

# ROV dive protocol ATA-09ROV

Atalante cruise HYDROMAR V

**Cruise Number** HYDROMAR V  
**Station Number** ATA-09 ROV  
**Dive Number** 6  
**Location** Logatchev hydrothermal field  
**Coordinates**  
**Water Depth**

**Vessel** l'Atalante

**Time** **Observation**

**Actions**

10:34:46	Begin Station	
10:45:29	ROV in Water	
10:45:53	Video on	
11:01:57	ROV starts descending	
11:04:00	ROV stopping at 120m to check Posidonia signal	
11:21:01	still no Posidonia position	
11:38:14	lost communication with the bridge, winch prblem	
11:39:20	ROV proceeds with descend	
11:44:21	ROV at 250m	
11:49:50	Posidonia established on the bridge, currently no feed into the network	
11:50:10	ROV at 430m	
11:51:19	CTD connection is not working	
11:55:14	CTD is running	
12:06:18	ROV is at 900m, halocline in CTD record ships: position 14°45.200'N/44°58.792	
12:16:00	ROV at 1155m	
12:23:00	ROV at 14°45.114'N / 44°58.931'W (250 m SW of target position)	
12:26:07	ship will move 50 meters in 100 direction	
12:38:44	ship is at 14°45.181'N/44°58.772'W	
12:56:38	preparing to pump the KIPS system with bottom water	
12:57:23	KIPS pump on	
12:59:19	ROV at 2105m	
13:01:24	Pump turned off for bottle 1	
13:02:29	KIPS pump on	
13:04:33	Pump turned off for bottle 2	
13:06:10	KIPS pump on	
13:07:29	Pump turned off for bottle 3	
13:08:27	KIPS pump on	
	Pump turned off for bottle 4	
	KIPS pump on	
13:13:37	Pump turned off for bottle 5	
13:14:46	there is a time difference of 6 seconds between displayed shiptime (UTC) and the video-time	
13:15:19	KIPS pump on	
13:17:24	Pump turned off for bottle 6 ROV at 14°45.137 / 44°58.823'W KIPS pump on	
13:20:42	Pump turned off for bottle 7	
13:20:44	KIPS pump on	
13:22:53	Pump turned off for bottle 8	
13:23:50	KIPS pump on	
13:26:34	Pump turned off for bottle 9	
13:27:17	KIPS test succesful, instrument reset	
13:34:59	ROV at 14°45.181'N /44°58.851'W, 2830m	
13:37:49	winch stopped at 3000	
13:40:09	14°45.201 / 44°58.822, due west of our target	
13:40:55	ROV at 3000m winch at 3030m ; add 30m altimeter kicks in	
13:42:01		
13:48:43	OBT in sight, <b>bottom in sight</b>	
13:55:47	landing on the seafloor next to homer beacon, beacon 15 is still working	
14:09:01	at OBT-Site, temporary deployment for ADCP ADCP released at temporary station; too steep, take up again	
14:19:42	slightly moved to the NE	
14:22:23	trying to release the ADCP	
14:25:53	ADCP on the seafloor, 8m S of the homer beacon	
14:28:45	at beacon	

Time	Observation	Actions
14:38:20	at OBP	
14:45:13	grabbed the instrument	
14:48:01	vehicle is tangled in the cable	
14:51:44	ROV at small marker No. 21; should not be here!!	
14:54:52	cable free; winch at 3080m	
14:59:49	back at OBP site	
15:01:35	released instrument directly next to old OBP	
15:26:39	traversing to Irina 2	
15:35:24	one mussel bed on the base of Irina II	
15:37:05	white material on the floor	
15:38:30	bacterial mat ? + iron oxides	
15:46:33	TV-grab position	
15:49:10	14 45,145 44 58,765	
15:51:20	rock outcrop	
15:53:16	marker anya	
15:54:17	white material on the floor	
15:55:23	empty mussel shells	
15:56:01	T-loggers at the base of Irina II	
15:56:25	NW corner of Irina II	
15:57:10	diffuse venting, shrimps	
15:58:11	active black smoker	
15:59:23	shrimps, mussels, snails on chimneys	
16:01:00	active black smoker	
16:07:29	site ADCP released on the sea floor near black smoker Irina II	
16:12:25	single mussels in sediments	
16:13:40	mussel fields on the foot on the inactive sulfide structure	
16:15:43	searching for the place for mussel sampling	
16:17:40	two lines of markers in mussel field	
16:19:33	unknown marker near the in-line markers ?, seems like an older one	
16:21:43	red rocks, iron oxides?	
16:22:42	preparing to get mussels with net H	
16:25:49	moving the place a bit for mussel sampling	
16:30:50	shrimps are getting annoyed of the ROV	
16:31:21	mussel sampling with net H: scoop	
16:31:59	got some more mussels, now about 5 in the net	09 ROV-1
16:35:02	finished mussel sampling with net H, half full	
16:38:15	net H safe back in the container of the ROV	
16:42:57	staying in this position until decision about "staying the night out" is made	
16:51:12	going back to OBT site for recovery	
16:51:58	three little black smoker on the side of one chimney of Irina II, wasn't there before (opened by JASON?)	
16:54:28	HD-Aufnahme	
16:58:33	now moving to the OBT site	
17:03:08	14° 45,172 N 44° 58,739 W	
17:05:11	flying over sediments, ripple marks	
17:06:13	black rocks outcropping	
17:09:51	passing marker 21	
17:12:24	OBT 2 in sight	
17:15:06	getting in position to recover OBT 2	
17:16:16	starting OBT 2 recovery	
17:30:20	OBT 2 secured on the ROV	
17:34:45	employed marker 29 next to the OBT site	
17:39:59	moving up to surface	
17:51:17	ROV ascending (at 2860m)	
19:14:45	ROV at 290m	
19:37:39	ROV out of the water	
19:42:03	ROV on deck	

# ROV dive protocol ATA-13ROV

Atalante cruise HYDROMAR V

Cruise Number	HYDROMAR V	
Station Number	ATA-13 ROV	
Dive Number	7	
Location	Logatchev hydrothermal field	
Coordinates	ships position at the first target is at: 14°45.070'N/44°58.575 slightly NE of site "A"	
Water Depth	from 2900 to 3000m	
Vessel	l'Atalante	
Time	Observation	Actions
	ship is starting in the SW and will move slowly into position; ship is then positioned ahead of the ROV	
10:29:59	time is synchronized to UTC, time difference is 1 second	
10:56:33	Begin Station; ship is at 14°44.914 / 44°58.659 for deployment, depth 2979m	
11:15:05	ROV in Water; ship is at 14°44. / 44°58., depth 2979m	
11:29:35	ROV descending at 90m	
11:31:05	test at 100m; ROV is slightly buoyant	
11:38:30	lights on	
11:39:40	ships position 14°45.064'N 44°58.624'W	
11:51:53	ROV at 300m, heading 249°, no Posidonia	
12:00:54	switched off all thrusters for testing Posidonia at 600m, ROV is slightly buoyant	
12:03:46	switched on all thrusters, continue diving at 575m still without Posidonia data	
12:05:12	ships position 14°45.066'N, 44°58.584'W	
12:15:00	ROV at 1034m, heading 218°	
12:27:12	ROV at 1500m, heading 007°	
12:30:02	ship is at 14°45.055'N / 44°58.571'W	
	ROV 14°45.010'N / 44°58.664'W	
12:44:20	ROV at 14°45.058'N / 44°58.587'W	
	ROV at 14°45.046'N / 44°58.586'W	
12:53:08	winch stopped: ROV at 14°45.041 / 44°58.609	
13:04:24	winch started: ROV at 2430m, no Posidonia	
13:06:11	ship is at 14°45.066'N, 44°58.581'N	
13:12:54	winches is stopped, ROV at 2647m	
13:17:56	ROV 14°45'058'N, 44°58.600'W (Posidonia show: No answer from axponder 1!!!)	
13:23:49	ROV at 2916m	
13:24:15	<b>Bottom contact</b> at 2931m, at site "A"	
13:31:05	marker MB, Barad-Dûr is broken; marker MB is in 152 line with the smoker (NNW)	
13:44:09	trying to position ourselves close to the smoker	
14:00:53	ROV in sample position	
14:08:09	reposition to the western side of the smoker	
14:16:41	start sampling,	
14:27:43	repositioning, Tmax = 299°C	
14:29:10	start pumping; T 240° to 260°C, but nossels are separated; depth is 2928m	13ROV-1
	stopped pumping bottle A1	
14:32:24	Tmax 317°C	
14:35:19	start bottle 2	13ROV-2
14:37:39	stop pumping	
14:40:03	start pumping; T 305 - 250°C, up	13ROV-3
14:40:35	stopped pumping bottle 3.	
14:59:12	preparing to take 8-channel probe	
15:02:24	close to smoker taken T measure	
15:08:59	T-max close to 180°C, the instrument is too big for this orifice	13ROV-4
15:13:40	abundant diffuse outflow from cracks at the base of the mound	
15:14:11	collecting net from drawer	
15:23:14	collected one or two shrimps from site "A"	13ROV-5
15:27:31	several small sulfide samples on the front porch	
15:27:31	starting movement to smoking crater IRINA, heading 330°	
15:39:14	flying uphill, mound of ANNA-LOUISE	
15:41:10	crater rim of ANNA-LOUISE in sight	
15:44:03	Marker "30" in sight	
15:44:57	Ships position is 14°45,080'N, 44°58,588'W, Cable out 3033m	
15:55:17	CANDELABRA smoking crater in sight, elongated smoker	
15:59:53	Ship has finished movement, 14°45.105'N, 44°58.632'W	
16:04:13	big block and sulfide talus on slope	
16:18:11	looking for IRINA, heading 270°	
16:23:06	ROV at 14°45.125'N, 44°58.700'W	
16:25:28	changing course, heading 133°	

