

Site: NAZCA-14A

Priority: 2 (Alternate site to Site NAZCA-17A)

Position: 17°02.10'S, 78°06.54'W

Water Depth: 2930 m

Sediment Thickness: 300 m

Target Drilling Depth: 300 mbsf

Approved Maximum Penetration: 350 mbsf

Seismic Coverage: Sediment Cover TWTT = 0.40 s (300 m)

Primary Line: 970327 (*Revelle*), Line NAZ-6A-1, 0043z, SP505

Crossing Line: 970327 (*Revelle*), Line NAZ-6A-3, 0616z, SP433

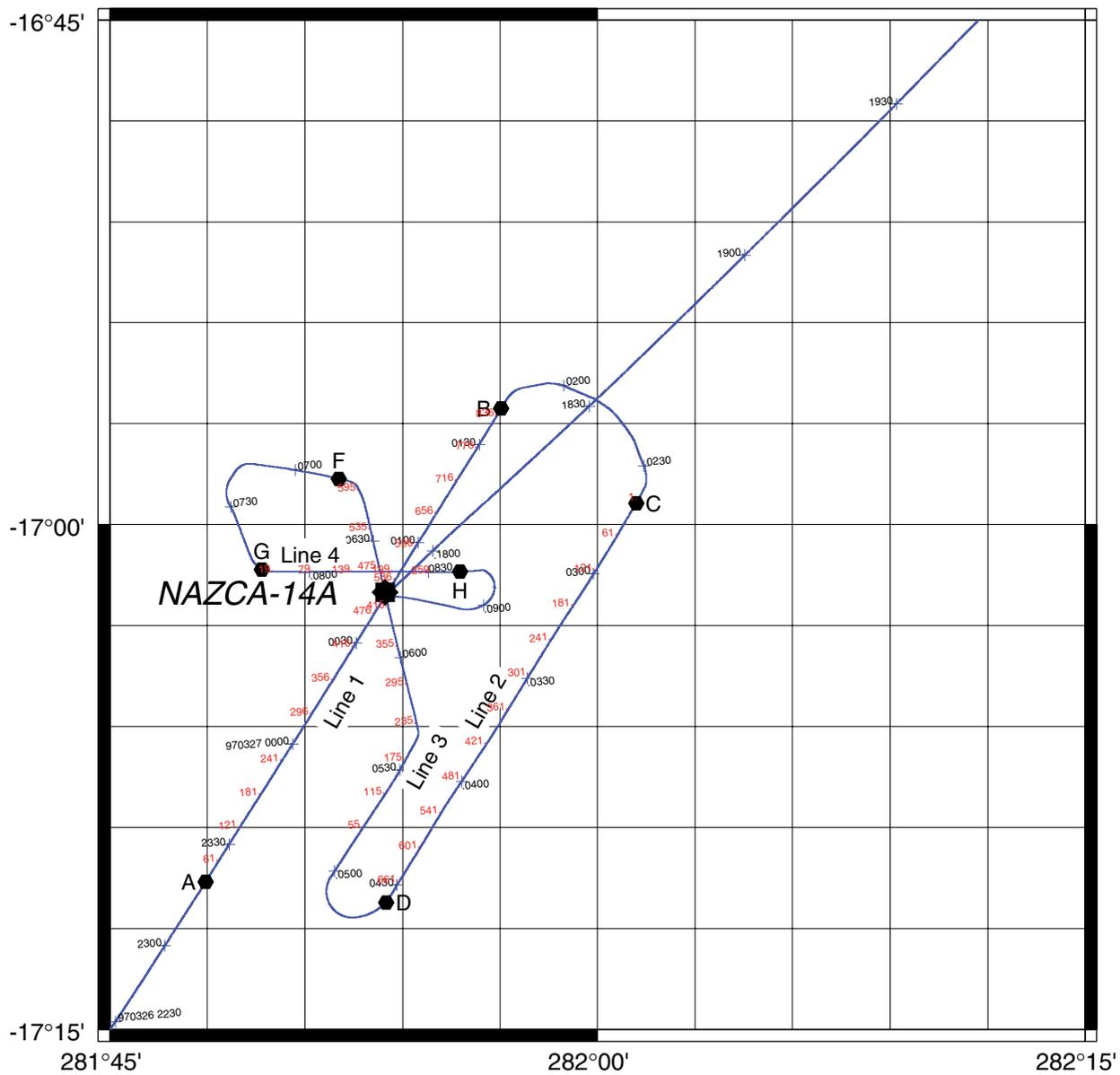
Objectives: The objectives at Site NAZCA-14A are to provide a continuous sedimentary sequence to:

1. Monitor the offshore extent of the productivity gradient in the Eastern Boundary Current during Pleistocene time, through comparison to NAZCA-17A.
2. Provide an ancient (early Neogene) record of the subtropical gyre that has not been deeply buried.
3. Monitor PCW (backtracking into intermediate water depths in early Neogene time).

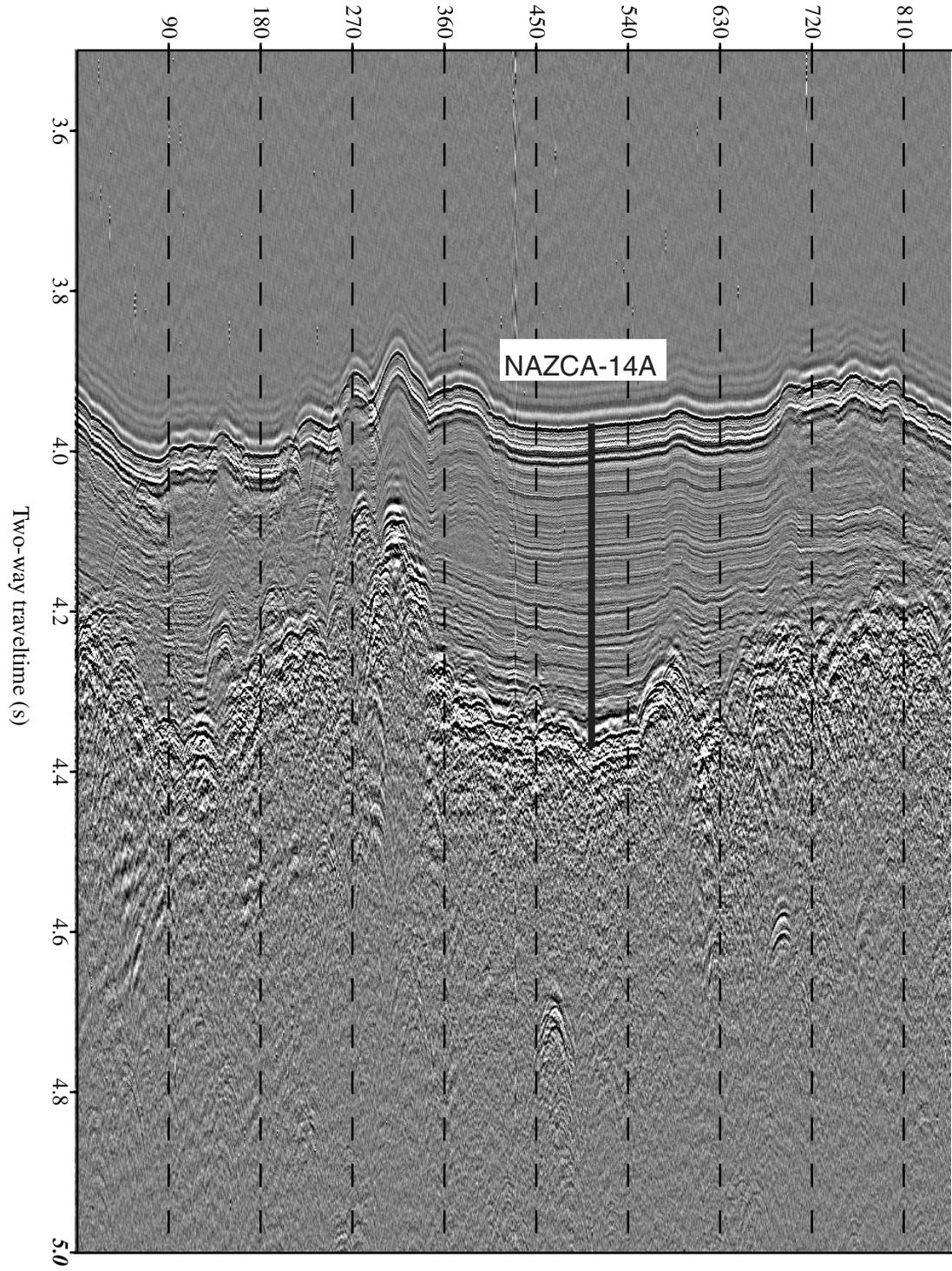
Drilling Program: Triple APC to refusal. Tensor orientation on APC cores. Single XCB to extend one hole to basement or refusal (expected penetration ~300 mbsf).

Logging and Downhole: Triple combo, third-party Lamont MGT, FMS/sonic, GHMT.

