BELGICA BG 9714: CRUISE REPORT
OMEX II-II ***WORK PACKAGE II***

1. Participants

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2. Tasks of the principal investigators

BMM: To provide underway measurements of salinity, temperature, relative fluorescence, ship track and meteorological parameters. To perform CTD casts with temperature, salinity, dissolved oxygen and optical sensors at stations along the NW Iberian shelf (OMEX II sections) and in the vicinity of La Chapelle Bank (Gulf of Biscay).

GEOMAR: To collect water samples for the determination of $\partial^{18}O$ and $\partial^{13}C$ on TCO_2 at stations along OMEX II sections.

IIM: To investigate primary production along the NW Iberian shelf in relation to light quantity and quality, phytoplankton communities and chlorophyll content. To determine light absorption by phytoplankton, photosynthetic pigments and detrital material along the NW Iberian shelf.
Methods. ^{14}C PvI curves using short time incubations, phytoplankton counts on samples preserved in lugol's iodine. Epifluorescence scans to identify cyanobacteria, autotrophic picoflagellates and nanoflagellates. Light attenuation measurements from spectroradiometer at air irradiance, sea surface irradiance and 5, 10, 15, 20, 30, 40, 50 and 60m depths. Chlorophyll content measured fluorometrically using acetone extraction on GF/F filters. Absorption by photosynthetic pigments measured with a fluorescence spectrophotometer. Absorption by particulate and detrital components measured with a spectrophotometer. Calibration of light absorption from light attenuation.

ULB: To determine the vertical distribution of nutrients (NO_3/NO_2, PO_4, Si) and chlorophyll at stations along the OMEX II sections and in the vicinity of La Chapelle Bank (Gulf of Biscay). To investigate primary production and the phosphorus cycling in relation with nutrient dynamics, light dependency and size fractionation. To characterise suspended matter by its composition and assess sources, biogeochemical behaviour and fate of particulate material in the area investigated.
Methods: Unfiltered nutrient samples have been collected at each sampling stations during the Belgica cruise. Four sets of samples were obtained. The first one was kept frozen to be analysed at ULB for NO_3/NO_2 and PO_4. The second set was stored at 4°C to be determined for dissolved Si in the lab. The third and fourth set were analysed on board manually for dissolved phosphate and silica. At stations 6 and 9, water samples were filtered with 0.4 µM Nuclepore membrane for intercalibration exercise among IIM, PML, ULB and VUB. Chlorophyll samples (about 250 ml) in the upper 100-200 meters were filtered with GF/F filters at each station. They have been kept frozen and will be analysed back on land. Incubation experiments on the incorporation of phosphorus using carrier-free $H_3{}^{32}PO_4$ were conducted under various conditions in incubators maintained at the temperature of surface seawater. The influence of light intensity were investigated by carrying out incorporation experiments under

artificial light gradient (O-600 $\mu E\,m^{-2}\,s^{-1}$). Samples were also incubated under dark conditions to estimate the importance of photosynthetic *versus* non-photosynthetic activity. The contribution of nonbiotic processes, such as adsorption, to the ^{32}P uptake was evaluated by the addition of sodium aside which inhibits the biological activity. The contribution of the heterotrophic bacteria to the assimilation of phosphorus was investigated by conducting experiments with antibiotics. A mixture of polymixin and streptomycin was added to the same water samples to inhibit the bacterial activity and incubated under both constant light and dark conditions. Production measurements with ^{14}C were also conducted in parallel whenever possible to compare the rates of uptake of both carbon and phosphorus. Two size fractions, $>2\mu m$ and 0.2 - 2 μm, were obtained by successive filtration after incubation through Nuclepore filters. Particulate matter was collected by in-situ filtration of large volumes of sea water at various depths using the Stand Alone Pumps (SAPs) where a polypropylene filter holder was housed directly on top of the pump. Nucleopore filters of 293 mm diameter and 0.4 pm porosity were used. Filters are kept frozen until analysis. Suspended matter will be analysed for major and trace elements. They include Al, Si, Fe, Na, K, Mg, Ca, Mn, Cr, Co, Ni, Cu, Zn, Cd and Pb. Particulate material was also sampled by continuous centrifugation of surface waters (-3m), generally between fixed stations, and will be analysed for the metals mentioned above in addition to particulate organic carbon.

Ulg: To provide underway measurements of pCO_2, pH and dissolved oxygen using a data acquisition system connected to the sea water circuit of the Belgica and discrete measurements of total alkalinity (Talk) in subsurface waters. To determine vertical profiles of pH, TAlk and dissolved oxygen at stations along the OMEX II sections and in the vicinity of La Chapelle Bank. To investigate phytoplankton speciation in the water column using both the seawater circuit of the Belgica and Niskin samples.

VUB: To provide underway measurements of NO_3/NO_2 and dissolved Si using a data acquisition system connected to the sea water circuit of the Belgica To determine vertical profiles of NO_3/NO_2, NH_4, urea and dissolved Si at stations along the OMEX II sections and in the vicinity of La Chapelle Bank. To investigate the importance of new *versus* regenerated production in surface waters with respect to nutrient dynamics and remineralisation of NH_4. To determine the N-isotopic ratio $\partial^{15}N$ in surface suspended matter collected by centrifugation.
Methods: $^{15}NO_3$ and $^{15}NH_4$ PvI curves using short time incubations and an artificial light gradient up to 600 $\mu E\,m^{-2}\,s^{-1}$. $^{15}NO_3$, $^{15}NH_4$ and "N-urea uptake experiments with a contant light of 200 $\mu E\,m^{-2}\,s^{-1}$. $^{15}NO_3$, $^{15}NH_4$ uptake kinetics at 200 $\mu E\,m^{-2}\,s^{-1}$ to assess Michaelis-Menten parameters and inhibition of nitrate uptake by ammonium. $^{15}NH_4$ isotope dilution experiments to assess the rate of ammonification. All incubation experiments were carried out during 6-8 hrs in an incubator thermostated with running surface seawater. Particulate nitrogen, collected on Wathmann GF/F filters before and after incubation, were dried at 50°C and stored in polystyrene Petri dishes until analysis of ^{15}N abundance and concentration in the home lab. Unfiltered nutrient samples from CTD water bottle were determined on board: NO_3/NO_2 and dissolved Si with a Technicon Auto Analyser II, NH_4 and urea with manual colorimetric methods. Suspended particulate matter was collected by continuous flow centrifugation. Sampling was made either at fixed stations or while steaming between two stations. Samples were collected in the centrifuge body and immediately deep frozen until $\partial^{15}N$ analysis in the home lab.

3. BG9714 leg B: Bordeaux **(18/06)** to Vigo **(20/06/1997).**

Objectives: Underway measurements and intercalibration station with RRS Charles Darwin

Principal investigators: BMM, BODC, ULB, Ulg and VUB

Time schedule (GMT):

18/06/97	08:00	Depart Bordeaux
18/06/97	12:16	Pilot departs at the mouth of the Gironde
18/06/97	15:25	Non-toxic supply switched on
18/06/97	18:30	Fluorometer maintenance completed
18/06/97	21:40	Check on fluorometer data reveals sensible, if negative signal since completion of maintenance
19/06/97	07:55	On shakedown station (station 00)
19/06/97	08:00	CTD cast OOA commenced

19/06/97	08:45	CTD data stream ceased at 262m on the upcast
19/06/97	09:05	CTD inboard
19/06/97	12:30	CTD problem identified as a blown fuse in the deck unit
19/06/97	15:09	Fluorometer flow rate increased from 20 to 50 l/hour. Spike to -1.7 during change but signal before and after change was the same (-2.5).
20/06/97	02:00	CTD discovered to be non-operational (faulty sea cable connection to CTD)
20/06/97	03:00	Rendez vous with RRS Charles Darwin
20/06/97	03:15	CTD operational but problems with the winch
20/06/97	03:38	CTD cast IC1 commenced
20/06/97	04:25	CTD inboard
20/06/97	07:00	Sample exchange with Darwin
20/06/97	07:43	Non-toxic supply switched off
20/06/97	08:00	Docked in Vigo

Data sets (see Annexes)

BMM: Underway navigation, bathymetry, thermosalinograph, fluorometer and met package. Underway discrete salinity and chlorophyll. CTD profile data. Water bottle salinities.

ULB: Discrete underway NO_3/NO_2, PO_4, Si and chlorophyll. CTD water bottle PO_4, NO_3/NO_2, Si and chlorophyll.

ULg: Continuous underway pCO_2, pH and dissolved oxygen. Discrete underway dissolved oxygen and TAlk. CTD water bottle oxygen, pH and TAlk.

VUB: CTD water bottle NO_3/NO_2, Si, NH_4 and urea

4. BG9714 leg C: Vigo **(21/06) -** Vigo **(30/06:1997)**

Objectives: Biogeochemical survey of the are 41°-42°N, 9°-10.5°W. Second cruise in a serie of three cruises to survey the region during the upwelling season. Other cruises by RRS Charles Darwin and R.V. Pelagia.

Principal investigators: BMM, BODC, GEOMAR, IIM, IST, ULB, Ulg and VUB

Time schedule (GMT).

21/06/97	08:00	Sailed from Vigo
21/06/97	08:30	Non-toxic supply switched on
21/06/97	11:09	Cast 01 A commenced. CTD profile only. Start of section 02T.
21/06/97	11:23	Cast 01A inboard
21/06/97	12:52	CTD Cast 02A commenced. Biogeochemical parameter sampling.
21/06/97	13:12	Cast 02A inboard. Bottle 7 failed to close.
21/06/97	15:23	Cast 03A commenced. CTD profile only.
21/06/97	15:51	Cast 03A inboard
21/06/97	17:38	Cast 04A commenced. CTD profile only.
21/06/97	18:58	Cast 04A inboard. Bottle 7 failed to close. Spring adjusted. Cable drive adjusted on the winch with 1250m wire out.
21/06/97	20:49	Cast 05A commenced. CTD profile only.
21/06/97	22:02	Cast 05A inboard. Section 02T completed.
22/06/97	02:45	CTD Cast 06A commenced. Biogeochemical parameter sampling. Start of section O2S.
22/06/97	02:59	Cast 06A inboard.
22/06/97	04:38	CTD Cast 07A commenced. Biogeochemical parameter sampling.
22/06/97	04:55	Cast 07A inboard.
22/06/97	06:28	CTD Cast 08A commenced. Biogeochemical parameters plus water for production experiments.
22/06/97	06:48	Cast 08A inboard.
22/06/97	07:28	SBE19 light profile 9714L08A commenced.
22/06/97	07:31	Light profile completed.
22/06/97	07:35	IIM spectral radiometer profile (IIMPO 1) commenced.

22/06/97	07:50	Spectral radiometer profile completed.
22/06/97	08:22	CTD cast 08B commenced. Shallow cast for additional water for production experiments.
22/06/97	08:34	Cast 08B inboard.
22/06/97	08:59	SBE19 light profile 9714L08B commenced.
22/06/97	09:04	Light profile completed.
22/06/97	12:02	CTD cast 09A commenced. Biogeochemical parameter sampling.
22/06/97	12:26	Cast 09A inboard.
22/06/97	12:40	IIM spectral radiometer profile (IIMP02) commenced.
22/06/97	12:56	Spectral radiometer profile completed.
22/06/97	14:03	CTD cast 09B commenced. Water for IIM production experiments.
22/06/97	14:12	Cast 09B inboard.
22/06/97	16:39	CTD cast 10A commenced. Biogeochemical parameter sampling. Deep cast.
22/06/97	17:58	Cast 10A completed. 200m (position 9) bottle failed to close.
22/06/97	20:58	CTD cast 10B commenced. Biogeochemical parameter sampling. Shallow cast.
22/06/97	21:14	Cast 10B inboard.
23/06/97	03:59	CTD cast 12A commenced. Biogeochemical parameter sampling. Shallow cast.
23/06/97	04:14	Cast 12A inboard.
23/06/97	05:05	CTD cast 12B commenced. Biogeochemical parameter sampling. Deep cast.
23/06/97	06:20	Cast 12B inboard.
23/06/97	07:28	CTD cast 12C commenced. Production experiment water collection.
23/06/97	07:50	Cast 12C inboard.
23/06/97	07:58	SBE19 light profile 9417L12A commenced.
23/06/97	08:10	Light profile completed.
23/06/97	08:15	IIM spectral radiometer profile (IIMP03) commenced.
23/06/97	08:30	Spectral radiometer profile completed. Section O2S completed.
23/06/97	13:03	Station V 1. IIM production station between sections O2S and 02R. CTD cast V1A commenced. Production water plus some biogeochemical samples.
23/06/97	13:25	Cast V1 completed.
23/06/97	13:30	IIM spectral radiometer profile (IIMP04) commenced.
23/06/97	13:46	Spectral radiometer profile completed.
23/06/97	16:02	Starting section 02R. CTD cast 14A commenced. Biogeochemical samples plus production experiment water.
23/06/97	16:21	Cast 14A completed.
23/06/97	16:48	SBE19 light profile 94 17L14A commenced.
23/06/97	16:56	Light profile completed.
23/06/97	18:12	CTD cast 15A commenced. Profile only.
23/06/97	18:29	Cast 15A completed.
23/06/97	20:24	CTD cast 16A commenced. Profile only.
23/06/97	21:19	Cast 16A completed.
23/06/97	23:23	CTD cast 17A commenced. Profile only.
24/06/97	00:31	Cast 17A completed. Section 02R complete.
24/06/97	04:53	Starting section 024. CTD cast 18A commenced. Profile only.
24/06/97	04:59	Cast 18A completed.
24/06/97	06:17	Cast 19A commenced. VUB/ULB production water.
24/06/97	06:29	Cast 19A completed.
24/06/97	07:39	Cast 19B commenced. Biogeochemical sampling plus water for IIM production experiment.
24/06/97	07:58	Cast 19B completed.
24/06/97	08:02	SBE 19 light profile 94 17L19A commenced.
24/06/97	08:10	Light profile completed.
24/06/97	08:20	IIM spectral radiometer profile (IIMP05) commenced.
24/06/97	08:37	Spectral radiometer profile completed.
24/06/97	10:15	CTD cast 20A commenced. Profile only.
24/06/97	10:40	Cast 20A completed.
24/06/97	11:57	CTD cast 2 1A commenced. Profile only.
24/06/97	13:oo	Cast 2 1A completed.
24/06/97	13:15	CTD cast 21B commenced. Water collection for IIM production experiment.
24/06/97	13:28	Cast 21B inboard.
24/06/97	13:41	IIM spectral radiometer profile (IIMP06) commenced.

