

**ACOUSTICS2008/2115**  
**Classification of angular backscattered responses obtained at sea**  
**with a forward looking sonar system**

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The prototype of a multibeam front-scan sonar has been developed within the frame of a MAST contract (n° MAS3-CT97-0090 DG12-ESCY, acronym COSMOS). A large amount of data has been collected at sea. With the forward looking geometry of acquisition, the foot-prints of successive pings overlap largely, so that most parts of the surveyed areas are seen under a large range of incidence angles. It gives the capability to derive the local angular response of the bottom, which is indeed an important information for characterizing the nature of the seafloor. This presentation addresses the successive steps that were undergone to classify the backscattered responses : Data are conditioned to perform principal component analyzis ; an original clustering identification process is also described ; resulting maps are finally presented.