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Development of the virtual research environment for analysis, evaluation and prediction of global climate change impacts on the regional environment

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Description and the first results of the Russian Science Foundation project "Virtual computational information environment for analysis, evaluation and prediction of the impacts of global climate change on the environment and climate of a selected region" is presented. The project is aimed at development of an Internet-accessible computation and information environment providing unskilled in numerical modelling and software design specialists, decision-makers and stakeholders with reliable and easy-used tools for in-depth statistical analysis of climatic characteristics, and instruments for detailed analysis, assessment and prediction of impacts of global climate change on the environment and climate of the targeted region. In the framework of the project, approaches of "cloud" processing and analysis of large geospatial datasets will be developed on the technical platform of the Russian leading institution involved in research of climate change and its consequences. Anticipated results will create a pathway for development and deployment of thematic international virtual research laboratory focused on interdisciplinary environmental studies.

VRE under development will comprise best features and functionality of earlier developed information and computing system CLIMATE (http://climate.scert.ru/), which is widely used in Northern Eurasia environment studies. The Project includes several major directions of research listed below.

1. Preparation of geo-referenced data sets, describing the dynamics of the current and possible future climate and environmental changes in detail.
2. Improvement of methods of analysis of climate change.
3. Enhancing the functionality of the VRE prototype in order to create a convenient and reliable tool for the study of regional social, economic and political consequences of climate change.
4. Using the output of the first three tasks, compilation of the VRE prototype, its validation, preparation of applicable detailed description of climate change in Western Siberia, and dissemination of the Project results.

Results of the first stage of the Project implementation are presented.

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