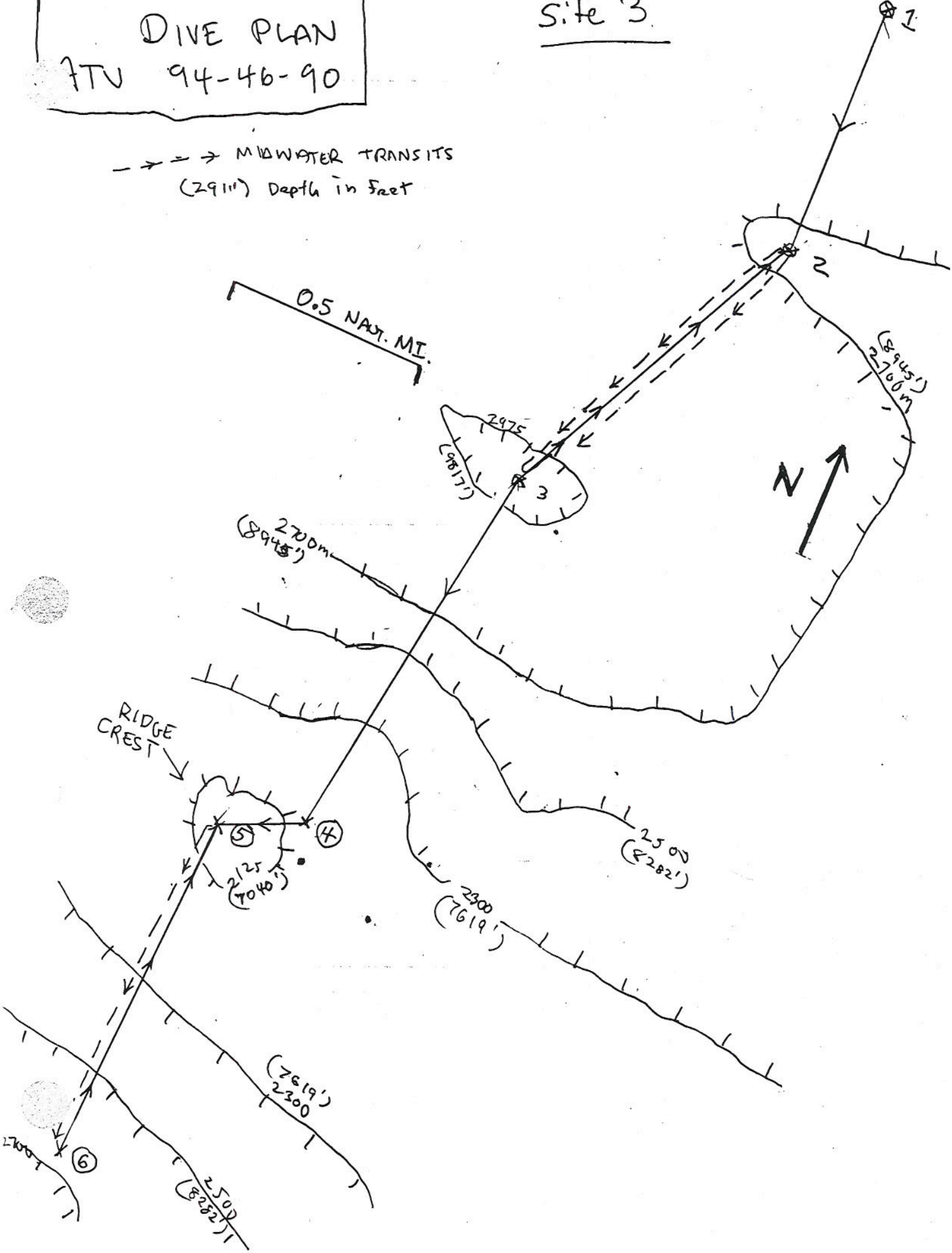
A90

DIVE PLAN
ITV 94-46-90

Site 3



Dive #A90 Merged Transcript

DIVE #: A90 (ATV# 94-46-90) Date: September 1–2, 1994.

Observers ATV: Bohannen, Dziak, Embley, Koski, Smith, Tormanen
Observers Wet lab: Bohannen, Dziak, Koski, Reid, Ross, Smith, Tormanen
Dive Location: Site 3, Northeast slope through basin and on top of ridge, Blanco Ridge

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
	9/1/94						
V	1030						ATV in water.
L	1042						ATV in water.
L	1240	8730		43°28.04	127°46.42		Descending.
L	1302						Tape 1 started. Hovering @ 100 ft. alt.
L	1309						Hovering to check the current.
N							[Note: no WHOI nav data until 1402 due to incorrect parameters set in recording file.]
L	1311			28.04	46.42		On bottom at or near way point 1; work package mode.
L	1311	9694*	9			T 193	Sediment & biota.
V	1312	9694®	12	28.024	46.4223	W 000	Bottom time begins. Mud bottom – flat. [Heading south
V	1316	9692®					Proceeding south on flat bottom
L	1317			28.04	46.42		Sediment eggs, (bacteria? tumbleweed) dark spot? photo.
V	1317						Photo of "agglutonated eggs."
L	1319						Transit mode picture (video).
P	1319	9692†		43°28.04	127°46.42	low	#1 – egg sacks?
P	1319	9692†		43°28.04	127°46.42	low	#2 – egg sacks?
P	1319	9692†		43°28.04	127°46.42	low	#3 – egg sacks?
L	1321	9710		28.04	46.42	T 187	Moving again; current moving east to west (by fish)
L	1325						Another sediment egg pod.
V	1325	9691®	9	28.0118	46.4172	W 024	More eggs. Current to strong.
L	1331	9670		28.01	46.42	T 250	Current pushing ATV to right (west) heavy sediment.
L	1334	9670		28.01	46.42	T 120	Stopping and turning to transit mode.
L	1340	9670		28.00	46.42	T 123	Medium upslope, heavy sediment.
V	1340	9675®	9	27.9941	46.4221	T122	Flat mud bottom.
V	1344						Garbage on bottom.
L	1346	9670	14	27.98	46.43	T150	Changing heading to 150°.
V	1346	9654®	13	27.9792	46.4263		Turning to 150°
V	1349	9635®	9	27.9654	46.4198	T152	Boring flat bottom.
L	1354	9625*	13	27.95	46.42	T159	Heavy sediment, small egg patches.
V	1354						Parachute drifted by.
L	1400	9590*	12	27.95	46.42	T160	Sediment on slight rise, scattered dark, fluffy deposits.
V	1401	9575®	9	27.9509	46.4229	T160	Large bumps on bottom.
N	1402.07						SOF A90.04
V	1405						Hit bottom.

T= transit mode (true ATV heading)
W= work package mode (180° from true heading)
CW= corrected work package

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	1410			27.94	46.42		Navigation problem - vehicle relative to ship vehicle was actually ahead of ship but FrogNav showed behind. Moving on 180° - chunks of mudstones.