24/06/97	13:52	Spectral radiometer profile completed.
24/06/97	16:42	CTD cast 22A commenced. Profile only.
24/06/97	17:43	Cast 22A inboard. Section 02Q completed.
24/06/97	23:31	Start of section O2P (station 23 not occupied). CTD cast 24A commenced. Biogeochemical sampling.
24/06/97	23:45	Cast 24A completed.
25/06/97	04:01	CTD cast 25A commenced. Water for ULBNUB production experiments.
25/06/97	04:18	Cast 25A completed.
25/06/97	05:12	CTD cast 25B commenced. Biogeochemical sampling.
25/06/97	05:27	Cast 25B completed.
25/06/97	07:35	CTD cast 26A commenced. Biogeochemical sampling and water for IIM production experiments.
25/06/97	08:02	CTD cast 26A completed.
25/06/97	08:07	SBE 19 light profile 97 14L26A commenced.
25/06/97	08:20	Light profile completed.
25/06/97	08:30	IIM spectral radiometer profile (IIMP07) commenced.
25/06/97	08:41	Spectral radiometer profile completed.
25/06/97	11:07	CTD cast 27A commenced. Biogeochemical sampling. Deep cast.
25/06/97	12:37	Cast 27A completed.
25/06/97	12:55	IIM spectral radiometer profile (IIMP08) commenced.
25/06/97	13:12	Spectral radiometer profile completed.
25/06/97	13:41	CTD cast 27B commenced. Biogeochemical sampling (shallow cast) plus water collection for IIM production experiment.
25/06/97	13:57	Cast 27B completed.
25/06/97	14:40	SAP deployment SAP1 commenced. Pumps at 20m and 50m operating from 15:05 to 16:05.
25/06/97	14:57	SAP deployment complete.
25/06/97	16:30	SAP 1 recovery commenced.
25/06/97	16:45	SAP 1 recovery completed.
25/06/97	17:38	SAP deployment SAP2 commenced. Pumps at 100m and 200m operating from 18:05 to 19:40.
25/06/97	17:55	SAP deployment complete.
25/06/97	19:40	SAP2 recovery commenced.
25/06/97	19:55	SAP2 recovery completed.
26/06/97	01:08	CTD cast 29A commenced. Biogeochemical sampling deep cast.
26/06/97	02:30	Cast 29A completed.
26/06/97	03:24	CTD cast 29B commenced. Biogeochemical sampling shallow cast.
26/06/97	03:36	Cast 29B completed.
26/06/97	04:13	CTD cast 29C commenced. Water collection for ULB/VUB production experiments.
26/06/97	04:26	Cast 29C inboard. Section O2P completed.
26/06/97	09:33	Section 020 started. CTD cast 31A commenced. Biogeochemical sampling and water for IIM production experiment.
26/06/97	09:57	Cast 31A completed.
26/09/97	09:57	IIM spectral radiometer profile (IIMP09) commenced.
26/06/97	10:08	Spectral radiometer profile completed.
26/06/97	10:12	SBE19 light profile commenced.
26/06/97	10:25	Light profile completed.
26/06/97	12:13	CTD cast 32A commenced. Profile only.
26/06/97	12:57	Cast 32A inboard.
26/06/97	13:53	CTD cast 33A commenced. Profile plus water for IIM production experiment.
26/06/97	14:56	Cast 33A completed.
26/06/97	14:57	IIM spectral radiometer profile (IIMP10) commenced.
26/06/97	15:14	Spectral radiometer profile completed.
26/06/97	16:52	CTD cast 34A commenced. Profile only.
26/06/97	17:50	Cast 34A inboard.
26/06/97	19:48	CTD cast 35A commenced.
26/06/97	20:45	Cast 34A inboard. Section 020 completed.
27/06/97	02:41	Section 02N started. CTD cast 36A commenced. Profile only.
27/06/97	02:47	Cast 36A completed.

27/06/97	03:39	CTD cast 37A commenced. Biogeochemical sampling.
27/06/97	03:56	Cast 37A inboard.
27/06/97	05:02	CTD cast 37B commenced. Water for VUBAJLB production experiments.
27/06/97	05:16	Cast 37B completed.
27/06/97	07:00	SAP deployment (SAP3). Pumps at 20m and 40m operating from 07:22 to 07:58. 20m SAP failed to pump. 40m filter burst: no sample recovery possible.
27/06/97	08:20	SAP3 recovery.
27/06/97	08:45	CTD cast 37C started. Water collection for IIM production cast.
27/06/97	08:56	Cast 37C completed.
27/06/97	08:57	IIM spectral radiometer profile (IIMP11) commenced.
27/06/97	09:10	Spectral radiometer profile completed.
27/06/97	09:13	SBE19 light profile 97 14L37A commenced.
27/06/97	09:21	Light profile completed.
27/06/97	09:45	SAP deployment (SAP4). Pumps at 20m and 80m operating from 10: 15 to 10:51.
27/06/97	11:12	SAP recovery.
27/06/97	13:10	CTD cast 38A commenced. Biogeochemical sampling plus water collection for IIM production experiment.
27/06/97	13:31	Cast 38A completed.
27/06/97	13:35	IIM spectral radiometer profile (IIMP 12) commenced.
27/06/97	13:52	Spectral radiometer profile completed.
27/06/97	13:55	SBE 19 light profile 97 14L3 8A commenced.
27/06/97	14:11	Light profile completed.
27/06/97	14:14	SBE 19 light profile 97 14L3 8B commenced.
27/06/97	14:24	Light profile completed.
27/06/97	17:09	CTD cast 39A commenced. Biogeochemical sampling.
27/06/97	18:17	Cast 39A completed.
27/06/97	21:35	Stand-alone pump deployment SAP5 commenced on station O2N40. Pumps at 700, 1000 and 1500m operating from 23:30 to 01:30 on the 28th.
27/06/97	23:03	SAP deployment completed.
28/06/97	01:40	SAP recovery commenced. Completed at 02:30.1000m SAP had pumping time curtailed due to disconnection of the tube connecting the filter head and pump body.
28/06/97	02:59	CTD cast 40A commenced. Biogeochemical sampling deep cast.
28/06/97	03:57	Cast 40A inboard.
28/06/97	05:05	CTD cast 40B commenced. Water collection for VUB/ULB production experiments.
28/06/97	05:21	Cast 40A completed.
28/06/97	07:20	SAP deployment SAP6. Pumps at 100, 200 and 400m operating from 08:05 to 09:35.
28/06/97	09:47	SAP recovery. 100 and 400m SAPs didn't seem to have pumped. 200m SAP filter torn.
28/06/97	11:26	CTD cast 40C commenced. Biogeochemical sampling shallow cast plus 1 bottle (50m) for IIM PvI time series.
28/06/97	11:40	Cast 40C completed.
28/06/97	11:44	SBE 19 light profile commenced.
28/06/97	12:02	Light profile completed.
28/06/97	13:44	CTD cast 40D commenced. Water for IIM production experiment.
28/06/97	13:55	Cast 40D completed.
28/06/97	14:04	IIM spectral radiometer profile (IIMP 13) commenced.
28/06/97	14:18	Spectral radiometer profile completed.
28/06/97	15:34	SAP deployment SAP7. Pumps at 20, 60, and 1 00m operating from 16:02 to 17:02. Deployment completed at 15:55.
28/06/97	17:30	SAP recovery.
28/06/97	20:12	CTD cast 41A commenced. Profile only with full bottle set for salinity calibration.
28/06/97	21:18	Cast 41A inboard.
29/06/97	00:30	SAP deployment SAP8 commenced. Pumps at 20m and 100m operating from 00:47 to 01:47. Deployment completed at 00:45
29/06/97	02:00	SAP recovery. Completed at 02: 19.

29/06/97	02:47	CTD cast 42A commenced. Biogeochemical sampling deep cast.
29/06/97	03:44	Cast 42A completed.
29/06/97	04:33	CTD cast 42B commenced. Water collection for VUB/ULB production experiments.
29/06/97	04:44	Cast 42B inboard.
29/06/97	06:30	SAP deployment SAP9. Pumps at 200m and 60m operating from 07: 10 to 08:50.
29/06/97	09:00	SAP recovery.
29/06/97	09:27	CTD cast 42C commenced. Biogeochemical sampling shallow cast plus water collection for IIM production experiment.
29/06/97	09:44	Cast 42C completed.
29/06/97	09:47	IIM spectral radiometer profile (IIMP 14) commenced.
29/06/97	09:58	Spectral radiometer profile completed.
29/06/97	10:02	SBE 19 light profile commenced.
29/06/97	10:15	SBE19 inboard. Data logger not switched on.
29/06/97	10:25	SBE19 light profile 97 14L42A commenced.
29/06/96	10:35	SBE 19 inboard.
29/06/97	11:48	CTD cast 42D commenced. Water collection for IIM production time series experiment.
29/06/97	12:55	SBE19 light profile 97 14L42B commenced.
29/06/97	13:12	SBE 19 inboard.
29/06/97	13:15	SAP deployment SAP1 0 commenced. Pumps at 400m and 800m operating from 14:25 to 16:25.
29/06/97	16:35	SAP recovery: completed 17:08. Filter on 800m SAP displaced: no sample.
29/06/97	18:20	SAP deployment SAP1 1 commenced. Pumps at 1000m and 1500m operating from 19:40 to 22: 10.
29/06/97	22:20	SAP recovery started. Completed 23:03.
30/06/97	07:05	Non-toxic pump turned off.
30/06/97	07:33	Docked at Vigo.

Data sets (see Annexes)

BMM: Underway navigation, bathymetry, thermosalinograph, fluorometer and met package. Underway discrete salinity and chlorophyll. CTD profile data. Water bottle salinities. SBE19 light profiles.

GEOMAR: CTD water bottle $\delta^{18}O$ and $\delta^{13}C$ (on TCO_2).

IIM: Spectral radiometer profiles. PvI incubation data with chlorophyll. Phytoplankton species counts and taxonomy. Spectrophotometric absorption and fluorometric spectra experiment results. Nutrients on filtered chilled and frozen samples. Epifluorescence microscopy for PNAN and HNAN.

PML: Nutrients on chilled and frozen samples. HPLC pigments on intercalibration samples (all 3 of them).

ULB: Centrifuged particulate samples: trace metals and carbon. SAP samples: particulate metals. ^{14}C and ^{32}P constant light uptake and PvI (^{32}P). ^{14}C constant light uptake and PvI. Nutrients ($NO_3/NO_2, PO_4$, Si), fluorometric chlorophyll and POC/PON.

ULg: Continuous underway pCO_2, pH and dissolved oxygen. Discrete underway dissolved oxygen and TAlk. CTD water bottle oxygen, pH and TAlk.

VUB: Continuous underway NO_3/NO_2 and Si (if we ever find any surface nutrients). CTD water bottle NH_4, urea, NO_3/NO_2 and Si. POC/PN, dissolved organic nitrogen on bottles from production stations. ^{15}N uptake experiments (NO_3, NH_4 and urea). $^{15}NH_4$ isotope dilution experiments. $\partial^{15}N$ on centrifuged samples.

5. BG9714 leg D: Vigo (02/07) to Zeebrugge (07/07/1997)

Objectives: Biogeochemical survey of the area 47°-48°N, 7°-7.5°W in the vicinity of La Chapelle Bank.

