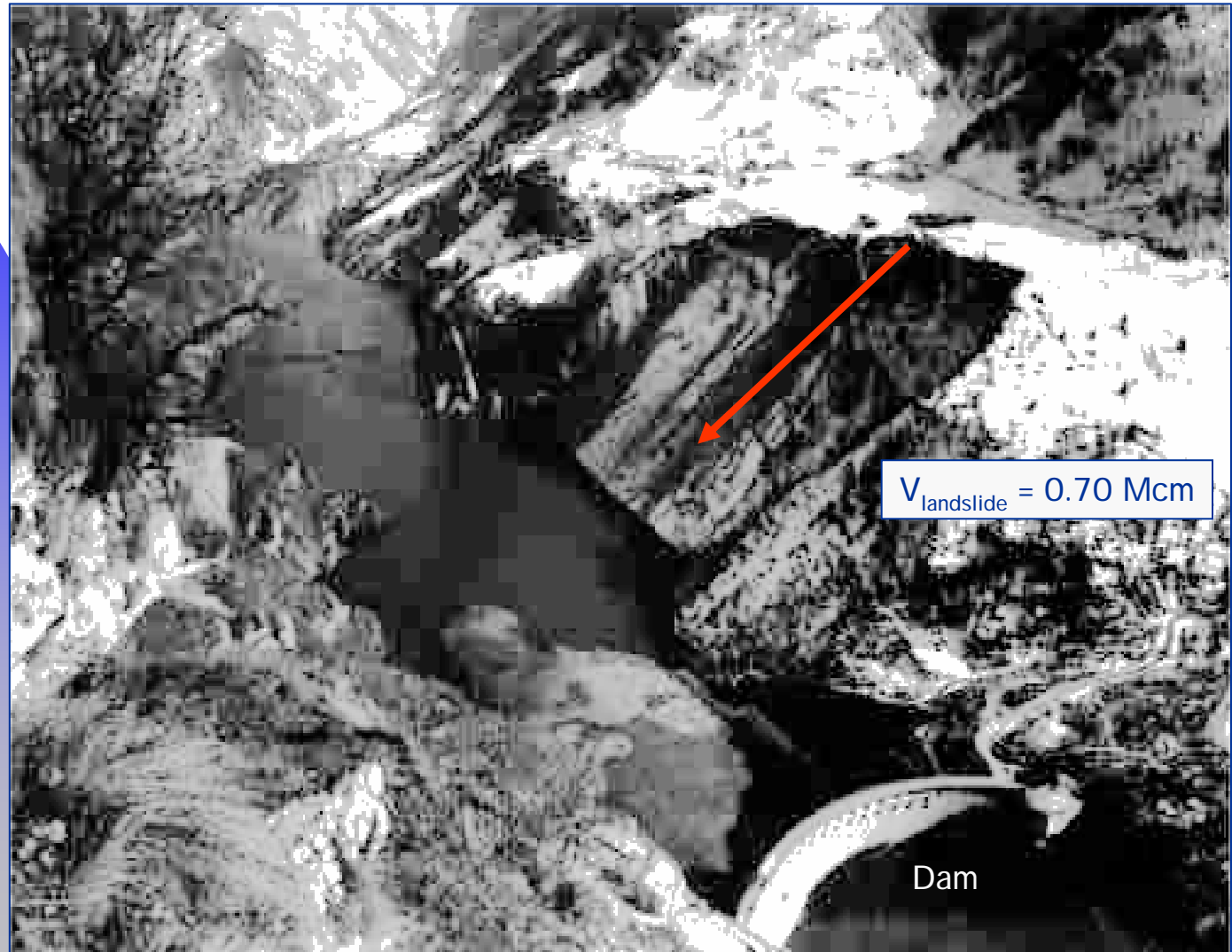
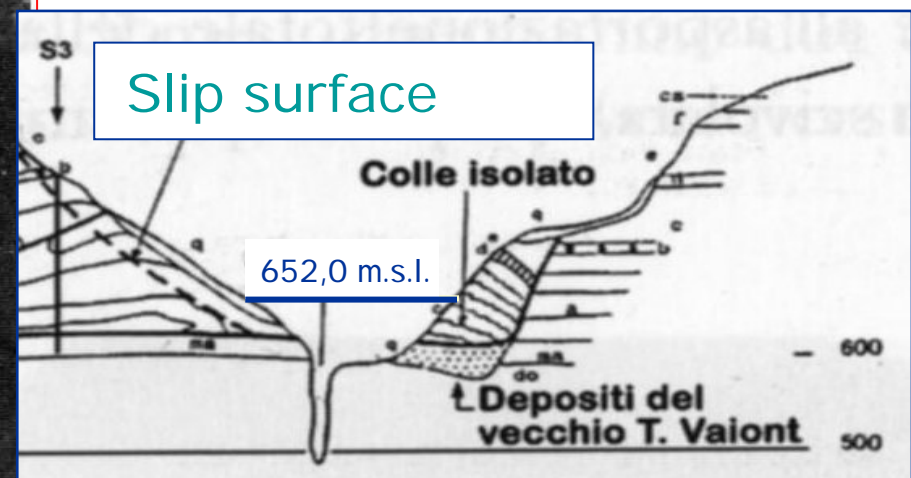