# ROV dive protocol ATA-13ROV

Atalante cruise HYDROMAR V

Time	Observation	Actions
16:30:16	mound of B?	
16:41:16	heading 150°, try to fly from B to IRINA	
16:42:06	abundant talus, bigger blocks, redish-brown sediment	
16:43:58	large broken block	
16:45:28	stop flying, trying to get Posidonia position	
16:55:44	still no Posidonia, searching again	
16:57:07	ship at 14°45.102'N, 44°48.630'W	
16:58:35	slope with abundant talus	
17:03:13	Chef de la mission hates Posidonia	
17:20:59	no idea where we are	
17:40:39	found Anna-Louise	
17:40:47	preparing for sampling smoker near Marker 30; depth is 2938m	
17:51:23	repositioned but we are sucking in smoke with the propellers	
18:18:57	pump on, tmax 353°C	13ROV-6
18:21:34	pump off for bottle B4	
18:22:12	pump on for bottle B5	13ROV-7
18:24:40	pump off for bottle B5	
18:25:09	pump on for bottle B6	13ROV-8
18:27:50	pump off for bottle B6	
18:28:27	pump on for bottle C7	13ROV-9
18:30:57	pump off for bottle C7	
18:32:00	fluid pumped through outlet collecting fluid in bottle C8 as well	13ROV-10
18:40:00	<b>off bottom</b>	
18:58:57	test of Posidonia with thrusters not running; at 2850m	
18:59:52	continue ascend	
19:23:16	continue ascend	
19:30:48	continue ascend	
19:40:10	winch stopped	
19:41:00	continue ascend	
19:51:15	ROV at 700m	
19:51:43	lights off	
19:59:42	ROV at 370m	
20:04:19	ROV at 200m	
20:07:30	ROV at 100m	
20:21:28	ROV out of the water	
20:24:00	ROV on deck, end of station	

# ROV dive protocol ATA-15ROV

Atalante cruise HYDROMAR V

**Cruise Number** HYDROMAR V  
**Station Number** ATA-15 ROV  
**Dive Number** 8  
**Location** Logatchev hydrothermal field  
 ships position at the first working target is at: 14°45.20'N / 44°58.81' slightly NE of site "Quest"

**Coordinates**  
**Water Depth** around 3040m  
**Vessel** l'Atalante

Time	ROV Depth	Observation	Actions
09:47:37		objectives: OBA and Smoni deployment, recovery of OBT, sampling of diffuse fluids and associated mussels vessel is positioning against the wind, wind speed 18-22 knots, waves 2-3m	
10:06:12		Begin Station, vessel is at 14°45.135'N / 44°58.871'W	
10:10:17		lift off	
10:12:26		ROV in the water	
10:17:37		deploying floats, ship depth 3031, ship is at 14°45.229'N / 44°58.867'W	
10:21:53		all floats are deployed	
10:23:15		start descend of ROV	
10:25:11		Posidonia fix at 14°45.216'N / 44°58.910'W	
10:27:43	150		
10:28:59	200	time is synchronized to UTC (difference is 1 sec)	
10:36:43	410	ROV is heavily negatively buoyant	
	800	ROV is turning to the east in order to approach the target position, NO Posidonia for the last 25 minutes	
10:49:53			
11:23:24	1750	still no Posidonia signal	
11:33:24	2000		
11:36:15	2032	start pumping KIPS for flushing the bottles, takes place for the next 30 minutes or so	
11:45:15	2300	ROV at 14°45.219'N / 44°58.853'W	
11:53:05	2460	ROV at 14°45.213'N / 44°58.820'W (third fix of the entire dive so far!!)	
12:04:47	2710	KIPS flushing is finished	
12:11:42	2875	winch stopped at 2960m	
12:12:35	2890	ROV stopped to try to get a Posidonia signal	
12:17:35	2908	no signal ROV is sinking due to the heavy load	
12:24:45	2915	signal! ROV is at 14°45.139'N / 44°58.820'W, ~ 40 m to the south of our target	
12:27:30		winch at 3030m going down	
12:28:30	3003	winch all stop 3050m, altimeter kicks	
12:29:43		we turn the thruster off to get position	
12:30:45	3010	ROV at 14°45.158'N / 44°58.870'W	
12:33:29	3015	move 30 m east	
12:34:57		ROV is going down	
12:35:52	3033	<b>bottom contact.</b> Altitude 5 m, winch at 3080m	
12:41:18	3033	ROV to the bottom, thurtsters of to get another position ROV fix at 14°45.147'N / 44°58.854 'W	
12:56:57		rocky outcrops	
13:07:45	3038	black smokers in sight, marker 27 in sight	
13:12:52	3040	preparing to deploy OBA near Quest	
13:14:59	3040	ROV on the ground for deployment on southeastern corner of Quest crater	
13:26:48	3041	untying the ropes of OBA	
13:45:10	3041	instrument at the seafloor needs fine tuning for leveling	
14:01:39	3040	changing pilots	
14:06:26	3040	start of repositioning and calibration of OBA	
14:16:47	3040	bottom to instable and soft for the OBA trying to find new site nearby	
14:25:49	3038	try to positioning the at the T-Logger site near Quest	
14:35:23	3044	no stable place in sight... only hydrothermal precipitates and crusts, to soft and instable	
15:14:26	3032	recovered the instrument and moved to soft ground, trying to put upright	
16:12:57	3032	you want beleave this, we are still adjusting the instrument	
16:55:47	3029	lost orientation, try to find where we are	
16:56:34	3024	seafloor with small ridge with rocky outcrops and sediment cover	
16:58:25	2999	ROV fix 14° 45.175'N 44° 58.831' W, ROV is strongly buoyant, moves far up	
17:01:30	3040	back at seafloor	
17:02:27	3034	back at Quest site	
17:03:10	3035	ROV is on south side of Quest site	
17:06:39	3037	ROV is now on NW site of Quest site	
17:09:28	3039	T-loggers shortly in view, are partly covered by black smoke	
17:15:59	3045	ROV at T-loggers site: mussel bed with shimmering water	
	3045	measurements with 8-ch t lance in mussel bed next to T-logger #13 for 10 min, T lance is working acc. To recordings on screen	
17:36:32			
17:47:40	3045	T lance tip reads 192°C, furthest up reads 12 °C after 11 min	

# ROV dive protocol ATA-15ROV

Atalante cruise HYDROMAR V

Time	ROV Depth	Observation	Actions
	3045	192.6 190.6 164.5 54.7 13.1 10.8 10.3 11.5°C of the diferent channels (lowest logger to highest logger)	Temp measurements as sample # ATA 15ROV-1
17:50:45			
17:51:37	3045	8-ch T lance removed	
17:59:50	3045	fluid sample at T: 10.8 °C	ATA 15ROV-2,
18:03:45	3045	fluid sampling stop T drops to 2.9 °C	
18:04:35	3045	fluid sample at T: 2.8°C	ATA 15ROV-3,
18:07:44	3045	fluid sampling stopped at 3.2 °C	
18:08:29	3045	fluid sampling at T: 4.9°C	ATA-15ROV-4,
18:11:38	3045	fluid sampling stopped at 3.2 °C	
18:12:28	3045	fluid sampling at T: 4.8°C	ATA-15ROV-5,
18:15:41	3045	fluid sampling stopped at 3.2 °C	
18:17:45	3045	KIPS noozle stored back to holder	
	3045	grabing of T logger # 13 and store it in sample box	Mussel samples on T-Logger: ATA-15ROV-6
18:28:30			
18:31:39		problems with rope and float: both were removed before logger is stored	
18:58:39	3045	taking mussel sample with net (scooping), tturns out to be difficult	
	3045	finally mussel sample was taken, net is full (probably hydrothermal precipitates + mussels)	ATA-15ROV-7
19:01:33			
19:05:07	3045	<b>off bottom</b> , start ascent to surface	
19:20:21	2547	cable wound up in front of the ROV	
19:34:10	1999	continue ascend, back-floats and cable still in sight	
19:46:39	1305	continue ascend, back-floats and cable still in sight	
19:59:21	512	continue ascend	
20:13:58	3	ROV on surface	
20:19:45		ROV on Deck, end of station	

