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THE RESULTS OF NEUTRON-ACTIVATION ANALYSIS OF THE ATMOSPHERE IN THE SOUTHERN REGIONS OF CENTRAL ASIA

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ABSTRACT

This article analyses the migration of harmful substances based on the use of physical methods in the study of environmental problems including the laws of their long-range distribution, the state of the environment in the regions, the presence of excess and foreign elements in soil, water and atmosphere. The results of the artificial environmental problem in the southern regions of Uzbekistan and its impact on the national economy are well documented.

KEYWORDS: *Region, Ecology, Global, Local, Aerosol, Gas Phase, Particulate Matter, Adverse State, Harmful Substances, Heavy Elements, Atoms, Ions, Florid, Compounds, Migration.*

INTRODUCTION

Under the influence of anthropogen on the atmosphere in the process of human development in the current conditions, the main source of its pollution is the people. As a result of the global, regional or local environmental problems is arisen there will be problems for humanity again. Pollution of the atmosphere occurs mainly as a result of the release of various wastes of plants and factories into the air. Also, the drastic changes that occur in nature under human influence are also the source of environmental problems. An example of this is the emergence of the ecological problem of the island and the Aral Sea on the basis of unplanned consumption of Amudarya and Sirdarya waters on the basis of the concept of agricultural development in the 60-80 years of the 20th century of the states located in Central Asia. This environmental problem is of a global nature and has led to a sharp increase in the level of pollution of the Earth and the

atmosphere in the regions of many more countries, except for the countries that are currently located in Central Asia.

MATERIALS AND METHODS

If 50-55 cubic km of the volume of water was supplied by the Amudarya and Syrdarya to the Aral Sea every year, the Aral Sea had been preserved. For the last 50 years, the Amudarya and Syrdarya have flowed into the Aral Sea 6-8 cubic km per year. The size of the Aral Sea has now decreased by 70-75% due to the supply of water. As a result, an area of about 5 million grams was separated from the seabed and became a source of ecological environment. The human beings who caused such problems are responsible for preservation. Surkhandarya region, the southernmost part of the Republic of Uzbekistan, has environmental problems of natural and man-made regional scale. Climatic conditions and geographical environment in the northern region of Surkhandarya region are very different from the southern region. There are similar climatic conditions in Shurchi, Altynsay and Uzun districts. Therefore, the region is densely populated. These areas also have their own environmental problems, the solution of which remains a topical issue. The main source of environmental problems that threaten the northern regions is the Tajik aluminum plant[1].

The plant was built only10 km from the border of the region with Tajikistan, this enterprise is located at an altitude of 500-600 meters above sea level, and the gas aerosol and par-gas poisonous substances separated from it spread all year round to the Surhondarya region.At present, these toxic substances have been able to poison most of the districts of Sariosia, Uzun, even the most important parts of the districts of Denov, Altinsoy, Shurchi [2]. As a result, there are serious problems in agriculture and animal husbandry. Horticulture and vegetable crops have failed, and some crops have been poisoned. Livestock productivity has fallen sharply and these toxins are having a negative effect on the human race. The incidence of the disease in the population has increased, and these poisonous substances adversely affect the offspring of humans. Among the harmful substances coming out of the plant, the atoms of heavy elements, the combination of toxic hydrogen fluoride with ions, are also dangerous to human health[3-4].

On the basis of the use of physical methods in the study of this environmental problem, the migration of harmful substances, the legality of the distribution of their quantity by distance, was studied.The results obtained with the help of neuron-activation analysis, nuclear gamma resonance spectroscopy and Potentiometric research methods show that the amount of harmful substances coming out of the Tajik aluminum plant exceeds the amount authorized in the northern region of the Surkhandarya region from 4 to 12 times of permission amount (PA), water, it was determined by the composition of the soil and atmosphere.According to the results obtained, it was found that harmful substances spread from 25 km to 60 km. Experiments have shown that the combination of HF has reached all regions of the districts of Sariosia and Uzun.It was found that the combination of HF in the 40-50 area of the denov and Altinsay districts is much more than the amount allowed. Even in the northern part of the Shurchi district, an increase in the amount of HF accumulation was confirmed in experiments. Experiments confirmed an increase in HF in the northern part of Shurchi district. indicates that this toxin affects the development of the national economy in the region. [5]

RESULTS AND DISCUSSIONS

The experiments also revealed the annual migration of HF compounds and other harmful substances. The results show that the migration of harmful substances is influenced by climatic conditions, meteorological conditions. Wind direction and speed, humidity, precipitation and, most importantly, air temperature have a significant impact on migration. Experiments show that in the warmer months of the year (June-July-August), harmful substances spread over long distances. Considering that the summer temperature in the northern regions of the region is above 35-40, it can be seen that the harmful gases from the Tajik aluminum plant poison many areas in the northern region.

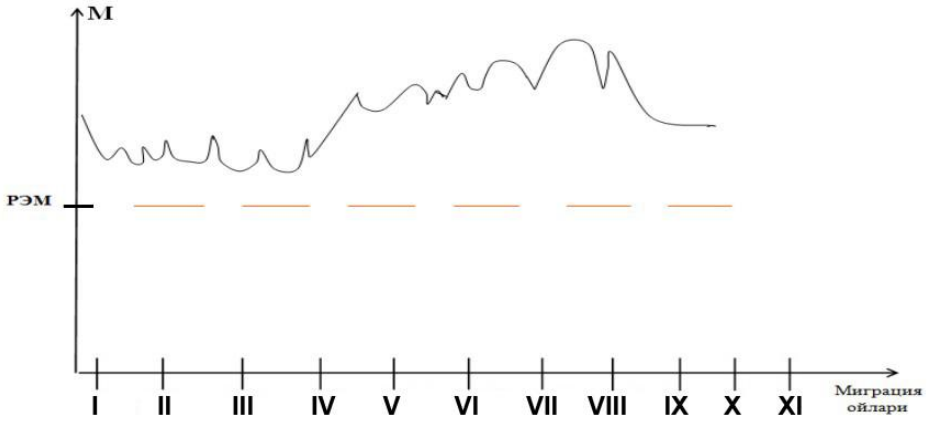

Figure 1: Graph of annual distribution of HF compounds in the northern regions of Surkhandarya region (PA-permissible amount)

Also, the harmful substances emitted from this plant include atoms of heavy elements (for example: Pv) in the Mendeleev periodic table, various heavy ions, as well as aerosol-vapor emissions from the plant, which cause great damage to crops and livestock, as well as the local population. The experiments have shown that it has a strong effect on health. The following table shows the distance distribution of harmful substances emitted from the plant in the aerosol-vapor state in the territory of Surkhandarya region.

TABLE 1 CONDITION OF HARMFUL SUBSTANCES EMITTED FROM THE TAJIK ALUMINUM PLANT

№	Place of control	Aerosol phase	Par gas phase
1	Around the factory	65 %	35 %
2	10 km from the factory	18 %	82 %
3	25 km from the plant	15 %	85 %
4	40 km from the plant	10,5 %	89,5 %
5	55 km from the plant	5,7 %	94,3 %

It shows how far and in what condition the harmful substances reach. As a result of studying the environmental problems artificially created by the Tajik aluminum plant, which continues to

poison various regions of Surkhandarya region, including 1.5 million people, regardless of their condition.

CONCLUSION

The restoration of the natural environment in the southern region of Uzbekistan, providing full information about living organisms and the source of this environmental problem affecting nature is the most important information for future generations.

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