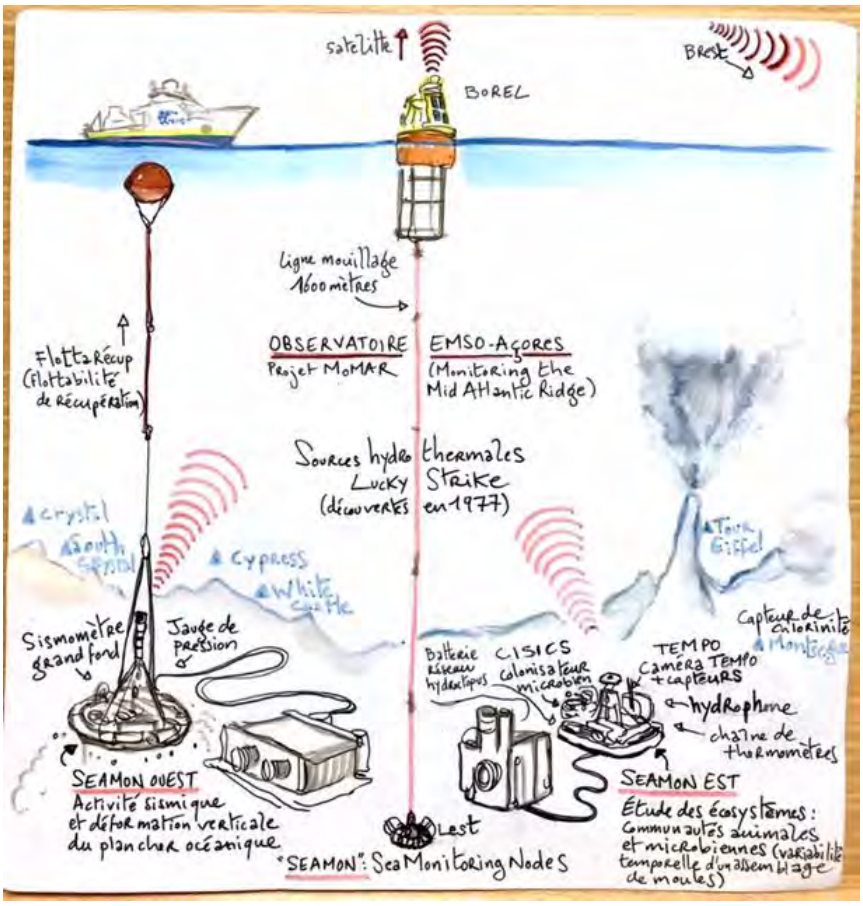
OPERATIONAL CRUISE REPORT
MOMARSAT 2022
WORKING ZONE - LUCKY STRIKE
RESEARCH INFRASTRUCTURE– EMSO-AÇORES
R/V POURQUOI PAS ?
HOV NAUTILE



Chief scientist M0MARSAT: Pierre-Marie SARRADIN, Ifremer
Co-chief scientist : Marjolaine MATABOS, Ifremer
Infrastructure engineering lead : Laurent GAUTIER, Ifremer

Demobilisation :	27/06/22	Nb days : 21	
Departure harbour :	Ponta Delgada, Portugal	Arrival harbour :	Horta, Portugal
		Cruise DOI	http://dx.doi.org/10.17600/18001914

Sommaire

This document presents the operations carried out and lists the samples taken during the MoMARSAT 2022 cruises.

1. Authorisations

The request for authorization to work with the Portuguese authorities was transmitted in October 2021. The online form (Request for Authorization to Access / Sampling for Scientific Purposes) to request sampling from the Azores government was completed by the mission leader in February 2022.

Contact was made with the Portuguese focal point in March 2022. The email address of the focal point is invalid. However, the message was indeed read via the generic ABS address.

Copies of the following documents are attached.

Ref / date	Origin	Document	page
Ref 58520/2022 Proc. DGPE/USEN-4/2022 13/05/2022	Ministerio dos Negocios Estrangeiros	Nota Verbal	98
Ref 58520/2022 Proc. DGPE/USEN-4/2022 13/05/2022	Ministerio dos Negocios Estrangeiros	Note Verbale (Traduction française)	100
AMP / 2022 / 008	REGIAO AUTONOMA DOS AÇORES Secretaria Regional do Mar Ciência e Tecnologia Direcao Regional Dos Assuntos do Mar	AUTHORIZATION AREA FOR SCIENTIFIC RESEARCH IN MARINE PROTECTED AREA	102
22/2022/DRCTD	REGIAO AUTONOMA DOS AÇORES Vice-Presidencia do Governo Regional Direcao Regional da Ciencia e Technologia	Declaracao de Conformidade Internacionalmente Reconhecido Internationally Recognized Compliance Cettificate	103
DPM/2022/021	REGIAO AUTONOMA DOS AÇORES Secretaria Regional do Mar e Das Pescas Direcao Regionalde Politicas Maritimas	Licenca de Utilizacao de Recursos Hidricos	105
14/03/2022	Chief scientist	Mail to the national focal point ABS	107
928888113 10/02/2022	Secretaria Regional dos recursos Naturais – Governo dos Azores	Request for Authorization to Access / Sampling for Scientific Purposes, http://www.formstack.com/forms/GRA-Request_Access_Sampling_Scientific_Purposes	108

