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Title: (OA3) EXPERIMENTAL INVESTIGATIONS OF DRY ATMOSPHERIC FALL-OUT COMPOSITIONS SAMPLED IN THE DRIED-UP ARAL SEA AREA

Abstract: The Republic of Uzbekistan is situated in Central Asian. The landscape of the republic is very diverse. Desert and semi-desert areas account for approximately two thirds of the country territory while the rest of it is a combination of mountains and mountain valleys. The existence of arid areas has a drastic effect on the environment. The major sources of dust and salt atmospheric intakes are water and dried-up areas of the Aral Sea. Dust storms of various scales often take place at the Aral Sea area. During such events, dust transport is registered at adjacent territories by the means of satellite images. The great mass of dust and salt lifted into the atmosphere during dust event episodes precipitates in the immediate vicinity of the emission sources. The salt deposition onto the underlying surface causes, in particular, secondary soil salinity, and deteriorates vegetation conditions. In collaboration with the Aral Sea hydrogeological expedition, we have carried out experimental investigations of dust transport and precipitation in the form of dry fall-outs at polygons situated on shore of the Aral Sea. The investigation objective is to develop a methodology for dust assessment subjected to wind transport from different dried-up Aral Sea areas and reveal the areas of dust and salt particles spreading. The method consists in simultaneous dry fall-outs sampling at measuring points located at areas with different levels of dryness formed for the last 30 years, and correlating of the obtained data with dust storms and strong winds occurred within the sampling periods. The Chemical analysis of dry fall-out samples was carried out by means of ionic chromatography, nuclear absorption, and classical methods of "wet chemistry". Samples were taken onto cells with gauze put into special wind-proof devices. Exposure time was 8 hours. Dependence between flux density, dry fall-outs composition and wind velocity, season and sampling point locations has been found as a result of the conducted investigations. Drying up areas with high level of topsoil salinity have been revealed.

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