V	1413	9544®	6	27.9307	46.4216	↑ 180	Sitting at bottom, VHS off.
V	1419						VHS on, moving on.
L	1425						Elongate object.
L	1426						Off bottom.
L	1429			27.88	46.42		Slope is ~12°.
V	1430	9412®	17	27.8819	46.4206	↑ 170	Trouble with navigation, sitting on bottom. There seems to be hard indurated sediment next to the ATV.
L	1431					↑ 180	On bottom - sediment.
L	1436	9440	5	27.85	46.42	↑ 182	Sediment outcrop above ooze.
V	1442						Turning to work package mode to take core sample. [Core sample A90-] 1C. Delta.
L	1444	9440		27.82	46.42		Sediment core sample A90-1C.
L	1445						Turn 180°/ work package mode.
V	1447	9406®	15	27.7842	46.4215	W000	Moving on in work package mode.
L	1451						Turn 180°, back to transit mode. On sediment.
V	1451	9388®	18	27.7611	46.7190	↑ 180	Turning back to transit mode.
V	1500	9298®	9	27.7052	46.4238	↑ 100	Course change, still heavy sediment.
L	1507	9240		27.67	46.43	↑ 125	In transit mode. Ripple marks parallel to ATV track.
P	1507	9248†		27.65	46.42	low	#4 – sand bottom.
P	1507	9248†		27.65	46.42	low	#5 – sand bottom.
V	1508	9241®	11	27.6485	46.7248	↑ 125	Ripples marks going roughly along slope. Two pictures.
L	1510	9240		27.65	46.45	↑ 123	Change course to try and go 180° upslope.
V	1513	9225®	11	27.6096	46.4209	↑ 182	Course 180°, flying along contour, 30° slope [about 330° E??? (drawing)]
L	1516	9200		27.59	46.44	↑ 185	Ripple marks gone. Possible scouring.
L	1519	9160		27.58	46.46	↑ 127	Change course 125°
V	1519	9165®	26	27.5728	46.7202	↑ 120	Course change. Slope is steeper at some points but no rocks.
L	1522	9160		27.54	46.44	↑ 123	Going along slope.
L	1525			27.55	46.44	↑ 117	
L	1530	9135		27.55	46.46	↑ 118	Moving along slope.
L	1531	9118		27.53	46.46		Change course to 170°
V	1531	9125®	8	27.5416	46.4192	↑ 180	Course change to 160°.
L	1535	9021		27.53	46.44	↑ 160	Bottom looks scoured.
V	1537	9046®	14	27.5319	46.4191	↑ 155	Course change to 150°, going straight up slope.
L	1540	9016		27.58	46.43		Change course to 120°
V	1541	9016®		27.5187	46.4221	↑ 125	Course change to 120°.
L	1545	8968		27.54	46.42	↑ 176	
L	1549	8975		27.50	46.41		Setting down on bottom.
V	1549	8975®	9	27.4922	46.4183	↑ 128	Stopped to take core.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	1552			27.49	46.42	↑ 110	Stopped to take sediment core. A90-2C. In C liner.
V	1552	8975®	9	27.4922	46.4183		[Core sample A90-] 2C in C.
L	1554					↑123	Start transit again.
V	1555					↑120	Moving on 120°
V	1557	8964®	9	27.4617	46.4190	↑175	Course change to 160°.
L	1558	8930		27.46	46.45	↑165	Sediment-ripple scours oriented N-S.
L	1605	8863		27.45	46.44	↑165	
V	1605	8863®	9	27.4357	46.4180	↑169	Transit mode nearing top of sedimented ridge.
L	1610	8805		27.443		↑142	Still the same.
V	1611	8806®	7	27.4238	46.4205	↑153	At top of ridge. Setting down to allow wire angle to become vertical. Ridge slope ~9°.
L	1615	8800		27.43	46.44	↑174	In swale topography. Current ripples. Stalked organisms anchored on harder substratum.
V	1615	8803®	6	27.4258	41.4231	↑169	Moving to absolute top of this ridge.
L	1620	8770		27.43	46.45	↑135	Change course to 210°. Large crab.
V	1620	8778®	6	27.4261	46.4211	↑146	Course change to 210°. Coming off ridge top – will come 600 yards before re-acquiring seafloor. 200 [ft.] altitude.
L	1623						Starting to transit ~600 yards along line. Then turn around to come back up. Came up 400 ft. off bottom.
N	1625.21						EOF A90.04 -- at top of first ridge, now flying to bottom of intermediate valley.
L	1630			27.41	46.45		Off bottom near way point 2 and flying south and down to way point 3.
N	1633.22						SOF A90.05
V	1649	8719®	200	27.3175	46.4938	197	400 yards down line.
L	1651						Tape off.
P	1733 } ok	9101†		27.15	46.60	low	#6 – ripple
P	1733 } time	9101†		27.15	46.60	low	#7 – ripple
P	1734 }	9085†		27.15	46.60	low	#8 – ripple
L	1736						On bottom again, near way point 3, tape on. [Heading north]
V	1738	9116®	10	27.1559	46.6074	W211	On bottom in work package mode.
L	1739			27.16	46.60		Work package, sediment w/ sub-horizontal lineations. Slope ~10-15°.
V	1740						Photo taken of oblique depressions in sediment.
P	1740	9055†		27.15	46.60	low	#9 – ripple.
L	1746	9055		27.16	46.64	CW? 034	(Work package heading.) Monotonous sediment slope - no obvious current reworking now.
V	1750	9044®	12	27.1564	46.6067	W214	Heavily sedimented.
L	1751						See some coarser lag(?) deposits.
L	1755	9000		27.16	46.64	CW024	Steeper slope- some coarser lag- occasionally see possible outcrop.
L	1800	8970	16	27.18	46.59	CW020	Heavy sediment. Medium slope up.
V	1801	8941®	15	27.1784	46.5879	W 240	Veering to look at object. Small sediment clump?
P	1802	8945†		27.02	46.00	low	#10 – core sample.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
P	1804	8945†		27.02	46.00	low	#11 – site for core sample.
L	1805	8970	9	27.20	46.58	CW 040	Stopped to take core sample. Sediment core A90-3C Core B.
V	1807	8945®		27.1959	46.5778		Taking core sample [A90-] 3C. Picture taken of core – material hangin out of bottom in Bin B. Picture taken of core and site 10 and 11 (?).
L	1810					CW020	Moving on.
L	1816					T ~~CW~~ 110	Transit mode.
V	1816	8936®		27.222	46.559		Turning east to look at sonar target. Possible outcrop.
L	1820	8960		27.24	46.55	T 107	Steep slope, heavy sediment. Transit mode.
V	1821	8955®		27.236	46.548		
P	1821	8982†		27.25	46.53	low	#12 – bowl.
P	1822	8979†		27.25	46.53	low	#13 – bowl.
