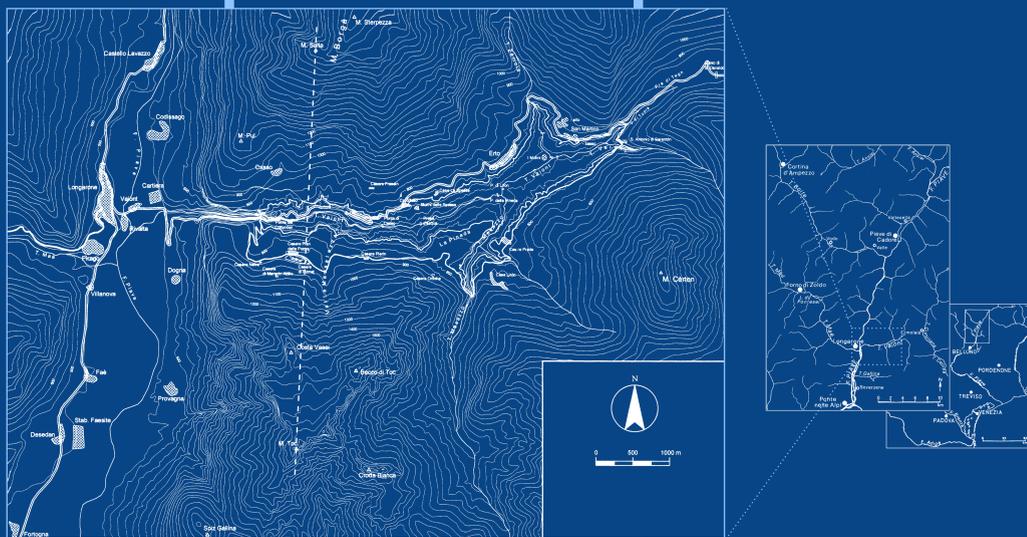
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The Aim of the Exhibition

The Vaiont disaster, which is emblematic of human-caused geological catastrophes, is traced through the exceptional images captured by Edoardo Semenza. His photos speak of his intuition and developing awareness of the ancient landslide perched above the Vaiont Valley floor. The pictures also reveal his “*Mente et Malleo*” approach that enabled him to formulate and communicate a geological model of the valley and to hypothesize scenarios and consequences of a possible remobilization of the ancient landslide.

His findings were immediately taken into consideration by the project managers, at least as a hypothesis requiring testing through further research and investigation. However, Semenza's expert research and advice, which continued up to 1961, were unable to prevent the tragedy.

Part of the material in this exhibition, together with text and captions, is adapted from the CD *Le foto della frana del Vajont* and from the book *The Story of Vaiont*. However, to make text more accessible to the public, references to page numbers and quotation marks are retained only where necessary.



A* - North-south geological section from Monte Salta to Monte Toc, before October 9, 1963

From Semenza and Ghirelli, 2000, figure 10, modified



- | | |
|--|--|
| <p>a b 1 a Quaternary
b Stratified alluvial gravels</p> <p>2 Scaglia Rossa Formation
(Upper Cretaceous - Lower Paleocene)</p> <p>3 b Socchèr Limestone Formation
c Ammonitico Rosso and Fonzaso formations
(Cretaceous - Jurassic)</p> <p>4 Vaiont Limestone
(Middle Jurassic)</p> | <p>5 Igne Formation
(Upper Liassic)</p> <p>6 Sovèzene Formation
(Lower and Middle Liassic)</p> <p>7 Dolomia Principale
(Upper Triassic)</p> <p>8 Faults and Overthrusts</p> <p>9 Failure surface of the 1963 landslide</p> <p>10 Flow directions in aquifers</p> |
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The shape of the north slope of Monte Toc reflects a “chair-like” rock structure, with the bedding planes dipping gently at the foot of the slope and steeply uphill. The section is plotted on the map above.

We hope, through this exhibition, that Semenza's work will help visitors understand the need for geological expertise in protecting people and the environment.

Finally, this exhibition is an invitation to geologists to continue the work of Edoardo Semenza, and many others after him, on this fascinating landslide.

Photo at top

1* - The east slope of the Piave Valley, from Longarone; to the right, Monte Toc
Photo Edoardo Semenza, July 1959
from *Le foto della frana del Vajont - GS_1*

Note the dips of the sedimentary layers on the two sides of the gorge and up to the summit of Monte Toc, and compare them to what Semenza showed in the geological section 3 km farther east.

(*) Photographs are listed by numbers 1-34, other figures by letters A-E