



## **Assessment of different methods for the quantification of soil erosion risk after fire: a case study from Geraneia Mt., central Greece**

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The quantification of the amount of the expected eroded material that will migrate towards lower elevations after a forest fire is one of the most crucial and practical information needed from the local authorities, in order to design post-fire stabilization measures and actions. It is one of the greatest challenges in natural resources and environmental planning and computer simulation models are becoming increasingly popular in predicting soil loss for various land use and management practices. Quite a few models along with their modifications are being developed aiming to fulfil the need for accurate quantification of soil erosion risk. Depending on the availability and the quality of the spatial data, which have to be imported into the various models as parameters, different methodologies are followed.

Geraneia Mt is an extended mountain range at the west outskirts of Attica, central Greece, reaching the altitude of 1351 m, part of which has been designated as Natura 2000 site and is characterized by almost vertical slopes of carbonate rocks. The mountain was almost completely burned by a wild fire in late July 2018, which consumed most of its *Pinus halepensis* forests. The ridge of the protected area, covered by endemic fir *Abies cephalonica* forest was also affected by the fire. The soil covers carbonate rocks which comprise the higher elevations and the vertical slopes of the mountain as debris and loose deposits crop out at the south-facing mountain front which was greatly affected by the fire.

Several erosion risk spatial models were applied on the protected area of Geraneia Mt in order to compare the sensitivity of their results and evaluate the risk of the affected habitat to be deteriorated. For each model, the most sensitive model parameters were calibrated and predicted soil loss amounts were compared. A qualitative and quantitative estimation was achieved and the advantages and disadvantages of each model had been identified.