# ROV dive protocol ATA-17ROV

Atalante cruise HYDROMAR V

<b>Cruise Number</b>	HYDROMAR V		
<b>Station Number</b>	ATA-17 ROV		
<b>Dive Number</b>	9		
<b>Location</b>	Logatchev hydrothermal field ships position at the first working target is at: 14°45.09'N / 44°58.66' slightly NE of site "Irina"		
<b>Coordinates</b>			
<b>Water Depth</b>	around 2950m		
<b>Vessel</b>	l'Atalante		
<b>Time</b>	<b>ROV Depth</b>	<b>Observation</b>	<b>Actions</b>
09:46:14		objectives: hot fluid sampling with KIPS at Irina 1 and site "B"; Smoni deployment at site "B", sampling of push cores at site "F" vessel is positioning against the wind, wind speed 18-22 knots, waves 2-3m	
10:00:18		Begin Station, vessel is at 14°44.855'N / 44°58.727'W; depth 3018m, heading 84deg	
10:14:46		ROV off the deck	
10:15:59	2	ROV in the water	
10:19:38	4	CTD started	
10:22:28	2	8-channel T-logger is on	
10:23:18		time is checked, 2 seconds behind UTC	
10:24:50		time is now synchronized to UTC; ROV starts descending	
10:27:03	120	time on video overlay is off by 50 seconds - needs to be synchronized	
10:30:33	277	time on video overlay is now synchronized to UTC	
10:32:10		increase winch speed to 0.8 m/s	
10:38:30	620	ROV descending, ship at 14°45.08'N / 44°58.66'W (on target)	
10:46:50	930	ROV fix at 14°44.990'N / 44°58.683'W = south of the target position	
11:01:30		thrusters are off	
11:03:18	1590	thruster turned on again, continue descend	
11:09:13		ROV moving slowly to the north last position of the ROV is 14°44.992'N / 44°58.696'W	
11:14:22	2020	ROV at 14°45.002'N / 44°58.700'W	
11:20:18	2230	ROV at 14°45.031'N / 44°58.701'W	
11:25:12	2410	ROV at 14°45.070 / 44°58.690'W	
11:31:14	2750	ROV at 14°45.059 / 44°58.693'W	
11:35:21		winch slowing down to 0.3	
11:38:27	2940	ROV at 14°45.080 / 44°58.689'W	
11:40:05		ROV at 14°45.099 / 44°58.676'W	
11:42:46	2975	<b>bottom contact,</b>	
11:52:27	2975	Marker 24 and Site "B" in view, SE site, heading 83°	
11:56:04	2978	parking directly in front of marker 24 and black smoker, heading is 47°, SE rim of "B"	
	2978	stiering up to much dust, taking some rocks to make ROV heavier to don't need thrusters	
11:59:30			
12:02:49	2979	trying to grab talus from shimmering water, lots of shrimp in view, headung is 113°	
12:06:21	2979	shovel several crusts to the porch	17ROV-01
12:09:16	2977	flying back to marker 24 for fluid sampling	
12:10:50	2977	black smoke has changed the direction, flying along the crate rim to find new position	
	2975	parking in front of two smokers (B3 and B4), eastern rim of "B", smoke is going from N/NE to S/SW, heading is 301, needing lots of thruster-power to hold position	
12:18:04		repositioning	
12:25:18	2977	repositioning	
12:34:02	2978	trying to repositioning the sampled rocks on the porch to keep free the way for the KIPS	
12:38:31	2978	starting to place KIPS for fluid sampling	
12:52:54	2978	starting to place KIPS for fluid sampling again after short repositioning of ROV	
13:00:06	2978	trying to get closer and higher	
13:08:37	2978	sampled cpy-chimney lining from orifice of B4	17ROV-02
13:17:35		cleaning the front porch	
13:22:44	2978	taking out the KIPS sampler	
13:34:19	2978	KIPS is free	
13:36:14	2978	start pumping bottle C9	17ROV-03
13:39:25	2978	stopped pumping bottle C9	
13:40:13	2978	start pumping bottle C8	17ROV-04
13:43:15	2978	stopped pumping bottle C8	
13:44:03	2978	start pumping bottle C7	17ROV-05
13:47:52	2978	stopped pumping bottle C7	
	2978	8ch T logger deep in orifice of smoker B4 --> first 2 tips show values between 450 and 460°C!!!!; recordings with HD Cam	17ROV-06
14:02:53			
14:11:13	2978	stop 3ch T logging	
14:13:15	2978	preparing He-sampling at Site B, Smoker B4	
14:23:05	2978	start to reach the orifice with the He-sampler	
14:24:51	2978	smoke is emanating from the top of the He-tube	
14:25:35	2978	starting to close the upper ventile of He-tube	
14:27:07	2978	upper ventile is closed	
14:27:46	2978	little repositioning of He-tube to see the lower ventile	
14:28:51	2978	lower ventile is closed	17ROV-07
14:37:55	2978	SF thruster failed / automaticly disabled	

Time	ROV Depth	Observation	Actions
14:40:12	2978	try to grab SMONI and deploy it in smoker B4	
14:45:03	2978	SMONI placed to B4 (the logger is still in the sample box)	
14:58:42	2978	SMONI fell off B4 and is repositioned again	
15:03:53	2978	SMONI is repositioned in smoker B4, Site B	
15:08:51	2976	lift off Site B, on the way to IRINA, heading 130° for 40m	
15:12:05	2956	flying over sediments with some black and white material lying on the floor	
15:13:50	2962	iron oxide	
15:14:10	2962	black rock outcrops	
15:15:03	2959	rocks more brighter on the top of a ridge	
15:16:43	2957	structure higher than the rest	
15:17:32	2957	black smoke in sight	
15:17:52	2959	marker Irina, NW corner of Irina	
15:19:19	2959	moving around the crater	
15:21:11	2956	searching a position for fluid sampling	
15:23:15	2958	on the eastern side of the crater no smoke	
15:25:45	2958	cable 3015 m	
15:26:28	2958	looking for the other smoker of Irina, heading N	
15:31:29	2957	line of black smoke release in sight	
15:35:24	2960	screen black because of the smoke, moving backwards	
15:39:07	2959	smokers again in sight, next try	
15:41:12	2960	same shit: screens black	
15:43:38	2961	better view, but unstable position of the ROV, its slipping to the right	
15:45:05	2960	position now stable and not too far away from smoker	
15:47:48	2960	getting ready to take fluid samples from the most right smoker (ROV heading S) smoker named "I 3", NW side of Irina, looking S Smoke out of "schutt", no direct opening	
15:56:27	2960	starting KIPS sampling: getting nossle in position	ATA-17 ROV 8
16:04:12	2960	T: 290, 313, 320, 314 °	
16:04:43	2960	start pumping	
	2960	T: 330, 339,	
	2960	pumpleistung: 3.1	
16:05:46	2960	T: 295, 300, 336, 340,	
16:07:15	2960	T: 274, 290	
16:07:46	2960	pumpe aus	
16:08:40	2960	erste flasche B6 muss nochmal gespült werden,	
16:09:01	2960	pumpe läuft wieder, T 240, 220, 215	
16:09:33	2960	we're losing it, T: 210	
16:10:29	2960	T: 230,	
16:10:51	2960	330, 351, 349 354 361 362	
16:11:32	2960	303 309 308 296 300 307 312 301 313 319 326 °C	
16:12:18	2960	bottle B6	
16:14:02	2960	Pumpe aus	
16:14:18	2960	next bottle B5, Pumpe läuft	ATA-17 ROV 9
	2960	T 360 stabil	
16:17:34	2960	Pumpe aus	
16:18:16	2960	Pumpe wieder an, 3.1 T: 360	ATA-17 ROV 10
	2960	bottle B4	
	2960	T: 365 °C, 366	
16:21:24	2960	pumpe aus	
16:22:00	2960	pumpe an, 2.8 pumpleistung	ATA-17 ROV 11
	2960	bottle A3	
16:22:39	2960	T: 360°C bis 350°C	
16:23:23	2960	T: 320,	
16:23:36	2960	340, 350	
16:24:09	2960	T: 362°C, 366	
	2960	T: 364	
16:25:08	2960	pumpe aus	
16:25:39	2960	Pumpe wieder an, 3.1 T: 360	ATA-17 ROV 12
	2960	bottle A2	
16:26:17	2960	T: 369°C	
16:27:38	2960	T: 340	
16:28:16	2960	T: 360°C bis 350°C	
16:28:42	2960	pumpe aus	
16:29:11	2960	Pumpe wieder an, 3.1 T: 360	ATA-17 ROV 13
16:29:22	2960	T: 375, 374,	
	2960	bottle A 1	
	2960	pumpleistung: 2.5	
16:31:26	2960	T: 367	
16:32:22	2960	Pumpe aus	
16:33:49	2960	end of KIPS sampling, nossel out	
16:39:47		nossel safe back in ROV	