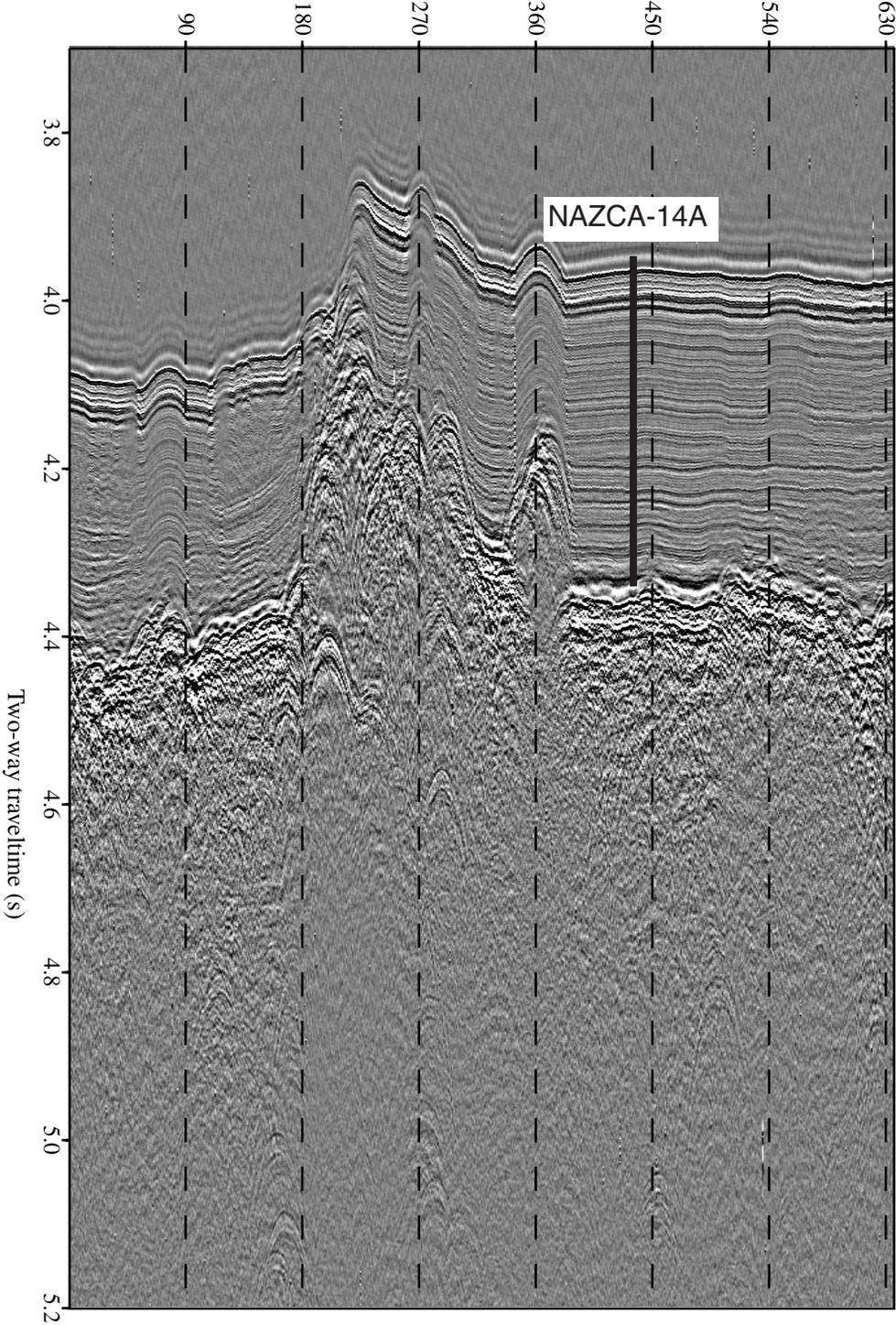
Nature of Rock Anticipated: Site survey core suggests foram-nannofossil ooze. Pleistocene section contains siliceous fossils, lithified at depth. Basement ages likely near 40 Ma in this region, and sediment thickness of ~300 m suggests average sediment accumulation of ~8 m/m.y.. A rhythmic sequence of >40 reflectors through the section suggests that this area will record significant changes in climate in the local lithology. Basement likely composed of hotspot volcanics, but may be either erosion surface from subaerial exposure, or drowned reef.

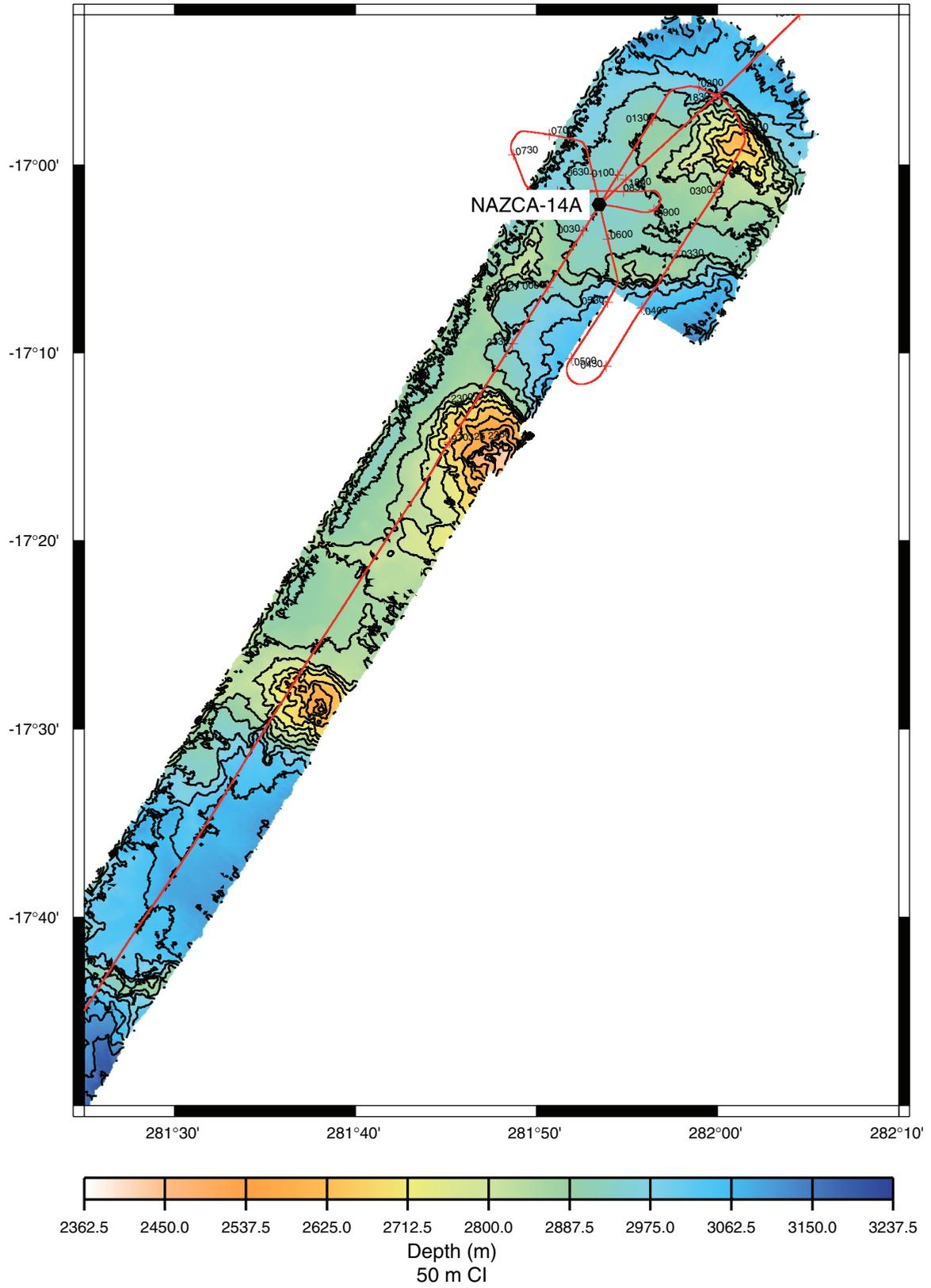


NAZCA-14A Shot 505, Survey NAZ-6A.line1, Shot within 2319-0141z 97mar26.



NAZCA-14A Shot 433. Survey NAZ-6A.line3 0504-0649z 97mar27 .





