

Date	Local Time	Event	Comments
			Chris Lowery, Jamie Austin, and Patty Standing board with PSOs. Marcy Davis and Jingxuan Wei are already aboard from previous cruise, as are UNAM scientists Ligia Perez Cruz, Jaime Urrutia Fucugauchi, plus students Adriana and Julian.
15-Jul	11:30	Science Party and PSOs board ship in Progreso	Departure delayed to await Lithium ion batteries for birds, en route from Monterrey, expected noon July 16. Preliminary meetings with UNAM scientists, Captain and mates, SIO techs, and PSOs to discuss cruise plan.
16-Jul	9:45	Positive COVID test	multibeam technician tests positive (asymptomatic) after a disembarking student on the previous voyage (who was symptomatic but negative before disembarking on July 14) tested positive this morning after returning home.
16-Jul	19:00	technician Disembarks	tech will stay in a hotel room in Merida until she tests negative and can fly home. We are thus down one multibeam technician
16-Jul	21:00	Lithium Ion batteries for birds arrive	Delayed at customs until literally 24 hours ago, demagnetized Li batteries are essential because they provide power to the birds on the seismic streamer, which allow us to control the depth of the streamer. They were driven to Progreso from Monterrey.
17-Jul	6:40	Pilot aboard	
17-Jul	6:57	depart dock in Progreso	PSO watchkeeping begins
17-Jul	7:07	Clear channel, pilot departs	
17-Jul	7:07	Underway at 9.5 kts SOG for start of Line 1	ETA 05:01 July 28. seas calm, wind 11 kts, skies partly cloudy
18-Jul	6:40	Arrive CTD 1	deploy to 1000 m in 1400 m water depth because of 3 kt current (ship must drift during deployment)
18-Jul	7:30	Recover CTD 1	Water column velocity profiler used to calibrate ADCP, density data used to calibrate multibeam
18-Jul	7:35	Deploy Streamer	
18-Jul	9:17	Streamer secured to starbord fantail	
18-Jul	9:30	Test streamer, troubleshoot streamer problems	1 bird not communicating, gps serial cable not working right; recovered bird (in first position behind ship) and swapped it for another; tested connection and bird is working. GPS issue resolved. Redeploy streamer
18-Jul	~11:00	Deploy Guns	
18-Jul	12:00	Weather report	Wind: SW 6kts, Sea: 2 ft, Temp: 29.2 C
18-Jul	12:10	compressors on	compressors allowed to run for 10 minutes
18-Jul	12:20	Guns on, ramp up begins	small leak observed in one gun, allowed to run to see if it resolves itself
18-Jul	13:03	Guns off, compressors off, recover guns to fix leak	
18-Jul	14:21	Guns fixed	fixed leak in gun 1, gun 2 found to have o-ring failure and was swapped for spare
		streamer data issue; recover streamer to fix digitizer	
18-Jul	14:21	section	Guns deployed on top of stream, broke digitizer just aft of ship.
18-Jul	16:19	redeploy guns	
18-Jul	16:21	Compressors on	Port Compressor electronics error, woke up Ray
18-Jul	16:34	Port Compressor fixed	replaced fuse
			fixed minor manifold valve issue on air tank; Scripps guys (Kolby in particular) have been working extremely hard all day in the hot sun to troubleshoot all these issues, and they deserve a lot of credit
18-Jul	16:37	Begin ramp-up	
18-Jul	17:07	Ramp-up Complete, turning onto Line 1	
18-Jul	17:56	SOL Line 1	surveying at 4 kts through water, 12.5 m shot spacing (plus 2+ knot tail current, ~ 6 kt SOG)
			Watchstanders didn't notice until ~22:50; software troubleshooting corrected the problem by 22:57 and the guns were turned back on. At 23:25 watchstanders realized that because it was dark a continuous watch had not been kept by PSOs. Guns turned off again and PSOs were woken up and notified of gun error and potential non-compliance with EA.
19-Jul	22:25	NaviPack error causes guns to stop; EOL Line 1	
19-Jul	23:30	PSOs begin watch	
20-Jul	0:00	pre-watch completed, cleared to begin ramp up	
20-Jul	0:03	Begin ramp-up	
20-Jul	0:09	Ramp-up Complete, begin loop-turn to line 2	
20-Jul	1:21	SOL Line 2	
20-Jul	1:39	Hotshot error causes intermittent dropped shots	no clear pattern to interval, can be 1 out of 200 shots or 1 out of 5. Error continues through lines 2 and 3
20-Jul	5:55	EOL Line 2	loop turn to Line 3
20-Jul	6:43	SOL Line 3	
		swapped cable on deck unit to correct intermittent	
20-Jul	7:38	GPS issue; issue resolved	Shots 8-46 on Line 3 have no nav data
		slowed to 3.5 kts to attempt to correct dropped	
20-Jul	9:30	shots	
20-Jul	11:35	slowed to 3 kts to attempt to correct dropped shots	it does not; back to 4.5 kts
21-Jul	3:24	Loud bang from compressors	port compressor observed to have a blown hose
21-Jul	3:25	port compressor shut down; reduced to 1 gun	no noticeable change in data quality with 1 gun
		issue resolved, port compressor restarted, back to 2	
21-Jul	4:04	guns	no replacement hose for compressor, replacement rigged from SIO supplies
21-Jul	13:45	EOL Line 3	Line 3 terminated ~ 10 km early to save time for dip lines; loop turn
21-Jul	13:55	Hotshot deck unit replaced	this resolves the dropped shot issue
21-Jul	14:10	SOL Line 4	
21-Jul	22:20	EOL Line 4	
21-Jul	22:49	SOL Line 5	gradual turn to Line 5
			birds still talking to topside but depth, bearing, and fin angle need to be checked manually. Despite extensive troubleshooting this issue is not resolved before end of cruise
22-Jul	0:15	bird GUI error, no data displayed	pressure issue in port compressor
22-Jul	2:09	port compressor shut down; reduced to 1 gun	
22-Jul	3:12	compressor maintenance complete, gun 2 back online	
22-Jul	8:22	EOL Line 5	gradual turn and transit to Line 6
22-Jul	8:33	SOL Line 5A	recording data on 1 gun at 25 m shot spacing at 7 kts SOG
22-Jul	12:45	EOL Line 5A	Loop turn to Line 6
22-Jul	13:24	SOL Line 6	
22-Jul	22:08	EOL Line 6	gradual turn to Line 7
22-Jul	22:52	SOL Line 7	Channel 5 observed to be dead
23-Jul	7:41	EOL Line 7	
23-Jul	8:03	SOL Line 8	survey speed increased to 4.7 kts
23-Jul	9:30	Channel 5 back to life	
23-Jul	17:00	EOL Line 8	loop turn
23-Jul	17:23	SOL Line 9	
24-Jul	2:35	EOL Line 9; EOS	
24-Jul	2:35	Guns off	
24-Jul	2:35	reduce speed to minimum for steerage (1 kt)	
24-Jul	2:40	compressors off	compressors run on idle for 5 minutes to cool down; air bled off air tank
24-Jul	2:45	stern gates opened to recover gear	
24-Jul	2:57	Guns on deck and secure	gun hanger covered in impressive amount of sargassum
24-Jul	4:29	Tail buoy on deck, streamer secure	
24-Jul	4:35	deck secure for transit	
24-Jul	4:40	underway for Tuxpan at 9.7 kts	
26-Jul	14:49	entered jetty, Tuxpan	
26-Jul	15:19	Arrive UNAM dock, Tuxpan	PSO watchkeeping ends
26-Jul	16:05	Science Party disembarks	