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Short Cruise Report
Water column sampling
SONNE SO315

Antofagasta – Balboa
08.10.2025 – 17.11.2025
Chief Scientist: Patrick Grunert
SUBPESCA representative: Sergio Contreras
Captain: Oliver Meyer

1. Introduction

The present report summarizes water column sampling conducted as part of the scientific cruise SO315 with the German research vessel SONNE. The document provides an overview of the objectives, the applied methods for water column sampling, the list of stations with water column sampling, and the list of cruise participants. An Excel file containing the coordinates of the sampling locations, the deployed devices, the number of samples, and the recovered biomaterial; and a shape file with the sampling locations are provided on an accompanying hard drive.

Cruise SO315 has been conducted following permit J.E.M.G.A. ORD Nr. 13270/760/7 from 16 September 2025, and SUBPESCA permit R. EX. Nº E-2025-698 from 3 October 2025 with the addendum R. EX. Nº 02405/2025. As has been communicated to the S.H.O.A. on 8 November 2025 and highlighted in the preliminary cruise report to S.H.O.A., the northern limit of the authorized working area was temporarily crossed by accident on four occasions from 5-7 November. The mistake, resulting from the use of an erroneous map of the working area, was recognized by the chief scientist on 8 November and immediately reported to the national observer. Water column samples were taken at one station during this time (see chapter 4). The chief scientist expresses his sincere apologies for this unintentional mistake. At the time of submission of this report, a decision by S.H.O.A. on how to proceed with the data and sample material acquired in the unauthorized area is pending. Until a decision is made by S.H.O.A., the data and samples acquired from the unauthorized area will not be used for any work.

2. Objectives

The overarching objective of the CARNIVAL project is to gain a sound understanding of the links between the paleoclimate of the Atacama Desert and the subtropical south-eastern Pacific and southern Atlantic on orbital and suborbital timescales in the late Quaternary (last c. 1 million years). Through integration with terrestrial records, the new marine archives gathered during Cruise SO315 will provide a unique perspective on how the coupling to different ocean basins has shaped the spatial and temporal dynamics of the paleoclimate in the hyperarid core of the Atacama Desert.

Three hypotheses will be tested based on the results of Cruise SO315:

Hypothesis 1: The variability of HCS transport and upwelling, both connected to changes in SST, determine moisture flux and precipitation in the hyperarid core of the Atacama Desert on orbital and suborbital time scales.

Hypothesis 2: The incision of the Rio Loa, caused by rainfall-driven discharge from the Altiplano, occurred > 200 ka ago. The offshore sediments of this source-to-sink system reflect moisture flux from the Atlantic basin.

Hypothesis 3: Marine sediments off northern Chile show considerable variability in eolian dust flux. The eolian sediments originate from the adjacent hinterland and reflect precipitation patterns in the hyperarid core of the Atacama.

The hypotheses can only be tested by obtaining new sediment cores and water samples from the south-eastern Pacific off the hyperarid core of the Atacama Desert in northern Chile. The aim of Cruise SO315 was the collection of the most comprehensive sedimentary archive off northern Chile, spanning suborbital timescales in cores from the continental shelf and slope and up to 1 million years in cores from oceanic seamounts. A particular aim was the recovery of sediment cores and water samples at water depths shallower than 500 m which were largely missing from previous cruises. This will allow to

address the Peru-Chile Undercurrent, the source waters of coastal upwelling; and the recovery of expanded Holocene sequences. The recovery of sediment cores and the complementary sampling of the water column off northern Chile should 1) enable baseline studies on the regional oceanography and biogeochemical cycles in order to calibrate the proxy methods required for paleoclimatic and paleoceanographic reconstructions; and 2) establish new paleoceanographic and paleoclimatic records from late Quaternary marine archives offshore northern Chile. The availability of water column/plankton samples will further provide new insights into protist biodiversity, microbial ecology and the nitrogen cycle.

Six main working areas in the SE Pacific off the coast of northern Chile (18°30' to 24°30') were defined for Cruise SO315 (Fig. 1): (A) southwest of Antofagasta, (B) Mejillones Bay, (C) oceanic seamounts, (D) off the Río Loa, (E) west of Iquique, and (F) northwest of Arica. Coastal working areas (A, B, D, E, F) follow the northern extension of the Atacama Desert, enabling high-resolution reconstruction of both, terrigenous input and coastal upwelling, and thus surface water temperature, productivity and oxygenation in this region. Distal to the coast, the low sedimentation rates on the oceanic seamounts (C) allow the reconstruction of these parameters on longer, orbital time scales (up to one million years).

