Variational data assimilation system INM-T1

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We present the variational data assimilation system INM-T1. This system was designed for analysis and solution of the inverse problem on the reconstruction of the ocean surface heat fluxes in a nonlinear large-scale hydrothermodynamics ocean model. Development of the technology of the INM-T1 was based on the adjoint equation theory, inverse problem theory, optimal control approaches and modern methods of numerical mathematics.

The supporting software of the INM-T1 consists of several subsystems (among them special observation data base, the module for solving the direct and adjoint problems, functional minimization module, control correction module, etc.) which are coordinated by specially developed interface. Numerical experiments using INM-T1 are presented.

The INM-T1 may be considered as a basis for development of similar systems for assimilating ocean surface salinity, sea surface level, etc.

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