



## **Using the Modified Fournier Index to model rainfall aggressiveness with scarce rainfall data**

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The spatial and temporal distribution of rainfall is a key-factor to soil erosion. Rainfall aggressiveness is a function of the interactions between the height, duration and duration of rainfall events. The Modified Fournier Index (MFI), which represents the ratio between average monthly rainfall and average annual rainfall, is a strong indicator of rainfall aggressiveness. Nonetheless, evaluation of this index is sometimes problematic due to the scarcity of rainfall records. A methodology to model rainfall aggressiveness using MFI when rainfall spatial data is scarce is here proposed. GIS and spatial statistics tools support the methodology, where some physiographic variables that influence the aggressiveness of rainfall are used to overcome the lack of rainfall data.

The South of Portugal, usually subject to periods of drought followed by heavy rain events, is a risky area for soil loss. The Grândola Mountain Range, in the Alentejo region, is here presented as a study case to test this methodology. Moreover, the Grândola Mountain Range is classified as C-108 Corine biotope and its inclusion in the European Union network Natura 2000 is currently under proposal. Results show, according to Corine-CEC, a low (60-90 mm) to moderate (90-120 mm) rainfall aggressiveness, respectively in the coastal area and in the mountains of the Grândola Mountain Range.