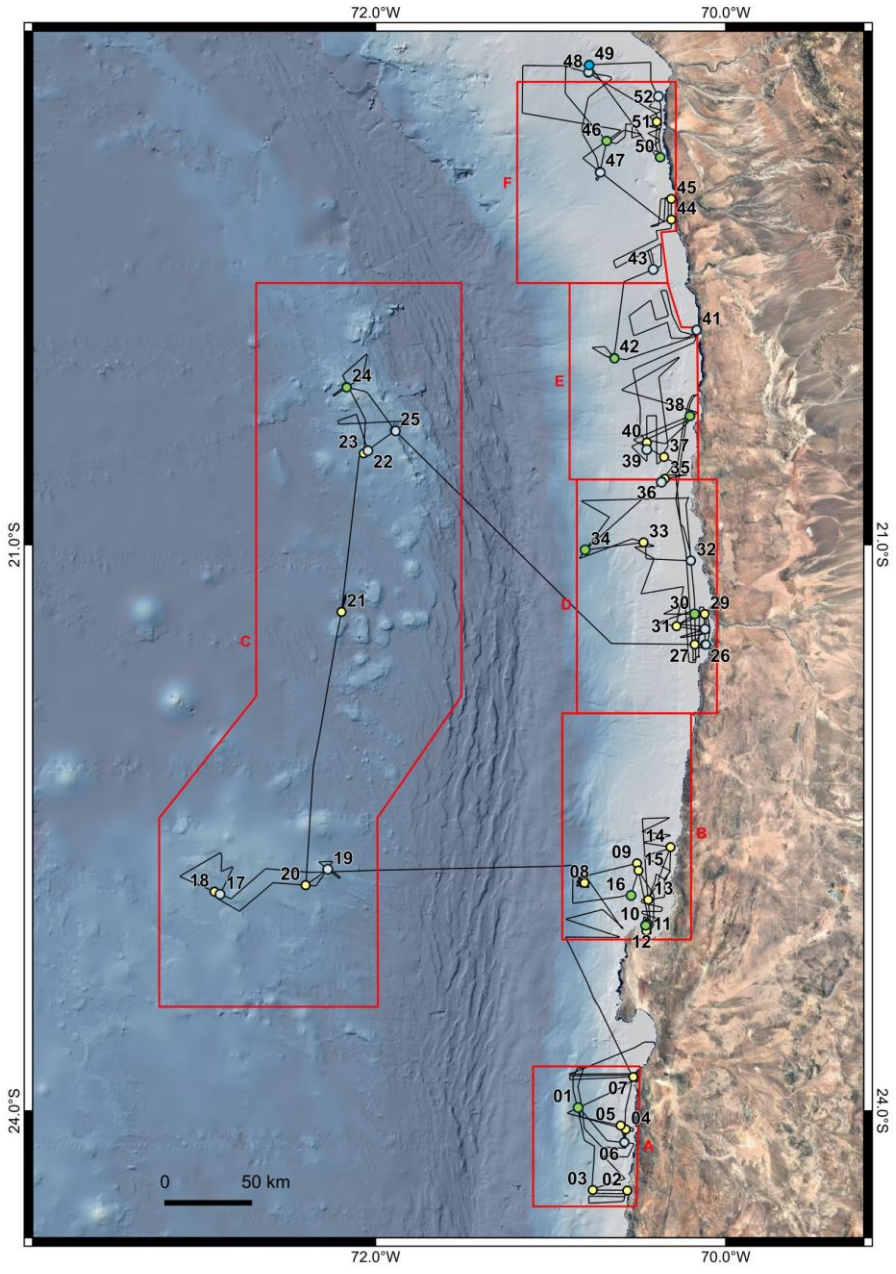

Fig. 1. Map of the study area showing Working Areas A-F, cruise track, and stations. A detailed list of all water column stations can be found in Chapter 5 and the separate Excel file.

Color of dots indicates type of sampling for a given station:

Yellow: CTD

Blue: CTD, MN

Green: CTD, MSC, ISP, MN

Grey: no water column sampling

Please note that the original map submitted with the diplomatic forms, erroneously used from 5-7 November, indicated the northern limit of Working Area F at 18°23'S.

3. Methods

To achieve the objectives, a comprehensive scientific program including sampling of the water column (CTD rosette, multinet, marine snow catchers, in situ pumps) and the sediment (bathymetry, sub-bottom profiling, multicore, gravity core) has been conducted in the identified working areas. In this chapter, the focus is put on the methods for water column sampling.

