



## **Prediction of sea level anomalies from TOPEX/Poseidon and Jason-1 satellite altimetry by combinations of least-squares extrapolation and stochastic forecasting methods**

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Sea level anomaly (SLA) time series obtained from the TOPEX/Poseidon and Jason-1 satellite altimetry correspond to the dynamics of the global ocean. In this study the prediction of these data is performed by means of combinations of least-squares (LS) extrapolation with autoregressive (AR), multivariate autoregressive (MAR) and autoregressive conditional heteroscedastic (ARCH) forecasts. In these three prediction techniques the seasonal and linear trend signal is predicted by LS method and the LS residuals are predicted by the AR, ARCH and MAR stochastic techniques. The final prediction of SLA data is the sum of LS extrapolation and stochastic prediction of the LS residuals. In the case of MAR prediction of the SLA data the global mean sea surface temperature (SST) data obtained from the NOAA OI.v2 gridded fields are assumed to be the explanatory variable. The first part of the study aims to show the performances of these prediction techniques and their comparison for the global mean SLA data. The second part of the study aims to show the maps of the mean prediction errors of SLA data computed by combination of the LS and AR forecasts for each grid as a function of latitude and longitude.