CTD Summary
EX2403, CTD001, July 01, 2024

This form contains metadata information summarizing individual vessel CTD (conductivity, temperature, depth) casts in support of ocean exploration objectives. All CTD data are archived with the National Centers for Environmental Information (NCEI). For CTD-specific or expedition-specific inquiries, contact ex.expeditioncoordinator@noaa.gov. For assistance with data access, contact ncei.info@noaa.gov.

General Expedition and CTD Information

Expedition Name	EX2403, Beyond the Blue: Papahānaumokuākea Mapping 1
Project ID	EX2403
CTD Cast Date (UTC)	Jul 01 2024 23:39:20
CTD Number	CTD001
Expedition Coordinator	Thomas Morrow
Mapping Lead	N/A
Science Lead	N/A
Science Lead	N/A
General Area Descriptor	Papahānaumokuākea Marine National Monument
Site Name	STN001
CTD Cast Purpose	eDNA sampling and water column sound velocity profiling

CTD Cast Location, Depth, and Time

Locations are the ship's position. Coordinates are referenced to the World Geographic System, 1984.

Deployment Latitude (decimal degrees)	27.31582

Deployment Longitude (decimal degrees)	-167.47420
Deployment Time (UTC)	23:39:20
CTD Max Depth (meters)	998.658
Recovery Latitude (decimal degrees)	-167.47182
Recovery Longitude (decimal degrees)	27.31924
Recovery Time (UTC)	10:38:53

Environmental Sensor Information

Sensors are calibrated yearly or more frequently as required. Calibration information and files are stored with the sensor data.

Data Type	Sensor Name	Collected (Yes/No)	Data Issues/Notes
Depth	SBE-9plus	yes	
Conductivity 1	SBE-9plus	yes	
Conductivity 2	SBE-9plus	yes	
Temperature 1	SBE-9plus	yes	
Temperature 2	SBE-9plus	yes	
Dissolved Oxygen	SBE-43	yes	
Turbidity	ECO-FLNTU	yes	
Oxygen Reduction Potential	PMEL	yes	