Water column sampling

A thorough understanding of today's biogeochemical cycles and plankton distribution in the water column is fundamental as a baseline for the desired reconstructions of water mass distribution as well as the properties of coastal upwelling and the associated oxygen minimum zone in the past. Deployments of the SBE 911Plus CTD with a rosette sampler (24 bottles á 10 liters) routinely complemented sediment sampling to provide hydrographic data (temperature, salinity, oxygenation, fluorescence, turbidity, pressure, depth) and water samples for proxy calibration from (typically) surface waters, the chlorophyll maximum, the oxycline, and bottom waters. At one or two selected stations in each working area, a more comprehensive sampling of the water column was carried out to collect plankton and aggregates of organic matter (marine snow) by deployment of Ocean Scientific International marine snow catchers (MSC), McClane in-situ filter pumps (ISPs) and a HYDRO-BIOS MPS92B multinet (MN). Targeted water depths included, but were not limited to surface waters, the chlorophyll maximum, the oxycline, the upper and central oxygen minimum zone, and bottom waters. After recovery, water samples from the CTD, ISPs and MN were either filtered or picked to extract organic particles, micro- and nannoplankton and frozen at -20°C for post cruise analysis; or directly fixed and frozen at -20°C for further analysis on land. Preliminary analysis of the nutrient (ammonia, nitrite) content in water samples from 10 stations was performed, but the data will need further calibration after the cruise. Samples from the MSC and water column were labeled with ^{15}N and fixed for post cruise quantification of nitrogen loss rates in bulk waters and individual aggregates, complemented by analysis of the associated microbial communities. Selected samples have also been prepared for the determination of organic matter aggregate sinking rates.

4. Narrative of the cruise

On ***8 October 2025***, all participants in Cruise SO315 boarded the research vessel SONNE in the port of Antofagasta. The containers were unloaded, the equipment was set up and serviced, and the laboratories were set up. The chief scientist and the observer met with the captain of the port. On the evening of 8 October, the SONNE left the port and headed directly for ***Working Area A*** south of Antofagasta. Due to the challenging topography of the northern Chilean continental margin, a detailed hydroacoustic survey of the seafloor was carried out in the working area from ***October 9*** to identify suitable stations for sediment core sampling. Multicores (MUCs) and/or gravity cores (GCs) were obtained at a total of seven stations at water depths between 81 and 2,485 meters. At five of these stations, sediment sampling was accompanied by CTD deployment. In addition, sampling of the water column at various depths was carried out at one station using a CTD probe with a rosette sampler, marine snow catchers (MSCs), in-situ pumps (ISPs) and the multinet (MN). On the evening of ***12 October***, the station work in the first working area was completed.

On ***13 October***, the SONNE reached ***Working Area B*** north of the Mejillones Peninsula, one of the strongest coastal upwelling areas in northern Chile. Here, interrupted by a stop

to refuel the ship in the port of Mejillones on ***14 October***, sediment cores (MUCs and GCs) were obtained at a total of eight stations along depth transects between 92 and 3,001 meters water depth, including an almost 18-meter-long sediment core with laminated sediments from Mejillones Bay. At six of these stations, sediment sampling was accompanied by CTD deployment. Extensive sampling of the water column was carried out at one coastal and one offshore station using a CTD probe with a rosette sampler, MSCs, ISPs and the MN. While in the working area, the protected area for cetaceans around Punta Angamos was respected at all times following the instructions received by the captain of the port. On the morning of ***18 October***, the scientific program in the working area was completed.

After transiting to ***Working Area C*** on the Iquique Ridge west of the Peru-Chile Trench, the hydroacoustic survey was resumed, and the first station work was carried out on ***19 October***. The SONNE operated in the working area from ***19 to 24 October*** with the aim to collect sediments up to one million years old from the seamount areas. After initial challenges with core sampling in the southern part of the working area, several sediment cores with a length of > 8 meters were successfully recovered further north. A total of nine stations were visited at water depths between 2,636 and 4,483 meters, with sediment cores (MUCs and GCs) successfully retrieved at eight stations. At four stations, hydrographic data and water samples were collected from the water column using the CTD probe and the rosette sampler. At one station in the northern part of the working area, water column sampling was complemented by the deployments of the MSCs, ISPs and the MN. Five Argo floats were also deployed across the working area. On ***24 October***, the scientific program in the working area was successfully completed.

This was followed by the transit ***Working Area D*** off the mouth of the Río Loa, which was reached early in the morning of ***25 October***. Here, hydroacoustic measurements were carried out on the shelf before the ship made an unscheduled departure for the port of Iquique. On ***27 October***, work continued in Working Area D. Following a dense hydroacoustic survey of the seafloor off the mouth of the Río Loa, sediment cores (MUCs and GCs) were successfully obtained at a total of six stations on the shelf. Sampling the continental slope proved challenging. Due to widespread sediment slides and submarine channels, MUCs and/or GCs were recovered only at three stations between 339 and 2,923 meters water depth. At six stations, hydrographic data and water samples were collected from the water column using the CTD probe and rosette sampler. MSCs, ISPs and the MN were deployed at one coastal and one offshore station.