Time	ROV Depth	Observation	Actions
16:41:39	2960	starting He sampling: getting it out of the ROV	
16:58:46	2960	repositioning ROV to get closer to the smoker i3	
17:04:21	2960	positioning the He-tube above the smoker and black smoke is emanating out of the of the tube	
17:15:50	2960	upper ventile is closed	
17:17:49	2960	repositioning a little the position of He-tube to see the lower ventile-handle	
17:20:11	2960	lower ventile is closed	17ROV-14
17:26:47	2960	need some time and brain to put back the He-tube to the sample box	
17:33:55	2959	He-tube is stored in the box	
17:36:04	2960	repositioning in front of the smoker i3 to prepare 8ch T-logger	
17:41:27	2960	positioning the 8ch T-logger	
17:44:27	2969	current changed, we are sinking in black smoke - repositioning of the ROV	
17:48:07	2959	smokers are blocked by black smoke - try to get other smoker to measure T	
17:53:58	2960	try to reach the smoking bottom of IRINA with 8ch T-logger	
18:04:33	2960	T-logging at the bottom of IRINA (T1-4 are above 450°C !!!)	17ROV-15
18:09:53	2960	stopping T-Logging (again with record temperatures!)	
18:12:11	2957	start traveling to Site F, heading is 305°	
18:19:26	2991	travelling over sediment, few white patches on the ground	
18:32:59	2992	flying over sediment, just passed a low lying mound of hydrothermal material, Fe-oxides	
18:36:37	2973	coming up to 20m above ground to get fix ROV at 14°45. 'N / 44°58.	
18:49:53	2999	thrusters are off to get fix. No fixes from Posidonia!	
19:00:32	3000	due to time limitations we are ascending	
19:57:09	580	ROV ascending	
20:15:43	0	ROV out of the water	
20:17:29		ROV on deck	
20:20:50		end of station	

# ROV dive protocol ATA-21ROV

Atalante cruise HYDROMAR V

Cruise Number	HYDROMAR V		
Station Number	ATA-21 ROV		
Dive Number	10		
Location	Logatchev hydrothermal field ships position at the first working target is at: 14°45.185'N / 44°58.750, 40m north of site Irina 2		
Coordinates	2		
Water Depth	around 3030m		
Vessel	l'Atalante		
Time	ROV Depth	Observation	Actions
		objectives: sampling of push cores at Anyas Garden; sampling of diffuse fluids, mussels and T-loggers at Irina 2	
09:35:35		time synchronized to UTC	
11:01:08		Begin Station; ship is at 14°45.085'N / 44°58.781'W; depth is 3010m	
11:08:40		ROV lift off	
11:09:55		ROV in the water	
11:12:09		put first set of three floats on	
11:18:02	3	all floats deployed	
11:18:16	16	ROV starts descend, ground fault on the system, ROV stopped at 16m	
11:20:39		ROV going down to 40m	
11:21:30		going further down, will check the system	
11:22:30	90	ROV descends, ship is at 14°45.165'N / 44°58.754; depth 3033m	
11:27:20		ship is in DP-mode; ship is at 14°45.178'N / 44°58.753'W	
11:36:55	540	ROV descending; ground fault stopped	
	650	Posidonia fix at 14°45.153'N / 44°58.762'W (30 m SE of target position at Anyas Garden)	
11:40:28			
	935	Posidonia fix at 14°45.154'N / 44°58.885'W (since cable out is only 50 m more than ROV depth this cannot be right; this position is almost 200m behind the ship)	
11:49:14			
11:49:53	960	Posidonia fix at 14°45.151'N / 44°58.896'W	
		Posidonia fix at 14°45.162'N / 44°58.901'W	
11:58:38	1210	cable out 1240m, cable is streight, ROV must be below the vessel	
	1640	Posidonia fix at 14°45.343'N / 44°58.552'W (MILES AWAY; GARBAGE) 30m more cable than ROV depth	
12:12:31			
12:18:52	1810	Posidonia fix at 14°45.176'N / 44°58.745'W (thats a good one!)	
12:24:58	1990	start pumping the bottles of the KIPS system (2 minutes per bottle)	
	2330	cable out 2370, ROV fix 14°45.165'N / 44°58.673'W (would be 200 meters to the east of the ship)	
12:37:03			
12:40:15	2345	winch stopped due to spooling problems	
12:45:50		continue descend with 0.4 m/s of the winch	
12:46:54	2405	increase speed of the winch to 0.5 m/s	
12:48:36	2455	cable 2500m out	
12:50:46	2526	Posidonia fix at 14°45.186'N / 44°58.685'W	
13:19:32	3019	18.6 m above bottom (altimeter)	
13:21:15	3038	<b>Bottom view</b>	
13:22:50		160N 763W, need heading 030	
13:24:26		154N 762W	
13:29:58	3040	at Irina II mussel field, T-logger field	
13:30:37		an unknown old marker: square shaped	
13:32:04		writing on marker: MAR 2, position S of T loggers	
13:35:11	3051	inactive smokers	
13:37:15		saw a big anthozoan; try to zoom in with pilot cam, sediment cloud, lost it	
13:41:50	3054	too deep. Heave 5 m and ask for posidonia fix (dvl off)	
13:46:13	3042	780N 146W, at steep slope south of target marker Anya, wait for a second fix	
13:50:41		776N 149W	
13:51:05	3050	move N towrds	
13:51:59		see marker Anya	
13:59:01		mat#1	
13:59:12		marker 23, no trace of former push core sampling	
14:17:17	3055	parked at mat #1. very soft sediment, park mposition: heading 70, porch against slope	
14:31:16	3053	8-channel T: getting in position	
14:39:51	3053	instrument seems to be damaged, no T-signal (cable damaged?) sensor 2 not reliable	
14:40:53	3053	signal is there again, 3° water	
14:43:42	3053	measurement inside white mat: T rising up to over 80 °C	ATA 21 ROV-1
14:46:16	3053	10 minutes measurement	
14:47:44	3053	T max: 85°C; T min: 41°C	
14:52:13	3053	stop measurement, T max 86.3 °C	
14:53:09	3053	another measurement on the right of the white mat	
14:54:36	3053	start measurement, T rising less high	ATA 21 ROV-2
14:56:18	3053	T max 47 °C T min 13°C	
14:59:20	3053	stop measurement, T max 48 °C	
15:04:56		instrument safe back in ROV	
		push core sampling: getting prepared, sample box is not going out far enough, problems to pull out corer #1	
15:05:20			