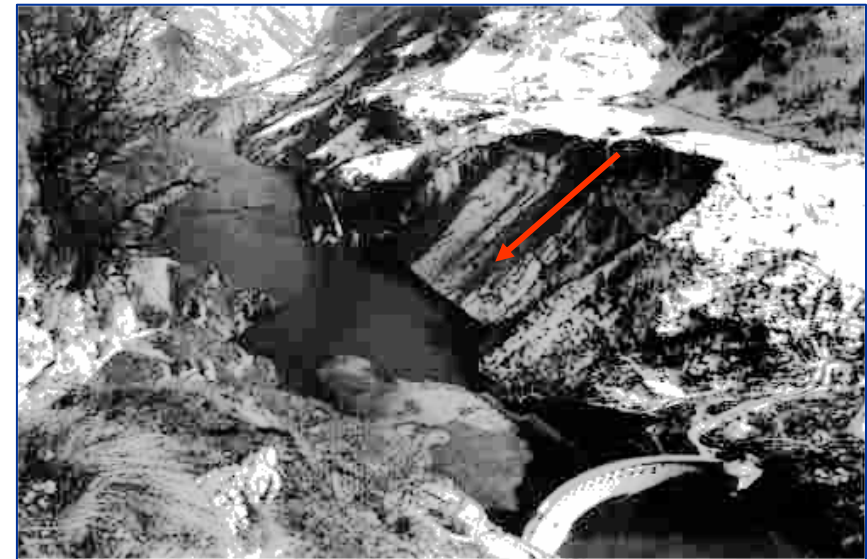