On ***30 October***, the SONNE moved on to ***Working Area E***. There, sediment cores and water samples were to be collected from an area of particularly strong coastal upwelling around Iquique. Conditions with respect to sediments were similar to those in the previous working area. Several sediment cores (MUCs and GCs) were successfully obtained at water depths down to c.150 meters, and hydrographic data and water samples were collected using a CTD probe, rosette sampler, MSCs and ISPs. Greater water depths continued to be characterised by sediment slides. Sediment cores (MUCs and GCs) were obtained at three stations between 333 and 1,235 meters water depth. At the deepest station, hydrographic data and water samples were collected using a CTD probe, rosette sampler, MSCs, ISPs and the MN. On ***3 November***, the scientific program in the working area was completed.

The SONNE then moved to the directly adjacent ***Working Area F***. Here, sediment cores and water samples were to be collected from the coastal upwelling area south of Arica. Sediment cores (MUCs and GCs) were successfully extracted at five stations on the shelf. Similar to previous work areas, finding suitable stations on the continental slope proved challenging due to mass wasting deposits and submarine channels, despite intensive

mapping of the seafloor. Nevertheless, several sediment cores (MUCs and GCs) were successfully taken from water depths between 907 and 1,349 meters. Hydrographic data and samples from the water column were also collected at several stations using the CTD probe and the rosette sampler, and MSCs, ISPs and the MN were used at one coastal and one offshore station.

During scientific work in Working Area F, the authorized ***northern limit of the working area*** has been temporarily crossed on several occasions on ***5-7 November*** (Fig. 1). This was not intentional and resulted from the erroneous use of the map originally included with the diplomatic forms. On this map, the northern limit is indicated at 18°23' instead of 18°30'. This mistake was recognized by the chief scientist on November 8 and immediately reported to the observer and the captain of the vessel. The observer notified the Chilean authorities accordingly. Information on how to proceed with the sample material is pending as of submission of this report. Station work with water column sampling (CTD, MN) has been carried out in the afternoon of November 7 at Station GeoB27149 (18 ˚24.4164'S; 70 ˚46.755'W). None of the data and samples collected in the unauthorized area will be used or worked on until a decision by S.H.O.A. has been made.

On the evening of ***8 November***, the station work and thus the work program of Cruise SO315 was completed. The SONNE started its transit to its final destination, the port of Balboa (Panama). The time was used to organize sample material, to pack the containers, to clean up the labs and to prepare the reports. The SONNE arrived in Balboa as scheduled in the morning of ***17 November***.

5. List of stations with water column sampling

See also separate Excel file. Coordinates in WSG-84 format are provided as a separate Shape file.

Station No.		Date (2025)	Gear	Time (UTC)	Latitude (°S)	Longitude (°W)	Water depth (m)	number of samples/bottles	Biomaterial
SONNE	MARUM								
SO315_1-1	GeoB27101-1	10.10.	CTD	03:35:39	23° 58,889'	070° 50,274'	2483.8	24 bottles	Plankton
SO315_1-2	GeoB27101-2	10.10.	CTD	07:26:39	23° 58,889'	070° 50,268'	2480.0	24 bottles	Plankton
SO315_1-3	GeoB27101-3	10.10.	CTD	08:30:03	23° 58,891'	070° 50,278'	2479.2	24 bottles	Plankton
SO315_1-4	GeoB27101-4	10.10.	MSC	09:40:24	23° 58,893'	070° 50,274'	2483.8	1 sample: 155 m	Plankton
SO315_1-5	GeoB27101-5	10.10.	MSC	10:15:55	23° 58,890'	070° 50,267'	2483.4	1 sample: 300 m	Plankton
SO315_1-6	GeoB27101-6	10.10.	ISP	11:09:45	23° 58,887'	070° 50,268'	2481.1	5 samples: 155 m, 200 m, 300 m, 350 m, 750 m	Plankton
SO315_1-7	GeoB27101-7	10.10.	MN	16:38:52	23° 58,892'	070° 50,264'	2485.1	5 samples: 0-60 m, 60-150 m, 150-400 m, 400-600 m, 600-700 m	Plankton
SO315_2-1	GeoB27102-1	11.10.	CTD	14:14:59	24° 25,011'	070° 33,786'	84.1	10 bottles	Plankton
SO315_3-1	GeoB27103-1	11.10.	CTD	17:38:02	24° 24,827'	070° 45,562'	1450.0	10 bottles	Plankton
SO315_4-1	GeoB27104-1	12.10.	CTD	11:32:21	24° 05,845'	070° 34,329'	352.9	24 bottles	Plankton
SO315_5-1	GeoB27105-1	12.10.	CTD	13:31:49	24° 04,647'	070° 35,994'	529.9	10 bottles	Plankton
SO315_7-1	GeoB27107-1	12.10.	CTD	19:18:22	23° 49,346'	070° 31,685'	112.6	6 bottles	Plankton
SO315_8-3	GeoB27108-3	13.10.	CTD	19:32:07	22° 48,011'	070° 48,399'	3001.3	13 bottles	Plankton
SO315_9-1	GeoB27109-1	14.10.	CTD	05:44:05	22° 41,796'	070° 30,402'	692.7	8 bottles	Plankton
SO315_10-1	GeoB27110-1	15.10.	CTD	06:28:45	23° 01,397'	070° 27,567'	111.4	21 bottles	Plankton
SO315_10-2	GeoB27110-2	15.10.	CTD	08:09:25	23° 01,395'	070° 27,566'	111.6	24 bottles	Plankton
SO315_10-3	GeoB27110-3	15.10.	CTD	09:27:38	23° 01,391'	070° 27,566'	109.7	16 bottles	Plankton
SO315_10-4	GeoB27110-4	15.10.	MSC	10:00:39	23° 01,399'	070° 27,566'	112.0	1 sample: 73 m	Plankton

