

Old project  
Alec - Nicaragua data  
C/Drive

Control - start-stop  
Parameters → shot/trigger set up  
File - save by day  
Play - look at data

Admin - Lines → correct to SEBY  
Power - turn switch on - hit on switch.

NICLAKES

3.5 kHz

OPERATIONS LOG

SHIP: Mozorola CRUISE NO: NL-1  
LEG NO: M-1 YEAR: 2006

AREA:

Lake Nicaragua

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID: CSE	NO: Speed km/hr	
05/08/06	12:53:20	11°58.90	85°58.41	9	2				start Line 2 5/8/06 12:53:30
05/08/06	14:36:15	11°54.99	85°53.35	8.8					end line 2
5/8/06	2:43	11°55.117	85°53.36	8.8	3				start line 3
5/8/06	4:33	11°57.69	85°48.43	9.2	3				EOL Line N-3
5/9/06	1:24	11°56.02	85°46.37	11.7	4				SOL Line N-4 (calculated at 41 m Dr. Geo)
5/9/06	0200	11°50.61	85°44.23	11.8	4				Fault on lake bottom
5/9/06	0206	11°50.70	85°43.85	11.7	4				Fault on lake bottom (shot 4635)
5/9/06	0216	(NOTE) Reset dvstnic laptop PC clock 11 seconds slower							to synchronize with GPS clock
5/9/06	0400	11°52.70	85°37.30						EOL 41 - we have stopped recording - cable not clean. - ended record on Dr. Geo
5/10/06	0951	12°03.92	85°49.90	?	5	5032	129	4.1	SOL 5 - Line straight - increasing speed to 6 km/hr.
	1015	12°03.18	85°48.49	?	5	5305	129	5.7	Dropped firing pressure to 1000 psi
								(NOK)	3.5 works not produce signal - 1 below fuse located - no spare part.

Tues  
May  
8

↓  
Wed  
May  
9

REMARKS (equipment configuration & settings, weather, etc.):

# OPERATIONS LOG

CRUISE NO. ~~4121~~ NL-1

Lake Nicaragua

YEAR: 2006

3.5 lch

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Sat May 13

3.5 kHz  
OPERATIONS LOGSHIP: MozarolaCRUISE NO: NL-1

AREA:

Lake Nicaragua

LEG NO: M-1YEAR: 2006

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:  shut	NO:  shut	ID:  CSE	NO:  SP	
5/13/06	8	11° 37.52	85° 47.91	11.1	43		50	6.0	Start recording 3.5 kHz - line 43 corresponds to seismic Line 7
5/13/06									At about 8:00 changed GPS to use averaging of position (Stetten)
	10:18	11° 41.98	85° 43.49						Small graben or channel feature
<del>5/13</del>	<del>10:45</del>	<del>11° 42.56</del>	<del>85° 40.40</del>		7		57	7.2	~ 1.5 m deep ~ 100m wide
5/13	10:35	11° 42.56	85° 40.46	-	7		57	7.2	North side is higher than south side of new fault/graben ~ 100m wide also
5/13	11:45	11° 44.97	85° 37.00	14	-	-	-	-	Small fault in 3.5 kHz
5/13	12:12	11° 45.63	85° 36.07		-	-	-	-	Fault occurred a couple minutes ago, 2 faults
5/13	01:00	11° 47.28	85° 33.57	12	7	5234	64	7.2	Fault runs from the north
"	01:48	11° 49.19	85° 30.63	10m					Small fault?
5/13	03:17	11° 51.47	85° 26.47	5.5m	7	7629	93	5.6	Mouth of river - cut see layering in deltaic sediment
									Guns off - EOL 43 saw fault at EOL -
									normal displacement - 2 rotated fault blocks
5/13	03:31								Official EOL 44
5/13	03:33								SOL 44 - transit line to north
5/13/06	04:37	11° 45.14	85° 30.41	11	44				Fault in middle of lake on transit line
5/13/06	04:53	11° 43.83	85° 31.28						Large V-shaped fault in channel? very symmetrical

REMARKS (equipment configuration &amp; settings, weather, etc.):

5/13/06 0705 pm No faults observed

EOL 44 - entering Mayagualpa pier

3.5 kHz

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3.5 kHz  
OPERATIONS LOG

SHIP: Mozarella

CRUISE NO: NL-1

AREA:

Lake Nicaragua

LEG NO: M-1

YEAR: 2006

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/14/06	6:33	11° 32.416	85° 42.099	≈ 5m?	47				airgun line 8 start line 47 - next to dock at Managua
	6:39:30	<del>11° 32.44</del>	<del>85° 42.36</del>						leave dock, heading toward San Jorge
	6:58:20	11° 32.49	85° 43.36						start airgun line #8 shot pt 45
5/14/06	0823	11° 35.42	85° 46.48	-					Course Change due to large swells
5/14/06	0851			-	47				End of line 47, near shore San Jorge
5/14/06	0953				48				Start of line 48
5/14/06	0954 <sup>30</sup>				49				Start line 49
5/14/06	10:35				49				EOL 49 (airgun line 9)
	10:38	11° 28.83	85° 41.65		50				SOL 50 (airgun line 10)
	11:41	11° 30.40	85° 44.68		50				Scarp west of Point: Down to NW offset ~ 4 m
	11:54	11° 30.64	85° 45.22		51				start line 51 (airgun line 11)
	12:05	11° 30.55	85° 45.25		51				Scarp up to south ~ 9m → ~ 5.8 m
	2:04	11° 30.55	85° 45.25		51				EOL 51 (NOTE) - NAV not working
	2:09	11° 24.73	85° 43.895						SOL 52 (airgun line 12) - turn east from south
									Note: changed sample rate to 1/2 former value at SOL 52 (22000 samples/sec)

