

# Preliminary field data of selected deep-rooted vegetation effects on the slope-vegetation-atmosphere interaction: results from an in-situ test

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## *Summary*

The soil-vegetation-atmosphere interaction is becoming a subject of intense scientific research, prompted by the wish of verifying the efficacy of selected vegetation as a sustainable mitigation measure for erosive phenomena and slope instability processes. The use of novel naturalistic interventions making use of vegetation has been already proven to be successful in the reduction of erosion along slopes, or in increasing the stability of the shallow covers of slopes; on the other side, the efficacy of vegetation as slope mitigation measure still needs to be demonstrated for slopes location of deep landslides, whose current activity is weather-induced. Recently, though, peculiar perennial grass species, which develop deep root systems, have been found to potentially determine a strong transpirative flow, reducing though, the net water infiltration rates at the ground surface.

In this contribution, preliminary field monitoring data representing the interaction of clayey soils with the abovementioned vegetation species are reported. The field data have been logged within a full scale in-situ test site (approx. 2000 m<sup>2</sup>), set up in the toe area of the weather-induced Pisciolò landslide, where the deep-rooted crop species have been seeded and farmed.

The impact of the vegetation on the soil state is examined in terms of the spatial and temporal variation of the soil water content and suction from ground level down to depth, both within the vegetated test site and outside it, where only sparse wild vegetation occurs, in order to assess the effects of the seeding of the selected vegetation. The soil water content and suction data are discussed also considering the climate data recorded by a meteorological station.

Keywords: deep-rooted vegetation, soil-vegetation-atmosphere interaction, slope stability; suction.