Principal investigators: BMM, ULB, Ulg and VUB

Time schedule (GMT):

02/07/97	08:00	Sailed from Vigo
02/07/97	08:30	Non-toxic supply switched on
03/07/97	12:10	Cast 43A commenced. Biogeochemical parameter sampling
03/07/97	14:22	Cast 43B commenced. Biogeochemical parameter sampling. Start of section O2LC
03/07/97	15:37	Cast 44A commenced. CTD profile only
03/07/97	17:00	Cast 45A commenced. CTD profile only
03/07/97	17:54	Cast 46A commenced. CTD profile only
03/07/97	19:10	Cast 47A commenced Biogeochemical parameter sampling
03/07/97	20:50	SAP deployment. SAP 12 commenced. Pumps at 60m and 80m operating from 21:32 to 22: 15. Deployment completed at 22:30
03/07/97	23:43	SAP deployment. SAP 13 commenced. Pumps at 20m and 40m operating from 04/07/97 00:25 to 0 1: 11. Deployment completed at 0 1:30
04/07/97	03:57	Cast 47B commenced. Water collection for ULBNUB production experiments
04/07/97	06:06	Cast 47C commenced. Biogeochemical parameter sampling
04/07/97	06:25	SAP deployment. SAP 14 commenced. Pumps at 100m and 200m operating from 07: 13 to 08:47. Deployment completed at 09: 10
04/07/97	10:04	Cast 47D commenced. Biogeochemical parameter sampling
04/07/97	10:20	SAP deployment. SAP 15 commenced. Pumps at 400m and 600m operating from 11:20 to 13:20. Deployment completed at 13:50
04/07/97	14:31	Cast 47E commenced. Biogeochemical parameter sampling
04/07/97	14:56	SBE 19 light profile 97 14L47A commenced
04/07/97	15:10	Light profile completed
04/07/97	18:00	Cast 47F commenced. Biogeochemical parameter sampling
04/07/97	18:30	SAP deployment. SAP 16 commenced. Pumps at 800m and 1200m operating from 20:00 to 22:O0. Deployment completed at 23:30
05/07/97	00: 18	Cast 48A commenced. CTD profile only
05/07/97	01:25	Cast 49A commenced. CTD profile only
05/07/97	02:22	Cast 50A commenced. CTD profile only
05/07/97	04:59	Cast 5 1A commenced. Biogeochemical parameter sampling. Last CTD Cast OMEX Belgica 97 14!!! End of section O2LC
05/07/97	05:30	Sailing to Zeebrugge (underway measurements) via 330 (C. Lancelot)
07/07/97	06:00	Non-toxic pump turned off
07/07/97	8:00	Docked at Zeebrugge

Data sets (see Annexes)

BMM: Underway navigation, bathymetry, thermosalinograph, fluorometer and met package. Underway discrete salinity and chlorophyll. CTD profile data. Water bottle salinities. SBE19 light profiles.

ULB: Centrifuged particulate samples: trace metals and carbon. SAP samples: particulate metals. ^{14}C and ^{32}P constant light uptake and PvI (^{32}P). ^{14}C constant light uptake and PvI. Nutrients ($NO_3/NO_2, PO_4$, Si), fluorometric chlorophyll and POC/PON.

ULg: Continuous underway pCO_2, pH and dissolved oxygen. Discrete underway dissolved oxygen and TAlk. CTD water bottle oxygen, pH and TAlk.

VUB: CTD water bottle NH_4, urea, NO_3/NO_2 and Si. POC/PN, dissolved organic nitrogen on bottles from production stations. ^{15}N uptake experiments (NO_3, NH_4 and urea). $^{15}NH_4$ isotope dilution experiments. $\partial^{15}N$ on centrifuged samples.

6. **Specific remarks**

- The help from the officers and the crew was very much appreciated by all scientists during the work at sea and during the setup of the equipment.

- Putting the equipment afloat required at least two crew men, who have been always available.

- The number of CTD casts performed during the OMEX sections required three marine engineers. The scientists would like to thank Roy Lowry of BODC for supplying members of BMM, as well as for writing the log-book of this cruise.

- The current research program does not fit within the days allocated to this kind of cruise. To work properly (and to allow the scientists some decent sleep periods), one or two additional days would be welcome.

M. Elskens

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971400A		497.2	35.564	10.793	27.265	2.17	215.1	502.0	
9714IC1A	O2IC1	590.9	35.764	11.241	27.341	2.39	198.2	596.8	74.5
9714IC1A	O2IC1	400.1	35.655	11.581	27.188	2.39	212.4	403.9	80.4
9714IC1A	O2IC1	199.9	35.779	12.755	27.052	2.42	217.8	201.6	84.5
9714IC1A	O2IC1	150.6	35.827	13.125	27.013	2.39	219.5	151.9	85.8
9714IC1A	O2IC1	99.7	35.904	13.933	26.904	2.39	225.1	100.5	89.5
9714IC1A	O2IC1	80.3	35.912	14.238	26.844	2.39	228.2	81.0	91.3
9714IC1A	O2IC1	60.6	35.930	15.379	26.607	2.42	236.3	61.1	96.8
9714IC1A	O2IC1	38.0	35.912	17.036	26.207	2.44	245.4	38.4	103.8
9714IC1A	O2IC1	28.5	35.908	17.576	26.073	2.44	244.4	28.8	104.4
9714IC1A	O2IC1	19.7	35.453	18.689	25.448	2.56	234.9	19.8	102.2
9714IC1A	O2IC1	10.8	35.320	18.836	25.308	2.56	232.8	10.9	101.4
9714IC1A	O2IC1	4.8	35.321	18.834	25.309	2.56	232.5	4.8	101.3
971401A	O2T01	90.5	35.821	13.057	27.020	3.39	212.0	91.3	82.8
971401A	O2T01	51.3	35.928	14.411	26.818	2.78	197.2	51.7	79.2
971402A	O2T02	141.6	35.914	13.705	26.961	3.27	211.0	142.8	83.6
971402A	O2T02	121.8	35.946	13.975	26.928	2.74	212.9	122.9	84.8
971402A	O2T02	100.0	35.987	14.254	26.900	2.71	211.2	100.9	84.6
971402A	O2T02	79.9	35.963	14.404	26.847	2.71	221.8	80.6	89.1
971402A	O2T02	61.2	35.937	15.602	26.562	2.69	239.8	61.7	98.6
971402A	O2T02	41.4	35.815	17.680	25.978	2.78	242.4	41.7	103.7
971402A	O2T02	21.1	35.617	18.401	25.646	2.93	237.8	21.2	103.0
971402A	O2T02	11.0	35.462	18.580	25.481	3.03	235.6	11.1	102.3
971403A	O2T03	247.7	35.740	12.433	27.086	2.69	219.0	250.0	84.4
971403A	O2T03	80.6	35.942	14.148	26.886	2.61	225.2	81.3	90.0
971404A	O2T04	1414.6	35.572	7.428	27.830	2.54	209.2	1431.4	72.2
971404A	O2T04	1000.1	36.199	11.303	27.679	2.56	177.5	1011.0	67.0
971405A	O2T05	1422.4	35.564	7.257	27.848	2.54	210.6	1439.3	72.4
971405A	O2T05	1000.3	36.030	10.675	27.660	2.54	178.8	1011.2	66.5
971405A	O2T05	849.6	36.147	11.600	27.579	2.59	178.3	858.5	67.7
971405A	O2T05	400.6	35.615	11.445	27.182	2.54	213.7	404.3	80.6
971406A	O2S06	85.6	35.801	12.893	27.038	3.44	211.0	86.4	82.1
971406A	O2S06	79.5	35.801	12.898	27.037	3.32	211.0	80.1	82.1
971406A	O2S06	59.2	35.880	13.497	26.975	2.91	206.7	59.7	81.5
971406A	O2S06	39.7	35.942	14.535	26.802	2.76	192.2	40.0	77.4
971406A	O2S06	20.0	35.815	17.006	26.140	2.71	222.5	20.2	94.0
971406A	O2S06	9.6	35.515	18.114	25.639	2.71	235.1	9.7	101.2
971407A	O2S07	119.6	35.762	12.597	27.067	3.08	214.7	120.6	83.0
971407A	O2S07	99.5	35.841	13.177	27.011	2.88	208.8	100.4	81.7
971407A	O2S07	78.6	35.917	14.494	26.793	2.69	203.9	79.3	82.0
971407A	O2S07	60.4	35.904	15.925	26.463	2.61	231.6	60.9	95.9
971407A	O2S07	38.8	35.884	17.151	26.158	2.64	235.8	39.2	99.9
971407A	O2S07	19.4	35.655	18.238	25.715	2.69	232.5	19.5	100.4
971407A	O2S07	9.6	35.500	18.554	25.517	2.69	232.0	9.7	100.7
971408A	O2S08	140.9	35.809	12.970	27.030	3.00	215.7	142.2	84.1
971408A	O2S08	100.4	35.948	14.246	26.871	2.71	203.4	101.3	81.5
971408A	O2S08	81.3	35.920	15.364	26.604	2.66	212.4	82.0	87.0
971408A	O2S08	59.5	35.893	16.352	26.355	2.69	217.0	60.0	90.6
971408A	O2S08	41.7	35.853	17.580	26.030	2.71	228.3	42.0	97.5
971408A	O2S08	20.5	35.692	18.163	25.763	2.76	230.3	20.6	99.4
971408A	O2S08	9.5	35.430	18.561	25.462	2.76	231.1	9.6	100.3
971408B	O2S08	69.0	35.913	15.730	26.515	2.71	211.7	69.6	87.3
971408B	O2S08	61.3	35.891	16.359	26.352	2.74	218.0	61.9	91.0
971408B	O2S08	40.0	35.818	17.795	25.951	2.74	226.1	40.3	96.9
971408B	O2S08	47.9	35.801	16.988	26.129	2.72	221.9	48.3	93.7

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971409A	O2S09	211.5	35.781	12.774	27.050	2.93	215.3	213.4	83.6
971409A	O2S09	200.0	35.786	12.845	27.039	2.88	215.5	201.8	83.8
971409A	O2S09	149.8	35.897	13.598	26.970	2.71	213.1	151.1	84.2
971409A	O2S09	99.8	35.957	13.991	26.932	2.66	209.8	100.7	83.6
971409A	O2S09	79.6	35.970	14.144	26.909	2.69	210.2	80.3	84.0
971409A	O2S09	59.0	35.926	15.599	26.554	2.74	228.8	59.6	94.1
971409A	O2S09	40.2	35.914	16.841	26.256	2.76	236.1	40.6	99.5
971409A	O2S09	20.3	35.715	18.022	25.816	2.83	238.3	20.5	102.6
971409A	O2S09	9.1	35.505	18.524	25.528	3.03	232.9	9.2	101.0
971409B	O2S09	59.0	35.968	15.049	26.710	2.83	232.6	59.5	94.7
971409B	O2S09	39.1	35.915	16.542	26.327	2.83	240.7	39.4	100.8
971409B	O2S09	19.8	35.484	18.447	25.533	2.91	234.4	20.0	101.5
971409B	O2S09	9.2	35.482	18.506	25.516	3.00	233.4	9.3	101.2
971410A	O2S10	1435.6	35.671	7.828	27.850	2.54	204.7	1452.7	71.3
971410A	O2S10	1250.0	35.848	9.158	27.781	2.54	190.1	1264.4	68.3
971410A	O2S10	1099.3	36.108	10.651	27.728	2.64	178.3	1111.5	66.3
971410A	O2S10	999.4	36.168	11.130	27.686	2.64	176.7	1010.3	66.5
971410A	O2S10	897.1	36.147	11.330	27.630	2.56	176.8	906.7	66.7
971410A	O2S10	799.3	36.091	11.522	27.549	2.56	178.7	807.6	67.7
971410A	O2S10	600.4	35.753	11.108	27.357	2.56	190.2	606.3	71.3
971410A	O2S10	399.3	35.650	11.600	27.180	2.61	210.7	403.1	79.7
971410A	O2S10	199.4	35.785	12.743	27.058	2.64	211.5	201.2	82.1
971410A	O2S10	149.8	35.852	13.302	26.996	2.59	216.8	151.1	85.1
971410A	O2S10	124.6	35.862	13.412	26.981	2.61	218.4	125.7	85.9
971410A	O2S10	100.7	35.889	13.715	26.938	2.61	220.0	101.6	87.1
971410B	O2S10	200.9	35.778	12.685	27.065	2.61	212.5	202.7	82.3
971410B	O2S10	99.4	35.919	14.184	26.862	2.56	224.2	100.3	89.6
971410B	O2S10	79.9	35.910	15.228	26.626	2.59	241.8	80.6	98.7
971410B	O2S10	59.1	35.890	16.550	26.306	2.61	246.6	59.6	103.3
971410B	O2S10	40.6	35.888	17.824	25.997	2.66	240.1	40.9	103.0
971410B	O2S10	19.2	35.822	18.360	25.813	2.69	233.5	19.3	101.2
971410B	O2S10	10.1	35.762	18.701	25.681	2.71	232.2	10.1	101.2
971412A	O2S12	59.5	35.907	14.622	26.756	2.64	247.5	60.0	99.8
971412A	O2S12	9.6	35.899	18.155	25.923	2.64	234.2	9.7	101.1
971412B	O2S12	1432.5	35.341	6.126	27.824	2.59	220.2	1449.6	73.6
971412B	O2S12	1248.7	35.793	8.769	27.800	2.47	193.6	1263.0	69.0
971412B	O2S12	1099.2	35.946	9.887	27.734	2.54	182.6	1111.4	66.8
971412B	O2S12	999.8	35.927	10.212	27.661	2.59	179.7	1010.6	66.1
971412B	O2S12	899.1	35.870	10.325	27.595	2.59	179.3	908.7	66.1
971412B	O2S12	799.7	35.797	10.465	27.511	2.56	181.5	808.0	67.1
971412B	O2S12	598.6	35.627	10.858	27.303	2.56	198.4	604.5	73.9
971412B	O2S12	398.8	35.595	11.388	27.177	2.52	215.0	402.5	81.0
971412B	O2S12	198.3	35.719	12.404	27.075	2.56	220.3	200.0	84.8
971412B	O2S12	149.2	35.788	13.009	27.006	2.61	227.0	150.5	88.6
971412B	O2S12	123.6	35.832	13.391	26.961	2.61	230.3	124.7	90.6
971412B	O2S12	100.7	35.871	13.675	26.932	2.61	229.3	101.6	90.7
971412C	O2S12	99.6	35.859	13.593	26.939	2.66	231.4	100.5	91.4
971412C	O2S12	80.5	35.900	14.161	26.851	2.69	238.0	81.2	95.1
971412C	O2S12	69.1	35.901	14.634	26.750	2.66	247.6	69.6	99.9
971412C	O2S12	59.8	35.937	15.171	26.659	2.69	256.5	60.3	104.6
971412C	O2S12	40.2	35.886	17.269	26.131	2.61	242.7	40.6	103.1
971412C	O2S12	20.6	35.897	18.144	25.924	2.61	232.8	20.8	100.5
971412C	O2S12	9.9	35.900	18.162	25.922	2.74	232.2	10.0	100.3
9714V1A	V1	100.7	35.907	13.850	26.923	2.56	220.5	101.6	87.6
9714V1A	V1	79.6	35.907	14.089	26.872	2.61	224.2	80.3	89.5

