



5th AIgeo NATIONAL CONFERENCE

Geomorphology for Society
from risk knowledge to landscape heritage

Cagliari, 28-30 September 2015

THE COASTAL STRATIFIED SLOPE DEPOSITS AT PORTOFINO PROMONTORY (LIGURIA, ITALY)

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The Portofino Promontory, in the north-western part of Italy, opens up towards the sea for about 3 km, interrupting the even coast line. It is characterized by peaks rising up to 600 m a.s.l and by a sedimentary bedrock (conglomerate and marly limestones). The lithological characteristics and the morphology of the slopes, which are marked by high slope gradient and steep narrow rocky valley, represent a favorable condition for landslides with different movements types. Several outcrops of stratified slope deposits, often truncated and deeply dissected by linear erosion, have been observed along the coast. The investigation took the structural, textural and micromorphological aspects of these deposits into account, together with their spatial distribution and geomorphological setting, with the intent of understanding the genesis. They deposits examined can be found more frequently on slopes or into small valley of northern west exposures/orientation and at all altitudes ranging between few meters and 400 m a.s.l. The small valleys and deposits are often located at the base of inactive erosional scarp. The deposits are more numerous on high slope angles even if sometimes they can be found on the watershed between the small valleys. The deposits showed an alternation of open work layers and others matrix supported. They are more or less strongly cemented. The grain-supported layers have a percentage of coarse fraction (50 mm) greater than 90% and often show clasts visibly oriented downslope or with downward disposition. The microscopic analysis reveals the presence of more generation of calcitic cement both in grain-supported layers and matrix supported, where cryogenic microstructures have been described. The processes responsible for the genesis of this deposit are hypothesized to be frost shattering associated with solifluction and gravitational displacement of gelifracts. Some time the deposition occurred in connection with superficial freezing and thawing cycles. In fact, the downward disposition of the clasts and the criogenic structures suggests frostcreep action. The alternation of open-work beds, that may have originated in periods of cold climate on bare slopes with long-lasting snow cover, favored by the microclimate, and matrix supported beds, that may have originated during periods of milder climate, lead one to recognize cyclic sequences in these deposits linked to climatic variations. These deposits were clearly truncated by Holocene sea level rise. So, from a chronological point of view, the formation of the Portofino Promontory stratified slope deposits may be occurred between the beginning of the Last Glacial Maximum and the postglacial climatic optimum.