P	1822	8979†		27.25	46.53	low	#14 – bowl.
V	1823	8960®					
V	1824	8978®		27.245	46.54	? 396 [?]	Approaching steep slope – that was sonar [target] perhaps.
P	1825	8978†		27.25	46.53	low	#15 – bowl, slide.
L	1826	8020		27.26	46.53	? 010	Turning around to work package mode. Very steep slope, sediment slumping.
V	1827	8989®		27.259	46.533		Turning to use work package. Fluted slope, rills [?] running downslope. Package facing north. Possible slide (from earthquake on slope).
P	1827	8991†		27.26	46.57	low	#16 – bowl, slide
V	1836	8980®		27.26	46.528	W 180	Couldn't sample sediment slide [?] scar. Moving upslope.
P	1836	8915†		27.26	46.52	low	#17 – stalked organism.
L	1838					CW 000	Moving up slope.
P	1838	8906†		27.27	46.52	low	#18 – light patch.
P	1841	8878†		27.28	47.51	low	#19 – fish.
P	1843	8885†		27.28	47.51	low	#20 – stalked organism.
V	1845						Slope lowered [?].
L	1847	8890		27.28	46.52	CW 000	Log?
V	1847	8896®		27.28	46.52	? W 102	Coming upslope. Saw unusual white patches.
L	1851	8850		27.29	46.51		Off bottom near way point 2, fly on 210° to way point 3. Stopped tape.
N	1858.22						EOF A90.05
N	1900.00						[Time approximate] SOF A90.06 -- data purged, all data of ATV flying to way point 3
N	~~1900.00~~ 2140						[Time approximate] EOF A90.06
N	2141.42						SOF A90.07
L	2154	9640	14	26.66	47.0	T 020	On bottom again near way point 3, a few scattered rocks. Tape on.
V	2157	9603®		26.66	46.9485		On bootm again. Mostly sediment but a few rocks. In transit mode.
P	2157	9603†		22.66	46.95	low	#21 – rocks.
P	2157	9603†		22.66	46.95	low	#22 – rocks.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
P	2159	9611†		26.66	46.97	med	#23 – rock in manipulator.
L	2200	9640	19	26.66	46.95	T 320	In transit mode, closing on a sonar target.
L	2201	9600	21	26.66	46.95	T 010 or CW	Stopping to sample. Changing to work package mode. Strong sonar target.
V	2202	9608®		26.665	46.95		Stopped at sonar target – going to work package [mode]. Looks like an outcrop – small [?] in basket 1 (bin 1). [Rock] sample [A90-] 4R.
L	2204	9640	9	26.66	46.95	T 040	Rock sample A90-4R. Bin 1.
V	2207	9611®		26.6667	46.9495	W 214	In work package mode. Several still frames of site and rock sample in manipulator.
L	2208	9600	42	26.66	46.95	W 209	Coming around to transit mode. Trouble with tether, so coming up off bottom.
V	2211						Off bottom. Hard to control vehicle.
L	2212	9720	17	26.66	46.95	215	In contact with bottom again. In transit mode. 100% sediment. Ripple marks.
L	2213	9710*	10	26.66	46.95	200	
L	2215	9760	22	26.66	46.95	200	Still 100% sediment.
V	2215	9708®	15	26.665	46.948	192	
L	2218						Big patch of bubbly biota.
V	2218	9744®	9	26.663	46.948	194	Going south in transit mode. Large patches of organic matter.
L	2220	9760	11	26.66	46.95	175	Tin can.
V	2222	9747®		26.662	46.948	193	Sonar target ahead. Sediment somewhat rippled.
P	2223	9721†		26.66	46.95	med	#24 – rock and ripples.
V	2228	9712®		26.661	46.953	014	In work package.
L	2230	9760	10	26.66	46.95	050	Trying to turn into work package mode to get picture of scouring but it kicks up lots of sediment. Stopped ~2225 at small patch of rocks.
V	2230	9726®					Can't hold position. In work package mode – have to go upslope in transit mode.
L	2232	9760	15	26.66	46.95	185	Moving again, in transit mode.
V	2232	9724®					Starting upslope. Looks like current is coming down slope and producing large scour marks.
V	2234	9749®		26.6617	46.949	183	Can't seem to hold position even in transit [mode].
L	2235	9760	13	26.66	46.95	185	Still 100% sediment.
V	2240 (?)	9752®		26.61	46.947	180	Going upslope over mud bottom – ripples/grooves are oriented parallel to course.
L	2242	9774		26.67	46.95	221	Still 100% sediment.
V	2248	9782®		26.660	46.953	218	Heavy vehicle pitching – can't stay close to bottom – continues toward ridge on sonar [?].
L	2250	9800		26.66	46.95	188	Still 100% sediment.
V	2250	9761®	29	26.662	46.949	041	Off bottom. Dropped a weight.
V	2253	9782®	14	26.66	46.95	213	Mud slope – going slowly up. Doesn't seem like we're making any forward progress. Going to try and sample loose rocks.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	2300	9800		26.67	46.95	205	Still 100% sediment.
V	2300	9780®		26.66	46.95	022	Trying to get sample with work package.
V	2303	9790®		26.66	46.95	043	Can't seem to make headway.
L	2306	9800	31	26.66	46.95	310	Have been having trouble moving upslope. Giving it one last try and all of a sudden find rocks. Get dusted out. If this doesn't work will pick up off bottom & set down further upslope.
V	2307	9706®		26.66	46.95	190	Rock patch ahead. Nice outcrop. Turning around to try and sample.
V	2312						Still trying to sample at outcrop.
V	2317	9791®		26.662	46.948	044	Still trying.
V	2323	9775®		26.66	46.95	082	Can't make [...].
L	2328	9800	25.7	26.66	46.95	245	Since the tether is pulling the ATV and it is off the bottom and driving forward, there have been rocks on the sediment slope. Making slow progress.
V	2330	9775®	32	26.6641	46.9479	011	Getting up from bottom and going down again.
L	2332	9800	14.7	26.66	46.95	210	When bottom is seen there is a very flat bottom with ripples in a heavily sedimented bottom. Echinoderms.
L	2334	9800	14.6	26.66	46.95	124	Transit mode. Moving with current until a plan is formulated.
L	2335						[Time approximate] Plan is to pick up and move upslope 400 yards.
V	2335	9795®	14	26.6616	46.9504	179	Transit mode.
L	2337	9840	11				When bottom is seen, ripples aren't as distinct.
L	2338	9840	12.6	26.66	46.95	124	Sediment/ rock contact. Large boulders with pockets of sediment.
L	2341	9800	27.6	26.66	46.95	174	Off bottom - moving ship 400 yard along course.
V	2341	9771®	42	26.6601	46.9500	180	Going up 400 feet off the deck and then flying forward.