REMARKS (equipment configuration & settings, weather, etc.):

End  
Line  
Start  
Line



OPERATIONS LOG

SHIP: Mozarola

CRUISE NO: \_\_\_\_\_

AREA:

Lake Nicaragua

LEG NO: NL-1

YEAR: \_\_\_\_\_

CSE, SPD

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/15/06	7:07	11°24.60	85°32.76		53				Starting line 53 (in transit)
	8:12	11°24.09	85°26.78	16.7			347	6.4	Turn north for seismic line 13
	9:45	11°26.40	85°26.6	13.2					Getting some sub-bottom penetration
5/15/06	10:32								End line 53, start
5/15/06	10:35	11°32.09'	85°26.55'	14	54				Start line 54
"	1:00	11°25.36'	85°23.51'	12.7	55				Start line 55 (end line 54)
	2:44	11°30.08	85°20.04	14.9					starting to drop into deep area east of Maderas
	<del>2:48</del>								
	2:48	11°30							Abrupt fault scarp
	2:51	11°30.41	85°19.76'	24	55				
	3:07	11°31.14	85°19.13	25					Brighter water bottom - less penetration
5/15	3:28	11°32.02	85°18.37	13.3	56		180		Turning south to cross deep again
	3:53	11°30.69	85°18.28						Reaching the south edge of deep
5/15	4:03	11°30.30	85°18.28						End of virgin line - 3.5 line left on the trans
	4:08.5	11°30.28	85°18.28		56				End of line 56 - heading sw to home
	4:09				57				Start line 57 - high-speed transit home

REMARKS (equipment configuration & settings, weather, etc.):

part 1

(3.5 kHz)

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OPERATIONS LOG

SHIP: Mozzard

CRUISE NO: M-1

AREA:

Lake Nicaragua

LEG NO: M-1

YEAR: 2006

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/16/06	0645	11 24.34	85 32.82		58				SOL 58 - leaving Sam Ramon - Line 58
5/16/06	7:14								outtransit line rough WB hit sharp
									V-shaped low point and rapid rise to the east
5/16/06	0725	11 23.89	85 29.21		59				SOL 59
	0733	11 23.33	85 29.29						Hit deep point @ ~42 m
	0913	11 18.48	85 30.72	17					Boat problem - will stop and loop back
5/16	0940	11 19.13	85 30.80		60				Start Line 60 - headed back upline (Seismic 176)
									will turn around and resume course
	0946	11 18.98	85 30.63	16	60		195	6.1	Back on line SSW
	1023	11 17.04	85 31.16	16					Possible shallow layering
	1040	11 15.90	85 31.95	16					Graham structure 5ms deep or channel
	1043	11 15.71	85 31.66	16					Another offset in the near surface layer
	1108	11 14.63	85 31.99						offset down to south 4+ms
	1119	11 14.13	85 32.16	9					change in surface prop 5 - more penetration
									End Line 60 loop to the right

REMARKS (equipment configuration & settings, weather, etc.):

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Page 6

SHIP: Mozorola

CRUISE NO: M-1

AREA:

Lake N.

LEG NO: NL-1

YEAR: 2006

shot cse spend

[illegible]

REMARKS (equipment configuration &amp; settings, weather, etc.):

Page 6

3.5 kHz

OPERATIONS LOG

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SHIP: Mozzola

CRUISE NO: M-1

AREA:

Lake N.

LEG NO: NL-1

YEAR: 2006

CSP SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/17/06	0659	11 24.87	85 32.48						SOL 64 - leaving San Ramon - heading south
	844	11 21.25	85 36.52	14					Start of sediment reflectors
	944	11 19.27	85 38.86	14					The thin layer (~1m) has reappeared
	1021	11 17.88	85 40.28	8	66		121°	6.0	End line 64, start line 65, start 66 (GPS stopped)
	1115	11 16.38	85 37.74		66		121	6.0	well-developed shallow layer 2-4ms
	1146	11 15.56	85 36.26						well-developed shallow layer out <sup>Rio Sapo</sup> <del>rock</del>
5/17/06	117	11 15.06	85 31.60	15.7	67		340	6.0	Start line 67
	131	11 15.75	85 31.89		67		340	6.0	well developed shallow layer up to 6-7 <sup>ms</sup> <del>thick</del>
	4024	11 23.43	85 34.88	121	67				End of line 67 / Start line 68

REMARKS (equipment configuration & settings, weather, etc.):

