



Regional comparison of sea level time series from altimetry and tide gauges in the Northwestern Mediterranean Sea.

M. Cancet (1,2), F. Birol (1,2) and F. Lyard (1)

(1) LEGOS, 14 Ave. E. Belin, 31400 Toulouse, France, (2) CTOH, 14 Ave. E. Belin, 31400 Toulouse, France

Both tide gauges and altimeter satellites observe the sea level variability. However, tide gauges observations are restricted to the coastlines and satellite data provide information in the open sea. Indeed, today, the use of standard satellite altimetric products in coastal zones remains challenging. This study is based on a regional altimetric dataset obtained using a dedicated data processing system developed at LEGOS : the X-Track tool. Among other improvements, this software uses the high resolution regional MOG2D model for the high frequency de-aliasing, a refined data editing strategy in coastal ocean areas, and a local mean sea surface consistent with the altimetric data set. The different altimetric missions (Topex/Poseidon, Jason1, GFO and Envisat) have been reprocessed from October 2002 to October 2005. In parallel, the data from the different tide gauge stations located along the coastline of the Northwestern Mediterranean Sea are analysed. The objective is to determine to what extent the sea surface height (SSH) variability associated to coastal processes can be observed with satellite altimetry, in the area of interest. Our comparison analysis includes temporal and spatial correlations, as well as spectral distributions. Both differences and coherence between tide gauges and altimetry are analyzed on a regional scale.