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Preliminary design of high pressure testing apparatus for consolidation properties of deep sea sediments

This project is aimed at creating a high pressure consolidation device that will successfully measure consolidation properties of sediment samples taken from the Nankai Trench off the coast of Japan. The main difference between the proposed device and current consolidation devices are the pressure range and cross-sectional area of the machine. An improved consolidation device would allow for more accurate results as the pressure would be closer to that at the ocean's floor, and sample sizes could be much larger due to the larger area of the loading apparatus. This consolidation device could also be used on the deep-sea drilling vessels that produce these samples, and consolidation tests could begin immediately after drilling, rather than months later. The development of a high pressure testing apparatus could measure consolidation properties of deep-sea sediments more accurately than any currently used consolidation device.