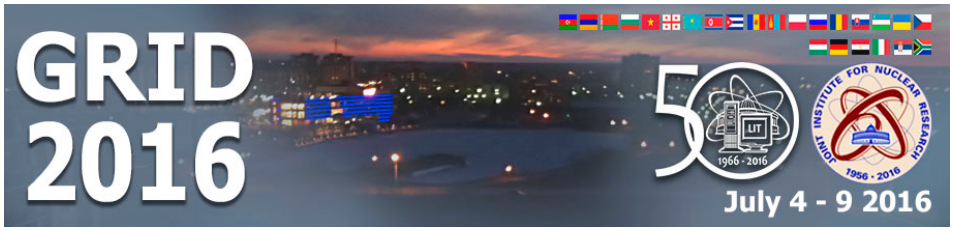

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CLOUD PLATFORM FOR DATA MANAGEMENT OF THE ENVIRONMENTAL MONITORING NETWORK: UNECE ICP VEGETATION CASE

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There are seven International Cooperative Programmes (ICPs) and Task Forces that report to the Working Group of the Convention on Long-Range Transboundary Air Pollution (CLRTAP) on the effects of atmospheric pollutants on different components of the environment and health. Among those programmes the UNECE ICP Vegetation, *which was established in the late 1980s, plays a special role by providing data on the concentrations of twelve heavy metals, nitrogen, POPsand radionuclides of natural and technogenic origin in naturally growing mosses throughout Europe. The aim of the UNECE ICP Vegetation surveys carried out every 5 years is to identify the main polluted areas, produce regional maps and further develop the understanding of the long-range transboundary pollution. Since January 2014, the coordination of moss surveys in 36 European and Asian countries has been conducted from the JINR in Russia. Analytical results and information on the sampling sites (MossMet set) reported to JINR include confidential acceptance of the data from individual contributors, the storage of large data arrays, their initial multivariate statistical possessing followed by applying GIS*** technology, and, possibly, the use of artificial neural networks for predicting concentrations of chemical elements in various environments. To simplify the whole procedure, it is proposed to build a unified platform consisting of a set of interconnected services and tools to be developed, deployed and hosted in the JINR cloud. Such an approach also will allow scaling up and down cloud resources depending on the service load. That will increase efficiency of the hardware utilization as well as the reliability and availability of the service itself for the end users. The overall and specific objectives, as well as the design principles of the platform are discussed. Tools for acceptance, storage, processing and interpretation of network data are presented. The developed software can be used for global air pollution monitoring purposes anywhere in the world to assess the pathway of pollutants in the atmosphere.

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