Time	ROV Depth	Observation	Actions
15:22:52	3053	pushcore Sampling right beside the marker (lots of white stuff also at the bottom of the core -- ATA 21 ROV-3 > Talc (?))	
15:27:21		try to deploy the corer into the holder - shit design of the corer holder	
15:32:05		again problems to pull out corer #2 - still shit design	
15:36:25		take push core #1 from defect holder to the sample box and canceling the sampling - hopefully the sampled core is still "alive" on board	
15:45:35	3054	Marker Anya in sight, trying to get a Posidonia fix (174N, 765W), Posidonia is jumping again	
15:54:26	3054	start flying from ANYA to IRINA II via the SW-NE striking canyon west of IRINA II	
16:01:37	3044	marker "C" in sight, living mussel-patch, position is 20-30m NW of IRINA II	
16:04:57	3039	T-logger field at IRINA II in sight	
16:08:11	3035	surroundind T-logger pained mussel field	
16:14:26	3035	getting parking-position for sampling program at T-logger site at the top of the T-logger field to work down slope	
16:28:00	3035	at T-logger #3, prepare 8-channel lance measurement	
16:32:00	3035	sample #4 8-cannel t-lance, lance once half length intruded (rock below)	21ROV-4
16:38:46	3035	t1 (=tip) = 11.05 °C, 31.7 (T2=kaputsky), 3.8, 2.9, 2.6, 2.5, 2.4, 2.5 (top)	
16:48:36	3035	KIPS T reading above mussel bed 2.85°C	
16:54:39	3035	start KIPS sampling bottle C9, 3.7°C, pump power 4.6 A, sample #5	21ROV-5
16:57:57	3035	"pumpen off" (Andy)	
16:58:31	3035	"pumpen ist an" (Andy) sample #6; bottle C8, T=3.6, Pump 3.8	21ROV-6
17:01:35	3035	"Pumpe ist aus" (Andy)	
17:02:09	3035	"Pump is on" (Andy) KIPS sample #7; bottle C7, T= 3.5, 4.6-5.1	21ROV-7
17:05:10	3035	pump off	
17:05:46	3035	pump on, Kips bottle B6, sample #8, 3.7°C	21ROV-8
17:08:55	3035	pump off	
17:13:53	3035	grab t-logger #3	
17:27:34	3035	HD cam on for mussel scoop	
17:33:14	3036	sample #9 mussel scoop at T-logger #3, some empty shells- some livingnet 13 .	21ROV-9
17:41:40	3036	we try reposition the ROV in line with the t-logger chain	
17:47:03	3037	T-logger #5 entangled in porch	
17:52:40	3038	positioned in front of T-logger #7	
18:10:00	3038	taking 8-channel T-logger	
18:19:11	3038	positioning T-logger	
18:20:25	3038	taking measurement at logger #7	21ROV-10
18:23:44	3038	pushing the probe a little deeper (inserted ~25 cm)	
18:31:11	3038	t1 (=tip) = 28.6°C, 36.9 (T2=kaputsky), 7.7, 4.4, 3.7, 3.0, 2.7, 2.6 (top)	
18:42:51	3038	taking KIPS system out	
18:46:28	3038	KIPS pump on bottle B5 (Tmax 2.9°C)	
18:47:41	3038	pump off! no pumping! Move the nossle up	
18:48:16	3038	pump on again, T = 2.9°C, largely over empty mussels at logger #7, bottle B5	21ROV-11
18:51:27	3038	pump off	
18:52:06	3038	pump on for bottle B4 (T = 3.0°C - 2.8°C)	21ROV-12
18:55:17	3038	pump off for bottle B4	
18:55:59	3038	pump on for bottle A3 (T=2.9°C)	21ROV-13
18:59:09	3038	pump off for bottle A3	
19:06:22	3038	finished KIPS sampling, had to get closer	
19:08:24	3038	collect T-logger #7	
19:16:07	3038	T-logger #7 placed in drawer	
19:20:21	3038	collecting mussels with a bionet	21ROV-14
19:25:52	3038	finished collecting mussels (largely empty shells), net 335	
19:32:28	3038	repositioning in front of logger #9	
19:36:31	3038	dropped maker#5 which we had tangled below the porch, try to collect it	
19:49:00	3038	logger#5 collected	
19:54:41	3038	positioned again in front of T-logger #9	
20:01:26	3038	8-channel T-logger positioned next to T-logger#9	
20:03:54	3038	8-channel logger pushed in	21ROV-15
20:10:39	3038	T1=45.1, (44.4), 17.4, 7.8, 3.8, 2.7, 2.4, 2.4 (top)	
20:11:22	3038	recover 8-channel T-logger	
20:13:20	3038	take out KIPS	
20:21:33	3038	fell out of the hand	
20:32:45	3038	recovered KIPS, trying again	
20:38:04	3038	T 2.7 °C	
20:38:34	3038	start pumping the bottles of the KIPS system (2 minutes per bottle)	21ROV-16
	3038	bottle A2	
	3038	pumpleistung 5.3, verstopft?	
20:40:41	3038	moving the nossel a bit up and down again	
20:41:00	3038	pumpe aus, und wieder an	
20:42:13	3038	pumpe an, 10 Ampere Eingangsstrom	
20:42:38	3038	läuft langsamer als normal	
20:43:18	3038	auch schütteln hilft nicht: keine kontrolle über fließendes Volumen	

Time	ROV Depth	Observation	Actions
20:44:02	3038	Abbruch KIPS (hat keinen Sinn) bottles A2 und A1 without samples	
20:45:06	3038	pumpe aus	
20:51:04	3038	nossel safe back in ROV	
20:51:32	3038	going to collect T-logger #9	
21:03:41	3038	logger# 9 collected	
21:05:02	3038	preparing for mussle scooping	
21:13:30	3038	scooping where logger # 9 has been before	
21:14:00	3038	start mussle sampling	21ROV-17
21:19:22	3038	net full of mussels!!!	
21:24:29	3038	net safe inROV	
21:24:52	3038	end of sampling, preparing to get up	
21:27:50	3038	trying to get the float of the loggers more inside the ROV-drawer	
21:31:56	3038	empty net over the filled one (kind of cap)	
21:36:33	3038	<b>starting to ascend</b>	
22:56:13	150	ascending, preparing for recovery	
23:00:29	50	floats are at surface	
23:04:45	9	all floats recovered	
23:09:25		ROV out of the water	
23:09:57		ROV on the deck	
23:11:49		station end	

# ROV dive protocol ATA-24ROV

Atalante cruise HYDROMAR V

**Cruise Number** HYDROMAR V  
**Station Number** ATA-24 ROV  
**Dive Number** 11  
**Location** Logatchev hydrothermal field  
 ships position at the first working target is at: 14°45.21'N / 44°58.77', 40m NE of OBT site

**Coordinates**  
**Water Depth** around 3030m  
**Vessel** l'Atalante

Time	ROV Depth	Observation	Actions
		objectives: deployment of OBT at OBT site, hot fluid sampling and measuring at Irina 2 and site B, recovery of instrument(s) at OBT site	
10:41:11		in the pre-dive check; ship is at 14°45.10'N / 44°58.83'W, depth 3054m	
10:50:51		prepare to launch	
		ships is at 14°45.145 796	
10:52:45		begin station; ROV off the deck	
10:54:17		ROV in the water, ship at 14°45.177'N / 44°58.778'W	
10:56:24	3	putting floats on	
11:02:03	12	starting to descend	
11:09:34	270	ROV descending	
11:15:04	480	white balance on video cameras	
11:36:08	1420	ROV at 14°45.249'N / 44°58.739'W (too far northeast)	
11:37:54		ROV at 14°45.238'N / 44°58.742'W	
11:40:42	1630	ROV at 14°45.235'N / 44°58.738'W	
11:43:30	1750	ROV at 14°45.233'N / 44°58.744'W	
11:46:01	1860	ship is in DP mode	
11:48:15		ROV at 14°45.217'N / 44°58.760'W	
11:50:20	2015	ROV at 14°45.202'N / 44°58.765'W	
12:00:23	2500	ROV at 14°45.193'N / 44°58.764'W	
12:05:39	2730	ROV at 14°45.192'N / 44°58.774'W	
12:07:50	2855	ROV at 14°45.190'N / 44°58.773'W	
12:08:46	2920	winch at 3000m, ships depth is 3040m	
12:10:46	2975	ROV at 14°45.184'N / 44°58.779'W	
12:12:22	3000	ROV at 14°45.196'N / 44°58.794'W	
12:15:28	2978	ROV at 14°45.203'N / 44°58.785'W	
12:24:00	3036	ROV at 14°45.192'N / 44°58.782'W	
12:25:10	3042	<b>bottom in sight</b>	
12:31:52	3050	at beacon ROV at 14°45.196'N / 44°58.782'W 8channel logger readings at bottom, t1=17.3, 52.8, 16.1, 19.9, 12.5, 14.0, 10.7, 12.7 (top)	
12:44:17	3048	homer beacon 15 is responding, ship is moving to ENE for 20 meters	
12:45:25	3048	restart 8 channel logger to see if it	
12:47:45	3048	read in calibration (t1=2.4, 30.7, 2.2, 2.2, 2.2, 2.2, 2.2, 2.3 (top)	
13:02:38	3051	deploying OBT-2 next to marker #29	
13:07:13	3051	starting to level the instrument	
13:30:19	3051	done, moving vessel 80 meters on a bearing of 110	
13:51:10	3035	arrived at Irina 2, flew around main complex (north side)	
13:52:27	3035	positioning ourselves in the west of the smoker	
13:57:29		ROV started moving because of the cable pull (?)	
14:06:18	3020	approachin bottom again (shift change)	
14:09:01	3034	taking 8-channel T-logger first	
14:55:18	3034	Tmax on the probe was 527°C	24ROV-1
15:04:51	3034	taking KIPS	
15:08:32	3034	positioning the KIPS nossle	
15:13:49	3034	bottle C9, pump on	24ROV-2
15:14:47	3034	T stable: 362 °C	
15:16:20	3034	T still stable	
15:16:52	3034	Pump off	
15:17:31	3034	Pumpe on: bottle C8	24 ROV-3
15:18:02	3034	T: 362°C	
15:19:36	3034	T:359 °C	
15:20:47	3034	pump off	
15:21:56	3034	nossle shaken a bit, T: 364°C	
15:22:44	3034	T: 365°	
15:22:57	3034	Pump on, bottle C7	
	3034	T is sinking down to 290 °C, lost the position	
15:23:47	3034	moving the nossle: T rising again up to 360	
15:24:44	3034	T not stable	
15:25:20	3034	pump off	
15:25:31	3034	T stable: 362 °C	
15:25:39	3034	Pump on again: refilling the bottle C7	24ROV-4
15:28:39	3034	Pump off, bottle filled	
15:29:24	3034	taking HD-pictures	

