



## **Seismic and Eustatic cycles in the southern Apennine deformation front : Case example of Basilicata (Southern Italy)**

Benoit Deffontaines (1,2,3), Gerardo Fortunato (1,4), Samuel Magalhaes (1,4)

(1) Université Paris-Est Marne-la-Vallée, Géomatériaux et Géologie de l'Ingénieur, France (benoit.deffontaines@univ-mlv.fr),  
(2) Laboratoire International Associé ADEPT CNRS-NSC (France-Taiwan), (3) Laboratoire de Géomatique Appliquée, Ecole  
Nationale des Sciences Géographiques, Institut Géographique National (Marne-La-Vallée), (4) AlphaGEOmega, France

Detailed tectonic analyses and geological mapping in muddy fold-belt front is a hard target. Using both field-work and GIS software associated to new soil datations of the different marine terrassic levels of the Tarento Gulf (Southern Italy) we were able to re-interpret from an active tectonic point of view the deformation front of southern Apennines. Furthermore by combining our data with the known eustatic curve of the mediterranean sea along the southern Italian shore, we were able to decipher the landscape evolution of the southern Apennines deformation front and we are now able to differentiate the geomorphic signal of both active tectonic and eustatic processes and their related geomorphic features on the Tarento Gulf marine terrasses. Therefore the two passed seismic cycle of the Southern Apennine deformation front are revealed herein and appear to be coherent with both a regular inter-sismic linear creep period (time =240 ka/uplift=70m) and a rapid coseismic uplift (time :10Ka/uplift = 45m). This study give us new inputs to better understand the deformation front of Southern Apennine (Italy) which is of prime importance today in European Geoscience as well as Italian "Protezione Civile Nazionale".