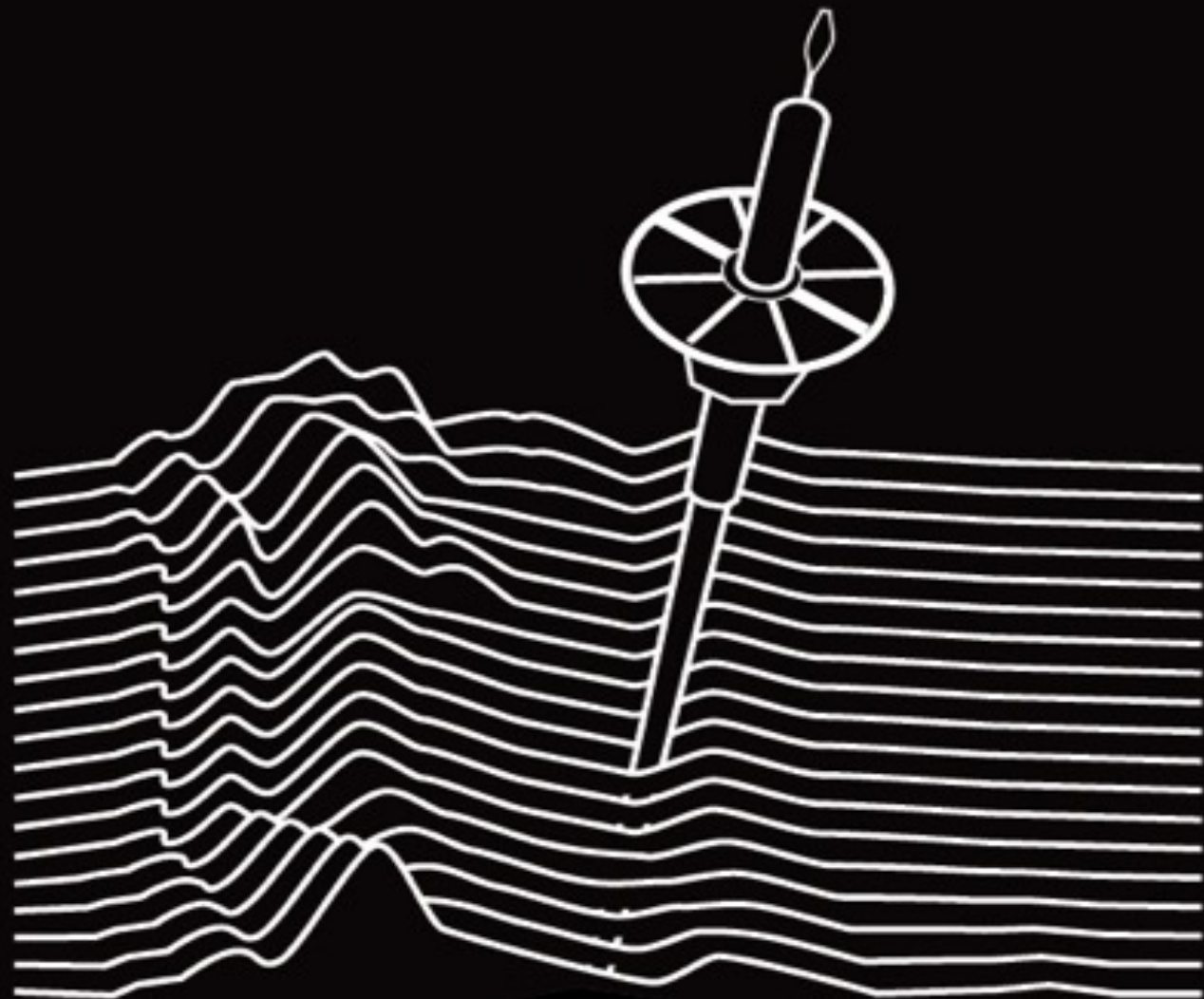


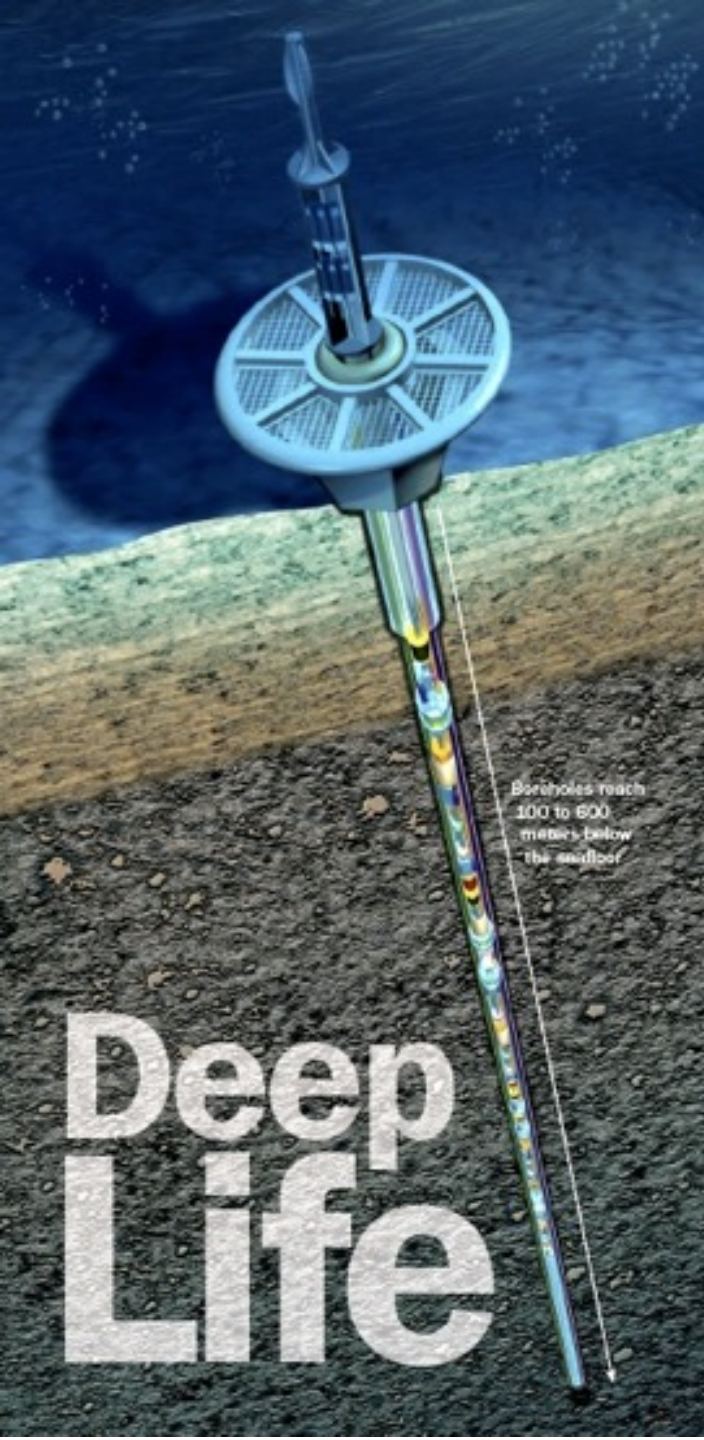
Beth Orcutt -
@DeepMicrobe