SO315_10-5	GeoB27110-5	15.10.	MSC	10:27:40	23° 01,398'	070° 27,564'	110.4	1 sample: 93 m	Plankton
SO315_10-6	GeoB27110-6	15.10.	ISP	11:06:01	23° 01,398'	070° 27,564'	110.4	5 samples: 5 m, 63 m, 73 m, 93 m, 105 m	Plankton
SO315_10-7	GeoB27110-7	15.10.	MN	14:05:19	23° 01,398'	070° 27,564'	110.4	5 samples: 0-10 m, 10-20 m, 20-30 m, 30-67 m, 67-90 m	Plankton
SO315_10-8	GeoB27110-8	15.10.	MN	14:53:37	23° 01,393'	070° 27,561'	108.5	technical problems	Plankton
SO315_12-1	GeoB27112-1	15.10.	CTD	17:55:08	23° 03,133'	070° 27,201'	95.2	technical problems	Plankton
SO315_12-2	GeoB27112-2	15.10.	CTD	18:20:29	23° 03,136'	070° 27,204'	98.9	11 bottles	Plankton
SO315_13-1	GeoB27113-1	16.10.	CTD	17:39:07	22° 53,351'	070° 26,565'	219.4	8 bottles	Plankton
SO315_14-1	GeoB27114-1	16.10.	CTD	21:34:38	22° 36,620'	070° 18,892'	119.7	2 bottles	Plankton
SO315_15-1	GeoB27115-1	17.10.	CTD	12:02:38	22° 44,069'	070° 29,835'	623.0	8 bottles	Plankton
SO315_16-1	GeoB27116-1	17.10.	CTD	17:16:38	22° 52,010'	070° 32,490'	875.7	12 bottles	Plankton
SO315_16-2	GeoB27116-2	17.10.	MN	18:05:35	22° 52,012'	070° 32,492'	880.8	5 samples: 0-50 m, 50-120 m, 120-350 m, 350-500 m, 500-600 m	Plankton
SO315_16-5	GeoB27116-5	17.10.	CTD	22:42:02	22° 51,618'	070° 32,669'	898.0	24 bottles	Plankton
SO315_16-6	GeoB27116-6	18.10.	CTD	00:10:53	22° 51,620'	070° 32,669'	898.6	18 bottles	Plankton
SO315_16-7	GeoB27116-7	18.10.	MSC	01:39:06	22° 51,620'	070° 32,670'	898.9	1 sample: 146 m	Plankton
SO315_16-8	GeoB27116-8	18.10.	ISP	02:31:06	22° 51,622'	070° 32,667'	897.3	5 samples: 120 m, 146 m, 220 m, 420 m, 750 m	Plankton
SO315_16-9	GeoB27116-9	18.10.	MSC	07:27:11	22° 51,622'	070° 32,667'	897.3	1 sample: 146 m; repeat due to sealing issue	Plankton
SO315_16-10	GeoB27116-10	18.10.	MSC	07:58:18	22° 51,618'	070° 32,671'	898.0	1 sample: 220 m	Plankton
SO315_18-2	GeoB27118-2	19.10.	CTD	23:03:00	22° 50,958'	072° 55,145'	3457.8	24 bottles	Plankton
SO315_20-4	GeoB27120-4	21.10.	CTD	01:22:15	22° 48,618'	072° 24,054'	3897.4	21 bottles	Plankton
SO315_21-3	GeoB27121-3	21.10.	CTD	19:28:02	21° 21,555'	072° 11,654'	4482.9	12 bottles	Plankton
SO315_23-3	GeoB27123-3	23.10.	CTD	00:35:58	20° 30,576'	072° 04,060'	3780.5	13 bottles	Plankton
SO315_24-3	GeoB27124-3	23.10.	MN	18:28:49	20° 09,190'	072° 09,968'	2969.0	5 samples: 0-50 m, 50-200 m, 200-400 m, 400-500 m, 500-700 m	Plankton
