

## Mesures géotechniques par grand fond

The mechanical behaviour of sediments is usually studied from laboratory core analyses which do not take into account the real state of in-situ stresses. Therefore, the aimed purpose is presently to determine the in-situ geotechnical properties which mainly depend on the relationship between fine-grained particles and intergranular fluids. At IFREMER, these achievements have been pursued in the framework of 2 scientific program: "Nodules and Sedimentary Processes and Instability on Slopes, for which surficial measurements were conducted on selected seafloor targets usually pre-defined from high resolution geophysical data." 2 kinds of instrumentation were developed in correlation to 2 different strategies of handling at sea. There is the instrumentation of the submersible "Le Nautilus" equipped with a vane shear device, which enabled us to measure for the 1st time the in-situ undrained shear strength of pelagic sediments in the nodule environment. The possibility of accurately choosing on the seafloor the testing sites by means of a submersible, enable us to achieve this spectacular operation of ground-truthing. The other set of instrumentation is an autonomous equipped frame tethered by a cable. It is a supported rig which can be handled by any customary oceanographic vessel and is designed to penetrate the seafloor up to 2 m with a piezo-cone.

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