Vajont reservoir November 4th, 1960 event

The first event occurred at the Vajont reservoir while the artificial basin was filling up for the very first time. On November 4th, 1960 a debris and rock landslide, with a volume equal to 0.70 million m³, fell into the water causing an impulse water wave which was 2.0 m high on the dam. At that moment, the reservoir surface was at 652.00 m over the s.l., the basin had a mean water depth equal to 160 m, and contained 40 million m³ of water. About the 1960 event no observation of wave run-up are reported.



Vajont reservoir *November 4th, 1960 event*



When this picture taken the water level was equal to 600,0 m.s.l.

Parameters introduced in the experimental formulation

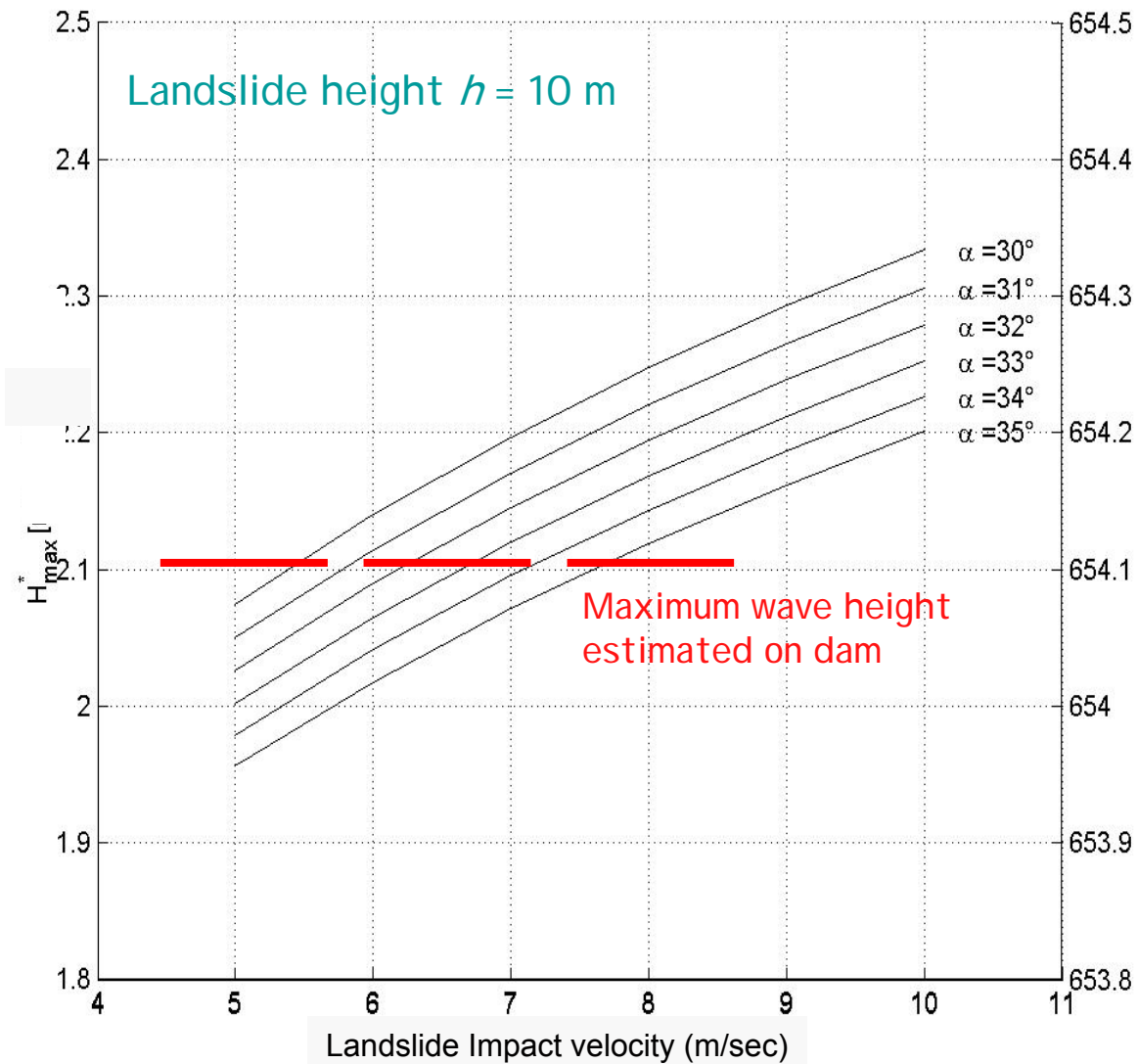
Landslide width (w)	[m]	250.00
Landslide height (h)	[m]	7.0-10.0
Impact velocity (v)	[m/sec]	5-10
Local water depth (d)	[m]	160.00
Angle from velocity vector (θ)	[°]	90.00
Landslide surface inclination (α)	[°]	30-35
Distance from impact point (r)	[m]	480.00

h/d	w/d	v/\sqrt{gd}	α	θ	r/d
0.11 ÷ 0.45 0.04 – 0.06	0.75 ÷ 3.00 1.56	0.99 ÷ 2.22 0.13 ÷ 0.25	16° ÷ 26° 30° ÷ 35°	0° ÷ 90° 90°	1.31 ÷ 15.12 3.00