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
9714V1A	V1	60.1	35.909	14.952	26.686	2.61	232.4	60.7	94.4
9714V1A	V1	50.3	35.910	15.597	26.542	2.64	240.1	50.8	98.7
9714V1A	V1	39.3	35.904	16.495	26.330	2.61	245.0	39.7	102.5
9714V1A	V1	20.1	35.799	18.222	25.830	2.69	238.0	20.3	102.8
9714V1A	V1	9.6	35.470	18.753	25.444	2.69	232.5	9.7	101.3
971414A	O2R14	145.4	35.818	13.048	27.021	2.71	216.7	146.7	84.6
971414A	O2R14	99.3	35.904	13.975	26.895	2.59	224.3	100.2	89.3
971414A	O2R14	80.0	35.923	14.560	26.783	2.61	228.5	80.7	92.1
971414A	O2R14	59.8	35.911	16.258	26.391	2.61	229.5	60.3	95.6
971414A	O2R14	39.1	35.661	18.108	25.753	2.69	236.8	39.4	102.0
971414A	O2R14	19.6	35.404	18.793	25.384	2.71	233.1	19.7	101.5
971414A	O2R14	9.6	35.408	19.015	25.330	2.76	232.2	9.7	101.6
971415A	O2R15	259.4	35.692	12.038	27.126	2.66	213.0	261.8	81.4
971415A	O2R15	199.5	35.762	12.621	27.065	2.61	215.2	201.2	83.2*
971415A	O2R15	150.2	35.845	13.266	26.998	2.61	217.6	151.5	85.3
971415A	O2R15	99.4	35.889	13.776	26.925	2.64	223.2	100.2	88.5
971415A	O2R15	79.4	35.901	14.172	26.850	2.61	225.8	80.1	90.3
971415A	O2R15	59.8	35.910	14.521	26.781	2.64	227.5	60.3	91.6
971415A	O2R15	38.7	35.907	15.487	26.564	2.64	237.8	39.0	97.6
971416A	O2R16	1418.0	35.744	8.299	27.837	2.61	199.0	1434.8	70.1
971416A	O2R16	1200.1	36.150	10.626	27.767	2.61	179.3	1213.7	66.7
971416A	O2R16	900.0	36.173	11.520	27.616	3.17	176.2	909.6	66.8
971416A	O2R16	400.5	35.635	11.443	27.198	2.61	208.2	404.3	78.5
971416B	O2R17	1371.2	35.799	8.633	27.828	2.54	195.5	1387.4	69.4
971416B	O2R17	999.7	36.190	11.353	27.662	2.61	175.2	1010.5	66.2
971416B	O2R17	400.3	35.605	11.459	27.171	2.61	215.4	404.0	81.3
971416B	O2R17	200.0	35.778	12.861	27.030	2.61	223.5	201.7	86.9
971417A	O2R17	1371.2	35.799	8.633	27.828	2.54	195.5	1387.4	69.4
971417A	O2R17	999.7	36.190	11.353	27.662	2.61	175.2	1010.5	66.2
971417A	O2R17	400.3	35.605	11.459	27.171	2.61	215.4	404.0	81.3
971417A	O2R17	200.0	35.778	12.861	27.030	2.61	223.5	201.7	86.9
941718A	O2Q18	70.5	35.858	13.398	26.979	3.10	202.5	71.1	79.7
941718A	O2Q18	39.5	35.886	14.695	26.724	2.74	201.7	39.8	81.5
971419A	O2Q19	59.6	35.883	14.299	26.808	2.69	203.3	60.1	81.5
971419A	O2Q19	9.0	35.586	18.019	25.717	2.81	234.0	9.1	100.6
971419B	O2Q19	129.8	35.808	12.914	27.040	3.30	208.0	131.0	81.0
971419B	O2Q19	100.0	35.874	13.446	26.982	3.20	206.4	100.9	81.3
971419B	O2Q19	79.1	35.900	13.796	26.928	2.76	205.1	79.8	81.4
971419B	O2Q19	60.0	35.877	14.268	26.810	2.86	201.0	60.5	80.5
971419B	O2Q19	38.8	35.792	16.490	26.245	2.81	215.9	39.1	90.3
971419B	O2Q19	59.9	35.882	14.262	26.815	2.91	201.0	60.4	80.5
971419B	O2Q19	45.2	35.847	15.678	26.475	2.86	204.8	45.6	84.3
971419B	O2Q19	34.6	35.704	16.952	26.067	2.83	225.5	34.9	95.1
971419B	O2Q19	18.9	35.609	17.983	25.743	2.88	234.9	19.1	100.9
971419B	O2Q19	9.5	35.555	18.110	25.671	2.86	234.3	9.6	100.9
971420A	O2Q20	545.0	35.857	11.285	27.404	2.66	188.6	550.3	71.0
971420A	O2Q20	149.4	35.801	12.989	27.021	2.66	218.9	150.7	85.4
971421A	O2Q21	1428.0	35.685	7.896	27.851	2.61	202.5	1445.0	70.7
971421A	O2Q21	499.4	35.681	11.201	27.281	2.64	198.8	504.2	74.6
971421B	O2Q21	80.5	35.904	14.012	26.886	2.76	227.2	81.1	90.5
971421B	O2Q21	70.1	35.922	14.448	26.806	2.71	226.5	70.7	91.1
971421B	O2Q21	49.7	35.905	15.632	26.530	2.69	238.6	50.1	98.2
971421B	O2Q21	29.6	35.830	17.699	25.983	2.71	240.2	29.9	102.8
971421B	O2Q21	19.4	35.666	18.288	25.711	2.71	235.5	19.6	101.8
971421B	O2Q21	9.8	35.618	18.462	25.631	2.74	232.8	9.9	100.9

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971422A	O2Q22	1422.4	35.468	6.818	27.833	2.54	212.2	1439.3	72.1
971422A	O2Q22	999.2	36.092	10.874	27.673	2.61	176.2	1010.1	65.9
971422A	O2Q22	498.5	35.581	11.024	27.235	2.61	207.4	503.3	77.5
971422A	O2Q22	199.4	35.793	12.749	27.063	2.59	208.6	201.1	80.9
971424A	O2P24	89.8	35.760	12.637	27.057	3.17	208.6	90.6	80.7
971424A	O2P24	79.6	35.789	12.892	27.028	3.22	206.2	80.3	80.2
971424A	O2P24	59.7	35.823	13.324	26.967	2.98	202.0	60.2	79.3
971424A	O2P24	39.5	35.859	14.278	26.794	2.91	198.3	39.8	79.4
971424A	O2P24	19.7	35.817	16.198	26.331	2.86	213.0	19.8	88.6
971424A	O2P24	9.9	35.601	17.823	25.777	2.88	239.2	9.9	102.5
971425A	O2P25	59.3	35.901	14.600	26.757	2.74	231.8	59.8	93.5
971425A	O2P25	9.2	35.587	18.243	25.662	2.83	233.2	9.3	100.7
971425B	O2P25	130.5	35.852	13.314	26.993	3.00	214.5	131.6	84.2
971425B	O2P25	99.7	35.912	14.135	26.866	2.69	222.5	100.5	88.9
971425B	O2P25	79.5	35.903	15.074	26.654	2.69	230.0	80.2	93.6
971425B	O2P25	59.5	35.867	16.371	26.331	2.78	231.6	60.0	96.7
971425B	O2P25	39.5	35.763	17.438	25.997	2.81	236.6	39.9	100.7
971425B	O2P25	19.4	35.601	18.225	25.678	2.83	233.6	19.6	100.8
971425B	O2P25	9.6	35.599	18.227	25.675	2.91	233.2	9.7	100.6
971426A	O2P26	360.6	35.657	11.492	27.205	2.76	209.0	363.9	78.9
971426A	O2P26	199.6	35.776	12.762	27.048	2.59	216.7	201.4	84.1
971426A	O2P26	149.6	35.815	13.226	26.983	2.59	225.9	150.9	88.5
971426A	O2P26	100.1	35.867	13.724	26.919	2.61	225.2	100.9	89.2
971426A	O2P26	79.7	35.912	14.451	26.798	2.69	223.4	80.4	89.8
971426A	O2P26	59.5	35.905	15.500	26.560	2.71	233.9	60.0	96.0
971426A	O2P26	39.8	35.759	17.570	25.961	2.69	237.1	40.1	101.2
971426A	O2P26	19.1	35.620	18.177	25.704	2.78	231.6	19.3	99.9
971426A	O2P26	10.1	35.621	18.178	25.704	2.78	231.7	10.2	99.9
971427A	O2P27	1420.7	35.716	8.074	27.849	2.56	201.3	1437.6	70.6
971427A	O2P27	1249.5	36.041	10.111	27.774	2.59	181.9	1263.8	66.8
971427A	O2P27	1100.4	36.136	10.937	27.699	2.61	175.6	1112.6	65.7
971427A	O2P27	1000.3	36.159	11.264	27.655	2.61	175.8	1011.2	66.3
971427A	O2P27	900.1	36.126	11.416	27.598	2.64	176.4	909.7	66.7
971427A	O2P27	799.9	36.059	11.428	27.541	2.64	177.8	808.2	67.2
971427A	O2P27	599.3	35.805	11.153	27.389	2.64	185.4	605.2	69.6
971427A	O2P27	400.0	35.583	11.162	27.209	2.59	209.6	403.8	78.6
971427A	O2P27	199.7	35.754	12.575	27.068	2.56	215.2	201.5	83.2
971427A	O2P27	149.6	35.918	13.712	26.962	2.59	219.2	150.9	86.8
971427A	O2P27	124.9	35.961	14.026	26.929	2.64	222.0	126.0	88.5
971427A	O2P27	100.4	35.985	14.214	26.906	2.69	223.9	101.2	89.6
971427B	O2P27	99.5	35.995	14.305	26.895	2.71	225.2	100.4	90.3
971427B	O2P27	80.0	36.015	14.640	26.836	2.74	231.2	80.6	93.3
971427B	O2P27	69.9	36.013	14.959	26.765	2.71	242.9	70.5	98.7
971427B	O2P27	59.5	35.977	15.725	26.565	2.69	248.7	60.1	102.6
971427B	O2P27	49.0	35.930	16.550	26.337	2.64	244.7	49.4	102.5
971427B	O2P27	40.3	35.798	17.456	26.019	2.74	239.4	40.6	102.0
971427B	O2P27	20.2	35.691	18.273	25.734	2.71	233.0	20.4	100.7
971427B	O2P27	10.2	35.692	18.287	25.731	2.78	232.5	10.3	100.5
971429A	O2P29	1416.5	35.817	8.689	27.835	2.64	194.6	1433.4	69.2
971429A	O2P29	1248.6	36.075	10.182	27.787	2.56	182.2	1263.0	67.1
971429A	O2P29	1100.6	36.088	10.669	27.709	2.59	176.6	1112.8	65.7
971429A	O2P29	1000.3	36.046	10.816	27.647	2.61	176.1	1011.2	65.7
971429A	O2P29	899.0	36.027	11.094	27.580	2.64	176.0	908.5	66.1
971429A	O2P29	799.1	35.966	11.163	27.518	2.56	177.7	807.4	66.8
971429A	O2P29	599.7	35.733	11.054	27.351	2.59	189.5	605.7	70.9

