annual variability). For such purpose, we use a large acoustic database collected over 15 years in the three AA LME: Canary Current LME, Guinea Current LME and Benguela Current LME. Our methodology is innovative, introducing original new descriptors to monitor pelagic compartment of each LME and should be efficiently used for environmental monitoring in case of perturbation as overfishing, climate change or marine pollution. Indeed the acoustic scattered layer are mainly composed of macrozooplankton and ichtyoplankton which are sensitive to environmental change.

Spatial functionnal analysis application on fisheries acoustics data coupled with fine scale environmental data

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In this work, we were interested in the application of functional, spatial data analysis (FSDA) on coupling acoustic (*Sv*) and environmental (water temperature, fluorescence, salinity and turbidity) data. To do this we use data from an acoustics fisheries surveys (R/V Thalassa, Ifremer, AWA campaign) carry out in West African waters using multifrequency echosounder (18, 38, 70, 120, 333 kHz) and a scanfish (high performance towed undulator). FSDA were compared to classical statistical methods namely multivariate functional principal component analysis, classical principal component analysis, classification on principal component scores, classical additive model, spatial functional additive model. The interest to improve such statistical analysis is appliedhere to the study the effect at fine scale of environmental parameters on the distribution of coastal sound scattered layers. We first considered an aggregated analysis of the environmental data then we considered a more complete analysis of the data via their functional characters.

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