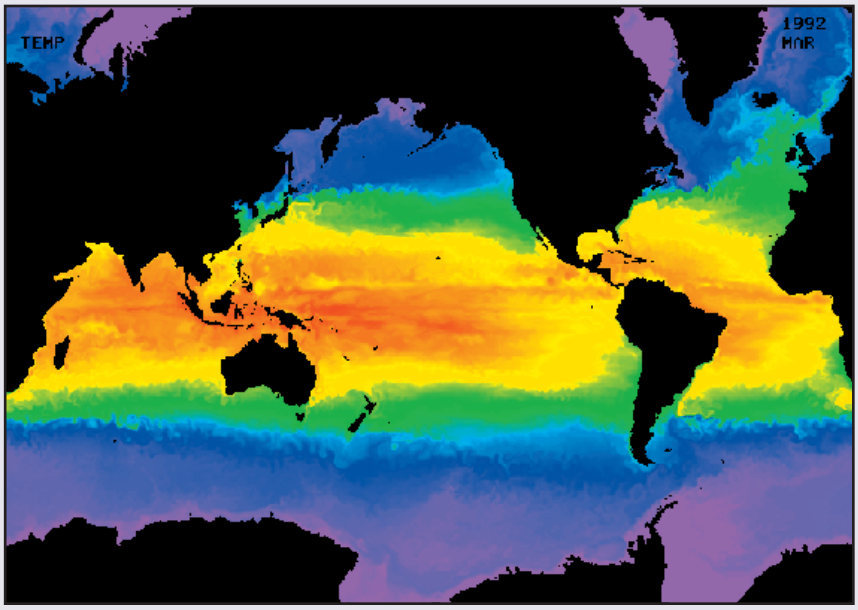
Describing the Oceans

Imagine trying to describe the circulation and temperatures across the vast expanse of our oceans. Good models of our oceans not only benefit fishermen on our coasts but farmers inland as well. Until recently, there were neither adequate tools nor enough data to construct models. Now with new data and new mathematics, short-range climate forecasting—for example, of an upcoming El Niño—is possible.

There is still much work to be done in long-term climate forecasting, however, and we only barely understand the oceans. Existing equations describe ocean dynamics, but solutions to the equations are currently out of reach. No computer can accommodate the data required to approximate a good solution to these equations. Researchers therefore make simplifying assumptions in order to solve the equations. New data are used to test the accuracy of models derived from these assumptions. This research is essential because we cannot understand our climate until we understand the oceans.

For More Information:

What's Happening in the Mathematical Sciences, Vol 1, Barry Cipra.



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