



## **Correlation and coherence analysis between sea surface temperature and altimetric sea level anomaly data**

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One of the main causes of the sea level variations is the steric effect caused by changes of local sea surface temperature (SST). To show how the altimetric Sea Level Anomaly (SLA) data are related to the SST data, correlation coefficients between them as a function of geographic location were computed. The analysis showed a high positive correlation (about 0.7), especially in the Northern and South-Eastern parts of the Pacific Ocean and a large part of the Atlantic Ocean. There is a negative correlation of about 0.5 in the South-East part of Indian Ocean, on the Arafura Sea and the Red Sea. In addition the time-frequency coherence and semblance functions between the SLA and SST data were calculated using Fourier transform band pass filter. The maps of such coherence and semblance functions in frequency bands corresponding to the annual oscillation and its integer multiplicities were computed. The most important contribution to the correlation coefficient values has the annual oscillation in the SST and SLA data.