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Evaluation of operational ocean forecasting in the Cyprus subregion

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The Cyprus Coastal Ocean Forecasting and Observing System (CYCOFOS) produces operational flow forecasts of the northeastern Levantine Basin. CYCOFOS uses the POM flow model. This was recently upgraded to use the hourly SKIRON atmospheric forcing from the University of Athens and its resolution was increased from 2.5 km to 1.8 km. The CYCOFOS model is now nested in the ALERMO regional model from the University of Athens, which is nested within the Mediterranean basin model of INGV in Bologna, Italy. The Variational Initialization and FOrcing Platform (VIFOP) has been implemented to reduce the numerical transient processes following initialization. A five-day forecast is repeated every day initialized with the previous day's results, and once per week a seven-day hindcast is initialized from ALERMO. The new, daily, high-resolution forecasts agree well with the ALERMO regional model. The agreement is better and results are more reasonable when VIFOP is used, especially near the coast. Active and slave experiments suggest that a four-week active period produces realistic results with more small-scale features. For active and slave runs for September 2004, biases with remote sensing sea surface temperature are less than 0.6°C with similar expressions of the flow field present in both. Upwelling south of Cyprus and advection of cool water from the Rhodes Gyre to the southern shores of Cyprus are also modeled. In situ observed hydrographic data from south of Cyprus are similar to the corresponding forecast fields. Both indicate subsurface Atlantic Water and a near-surface anticyclone south of Cyprus for August and September of 2004 and September 2005. Plans for further model improvement include an increase in resolu-

tion and assimilation of observed XBT and CTD profiles from drifters and gliders.