Site: NAZCA-16A

Priority: 2 (alternate to Site NAZCA-17A)

Position: 16°08.04'S, 76°58.62'W

Water Depth: 2244 m

Sediment Thickness: 320 m

Target Drilling Depth: 320 mbsf

Approved Maximum Penetration: 350 mbsf

Seismic Coverage: Sediment Cover TWTT = 0.42 s (320 m)

Primary Line: 970328 (*Revelle*), Line NAZ-2B-2, 0713z, SP643

Crossing Line: 970328 (*Revelle*), Line NAZ-2B-5, 1217z, SP492

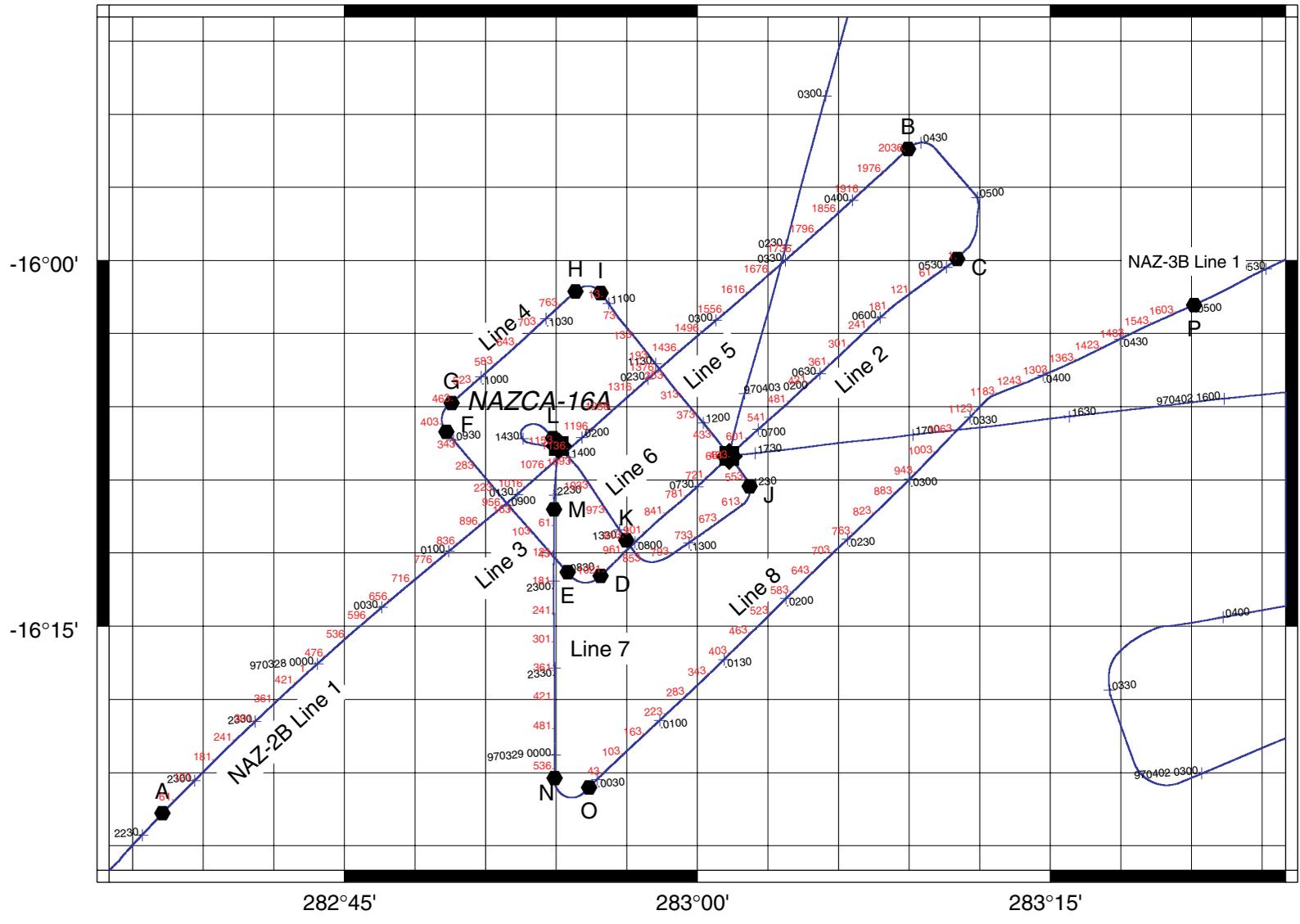
Objectives: The objectives at Site NAZCA-16A are to provide a continuous sedimentary sequence to:

1. Monitor the shallow end-member of a depth transect of the heavily sedimented eastern Nazca Ridge, which cuts across the deep-water masses and monitors a carbonate dissolution gradient.
2. Monitor the Pleistocene core of the Humboldt Current at low latitudes with well-preserved fauna.
3. Monitor surface water properties of the subtropical South Pacific during Neogene time.

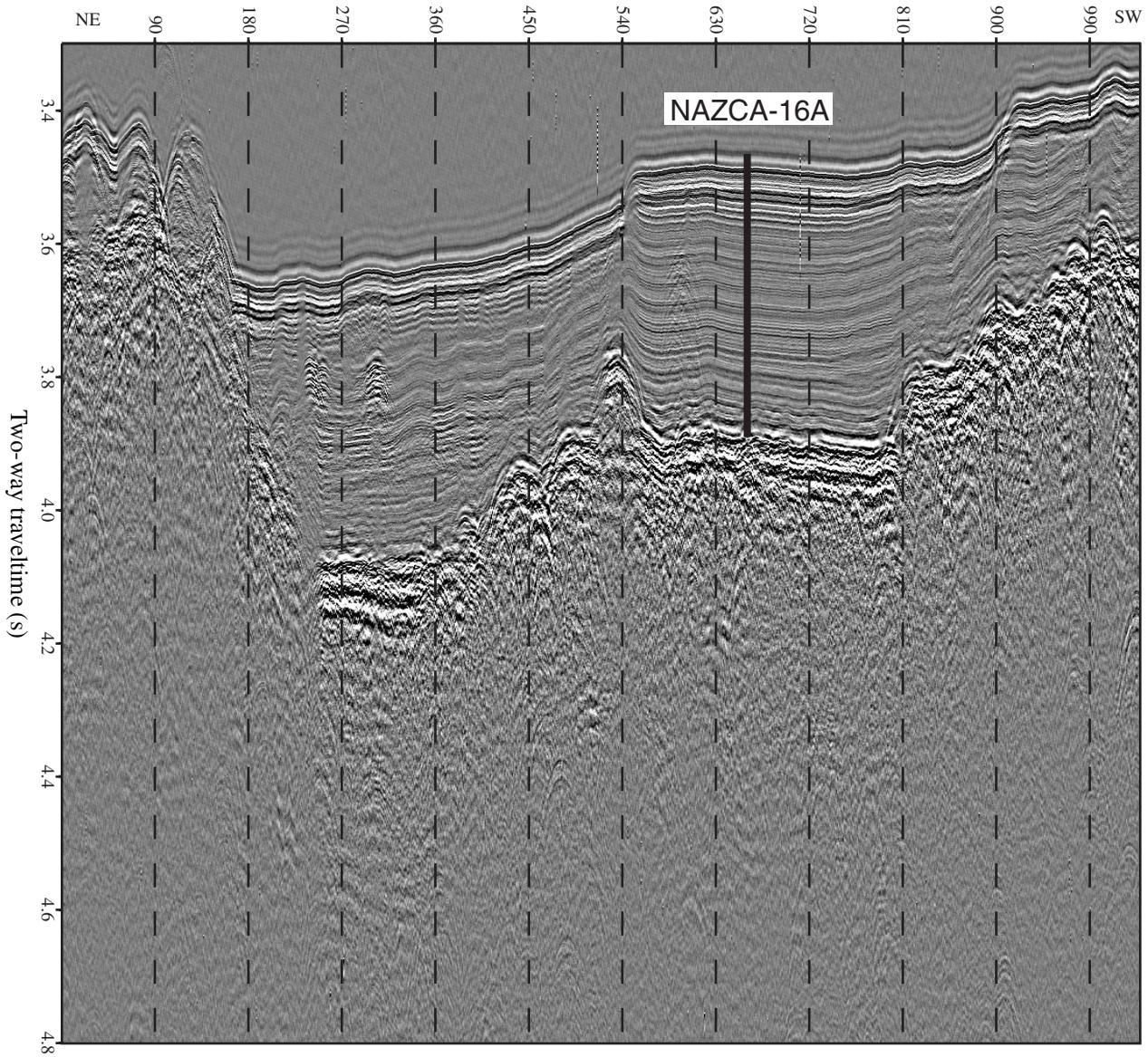
Drilling Program: Triple APC to refusal. Tensor orientation on APC cores. Single XCB to extend one hole to basement or refusal (expected penetration ~320 mbsf).