64-68  
7

3.5 KHz

## OPERATIONS LOG

SHIP: Mozoro/aCRUISE NO: M-1

AREA:

Lake Nicaragua

LEG NO: NL-1YEAR: 2006

CSE SPD

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5-18-06	0718	11 24.52	85 32.90		70				SOL line 70 - leaving San Ramon - along S. coast
5/18/06	0729	11 23.75	85 32.31	25	70				Start turn to due east - gradual drop off
5/18/06	0738	11 23.73	85 31.51	41			90	10 KHz	Bottom flattened w/ no abrupt drop off
5/18/06	0808	11 23.60	85 28.98						Passed deep point w/ no V-shaped feature
5/18/06	0814	11 23.61	85 28.56						Increased speed to 15 kts - no faults seen
5/18/06	0832	11 23.60	85 26.55						Turning course
	1018	11 29.43	85 17.13	11.5	71		0°	5.6	Start line 71 - Turn north to cross fault zone
	1051	11 31.06	85 17.14	15			0	5.6	Starting to deepen into fault zone area
	1112	11 32.10	85 17.17	23					possible fault
	1122	11 32.61	85 17.18						small fault on North flank of deep North
	1127	11 32.89	85 17.19	14					start turn to south
5/19/06	1133	11 32.83	85 17.37	12	72				End line 71 / start line 72
	1219	11 30.98	85 15.97		73				End line 72 / start line 73
	127	11 33.97	85 14.43	13.3	74				End line 73 / start line 74 turn to SE
	219	11 32.11	85 13.19						small mound and trough @ south edge of basin
	233	11 31.54	85 12.89	12	75				turn west on line 75; transit to west edge of deep
	338	11 31.83	85 19.88	13	76				start line 76

REMARKS (equipment configuration &amp; settings, weather, etc.):

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## OPERATIONS LOG

SHIP:

CRUISE NO: M-1

Lake Nicaragua

LEG NO:

YEAR: 2006

cse spd

North  
Cove  
Location

deep  
Ramon

REMARKS (equipment configuration &amp; settings, weather, etc.):

②

3.5 kHz  
OPERATIONS LOG

SHIP: Mozorola

CRUISE NO: NL-1

AREA:

Lake Nicaragua

LEG NO: M-1

YEAR: 2006

Heading to Soliternam

CSE SPD

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/11/06	0626	11 24.89	85 32.50	7.9	80				Starting Line 80
	0913	11 14.72	85 24.12	16	81		160	5.4	end line 80/start line 81 start seismic
	1000	11 12.25	85 22.83	14	81				Little/no penetration; rough seaf
	1040	11 11.62	85 21.73	12	82		36	5.4	start line 82; still rough
	1210	11 14.94	85 19.32	12	82		36	5.4	
	1225	11 15.45	85 18.86	17.5					going into southern end of deep area
	1235	11 15.79	85 18.57	26	82				In deep zone - lots of small offsets on WB - & short cores/grabsamples?
	1255	11 16.58	85 17.88	23	82				Starting to rise on north side of deep.
	1259	11 16.76	85 17.76	19					Ending line 82; turn to SE
	0102	11 16.75	85 17.66	20	83		109	5.4	Start line 83
	0108	11 16.65	85 17	27					Returned to deep area on this heading
	0130	11 16.05	85 16.52	13					Approaching <sup>Isla</sup> Canal
	0134	11 15.74	85 16.25	9					Possible fault w/ extrusion just south of Isla Zamarate
	226	11 14.40	85 14.36	11.2	83				Change speed to 11 km/h - transit to Manacarron

REMARKS (equipment configuration & settings, weather, etc.):

10

3.5 kHz  
OPERATIONS LOG

SHIP: Mozzola

CRUISE NO: N -

AREA:

Lake Nicaragua

LEG NO: m-1

YEAR: 2006

CSE SPD

Solentaurus

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/20/11	0720	11 10.32	84 59.93	3.5	84				Start of Line 84, distinct dropoff almost immediately
	0750	11 13.04	85 00.08	12					Transiting ground to NW of Manacarra water deepens from 5m - 12m
	0819	11 12.94	85 2.33	11	85				Start New Line 85 to NE (seismic 33)
	0932	11 15.61	85 5.30	9	85		306	5.5	Very flat for mucho km; no penetration
	1000	11 16.62	85 06.58	8.6	86				End line 85 / start line 86 head SW
	1045	11 14.52	85 07.64	9.0	86		203	6.0	still very flat
	1249	11 08.88	85 10.18	7	87		44	10	End Line 86 / start line 87
	0218	11 15.00	85 04.39	8	87		44	10	very flat
	0304	11 18.08	85 01.37	7	87		44	10	small offsets at WB
	0405	11 22.37	85 57.01	4	87		44	10	EOL 87 (Farthest north - near shore - shallow water)
	0406				89		90	10	SOL 89
	0544	11 11.37	85 49.25						EOL 89 Almost back to Manacarra

REMARKS (equipment configuration & settings, weather, etc.):



3.5 kHz  
OPERATIONS LOG

5/21

SHIP: Mozoria

CRUISE NO: M-1

AREA:

