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SEABED DISPOSAL PROGRAM: GEOCHEMICAL AND
SEDIMENTOLOGICAL STUDIES OF NORTH PACIFIC SEDIMENTS

Progress Report

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Abstract

Reduction of field data for study area MPG-2 (33°20'N, 151° 00'W) has established that sedimentation rates during the past 20 million years have varied by less than a factor of two over distances of tens of kilometers. These variations have been uniform through time, indicating that catastrophic events have not disturbed sediments in this area. Manganese nodules from the MPG-2 area are not economically attractive.

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Introduction

As part of a multidisciplinary, multi-institutional study to evaluate the bed of the deep sea as a repository for the permanent disposal of high-level radioactive waste, we are determining the depositional processes and sediment mineralogy and geochemistry of deep-sea deposits from the central North Pacific. These studies are aimed at establishing the long-term physical stability of the area, and the barrier properties of the sediments with respect to migration of high-level reactor waste components.

Progress April - June 1975

The results of cruise YALOC-74 (R/V Yaquina, Nov.-Dec. 1974) have been synthesized and issued as a technical report (C00-2689-1). Subsequently, the long cores from this cruise have been opened and described. These cores contain a series of altered volcanic ashes and a color boundary which allow detailed core-core correlations. These levels are summarized below:

Horizon	Core 58P	62P	65P	73P
Color change	8*cm	162-172	175-185	162-173
Ashes	410-416	407-412	529-533	511-516
	468-471	438-443	561-564	571-575
	590-602	512-520	651-661	694-699
	669-683	558-568	700-711	759-771

*Approximately 2m of core top lost during coring operation.

Comparison of cores 58 and 62, for example, shows perfect correlation of these depths, but with 58 accumulating 1.7 times as fast as 62.

Analyses of manganese nodules from MPG-1 and MPG-2 show $(\text{Ni} + \text{Co} + \frac{1}{2}\text{Cu})$ values well below the economic cutoff of 1.85% (nodules southeast of Hawaii

have values over 2.2 and occasionally over 2.5). Relevant analyses are summarized below.

MPG-1	Mn	Fe	Co	Ni	Cu	(Ni+Co+ $\frac{1}{2}$ Cu)
MD1-1	22.0	10.8	0.26	0.97	0.61	1.54
MD1-2	21.0	12.8	0.35	0.80	0.44	1.37
MD1-3	19.4	10.0	0.25	1.04	0.56	1.57
MD1-4	21.5	11.7	0.27	0.94	0.60	1.51
MPG-2						
Y74-52LG(1)	17.8	12.5	0.30	0.54	0.31	0.99
Y74-52LG(2)	15.5	10.8	0.27	0.58	0.38	1.03
Y74-61HG	18.9	3.5	0.21	0.88	0.66	1.41
Y74-70LG	20.5	10.7	0.27	0.81	0.67	1.41