$\textbf{Fig. S1} \ \text{Map showing sampling locations in Arabian Sea and Bay of Bengal OMZ}$ 

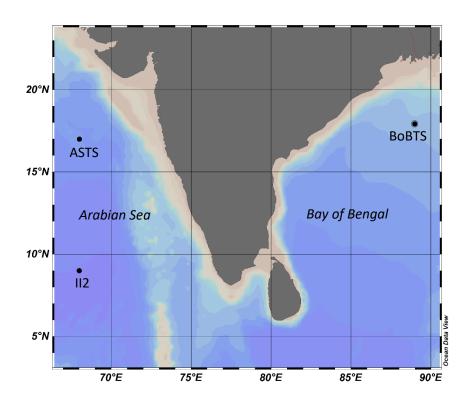


Fig. S2. Rarefaction curves of ASTS, BoBTS and II2

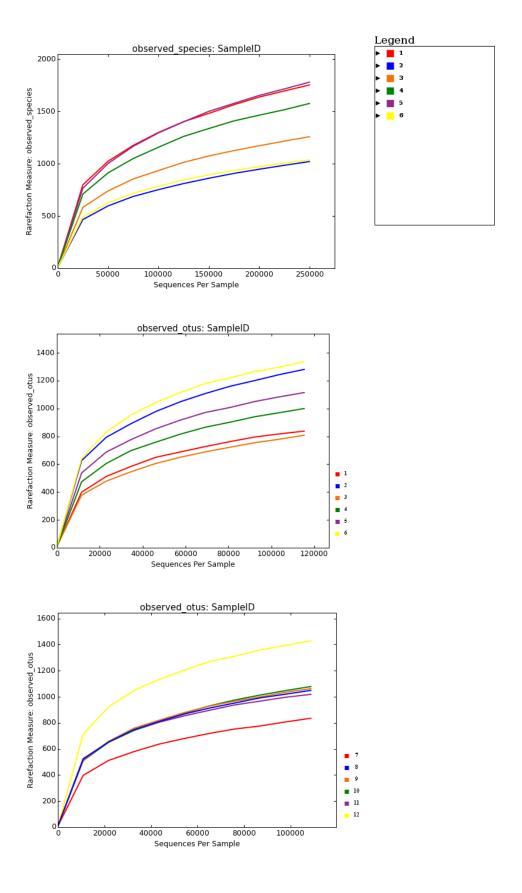


Fig. S3 Archaea distribution (Class level) at ASTS, BoBTS and II2

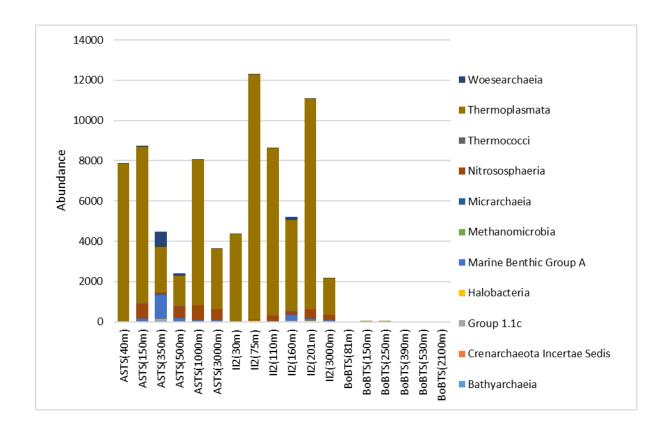


Fig S4a KEGG functional categories predicted from ASTS stations using Tax4Fun tool