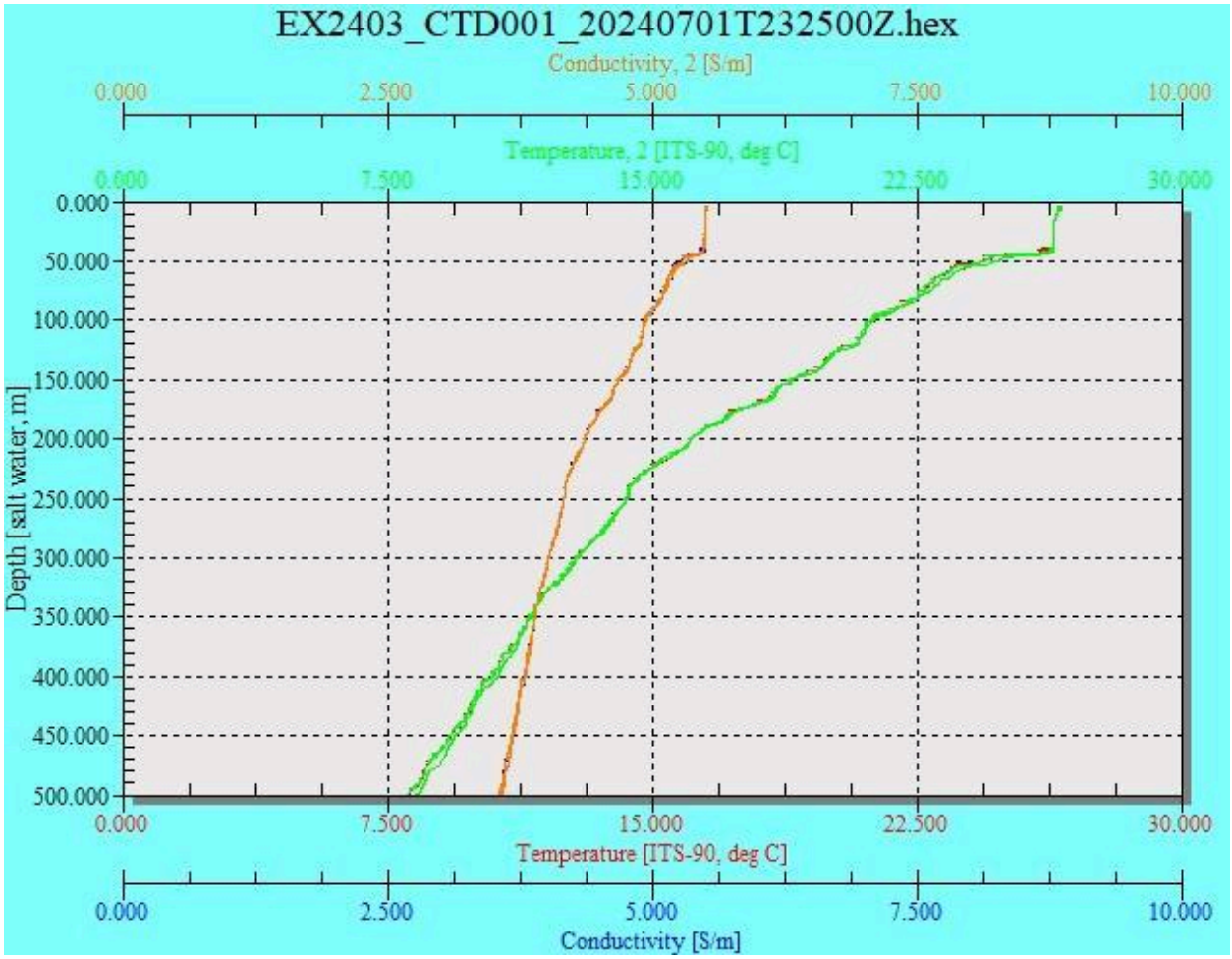

Figure 1: Temperature (°C)(green line) and conductivity (S/m)(orange line) profiles

