Numerical solution of the variational data assimilation problem using on-line SST data

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The variational data assimilation problems of finding the flux on the ocean surface using on-line SST data were formulated and studied.

We assume, that the unique function which is obtained by observation data processing is the function T_{obs} and we permit that the function is known only on a part of considering area (for example, on a part of the Indian Ocean).

Numerical experiments on restoring the ocean heat flux and obtaining solution of the system (temperature, salinity, velocity, and sea surface height) in the Indian Ocean primitive equation model with assimilation procedure and using on-line SST data were carried out. The spatial resolution of the model with respect to the horizontal variables amounted to 1*0.5 grad. The grid domain size was 120*131*33. The numerical experiments confirm the theoretical results and advisability of using the assimilation procedure in 3D ocean circulation model.

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