N	2344.52						EOF A90.07
N	2345.59						SOF A90.08
V	0000 9/2/94	9731®	400	26.5919	46.9664	183	400 feet off the deck flying toward ridge. Rewound VHS for approximately 20 minutes.
V	0010	9242®	395	26.5417	46.9766	185	Still flying towards ridge. VHS turned off.
L	0015						[Time approximate] Video off.
L	0021	9210	40.6	26.48	46.99	180	Video on. Transit mode. Still well off bottom, have ridge on sonar.
L	0028	9580					Tape off again.
V	0029	9580®				?	Feet off bottom from pilot – asking location from Wet Lab. Too far down line. Moving ship 87 yards upslope [?].
L	0042						Turning vehicle around into work package mode & re-acquiring bottom.

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V	0042	9118®	408	26.43	47.0002	180	Once ship reaches position, we will drop vehicle down to acquire bottom. We will descend in work package [mode] to get use of sampler.
V	0044	9178®	353	26.4211	47.0010	006	Heading down to acquire bottom.
L	0048	9640	75	26.42	47.00	180	Oucrop ahead. Will ~~re-a~~cquire bottom and then head to it.
V	0048	9559®	123	26.4222	46.9997	000	125 feet = B of outcrop on sonar.
L	0049	9720	44	26.42	47.0	180	Restart video.
V	0050.45	9684®	38	26.4239	46.995	000	Seeing bottom – outcrop boulders, sediment, steep slope.
L	0052	9680	37	26.42	47.01	215	Change course to face wall.
V	0052	9657®	53	26.4169	47.0047	034	Course change to face wall better. Outcrop.
V	0054	9623®	23				Photo.
L	0055	9600	34	26.40	47.01	222	Scarp.
P	0056	9606†		26.40	47.00	low	#25 – rock face/ scarp.
P	0056	9606†		26.40	47.00	low	#26 – rock face/ scarp.
P	0056	9606†		26.40	47.00	low	#27 – rock face/ scarp.
V	0056						Photo.
V	0056	9512®	36	26.3999	47.0032	030	Photo – closing in on scarp to take sample. Outcrop is jagged with medium to moderate sediment cover. Real outcrop.
V	0059.14	9571®	31				On bottom, taking sample.
L	0100	9600	18	26.38	47.01	263	Rock sample A90-5R1, bin 2.
V	0101	9575®		26.3894	47.0081	014	Photo.
V	0101.08	9575®	76	26.3870	47.0068	015	[Rock sample] A90-5R1. Bin 2. Off scarp face. Pilot "dirt clod" looks highly fractured.
P	0102	9575†		26.38	47.00	low	#28 – scarp.
V	0103.48	9375®	92	26.3789	47.0106	015	[Rock sample] A90-5R2, Bin 5 top. In same station close to basket. Outcrop sample – was it loose? – photo.
L	0104	9600	18	26.38	47.01	275	Rock sample A90-5R2, bin 5. Large round rock.
L	0105	9560	39	26.37	47.02	237	Vertical jointing.
L	0106	9520	45	26.36	47.01	230	Heading up the wall.
P	0106	9575†		26.38	47.00		#29 – [no description]
V	0106						Photo.
V	0106.54						Photo.
L	0107						Great fabric.
P	0107	9568†		26.38	47.00	low	#30 – scarp.
P	0107	9541†		26.38	47.01	low	#31 – scarp.
V	0107	9523®		26.3676	47.0131	063	On original course. Auto heading not holding very well – thrusters are off.
P	0108	9531†		26.36.	47.01	low	#32 – scarp.
P	0108						#33 – no strobe, scarp.
P	0108	9531†		26.36.	47.01	low	#34 – scarp.
V	0108	9506®				040	Photo – no strobe. Photo – fractured wall face – appears altered (up to frame 35).
V	0109	9507®				055	Photo. Tilt block with ledge slumped block.

at steep scarp

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	0110	9520	40	26.36	47.02	230	Scarp striking 050° oblique to slope. Slump block.
P	0110	9506†		26.35	47.01	low	#35 – scarp.
P	0110	9506†		26.35	47.01	low	#36 – scarp.
P	0110	9506†		26.35	47.01	low	#37 – scarp.
P	0111	9494†		26.35	47.01	low	#38 – scarp.
L	0112	9520	44	26.36	47.01	210	More rocky.
V	0112.55						Pulling away from scarp face – turning to left. Silted up water.
L	0114	9520	20	26.36	47.02	180	Nice scarp face.
L	0115	9520	25	26.356	47.01	215	Looks like great sediment slide.
P	0115	9502†		26.35	47.01	low	#39 – scarp.
V	0115.50	9502®	19	26.3556	47.0143	46	Crabbing to left along face to continue the video. Photo 2 times.
L	0116	9520	25	26.36	47.01	205	Starting upslope again on course.
P	0117	9502†		26.35	47.01	low	#40 – scarp.
P	0117	9502†		26.38	47.01	low	#41 – scarp.
P	0117	9486†		26.38	47.01	low	#42 – scarp.
P	0117	9413†		26.38	47.01	low	#43 – scarp. [on?]
V	0117.19	9493®	21	26.3559	47.0146	41	Continuing upslope of course. Pebbly scree slope with sediment.
V	0118	9486®	16	26.3576	47.0153	38	Contact with outcrop.
L	0119	9480	25	26.36	47.01	233	Break in slope.
L	0122	9400	36	26.35	47.02	225	Current looking worse, rocks look more in place.
V	0123	9418®	26	26.3482	47.0175	48	Rocky outcrops with sediment on steep slope. Going to slope to grab sample.
V	0124	9393®	28			48	Next to slope.
L	0125	9400	30	26.34	47.02	232	Rock sample A90-6R, bin 3.
P	0125	9374†		26.33	47.01	low	#44 – scarp.
P	0125	9374†		26.33	47.01	low	#45 – scarp.
P	0126	9338†		26.33	47.01	low	#46 – scarp.
P	0126	9333†		26.33	47.01	low	#47 – scarp.
V	0126	9393®	28	26.3404	47.0198	55	[Rock sample A90-] 6R in bin 3. Rock on slope at outcrop – not in situ.
L	0126.25						Tape 4 ends; no tape in until 0146.
P	0127	9313†		26.32	47.02	low	#48 – scarp.
P	0127	9313†		26.32	47.02	low	#49 – scarp.
P	0127	9313†		26.32	47.02	low	#50 – scarp.
P	0127	9247†		26.32	47.02	low	#51 – scarp.
L	0128						Heading upslope again.
V	0128						[Note at top of van log page: " Phrognav's clock isn't current with time on video.]
V	0128						Photo x2. Steep slope with outcrops and sediment.
V	0129	9358®	38	26.3415	47.0187	071	Change course to face slope. Ship to 0.2 knots.
L	0130	9360	31	26.34	47.02	255	
V	0131	9339®	25				Photo x2 of scarp with rock grooves.