SO315_24-4	GeoB27124-4	23.10.	CTD	20:04:16	20° 09,190'	072° 09,974'	2966.1	24 bottles	Plankton
SO315_24-5	GeoB27124-5	23.10.	CTD	23:24:55	20° 09,193'	072° 09,966'	2966.9	24 bottles	Plankton
SO315_24-6	GeoB27124-6	24.10.	CTD	00:50:58	20° 09,194'	072° 09,969'	2961.1	9 bottles	Plankton
SO315_24-7	GeoB27124-7	24.10.	MSC	01:12:46	20° 09,196'	072° 09,967'	2975.6	1 sample: 120 m	Plankton
SO315_24-8	GeoB27124-8	24.10.	MSC	01:44:05	20° 09,196'	072° 09,971'	2966.8	1 sample: 306 m	Plankton
SO315_24-9	GeoB27124-9	24.10.	ISP	02:28:20	20° 09,189'	072° 09,974'	2969.5	5 samples: 85 m, 125 m, 200 m, 445 m, 750 m	Plankton
SO315_27-1	GeoB27127-1	27.10.	CTD	14:37:55	21° 31,938'	070° 10,620'	110.2	8 bottles	Plankton
SO315_29-1	GeoB27129-1	27.10.	CTD	18:53:06	21° 22,212'	070° 07,147'	69.1	9 bottles	Plankton
SO315_30-1	GeoB27130-1	28.10.	CTD	05:08:17	21° 22,206'	070° 10,618'	102.8	24 bottles	Plankton
SO315_30-2	GeoB27130-2	28.10.	CTD	06:21:12	21° 22,225'	070° 10,595'	103.2	24 bottles	Plankton
SO315_30-3	GeoB27130-3	28.10.	MSC	06:54:27	21° 22,227'	070° 10,598'	104.9	1 sample: 63 m	Plankton
SO315_30-4	GeoB27130-4	28.10.	MSC	07:41:38	21° 22,224'	070° 10,599'	105.3	1 sample: 88 m	Plankton
SO315_30-5	GeoB27130-5	28.10.	ISP	08:23:15	21° 22,225'	070° 10,600'	105.8	5 samples: 33 m, 55 m, 63 m, 78 m, 88 m	Plankton
SO315_30-6	GeoB27130-6	28.10.	MN	11:52:44	21° 22,226'	070° 10,588'	103.4	5 samples: 0-20 m, 20-30 m, 30-45 m, 45-65 m, 65-90 m	Plankton
SO315_31-1	GeoB27131-1	28.10.	CTD	14:01:45	21° 26,135'	070° 16,894'	349.7	9 bottles	Plankton
SO315_33-1	GeoB27133-1	29.10.	CTD	20:17:38	20° 59,273'	070° 28,169'	681.6	20 bottles	Plankton
SO315_34-1	GeoB27134-1	30.10.	CTD	01:24:28	21° 01,659'	070° 48,107'	2923.0	24 bottles	Plankton
SO315_34-2	GeoB27134-2	30.10.	CTD	04:41:17	21° 01,687'	070° 48,102'	2922.3	24 bottles	Plankton
SO315_34-3	GeoB27134-3	30.10.	CTD	06:06:04	21° 01,685'	070° 48,097'	2919.2	11 bottles	Plankton
SO315_34-4	GeoB27134-4	30.10.	MSC	06:53:34	21° 01,685'	070° 48,100'	2922.7	1 sample: 157 m	Plankton
SO315_34-5	GeoB27134-5	30.10.	MSC	07:26:22	21° 01,687'	070° 48,100'	2921.9	1 sample: 332 m	Plankton
SO315_34-6	GeoB27134-6	30.10.	ISP	08:10:16	21° 01,689'	070° 48,092'	2920.4	5 samples: 104 m, 150 m, 240 m, 435 m, 750 m	Plankton
SO315_34-7	GeoB27134-7	30.10.	MN	14:00:44	21° 01,687'	070° 48,092'	2919.6	5 samples: 0-76 m, 76-150 m, 150-380 m, 380-600 m, 600-920 m	Plankton