Lake Nicaragua

LEG NO: M-1

YEAR: 2006

use spd

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/21/06	0630	11 10.36	85 00.00		90				Start Line 90 from dock
5/21/06	0641	11 11.06	84 59.38	4	90		10	15	Crossed deep part of channel near Macaroni 4-8m drop off
	0700	11 13.03	84 59.80	10	90		308	12.5	Fairly rapid deepening from 25-9m
	1102	11 29.62	85 20.61	12					Slowed down to start seismic acquisition
	1110	11 29.91	85 20.95	15					Flank of deep area
	1112	11 29.95	85 21.07						Probable fault scarp
	1129	11 30.55	85 21.76	20	90				Start turn; end line 90; starting up north flank
	1131	11 30.50	85 21.84	20	91				SOL 91
	1144	11 29.85	85 21.71	25					Reached base of scarp on south side
	1154	11 29.39	85 21.78	12.6	91				EOL 91 Reached south ridge of deep - turn to NW
	1156	11 29.46	85 21.87	13	92		300	6.4	SOL 92 headed NW to recross deep
	1209	11 29.90	85 22.43	14					Almost to slope break @ S edge
									No sharp slope break here - gradually deepens to 20m; Two notches in WB and a brief window w/ reflector
	1220	11 30.3	85 23.01						notch in WB - May be fault?
	1225	11 30.38	85 23.15		92/93				EOL 92/SOL 93 turn to South
	1249	11 29.30	85 23.23		93				EOL 93

REMARKS (equipment configuration & settings, weather, etc.):

2

3.5 kHz  
OPERATIONS LOG

5/21

SHIP: Mozorala

CRUISE NO: N-1

AREA:

Lake Nicaragua

LEG NO: M-1

YEAR: 2006

CSE SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/21/06	1252	11 29.43	85 23.31	14	93				SOL 93 - short line north to strike line
	1257	11 29.65	85 23.43	14	93				EOL 93 - Turning to East
	1258	11 29.69	85 23.39		94				SOL 94 - strike line through deep
	0130	11 29.88	85 22.08	18					
	135	11 29.93	85 21.86	22					Some reflections + off set in WB
	200	11 30.18	85 20.30	23.5	94				Mostly devoid of reflections
	211	11 30.29	85 19.81	25	94				Thin layer over original WB + deeper reflections
	217	11 30.36	85 19.44						Interesting changes in WB + reflectors
									Possibly near south scarp
	227	11 30.51	85 18.84	18					Change cse more northerly to get back in basin
	231	11 30.61	85 18.65						Crossed back over to basin: reflections
	240	11 30.84	85 18.20	23	94				EOL 94/SOL 95 good reflections
5/21/06	0409	11 33.43	85 22.16	—	100	—	285	15	SOL 100 - transit to Attagrues at 15 km/hr
	0600								EOL 100 - Attagrues

REMARKS (equipment configuration & settings, weather, etc.):

(13)

## OPERATIONS LOG

SHIP: MozurkenCRUISE NO: NL-1

AREA:

Mandy May 22LEG NO: M-1YEAR: 2006Lake NicaraguaCSE SPD

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/22/06	0629	11 35.27	85 35.2	6	101				Start line 101; leaving Altagecke
5/22/06	0648	11 35.18	85 33.77	13.1	101				On line 101 - going south
5/22/06	0807	11 32.80	85 27.38		103				EOL 101 going south
5/22/06	0808	11 32.80	85 27.38		103				SOL 103 - going east
	1005	11 40.94	85 19.89	9.4					Smooth WB, very slowly rising
	1022	11 42.15	85 18.69	8.7					small nicks in WB
	1037	11 43.22	85 17.78	8.0					another small nick
	1047	11 43.92	85 17.20	7.7					another nick
	1108	11 45.73	85 15.66	5.0					EOL 103/SOL 104 Turn to NW
	1117	11 46.10	85 15.98						Apparent fault scarp upto NW offset 2-3km
	1158	11 48.35	85 19.23	6.0			318	11	small offset at WB
	12:21	11 49.48	85 20.84	7.0					EOL 104/SOL 105; some reflections
	12:45	11 48.51	85 22.30	8.6			226	9.6	Possible fault (small)
	0156	11 44.17	85 26.58	11.6			221	9.4	Small fault
	0230	11 41.93	85 28.29	12.6					Small fault(?)
	0306	11 39.71	85 30.43	14.3					
	0412	11 35.83	85 34.43						EOL 105 At Puerto Gracia

REMARKS (equipment configuration &amp; settings, weather, etc.):

(15)

3.5 kHz  
OPERATIONS LOG

SHIP: Mazatlan CRUISE NO: ~1

AREA:

