

新疆玛纳斯河流域不同地貌类型土壤盐分累积变化

Changes of salt accumulation in soil layers with different landforms in Manas River Valley in Xinjiang Region of China

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中文摘要:

为详细分析干旱荒漠区土壤盐分长期累积变化的区域差异,以玛纳斯河流域为例,选择冲积洪积扇、冲积平原和三角洲3种主要地貌类型,通过取样、典型调查等方法讨论其土壤盐分变化情况,结果表明:位于山前冲积洪积扇以上部位是最稳定的地区,地下水位低,基本不存在盐碱化问题。相比之下,冲积洪积扇边缘部分由于普遍较高的地下水位和地下水矿化度,短期内仍将处于持续积盐状态。冲积平原部位表土虽明显脱盐,但由于底土含盐量高,且部分地段地下潜水埋深上升至临界深度以下,仍处于脱盐不稳定或脱盐积盐反复型状态。三角洲部位经过多年的开垦,地下水位出现上升,随着深层盐分上移,也将导致土壤盐渍化发生。分析认为冲积洪积扇、冲积平原和三角洲部位部分地区将来土壤盐渍化威胁依然很大。该研究将为区域土壤盐渍化治理提供依据。

英文摘要:

Field sampling and investigation on groundwater table and groundwater electrical conductivity data in typical regions were conducted in Manas River Valley, in Xinjiang Region of China. The long-term salt accumulation changes in soil layers with different landforms including alluvial-proluvial fan, alluvial plain and delta were analyzed in order to supply a basis for soil amelioration in this region. The result indicated that for the above of alluvial-proluvial fan, the groundwater table was low and soil salinization was not serious. In the alluvial-proluvial fan edge, continuous salt accumulation was apparent in part of the cultivated land due to higher levels of groundwater table and electrical conductivity. In the alluvial plain, desalinization in surface layer was noticeable, but salt content in the subsoil layers was still high and the groundwater level rose and reached the critical value. For the delta part, salt accumulation would occur in the surface taking into account the increasing groundwater level under continuous cultivation. Lastly, it was predicted that soil desalinization would appear in the regions with effective irrigation and drainage system, but salt accumulation in some zones of alluvial-proluvial fan edge, alluvial plain and delta would continue in the near future.

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