SO315_35-1	GeoB27135-1	30.10.	CTD	23:22:33	20° 38,719'	070° 20,898'	155.5	8 bottles	Plankton
SO315_37-1	GeoB27137-1	31.10.	CTD	18:12:45	20° 31,737'	070° 21,126'	336.6	12 bottles	Plankton
SO315_38-1	GeoB27138-1	01.11.	CTD	05:14:04	20° 18,499'	070° 12,222'	104.4	24 bottles	Plankton
SO315_38-2	GeoB27138-2	01.11.	CTD	06:34:32	20° 18,502'	070° 12,183'	105.2	24 bottles	Plankton
SO315_38-3	GeoB27138-3	01.11.	MSC	07:47:16	20° 18,503'	070° 12,179'	103.1	1 sample: 55 m	Plankton
SO315_38-4	GeoB27138-4	01.11.	MSC	08:25:35	20° 18,496'	070° 12,177'	101.9	1 sample: 87 m	Plankton
SO315_38-5	GeoB27138-5	01.11.	ISP	08:46:39	20° 18,499'	070° 12,182'	106.1	5 samples: 27 m, 44 m, 57 m, 72 m, 87 m	Plankton
SO315_40-1	GeoB27140-1	01.11.	CTD	18:23:11	20° 27,091'	070° 26,996'	662.4	22 bottles	Plankton
SO315_42-1	GeoB27142-1	02.11.	CTD	21:32:12	19° 59,743'	070° 38,178'	1235.3	24 bottles	Plankton
SO315_42-2	GeoB27142-2	02.11.	CTD	23:52:01	19° 59,734'	070° 38,210'	1234.1	24 bottles	Plankton
SO315_42-3	GeoB27142-3	03.11.	CTD	01:34:45	19° 59,730'	070° 38,206'	1233.2	24 bottles	Plankton
SO315_42-4	GeoB27142-4	03.11.	MSC	01:50:18	19° 59,733'	070° 38,211'	1234.0	1 sample: 107 m	Plankton
SO315_42-5	GeoB27142-5	03.11.	MSC	02:12:59	19° 59,729'	070° 38,216'	1232.6	1 sample: 343 m	Plankton
SO315_42-6	GeoB27142-6	03.11.	ISP	02:59:30	19° 59,737'	070° 38,211'	1234.1	5 samples: 90 m, 100 m, 240 m, 440 m, 750 m	Plankton
SO315_42-7	GeoB27142-7	03.11.	MSC	10:52:13	19° 59,726'	070° 38,209'	1233.9	1 sample: 50 m	Plankton
SO315_42-8	GeoB27142-8	03.11.	MN	11:21:34	19° 59,729'	070° 38,216'	1231.8	5 samples: 0-50 m, 50-80 m, 80-400 m, 400-700 m, 700-900 m	Plankton
SO315_44-1	GeoB27144-1	04.11.	CTD	12:13:26	19° 14,884'	070° 18,706'	109.0	11 bottles	Plankton
SO315_45-1	GeoB27145-1	04.11.	CTD	15:37:38	19° 08,191'	070° 18,716'	87.2	9 bottles	Plankton
SO315_46-3	GeoB27146-3	05.11.	CTD	16:25:25	18° 49,296'	070° 40,791'	1350.4	6 bottles	Plankton
SO315_46-4	GeoB27146-4	05.11.	CTD	22:06:05	18° 49,311'	070° 40,816'	1349.7	24 bottles	Plankton
SO315_46-5	GeoB27146-5	06.11.	CTD	00:33:06	18° 49,296'	070° 40,788'	1348.0	24 bottles	Plankton
SO315_46-6	GeoB27146-6	06.11.	CTD	02:27:50	18° 49,299'	070° 40,785'	1348.7	12 bottles	Plankton
SO315_46-7	GeoB27146-7	06.11.	MSC	02:41:40	18° 49,294'	070° 40,786'	1344.2	1 sample: 353 m	Plankton
SO315_46-8	GeoB27146-8	06.11.	MSC	03:22:50	18° 49,298'	070° 40,787'	1347.7	1 sample: 88 m	Plankton
SO315_46-9	GeoB27146-9	06.11.	ISP	03:42:26	18° 49,300'	070° 40,783'	1348.7	5 samples: 68 m, 88 m, 243 m, 493 m, 753 m	Plankton
SO315_46-10	GeoB27146-10	06.11.	MSC	11:30:50	18° 49,295'	070° 40,788'	1349.0	1 sample: 43 m	Plankton
SO315_46-11	GeoB27146-11	06.11.	MN	11:54:06	18° 49,292'	070° 40,787'	1348.7	5 samples: 0-40 m, 40-90 m, 90-400 m, 400-600 m, 600-900 m	Plankton
SO315_49-1	GeoB27149-1	07.11.	CTD	17:43:19	18° 24,397'	070° 46,776'	906.1	21 bottles	Plankton
SO315_49-2	GeoB27149-2	07.11.	MN	18:38:44	18° 24,414'	070° 46,755'	907.0	5 samples: 0-25 m, 25-60 m, 60-450 m, 475-700 m, 700-880 m	Plankton
SO315_50-1	GeoB27150-1	08.11.	CTD	02:38:59	18° 54,626'	070° 22,602'	122.2	24 bottles	Plankton
SO315_50-2	GeoB27150-2	08.11.	CTD	03:13:33	18° 54,664'	070° 22,550'	121.2	24 bottles	Plankton
SO315_50-3	GeoB27150-3	08.11.	CTD	04:02:29	18° 54,664'	070° 22,553'	118.4	19 bottles	Plankton
SO315_50-4	GeoB27150-4	08.11.	MSC	04:59:28	18° 54,660'	070° 22,556'	119.1	1 sample: 100 m	Plankton
SO315_50-5	GeoB27150-5	08.11.	MSC	06:03:22	18° 54,663'	070° 22,555'	120.9	1 sample: 30 m	Plankton
SO315_50-6	GeoB27150-6	08.11.	ISP	06:23:31	18° 54,663'	070° 22,548'	121.2	5 samples: 12 m, 22 m, 30 m, 55 m, 100 m	Plankton
SO315_51-1	GeoB27151-1	08.11.	CTD	16:54:24	18° 43,030'	070° 23,646'	117.4	9 bottles	Plankton