Lake Nicaragua

LEG NO: M-1 YEAR: 2006

(Atagracia) ~ Atagracia

CSE spf

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/23/06	1412	11 35.79	85 35.59	13.7	106				Start Line 106
	731	11 35.97	85 38.06	14			270	6	Very smooth slowly deepening
	801	11 36.08	85 39.98						EOL Line 106 turn to SW
	803	11 36.03	85 39.67	15	107		230	6	SOL 107
	830	11 35.09	85 40.71	13.8			230	6	Very smooth WB, no penetration
	858	11 34.20	85 41.89		107				Apparent fault-bounded high - coincides w/ offset in island coastline
	901	11 34.03	85 42.03	10	108		010	6	turning to N to recross uplift
	918	11 34.7	85 42.08		109		90		turning east structure is possibly N/S
	930	11 34.8	85 41.41	12.5	110		235		Missed structure - Turn SW parallel to 107.
	948	11 34.3	85 42.06	12.5	110		225		Adjust course 15° SW
	1054	11 30.36	85 44.54	8.7	111		180	6	Sol 111: Turn south to cross uplifted area
	1116	11 30.52	85 44.56	7.5					approaching uplift
	1118	11 30.42	85 44.56	3.0			180	6	crossed scarp up to south offset 4+ m
	1126	11 29.96	85 44.56	8.7	111		180	6	crossed scarp due to south offset ~ 3m
	1141	11 29.17	85 44.53	8.6	111		180		EOL 111 turn to west
									SOL 112

REMARKS (equipment configuration & settings, weather, etc.):

15

3.5 kHz  
OPERATIONS LOG

SHIP: Mozorda

CRUISE NO: N-1

AREA:

Lake Nicaragua  
Atagracia - Atagracia

LEG NO: M-1

YEAR: 2006

CSE spd

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/23/06	1157	11 29.21	84 44.81	8.8	113				EOL 112/SOL 113 Bring in seismic; turn north on 113
5/23/06	1206	11 30.05	85 44.43	4.0	113		356	8.4	Crossing fault (downthrow to south) - 1 m at top
5/23/06	1214	11 30.43	85 44.87	-	113				Crossing fault (downthrow to north)
	1229			9.0					Turn to west (missed ed/sol)
	1239	11 31.43	85 45.90	9.2	114		176	9.7	EOL 113/SOL 114 Turn to south
	~1250								uplifted block only subtle expression - no scarps
	0100	11 28.85	85 45.61	8.4	115				EOL 114/SOL 115 turn back N and a little east
	0127	11 30.22	85 45.49	8.9					slight uplift ~ 1 m
	0138	11 30.99	85 45.51	8.9	116		205	10	EOL 115/SOL 116 turn back south
	0146	11 30.41	85 45.83	8.8	116				subtle uplift ~ 1 m
	0155	11 29.65	85 46.1	8.7	116/117		284	10	EOL 116/SOL 117 turn west
	0203	11 29.27	85 46.72	8.5	117		345	8.4	EOL 117 - turning to NW/SOL 118
	0215				118				No expression of uplift - FLAT
	0236	11 31.96	85 48.11	9.4	118		345	10	slowly deepening NW (line parallels coast)
	0255	11 32.87	85 48.80	10.9					Stopped for ~ 5 min to remove fishing gear
	0300	11 33.51	85 49.25	7.7					from 3.5 equipment
									→ fairly rapid uplift over ~ 500 m

REMARKS (equipment configuration & settings, weather, etc.):

15

## OPERATIONS LOG

Mozorla

CRUISE NO: N-1

AREA:

Lake Nixaragua

Affagracia - Affagracis

M-1

YEAR: 2006

CSE SPD

Attyræciæ.

REMARKS (equipment configuration &amp; settings, weather, etc.):

⑫

## OPERATIONS LOG

SHIP:

Mozzolino

CRUISE NO:

N-1

AREA:

Labra Nicaragua

LEG NO:

M-1

YEAR:

2006

CSE SPD

Altagracia → Grenada

[illegible]

REMARKS (equipment configuration &amp; settings, weather, etc.):

16



No Pr. Geo

## OPERATIONS LOG

SHIP: MornitoCRUISE NO: NL

3.5 kHz

AREA:

Lake Managua

LEG NO: NL-2YEAR: 2006

CSE SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/26/06	09:53:27	12° 11.71'	86° 6.95'	?	1		273	~6	Start 3.5 kHz
	11:01	12° 11.96'	86° 10.74'						stopped to save to file 26-May-1.ogg
	11:04:28	12° 11.99'	86° 10.96'						resumed recording
	12:04	12° 12.12'	86° 14.32'						stopped recording to save file 26-May-2.ogg
	12:06:48	12° 12.13'	86° 14.47'						resumed recording
	1:01	12° 12.45'	86° 17.54'	?					EOL 1 / So 2 2 - Saved to 26-May-3.ogg
	1:10:28	12° 11.97'	86° 17.36'						Start Recording
	1:15	12° 11.79'	86° 17.73'						Turn onto Line 2 Course 095°
	02:44:20	12° 11.49'	86° 13.19'						Stopped recording to save file 26-May-4.ogg
	02:48:45	12° 11.48'	86° 12.96'						resumed recording
	04:09	12° 11.14'	86° 8.77'						Stopped recording to save file 26-May-5.ogg
	04:13:10	12° 11.07'	86° 8.56'						resumed recording
	04:36	12° 11.11'	86° 7.33'						EOL #2; Turn north toward "Muelle" EL
	04:58:49	12° 12.04'	86° 6.77'						Stop recording: save to file 26-May-6.ogg
									End Recording Day 1 Managua

