Geophysical Research Abstracts, Vol. 9, 03990, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-03990

Validation of the basin-scale Black Sea dynamic forecast

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The Black Sea forecasting system permitting to monitor continuously the circulation and stratification of the basin is extended to the near-real time in framework of FP5 ARENA project. The system is based on the primitive equation model of the Black Sea circulation with 5 km grid step. External forces are provided by NMA of Romania on the base of ALADIN family model of MeteoFrance. The Black Sea circulation model assimilates the space remote sensing data including sea surface topography anomalies, provided by AVISO/Altimetry a multi-satellite data active archive center dedicated to space oceanography (France) and surface temperature (via direct reception of Advanced Very High Resolution Radiometer (AVHRR)). The output of the system is time series of three dimensional hydrophysical fields (temperature, salinity, current velocities). Products of the system are regularly presented on the web site www.

An essential part of the Black Sea forecasting system is the subsystem for the validation of its products. The validation of the system products is carried out using regular space remote sensing data and in situ measurements by surface drifting buoys, deep profiling floats. Additionally source of data is provided by episodic cruises of research vessels. A special preprocessing of observations is carried out to ensure compatibility observations and mode outputs. Surface drifting buoys provide data for validation of surface current velocity and sea surface temperature. Profiling floats are used for validation of a weekly mean velocity and temperature and salinity profiles. The statistics resulted form the model validation shows that the near-real time operational system is capable to nowcast and forecast hydrographic fields with reasonable accuracy. Additional validation procedure which is in the progress now includes qualitative analysis of vertical velocity nowcast. It is shown now that the vertical velocity could be noisy in case if optimal interpolation is used as the assimilation tool. Even simple forecast

of the error statistics reduces significantly the noise level in the vertical velocity field.