L	0132	9339*	27	26.33	47.02	241	

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	0133	9330 '	40	26.33	47.02	245	Grooves from rock sliding downhill.
V	0134						Photo of fish going up scarp.
V	0135	9264®	51			069	Pilot loses heading when [ATV] gets close to slope.
L	0137	9240	34	26.31	47.02	233	Veining? Could be alteration. Will stop to attempt a core. May be layers, not veins.
V	0139.50	9250®	24	26.30	47.0253	048	Face of wall appears fractured with altered veins.
V	0141	9230®	22	26.3012	47.0270	314	Core sample try. Hard holding position. Backing away.
P	0142	9208†		26.30	47.07	low	#53 – scarp.
L	0144	9250	36	26.31	47.03	196	Start Hi8 tape #5 Tape 5 starts 0146.
L	0145	9250	13	26.30	47.03	212	Sediment core A90-7C in alpha (A).
V	0145	9264®				017	[Van log now using] clock on video. Trying to straighten up to slope. Core on edge of slope.
V	0146	9249®	8	26.3023	47.0251	056	With altered bedding. [Core sample] A90-7C in core A.
L	0147	9250	25	26.30	47.03	211	Moving upslope again. Possible bedding of solid rocks.
P	0147	9449†		26.30	47.07	low	[Time uncertain] #52 – scarp.
V	0148	9226®	19	26.3038	47.0254	028	Scree slope with some outcrop.
L	0149	9210	32	26.31	47.03	240	See the bedding again. ATV must be getting pushed back. [at]
V	0149	9203®	29				Outcrop – moving ship 0.2 knots.
N	0150.27						EOF A90.08
N	0150.58						SOF A90.09
L	0152	9210	30	26.29	47.03	262	Scalloped scarp, can see layering, slumped off towards us. Huge change in slope.
L	0153	9170	20	26.29	47.03	255	Ripple marks, much flatter slope. Trouble fighting the current.
V	0153	9169®		26.2908	47.0291	072	Photo 2x of slumped block and ripples. [Drawing]
P	0154	9166†		26.29	47.02	low	#54 – scarp.
P	0154	9167†		26.29	47.02	low	#55 – scarp.
V	0155	9170®	20	26.2775	47.0314	063	On top of block with heavy sediment and ripples. Sinus [?] Nothing on sonar. 200 or 750 ft out. ← JK
V	0156	9165®	8			072	Full forward on ATV and not going anywhere. Or very slow.
L	0157	9170	9	26.27	47.04	240	Stopping to pay out line. Ship is ahead of us. The exciting-looking cracks are Harris's tie-wrap drags. Too bad.
V	0157.59	9161®	20			084	Increasing ship speed to 0.4 knots.
V	0202.41	9164®	5	26.2444	47.0400	081	Getting sonar hits. Still on bottom. Tie wraps on weights drag on on bottom through sediment. "Harris faults"
P	0204	9164†		26.23	47.04	low	#56 – Harris faults (tiewraps of bottom of ATV.)
N	0206.13						EOF A90.09
L	0208	9170	24	26.19	47.05	222	Starting to move, will fly along ridge. Amphitheater slump, downslope grooves.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
V	0208.27	9160®	10	2620.79	47.0480	068	Moving to get out of dust. What course to fly? Change course to 020 or 200. West of south – course 020 if [we] can hold it.
P	0210	9141†		26.17	47.05	low	#57 – ridge.
V	0210.27	9143®		26.1950	47.0489	004	Following contact of top ridge. [Drawing] Two plots 0211.
L	0211	9130	24	26.18	47.06	210	Nice sediment layering. Steep slope.
P	0211	9126†		26.19	47.05	low	#58 – ridge.
L	0212	9130	13	26.17	47.05	195	Slope flatter again.
P	0212	9109†		26.18	47.05	low	#59 – no strobe.
P	0212	9109†		26.18	47.05	low	#60 – ridge.
P	0212						#61 – [time approximate - no description]
P	0212						#62 – [time approximate - no description]
P	0212						#63 – [time approximate - no description]
P	0212						#64 – [time approximate - no description]
P	0212						#65 – [time approximate - no description]
V	0212	9109®	28	26.1872	47.0552	024	Photo of sediment/rock – sharp contact. 2 to 3 photos. [Drawing].
L	0214	9090	13	26.16	47.06	200	Edge normal to track, down drop.
V	0214	9095®	13			016	Back to top of ripples. On course. Sand dune-like feature.
L	0215	9090	15	26.15	47.06	200	picture 69; ripple marks.
L	0217	9090	15	26.14	47.06	205	Going obliquely upslope, much flatter slope than before.
P	0217	9079†		26.15	47.05	low	#66 – bottom (ripples).
V	0217.19	9078®	43	26.1472	47.0593	020	[Drawing] Whitish material in troughs of ripples. #67 frame. Changing VHS tapes. Steep slope.
V	0219.52	9060®		26.13	47.06		Photo.
P	0220	9094†		26.13	47.06	low	#67 – bottom (rocks).
P	0221	9063†		26.12	47.06	low	#68 – bottom (rocks).
V	0221	9051®	11			030	Changing pilots. Low ripples with sediment or pebbles. Bitorubated.
L	0225	8970	23	26.08	47.07	215	Seeing little black rocks more frequently; looking for source.
V	0225	9014®	19	26.0948	47.0694		Slope coming up. Lighter sediment with a black rock loose.
V	0227	8953®	17	26.0822	47.0698	029	Sea pen. Almost to top of knoll. Rocks on the increase.
P	0230	8896†		26.06	47.07	low	#69 – bottom.
P	0230	8896†		26.06	47.07	low	#70 – bottom (rocks).
V	0230	8896®		26.06	47.07	024	Photo 2x of boulder. Rock out in front on slope is light in color. Others appear black.
V	0233	8836®	22	26.0362	47.0801	018	Several large boulders now. Photo of small boulder x2; one of coarse boulder lighter material.
L	0235	8810	27	26.02	47.08	212	Boulders in sediment; some have flat tops. Hoping to find source soon.
P	0235	8824†		26.03	47.07	low	#71 – rock.
P	0235	8818†		26.03	47.07	low	#72 – big rock.
L	0237.30	8810	17	26.00	47.09	190	Stopping to try and pick up white sample.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
P	0238	8788†		26.01	47.08	low	#73 – rocks.
P	0238	8788†		26.01	47.08	low	#74 – rocks.
V	0238	8792®	24	26.01	47.08	017	Rocks (boulders) are subangular, black. Photo. Whiter rocks (multi-colored) are jagged, shistic [sic - schistose?] – moving in on white rock.
V	0241	8793®					On bottom. White rock; trying to get piece of large cobble – whiter rock than we have been seeing.
L	0243	8810	9	25.97	47.09	295	Rock sample A90-8R in bin 4.
L	0243	8770	22	25.97	47.10	200	Sample is stowed. Resuming course.