CTD BOTTLE

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971429A	O2P29	399.4	35.612	11.401	27.188	2.59	209.0	403.1	78.7
971429A	O2P29	198.9	35.833	13.150	27.014	2.61	216.9	200.6	84.9
971429A	O2P29	149.6	35.900	13.684	26.954	2.61	223.1	150.9	88.3
971429A	O2P29	124.6	35.942	13.968	26.926	2.66	223.7	125.6	89.1
971429A	O2P29	99.0	35.949	14.130	26.896	2.69	226.2	99.8	90.4
971429B	O2P29	100.7	35.943	14.075	26.904	2.74	228.2	101.6	91.1
971429B	O2P29	79.1	35.968	14.343	26.865	2.74	229.8	79.7	92.2
971429B	O2P29	58.7	35.966	15.498	26.608	2.69	248.0	59.2	101.8
971429B	O2P29	38.7	35.896	17.580	26.064	2.66	236.9	39.0	101.2
971429B	O2P29	20.5	35.862	17.974	25.940	2.69	231.2	20.6	99.5
971429B	O2P29	9.7	35.862	17.968	25.941	2.71	232.1	9.8	99.9
971429C	O2P29	58.9	35.974	14.812	26.766	2.76	239.3	59.5	96.9
971429C	O2P29	9.7	35.861	17.968	25.940	2.71	232.4	9.8	100.0
971431A	O2O31	134.8	35.673	11.942	27.127	2.98	216.8	135.9	82.6
971431A	O2O31	78.9	35.898	13.842	26.917	2.66	215.4	79.6	85.5
971431A	O2O31	60.8	35.908	14.166	26.856	2.69	218.9	61.3	87.5
971431A	O2O31	41.0	35.831	15.124	26.586	2.76	216.9	41.4	88.3
971431A	O2O31	19.1	35.738	16.367	26.231	2.86	220.4	19.3	91.9
971431A	O2O31	9.0	35.714	17.134	26.031	2.93	232.4	9.1	98.3
971432A	O2O32	799.4	36.063	11.318	27.565	2.64	179.1	807.7	67.6
971432A	O2O32	400.5	35.621	11.191	27.234	2.61	205.5	404.2	77.1
971433A	O2O33	99.6	35.868	14.068	26.847	2.66	222.2	100.5	88.6
971433A	O2O33	79.5	35.869	14.759	26.698	2.66	229.5	80.2	92.8
971433A	O2O33	59.6	35.855	15.772	26.460	2.69	239.8	60.1	98.9
971433A	O2O33	38.9	35.824	17.219	26.096	2.66	240.4	39.3	101.9
971433A	O2O33	19.6	35.824	17.590	26.005	2.66	234.8	19.8	100.3
971433A	O2O33	10.2	35.825	17.649	25.991	2.69	234.5	10.2	100.3
971434A	O2O34	1422.2	35.603	7.574	27.834	2.61	204.4	1439.1	70.8
971434A	O2O34	998.2	36.131	11.063	27.670	2.64	175.8	1009.0	66.0
971434A	O2O34	399.9	35.623	11.392	27.198	2.66	210.4	403.7	79.3
971434A	O2O34	199.5	35.743	12.471	27.080	2.66	212.7	201.3	82.0
971435A	O2O35	1401.2	35.724	8.159	27.843	2.66	200.3	1417.8	70.3
971435A	O2O35	1080.2	36.142	10.915	27.706	2.64	175.9	1092.2	65.8
971435A	O2O35	500.5	35.556	10.877	27.243	2.59	211.6	505.3	78.8
971436A	O2N36	36.7	35.839	13.721	26.895	3.03	202.4	37.0	80.1
971437A	O2N37	117.1	35.735	12.482	27.070	3.74	213.5	118.1	82.4
971437A	O2N37	99.6	35.756	12.620	27.058	2.98	212.6	100.5	82.2
971437A	O2N37	79.0	35.786	12.859	27.033	2.86	211.3	79.7	82.2
971437A	O2N37	60.2	35.814	13.355	26.953	2.95	206.7	60.7	81.2
971437A	O2N37	40.4	35.820	13.829	26.858	2.95	206.0	40.7	81.7
971437A	O2N37	20.6	35.794	15.063	26.571	2.95	220.3	20.7	89.6
971437A	O2N37	9.3	35.771	15.487	26.458	3.03	221.3	9.4	90.7
971437B	O2N37	60.6	35.805	14.122	26.786	2.95	208.4	61.1	83.2
971437B	O2N37	8.6	35.778	15.253	26.516	3.08	219.7	8.6	89.6
971437C	O2N37	100.9	35.791	12.953	27.018	3.00	209.1	101.8	81.5
971437C	O2N37	77.8	35.810	13.858	26.846	2.83	206.8	78.5	82.1
971437C	O2N37	59.2	35.806	14.542	26.696	2.83	213.5	59.7	85.9
971437C	O2N37	38.8	35.786	15.356	26.501	2.88	219.1	39.1	89.6
971437C	O2N37	19.9	35.762	16.068	26.319	2.88	224.9	20.1	93.3
971437C	O2N37	10.6	35.760	16.303	26.263	2.88	226.1	10.7	94.2
971438A	O2N38	199.5	35.656	11.747	27.152	2.61	216.0	201.3	82.0
971438A	O2N38	150.6	35.753	12.707	27.040	2.69	220.7	152.0	85.5
971438A	O2N38	100.6	35.841	13.581	26.928	2.69	219.7	101.5	86.7
971438A	O2N38	80.6	35.848	13.647	26.920	2.69	219.2	81.3	86.7
971438A	O2N38	71.2	35.851	13.927	26.863	2.71	226.6	71.8	90.1

CTD BOTTLE

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971438A	O2N38	60.4	35.846	14.725	26.687	2.69	227.3	60.9	91.8
971438A	O2N38	39.7	35.838	16.156	26.357	2.74	229.2	40.0	95.2
971438A	O2N38	28.4	35.812	16.608	26.232	2.78	228.4	28.7	95.7
971438A	O2N38	21.1	35.773	17.539	25.979	2.76	234.9	21.3	100.2
971438A	O2N38	9.2	35.776	17.608	25.963	2.88	234.3	9.3	100.1
971439A	O2N39	1250.2	35.980	9.643	27.805	2.59	187.0	1264.5	68.0
971439A	O2N39	998.7	36.134	10.959	27.690	2.64	177.5	1009.6	66.5
971439A	O2N39	800.8	36.066	11.383	27.555	2.69	177.4	809.1	67.0
971439A	O2N39	599.8	35.890	11.265	27.434	2.66	184.1	605.8	69.3
971439A	O2N39	401.2	35.595	11.178	27.216	2.66	211.1	405.0	79.1
971439A	O2N39	200.7	35.779	12.720	27.059	2.64	214.4	202.5	83.1
971439A	O2N39	98.5	35.894	13.661	26.952	2.66	219.9	99.3	87.0
971439A	O2N39	79.7	35.903	13.847	26.920	2.69	221.2	80.4	87.9
971439A	O2N39	61.2	35.883	14.718	26.717	2.71	237.4	61.7	95.9
971439A	O2N39	41.0	35.737	17.190	26.036	2.74	236.0	41.4	100.0
971439A	O2N39	19.0	35.695	17.712	25.876	2.78	235.0	19.1	100.5
971439A	O2N39	8.9	35.688	17.728	25.867	2.76	235.1	9.0	100.6
971440A	O2N40	1420.0	35.742	8.258	27.842	2.69	199.5	1436.9	70.2
971440A	O2N40	1250.1	36.055	9.988	27.805	2.64	184.3	1264.4	67.6
971440A	O2N40	1100.6	36.142	10.754	27.736	2.66	178.0	1112.8	66.4
971440A	O2N40	999.9	36.151	11.131	27.672	2.69	176.3	1010.8	66.3
971440A	O2N40	899.9	36.113	11.287	27.612	2.71	176.3	909.5	66.5
971440A	O2N40	800.1	36.068	11.445	27.545	2.69	177.7	808.4	67.2
971440A	O2N40	599.7	35.657	10.700	27.355	2.71	193.3	605.6	71.8
971440A	O2N40	399.4	35.575	11.052	27.223	2.66	213.8	403.1	79.9
971440A	O2N40	200.9	35.718	12.266	27.101	2.69	215.6	202.7	82.8
971440A	O2N40	150.3	35.830	13.155	27.009	2.66	220.8	151.7	86.4
971440A	O2N40	125.6	35.885	13.510	26.978	2.69	219.1	126.7	86.4
971440A	O2N40	99.1	35.916	13.778	26.945	2.69	218.8	100.0	86.8
971440B	O2N40	60.7	35.894	14.799	26.708	2.69	230.3	61.2	93.2
971440B	O2N40	9.0	35.764	17.516	25.976	2.66	233.8	9.1	99.7
971440C	O2N40	99.6	35.911	14.423	26.804	2.71	227.1	100.4	91.3
971440C	O2N40	78.1	35.903	14.640	26.750	2.71	230.8	78.7	93.1
971440C	O2N40	59.6	35.880	15.449	26.553	2.71	241.6	60.1	99.1
971440C	O2N40	48.6	35.882	15.552	26.530	2.74	242.9	49.1	99.8
971440C	O2N40	39.1	35.853	16.342	26.326	2.78	244.6	39.4	102.0
971440C	O2N40	18.7	35.788	17.482	26.004	2.81	234.0	18.8	99.7
971440C	O2N40	9.3	35.766	17.509	25.980	2.88	234.2	9.4	99.8
971440D	O2N40	100.2	35.916	13.797	26.941	2.74	219.9	101.0	87.3
971440D	O2N40	69.8	35.922	14.056	26.890	2.71	222.2	70.4	88.6
971440D	O2N40	60.3	35.916	14.343	26.824	2.74	226.4	60.8	90.8
971440D	O2N40	50.0	35.889	15.230	26.608	2.78	241.3	50.4	98.5
971440D	O2N40	29.0	35.860	16.205	26.363	2.81	242.6	29.3	100.9
971440D	O2N40	9.3	35.762	17.520	25.974	2.86	236.0	9.3	100.6
971441A	O2N41	1426.4	35.789	8.511	27.841	2.54	197.4	1443.4	69.9
971441A	O2N41	1080.8	36.157	10.953	27.711	2.59	177.3	1092.8	66.4
971441A	O2N41	1019.0	36.156	11.061	27.690	2.56	176.7	1030.2	66.3
971441A	O2N41	600.3	35.710	11.022	27.339	2.59	192.9	606.3	72.2
971441A	O2N41	479.5	35.616	11.173	27.235	2.59	205.7	484.1	77.1
971441A	O2N41	78.8	35.926	13.753	26.958	2.71	200.2	79.4	79.4
971442A	O2N42	1418.5	35.694	7.990	27.844	2.54	201.6	1435.3	70.5
971442A	O2N42	1250.4	36.077	10.146	27.796	2.56	183.0	1264.8	67.3
971442A	O2N42	1100.0	36.124	10.791	27.716	2.59	177.1	1112.2	66.1
971442A	O2N42	1000.1	36.146	11.142	27.666	2.59	176.2	1011.0	66.3
971442A	O2N42	900.2	36.091	11.227	27.606	2.61	176.2	909.7	66.4

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971442A	O2N42	800.8	36.005	11.276	27.527	2.61	178.1	809.1	67.1
971442A	O2N42	599.6	35.580	10.673	27.300	2.56	202.9	605.5	75.2
971442A	O2N42	400.0	35.617	11.451	27.183	2.61	213.2	403.8	80.4
971442A	O2N42	199.1	35.798	12.781	27.061	2.59	211.9	200.9	82.3
971442A	O2N42	149.8	35.872	13.283	27.016	2.61	213.1	151.1	83.6
971442A	O2N42	124.3	35.930	13.681	26.977	2.59	215.9	125.4	85.5
971442A	O2N42	99.0	35.957	13.955	26.940	2.64	220.0	99.9	87.6
971442B	O2N42	57.0	35.981	15.159	26.695	2.74	245.9	57.5	100.3
971442B	O2N42	9.2	35.863	17.695	26.009	2.76	232.7	9.3	99.6
971442C	O2N42	99.4	35.983	14.299	26.886	2.56	226.5	100.2	90.8
971442C	O2N42	79.9	35.980	14.770	26.782	2.56	238.9	80.5	96.7
971442C	O2N42	70.2	35.979	15.033	26.722	2.61	244.2	70.8	99.4
971442C	O2N42	58.9	35.956	16.168	26.447	2.54	247.6	59.4	103.0
971442C	O2N42	49.3	35.892	16.981	26.205	2.59	247.2	49.8	104.4
971442C	O2N42	40.2	35.865	17.696	26.011	2.56	232.9	40.6	99.7
971442C	O2N42	19.6	35.865	17.699	26.010	2.66	232.8	19.8	99.7
971442C	O2N42	10.2	35.866	17.704	26.009	2.74	232.8	10.3	99.7
971442D	O2N42	139.6	35.911	13.555	26.989	2.47	215.6	140.8	85.1
971442D	O2N42	59.8	35.977	14.923	26.745	2.56	243.3	60.3	98.8
971443A	O2LC43	1417.2	35.351	6.489	27.785	2.20	212.1	1434.1	71.5
971443A	O2LC43	1249.4	35.538	7.829	27.743	2.22	197.9	1263.7	68.9
971443A	O2LC43	1099.7	35.692	9.057	27.672	2.25	186.1	1111.9	66.7
971443A	O2LC43	999.7	35.750	9.640	27.620	2.27	182.1	1010.6	66.1
971443A	O2LC43	899.6	35.713	9.840	27.555	2.27	183.5	909.1	66.9
971443A	O2LC43	800.8	35.691	10.165	27.480	2.30	185.7	809.1	68.1
971443A	O2LC43	600.2	35.565	10.573	27.306	2.34	205.6	606.2	76.1
971443A	O2LC43	399.7	35.576	11.163	27.204	2.34	219.7	403.5	82.3
971443A	O2LC43	199.6	35.645	11.802	27.133	2.30	236.8	201.4	90.0
971443A	O2LC43	149.8	35.662	11.962	27.114	2.27	238.5	151.1	91.0
971443A	O2LC43	124.3	35.681	12.164	27.090	2.27	238.0	125.4	91.2
971443A	O2LC43	100.2	35.701	12.394	27.060	2.32	236.6	101.1	91.1
971443B	O2LC43	99.4	35.704	12.431	27.055	2.30	237.6	100.3	91.5
971443B	O2LC43	79.7	35.727	12.883	26.982	2.30	237.4	80.4	92.3
971443B	O2LC43	60.0	35.737	13.476	26.869	2.30	244.3	60.5	96.2
971443B	O2LC43	40.0	35.722	15.356	26.451	2.34	244.3	40.4	99.9
971443B	O2LC43	19.5	35.728	15.435	26.437	2.34	243.5	19.7	99.7
971443B	O2LC43	9.7	35.728	15.446	26.434	2.37	243.4	9.8	99.7
971444A	O2LC44	299.7	35.605	11.448	27.171	2.27	230.1	302.5	86.8
971444A	O2LC44	149.8	35.663	11.971	27.114	2.30	240.1	151.1	91.6
971445A	O2LC45	249.6	35.623	11.579	27.159	2.30	235.9	251.9	89.2
971446A	O2LC46	299.8	35.610	11.353	27.193	2.37	235.2	302.6	88.5
971447A	O2LC47	1415.6	35.376	6.595	27.790	2.34	211.7	1432.4	71.6
971447A	O2LC47	1249.2	35.5352	7.755	27.751	2.32	199.6	1263.5	69.4
971447A	O2LC47	1098.8	35.6276	8.622	27.690	2.37	193.8	1111.0	68.7
971447A	O2LC47	999.1	35.6648	9.150	27.634	2.37	190.6	1009.9	68.4
971447A	O2LC47	900.0	35.7324	9.913	27.558	2.37	185.0	909.5	67.6
971447A	O2LC47	799.0	35.6974	10.015	27.511	2.42	186.0	807.3	68.1
971447A	O2LC47	600.3	35.6006	10.474	27.351	2.42	206.2	606.3	76.2
971447A	O2LC47	400.8	35.596	11.041	27.242	2.42	222.1	404.6	83.0
971447A	O2LC47	299.9	35.618	11.367	27.197	2.37	228.4	302.7	86.0
971447B	O2LC47	99.6	35.685	12.576	27.011	2.34	236.1	100.5	91.2
971447B	O2LC47	9.7	35.690	14.846	26.538	2.52	248.5	9.8	100.5
971447C	O2LC47	299.5	35.616	11.342	27.199	2.37	230.2	302.3	86.6
971447C	O2LC47	199.8	35.633	11.627	27.157	2.32	234.0	201.6	88.6
971447C	O2LC47	149.8	35.646	11.792	27.135	2.37	238.2	151.1	90.5

