

**Akmal Akramkhanov**

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**The spatial distribution of soil salinity: Detection and prediction**

Soils of irrigated lands in the Aral Sea Basin are often plagued by high salinity, hampering profitable agriculture on these soils. In this context, the present study has three specific objectives: to identify techniques that enable a rapid estimation of soil salinity, to characterize its spatial distribution and to estimate its spatial distribution based on readily obtainable environmental parameters using a Neural Network Model Approach. Topsoil salinity was highly variable at short distances and terrain attributes were the most influential factors. The use of relationships between environmental attributes and soil salinity for upscaling spatial distribution of soil salinity from farm to district level proved to be satisfactory. A possible application is the development of salinity prediction tools for farm-level decision making.