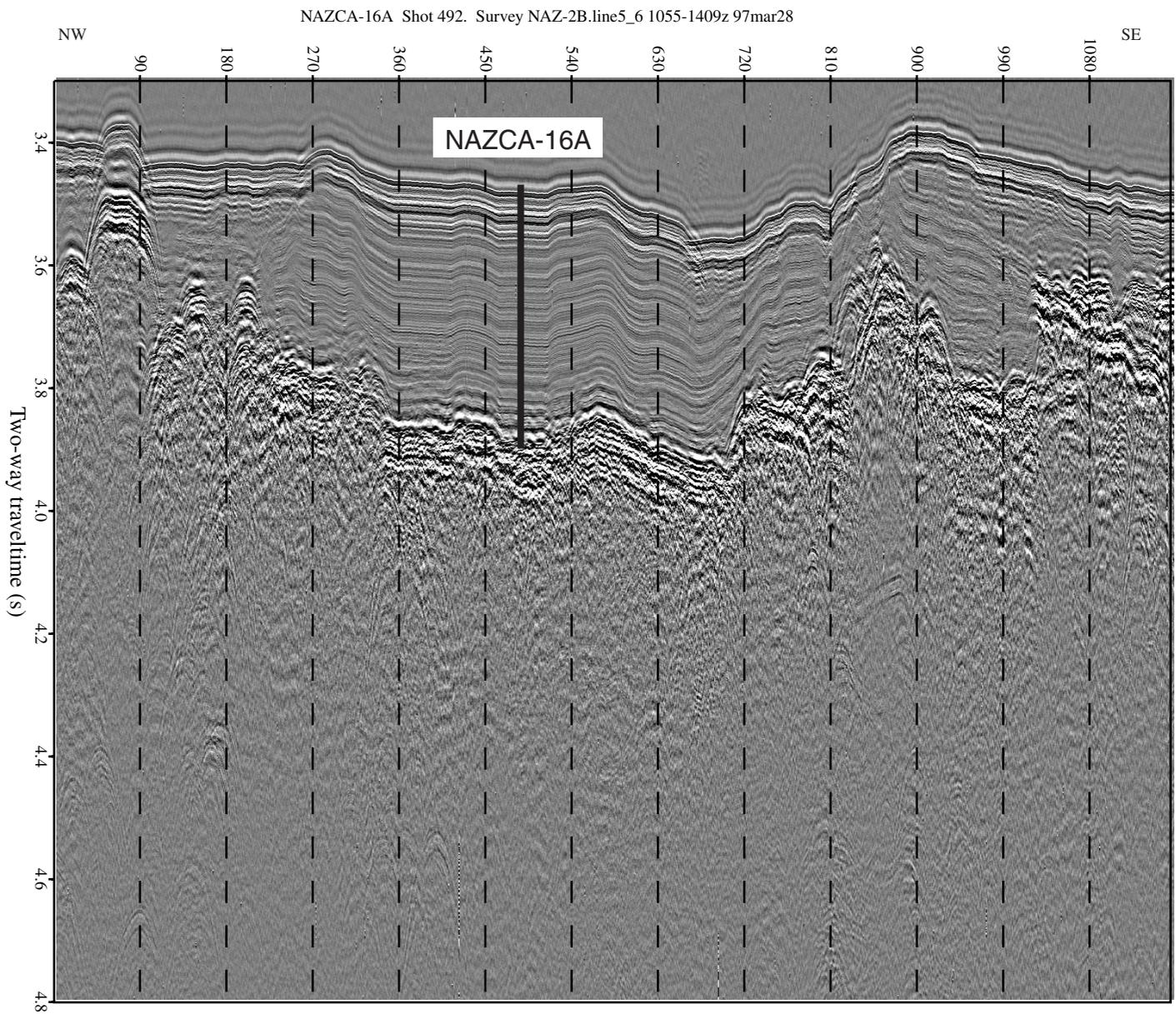
Logging and Downhole: Triple combo, third-party Lamont MGT, FMS/sonic, GHMT.

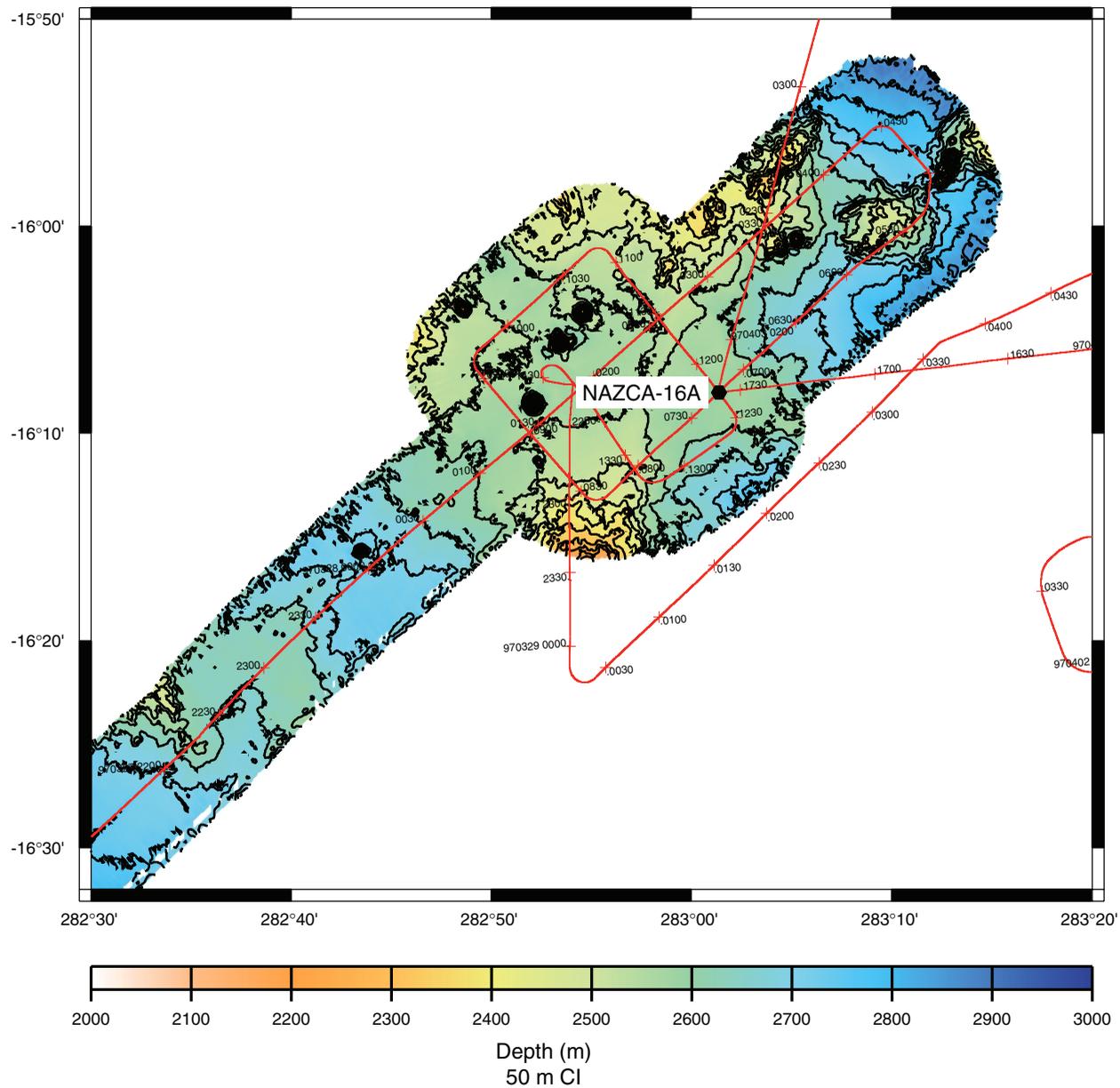
Nature of Rock Anticipated: Site survey cores recovered foram-nannofossil ooze with common radiolarians and diatoms. Sediment thickness of ~320 m suggests average sediment accumulation of ~8 m/m.y., although based on sediment cores in the region late Pleistocene sedimentation rates are probably 20-30 m/m.y. A rhythmic sequence of >50 reflectors through the section suggests that this area will record significant changes in climate in the local lithology.



NAZCA-16A Shot 643 Survey NAZ-2B.line2 0525-0817z 97mar28 .







Site: NAZCA-17A

Priority: 1

Position: 16°00.42'S, 76°22.68'W

Water Depth: 3228 m

Sediment Thickness: 280 m

Target Drilling Depth: 280 mbsf

Approved Maximum Penetration: 300 mbsf

Seismic Coverage: Sediment cover TWTT = 0.37 s (280 m)

Primary Line: 970329 (*Revelle*), Line NAZ-3B-4, 1412z, SP589

Crossing Line: 970330 (*Revelle*), Line NAZ-3B-5, 0217z, SP103

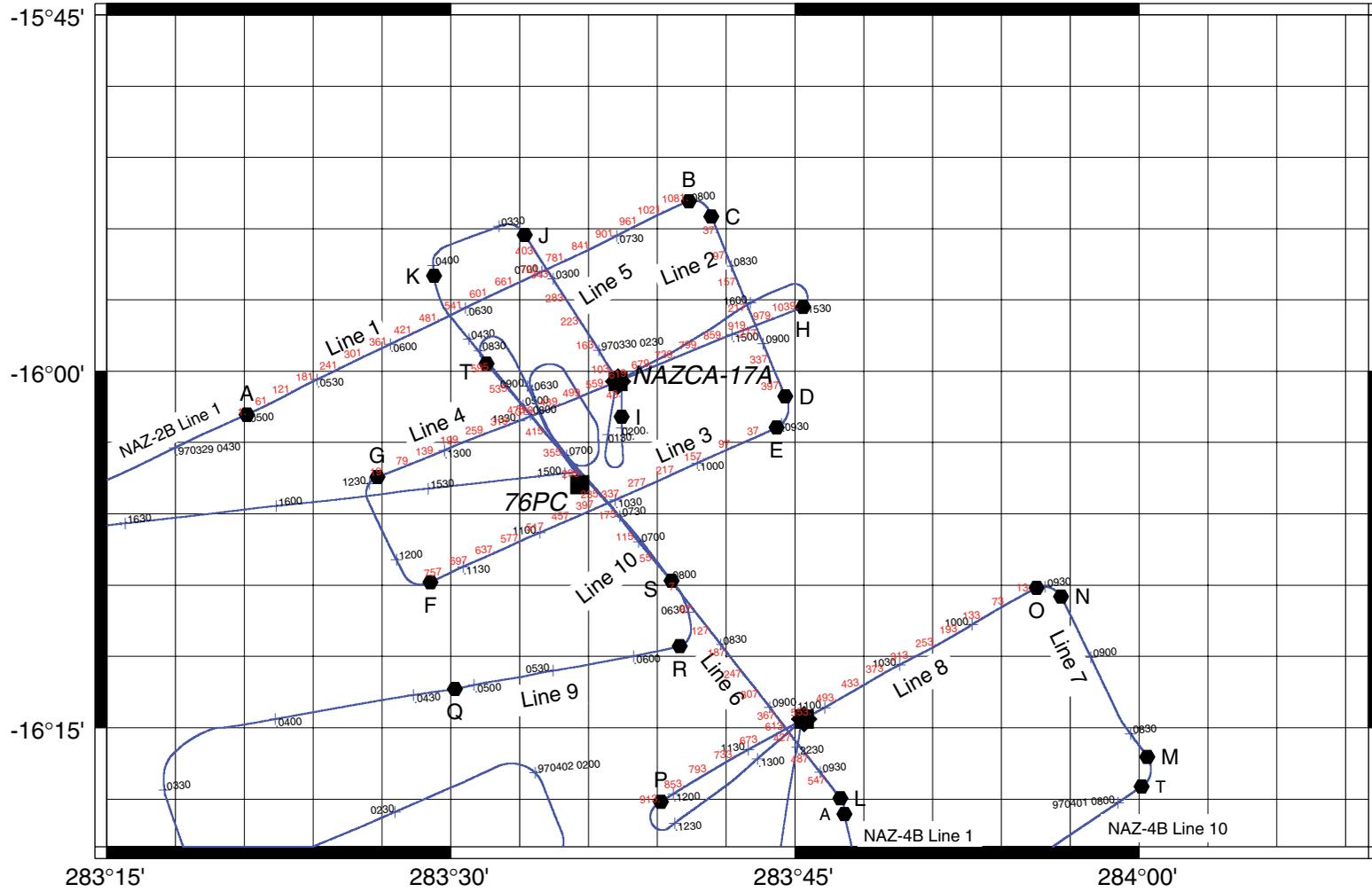
Objectives: The objectives at Site NAZCA-17A are to provide a continuous sedimentary sequence to:

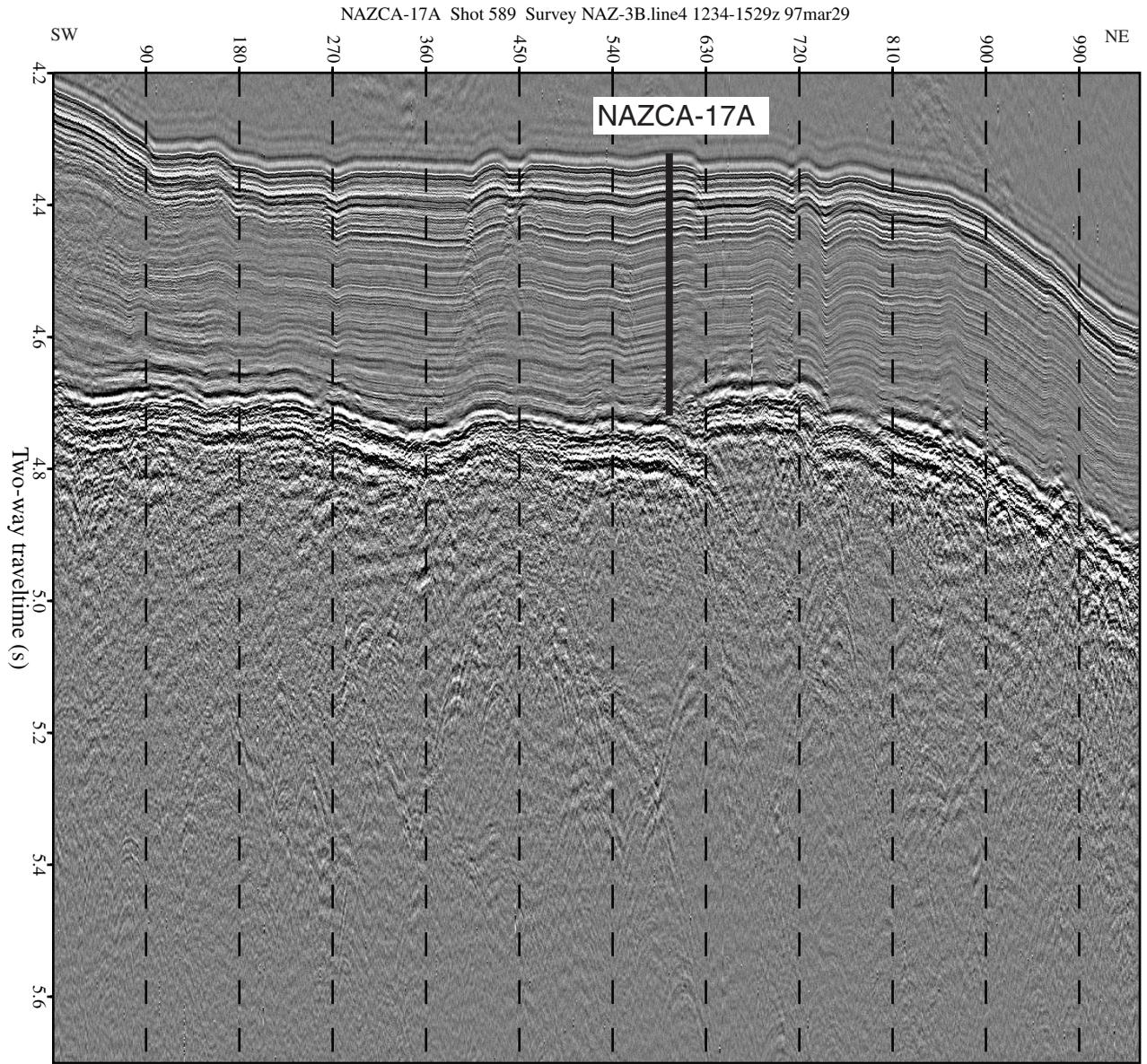
1. Monitor variations in deep water masses and carbonate dissolution in Neogene.
2. Monitor the Pleistocene core of the Humboldt Current at low latitudes with well-preserved fauna.
3. Monitor surface water properties of the subtropical South Pacific during Neogene time, and perhaps as old as late Eocene time (with lower resolution in older intervals).

Drilling Program: Triple APC to refusal. Tensor orientation on APC cores. Single XCB to extend one hole to basement or refusal (expected penetration ~280 mbsf).

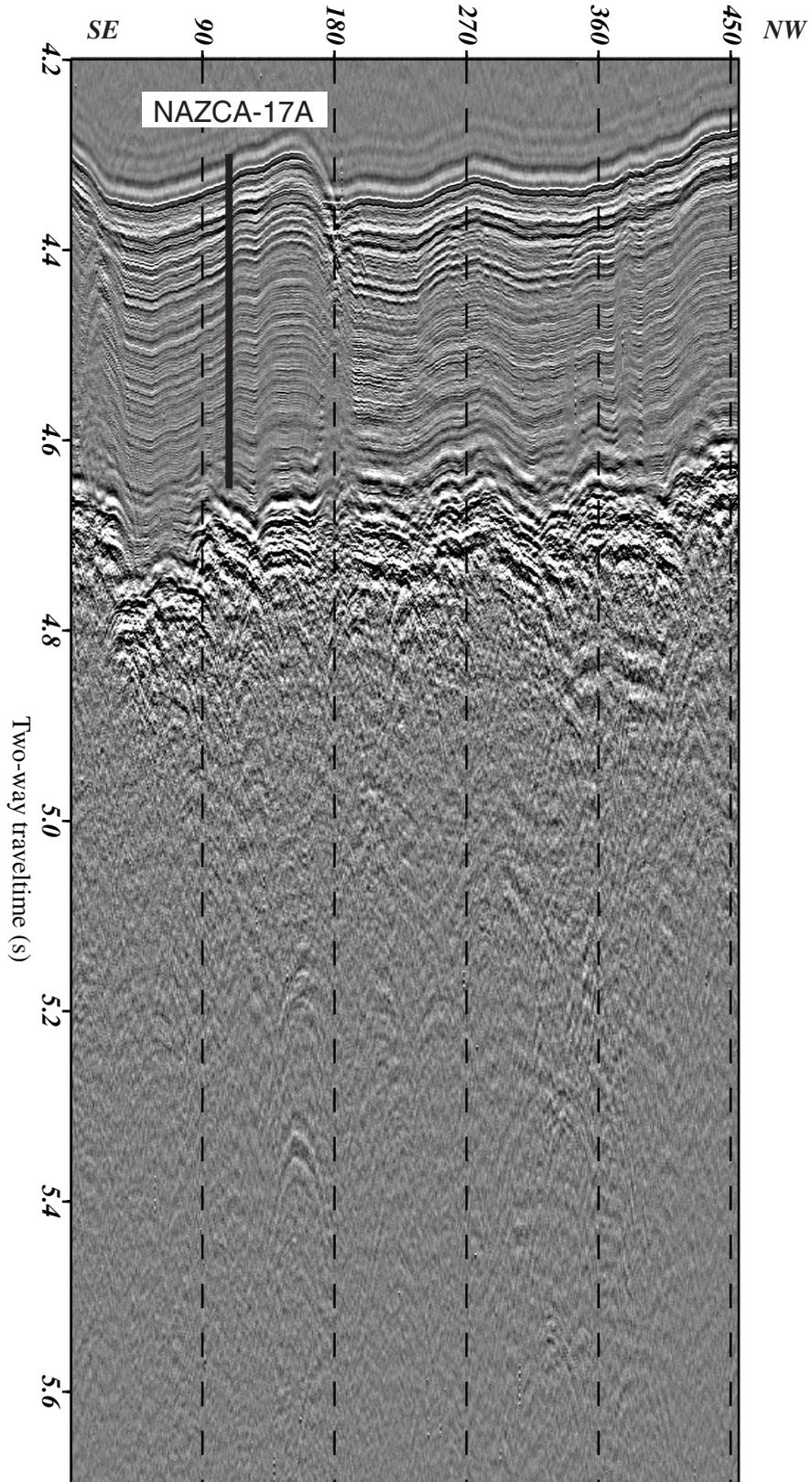
Logging and Downhole: Triple combo, third-party Lamont MGT, FMS/sonic, GHMT

