

EGU2020-12909

<https://doi.org/10.5194/egusphere-egu2020-12909>

EGU General Assembly 2020

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Development of Web GIS based Surface Soil Erosion Prediction System

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This study is to develop the Web GIS-based surface soil erosion prediction system that informs soil information such as daily potential soil erosion, soil quality, and best management practices (BMPs). The system involves three functions that are: 1) to predict daily potential soil erosion in the study areas (e.g., Jaun-Cheon, Bukhan-Gang, Namhan-Gang, and Gyoungan-Cheon); 2) to provide the current levels of soil qualities at field scale; 3) to recommend BMPs which can improve soil qualities. This study developed a module based on MUSLE and assessed the availability of the module comparing with the measured data at sample fields (3%, 9% slope). After verification of the module, the Web GIS-based system was developed using a user-friendly interface. The users can obtain the visualized soil erosion information through the interface and compare the amount of soil erosion using the single field or multi-fields analysis tool developed in this study. Moreover, the users can find the current level of soil qualities at fields they selected and gain various applicable BMPs information. The system enables to inform non-experts to soil information without using a complex model and equation. Therefore, the system can play a significant role in recognizing the importance of soil resources and enacting laws relative to soil conservation.