V	0243	8793®	6	23.97	47.0933	053	Rock sample [A90-] 8R Bin 4. Dropped in! As placed in basket – came off bottom and resumed course.
L	0245	8770	25	25.96	47.10	200	Little rock slide. Slope is steeper.
V	0246	8744®	22	25.9527	47.0982	025	Scree slope. No large rocks. Photo 2x. Except for cobbles.
P	0247	8711†		26.95	47.09	low	#75 – scarp.
P	0247	8711†		26.95	47.09	low	#76 – scarp.
L	0249	8660	26	25.92	47.10	170	Toe of a slide. Really steep.
V	0249	8677®	30	25.9371	47.1012	017	Rock pile very large! Unable to tell type of rock. Blocky, subangular. Photo @ 025
L	0251	8620	32	25.91	47.11	160	Break away, U-shaped contact. Stopping to look at white rock.
P	0251	8632†		25.92	47.10	low	#77 – scarp.
P	0251	8632†		25.92	47.10	low	#78 – scarp.
V	0251	8640®	22	25.9210	47.1050	033	Scree slope contact with outcrop. 2 to 3 photos.
P	0253	8600†		25.90	47.10	low	#79 – scarp.
P	0253	8600†		25.90	47.10	low	#80 – scarp.
V	0253	8603®					Large blocky outcrop/scarp. Photo of scarp.
P	0254	8596†		25.90	47.10	low	#81 – scarp.
V	0254	8599®		25.9072	47.1074		Altered whiter rock – try to get a closer look, but had to leave.
L	0256	8540	31	25.91	47.11	160	Swinging around a bit. Cliff overhang over white rocks. Very steep. Moved up a little bit, looks like good outcrop.
P	0256	8555†		25.91	47.10	low	#82 – scarp.
V	0256	8546®	45	25.9130	47.1101	352	Photo of scarp, #82.
P	0257	8535†		25.91	47.10	low	#83 – scarp.
V	0257	8520®	45				In situ rock outcrop. Stopping to look at rock face, maybe sample.
V	0258	8510®	40	25.9085	47.1047	346	Photo above overhang.
P	0259	8512†		25.91	47.10	low	#84 – scarp.
V	0259	8513®	12	25.9114	47.1056	090	Stopped for sample. Getting dusted/ steep.
V	0300	8488®	43	25.9129	47.1063	350	Getting back on course. Surge of ship is pulling us around. No sample yet. Continuing upslope.
L	0303	8388		25.91	47.11	140	Continuous outcrop, still steep, possible debris chutes. Still looking for a sampling area.
P	0305	8355†		25.91	47.10	low	#85 – scarp.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
V	0305						Photo.
V	0307	8271®	052	25.9091	47.1043	282	0.2 knots – ship speed. Still going up[?] face of cliff.
P	0309	8179†		25.90	47.10	low	#86 – scarp.
L	0310	8110	38	25.90	47.11	120	Outcrop rough and irregular.
V	0314	8033®		25.88	47.11	340	Up along steep craggy wall.
L	0316	7990	64			055	Rock sample A90-9R in bin 8. Representative of rock along cliff.
P	0316	8036†		25.88	47.16	med	#87 – cliff (scarp).
V	0318	7998®		25.88	47.11		[Rock] sample [A90-]9R, sediment (?) from cliff.
L	0322	7950	39	25.89	47.10	130	Possible slump - white material looks like a matrix for some of the blocks. Jumbled up.
P	0323	7945†		25.88	47.11	low	#88 – scarp.
L	0324			25.89	47.10		Looks like talus - few cobbles and larger in mostly fine sediment. Possible debris chute.
P	0325	7874†		25.88	47.11	low	#89 – scarp.
L	0326			25.89	47.10		Sinuous banding or layering - white, thin beds with darker interbeds.
P	0326	7867†		25.88	47.11	low	#90 – scarp, sediment layers.
V	0326	7863®		25.89	47.11	290	Layering in sediment, inclined to left.
P	0327	7847†		25.88	47.11	low	#91 – scarp.
L	0330	7790	37	25.88	47.11	117	Zigzagging up slope. Triangular sediment fans/ mass wasting.
P	0330	7792†		25.88	47.11	low	#92 – scarp.
V	0330	7782®		25.88	47.11	285	Triangular facets.
V	0333	7740®				020	Break in slope, terrace with sediment.
L	0334	7750	13	25.87	47.17	210	Slope is smoother - cobbles and gravel standing out in relief from sediment.
P	0334	7723†		25.86	47.11	low	#93 – scarp.
L	0338	7670	20	25.84	47.11	205	Very steep sediment slope. Gravel and silt. Just past, it is less steep with accumulated gravel-to cobble-sized debris.
V	0338	7677®		25.85	47.12	075	Change course to reflector 070.
V	0340	7651®					Change course to 020.
L	0342	7670	16	25.84	47.12		Rock sample A90-10R - took one of the cobbles. Bin 6.
V	0343	7654®		25.85	47.12	030	[Rock sample A90-] 10R in bin 6, sediment (?) from layer of cobbles.
P	0344	7630†		25.86	47.11	low	#94 – rocks.
P	0345	7630†		25.84	47.11	low	#95 – rocks.
P	0346	7601†		25.84	47.11	low	#96 – rocks.
L	0347			25.84	47.12	209	Starfish - slope of poorly sorted debris or sediment, pebble to cobble size. Larger and smaller as well.
L	0348						Started Tape 6.
P	0348	7575†		25.84	47.12	low	#97 – rocks.
L	0353	7350	23	25.82	47.12	206	Fish - more of the same sort of stuff, less steep.
V	0354	7304®		25.81	47.12	031	Debris on sediment slope.
P	0355	7300†		25.81	47.12	low	#98 – rocks.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	0356	7540	15	25.81	47.13	209	Rock sample A90-11R, bin 7.
V	0357	7255®		25.81	47.13	025	[Rock] sample [A90-] 11R in bin 7 from pebbles littering slope.
P	0358	7236†		25.80	47.13	low	#99 – rocks.
P	0401	7174†		25.79	47.13	low	#100 – rocks.
V	0402	7130®		25.79	47.13	316	Change course to go normal to slope, sediment with pebbles.
L	0403	7120	19.3	25.79	47.13	132.5	Bottom is the same with sediment and rocks sticking through. Pebbly surface. Starfish?
P	0404	7107†		25.78	47.13	low	#101 – upper slope.
L	0406	7040	15	25.77	47.13	199	Photo of rock outcropping. Starting to annotate the 35 mm photos with a date.
L	0407	7046*	12	25.77	47.14	202	Rocky surface with starfish and sponges? Large frequency on the ripples or bed forms.
P	0407	7060†		25.77	47.13	low	#102 – upper slope.
P	0407	7060†		25.77	47.13	low	#103 – upper slope.
P	0407	7060†		25.77	47.13	low	#104 – upper slope.
V	0409	7037®				015	Slope flattening, turn 010.
