Information-computational platform for collaborative multidisciplinary investigations of regional climatic changes and their impacts

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Analysis of growing volume of related to climate change data from sensors and model outputs requires collaborative multidisciplinary efforts of researchers. To do it timely and in reliable way one needs in modern information-computational infrastructure supporting integrated studies in the field of environmental sciences.

Recently developed experimental software and hardware platform Climate (http://climate.scert.ru/) provides required environment for regional climate change related investigations. The platform combines modern web 2.0 approach, GIS-functionality and capabilities to run climate and meteorological models, process large geophysical datasets and support relevant analysis. It also supports joint software development by distributed research groups, and organization of thematic education for students and post-graduate students.

In particular, platform software developed includes dedicated modules for numerical processing of regional and global modeling results for consequent analysis and visualization. Also run of integrated into the platform WRF and «Planet Simulator» models, modeling results data preprocessing and visualization is provided. All functions of the platform are accessible by a user through a web-portal using common graphical web-browser in the form of an interactive graphical user interface which provides, particularly, capabilities of selection of geographical region of interest (pan and zoom), data layers manipulation (order, enable/disable, features extraction) and visualization of results.

Platform developed provides users with capabilities of heterogeneous geophysical data analysis, including high-resolution data, and discovering of tendencies in climatic and ecosystem changes in the framework of different multidisciplinary researches. Using it even unskilled user without specific knowledge can perform reliable computational processing and visualization of large meteorological, climatic and satellite monitoring datasets through unified graphical web-interface.