Time	ROV Depth	Observation	Actions
15:30:44	3034	trying to get the nossle in another outlet a bit further down	
15:32:24	3034	T: 4°C 2 cm away from the smoker	
15:33:04	3034	inside the outlet T rising up to 364°C	
15:33:38	3034	KIPS pump on: bottle B6	24ROV-5
15:34:12	3034	HD-pictures	
15:37:15	3034	pump off	
15:37:38	3034	HD-pictures	
15:37:56	3034	pump on bottle B5	24 ROV-6
15:38:42	3034	HD-camera aus	
15:41:00	3034	pump off	
15:41:15	3034	T stable: 362 °C	
15:41:41	3034	Pump on: bottle B4	24 ROV-7
15:41:59	3034	T: 363 °C	
15:44:49	3034	pump off, KIPS sampling finished at Irina 2	
15:48:46	3034	T (surrounding seawater) :2.7°C	
15:53:21	3034	KIPS nossle safe back in the ROV	
16:00:42	3034	putting SMoni out of the ROV placed SMoni in front of the ROV (in order to have more place for the following operations)	
16:05:42	3034		
16:19:00	3034	prepare to get fluids with the Ti-major bottle D2	
16:24:30	3034	HD-camera started	
16:25:36	3034	Ti-major out of ROV	
16:30:09	3034	HD aus	
16:31:25	3034	nossle of Ti-major getting in position: lower outlet of smoker	
16:35:33	3034	feder löst aus: Ti-major filled	24 ROV-8
16:39:11	3034	Ti-major back	
16:44:56	3034	Ti.-major safe back in ROV	
16:49:27	3034	prepare to get He-sample	
16:57:19	3034	He-pipe placed in the smoke	
17:00:09	3034	He-sample taking	24 ROV-9
17:01:46	3034	He-pipe closed at the upper side	
17:04:12	3034	closed at the lower side	
17:09:46	3034	He-pipe safe back in ROV	
17:10:31	3034	prepare to place SMoni at Irina 2	
17:13:23	3034	HD-camera	
17:18:46	3034	SMoni installed perfectly!	
17:19:38	3034	HD aus	
17:21:01	3034	flying to Quest	
17:22:11	3035	fist catch some nice pictures of the adcp	
17:23:44	3033	start moving to QUEST	
17:24:45	3036	ringstructure on bottom	
17:30:15	3039	straight forward, heading is 290° big unknown inactive chimneys, like a dead IRINA II, Posidonia fix is 44°58.833'W	
17:49:13	3035	14°45.158' N	
17:55:05	3036	arriving at QUEST try to find parking position in QUEST crater, QUEST shows more activity than in the years	
17:57:20	3039	before (more smoke emanating spots and pipes)	
18:04:22	3042	station keep mode, waiting for better visibility, heading is 265°	
18:13:17	3040	trying again to park the ROV at the north-eastern crater rim	
18:23:56	3041	ROV pushed forward to get a closer position to the smoker, heading is 191°	
18:32:07	3041	stop HD, recorded gas bubbles emanating from vent	
18:33:13	3041	preparing 8ch T-logger	
18:38:47	3041	streams of gas bubbles from diverse pipes at this site !!!	
18:42:11	3041	still preparing T-logger	
18:50:22	3041	T-handle of T-logger is grabbed	
18:58:37	3041	sinking in black smoke, bad visibility, waiting	
19:07:10	3041	trying to penetrate tiny smoking hole with T-lance, T at the 1. sensor was 275°C shortly	
19:10:45	3041	343°C at the tip	
19:13:12	3041	367°C Tmax of the tip, getting the lance deeper gently	
19:13:44	3041	measure the smokers temperature, probe was puched in at an angle, Tmax was 400°C	24ROV-10
19:18:46	3041	deploy T-lance back to the holder	
19:22:52	3041	start to preparing KIPS fluid sampling nussel is grabbed and will be positiones to the smoker, look around the ROV shows a lot of	
19:29:42	3041	dust on dieverse components (laser-cam, sonar...)	
19:34:02	3041	positioning KIPS-nussel	
19:34:37	3041	T from nussel is 345°C	
19:38:56	3041	T from nussel is 364°C	
19:40:08	3041	pump is on, 370°C was Tmax and is dropping...	
19:42:21	3041	nossel is out, repositioning	
19:42:52	3041	pump off	
19:43:17	3041	pump on, 362-364°C stable, bottle A3	

## ROV dive protocol ATA-24ROV

Atalante cruise HYDROMAR V

Time	ROV Depth	Observation	Actions
19:45:29	3041	repositioning nussel slightly, 360°C	
19:46:27	3041	T 362°C, pump off at 19:46:18	24ROV-11
19:46:53	3041	pump on, bottle A2	
19:47:37	3041	pump off	
19:49:30	3041	pump on again, bottle A2, temperatures are varying between 330-358°C	
19:52:27	3041	pump off	24ROV-12
19:55:02	3041	try to reach neighbor hole with nussel for fluid sampling	
19:56:53	3041	pump on, T 337-341°C	
19:58:00	3041	time is running, bottle A1	
20:01:32	3041	pump off	24ROV-13
20:03:10	3041	deploying KIPS nussel back to the holder	
20:04:35	3039	lift off for the OBT site	
20:07:30	3041	get signal from beacon 15	
20:16:51	3047	moving towards OBT-site	
20:23:04	3047	moved too far north	
20:48:06	3050	found OBT-1b	
20:52:43	3053	positioned the ROV in front of the OBT	
21:02:37	3049	flying around to position the ROV on smoother ground, deploying OBT on porch	
21:27:36	2445	ascending, <b>OFF BOTTOM ~21:15</b>	
21:48:42	2225	winch stopped because of funky cable layering	
22:21:12	1610	still ascending	
22:48:55	470	still ascending	
23:12:18	0	ROV on Deck, station end	

# ROV dive protocol ATA-27ROV

Atalante cruise HYDROMAR V

**Cruise Number** HYDROMAR V  
**Station Number** ATA\_27ROV  
**Dive Number** 12  
**Location** Logatchev hydrothermal field  
 ships position at the first working target is at: 14°45.21'N / 44°58.81', 40m north of Quest