2. Work objective and description

2.1. Cruise objectives

The MoMARSAT cruise series (https://doi.org/10.18142/130) ensures the annual maintenance of the EMSO-Azores observatory on the Lucky Strike vent field. This seabed observatory has been operating since 2010 and aims to acquire long time-series data (≥10 years) on hydrothermal, tectonic, volcanic processes and the associated ecosystems of an active hydrothermal field located on the Mid-Atlantic Ridge. EMSO-Azores is part of the European network EMSO ERIC (European Multidisciplinary Seafloor and water column Observatory - http://emso.eu/), supported in France by the Research Infrastructure (MESR) EMSO-FR whose management is ensured by a collaboration Ifremer-CNRS.

The array includes an observatory infrastructure that comprises a surface buoy (BOREL) ensuring the transfer of data by satellite to a server on land. Two junction boxes (SEAMON) deployed on the bottom communicate acoustically with BOREL and through a cable to the connected instruments. In its current configuration (after MOMARSAT 2022 maintenance), the "connected" part of the observatory includes a surface weather station, a seismometer (OBS), a bottom pressure gauge, a biological observation module (TEMPO- with an HDTV camera and 2 projectors), an oxygen sensor and a turbidity sensor, a fluid sampler (DEAFS), an EMSO generic instrumentation module (EGIM) and four hydrophones (HYDROCTOPUS).

The infrastructure also includes autonomous instruments that store their data internally: 4 OBSs, 2 pressure sensors placed on the bottom, 28 autonomous temperature probes deployed within smokers and on diffusion zones, 6 autonomous current meters placed on the bottom, 6 microbiological colonisers, 8 biological colonizers, 3 autonomous cameras (POMMEs); and an oceanographic mooring. These "unconnected" elements contribute to extend the spatial coverage of the area studied during each maintenance cruise.

Maintenance operations include the replacement of the BOREL-SEAMON infrastructure and the connected instruments, their reconditioning on board and their redeployment. In situ sampling of rocks, fluids, fauna, microorganisms and the acquisition of imaging transects on targeted sites allow the multi-year monitoring of the system and complete the infrastructure data. These measurements are also used to calibrate/validate the measurements made by the instrumental fleet. This year, bottom operations was carried out by the manned submersible Nautile. In order to optimize ship time, a physical oceanography program to study the hydrodynamic circulation on this part of the ridge was implemented during nights (project MicroRiYo@Sea 3D).

The coordination of maintenance operations and the initial data exploitation are handled by Mathilde Cannat (EMSO France manager) and Pierre Marie Sarradin (EMSO-Azores Regional team leader). The management of on-board operations is coordinated this year by Marjolaine Matabos, Pierre-Marie Sarradin and Laurent Gautier. The data acquired during the Momarsat cruises are available on the portal http://www.emso-fr.org/fr/EMSO-Azores. The study area is part of Portugal's EEZ and is also a “Marine Protected Area” (OSPAR).

The data acquired during the cruise are available online:

- data acquired by the infrastructure via the portal - http://www.emso-fr.org/fr/EMSO-Azores.
- video data acquired by the ROV Victor on the Marine Sciences Video portal - http://video.ifremer.fr/.
- cruise and dive reports on the cruise catalogue portal https://www.flotteoceanographique.fr

The cruise doi is https://doi.org/10.17600/18001914.

COVID procedure:

Due to the COVID pandemic, a doctor was on board during the entire cruise and carried out the routine testing procedure of the teams. 12 cases were identified and underwent a 7-day lockdown. The planning of the cruise was modified due to this procedure, resulting in 3 dives not being carried out.

