Pierre
Matton
CLS
Annabelle Ollivier, CLS
Michael Ablain, CLS
Poster
Since 20 years, the spatial altimetry allows to observe very precisely the regional and temporal evolutions of the sea surface height. With this technique, we can follow the evolutions of currents and mean sea level which is one of the indicators of global warming. (Leuliette et al. 2011, Cazenave and Llovel, 2010). Outside this informations, altimetry provides us measures about wind strength and wave height. The role of the wind as climatic indicator was already proved and its stability has already made the object of studies (Ablain et al. 2012). On the other hand, the significant wave height (SWH) from altimetry wasn't so used yet for climate studies purpose.

This day, the significant wave height derived from altimetry is used in the sea level measure via the Sea State Bias correction. That's why it's important to characterize this parameter in order to improve our knowledge of the error budget on different spatial an temporal scales. In addition, a better knowledge of its long term behaviour can help use in physical explanations about oceans evolutions of the last decades. As an example, the number of waves of 5 meters and more is increasing every year.

In this poster, resuming a 6 months training course, we focus on the characterization of Significant Wave Height from different altimetric missions like Envisat, Jason-1, Jason-2, Topex/Poseidon, ERS-1, ERS-2, Geosat Follow On and Cryosat-2. Their behaviour is analysed and characterized in terms of long term and interannual trends. For a finer analysis, comparisons to ECMWF ERA Interim model (Abdalla and Hersbach 2004) were also used as an external reference. This study enables to better characterize some discontinuities in the altimetric dataset (for instance on Topex Poseidon). It also highlights the fact that ECMWF ERA Interim model could not be used straight forward for trend analysis because it assimilates Real Time altimetrics data, affected by some inhomogeneity of processing. It therefore highlights the fact that for Climate orientated models, climate orientated altimetric products should be assimilated instead of Real Time series.

Finally, preliminary studies are shown to propose such climate altimetric SWH product. Once the short length inhomogeneities between missions are filtered, the long term evolution is rather consistent and could constitute a reliable series for physical interpretations.
OSTS session
Regional and Global CAL/VAL for Assembling a Climate Data Record
Meeting name
Ocean Surface Topography Science Team (OSTST) Meeting
Download to PDF