Slide non dimensional parameters

Vajont reservoir
November 4th, 1960 event

Application of forecasting formulation



Vajont reservoir

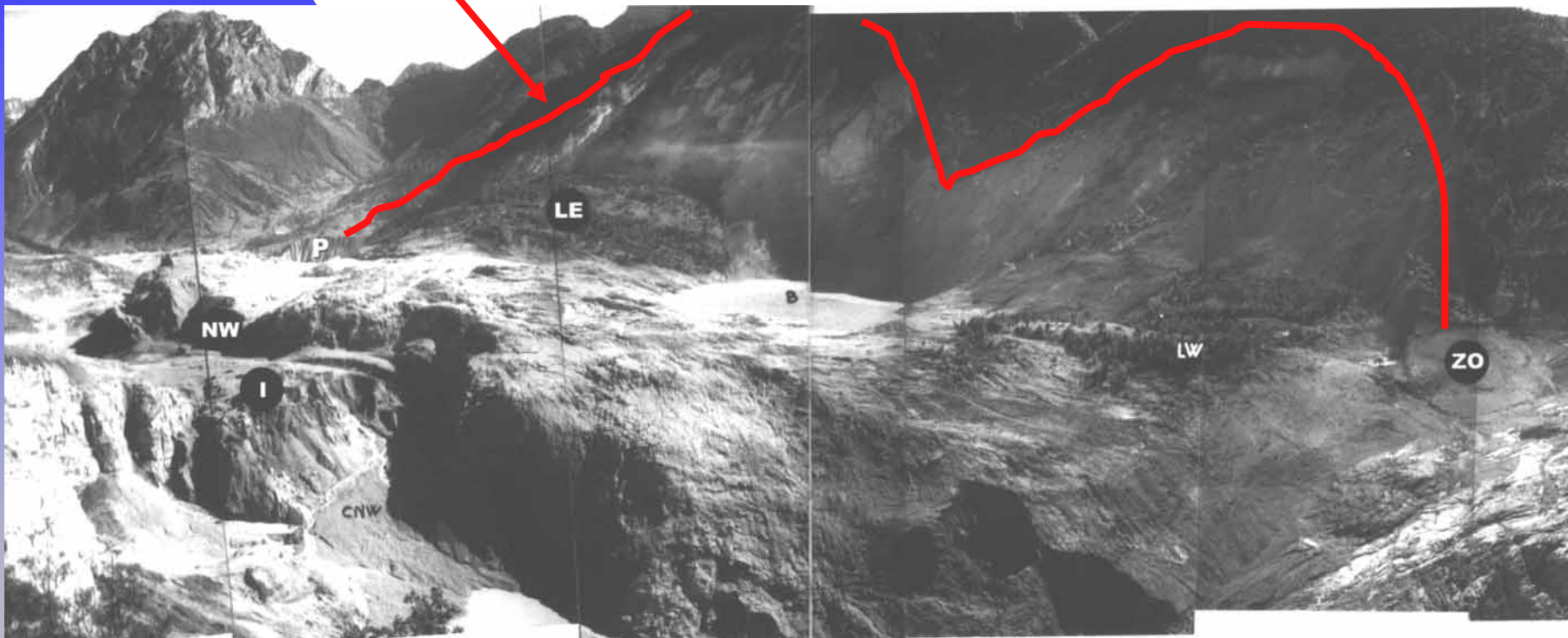
October 9th, 1963 event

The event occurred the 9th October, 1963 is one of the most catastrophic ever documented phenomenon of sub aerial landslide generated waves.

A 270 million m³ landslide detached from the Toc Mountain and fell into the Vajont artificial reservoir, which had been filled up during the previous years. The 9th October, 1963 the basin surface was at 700,42 m over the s.l. , corresponding to a mean water depth equal to 200.0 m, and contained about 120 millions m³ of water. The landslide generated a high impulse wave which run upped the opposite slope, reaching the height of 235 m above the basin water surface, right close to the city of Casso, propagated upstream the Vajon valley, and downstream, overtopping the dam and then destroying the city of Longarone, killing 2000 people.