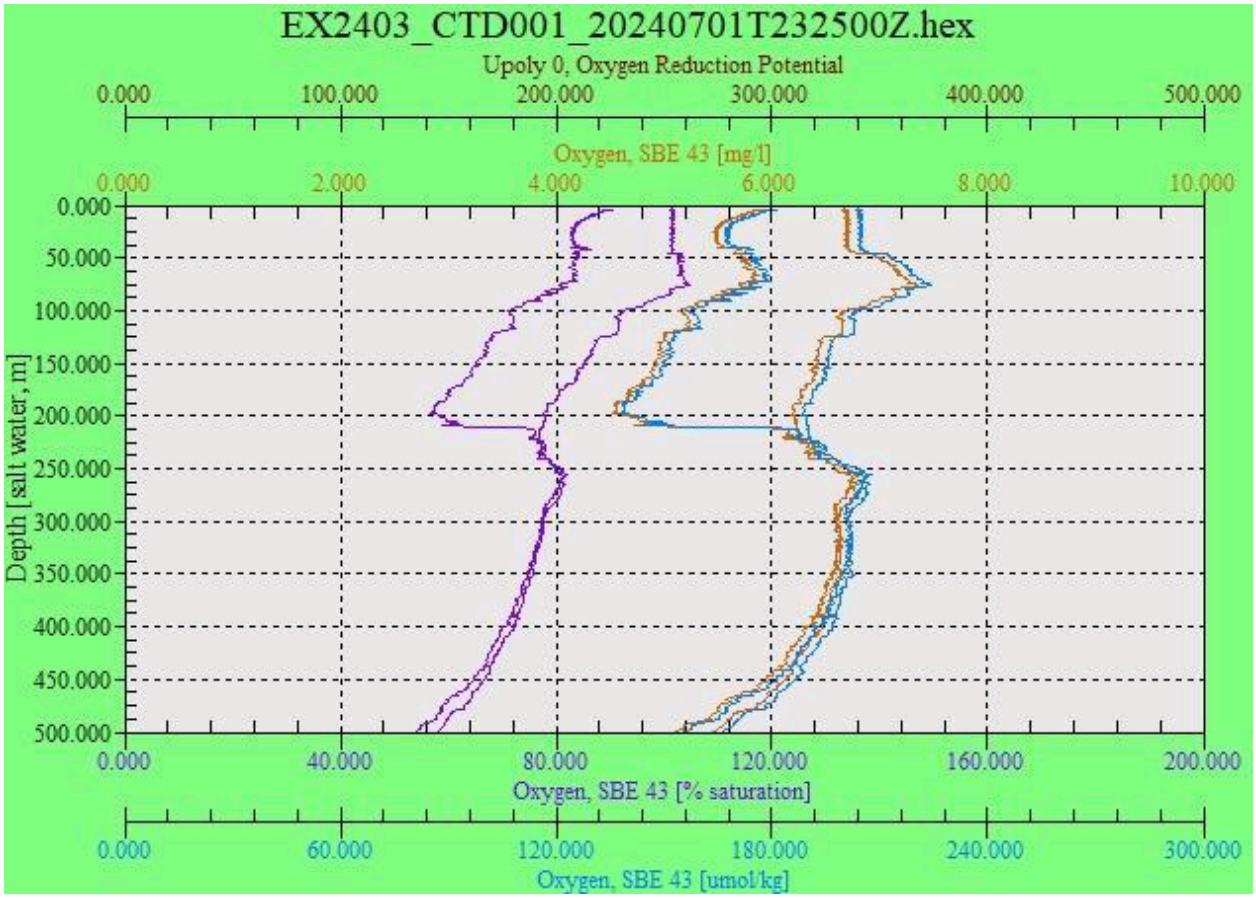

Figure 2: Oxygen saturation (% saturation) (purple line), oxygen concentration (umol/kg) (blue line), and oxygen reduction potential (brown line) profiles

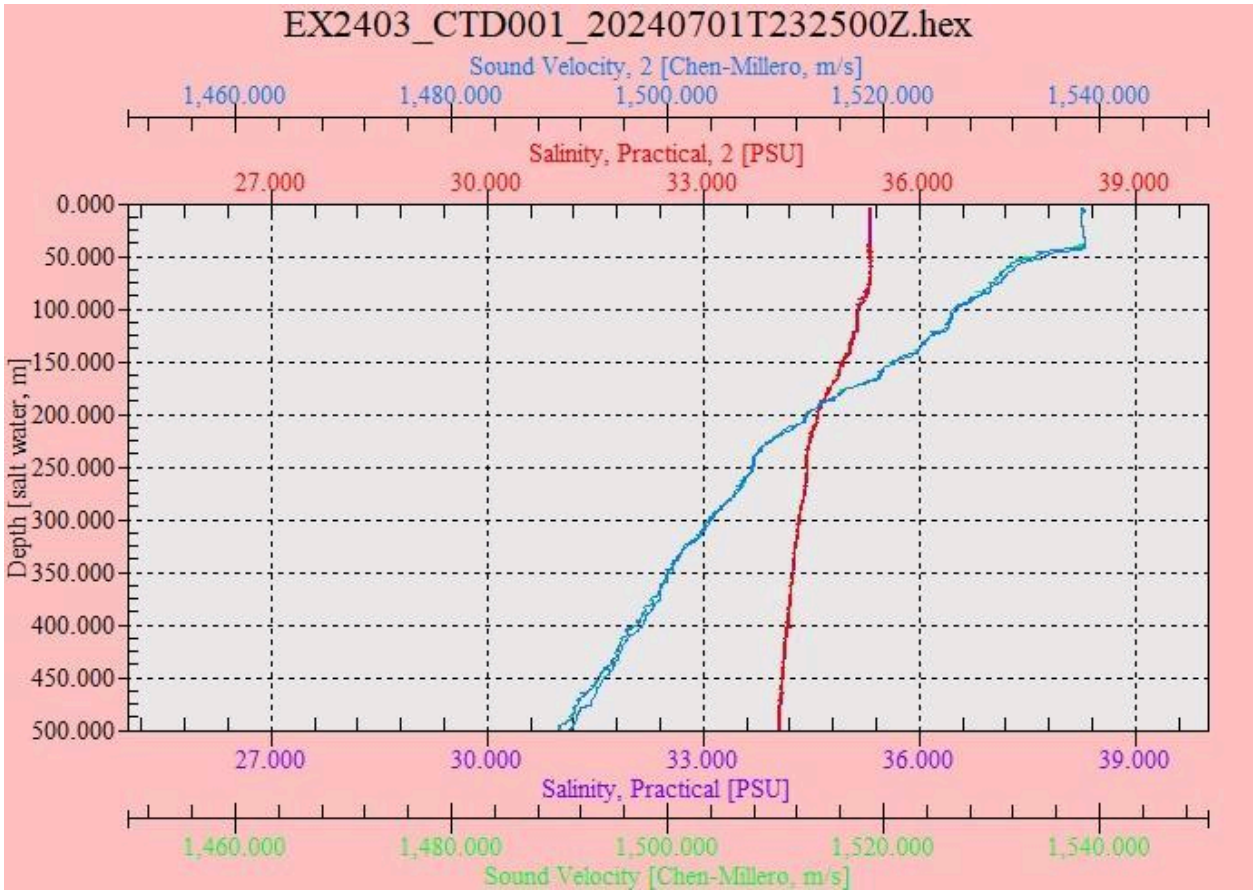

Figure 3: Sound velocity (Chen-Millero, m/s)(blue line) and salinity (PSU)(red line) profiles

