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Study on absorbed wave power by air chambers installed in break water

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Summary: It is presented how to calculate the efficiency of wave power absorption by oscillating water column type wave power devices installed in a breakwater. Experimental results and theoretical calculation results on amplitude of pressure in air chambers are shown. The theoretical calculation results, in which the compressibility of air is taken account and the pressure surface condition on the water surface of air chamber is strictly satisfied, are good agreement with experimental ones. The wave power generating system for demonstration was constructed in a breakwater in Hara Machi City of Fukushima Prefecture, Japan. Field data (from '96~'98) as to the pressure in air chambers are shown together with theoretical calculation results. Theoretical calculation results are good agreement with experimental ones obtained in Hara Machi field. Finally, it is shown where to install oscillating water column in a breakwater, from the viewpoint of energy absorption efficiency.