

VAL VIOLA ROCK AVALANCHE

Observation point: from the path, about 2200 m a.s.l.

From the path, high Val Viola valley is hidden from direct view by an imposing rampart made of a chaotic pile of gigantic squared boulders, only partially covered by sparse grass and young conifers.

Behind it, the almost vertical cliffs of Dosdè Horn stand out against the sky, and, at their foot, the crystal-clear surface of the Val Viola Lake shines in the green. The quietness of the waters and the blooming grasslands contrast with the sharpness of the gneis rock of the peaks around and with the disorder of the rocky mound which seems to enclose the lake.

Val Viola Lake actually owes its origin directly from that boulders ridge, arose during a catastrophic event: it is indeed the remnant of a great rock avalanche, pretty rare type of landslide, which consists in an initial intact rock mass, eventually broken by a destabilized slope. Rock avalanches are very fast-moving landslides, with a speed up to 100 m/s, and they can flow very far, over a flat or low angle terrain.

Val Viola rock avalanche is scattered over a surface of around 1km², with a tongue shaped body and sharply defined lateral margins; its thickness remains unknown, however its estimated volume is of at least 3400 m³. It fell down from Dosdè Horn about 7500 years ago, in the Early Olocene, a period of warmer climate after the complete deglaciation of the local valley; perhaps the increasing temperatures caused the degradation of permafrost, that is to say, the perennially frozen ground or rock present at high altitudes. Permafrost is characterized by interstitial ice, which strengthens the rock mass, cementing its fractures; therefore, a previous climate warming might have melt it, reducing the stability of Dosdè Horn rock walls, and triggering the catastrophic landslide which dammed the high Val Viola valley.