L	0410	7040	9	25.76	47.14	161	On bottom, stopped.
L	0411	7040	9				Moving. Slope to right. Stalked organisms. Photo.
P	0412	7020†		25.76	47.14	low	#105 – upper slope.
V	0412	7020®					Shallow slope, sediment-covered, low ridges.
L	0415	7000	11	25.75	47.14	227	Changing course to 240° increase ship speed to 0.4 kts and continue on to way point 5. Rocky pebbly bottom with anenomes & starfishes.
L	0420	6958*	8	25.72	47.15	227.6	On bottom. Photo of attack crab. Climbs aboard. Fish!
P	0420	6958†		25.71	47.15		#106 – [no description]
L	0425	6920	8.3	25.69	47.16	218.5	On bottom near way point 5 until ship catches up.
V	0426	6936®		25.70	47.16	040	On bottom, waiting for ship. Pebbles on slope.
N	0428.28						SOF A90.10
L	0434	6920	8.9	25.68	47.22	237.2	Trying for sample in front of basket. No luck so far.
P	0435	6907†		25.66	47.28	low	#107 – rocks.
L	0436	6920	15	25.67	47.24	226	No luck on sampling. Moving ahead to get out of the dust.
V	0437	6908®		25.64	47.35	060	Underway again. [Rock] sample [A90-] 12R in bin 9. Angular fragment.
L	0440	6920	11.1	25.67	47.27	293.4	Seems to be an increase in the slope.
L	0442	6920	10.1	25.66	47.30	260.0	Trying for another rock sample.
L	0446	6920	15	25.65	47.33		Rock sample A90-12R in bin 9. Sediment slope with pebbles and cobbles.
P	0450	6908†		25.64	47.35	low	#108 – rock slope.
P	0451	6894†		25.63	47.36	low	#109 – rock slope.
P	0453	6874†		25.63	47.37	low	#110 – rock slope.
V	0455	6873®		25.64	47.38	090	Flat, dark fragments on sediment.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
L	0456	6880	18	25.62	47.41	195.9	Rippled surface with sinuous crests. Light/dark with pebbles moving along.
P	0458	6880†		25.62	47.41	low	#111 – ripples.
P	0458	6880†		25.62	47.41	low	#112 – ripples.
P	0458	6880†		25.62	47.41	low	#113 – ripples.
P	0458	6880†		25.62	47.41	low	#114 – ripples.
V	0458	6888®		25.64	47.38	000	On bottom, waiting for ship to begin transit to way point 6.
L	0459	6888	8	25.62	47.43	182	Close enough to way point 5; turning towards way point 6.
L	0505	6880	8	25.60	47.43	188	Red starfish/white starfist on pebbly/ cobbled surface.
L	0506						[Time approximate] Left bottom near way point 5, flying to way point 6; video paused.
V	0506						Off bottom 20 feet.
N	0600.59						EOF A90.10 -- stopped collecting nav data, ATV transiting.
P	0734	7549†		25.08	47.47	low	#115 – rocks.
L	0739	7564					Video turned on.
V	0739	7548®	25	25.88	47.47	197	Bottom in sight. [of]
L	0741	7550	28	25.08	47.47	020.7	On bottom north of way point 6, trying to sample. Sediment slope with rocks and white altered sediment.
P	0741	7552†		25.04	47.47	low	#116 – rock in manipulator.
L	0743	7552*	13.2	25.08	47.47	036.9	Rock sample A90-13R in bin 12.Photo of sediment slope with cobbles and boulders; white alteration? around rocks.
P	0743	7552†		25.04	47.47	low	#117 – slope.
V	0743	7552®	10	25.08	47.47		[Rock] sample [A90-] 13R in bin 12.
L	0745	7550	17				White patches on slope around rocks. Outcrop?
V	0745			25.08	47.47		Photo of slope.
P	0746	7534†		25.10	47.48	low	#118 – light color patch.
P	0746	7534†		25.10	47.48	low	#119 – light color patch.
L	0747	7500	13	25.10	47.48	056	On bottom, poking white area. Just surface.
V	0747						Photo of white stuff.
V	0748						Another photo.
L	0749	7550	12	25.10	47.48	037.4	Rock sample A90-14R in bin 11. Sample of white sediment/ rocks - dust by the time it gets into the bin.
P	0749	7535†		25.09	47.47	low	#120 – white sediment.
V	0749	7534®		25.09	47.48		Sample of white [stuff] and photo.
P	0751	7535†		25.09	47.47	low	#121 – white sediment.
V	0751	7534®	10	25.09	47.47	198	[Rock] sample [A90-] 14R in bin 11.
N	0754.05						SOF A90.11 -- back on bottom, started nav file a little late.
P	0755	7512†		25.07	47.47	low	#122 – rock in manipulator.
L	0756	7510	17	25.10	47.48	026.4	Another sample: A90-15R in bin 10. Rock with mud? Red rock on slope that is sedimented with rocks. Sediment is whiter than it was.
P	0756	7511†		25.07	47.47	low	#123 – slope.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
V	0756	7513®		25.09	47.47	211	Photo and [rock] sample [A90-] 15R in bin 10.
V	0758						Photo.
L	0759	7510	17.6	25.09	47.48	046.6	Surface is darker with patches - more pebbles and cobbles.
P	0800	7488†		25.08	47.47	low	#124 – large rock.
V	0800	7487®	16	25.0858	47.4759	202	Photo of agglomerate. Photo of white rock. Photo of lighter rock.
P	0802	7484†		25.08	47.47	low	#125 – white rock.
P	0803	7480†		25.08	47.47	low	#126 – rocks.
P	0805	7480†		25.08	47.47	low	#127 – rocks.
P	0806	7480†		25.08	47.47	low	#128 – rock on rock.
L	0807	7470	11	25.09	47.47	034	Rock sample A90-16R in bin 13.
V	0808	7481®		25.0849	47.4741	199	Photo of [rock] sample [A90-] 16R. In bin 13.
L	0810	7470	15	25.09	47.47	024	
P	0813	7453†		25.08	47.47	low	#129 – white rock.
V	0813	7452®	16	25.08	47.47	205	Photo.
L	0815	7440	25	25.09	47.47	020	Slump structures.
P	0815	7427†		25.08	47.47	low	#130 – flat rock.
V	0815						Photo of white rock.
L	0817						End of tape 6, start of 7.
V	0817	7403®	20				Trying to get up slope.
P	0819	7397†		25.08	47.47	low	#131 – white line.
L	0820	7350	23	25.09	47.47	040	
V	0823	7348®	10	25.08	47.47	208	Photo.
L	0824	7360	21	25.09	47.47	031	Rock with white crust or coating.
P	0824	7348†		25.08	47.47	low	#132 – rock with white ridge.
P	0824	7348†		25.08	47.47	low	#133 – rock with white ridge.
V	0828	7305®	20	25.08	47.47	177	Photo.