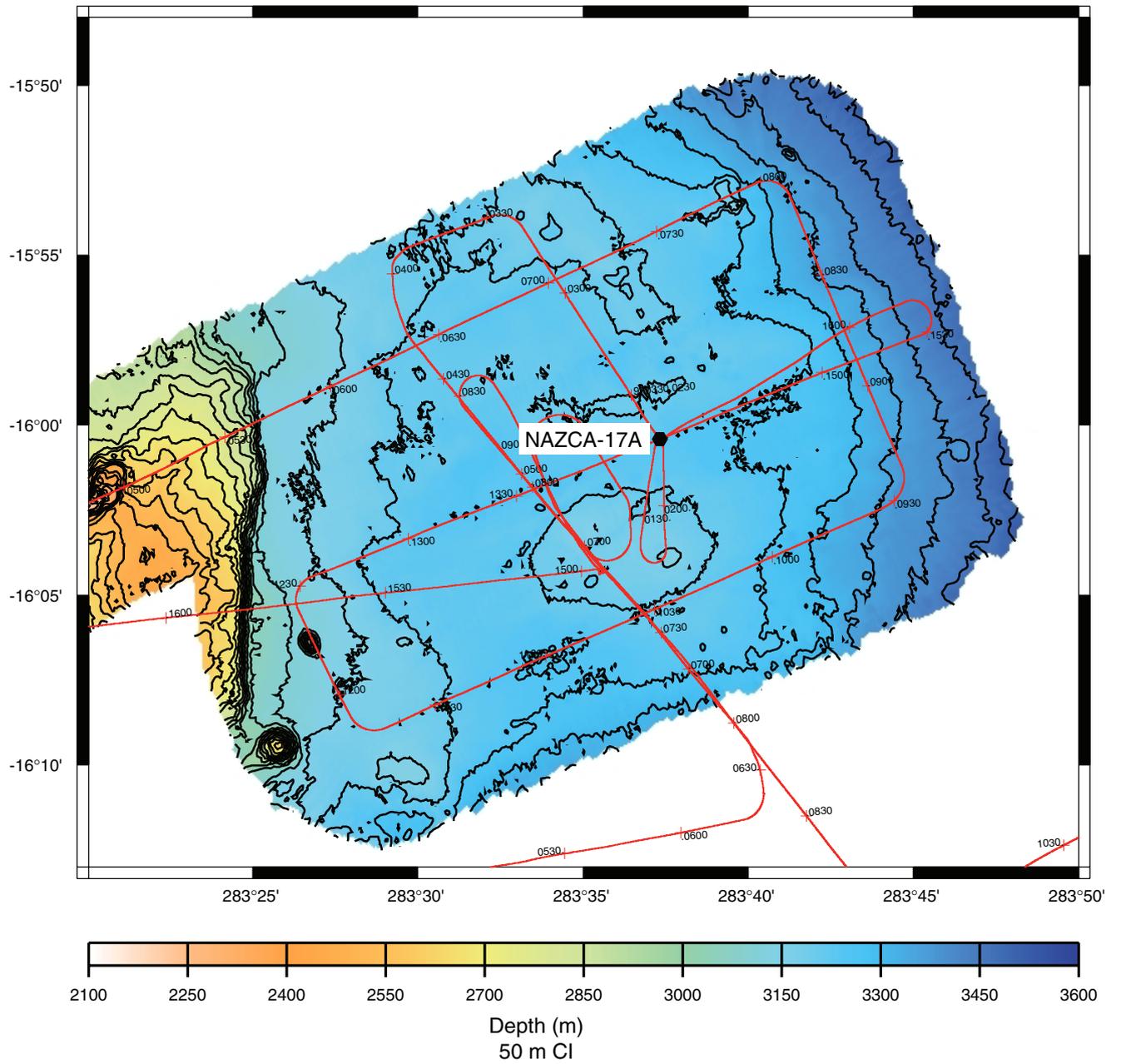
Nature of Rock Anticipated: Site survey cores recovered clay-rich foram-nannofossil ooze, with abundant diatoms and radiolarians. By analogy to modern sediment patterns, older sediments are likely nannofossil or foram oozes. Nazca Ridge basement ages are likely near 40 Ma in this region. Acoustic basement is likely hotspot volcanics, although subaerial erosion surface or drowned reefs are possible (younger than 40 Ma). Sediment thickness of ~280 m suggests average sediment accumulation of ~7 m/m.y., although based on sediment cores in the region late Pleistocene sedimentation rates are probably 20-30 m/m.y. A rhythmic sequence of >50 reflectors through the section suggests that this area will record significant changes in climate in the local lithology.





NAZCA-17A, Shot 103, Survey NAZ-3B.line5 0204-0319 97mar30





Site: PAN-2A

Priority: 1

Position: 00°01.312'N, 86°42.334'W

Water Depth: 2941 m

Sediment Thickness: 282 m

Target Drilling Depth: 290 mbsf

Approved Maximum Penetration: 300 mbsf

Seismic Coverage: Sediment thickness: TWTT = 0.362 s (282 m at 1560 m/s)

Primary Line: 2000 NEMO-3 (*Melville*), PAN2 Line 5, 21:08:30Z JD148, SP2348

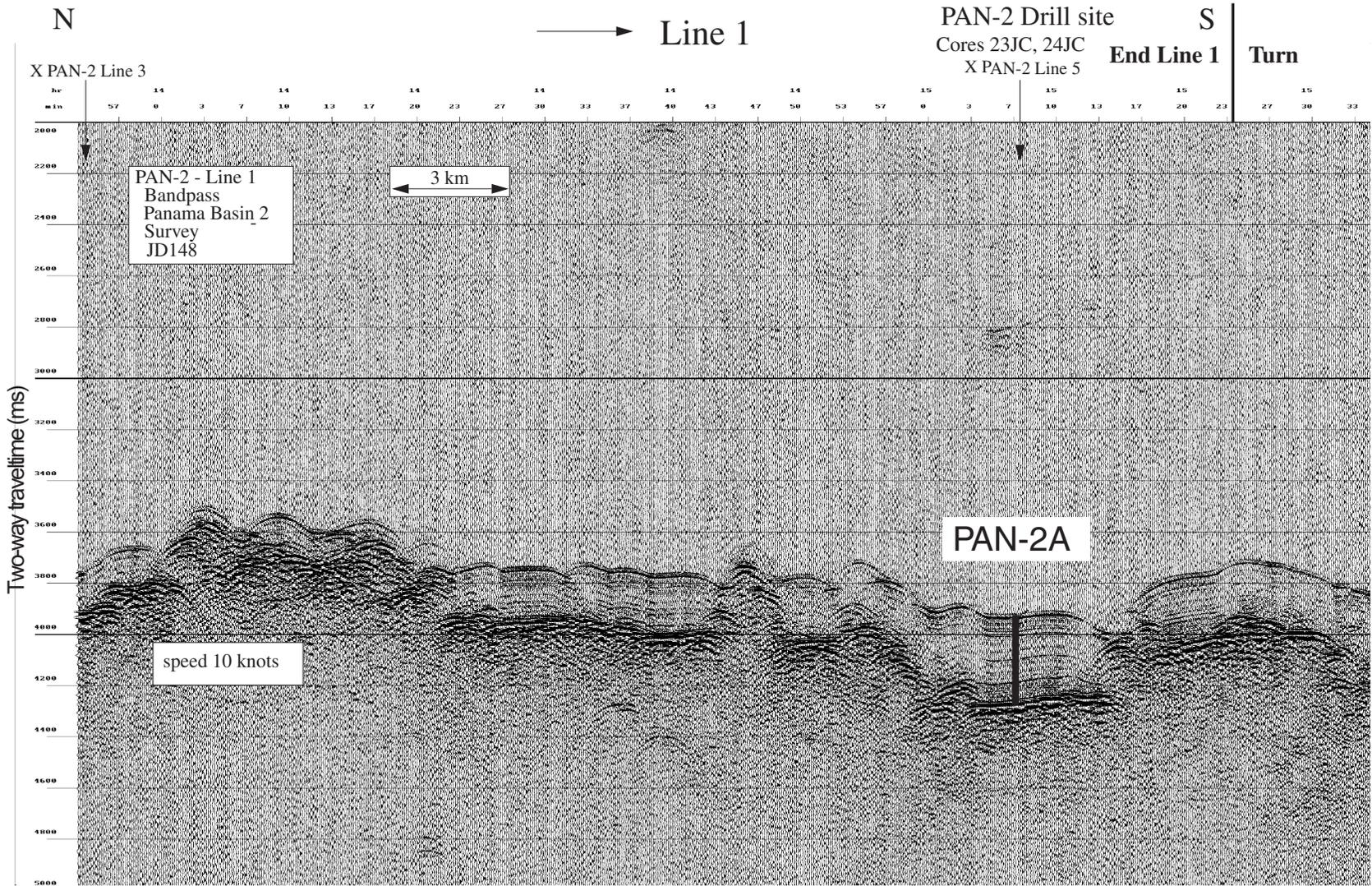
Crossing Line: 2000 NEMO-3 (*Melville*), PAN2 Line 1