AT42-11 Slow Life in the Fast Lane
MAY 2019 / JUAN DE FUCA RIDGE FLANK CORKS

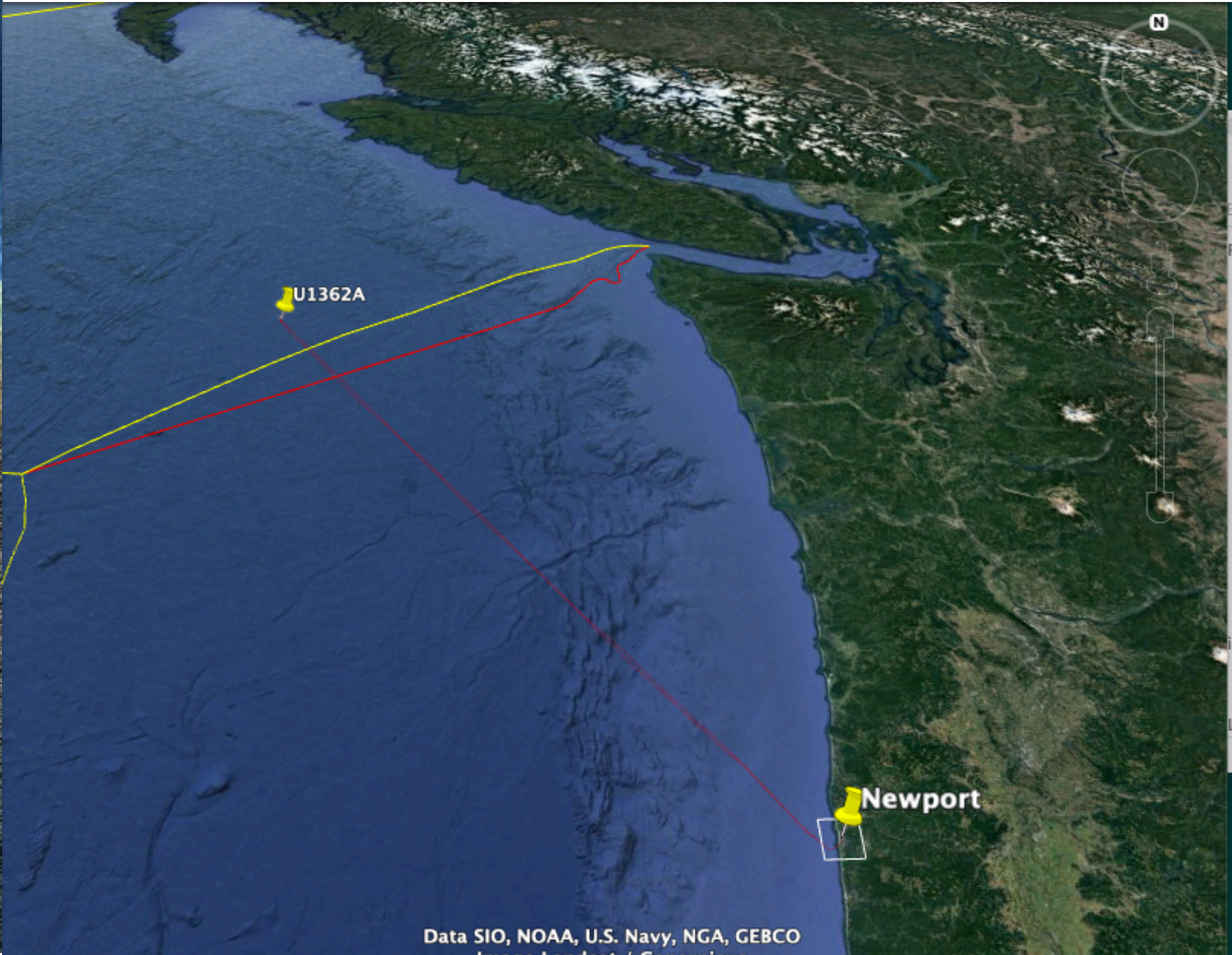
NSF OCE-1737017 (Orcutt) + NSF OCE-1851582 & linked (Rappé, Nigro, Carr)
+ NSF OIA-1826734 (Stepanauskas, Orcutt et al.) + NASA 80NSSC19K0466 (Orcutt)