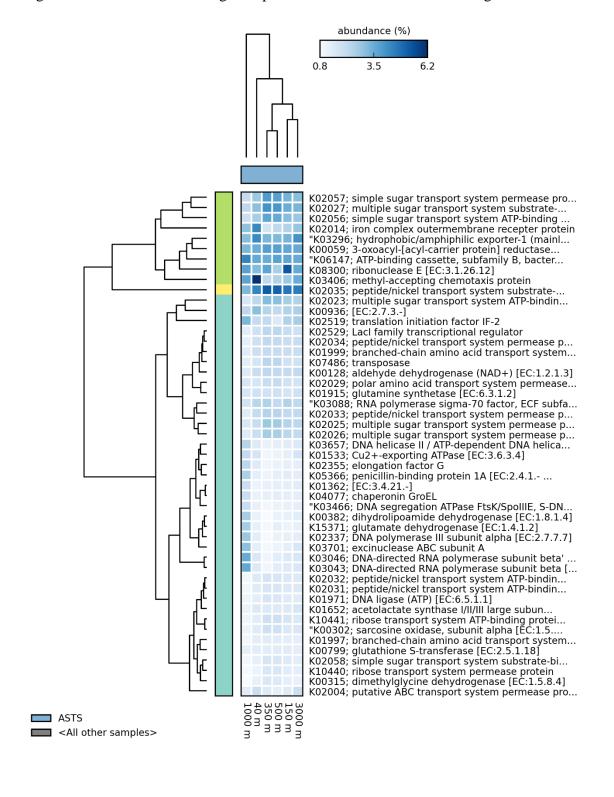


Fig S4b KEGG functional categories predicted from BoBTS stations using Tax4Fun tool

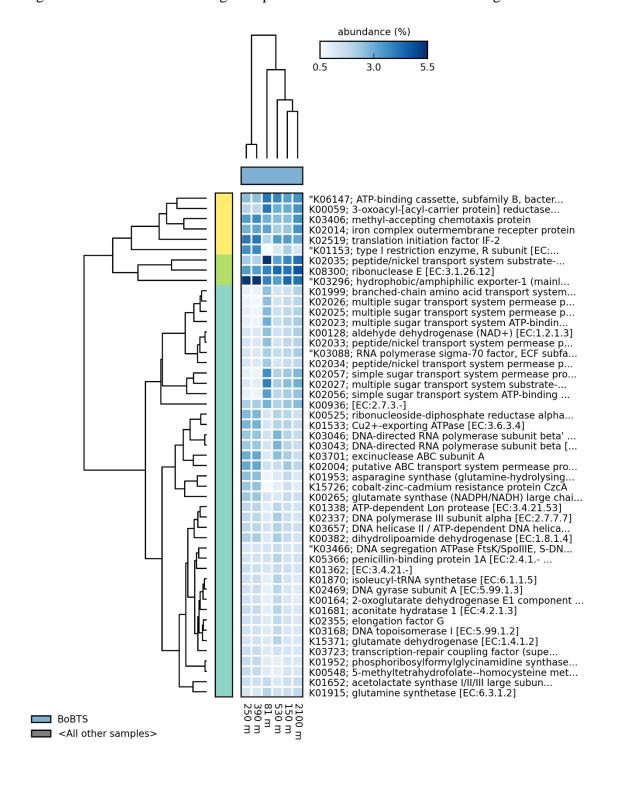


Fig S4c KEGG functional categories predicted from II2 stations using Tax4Fun tool

