MONITORING SEA LEVEL IN THE TROPICAL PACIFIC FROM OBSERVATIONS AND MODELS

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Numerical models are now able to produce a reasonably faithful representation of the time evolution of the three-dimensional evolution of the ocean circulation at relevant dynamical scales. This is particularly true for sea-level which integrates a large part of the ocean dynamical properties over the whole water column.

Observations from the French/US Topex/Poseidon and the European ERS satellites provide basin-scale sea level measurements in near real-time. In-situ sea level measurements are also available in various locations, including tide gauges station and open ocean TAO moorings.

A specific research is conducted at ORSTOM, Nouméa, in order to combine all the complementary sea level information to construct a high resolution picture of sea level changes. Sophisticated mathematical techniques, known as data assimilation, are used to optimally derive real-time ocean evolution.

A new approach of assimilation based on the Kalman filtering technique has been implemented to blend data and model informations. First results will be shown based on the use of Topex/Poseidon data assimilated in a primitive equation model of the Pacific equatorial region between 30° N and 30°S.

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ABSTRACTS

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