

EGU2020-13575

<https://doi.org/10.5194/egusphere-egu2020-13575>

EGU General Assembly 2020

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Object-oriented Soil Erosion Modelling and Daily Erosion Project: Laying the foundation for a new generation of soil erosion assessments in Europe

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Over the last two decades, geospatial technologies such as Geographic Information System and spatial interpolation methods have facilitated the development of increasingly accurate spatially explicit assessments of soil erosion. Despite these advances, current modelling approaches in Europe rest on (i) an insufficient definition of the proportion of arable land that is exploited for crop production, (ii) a neglect of the intra-annual variability of soil cover conditions in arable land, and (iii) offer little understanding of the spatio-temporal trends of soil erosion. Here, we represent the recent developments of two methods tested to overcome current limitations and move towards the implementation of new modelling approaches in Europe.

The Object-oriented Soil Erosion Modelling and Monitoring v2.0 (O-SEMM) (Land degradation & development, 29, 1270-1281, 2018) combines highly accurate agricultural parcel information systems (LPIS) with crop statistics, Landsat 8 and Sentinel 2 satellite data and high temporal resolution rainfall data to assess soil erosion events at parcel level.

The Daily Erosion Project (DEP) (Earth Surface Processes and Landforms, 43, 1105-1117, 2018), developed by the Iowa State University, estimates soil erosion and water runoff occurring on hill slopes using the WEPP erosion prediction model.

References

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