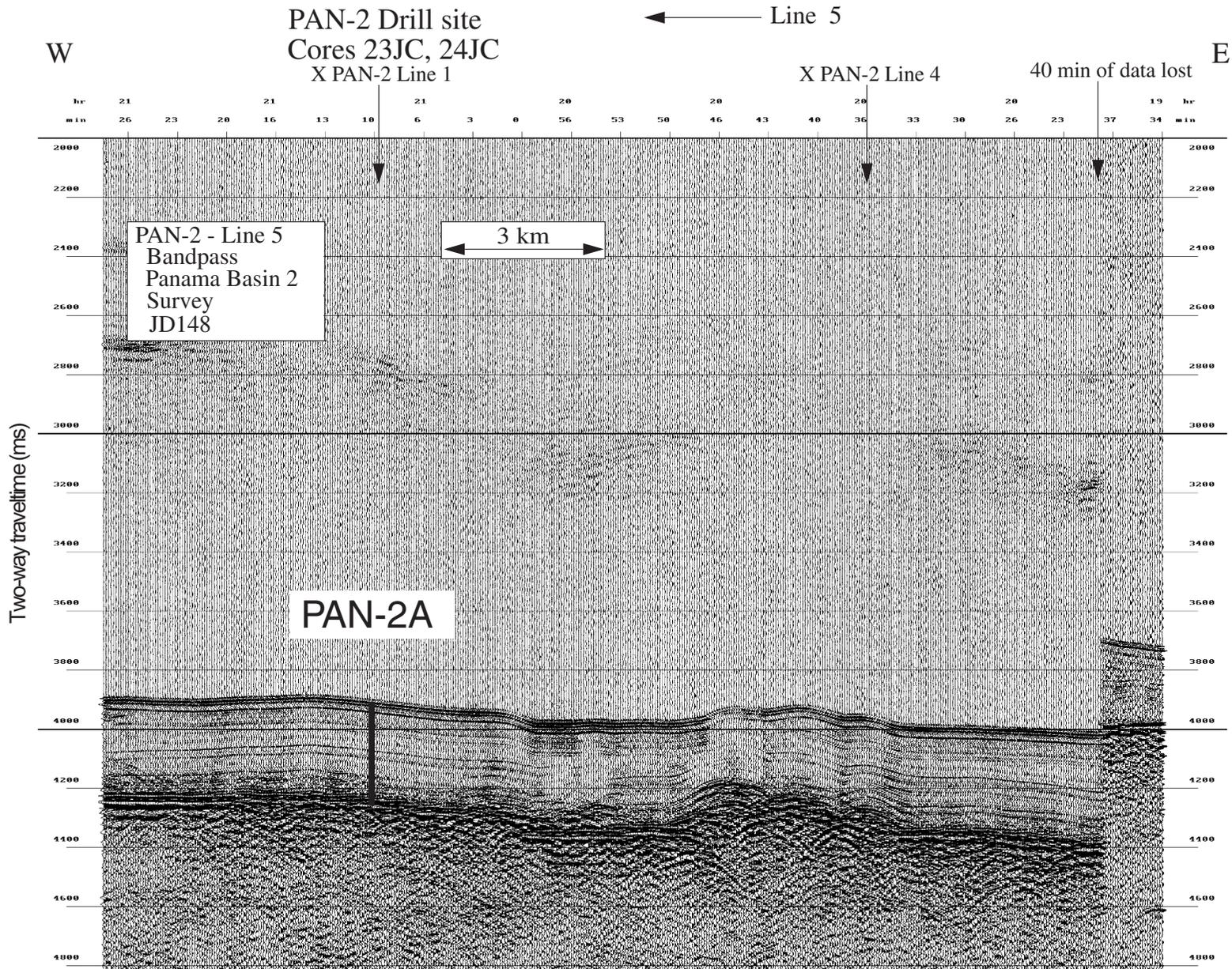
Objectives: The objective at Site PAN-2A is to provide a continuous sedimentary sequence to study variability in equatorial upwelling on timescales ranging from the millennial to megayear, from the late Pliocene to the Holocene.

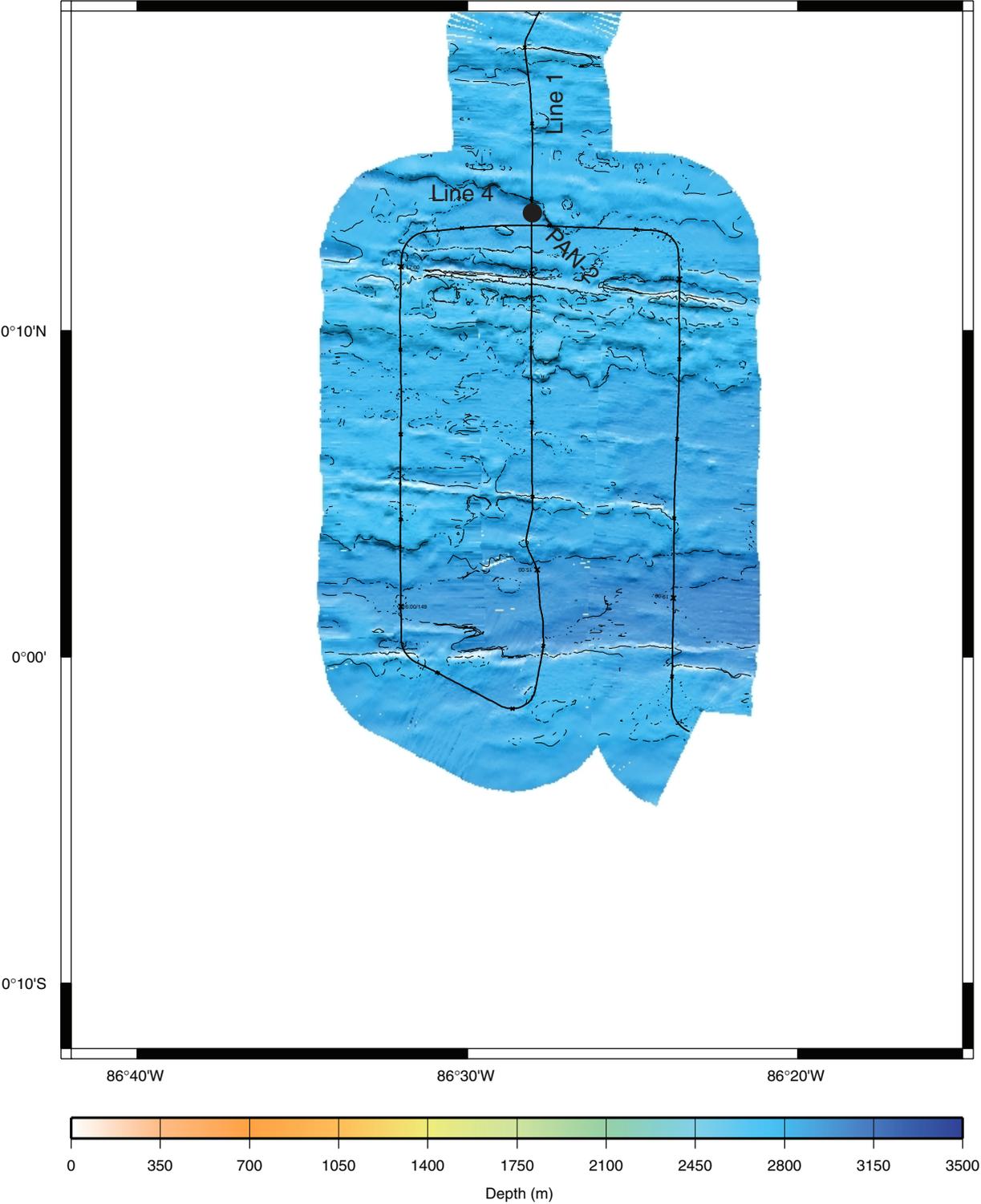
Drilling Program: Triple APC to refusal. Tensor orientation on APC cores. Single XCB to basement or refusal (expected penetration ~290 mbsf).

Logging and Downhole: Triple combo, third-party Lamont MGT, FMS/sonic, GHMT

Nature of Rock Anticipated: Site survey core is diatom-nannofossil ooze. Foraminifers and sponge spicules are common to abundant, and radiolarians are rare to common. Similar lithologies are expected downcore. Based upon its location in magnetic anomaly C2An.2n (Hey et al., 1977), the basement age should be 3.15 Ma (Cande and Kent, 1995). With a sediment thickness estimated at 282 m, the average sedimentation rate at Site PAN-2 is 90 m/m.y. Pleistocene sedimentation rate is rate 40-50 m/m.y. (assuming ash at 988 cm in core ME0005-24JC is 'L' 230 ka) or 120 m/m.y. (assuming same is "D," 84 ka).







