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Deep seated tectonic-gravitive failure and large landslide in the area from Scilla to Punta Pezzo (Calabria region South Italy)

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A critical analysis of the morphological characters of the Southern Calabria region in the area from Scilla (RC province– Southern Italy) to Messina Strait show some geomorphological anomalies due to deep tectonic-gravitational failures and landslides induced by the uplift of the same area.
The above mentioned phenomena involve, in fact the whole structure of the ridge included between the coastline and Fiumara di Catona (Catona Torrent), starting from Melia Highland (Pian della Melia) towards the promontory of Punta Pezzo on Messina Strait; and have a severe influence on the morphological forms of the territory, on the surface and coastal erosion phenomena and probably, also on the effect of seismic shocks on large engineering works, as the-to-be built Messina Strait bridge, which is very close to Scilla and Punta Pezzo area.
The evidence of these failure can be recognized in the arched morphological steps breaking down the crystalline rock masses, but specially in the hydrographic stream network that is so deep and irregular in crystalline rocks that cannot be imputed only to surficial erosion. In fact at the end of the main streams or torrents as Santa Trara or San Gregorio torrents (fiumare) there are not relevant alluvial fan deposits.
These tectonic-gravitative failure have been favored by the presence of biotitic schists underlying gneiss and granite rock masses. The first ones has a stiffness lower than the seconds, so they are more deformable. It is also possible that schist rock masses overlie the more deformable phyllite rocks, not outcropping in the area, as it happen in other zones of Calabria region (Guerricchio e Al., 2007). Tectonic-gravitative failures have broken and disarticulated also the terraces of Late Pleistocene deposits lying over the crystalline basement multiplied by these failures, so that may seem terraces of different order.
The coastal slope between Gioia Tauro and Scilla is quite high and in a sudden way changes its form just in the area of Scilla. It is due to the presence of an ancient deep large landslide involving the whole area from Melia Highland to the town of Scilla and the sea, changing the form of the landscape. The deep failures toward West have created at the level of Scilla a large opening that has made it possible large gravitative collapse, that with a sort of “pincer” movements involving the masses in the high zone back to Scilla toward Melia Highlands, that slide toward Scilla displacing also the Tirrenian alluvial fans and the terraces creating the today coastline.