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Air Pollution Studies in Asia and the Pacific Based on Moss Analysis by Nuclear and Related Analytical Techniques

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Air pollution is the world's most pressing environmental crisis. It is responsible for more than 7 million deaths annually, the bulk of which –70 per cent –occurs in Asia-Pacific region. Air pollution in these countries is several times higher than WHO guideline for safe air. Heavy metals (HM) are among the most dangerous environmental pollutants. In most European countries, the need to study the consequences of their impact on the environment and human health has led to the establishment of national and international programs for biomonitoring of heavy metal atmospheric deposition. Data on atmospheric deposition of HM and other toxic elements obtained on the basis of analysis of moss biomonitors, which serve as an analog of aerosol filters. Under the auspices of the United Nations Commission on UNECE Convention on Long-range Transboundary Air Pollution (UNECE ICP Vegetation), the Atlases (Reports) of Atmospheric Deposition of Heavy Metals are published every five years. Since 1995, the international team of the JINR FLNP Sector of Neutron Activation Analysis and Applied Research has been contributing to these Atlases. Study of atmospheric deposition of heavy metals and other toxic elements in a number of JINR member and non-member states made it possible to identify and assess the areas of these pollutions in the studied territories and compare with the levels of similar pollution in Western Europe.

The possibility of extending our experience to Asia-Pacific countries is currently being discussed with representatives of several countries in this region in January 2025 at an online workshop organized by JINR. Some examples of our previous research on deposition of trace elements in China in 2002 [2] are cited to draw the attention of Chinese scientists to our cooperation in studying air pollution in the Asia-Pacific region.

References

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Primary authors: FRONTASYEVA, Marina (JINR); ZINICOVSCAIA, Inga (JINR)

Presenter: FRONTASYEVA, Marina (JINR)

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