



## **Modeling regional wind erosion using different model**

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Wind erosion is an important factor causing soil degradation in arid and semi-arid regions. The need to quantitatively evaluate wind induced soil erosion yields many wind erosion models. These models include Wind Erosion Equation (WEQ), Revised Wind Erosion Equation (RWEQ), Wind Erosion Predicted System (WEPS) etc. at a field scale and Wind Erosion Assessment Model (WEAM), Integrated Wind Erosion Modeling System (IWEMS), AUStralian Land Erodibility Model (AUSLEM) etc. at a regional scale. The challenge of precisely estimating wind erosion at a regional scale still remain to date. To assess regional wind erosion, WEQ, RWEQ and WEPS have been scaled up to regional versions. However, no attempt is performed to compare these models for regional wind erosion modeling. In this study, the regional versions of WEQ, RWEQ, WEPS and WEAM, IWEMS, AUSLEM will be selected to model regional wind erosion of farmlands in the Kangbao County of northern China with annual soil loss by wind erosion based on 137 Cs analysis. Remote sensing image is used to determine the size and shape of local farmlands. Weather data of 2000-2010, China Soil Survey and published soil data, crops rotations etc. are compiled to generate raster layers of inputs for selected models using ArcGIS 10.2. These models were rebuilt based on ArcGIS Model-builder Module. Spatial distribution of annual soil loss by wind erosion determined from different model will be tested using annual soil loss data by 137 Cs analysis. Performances of these models will be investigated, and restrictions of these models will be further ascertained.