REMARKS (equipment configuration &amp; settings, weather, etc.):

✓ Exact minute from GPS

6



3.5 kHz  
OPERATIONS LOG

SHIP:

Morrito

CRUISE NO:

NL-1

AREA:

Lake Managua, Nicaragua

LEG NO:

NL-2

YEAR:

2006

CSE SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/27/06	8:18:26	12 11.52'	86 7.17		<del>1</del>				Recording 3.5 kHz w/ Audacity
	8:43:30								Problem - restart - going ssw to start of #3
	8:51								stop test recording
	8:54	12 10.86	86 7.68		3				start recording line 3
	10:21	12 10.99	86 12.91						stopped recording to write file: 27-May-2.ogg
	10:25	12 11.01	86 13.12						resumed recording
	11:04	12 11.05	86 15.49		3		274	6.8	Tail wind & following small swells
	12:10:15	12 11.32	86 19.43		3				EOL 3; writing to file 27-May-3.ogg
	12:15:30	12 11.08	86 19.35		4				Start line 4
	01:06								stopped recording data to investigate noise
	01:11:25	12 10.87	86 16.41		4				resumed recording
	02:34:30	12 10.45	86 12.01		4				stopped recording out of range. Save to 27-May-4.ogg
	02:40	12 10.22	86 12.17		5				resume recording line 5
	04:13	12 10.54	86 17.48		5				stop recording turn; write file 27-May-5.ogg
	04:20	12 10.21	86 17.50		6		93	5.5	start recording line 6
	05:25	12 10.22	86 14.41		6				stop recording to write file 27-May-6.ogg
	05:30	12 10.27	86 14.36		6		50	6.7	resume recording - heading to Tipitapa

REMARKS (equipment configuration & settings, weather, etc.):

23



SHIP: MooritoCRUISE NO: NL-1

using Dr. Geo again

LEG NO: NL-2YEAR: 2006

3.5 kHz OPERATIONS LOG

AREA:

Lake Managua

cse spd

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/28/06	7:59	12 12.99	86 7.51		7		270	6.4	start Line 7
									<del>start Line 7</del>
	8:30	12 13.10	86 9.29		7				Apparent fault zone or channel
	8:34								another sharp offset = 3-4 m
	8:47	12 13.12	86 10.27		7				offset at WB? Possibly Aeropuerto Fault
	8:52								offset at WB
	8:58	12 13.09	86 10.88		7				rapid uplift at fault up to W
	9:02	12 13.08	86 11.15		7				rapid drop back to ~5.5 m depth
	9:07								offset then very weak bottom
	9:20	12 13.05	86 12.08		7				abrupt change to strong WB refl.
									There actually appears to be a thin veneer
	10:02	12 13.15	86 14.52	6.5	7		276	6.6	water depth gradually increasing to west
	10:44	12 13.42	86 17.19		8				EOL 7; turn N to Line 8 (start 8 on connector)
									Had to veer NE due to swells
	11:08	12 14.85	86 16.63	7.6	8		99	6.2	Turn to 90° heading
	12:37	12 14.20	86 11.70	6	8				Potential fault or Window (or both)
									WB ~ transparent

\* 3-4 m

possibly NW-SE

\* possible subsurface penetrations

over high amp. refl.

REMARKS (equipment configuration &amp; settings, weather, etc.):

22

## OPERATIONS LOG

SHIP: MerriñoCRUISE NO: NL-1

AREA:

Lake Managua, NicaraguaLEG NO: NL-2YEAR: 2006

cse spd

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/28/06	12:52	12 14.29	86 10.80		8				Fault and/or edge of window strong WB reflector back
	12:02	12 14.27	86 10.13		9		170		EOL 8 / SOL 9 Turn SSE
	1:08				9		130		Adjust course to ~ 130° due to swells
	1:15	12 13.73	86 9.63		9		90		adjust course again to East
	1:23	12 13.70	86 9.08						small window
	1:30								Poor data possibly due to excessive speed; also possible gas in water column
	1:42	12 13.58	86 8.0		9/10				EOL 9 / SOL 10 Turn north
	2:03	12 14.74	86 7.93		10				Apparent fault down to North (or window)
	2:06	12 14.89	86 7.92		10				<del>edge</del> Fault or Nedge of window
	2:09	12 15.05	86 7.93		10/11				EOL 10 / SOL 11
	2:25				11				Weak WB reflection
	2:30	12 15.08	86 69.05		11				small window or fault bounded graben
	2:34								Weak reflection WB
	3:20								Some reflectors with structure
	3:23	12 15.11	86 12.20						Slight course change to right 280°

REMARKS (equipment configuration &amp; settings, weather, etc.):

CSC SPD

Morrito

NL-1

## Lake Mangrove

NL-2

2006

24

REMARKS (equipment configuration &amp; settings, weather, etc.):

3.5 kHz  
OPERATIONS LOG

SHIP: Messite #2

CRUISE NO: AL-1

AREA:

