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The Primary Source of Mercury in the Subsoil and Environmental Impacts

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ABSTRACT

The paper aims to figure out the primary source of mercury in the subsoil and environmental impacts.

By using descriptive method for primary model, synthesis methods and process analysis and analysis of difficulties and discussion, The study of this problem point that, The primary source of mercury in the subsoil is considered to be deep exhalations coming from with the activation of deep processes - geothermal, eruptive, etc., and its intensive rocks enriched with organic matter become an accumulator in the sedimentary cover -carbonaceous formations and soil layer. It is from the latter that she again enters biocycle with a new stage of intravital accumulation in plant and animal organisms in the greater the amount, the higher its content in the environment. Moreover, it is also observed.

Keywords: *Reserves, Composition, Mercury , Subsoil and environmental impacts.*

1. INTRODUCTION

The ability to accumulate a significant mass of organic matter of various elements and its ability not only not to lose, but in some cases even to concentrate additional amounts of PTE undoubtedly plays a significant role in the formation deposits of mineral raw materials with high environmental risks during their development.

The paper presents related studies and The primary source of mercury in the subsoil and environmental impacts.

Research Questions

Question 1: What are related researches and Analysis of The primary source of mercury in the subsoil and environmental impacts?

2. METHODOLOGY

Authors have used qualitative and analytical methods, descriptive method for primary model, synthesis and discussion methods in this paper.

We also used historical materialism method.

3. MAIN FINDINGS

Analysis of Problem

For example, we present the research data of A.L. Kovalevsky when searching for silver in Buryatia. The search was carried out in the southern taiga on lands devoid of outcrops, overgrown mainly with coniferous. The basis for staging the work here was identified during early geophysical research (1970) aerogamma-magnetic anomalies. The objects of research were pines, especially the rotten stumps of the oldest trunks.

Deep geochemical anomalies for silver were revealed. In the ashes of individual plants plots, they reached 1000-3000 g/t against the background of 0.7 g/t, which is clearly seen in Figure shown.

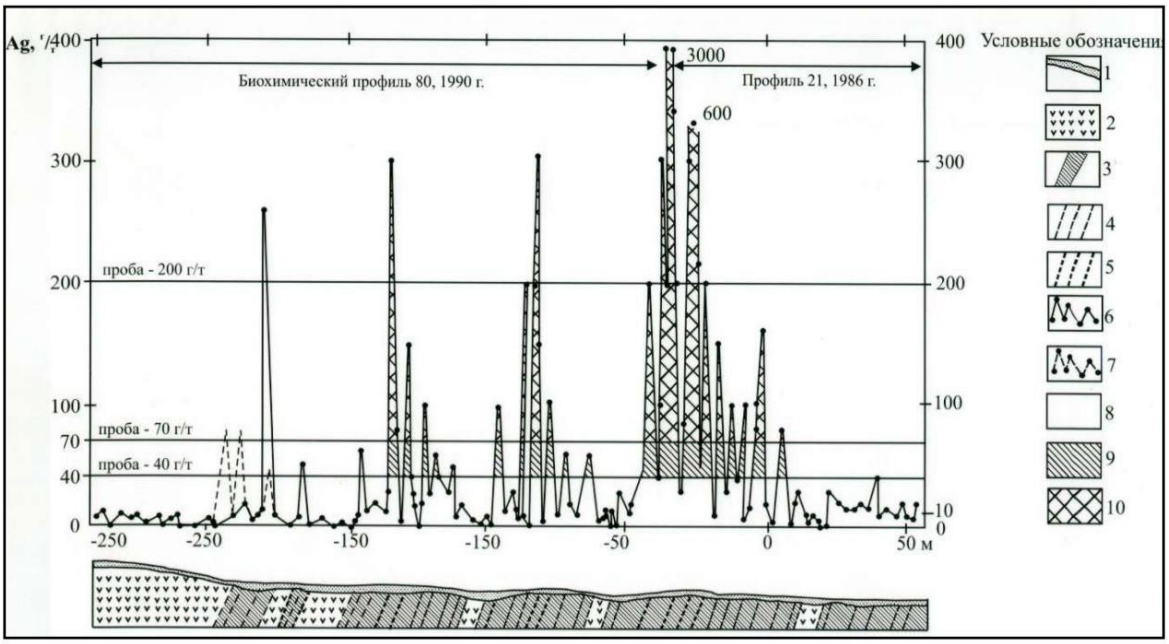

Figure 1. The distribution of silver in the wood of old pine stumps along profiles 21 and 80 site North

