Development of Groundwater Salinity in a Lower Amu-Darya Region, Khorezm, Uzbekistan. (A06-vlek060145-Oral)

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Abstract:

The Khorezm region is an intensively irrigated area with its agriculture and economy dependent on irrigation from the Amu-Darya river. The uncertainty of the river discharge and increase of water salinity are jeopardizing Khorezm agriculture. The dynamics of groundwater salinity between 1990 and 2001 were geostatistically investigated using 2043 observation wells, monitored every 4 months. The decrease in river water inflow has led to a groundwater salinity increase of 9 % on average. The distribution of groundwater salinity is determined by: 1) the patterns of parent materials formed by the meandering Amu-Darya river and 2) distance from the river along the main irrigation channels, indicative of a concentration effect of irrigation water. Areas with sandy loamy or loamy parent materials show higher salinity than areas with clay or loamy clays. There was a negative correlation between the average salinity and change in salinity. A significant increase in groundwater salinity was observed in the alluvial low-land areas. In order to deal with such spatial heterogeneity in groundwater salinity distribution and changes, site-specific land management strategies are required.

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