Lake Managua

LEG NO: M-1

YEAR: 2006

*CSE SPD*

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
05/29	0831	12° 13.56	86° 08.74		14				Start of Line 14; transit to first Waypoint
	0853	12° 14.59	86 10.20	4.5	15				Start of Line 15 (logged as 151)
	0900	12° 14.63	86 10.76						Narrow "windows" coincident with sonar targets
	0910	12° 14.71	86 11.58						Nice window with deeper dipping reflector
	0918	12° 14.78	86° 12.29	4.5			295°		Course change to 295°
	0937	12 15.43	86 13.79	5.5			282	9	Course change to 282°
	0958	12 15.80	86 15.64	9	15		270	9	Course change to 270
									crossing deep zone - sonar no evidence of fault @ WS
	1018	12 15.81	86 17.29		16		342	9	EOL 15/SOL 16 moving NNW; swells building
	10:30	12 16.78	86 17.49		17		50	9	EOL 16/SOL 17 move NE to cross deep
	11:04	12 18.37	86 15.53	11	17		51	9	crossed deep area; no sign of significant datasets
	11:34	12 19.79	86 13.75						Briefly increased gain on 3.5 kHz
	11:35	12 19.83	86 13.69	6					"Window" with internal dome shape
	11:40	12 20.07	86 13.42	3	18		250	9	EOL 17/SOL 18; increased gain from 3.5 kHz
	11:45								recrossed apparent fault or window
	12:30	12 18.49	86 17.32	12	18		245	9	crossed deep - it is quite smooth
	12:48	12 17.87	86 18.62	10	18		245		approaching Chiltepe still "deep"

REMARKS (equipment configuration & settings, weather, etc.):

OPERATIONS LOG

SHIP: Morrito

CRUISE NO: NL-1

AREA:

Lake Managua

LEG NO: NL-2

YEAR: 2006

CSE SPT

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
05/29/06	12:54	12 17.64	86 19.00	5	17/18		30		EOL 17/SOL 18 Water Bottom shallowed quickly before our turn
	1:31	12 19.84	86 17.77	15	18		45		Apparent fault at deep zone
							45		Change course to 45° to avoid trough
	2:39	12 22.51	86 14.58	5.5	18		45	7	Apparent fault ~ 6 km from coast
									possibly same feature as near San Ramon
	2:45	12 22.73	86 14.45	3	18/19		240		EOL 18/SOL 19; Fault and inshore high nearly identical to off San Ramon
	2:58	12 22.39	86 15.44	6	19		270		change course to avoid swells
	3:34	12 22.59	86 18.27	11	20		200	6.5	EOL 19/SOL 20 wind and swells difficult
	4:00	12 20.85	86 19.01	17	20		200	7.0	Bottom of deep area
	4:06								Generator off → 3.5 off
	4:08								Generator on → 3.5 on
	4:19	12 19.73	86 19.35	14	20		250		Change course

REMARKS (equipment configuration & settings, weather, etc.):

missed shots



SHIP:

Morrito

CRUISE NO:

NL-1

AREA:

Lake Managua, Nicaragua  
starting from Mateare

LEG NO:

NL-2

YEAR:

2006

3.5 kHz OPERATIONS LOG

cge spd

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/30/06	7:45	12 15.22	86 25.78	5	21				SOL 21 Leave Mateare N to WPI
	8:00	12 16.32	86 25.72				55	8.5	Turning onto line
	8:34	12 17.55	86 23.75	11	21		55	8.5	smooth, slowly deepening WB
	9:25	12 19.75	86 20.67	13	21		35	9.0	change course to 35, swells already bad
	9:31						40		adjust to 40°
	10:07	12 21.71	86 18.67		21/22		240		Turn
	10:07						245		adjust to 245
	10:50	12 20.57	86 21.90		22/23		340		EOL 22/SOL 23 crossing center of deep
	11:09	12 21.99	86 22.40	18	23		340	8	apparent scarp @ low point
	11:14						65		turn to recross scarp
	11:17	12 22.43	86 22.30						cross another sharp depression
	11:24	12 22.51	86 21.89	18	24		160		Rol 23/SOL 24
	11:39	12 21.54	86 21.60	18			240		change course to 240
									crossed another sharp depression
									just before and after turn
	11:56	12 21.09	86 22.77	15	24/25		340		EOL 24/SOL 25
	12:33	12 23.72	86 23.47	14.5	25		340	8	crossed deep but didn't see extension of faults from line 23 & 24

REMARKS (equipment configuration &amp; settings, weather, etc.):

Weather: Windy w/ swells - this limits our directions of operations



70  
160  
250  
340

# 3.5 kHz OPERATIONS LOG

SHIP: Morrito

CRUISE NO: NL-1

AREA: Lake Managua (Mateare)