1 - loose cover; 2 - syenites; projected silver-bearing zones and ore bodies with various Ag contents; 3 - wide with 0.2 - 2.0 against the background of 0.04 g/t; 4 - local with 2 - 20 g/t; 5 - silver ore bodies with 20-3000 g/t; Ag distribution plots; 6 - actual; 7- expected from lithogeochemical data; biochemical anomalies of Ag of various intensity; 8 - supposed near-ore biochemical anomalies - 40 µg/g; 9 -presumed ore biochemical anomalies from 40-70 µg/g; 10 – alleged rich-ore biochemical anomalies from 70-3000 mcg/g.

Subsequent stripping operations made it possible to identify veined silver ore bodies in bedrocks represented by alkaline Lower Paleozoic syenites with dikes diorites. It is peculiar that the soil-geochemical halos did not have such a sharp expressiveness. With a background of 0.01 g/t, they usually did not exceed 0.1–1.0 g/t; main Ag accumulators turned out to be the oldest tree trunks, especially in their basal parts. It is they who subsequently will turn out to be the basis of the metal-enriched humus organic matter in the ground.

Particularly widespread in exploration geology are the methods of aerial photography, when, examining the ashes of herbs, ore geochemical anomalies are revealed. For the problems these results are important as a clear illustration of active lifetime accumulation metals by flora, up to the inhibition of their viability in zones of anomalies with high PTE concentrations.

Another example comes from a study of mercury content, one of the highly toxic elements, widely used in modern technologies and representing a significant environmental hazard in areas with increased concentration. The geochemical peculiarity of elemental mercury is its high volatility and, respectively, a high migration ability in the form of vapors, in a chemical tendency to the formation of organo-metallic compounds and strong bonds with sulfur, as well as in the active mercury sorption by carbonaceous rocks. In addition, mercury is extremely easy to digest.

In a reducing environment, mercury easily converts to its elemental form and migrates as steam in the depths. Coals rich in organic matter and combustibles are a geochemical barrier for it. shales that absorb mercury,

forming its industrial concentrations and reserves. At change in the temperature regime of the subsoil during ascending tectonic rearrangements, under conditions cooling of the bowels, mercury settles on sorbents (coal, shale, etc.), when lowered again goes into pairs and migrates up.

Let us present some data on the background content of mercury in various natural objects. In igneous rocks, its content is usually low - n-10-2; somewhat more in sedimentary ones; and in clay shales enriched with organic matter and soils 200–400 mg/kg. It is important to emphasize even based on this short list, the immediate reactivity of mercury to OM in breeds.

The primary source of mercury in the subsoil is considered to be deep exhalations coming from with the activation of deep processes - geothermal, eruptive, etc., and its intensive rocks enriched with organic matter become an accumulator in the sedimentary cover -carbonaceous formations and soil layer. It is from the latter that she again enters biocycle with a new stage of intravital accumulation in plant and animal organisms in the greater the amount, the higher its content in the environment. Moreover, it is also observed

4. DISCUSSION AND CONCLUSION

A peculiar species selectivity of plants in the accumulation of mercury. Yes, in the same conditions of mercury content in fresh mass of cabbage - 0.012 mg/kg, an order of magnitude higher than in carrots and beet - 0.0018 and 0.003 mg/kg, respectively. Dying away, living matter accumulates in the depths and, passing through certain stages metamorphism, mainly retains those primary accumulated PTEs that were present in it, creating a part of the PTE balance in hydrocarbons due to their primary genetic enrichment with these components.

The information given in the section must be taken into account when building various models formation of abnormally enriched PTE residues of organic substances, since primary sources can play a significant role in their overall balance in generated from this OM hydrocarbons.

Declarations

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Competing Interests Statement

The authors declare no competing financial, professional, or personal interests.

Consent for publication

The authors declare that they consented to the publication of this research work.

Authors' Contributions

All authors equally contributed to research and paper drafting.

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