



An active example of DGSD in the Carnic Alps (North Eastern part of Italy)

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An active Deep-seated Gravitational Slope Deformation (DGSD) has been recently identified in the Carnic Alps above the Cercevesa torrent in the northern part of the Friuli Venezia Giulia Region (Italy). The phenomenon interests an area of about 1 km² and involves Devonian verticalized limestones and mudstones over standing Hockwipfel Formation. The most evident morphological feature of the Cercevesa DGSD is a double-crested ridge on the top of the slope (1650 m). The opening movement between the two crests, with an actual offset of 20 m, most likely started in the '80s and nowadays forms a persistent trench (Figure 1) [1]. The first measurements, recorded since June 2008, when the present research began, indicate a constant opening rate of about 0.8 m/yr, really rare for gravitational phenomena in the Alps.

Due to the high rate of movement, prevention measures have been taken by the regional authority in order to avoid any danger for the population or the trekkers that frequent the area. Some tracks have been closed and the area included in the regional landslide register.

The phenomenon was initially studied by the geologists of the Geological Survey Office of the Friuli Venezia Giulia Region, later, the team increased to include researchers from the Department of Geosciences of the Trieste University and from the Institute of Oceanography (OGS Observatory in Udine).

The present paper wants to highlight the first observations realized in the area and the monitoring program that will be followed in the future. Initially the distances between the points selected for the survey have been obtained with a Leica DI3000 Laser distance meter. Twenty different points were monitored. Recently two new benchmarks have been fixed along the opening crests and a GPS system (Leica 1200) used for the determination of the positions and of the direction of the movement. Two surveys one in July 2009 and one in March 2010 give the possibility to determine with good accuracy, the rate of movement. To better describe the geometry of the DGSD, one more benchmark is going to be set in the future, at the bottom of the slope, in order to determine the bulge. The monitoring with GPS systems will proceed trying to predict the possible collapse of the rocky mass.

Key words: DGSD, monitoring or Friuli Venezia Giulia, Italy, geologic hazard

References

[1] <http://www.dmi.units.it/~poretti/figureegucercevesa>