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Analysis of seismic events from hydrocarbon exploration and harmonic tremors from an Ocean Bottom Seismometer Array in eastern Canary Islands

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The canary archipelago is a low seismicity area with low magnitude events. Our interest in this region is focused on detecting and locating events occurred during drilling operations and the analysis of harmonic tremors. We take data from an Ocean Bottom Seismometer array (17 OBSs) deployed during two months in the eastern Island archipelago. Array methods are suitable to highlight detection of seismic events and locate its sources. We analyze with a new methodology incoherent signals across the OBSs large aperture array. The proposed methodology estimates the Hilbert transform time-frequency plane to find impulsive characteristic functions and subsequently the impulsive functions are stacked to derive the slowness vector of incoming seismic transient signals. We will show results of source locations from short duration harmonic tremors and seismic events occurred during the drilling activities.