An estimated erosion map for the Aterno-Pescara river basin

B. Lastoria, F. Miserocchi, A. Lanciani and G. Monacelli

Agency for Environmental Protection and Technical Services (APAT), Rome, Italy
(alexandre.lanciani@apat.it)

Soil erosion is responsible for the continuous modification of the shape and elevation of the natural ground surface. In fact, due to the erosive actions associated with rain, wind, frost and melting snow, soil particles are detached from either outcropping rock deposits or from soil like deposits. Then, the particles removed from the parent formations are transported to lower elevations. Hence, the characteristics of a natural or geological erosive process are governed by the climatic characteristics of the area and also by the resistance of the parent formation, which in turn depends on soil erodibility, area topography and vegetation cover.

In order to design and test an efficient coastal management procedure it is necessary to know at least approximately the mass of eroded soil and the solid transport quantity in the basin of the rivers that "feed" the coast. In this study, performed in the framework of the INTERREG IIIB CADSEALAND project, we have used the USLE model to obtain a first guess of the erosion in the Aterno-Pescara catchment. The Aterno-Pescara river, which is situated in the eastern Italian region of Abruzzo and empties in the central Adriatic Sea, was chosen as representative of the Mediterranean basin typology.

Our final result is an estimated erosion map for the catchment that allowed us to identify five ordinal classes of quantitative output of predicted soil. For each major land use we calculated the area percentage of different potential erosion classes to find which land use entails the highest potential erosion. However, the USLE model, as any other empirical model, needs to be fine tuned to a location before its results can be trusted. In view of this, our study also suggests the deployment of a gauging network in the catchment based on that first guess.