Cast Identifier	BODC Site	Bottle Depth	CTD Salinity	CTD Temperature	CTD Sigma-theta	CTD OBS	CTD Oxygen	CTD Pressure	CTD O2 Sat
		m	PSU	ITS-90(C)	kg/m3	FTU	umol/kg	db	%
971447C	O2LC47	100.1	35.666	12.109	27.088	2.34	238.8	101.0	91.4
971447C	O2LC47	79.6	35.677	12.387	27.042	2.37	237.0	80.3	91.2
971447C	O2LC47	59.7	35.686	12.748	26.977	2.39	236.2	60.2	91.6
971447C	O2LC47	39.3	35.690	13.643	26.797	2.39	241.3	39.6	95.3
971447C	O2LC47	18.5	35.698	14.862	26.541	2.47	247.7	18.7	100.3
971447C	O2LC47	10.8	35.701	14.867	26.543	2.56	247.2	10.9	100.1
971447D	O2LC47	300.1	35.609	11.309	27.200	2.32	230.8	302.9	86.8
971447D	O2LC47	199.9	35.631	11.619	27.157	2.32	232.6	201.7	88.1
971447D	O2LC47	149.3	35.645	11.803	27.132	2.32	233.9	150.6	88.9
971447D	O2LC47	100.2	35.673	12.404	27.036	2.32	234.5	101.1	90.2
971447D	O2LC47	79.4	35.688	13.028	26.923	2.34	235.9	80.1	92.0
971447D	O2LC47	60.2	35.690	13.699	26.786	2.37	238.7	60.7	94.4
971447D	O2LC47	40.0	35.699	14.634	26.593	2.44	244.3	40.3	98.4
971447D	O2LC47	19.5	35.702	14.885	26.540	2.47	246.7	19.7	99.9
971447D	O2LC47	9.7	35.703	14.909	26.534	2.49	246.3	9.8	99.8
971447E	O2LC47	299.9	35.618	11.408	27.189	2.25	230.4	302.6	86.8
971447E	O2LC47	199.8	35.634	11.667	27.150	2.25	234.8	201.6	89.0
971447E	O2LC47	150.0	35.656	11.952	27.112	2.22	236.7	151.3	90.2
971447E	O2LC47	99.3	35.680	12.577	27.007	2.22	236.2	100.1	91.3
971447E	O2LC47	79.9	35.688	13.049	26.919	2.22	237.0	80.6	92.5
971447E	O2LC47	59.9	35.693	13.702	26.787	2.27	239.7	60.4	94.8
971447E	O2LC47	38.8	35.694	14.620	26.592	2.34	245.7	39.1	99.0
971447E	O2LC47	19.4	35.690	14.851	26.537	2.44	248.5	19.5	100.6
971447E	O2LC47	9.9	35.680	14.922	26.514	2.49	250.7	10.0	101.6
971447F	O2LC47	300.2	35.613	11.331	27.199	2.22	230.0	303.0	86.5
971447F	O2LC47	199.7	35.629	11.582	27.162	2.15	233.9	201.5	88.5
971447F	O2LC47	149.4	35.640	11.757	27.137	2.20	235.0	150.7	89.2
971447F	O2LC47	99.4	35.666	12.083	27.093	2.25	238.6	100.2	91.2
971447F	O2LC47	79.5	35.675	12.356	27.047	2.20	236.7	80.2	91.0
971447F	O2LC47	59.6	35.684	12.827	26.959	2.22	236.1	60.1	91.7
971447F	O2LC47	39.8	35.692	13.790	26.768	2.22	239.0	40.1	94.7
971447F	O2LC47	19.3	35.700	14.888	26.537	2.34	247.8	19.5	100.4
971447F	O2LC47	9.8	35.685	15.022	26.496	2.39	250.4	9.9	101.6
971448A	O2LC48	300.4	35.619	11.464	27.179	2.22	234.1	303.2	88.3
971449A	O2LC49	303.0	35.620	11.416	27.189	2.34	226.6	305.8	85.4
971450A	O2LC50	154.5	35.640	11.876	27.114	2.39	228.8	155.9	87.1
971451A	O2LC51	160.2	35.648	12.320	27.035	2.47	231.2	161.6	88.8
971451A	O2LC51	99.0	35.656	12.596	26.985	2.39	231.9	99.9	89.6
971451A	O2LC51	79.5	35.660	13.173	26.872	2.30	237.7	80.1	93.0
971451A	O2LC51	59.5	35.661	14.037	26.692	2.37	248.2	60.0	98.8
971451A	O2LC51	39.2	35.665	14.045	26.693	2.34	247.4	39.6	98.5
971451A	O2LC51	19.6	35.665	14.055	26.690	2.39	247.8	19.8	98.6
971451A	O2LC51	9.6	35.665	14.057	26.690	2.37	247.9	9.7	98.7

Cast Identifier	BODC Site	Bottle Depth	NO_x*	NH_4*	Urea*	PO_4*	Si*	N**	pH*	TAlk*	O_2*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
9714IC1A	O2IC1	590.943	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	400.13	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	199.861	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	150.57	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	99.658	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	80.308	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	60.598	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	38.039	x	-	-	x	x	x	x	x	x	x	-	-
9714IC1A	O2IC1	28.539	x	-	-	x	x	x	x	x	x	x?	-	-
9714IC1A	O2IC1	19.651	x	-	-	x	x	x	x	x	x	x?	-	-
9714IC1A	O2IC1	10.849	x	-	-	x	x	x	x	x	x	-	-	-
9714IC1A	O2IC1	4.796	x	-	-	x	x	x	x	x	x	-	-	-
971402A	O2T02	141.563	-	-	-	x	x	x	-	-	-	x	-	-
971402A	O2T02	121.81	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	100.039	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	79.905	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	61.165	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	41.387	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	21.07	x	x	x	x	x	x	x	x	x	x	-	-
971402A	O2T02	10.979	x	x	x	x	x	x	x	x	x	x	-	-
971406A	O2S06	85.626	x	x	x	x	x	x	x	x	x	x	x	x
971406A	O2S06	79.459	x	x	x	x	x	x	x	x	x	x	x	x
971406A	O2S06	59.157	x	x	x	x	x	x	x	x	x	x	x	x
971406A	O2S06	39.66	x	x	x	x	x	x	x	x	x	x	x	x
971406A	O2S06	20.021	x	x	x	x	x	x	x	x	x	x	x	x
971406A	O2S06	9.603	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	119.589	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	99.495	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	78.621	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	60.378	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	38.833	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	19.362	x	x	x	x	x	x	x	x	x	x	x	x
971407A	O2S07	9.625	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	140.922	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	100.446	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	81.315	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	59.483	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	41.691	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	20.462	x	x	x	x	x	x	x	x	x	x	x	x
971408A	O2S08	9.529	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	211.52	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	199.979	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	149.826	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	99.842	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	79.587	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	59.048	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	40.218	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	20.345	x	x	x	x	x	x	x	x	x	x	x	x
971409A	O2S09	9.078	x	x	x	x	x	x	x	x	x	x	x	x
971410A	O2S10	1435.617	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	1250.044	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	1099.266	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	999.407	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	897.13	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	799.286	x	x	x	x	x	x	x	x	x	-	x	x

Belgica cruise BG9714 **BOTTLE PARAMETER**

Identifier	Site	Depth	NO_3^*	NH_4^*	Urea*	PO_4^*	Si*	N**	pH*	TAlk*	O_2^*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
971410A	O2S10	600.389	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	399.329	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	149.786	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	124.566	x	x	x	x	x	x	x	x	x	-	x	x
971410A	O2S10	100.715	x	x	x	x	x	x	x	x	x	-	x	x
971410B	O2S10	200.946	x	x	x	x	x	x	x	x	x	-	x	x
971410B	O2S10	99.44	x	x	x	x	x	x	x	x	x	x	x	x
971410B	O2S10	79.888	x	x	x	x	x	x	x	x	x	x	x	x
971410B	O2S10	59.102	x	x	x	x	x	x	x	x	x	x	x	x
971410B	O2S10	40.596	x	x	x	x	x	x	x	x	x	x	x	x
971410B	O2S10	19.151	x	x	x	x	x	x	x	x	x	x	x	x
971410B	O2S10	10.063	x	x	x	x	x	x	x	x	x	x	x	x
971412A	O2S12	59.533	-	-	-	x?	-	-	x	x	x	x?	-	-
971412A	O2S12	9.61	x	x	x	x?	-	-	x	x	x	x?	-	-
971412B	O2S12	1432.524	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	1248.697	x	-	-	x	x	x	x	x	x	-	x	x*
971412B	O2S12	1099.215	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	999.781	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	899.103	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	799.665	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	598.57	x	-	-	x	x	x	x	x	x	-	x	x
971412B	O2S12	398.766	x	x	x	x	x	x	x	x	x	-	x	x
971412B	O2S12	198.253	x	x	x	x	x	x	x	x	x	-	x	x
971412B	O2S12	149.189	x	x	x	x	x	x	x	x	x	-	x	x
971412B	O2S12	123.587	x	x	x	x	x	x	x	x	x	-	x	x
971412B	O2S12	100.705	x	x	x	x	x	x	x	x	x	-	x	x
971412C	O2S12	99.623	x	x	x	x	x	x	x	x	x	-	x	x
971412C	O2S12	80.513	x	x	x	x	x	x	x	x	x	x	x	x
971412C	O2S12	69.054	x	x	x	x	x	x	-	-	-	x	x	x
971412C	O2S12	59.778	x	x	x	x	x	x	x	x	x	x	x	x
971412C	O2S12	40.218	x	x	x	x	x	x	x	x	x	x	x	x
971412C	O2S12	20.643	x	x	x	x	x	x	x	x	x	x	x	x
971412C	O2S12	9.895	x	x	x	x	x	x	x	x	x	x	x	x
9714V1A	V1	79.598	x	x	-	x	x	x	x	x	x	x	-	-
9714V1A	V1	60.139	x	x	-	x	x	x	x	x	x	x	-	-
9714V1A	V1	50.346	x	x	-	x	x	x	x	x	x	x	-	-
9714V1A	V1	39.324	x	x	-	x	x	x	x	x	x	x	-	-
9714V1A	V1	20.083	x	x	-	x	x	x	x	x	x	x	-	-
9714V1A	V1	9.586	x	x	-	x	x	x	x	x	x	x	-	-
971414A	O2R14	145.417	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	99.333	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	79.983	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	59.804	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	39.115	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	19.568	x	x	x	x	x	x	x	x	x	x	x	x
971414A	O2R14	9.578	x	x	x	x	x	x	x	x	x	x	x	x
971419A	O2Q19	59.585	-	-	-	x?	-	-	x	x	x	x?	-	-
971419A	O2Q19	9.017	x	x	x	x?	-	-	x	x	x	x?	-	-
971419B	O2Q19	129.847	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	100.034	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	79.095	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	60.025	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	38.764	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	18.946	x	x	x	x	x	x	x	x	x	x	x	x
971419B	O2Q19	9.545	x	x	x	x	x	x	x	x	x	x	x	x
971421B	O2Q21	80.452	-	-	-	x	x	x	-	-	-	-		
971421B	O2Q21	70.08	-	-	-	x	x	x	x	x	x	-	-	-

