



Figure 9.1. Time and horizontal space scales of some of the important oceanic processes. MLD, mixed-layer depth. ENSO, El Niño–Southern Oscillation. After Dickey 1991.

to collect large volumes of data from an uncontrolled and typically harsh environment. And data volume is often more important than precision and accuracy. Presently, limited numbers of variables can be directly measured in the marine environment, so it is important to carefully select those that are most critical. Because of the paucity of data, there will be a need for interdisciplinary numerical models capable of synthesizing observations and predicting variability over broad time and space scales (e.g., Robinson and Dickey 1997).

Many of the necessary observations and instrumentation systems are common to the topics described in the previous chapters. For convenience, the following sections provide information according to platforms, sensors, and systems (and data telemetry) as well as data dissemination and utilization.