P	0829	7305†		25.08	47.47	low	#134 – slope.
L	0830	7320	28.7	25.07	47.47	010.2	Slope with sediment cover with darker rocks and talus over lighter sediment. Sediment patches are fewer than before.
V	0830						Flying high, pulled off deck.
L	0832	7275*	27				In water column again. Being pulled off?
V	0832	7282®	21	25.07	47.47	173	
L	0834	7320	20	25.08	47.47	352	On bottom. Rippled/swale topography. Talus and starfish are more abundant.
P	0835	7314†		25.07	47.47	low	#135 – slope.
V	0835	7299®		25.07	47.47		Photo of some rocks.
L	0836	7280	24	25.08	47.48	007	Crab on slope. Pebbly/cobbly talus on sedimented slope.
V	0837	7265®	27	25.07	47.47	179	Photo of crab.
P	0838	7265†		25.07	47.47	low	#136 – slope.
L	0839	7280	15				Crinoid? Stalked organism.
P	0840	7263†		25.07	47.47	low	#137 – slope.
L	0841	7280	10.9	25.09	47.47	040.2	On bottom - stopped to take sample. Dusted.
L	0842	7280		25.09	47.47		Rock sample A90-17R. Rock in sediment patch.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
P	0843	7281†		25.09	47.47	low	#138 – rock in manipulator.
V	0843	7281®		25.09	47.47	219	[Rock] sample [A90-] 17R, in bin 14. Photo.
V	0844						Dropped weight.
L	0848	7240	20.6	25.12	47.47	027	Cruising upslope. Mass wasting on slope. On and off bottom, bumping along. Pulled off bottom.
P	0848	7240†		25.11	47.46	low	#139 – light patch.
V	0848	7232®	31				Photo.
L	0850						Photo of slope.
P	0850	7254†		25.12	47.46	low	#140 – slope.
V	0851	7252®					Photo.
P	0852	7233†		25.12	47.46	low	#141 – slope.
L	0853	7240	23.4	25.13	47.47	020.4	Pulled off bottom, but had stalked organism. Transit mode to catch up with ship.
P	0853	7224†		25.12	47.46	low	#142 – slope.
V	0853	7232®	16	25.12	47.46	214	Photo.
V	0853						Photo.
L	0855	7240	12.4	25.14	47.47	321.2	Pebbly/ cobbly surface with stalked organisms.
P	0855	7236†		25.14	47.46	low	#143 – parallel with slope.
V	0855						Transit mode // [parallel to?] hill.
V	0855	7200®	8	25.15	47.46		[Time approximate]. Nice color slope shots.
L	0858	7200	8				Stalked organisms/ sponges/ starfish. Course change to 090 in transit mode.
P	0859	7178†		25.15	47.46	low	#144 – parallel with slope
L	0900	7170	10	25.16	47.47	095	Large blocks on surface.
V	0900	7092®					[Time approximate]. Cruising along in transit [mode].
P	0901	7153†		25.16	47.46	low	#145 – parallel with slope.
P	0905	7114†		25.17	47.46	low	#146 – parallel with slope.
L	0906	7077	29	25.17	47.47		Change heading to 180 for work package mode. Low slope strewn with boulders.
V	0906	7077®		25.17	47.46		Going to work package [mode].
V	0907			25.18	47.46		At work package [mode].
P	0910	7683†		25.14	47.46	low	#147 – rock slope.
L	0911	7082	5	25.19	47.46	060	Rock sample A90-18R in bin 15. Blocky.
P	0911	7083†		25.14	47.46	low	#148 – rock in manipulator.
V	0911	7083®	05	25.19	47.4628	256	[Rock] sample [A90-] 18R. In bin 15.
L	0917	7028	18	25.23	47.46	010	Very rubbly, on slope.
V	0919	7030®	15	25.22	47.46		Photo.
P	0920	7032†		25.23	47.46	low	#149 – rock formation.
V	0923	7000®	18	25.24	47.45	211	Near top of hill.
P	0925	7005†		25.24	47.45	low	#150 – rock line.
V	0925						Photo of black things.
V	0928	6972®	15	25.2564	47.4574	246	[Rock] sample [A90-] 19R. In bin 16. Photo. Photo of slope, same spot.
L	0930	6980	6	25.27	47.46	090	Rock sample A90-19R in bin 16. Angular chunk on soft sediment.
P	0931	6980†		25.26	47.45	low	#151 – rock in manipulator.
P	0932	6980†		25.26	47.45	low	#152 – slope.

	Time (PDT)	Depth (ft)	Altitude (ft)	Ship's Latitude (°N)	Ship's Longitude (°W)	ATV Heading (°)/ Turbidity	Observations
P	0933	6957†,		25.26	47.45	low	#153 – slope with crab.
L	0934	6910					Change heading 180 for transit mode; .
V	0934						Go to transit mode.
L	0937						Changed heading 180 for work package mode.
V	0937	6912®	11	25.3065	47.4486	124	Coming around into w[ork package] mode to sample large rock.
P	0939	6908†		25.31	47.45	low	#154 – large boulder.
P	0940	6914†		25.31	47.45	low	#155 – large boulder.
V	0940	6912®		25.3128	47.454	278	Work package mode. Stopping [to] sample around large boulder. [Rock sample] A90-] 20R. In bin 17. Crabs, stalked organisms, and fuzz on top of boulder. [Drawing]
L	0941	6912		25.33	47.45	110	Rock sample A90-20R in bin 17. From fragments between two larger blocks.
P	0941	6914†		25.31	47.45	low	#156 – rock in manipulator.
V	0943	6902®	10	25.33	47.4536	222	Moving on. Photo of crab by rock.
P	0945	6896†		25.30	47.44	low	#157 – crab and rock.
N	0945.20						EOF A90.11
N	0945.53						SOF A90.12
P	0947	6895†		25.30	47.44	low	#158 – rock.
V	0947	6895®	11				On bottom - picture. Moving on. Sediment flat slope with sediment and rocks on surface – stalked organisms, crabs.
V	0949	6897®	15	25.364	47.444	243	Sediment and ripple marks. Some rocks. Changed course to follow slope. At crest? Being swung off course.
L	0950						Changed heading 300 to go upslope.
P	0951	6897†		25.37	47.44	low	#159 – flat.
V	0951	6900®	13	25.373	47.44	302	Photo of top?
V	0953	6894®	15	25.385	47.442	236	Rotating around for 360° pan of top.
L	0955	6920	10	25.39	47.45		Terminating dive.
N	0955						Dive terminated, ATV coming up.
V	0955	6900®	15			229	Finished 360° turn. Going back opposite way to remove turn from tether.
V	0955.57	6899®		25.393	44.4473	02[?]	Coming to match ship's heading.
P	0956	6902†		25.39	47.44	low	#160 – top
V	0958.18						Terminating dive! Off bottom. Video VHS is finished.
N	1011.31						EOF A90.12