Vajont reservoir
October 9th, 1963 event

M-shape mechanism of the landslide



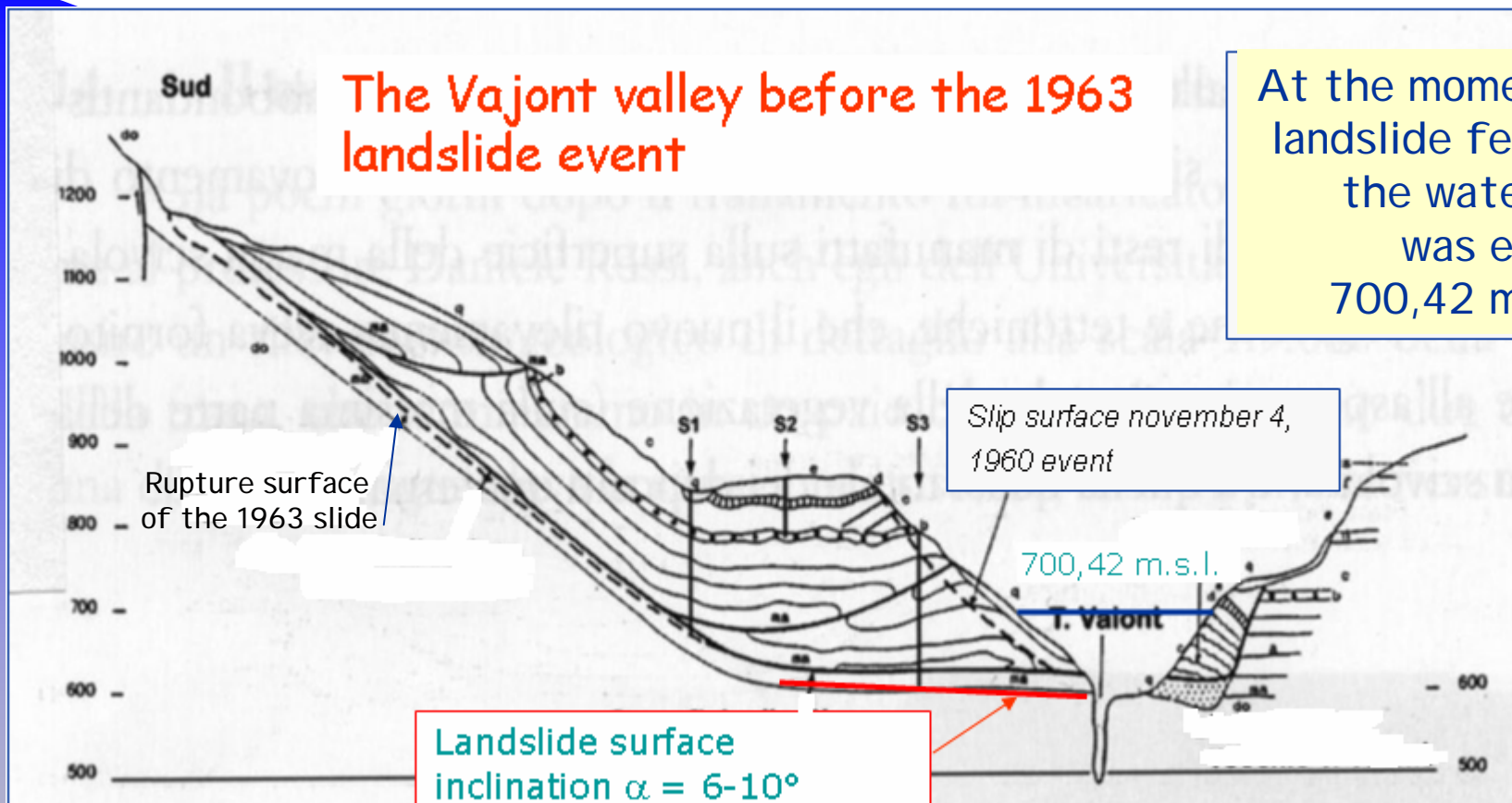
E. Semenza, October 10, 1963

Vajont reservoir

October 9th, 1963 event

The Vajont valley before the 1963 landslide event

At the moment the landslide fell down the water level was equal to 700,42 m on s.l.



Bearing in mind the aim of applying the experimental formulations to characterize the generated impulse waves, it is to be stressed that the considered event presented values of physical parameters well outside the experimental ranges. However, we believe that the application of the forecasting formulation can still provide useful and reliable information about the generated impulse wave.

Parameters introduced in the experimental formulation

Landslide width (w)	[m]	2000.0
Landslide height (h)	[m]	140.0
Impact velocity (v)	[m/sec]	20-25
Local water depth (d)	[m]	200.0
Angle from velocity vector (θ)	[°]	0.00
Landslide surface inclination (α)	[°]	6-10
Distance from impact point (r)	[m]	280.0
Runup slope inclination (γ)	[°]	25

h/d	w/d	v/\sqrt{gd}	α	θ	r/d
0.11÷0.45 0.70	0.75÷3.00 10.0	0.99 ÷ 2.22 0.45 ÷ 0.56	16° ÷ 26° 6° ÷ 10°	0° ÷ 90° 0°	1.31÷15.12 1.41

Slide non dimensional parameters

Vajont reservoir October 9th, 1963 event

Application of forecasting formulation

