

NOTE ON THE USE OF A BARGE FOR DUMAND DEPLOYMENT.

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It has already been noted that the use of a drill ship for deployment of the initial DUMAND array is somewhat in the nature of overkill, since the capability of the drill ship to rotate the drill string remains unused. Consequently, I have looked into the possibility of substituting for the drill ship a less expensive vessel - e.g. a barge, with the same lift capacity, heave compensation, station-keeping ability, etc., but lacking the drilling capability. At first sight it looks as though we might save a great deal, since running a barge might cost perhaps \$5K/day, as opposed to \$55-100K for a drill ship. Is this a reasonable approach?

I put this question to RADM Sonenschein, of Global Marine, who participated in both our deployment workshops, and is deeply interested in DUMAND. After we discussed it at length, he promised to think about it more and report back on his conclusions. They are as follows.

1. The proposed DUMAND site is in open seas, subject to strong winds, currents, and storms. A barge with no primary engine power, but only small motors for station-keeping, is far less tolerant of inimical sea conditions than a ship. Thus, even if it were to turn out that a barge could be outfitted and equipped at a reasonable cost, it would still be subject to a requirement of almost perfect calm in order to be able to carry out its tasks. A study of the question of barge vs ship was made for the OTEC-1 project, and the conclusion reached that a barge would not be capable of sustained station-keeping at the OTEC site (which was closer to land than the DUMAND site.) The conclusions remain valid for DUMAND.

2. The estimated cost of outfitting a barge with the required equipment is about \$2M. It would take about 6 months to install.

The Challenger still seems the best choice, although the present Phase I array is small enough that an ordinary drill ship could handle it. The future of the Challenger is still obscure in view of turmoil over the budget; the Explorer may or may not survive.

3. In addition, RADM Sonenschein suggested another possibility, a ship called Deep Sea Miner, used for mining tests in the Pacific, and now laid up out of service in Portland. He thought it might be worth investigating.