Site: SEPAC-5A

Priority: 3

Position: 46°19.02'S, 76°32.28'W

Water Depth: 2825 m

Sediment Thickness: 310 m

Target Drilling Depth: 310 mbsf

Approved Maximum Penetration: 350 mbsf (Site mislabeled as SEPAC-14A in PPSP report 1/23/01).

Seismic Coverage: Sediment Cover, TWTT = 0.41 s (310 m)

Primary Line: 970301 (*Revelle*), Line CRI-1B-2, 0615z, SP271

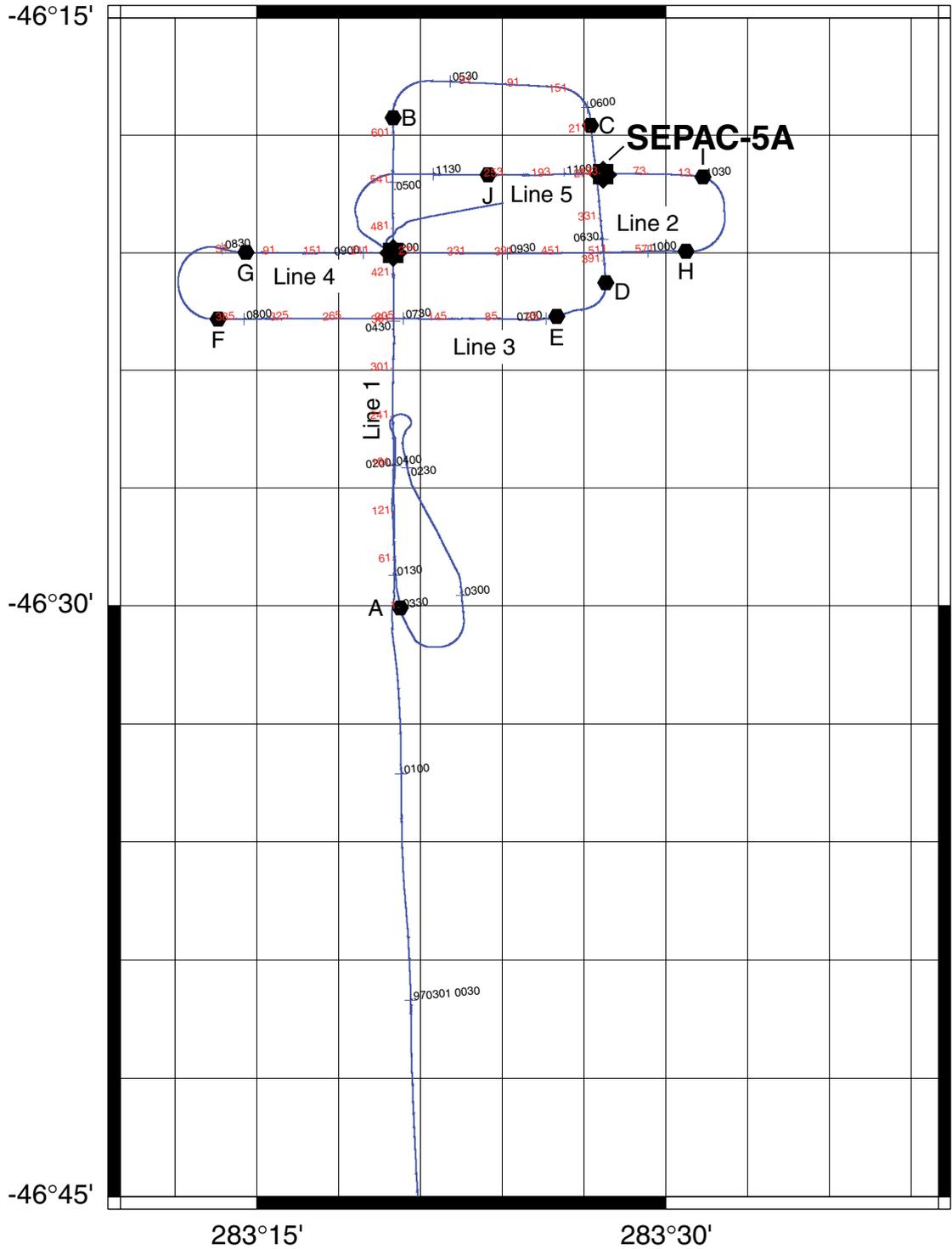
Crossing Line: 970301 (*Revelle*), Line CRI-1B-5, 1053z, SP139

Objectives: The objective at Site SEPAC-5A is to provide a continuous sedimentary sequence to obtain a high-resolution climate record of the entire Pleistocene from the shallowest possible site on the southern flank of Chile Rise (to maximize carbonate preservation). Benthic fauna are likely to monitor PCW, planktonic fauna to monitor the southward flowing Cape Horn Current, and terrigenous components to record glacial erosion of the Southern Andes (including a potential record of ice-rafting in an area that should not contain turbidites).

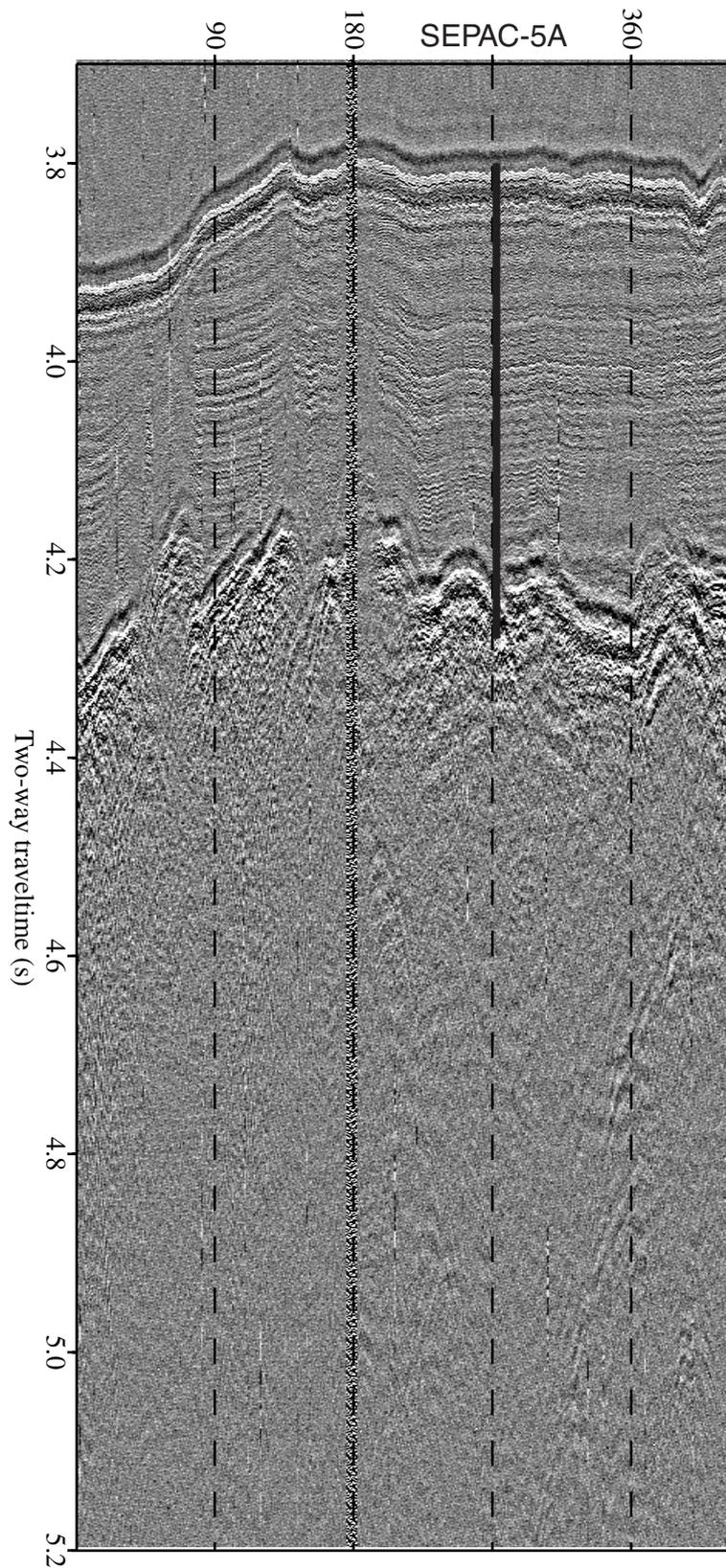
Drilling Program: Triple APC to refusal. Tensor orientation on APC cores. Single XCB to basement or refusal (expected penetration ~310 mbsf).

Logging and Downhole: Triple combo, third-party Lamont MGT, FMS/sonic, GHMT

Nature of Rock Anticipated: Site SEPAC-5A is in an area of thick sediment cover on abyssal hill topography near the crest of Chile Rise. Based on proximity to the rise crest and known spreading rates, we estimate crustal ages at 2-3 Ma. Thus, high sedimentation rates are probable (100-150 m/m.y.). Sediments appear to be pelagic or hemipelagic clay, draped over the abyssal hill topography. Cores taken during the site survey reveal substantial intervals barren of both carbonate and siliceous fossils, and as a result the priority of this site is 3.



SEPAC-5A -- SHOT 271.
Line CRI-1B-2 0530-0640 97mar01



SEPAC-5A, Shotpoint 139
CRI-1B line 5 1030-1116 97mar01

