DUST FRACTION IN CATCHMENT SEDIMENTS, PRAIRIE POTHOLE REGION, SOUTH DAKOTA

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ABSTRACT

Sediment core samples were collected from 17 wetland and marsh areas from portions of the Prairie Pothole Region of northeastern South Dakota during the fall of 2003. The marshes were located in Brown, Day, Clark, Codington, Hamlin, and Brookings counties. The catchments acted as sediment traps for wind blown sediments. Thus, a vertical profile of sediment was established. Ground penetrating radar was employed to gather data on depth to glacial till. The majority of profiles indicated that approximately one meter or less of sediment overlay glacial till. The sediment size parameters were analyzed by moment statistics to derive mean grain size, kurtosis, and sorting coefficients. Results indicated that wind blown (eolian) sediment could be distinguished from fluvial and other sediment. This study suggested that considerable historic windblown sediment may be related to road dust and recent agricultural practices. Additional implications of this study suggested that the pH of catchment deposits may have been raised by the addition of cations derived from dust.