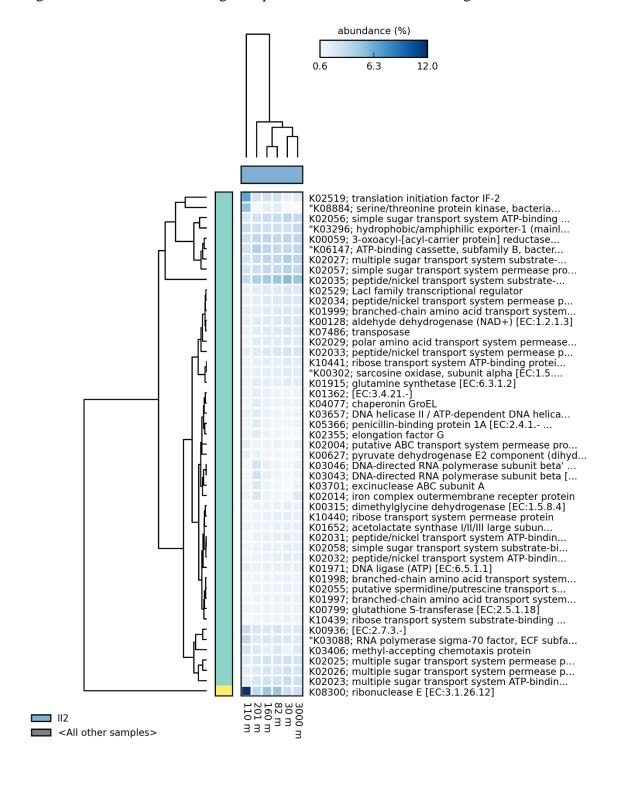


Fig S5a Nitrogen metabolism pathways at all 3 sampled sites

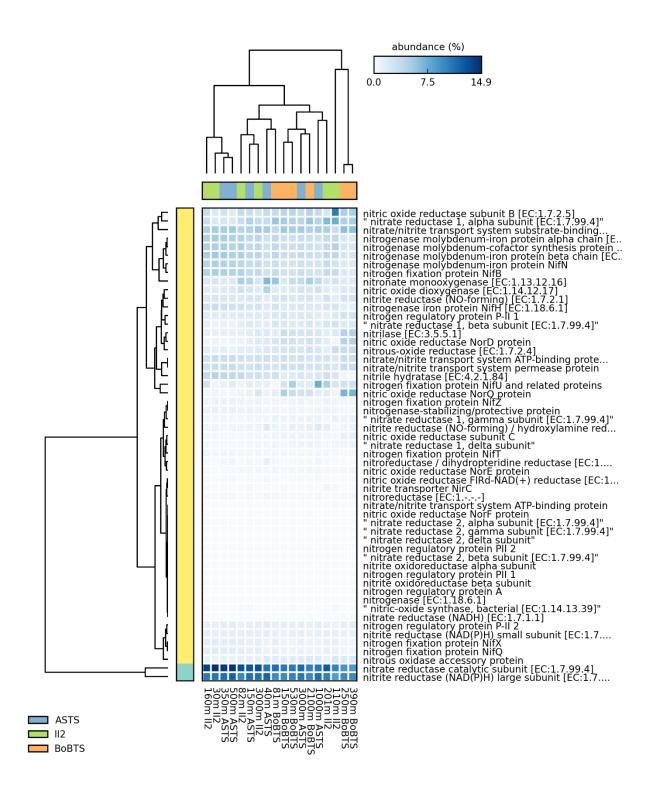
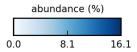
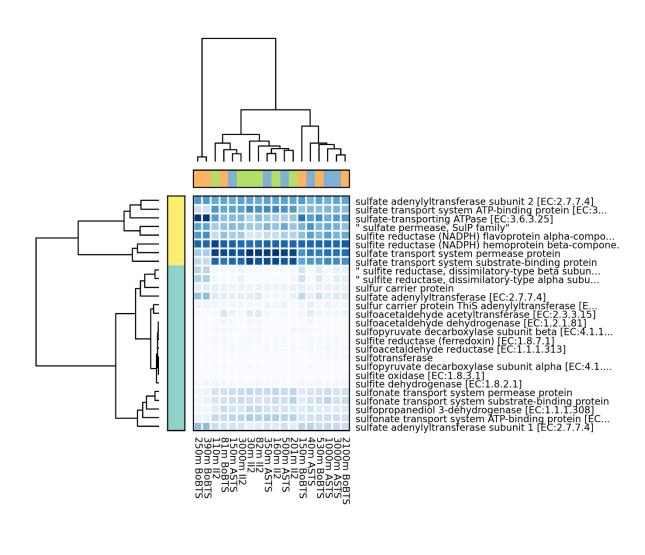


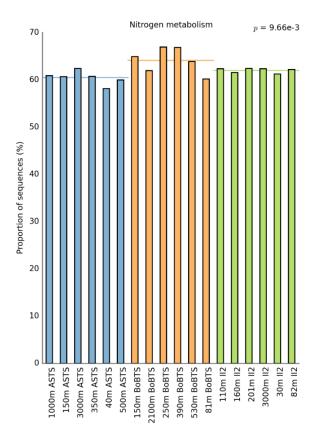
Fig S5b Sulphur metabolism pathways at all 3 sampled sites







■ ASTS ■ II2 ■ BoBTS



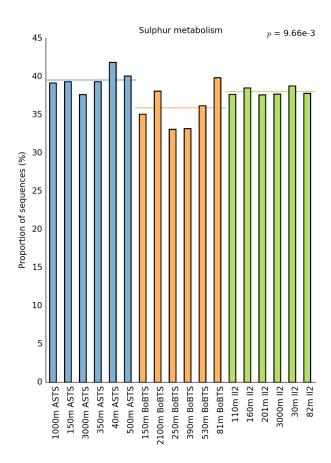


Table S1: Shannon\_H diversity of archaeal community at class level along the sampled depths of ASTS, II2 and BoBTS

ASTS		II2		BoBTS	
40 m	0.01094	30 m	0.02245	81 m	-
150 m	0.4336	82 m	0.06904	150 m	0.466
350 m	1.274	110 m	0.1651	250 m	0.5623
500 m	1.086	160 m	0.5946	390 m	-
1000 m	0.3702	201 m	0.2617	530m	-
3000 m	0.5613	3000 m	0.5429	2100 m	-