LEG NO: NL-2

YEAR: 2006

CSE SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/30/06	1:14	12 26.65	86 24.41	6	25		75	9	EOL25/SOL26 Data Quality fair
	1:41	12 27.29	86 22.63	5.5	26		160		EOL26/SOL27
	2:45	12 23.23	86 21.02	13	27		160	8	entering deep zone
	3:08	12 21.62	86 20.53	20	27		160	8.2	abrupt drop off (down to south)
	3:13	12 21.31	86 20.41	18	27		160	8.2	Apparent scarp(s) up to south
	3:19	12 20.90	86 20.30	16	28		250		EOL27/SOL28
	3:22	12 20.84	86 20.57	16	28		340		change course to recross central deep
	3:30	12 21.47	86 20.80	22	28		340		sharp break → scarp
	3:35	12 21.80	86 20.91	18	28		340		abrupt decrease in depth
	3:41	12 22.24	86 21.06	16	29		270		Turn to recross deep: first west the SSE
	3:46	12 22.23	86 21.42	16	29		160	7.0	change course to 160
	3:59	12 21.47	86 21.16	18	29		160	7.0	cross scarp on south side of deep
	4:03	12 21.23	86 21.09	16	30		250		Turn to recross EOL29/SOL30
	4:11	12 21.06	86 21.67	15	30		340		Now turning onto line NNW
	4:39	12 22.04	86 22.35	15	30/31		250		EOL30/SOL31 small scarp
	4:45	12 22.78	86 22.81	18	31		250		several scarps w/ V-shaped deep
	5:08	12 22.17	86 24.22	17	32		190		EOL31/SOL32

REMARKS (equipment configuration & settings, weather, etc.):

Got some good profiles over deep area — it looks active!

## OPERATIONS LOG

SHIP:

CRUISE NO:

**AREA:**

LEG NO:

YEAR:

cse spd

[illegible]

REMARKS (equipment configuration &amp; settings, weather, etc.):

3.5 kHz

## OPERATIONS LOG

SHIP:

Morrito

CRUISE NO:

NL-1

AREA:

Lake Managua ~~Maracaibo~~  
(Mateare)

LEG NO:

NL-2

YEAR:

2006

CSE SPL

TIME AND POSITION					LINE NO:	STATION NO:	STATION ID:	SAMPLE NO:	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH					
5/31/06	7:39	12 14.44	86 25.67		33		340		Leaving Muelle Mateare → Morrito
	8:03	12 16.18	86 26.30	9.8			340	8.2	
	8:40	12 18.90	86 27.23	13			0	8.0	Change course to go past Morrito
	8:55	12 19.00	86 27.16	13	33		325	7.6	change course to avoid swell
	9:07	12 20.54	86 27.71	14	33		30		change course; tack NE
	9:31	12 22.10	86 26.72	14	34		305		EOL 33/SOL 34
	9:57	12 23.28	86 28.65		34/35		240		
	11:01	12 20.66	86 32.94	12	34/36		180		
	11:41	12 18.09	86 31.24	5	36		140	9	fairly abrupt shallowing
	11:45	12		2					Turn to 57
	11:47								Fault scarp? Near vert. to ~2 m!
	11:55	12 18.25	86 30.55		36/37		330		Turn NW
	12:01	12 18.56	86 30.83				247	8	Turn SW
	12:13	12 18.26	86 31.56						first scarp
	12:16	12 18.15	86 31.75	4	37		320		Turn to NW
	12:21	12 18.49	86 31.98	9	37		320		Crossed scarp very obliquely
	12:23	12 18.61	86 32.05		37/38				Turn NE EOL 37/SOL 38

REMARKS (equipment configuration &amp; settings, weather, etc.):

3.5 kHz

## OPERATIONS LOG

SHIP: MorritoCRUISE NO: NL-1

AREA:

Lake Managua, (Mateare)LEG NO: NL-2YEAR: 2006

CSE SPD

TIME AND POSITION					LINE	STATION	STATION	SAMPLE	OPERATIONS, COMMENTS, DATA MEASUREMENTS
JULIAN DAY/DATE	UCT HR-MIN	LATITUDE dd-mm.mm	LONGITUDE ddd-mm.mm	WATER DEPTH	NO:	NO:	ID:	NO:	
5/31/06	1235	12 18.96	86 31.56	13	38		15		Turn to SE to investigate Mateare scarp
	1253								abrupt scarp up → Turn!
	1255								abrupt scarp down
	100	12 18.05	86 30.60	10	38		150	7	Turn to SE
	101								Turn NE a scarp ~ 2m WB
	108	12 18.30	86 30.22	12			140		Turn SE
	120	12 17.01	86 29.74	12			130	6	Paralleling scarp - visible on side scan
	135	12 17.30	86 29.06	10	38		135	7.5	" " starting to fade
	207	12 16.53	86 27.47						Turn to cross scarp
	210	12 16.02	86 27.70	4			0		Turn at 3.5 depth
	220	12 16.72	86 27.82	12	38		235		Turn SW to cross scarp
	228	12 16.51	86 28.33	3					Top of scarp ~ 3m - Turn!
	239	12 17.23	86 28.76	10					Turn back toward scarp
	243						0		scarp - 245 Turn at top
	248	12 17.36	86 29.09						Came off scarp - very steep place
	252	12 17.56	86 29.08				130		Turn to SE to parallel scarp again
	334	12 15.88	86 26.94				180		Turn S to cross scarp

REMARKS (equipment configuration &amp; settings, weather, etc.):