**Coordinates**  
**Water Depth** 3040m  
**Vessel** l'Atalante

Time	ROV Depth	Observation	Actions
09:13:32		objectives: sample diffuse fluids, associated mussel beds; measure temperatures with 8-channel logger, collect T-loggger, collect bioboxes, move to OBT site and recover OBP	
10:28:27		<b>Station begin</b> , preparing ROV deployment, Ship 14°45.115'N, 44°58.923'W	
10:29:58	0	ROV in water	
10:33:10	2	preparing back-floats	
10:37:38	12	putt on back-floats	
10:38:58	15	begin diving	
10:40:17	49	stop diving to install "Fettabscheider", startind CTD	
10:45:17	49	continue descend	
10:48:07	171	Lights on, T-Logger Software started	
10:50:10	250	white balancing of video cameras	
10:52:09	340	Ships position is 14°45.180'N, 44°58.883'W	
11:02:35	785	"testing" both manipulators	
11:35:19	2020	still descending	
11:42:31	2267	ROV position 14°45.268'N 44°58.810'W (Posidonia)	
		ROV position 14°45.278'N 44°58.811'W	
11:46:34		ROV position 14°45.272'N 44°58.811'W	
11:47:46	2460	ROV at 14°45.271'N 44°58.798'W	
11:49:18	2480	ROV at 14°45.262'N 44°58.795'W	
11:49:53	2520	ROV at 14°45.251'N 44°58.797'W	
11:51:15	2570	ROV at 14°45.241'N 44°58.793'W	
11:52:30	2600	ROV at 14°45.230'N 44°58.790'W	
11:54:07	2640	ROV at 14°45.227'N 44°58.792'W	
11:54:49	2666	ROV at 14°45.219'N 44°58.794'W	
11:56:12	2710	ROV at 14°45.221'N 44°58.797'W	
11:57:28	2770	ROV at 14°45.216'N 44°58.799'W	
11:58:34	2798	ROV at 14°45.213'N 44°58.803'W	
11:59:44	2840	ROV at 14°45.214'N 44°58.808'W	
12:00:32	2880	ROV at 14°45.208'N 44°58.807'W	
12:02:56	2930	ROV at 14°45.194'N 44°58.825'W	
12:03:45	2950	ROV at 14°45.188'N 44°58.827'W	
12:05:05	3000	ROV at 14°45.192'N 44°58.828'W	
12:06:25	3026	ROV at 14°45 18'N 44°58.804W	
12:06:53	3044	<b>Bottom contact</b> Ships position 14°45.202'N 44°58.923'W	
12:08:26	3045	ROV at 14°45.190'N 44°58.829'W	
12:09:23	3040	ROV at 14°45.194'N 44°58.824'W	
12:09:29	3040	Marker 27 in sight	
12:19:43	3040	couple of T-loggers at Quest in sight	
12:21:26	3043	getting nearer to the mussle bed	
12:23:32	3045	finding a parking position for the ROV	
12:26:03	3045	ROV parked, heading SW (243), ship position 14°45.207' N 44° 58.816' W	
12:27:28	3045	shimmering water above mussels	
12:29:52	3045	moving some mussels to the right	
12:33:48	3045	prepare to measure T with 8-channel logger	
12:36:01	3045	T-logger dropped because T-handle has broken	
12:38:45	3045	trying to grab logger without t-handle	
12:42:09	3045	logger grabbed sucessfully	
12:44:00	3045	measure T next to T-logger # 14 (within the mussle bed)	
12:46:38	3045	T: 125 °C	
12:48:09	3045	hard to see numbers of the other loggers because of animals on them	
12:49:26	3045	visible numbers: 16, 11, 10	
12:51:06	3045	8-channel-logger T at logger #14: 125°C ; 130.1°C, 132.4°C, 135.2°C, 133.7°C, 132°C, 124.9°C, 110.3 °C	27ROV-1
12:56:07	3045	putting 8-channel logger in floor next of logger #16 to measure there (a bit away from mussle bed)	
12:59:07	3045	number of another logger: 19	
12:59:29	3045	T at logger #16: 97.9°C, 92.5°C, 78.8°C, 68.5°C, 60.4°C, 48.9°C, 37.5°C, 25.0 °C	27ROV-2
13:01:41	3045	another T-measurement outside the mussle bed	
13:08:22	3045	T outside mussle bed: 52.6°C, 54.6°C, 42.9°C, 39.4°C, 34.4°C, 27.2°C, 20.0°C, 13.8 °C	27ROV-3
13:11:50	3045	T-measurement inside mussle bed, next to logger #19	
13:25:43	3045	T-loggers near marker 20: # 10, 12, 18	
13:27:35	3045	T at logger #19: 120.2°C, 122.1°C, 119.4°C, 118.0°C, 115.0°C, 106.1°C, 88.1°C, 29.5°C	27ROV-4
13:31:04	3045	8-channel logger at logger #17	



Time	ROV Depth	Observation	Actions
13:45:37	3045	end of logging T1=115, (116), 106, 47, 38, 16, 11, 6.3) dtiong fluctuation above the tip	27ROV-5
13:48:37	3045	taking KIPS sample	
13:55:40	3045	pump is on for bottle C9, T betwenn 7.0 and 4.5; strong fluctuation	27ROV-6
13:58:44	3045	pump off	
14:01:31	3045	pump on for bottle C8	27ROV-7
14:09:59	3045	pump off	
14:11:12	3045	pump on bottle C7	
14:12:35	3045	pump off, ROV is moving	
14:21:47	3045	pump on bottle C7	27ROV-8
14:24:35	3045	pump is off	
14:33:00	3045	KIPS nussel is back in holder	
14:36:22	3045	start to recover T-logger	
14:39:36	3045	twister in front of porch	
14:40:34	3043	repositioning the ROV	
14:46:29	3045	start to recover T-logger #19 with mussels	
14:55:35	3045	T-logger #19 is in the sample box (with all mussels)	27ROV-9
14:57:05	3045	start to grab T-logger #14 and a lonesome mussel	
15:02:38	3045	T-logger #14 is in the sample box (with the mussel)	
15:10:19	3045	start to grab T-logger #16	
15:15:34	3045	T-logger #16 is in the box	
15:16:31	3045	start to grab T-logger #17	
15:23:42	3045	deploying the logger #17 back to the box with huge musselpatch on it	27ROV-10
15:27:46	3045	<b>deploy marker #32</b> at the place were numerous of mussels have been executed (former T-logger #17 place), marker #20 is about 5m to the west	
15:32:23	3044	repositioning the ROV	
15:37:58	3051	ROV at 14°45.128'N 44°58,828'W	
15:41:56	3046	grabbing T-logger #11	
15:42:52	3046	T-logger #11 is in the box	
15:48:58	3046	trying to put 8-channel logger in floor next of logger #11 position to measure there	
16:03:10	3038	repositioning the ROV	
16:22:06	3051	ROV at 14°45.160'N 44°58,855'W	
16:25:30	3046	found OBA that has been set up during the first dive to Quest found t-logger site and head to position of logger #11 that was removed before (15:42:52)	
16:35:40	3044		
16:45:04	3049	putting 8-channel logger in floor next to logger #11 position	
16:56:29	3045	T at t-logger #11: 57,4C°; 58,4C°; 44,9C°; 38,8C°; 33,2C°; 28,4C°; 23,4C°; 16,8C° stabbing the musslefield next to logger #11 with 8-channel-temp logger to measure there	27ROV-11
16:58:36	3045		
17:01:03	3045	stopped measurement	27ROV-12
17:01:59	3045	stabbing the musslefield next to logger #11 again, slightly changed position	
17:04:32	3045	max temp at tip 5°C	27ROV-13
17:14:12	3044	repositioning the ROV	
17:21:49	3045	stabbing the 8-channel-t-logger into ground in position of t-logger #12	
17:28:31	3045	T at t-logger #12: 10,5°C; 32,3°C; 8,9°C; 7,3°C; 5,5°C; 5,1°C; 4,6°C; 4°C	27ROV-14
17:31:17	3045	stabbing the 8-channel-t-logger into ground in position of t-logger #18	
17:41:39	3045	T at t-logger #18: 7,4°C; 30,6°C; 5,9°C; 5,1°C; 4,4°C; 3,5°C; 2,9°C; 2,5°C	27ROV-15
17:50:16	3045	repositioning the ROV stabbing the 8-channel-t-logger into ground in position of t-logger #10 next to marker #20	
17:54:55	3045		
17:59:32	3045	T at T-logger #10: 8,7°C; 30,7°C; 5,3°C; 3,7°C; 2,4°C; 2,3°C; 2,3°C; 2,3°C;	27ROV-16
18:00:33	3045	removed logger	
18:04:40	3045	Grabbing Temp-logger #12	
18:08:11	3045	Deployed logger #12 in the box	
18:23:38	3045	repositioning the ROV	
18:30:40	3045	grabbing T-logger #18	
18:35:37	3045	Deployed logger #18 in the box	
18:39:51	3045	Grabbing T-logger #10	
18:52:06	3045	Deployed logger #10 in the box	
18:55:33	3045	repositioning the ROV	
19:02:15	3045	Looking for brown sediment for Temp & push coring	
19:13:58	3046	Suitable Spot lockated near Quest T-logger field	
19:19:47	3046	Stabbing the 8-channel-t-logger into brown mat (HD-cam on)	
19:20:28	3046	Start measurement Stop measurement - Temp in mat: 19,3°C;35,4°C;14,9°C;12,7°C;10,1°C;7,7°C;6,0°C;4,8°C	
19:22:38	3046		27ROV-17
19:27:51	3046	removed logger	
19:31:14	3046	Start grabbing push core from box	
19:35:01	3046	HD-Cam on	
19:36:06	3046	Stabbed push core into brown mat (left to position where Temp was taken)	
19:36:34	3046	Removed core from ground	
19:42:18	3046	Push core stored in thre box	27ROV-18

Time	ROV Depth	Observation	Actions
19:44:42	3046	Start grabbing second push core	
19:53:48	3046	taking second puch core	
19:56:08	3046	core is slipping slightly off the corer	
20:00:04	3046	core is back to the holder	27ROV-19
20:04:37	3046	preparing start for QUEST	
20:07:07	3043	lift off	
20:12:08	3040	SE side of QUEST in site, abundand smoke from numerous chimneys	
20:14:55	3041	repositioning because ROV is sitting with porch directly on a smoker (autsch)	
20:23:45	3040	try to grab chimney sample	
20:39:23	3040	one piece of sulphide in porch	27ROV-20
20:44:17	3040	grabed sample of inactive chimney with the rick-master arm	27ROV-21
20:46:12	3041	sample is liying on the porch	
20:46:46	3041	start flying to the OBT site to recover OBP, heading 70°	
20:54:17	3050	near inactive smoker fied discovered during station 24ROV, heading 84°	
20:58:53	3051	no Posidonia fix	
21:06:45	3051	in front of the OBP, prepare to recover	
21:12:11	3051	HD record of OBP recovery	
21:19:08	3051	<b>off bottom</b> , ROV starting ascend	
21:34:22	2684	winch stoped while still having problems	
21:59:44	2670	caught winch electronic cable with box !???! Needs a repair	
22:34:33	2600	winch started after fixing	
23:30:49	215	still ascending, ships position is 14°45.231'N 44°58.759'W, winch is working	
23:57:12		ROV on deck	

