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Estimation of Soil Erosion Rates and Processes due to Desertification by using Fallout Radionuclides in Semi-Arid Area

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Soil erosion and surface runoff was known to be greatly increase by desertification. The soil erosion processes in semi-arid grassland and shrubland in Joranda LTER site were estimated by using Cs-137 and Pb-210ex and existing runoff plot data. Soil erosion rates in semi-arid grassland and shurbland in jornada LTER site were estimated by using Cs-137. Erosion rate in grassland and shrubland was calculated at 4.7, 7.8 t/ha/year, respectively. These values were cross checked with runoff plot data and found similar values. The cross section data of Cs-137 and Pb-210ex in intershrub area showed similar trend of distribution, but different trend in grassland site. This difference suggested the probability that soil movement velocity in grassland is lower than intershrub area.

Keywords: desertification, semiarid grassland, Shrubland, Cs-137, Pb-210ex