Identifier	Site	Depth	NO_x*	NH_4*	Urea*	PO_4*	Si*	N**	pH*	TAlk*	O_2*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
971421B	O2Q21	49.653	-	-	-	x	x	x	x	x	x	-	-	-
971421B	O2Q21	29.6	-	-	-	x	x	x	x	x	x	-	-	-
971421B	O2Q21	19.431	-	-	-	x	x	x	x	x	x	-	-	-
971421B	O2Q21	9.837	-	-	-	x	x	x	-	-	-	-	-	-
971424A	O2P24	89.842	x	x	x	x	x	x	x	x	x	x	x	x
971424A	O2P24	79.583	x	x	x	x	x	x	x	x	x	x	x	x
971424A	O2P24	59.731	x	x	x	x	x	x	x	x	x	x	x	x
971424A	O2P24	39.453	x	x	x	x	x	x	x	x	x	x	x	x
971424A	O2P24	19.675	x	x	x	x	x	x	x	x	x	x	x	x
971424A	O2P24	9.86	x	x	x	x	x	x	x	x	x	x	x	x
971425A	O2P25	59.333	-	-	-	x?	-	-	x	x	x	x?	-	-
971425A	O2P25	9.195	x	x	x	x?	-	-	x	x	x	x?	-	-
971425B	O2P25	130.475	x	x	x	x	x	x	x	x	x	x	x	x
971425B	O2P25	99.67	x	x	x	x	x	x	x	x	x	x	x	x
971425B	O2P25	79.482	x	x	x	x	x	x	x	x	x	x	x?	x?
971425B	O2P25	59.508	x	x	x	x	x	x	x	x	x	x	x	x
971425B	O2P25	39.53	x	x	x	x	x	x	x	x	x	x	x	x
971425B	O2P25	19.442	x	x	x	x	x	x	x	x	x	x	x	x
971425B	O2P25	9.628	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	360.564	x	-	-	x	x	x	x	x	x	-	x	x
971426A	O2P26	199.581	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	149.569	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	100.08	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	79.703	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	59.485	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	39.794	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	19.132	x	x	x	x	x	x	x	x	x	x	x	x
971426A	O2P26	10.094	x	x	x	x	x	x	x	x	x	x	x	x
971427A	O2P27	1420.737	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	1249.493	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	1100.409	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	1000.304	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	900.148	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	799.939	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	599.318	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	400.022	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	199.711	x	-	-	x	x	x	x	x	x	-	x	x
971427A	O2P27	149.613	x	x	x	x	x	x	x	x	x	-	x	x
971427A	O2P27	124.877	x	x	x	x	x	x	x	x	x	-	x	x
971427A	O2P27	100.373	x	x	x	x	x	x	x	x	x	-	x	x
971427B	O2P27	99.543	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	79.96	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	69.873	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	59.548	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	48.98	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	40.277	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	20.229	x	x	x	x	x	x	x	x	x	x	x	x
971427B	O2P27	10.249	x	x	x	x	x	x	x	x	x	x	x	x
971429A	O2P29	1416.515	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	1248.625	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	1100.554	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	1000.296	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	898.998	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	799.109	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	599.736	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	399.39	x	-	-	x	x	x	x	x	x	-	x	x
971429A	O2P29	198.872	x	x	x	x	x	x	x	x	x	-	x	x

Identifier	Site	Depth	NO_x*	NH_4*	Urea*	PO_4*	Si*	N**	pH*	TAlk*	O_2*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
971429A	O2P29	149.624	x	x	x	x	x	x	x	x	x	-	x	x
971429A	O2P29	124.562	x	x	x	x	x	x	x	x	x	-	x	x
971429A	O2P29	98.983	x	x	x	x	x	x	x	x	x	-	x	x
971429B	O2P29	100.735	x	x	x	x	x	x	x	x	x	x	x	x
971429B	O2P29	79.063	x	x	x	x	x	x	x	x	x	x	x	x
971429B	O2P29	58.715	x	x	x	x	x	x	x	x	x	x	x	x
971429B	O2P29	38.679	x	x	x	x	x	x	x	x	x	x	x	x
971429B	O2P29	20.473	x	x	x	x	x	x	x	x	x	x	x	x
971429B	O2P29	9.71	x	x	x	x	x	x	x	x	x	x	x	x
971429C	O2P29	58.948	-	-	-	x?	-	-	x	x	x	x?	-	-
971429C	O2P29	9.72	x	x	x	x?	-	-	x	x	x	x?	-	-
971431A	O2O31	134.751	x	x	x	x	x	x	x	x	x	x	x	x
971431A	O2O31	78.904	x	x	x	x	x	x	x	x	x	x	x	x
971431A	O2O31	60.814	x	x	x	x	x	x	x	x	x	x	x	x
971431A	O2O31	41.02	x	x	x	x	x	x	x	x	x	x	x	x
971431A	O2O31	19.089	x	x	x	x	x	x	x	x	x	x	x	x
971431A	O2O31	9.019	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	117.091	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	99.622	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	79.006	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	60.204	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	40.383	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	20.555	x	x	x	x	x	x	x	x	x	x	x	x
971437A	O2N37	9.274	x	x	x	x	x	x	x	x	x	x	x	x
971437B	O2N37	60.583	-	-	-	x?	-	-	x	x	x	x?	-	-
971437B	O2N37	8.559	x	x	x	x?	-	-	x	x	x	x?	-	-
971438A	O2N38	199.509	x	x	x	x	x	x	x	x	x	x	x	x
971438A	O2N38	150.638	x	x	x	x	x	x	x	x	x	-	x	x
971438A	O2N38	100.629	x	x	x	x	x	x	x	x	x	x	x	x
971438A	O2N38	80.639	x	x	x	x	x	x	x	x	x	-	x	x
971438A	O2N38	71.199	x	x	x	x	x	x	x	x	x	-	-	-
971438A	O2N38	60.389	x	x	x	x	x	x	x	x	x	x	x	x
971438A	O2N38	39.68	x	x	x	x	x	x	x	x	x	-	x	x
971438A	O2N38	28.41	x	x	x	x	x	x	x	x	x	x	-	-
971438A	O2N38	21.142	x	x	x	x	x	x	x	x	x	x	x	x
971438A	O2N38	9.205	x	x	x	x	x	x	x	x	x	x	x	x
971439A	O2N39	1250.156	x	-	-	x	x	x	x	x	x	-	-	-
971439A	O2N39	998.739	x	-	-	x	x	x	x	x	x	-	-	-
971439A	O2N39	800.769	x	-	-	x	x	x	x	x	x	-	-	-
971439A	O2N39	599.827	x	-	-	x	x	x	x	x	x	-	-	-
971439A	O2N39	401.203	x	-	-	x	x	x	x	x	x	-	-	-
971439A	O2N39	200.712	x	x	x	x	x	x	x	x	x	-	-	-
971439A	O2N39	98.488	x	x	x	x	x	x	x	x	x	x	-	-
971439A	O2N39	79.696	x	x	x	x	x	x	x	x	x	x	-	-
971439A	O2N39	61.207	x	x	x	x	x	x	x	x	x	x	-	-
971439A	O2N39	41.025	x	x	x	x	x	x	x	x	x	x	-	-
971439A	O2N39	18.97	x	x	x	x	x	x	x	x	x	x	-	-
971439A	O2N39	8.917	x	x	x	x	x	x	x	x	x	x	-	-
971440A	O2N40	1419.993	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	1250.083	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	1100.588	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	999.944	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	899.931	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	800.061	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	599.672	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	399.357	x	-	-	x	x	x	x	x	x	-	-	-
971440A	O2N40	200.904	x	x	x	x	x	x	x	x	x	-	-	-

Identifier	Site	Depth	NO_3*	NH_4*	Urea*	PO_4*	Si*	N**	pH*	TAlk*	O_2*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
971440A	O2N40	150.331	x	x	x	x	x	x	x	x	x	-	-	-
971440A	O2N40	125.602	x	x	x	x	x	x	x	x	x	-	-	-
971440A	O2N40	99.137	x	x	x	x	x	x	x	x	x	-	-	-
971440B	O2N40	60.705	-	-	-	x?	-	-	x	x	x	x?	-	-
971440B	O2N40	9.011	x	x	x	x?	-	-	x	x	x	x?	-	-
971440C	O2N40	99.565	x	x	x	x	x	x	x	x	x	x	-	-
971440C	O2N40	78.05	x	x	x	x	x	x	x	x	x	x	-	-
971440C	O2N40	59.609	x	x	x	x	x	x	x	x	x	x	-	-
971440C	O2N40	48.639	-	-	-	x	x	x	x	x	x	-	-	-
971440C	O2N40	39.092	x	x	x	x	x	x	x	x	x	x	-	-
971440C	O2N40	18.676	x	x	x	x	x	x	x	x	x	x	-	-
971440C	O2N40	9.278	x	x	x	x	x	x	x	x	x	x	-	-
971442A	O2N42	1418.46	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	1250.413	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	1099.996	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	1000.131	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	900.155	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	800.817	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	599.594	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	400.026	x	-	-	x	x	x	x	x	x	-	-	-
971442A	O2N42	199.136	x	x	x	x	x	x	x	x	x	-	-	-
971442A	O2N42	149.761	x	x	x	x	x	x	x	x	x	-	-	-
971442A	O2N42	124.268	x	x	x	x	x	x	x	x	x	-	-	-
971442A	O2N42	99.006	x	x	x	x	x	x	x	x	x	-	-	-
971442B	O2N42	57.008	-	-	-	x?	-	-	x	x	x	x?	-	-
971442B	O2N42	9.199	x	x	x	x?	-	-	x	x	x	x?	-	-
971442C	O2N42	99.353	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	79.861	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	70.2	-	-	-	x	x	x	-	-	-	x	-	-
971442C	O2N42	58.854	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	49.331	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	40.221	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	19.618	x	x	x	x	x	x	x	x	x	x	-	-
971442C	O2N42	10.195	x	x	x	x	x	x	x	x	x	x	-	-
971443A	O2LC43	1417.203	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	1249.396	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	1099.685	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	999.721	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	899.582	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	800.792	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	600.247	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	399.725	x	-	-	x	x	x	x	x	x	-	-	-
971443A	O2LC43	199.589	x	x	x	x	x	x	x	x	x	-	-	-
971443A	O2LC43	149.794	x	x	x	x	x	x	x	x	x	-	-	-
971443A	O2LC43	124.275	x	x	x	x	x	x	x	x	x	-	-	-
971443A	O2LC43	100.214	x	x	x	x	x	x	x	x	x	-	-	-
971443B	O2LC43	99.427	x	x	x	x	x	x	x	x	x	x	-	-
971443B	O2LC43	79.697	x	x	x	x	x	x	x	x	x	x	-	-
971443B	O2LC43	60.032	x	x	x	x	x	x	x	x	x	x	-	-
971443B	O2LC43	40.039	x	x	x	x	x	x	x	x	x	x	-	-
971443B	O2LC43	19.523	x	x	x	x	x	x	x	x	x	x	-	-
971443B	O2LC43	9.693	x	x	x	x	x	x	x	x	x	x	-	-
971447A	O2LC47	1415.621	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	1249.205	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	1098.778	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	999.051	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	899.982	x	-	-	x	x	x	x	x	x	-	-	-

BOTTLE PARAMETER

Identifier	Site	Depth	NO_x*	NH_4*	Urea*	PO_4*	Si*	N**	pH*	TAlk*	O_2*	Ch**	$\partial^{18}O$**	$\partial^{13}C$**
971447A	O2LC47	799.044	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	600.311	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	400.826	x	-	-	x	x	x	x	x	x	-	-	-
971447A	O2LC47	299.935	x	-	-	x	x	x	x	x	x	-	-	-
971447B	O2LC47	99.605	-	-	-	-	-	-	x?	x?	x?	-	-	-
971447B	O2LC47	9.691	x	x	x	x?	-	-	x	x	x	x?	-	-
971447C	O2LC47	299.509	x	-	-	x	x	x	x	x	x	-	-	-
971447C	O2LC47	199.845	x	x	x	x	x	x	x	x	x	-	-	-
971447C	O2LC47	149.792	x	x	x	x	x	x	x	x	x	-	-	-
971447C	O2LC47	100.132	x	x	x	x	x	x	x	x	x	x	-	-
971447C	O2LC47	79.565	x	x	x	x	x	x	x	x	x	x	-	-
971447C	O2LC47	59.71	x	x	x	x	x	x	x	x	x	x	-	-
971447C	O2LC47	39.303	x	x	x	x	x	x	x	x	x	x	-	-
971447C	O2LC47	18.542	x	x	x	x	x	x	x	x	x	x	-	-
971447C	O2LC47	10.8	x	x	x	x	x	x	x	x	x	x	-	-
971447D	O2LC47	300.137	x	-	-	x	x	x	-	-	-	-	-	-
971447D	O2LC47	199.934	x	x	-	x	x	x	-	-	-	-	-	-
971447D	O2LC47	149.288	x	x	-	x	x	x	-	-	-	-	-	-
971447D	O2LC47	100.19	x	x	-	x	x	x	-	-	-	x	-	-
971447D	O2LC47	79.444	x	x	-	x	x	x	-	-	-	x	-	-
971447D	O2LC47	60.172	x	x	-	x	x	x	-	-	-	x	-	-
971447D	O2LC47	39.988	x	x	-	x	x	x	-	-	-	x	-	-
971447D	O2LC47	19.547	x	x	-	x	x	x	-	-	-	x	-	-
971447D	O2LC47	9.701	x	x	-	x	x	x	-	-	-	x	-	-
971447E	O2LC47	299.852	x	-	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	199.798	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	149.965	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	99.261	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	79.863	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	59.93	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	38.793	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	19.383	x	x	-	x	x	x	-	-	-	-	-	-
971447E	O2LC47	9.897	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	300.205	x	-	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	199.711	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	149.427	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	99.361	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	79.529	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	59.601	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	39.806	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	19.331	x	x	-	x	x	x	-	-	-	-	-	-
971447F	O2LC47	9.77	x	x	-	x	x	x	-	-	-	-	-	-
971451A	O2LC51	160.205	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	99.038	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	79.455	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	59.532	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	39.236	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	19.614	x	x	-	x	x	x	x	x	x	x	-	-
971451A	O2LC51	9.639	x	x	-	x	x	x	x	x	x	x	-	-

*Samples analysed on board. **Samples to be analysed back in the lab.

