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Automation of operational ocean product metrics

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We are developing a system to rapidly and automatically assess the performance of numerical ocean modeling systems developed by the U.S. Naval Research Laboratory (NRL). This includes the calculation of quantitative, objective metrics of the accuracy of ocean forecasts and of the atmospheric forecasts used to force the ocean prediction models. Comparisons of the oceanic and atmospheric metrics are used to estimate the extent to which errors in the ocean forecasts are errors in the atmospheric forecasts. We will present results from this system, including metrics of surface and subsurface analysis and forecast fields. This work supports the U.S. Naval Oceanographic Office (NAVOCEANO), which provides oceanographic products in response to requests for environmental support for Navy operations. The development of a comprehensive automated system that provides model performance information is expected to increase the consistency of results, reduce errors, and reduce time required to generate oceanographic products. In addition to meeting operational needs, this work supports research, development, and evaluation of new analysis and forecast systems intended for operational use. The numerical models being assessed by this system have applications other than for Navy support, including providing high resolution boundary conditions for even higher resolution coastal models; tracking pollutants; managing fisheries and other marine resources; assessing ocean impacts on oil rigs and other structures; predicting storm surge resulting from hurricanes; and providing inputs to water quality assessment.