



Web-system for processing and visualization of meteorological data for Siberian environment research

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At present mainly GIS software is used for exploration and visualization of spatially distributed data, such as meteorological observations, air pollution concentration fields, land use dynamics and so on. At the same time an approach based on the combination of advanced web techniques along with the standard rules of information-computational system development is more suitable for performing tasks requiring more sophisticated data analysis. Modular structure of the software implemented according this technology allows relatively easy integration of new algorithms for data processing and new data sources into the operational system as well as adding of new data visualization procedures.

In this report functional capabilities of the information-computational system created for meteorological and climatic data statistical processing and subsequent online visualization of results are introduced. The system represents a dedicated web-interface, which allows performing of various mathematical and statistical operations on the diverse observational (in-situ, satellites) and model (global and regional models, reanalysis) data and determine characteristics of global and regional climate changes.

Currently such datasets as NCEP/NCAR Reanalysis, Reanalysis NCEP/DOE AMIP II and local measurements obtained from meteorological stations on the territory of Russia are available for processing. In particular, the system allows calculating of temporal average, minimum and maximum values, variance, standard deviation, moving mean with given width of averaging window, time trends, etc. at arbitrary spatial

and temporal ranges for different meteorological parameters. The possibility of online intercomparison of the basic meteorological and climatic characteristics calculated for different datasets is also realized in the system. GrADS open source software has been used for visualization of results obtained. Graphic user interface is implemented using DHTML and PHP. The final version of the system being developed is supposed to find application in meteorological and climatological investigations and should help researchers to save time during performing routine analytical tasks by simplifying handling of huge arrays of spatially distributed meteorological data. This work is partially supported by SB RAS Integration Project 34, SB RAS Basic Program Project 4.5.2.2, and FP6 Enviro-RISKS project (INCO-CT-2004-013427).