CTD	CTD with rosette sampler
ISP	In situ pumps
MN	Multinet
MSC	Marine Snow Catcher

6. List of participants

Name	Discipline	Institution
Grunert, Patrick	Chief Scientist	UoC
Aracena Pérez, Claudia Mileni	National observer	SHOA, UACH
Arndt, Hartmut	Microbiology	UoC
Arz, Helge	Sedimentology	IOW
Bazhenova, Evgenia	Hydroacoustics	MARUM
Contreras Quintana, Sergio Hernan	Biogeochemistry	UCSC
Da Costa Portilho Ramos, Rodrigo	Palaeoceanography	MARUM
Diekamp, Volker	Core curation	MARUM
Dogan, Aysegül	Porewater geochemistry	UB
Flores, Edgart	Biogeochemistry	UCB
Jaeschke, Andrea	Biogeochemistry / Co-chief Scientist	UB
Karallus, Martin	Multicorer, Gravity corer	IOW
Karas, Cyrus	Palaeoceanography	USC
Klick, Alina Helene	Sedimentology	AWI
Koukousioura, Olga	Micropalaeontology	AUT
Lamy, Frank	Paleoceanography / Co-chief scientist	AWI
Lavik, Gaute	Biogeochemistry	MPI
Hannah, Marchant	Biogeochemistry	MPI
Martin, Janis	Porewater geochemistry	UoC
Neher, Ronja	Micropalaeontology	UoC
Nitsche, Frank	Microbiology	UoC
Overbeck, Nils	Hydroacoustics	MARUM
Prohens Baraquí, Daniela Paola	Oceanography	UC
Reyes Macaya, Dharma Andrea	Palaeoceanography	UoC
Rigalleau, Vincent	Sedimentology	AWI
Schneider, Laura	Micropalaeontology	UoC
Schulze, Marius	Multicorer, Gravity corer	MARUM
Schumacher, Valéa	Core curation, multinet	AWI
Schwenk, Tilmann	Hydroacoustics	MARUM
Sepúlveda, Julio	Biogeochemistry	UCB
Szlachta, Sara Agnieszka	Hydroacoustics	MARUM
Theocharidis, Nikolaos	Micropalaeontology	UoC
Toyos Simon, Maria	Sedimentology	MARUM
Weyh, Lorenz	Sedimentology	IOW
Wennrich, Volker	Sedimentology	UoC

AUT	Aristotle University of Thessaloniki, Greece
AWI	Alfred Wegener Institute, Bremerhaven, Germany
IOW	Leibniz Institute for Baltic Sea Research Warnemünde, Germany
MARUM	MARUM – Center for Marine Environmental Sciences, University of Bremen, Germany

MPI	Max-Planck-Institute for Marine Microbiology, Bremen, Germany
SHOA	Servicio Hidrográfico y Oceanográfico de la Armada, Chile
UACH	Universidad Austral de Chile, Chile
UB	University of Bonn, Germany
UC	Universidad de Concepción, Chile
UCSC	Universidad Católica de la Santísima Concepción, Chile
UCB	University of Colorado, Boulder, USA
UoC	University of Cologne, Germany
USC	Universidad de Santiago de Chile, Chile