OID	TBEGNS	TENDS	SITE	DEPTH	COMMENT
SAP1	25/06/1997 15:05	25/06/1997 16:05	O2P27	20	
SAP1	25/06/1997 15:05	25/06/1997 16:05	O2P27	50	
SAP2	25/06/1997 18:05	25/06/1997 19:40	O2P27	100	
SAP2	25/06/1997 18:05	25/06/1997 19:40	O2P27	200	
SAP3	27/06/1997 07:22	27/06/1997 07:58	O2N37	20	Failed to pump
SAP3	27/06/1997 07:22	27/06/1997 07:58	O2N37	40	Filter burst beyond salvation
SAP4	27/06/1997 10:15	27/06/1997 10:51	O2N37	20	
SAP4	27/06/1997 10:15	27/06/1997 10:51	O2N37	80	
SAP5	27/06/1997 23:30	28/06/1997 01:30	O2N40	700	
SAP5	27/06/1997 23:30	28/06/1997 01:30	O2N40	1000	Pumping curtailed (24 min), tube detached. No sample.
SAP5	27/06/1997 23:30	28/06/1997 01:30	O2N40	1500	Pumping curtailed (48 min), tube detached. No sample.
SAP6	28/06/1997 08:05	28/06/1997 09:35	O2N40	100	Failed to pump
SAP6	28/06/1997 08:05	28/06/1997 09:35	O2N40	200	Filter torn
SAP6	28/06/1997 08:05	28/06/1997 09:35	O2N40	400	Failed to pump
SAP7	28/06/1997 16:02	28/06/1997 17:02	O2N40	20	Filter broken, no sample
SAP7	28/06/1997 16:02	28/06/1997 17:02	O2N40	60	Filter torn, but OK
SAP7	28/06/1997 16:02	28/06/1997 17:02	O2N40	100	Filter broken, no sample
SAP8	29/06/1997 00:47	29/06/1997 01:47	O2N42	20	
SAP8	29/06/1997 00:47	29/06/1997 01:47	O2N42	100	
SAP9	29/06/1997 07:10	29/06/1997 08:50	O2N42	60	
SAP9	29/06/1997 07:10	29/06/1997 08:50	O2N42	200	
SAP10	29/06/1997 14:25	29/06/1997 16:25	O2N42	400	
SAP10	29/06/1997 14:25	29/06/1997 16:25	O2N42	800	Filter displaced: no sample.
SAP11	29/06/1997 19:40	29/06/1997 22:10	O2N42	600	Filter displaced: sample partially recovered.
SAP11	29/06/1997 19:40	29/06/1997 22:10	O2N42	1000	Failed to pump
SAP12	03/07/1997 21:32	03/07/1997 22:15	O2LC47	60	
SAP12	03/07/1997 21:32	03/07/1997 22:15	O2LC47	80	
SAP13	04/07/1997 00:25	04/07/1997 01:07	O2LC47	40	
SAP13	04/07/1997 00:29	04/07/1997 01:11	O2LC47	20	
SAP14	04/07/1997 07:13	04/07/1997 08:43	O2LC47	100	
SAP14	04/07/1997 07:17	04/07/1997 08:47	O2LC47	200	
SAP15	04/07/1997 11:20	04/07/1997 13:20	O2LC47	400	
SAP15	04/07/1997 11:20	04/07/1997 13:20	O2LC47	600	Pump didn't start.
SAP16	04/07/1997 20:00	04/07/1997 22:00	O2LC47	1200	Pumped only 1.5 hrs.
SAP16	04/07/1997 20:00	04/07/1997 22:00	O2LC47	800	Pumped only 0.7 hrs.

CENTRIFUGATION

OID	TBEGNS	TENDS	COMMENT	VFILT	SITE	SAMPLE
C1	21/06/1997 11:10	21/06/1997 12:51	Station O2T01 to Station O2T02. No viable sample		O2T	
C2	21/06/1997 13:07	21/06/1997 20:54	Station O2T02 to Station O2T05.	4102	O2T	56
C3	21/06/1997 22:00	22/06/1997 02:54	Station O2T05 to Station O2S06.	8382		55
C4	22/06/1997 03:25	22/06/1997 08:22	Station O2S06 to Station O2S08 + Station O2S08.	4428	O2S	53
C5	22/06/1997 12:00	22/06/1997 17:10	Station O2S08 to Station O2S10	3611	O2S	58
C6	22/06/1997 18:20	23/06/1997 07:30	Station O2S10 to Station O2S12 + Station O2S12	5614	O2S	48
C7	23/06/1997 08:25	23/06/1997 16:10	Station O2S12 to Station O2R14	9012		49
C8	23/06/1997 16:40	23/06/1996 23:16	Station O2R14 to Station O2R17	5184	O2R	51
C9	24/06/1997 00:05	24/06/1997 06:15	Station O2R17 to Station O2Q19	4051		50
C10	24/06/1997 07:10	24/06/1997 16:45	Station O2Q19 plus Station O2Q19 to Station O2Q22	11887	O2Q	43
C11	24/06/1997 17:15	24/06/1997 23:22	Station O2Q22 to Station O2P24	5424		41
C12	24/06/1997 23:43	25/06/1997 10:49	Station O2P24 to Station O2P27	11675	O2P	39
C13	25/06/1997 11:13	25/06/1997 19:35	Station O2P27	5729	O2P27	36
C14	25/06/1997 20:20	26/06/1997 04:35	Station O2P27 to Station O2P29	5948	O2P	59
C15	26/06/1997 05:35	26/06/1997 09:45	Station O2P27 to Station O2O31	2579		52
C16	26/06/1997 10:20	26/06/1997 19:45	Station O2O31 to Station O2O35	7077	O2O	45
C17	26/06/1997 21:05	27/06/1997 02:32	Station O2O35 to Station O2N36	4575		54
C18	27/06/1997 04:40	27/06/1997 11:30	Station O2N37	6308	O2N37	37
C19	27/06/1997 11:45	27/06/1997 20:35	Station O2N37 to approaching Station O2N40	4924	O2N	30
C20	27/06/1997 20:50	28/06/1997 07:10	Station O2N40	9769	O2N40	57
C21	28/06/1997 07:30	28/06/1997 17:20	Station O2N40	4197	O2N40	
C22	28/06/1997 23:53	29/06/1997 16:37	Station O2N42	9620	O2N42	40
C23	29/06/1997 23:10	30/06/1997 06:46	Station O2N42 to Vigo	2640		44
C24	03/07/1997 11:34	03/07/1997 18:50	Station O2LC43 to Station O2LC47	5150	O2LC	35
C25	03/07/1997 19:20	04/07/1997 17:45	Station O2LC47 La Chapelle Bank (brown/Ochre)	13537	O2LC47	42
C26	04/07/1997 23:48	05/07/1997 05:00	Station O2LC47 to Station O2LC51	2856	O2LC	33

PRODUCTION

Date	Site	Cast	Depth	Process	Comment
21-jun	O2T2	A	10	^{14}C	ULB: CL 80, 188 and 630 µE m-2 s-1
22-jun	O2S8	A	10	^{15}N (NO_3, NH_4)	VUB: PvI 0 - 600 µE m-2 s-1
22-jun	O2S8	A	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
22-jun	O2S8	A	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
22-jun	O2S8	A	10	^{32}P	ULB: PvI 0 - 600 µE m-2 s-1
22-jun	O2S8	A	10	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1
22-jun	O2S8	A	10	^{14}C	ULB: PvI 0 - 600 µE m-2 s-1
22-jun	O2S8	A	10, 40	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
22-jun	O2S8	A	10, 40, 60, 70	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
22-jun	O2S9	A	10, 20, 40, 60	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
23-jun	O2S12	C	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
23-jun	O2S12	C	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
23-jun	O2S12	C	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
23-jun	O2S12	C	10	^{32}P	ULB: PvI 0 - 600 µE m-2 s-1
23-jun	O2S12	C	10	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1
23-jun	O2S12	C	10	^{14}C	ULB: CL at 188 µE m-2 s-1
23-jun	O2S12	C	10	^{14}C	ULB: PvI 0 - 600 µE m-2 s-1
23-jun	O2S12	C	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
23-jun	O2S12	C	10, 20, 40, 60	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
23-jun	O2SV1	A	10, 20, 50, 60	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
24-jun	O2Q19	A	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
24-jun	O2Q19	A	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
24-jun	O2Q19	A	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
24-jun	O2Q19	A	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
24-jun	O2Q19	A	10, 60	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
24-jun	O2Q19	A	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm
24-jun	O2Q19	A	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
24-jun	O2Q19	B	10, 35, 45, 60	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
24-jun	O2Q21	B	10, 20, 30, 50, 70, 80	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
25-jun	O2P25	A	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
25-jun	O2P25	A	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
25-jun	O2P25	A	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
25-jun	O2P25	A	10, 60	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
25-jun	O2P25	A	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm
25-jun	O2P25	A	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm

		Cast	Depth	Process	Comment
25-jun	O2P26	A	10, 20, 40, 60	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
25-jun	O2P27	B	10, 40, 50, 70	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
26-jun	O2P29	C	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
26-jun	O2P29	C	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
26-jun	O2P29	C	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
26-jun	O2P29	C	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
26-jun	O2P29	C	10, 60	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
26-jun	O2P29	C	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm
26-jun	O2P29	C	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
26-jun	O2O31	A	10, 40, 60, 80	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
26-jun	O2O33	A	10, 20, 40, 60, 80, 100	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
27-jun	O2N37	B	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
27-jun	O2N37	B	10	^{15}N (NO_3, NH_4)	VUB: PvI 0 - 600 µE m-2 s-1
27-jun	O2N37	B	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
27-jun	O2N37	B	10	^{32}P	ULB: PvI 0 - 600 µE m-2 s-1
27-jun	O2N37	B	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
27-jun	O2N37	B	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1, SF 0.2 and 2 µm
27-jun	O2N37	B	10	^{14}C	ULB: PvI 0 - 600 µE m-2 s-1
	O2N37	B	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
27-jun	O2N37	C	10, 40, 60, 80	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
27-jun	O2N38	A	10, 30, 60, 70	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
28-jun	O2N40	B	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
28-jun	O2N40	B	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
28-jun	O2N40	B	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
28-jun	O2N40	B	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
28-jun	O2N40	B	10, 60	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
28-jun	O2N40	B	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm
28-jun	O2N40	B	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
28-jun	O2N40	C, D	10, 50, 70	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
29-jun	O2N42	B	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
29-jun	O2N42	B	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
29-jun	O2N42	B	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
29-jun	O2N42	B	10, 60	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
29-jun	O2N42	B	10, 60	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
29-jun	O2N42	B	10, 60	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm

		Cast	Depth	Process	Comment
29-jun	O2N42	B	10, 60	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm
29-jun	O2N42	C	10, 50, 70, 80	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
29-jun	O2N42	D	10, 50, 70, 80	^{14}C	IIM: PvI 0-1000 µE m-2 s-1
4-jul	O2LC47	B	10	^{15}N (NO_3, NH_4, urea)	VUB: CL at 188 µE m-2 s-1
4-jul	O2LC47	B	10	^{15}N (NO_3, NH_4)	VUB: Michaelis-Menten kinetics at 188 µE m-2 s-1
4-jul	O2LC47	B	10	$^{15}NH_4$	VUB: Isotope dilution at 188 µE m-2 s-1
4-jul	O2LC47	B	10	^{32}P	ULB: Dark and azide at 188 µE m-2 s-1, SF 0.2 and 2 µm
4-jul	O2LC47	B	10	^{32}P	ULB: Dark and antibiotics at 188 µE m-2 s-1, SF 0.2 and 2 µm
4-jul	O2LC47	B	10	^{32}P	ULB: Michaelis-Menten kinetics at 188 µE m-2 s-1
4-jul	O2LC47	B	10	^{14}C	ULB: CL at 188 µE m-2 s-1 with and without antibiotics, SF 0.2 and 2 µm
	O2LC47	B	60?	^{14}C	ULB: PvI 0 - 600 µE m-2 s-1
4-jul	O2LC47	B	60?	^{14}C	ULB: Dark, CL 80, 188 and 630 µE m-2 s-1, SF 0.2, 2 and 20 µm

Key: Antibiotics = Polymyxin and Streptomycin, CL = constant light, SF = size fractionation. Samples for nutrients, DON, POC/PN and chlorophyll were collected where incubations were performed.