

## Publication

### Soil erosion modelling: A bibliometric analysis

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Soil erosion can present a major threat to agriculture due to loss of soil, nutrients, and organic carbon. Therefore, soil erosion modelling is one of the steps used to plan suitable soil protection measures and detect erosion hotspots. A bibliometric analysis of this topic can reveal research patterns and soil erosion modelling characteristics that can help identify steps needed to enhance the research conducted in this field. Therefore, a detailed bibliometric analysis, including investigation of collaboration networks and citation patterns, should be conducted. The updated version of the Global Applications of Soil Erosion Modelling Tracker (GASEMT) database contains information about citation characteristics and publication type. Here, we investigated the impact of the number of authors, the publication type and the selected journal on the number of citations. Generalized boosted regression tree (BRT) modelling was used to evaluate the most relevant variables related to soil erosion modelling. Additionally, bibliometric networks were analysed and visualized. This study revealed that the selection of the soil erosion model has the largest impact on the number of publication citations, followed by the modelling scale and the publication's CiteScore. Some of the other GASEMT database attributes such as model calibration and validation have negligible influence on the number of citations according to the BRT model. Although it is true that studies that conduct calibration, on average, received around 30% more citations, than studies where calibration was not performed. Moreover, the bibliographic coupling and citation networks show a clear continental pattern, although the co-authorship network does not show the same characteristics. Therefore, soil erosion modellers should conduct even more comprehensive review of past studies and focus not just on the research conducted in the same country or continent. Moreover, when evaluating soil erosion models, an additional focus should be given to field measurements, model calibration, performance assessment and uncertainty of modelling results. The results of this study indicate that these

GASEMT database attributes had smaller impact on the number of citations, according to the BRT model, than anticipated, which could suggest that these attributes should be given additional attention by the soil erosion modelling community. This study provides a kind of bibliographic benchmark for soil erosion modelling research papers as modellers can estimate the influence of their paper.

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