



Dynamic Properties of Submarine Sediments off SW Taiwan

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Typhoon and earthquake are mainly natural disasters in Taiwan. Accordingly, the dynamic properties of submarine sediments are important issues while there are referring to offshore site investigation, marine structure construction, and resources exploration. The gas hydrate is a potential energy resource and distributed over the continental margin offshore of the south-west (SW) of Taiwan. Because of the requirement of exploration works, lots of marine areas were selected to study their engineering properties of submarine sediments. The geophysical seismic method and geotechnical laboratory tests were performed to establish physical properties and dynamic soil parameters of these selected sites. Data obtained from P-waves and S-waves generated by P-S conversion on reflection from airgun shots recorded along one line of ocean bottom seismometers (OBS) were used to construct 2-D shear wave velocity (V_s) sections. The cores sampled at test sites utilized gravity sampling method and conducted soil laboratory tests. The cored specimens carried out physical property test and the bender element test to obtain physical properties, V_s , and maximum shear modulus (G_{max}). Correlations of porosity, V_s , and G_{max} were constructed to predict the in situ properties. Results show the prediction equation get approximate values in comparison with the V_s and G_{max} measured by field geophysical seismic method. This paper introduces the field and laboratory tests on obtaining dynamic properties, presents all of the test results, and correlate the relationship of dynamic soil properties between field and lab test outputs.