# ROV dive protocol ATA-30ROV

Atalante cruise HYDROMAR V

**Cruise Number** HYDROMAR V  
**Station Number** ATA-30ROV  
**Dive Number** 13  
**Location** Logatchev hydrothermal field  
**Coordinates** ships position at the first working target is at: 14°45.070'N/44°58.700'W, 40m west of Irina

**Water Depth** 2940m to 2960m  
**Vessel** l'Atalante

Time	ROV Depth	Observation	Sample
		objectives: Frohe Weihnachten / Merry Christmas, Joyeux Noel; hot fluid sampling and temperature measurements at site "B" and "Candelaber"	
09:50:31		pre-dive check finished, prepare to launch	
09:51:46		ship is at 14°44.94'N / 44°59.01'W, depth 3084m	
09:59:15		ship is moving into position	
10:02:54		<b>station begin</b>	
10:03:06		ROV off deck	
10:05:04		ROV in the water, ship at 14°44.937'N / 44°58.826'W, depth 3054	
10:09:35	3	first floats added	
		ship is at 14°44.94'N / 44°58.78'W, depth 3084m	
10:13:05	3	additional 9 floats added	
10:14:39	5	ROV is ready for dive, starts descend	
10:25:14	420	ship is at 14°44.993'N / 44°58.678'W slowly moving to the north	
10:34:50	730	ship is at 14°45.054'N / 44°58.691'W slowly moving to the north	
10:40:20	940	ROV fix at 14°44.902'N / 44°58.744'W	
10:42:02	1010	ROV fix at 14°45.003'N / 44°58.765'W	
10:47:52	1250	ROV fix at 14°45.012'N / 44°58.778'W	
10:50:27	1340	ship is in DP mode	
11:01:50	1730	ROV fix at 14°45.108'N / 44°58.735'W	
11:08:02		ROV fix at 14°45.110'N / 44°58.674'W	
11:18:21	2200	ROV fix at 14°45.119'N / 44°58.673'W	
11:27:25	2500	ROV fix at 14°45.100'N / 44°58.674'W	
11:35:16	2780	ROV fix at 14°45.092'N / 44°58.678'W	
11:38:40		ROV-CTD T= 2.6°C, 8ch T= 2.4°C, Kips T=3.0°C	
11:40:04		altimeter kicks in	
11:44:48	2980	116 689	
11:45:39	2978	<b>on bottom, 45.071 / 58.699</b>	
11:54:26	2978	smoker B1 in sight; heading 52	
11:59:18	2978	depth difference between ROV-CTD and separate pressure sensor is 10 m !!!	
11:59:49	2978	preparing to sample top of the smoker, weak bubbling visible	
12:03:08	2979	ROV position for sampling 14°45.090'N / 44°58.680'W	
12:10:35	2979	pump on for bottle C9, stable at 352°C	30ROV-1
12:14:16	2979	pump off for bottle C9	
12:15:03	2979	pump on for bottle C8, stable at 352°C	30ROV-2
12:18:05	2979	pump off for bottle C8	
12:18:43	2979	pump on for bottle C7, stable at 352°C	30ROV-3
12:21:46	2979	pump off for bottle C7	
	2979	tmax for this sampling was 353°C, note difference to all other measurements during this cruise!! This temperature is the same as in January 2007 with Jason 2.	
12:25:13	2979	prepare for Ti-major sampling, lost instrument, trying to recover	
12:58:18	2979	recovered instrument	
13:01:47	2979	nussel in position	
13:02:01	2979	start triggering, wrist blocked	
13:13:49	2978	smoker is bubbling within the smoke	
13:18:21	2978	try to sample the smoker but it's difficult, nussel is deformed	
		bottle seems to be filled, waiting some time more to get sure, nussel is perfectly and deep	
13:23:35	2978	positioned in the smoker B1, Bottle D-1	30ROV-4
13:31:06	2978	bottle is out and is stored next to the porch	
13:33:43	2978	preparing to sample second Ti-bottle	
13:39:28	2978	move old marker out of the way	
13:44:31	2978	try to remove sampler off the sampling box	
13:57:39	2978	bottle D-2 is grabbed and on the way to the smoker	
14:00:57	2978	bottle is positioned to the smoker	
14:01:49	2978	repositioned a little	
14:03:26	2978	trigger pushed, bottle is filling and nussel is still in the smoker B1	30ROV-5
		bottle D-2 is also stored in front of the porch and SMONI will be prepared for 15min T measurement	
14:09:46	2978	SMONI in the smokers try to reposition because tip is not deep enough	
14:14:34	2978	SMONI is deep in the smoker B1, waiting	30ROV-6
14:15:57	2978	end of SMONI T-logging, pull out nussel	
14:30:09	2978	SMONI is back in the box, recovering Ti-major samplers	
14:33:01	2978	Ti sampler back in box	
14:35:18	2978	preparing 8ch T-logger, smoker B1	
14:36:42	2978		

Time	ROV Depth	Observation	Sample
14:40:16	2978	positioning 8ch T-lance in B1	
14:43:32	2978	starting T-logging T >450°C !!! T3, 4, 5 shows very high values of >600°C (out of range)	
14:46:23	2978	pull out the logger a little, T are more stable and lower (~320°C)	
14:49:23	2978	try it a little deeper, its going hotter again	
		T1 398°C, T3 334°C, T4 440°C, T5 421°C, T6 160°C, T7 130°C, T8 74°C (T's are varying)	
14:51:43	2978		30ROV-7
14:56:05	2978	8ch T-logging stopped, lift off to the CANDELABRA crater	
14:58:12	2980	on the way	
15:04:42	2978	may found MSM 03-2 Rockdrill station	
15:07:00	2965	hydrothermal crusts, talus and sediment all the way	
15:08:46	2960	green bottle and traces in sediment	
15:11:07	2951	TV grab station?	
15:12:04	2957	black smoke coming from the left	
15:14:22	2960	reached smoking crater, identified as IRINA	
15:18:20	2054	heading 120° to CANDELABRA	
15:20:26	2952	hydrothermal crusts, altered rocks and sediment, steep slope	
15:26:27	2948	try to park in front of Candelabra smoker	
15:29:37	2948	having some difficulties to park	
15:37:29	2949	landed in front of C1	
15:41:41	2948	gas bubbling visible	
15:42:19	2948	pump on for bottle B6	
15:45:18	2948	pump off (T 360-362°C)	30ROV-8
15:46:17	2948	pump on for bottle B5	
15:49:15	2948	pump off (T 360-362°C)	30ROV-9
15:49:41	2948	ROV has moved strongly, repositioning, Smoker broken? Bubbles coming out	
15:53:48	2948	ROV seems to be stable now	
15:55:36	2948	pump on for bottle B4	
15:58:36	2948	pump off (T 356°C)	30ROV-10
15:58:55	2948	KIPS sampling is finished	
		EMERGENCY CALL FROM BRIDGE; WE HAVE TO LEAVE THE AREA TO GET SOMEONE TO A HOSPITAL; WE HAVE ONE HOUR TO RECOVER THE ADCP	
16:06:27	2968	Start traveling to IRINA II , Posidonia 44°58.650'W 14°45.065'N	
16:09:08	2988	.660'W .070'N	
16:10:45	2994	.716'W .078'N	
16:11:12	3001	.713'W .084'N	
16:11:50	3003	.723'W .088'N	
16:13:11	3004	.729'W .101'N	
16:14:28	3008	.707'W .096'N	
16:21:33	3030	no posidonia fix	
16:32:46	3049	still searching IRINA II, no posidonia	
16:42:32	3043	something in view, heading 57°, no fix, ship is too noisy	
17:00:08	3033	found ADCP	
17:01:41	3033	parking in front of ADCP	
17:06:17	3036	repositioned and parked again	
17:08:50	3036	start to recover the ADCP	
17:11:46	3036	try to give the ADCP from Orion arm to the Rickmaster	
17:15:21	3036	finished recovery of ADCP	
17:16:16	3036	<b>Off Bottom</b>	
18:21:52	140	near the surface, ascending without problems	
18:32:02	4	at the surface, ship in view	
18:32:57	0	Systems off, high power off	
18:36:17	-	<b>ROV on deck, station end</b>	