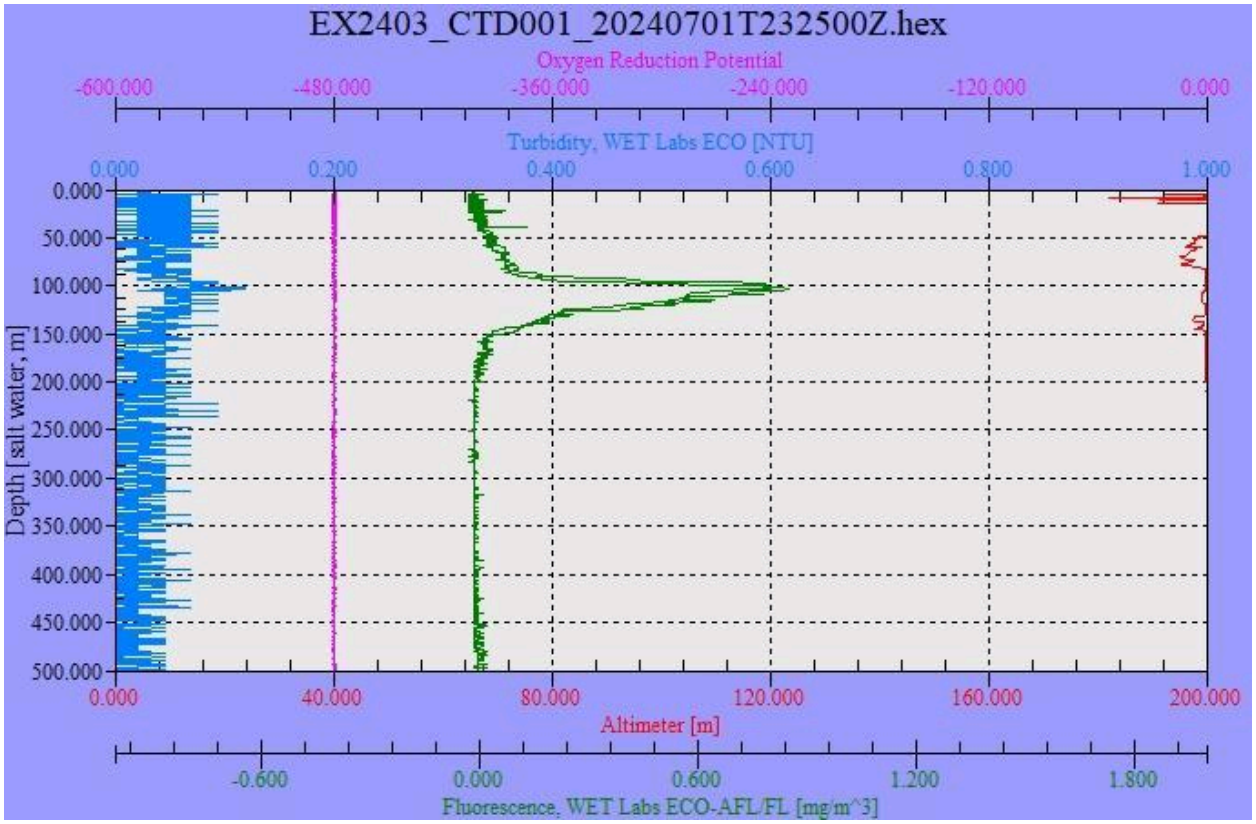

Figure 4. Turbidity (NTU)(blue line), Fluorescence (mg/m^3)(green line), Oxygen Reduction Potential (purple line).

Water Sample Collections

Purpose of Water Sample Collection	samples were collected for later eDNA analysis
Description of Processing/Analysis at Sea	4 liters of seawater were filtered through .45 µm filters and stored in DNA/RNA Shield
Description of At-Sea Storage	frozen (8 samples), refrigerated (8 samples), and room temperature storage (8 samples)

Niskin Bottles Locations and Depths

Bottle Number	Time (UTC)	Longitude (DD)	Latitude (DD)	Depth (meters)	Notes
1	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison

Bottle Number	Time (UTC)	Longitude (DD)	Latitude (DD)	Depth (meters)	Notes
2	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
3	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
4	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
5	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
6	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
7	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
8	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
9	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
10	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
11	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison
12	00:01:22	-167.4742	27.31582	1000	homogenized sample for methodological comparison

eDNA samples collected on CTD001 were collected at the same time and depth and then homogenized onboard in order to evaluate the effect of variations in storage time and temperature.

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