Boreholes reach
100 to 600
meters below
the seafloor

Deep Life



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

1° Objectives

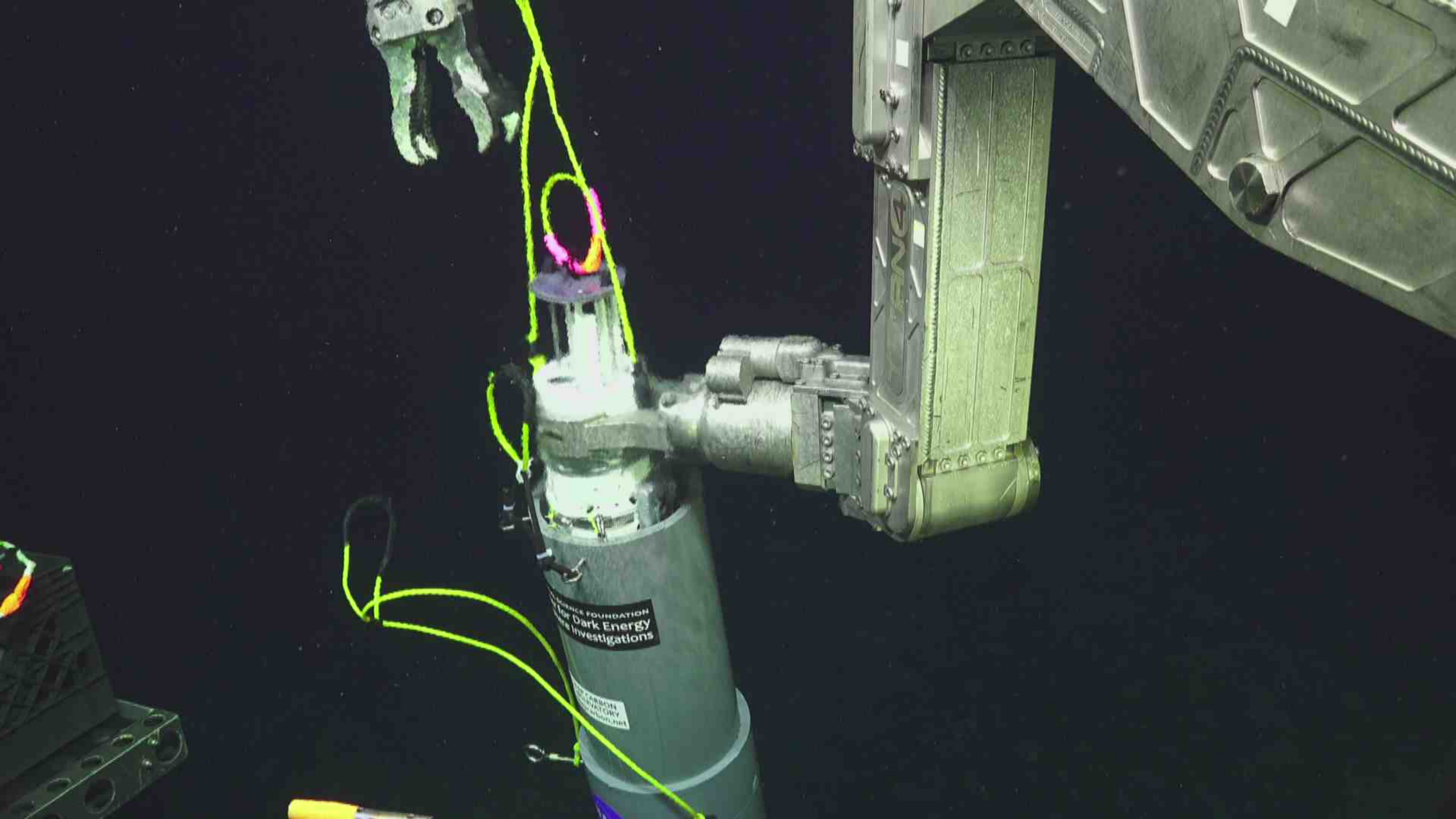
- Seafloor & shipboard incubations of crustal fluids with stable isotopes to measure rates of microbial activity and identify active members of population
- Collect & filter large volumes of crustal fluid for analysis of microbial ecogenomics, viral-host interactions, and physiology

2° Objectives

- Download pressure data, deploy flow meter, seal older observatory, water column + sediment sampling, recover OsmoSamplers

Stats

- 136 hours waiting on weather (>50% of time)
- 4 ROV dives totaling 79 hours bottom time for science (+~6 hr for engineering dive time)
- Several seafloor incubations completed (longest with crustal fluids = 6.5 hours)
- 352L fluid collected, 674L filtered in situ with Mobile Pumping System, record 21,300L passively filtered *in situ*
- Water column & sediment samples, OsmoSamplers recovered, Pressure data downloaded, CORKs left sealed
- More details: <https://www.bco-dmo.org/project/700324>



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Performance assessment

- Overall, exceptional performance of ship and ROV !!
- ROV:
 - 1 dive aborted due to failure of Hydraulic Pressure Unit.
 - 1 AFX blew up on last dive – did not affect science as we were in layup mode during elevator ops.
 - Minor issues with LARS level wind, but did not affect science
 - New SeaLog software was easy to learn
- Minor ship issues: O₂ sensor on CTD, TopLab nav interference

**10/21 science party members
= first time on cruise**