2.2. Associated projects

The MoMARSAT cruise and EMSO-Azores observatory are therefore part of the following projects:

- EMSO ERIC (European Multidisciplinary Seafloor and water column Observatory, www.emso-eu.org/, DG J. Danobeitia)
- EU H2020 iAtlantic (Integrated assessment of the Atlantic Marine Ecosystems in space and time, http://www.iatlantic.eu/, coordinator M. Roberts University of Edinburgh, grant agreement No 818123). The MoMARSAT cruises contribute to WP1, WP2, WP3 and WP4 of the project. Repeated visits at Lucky Strike support the acquisition of underwater imagery data and environmental measurements used for the spatio-temporal mapping of habitats and biological communities at the scale of the edifice and vent field (WP2, WP3). The collection of organisms will allow the implementation of on-board and onshore experiments to determine the impact of deoxygenation on the behaviour of mussel juveniles (WP4). The data acquired by the observatory will contribute to the calibration of high resolution hydrodynamic models.
- MicroRiYo@Sea 3D : The specific acquisition program dedicated to the study of the water column combining CTD moorings and the operation of a VMP (Vertical microprofiler) to describe the microturbulence of the water column was carried on. This programme was enriched with the deployments of the new 3D turbulence observation platform MicroRiYo@Sea 3D.

- Abyssbox: Pressurised aquarium presenting crabs and shrimps collected from the Lucky Strike hydrothermal field to the general public. PI D. Barthélémy (Océanopolis). Segonzacia mesatlantica crabs and Mirocaris fortunata shrimps will be collected, kept alive and transferred to Brest at Océanopolis for the general public exhibition "Abyssbox" started in 2012 in collaboration with Paris Sorbonne University (UPMC) and Ifremer.
- TACOS (ISBlue project, PI S. Fuchs): The biological samples will also be used for the TACOS project (Test d'efficacité de Conditionnement, d'extractiOn d'ADN et deSéquençage en direct ou différés), the objective of which is to carry out the complete molecular biology analysis (DNA extraction to sequencing) of samples directly on board using a new-generation miniature sequencer, the MinION (Oxford Nanopore Technol)
- TENSE: The TENSE (Transfer of ENergy in hydrothermal vents – an in Situ Experiment) project, funded by ISblue (Interdisciplinary graduate School for the BLUE planet, FR), is a collaboration between Ifremer (FR), the University of Western Brittany (FR) and the CIIMAR (PT, Dr. Teresa Amaro. It aims at studying how *Bathymodiolus azoricus* influences carbon transfer in hydrothermal vent food webs. The project will study how *B. azoricus* influences the rates and pathways of carbon fixation within the assemblage using six small (0.07 m^2) enclosures and 13C-labelled bicarbonate.
- ANR IRONWOMAN: the collection of iron-rich microbial mats will feed the IRONWOMAN project (ANR-21-CE02-0012; PI C. Rommevaux 2021-2025). The project aims at validating the hypothesis of the primordial role of marine iron-oxidizing bacteria (FeOB) in promoting the development of iron-rich mats, and impacting the iron biogeochemical cycle and the primary production in the deep oceans, according to the variations in environmental conditions.
- DEEP REST: (PI J. Sarrazin – Ifremer- EU Biodiversa grant – 2022-2026) Conservation & restoration of deep-sea ecosystems in the context of deep-sea mining. DEEP REST will investigate two remarkable deep-sea ecosystems namely polymetallic nodule fields and hydrothermal vents, including their extended peripheries. Four major areas will be investigated: the Clarion Clipperton Zone (CCZ) and the DISCOL Experimental Area (DEA) in the Pacific Ocean for nodule fields and the northern Mid-Atlantic Ridge (nMAR), and the Arctic Mid-Ocean Ridge (AMOR) for active and inactive hydrothermal vents. These remote ecosystems are at risk of exploitation of their associated strategic metal resources, i.e. polymetallic nodules (PMN) and seafloor massive sulfides (SMS). However, questions about the impacts of mining and resilience of deep sea communities to anthropogenic activities are still pending. DEEP REST will enhance fundamental knowledge on species and functional diversity and their interconnections to develop effective environmental management plans and regulations to protect unique and vulnerable marine habitats. We will evaluate the effectiveness of passive and innovative active restoration approaches on the recovery of ecosystem biodiversity and assess how these actions could contribute to maintaining ecosystem functions and services.

Biological rhythms are a fundamental property of life. The circadian clock (~24-hour) is the only characterised biological clock to date, but it is not the only timekeeping system that nature provides. Marine ecosystems are shaped by environmental cycles, ranging from a few hours (tidal and solar cycles) to a year (seasons). And not only have biological rhythms been widely described in organisms, but they are also potentially present in all environments, including places where there is absolutely no solar light like deep-sea hydrothermal vents. Indeed, biological rhythms have recently been described in an hydrothermal mussel, Bathymodiolus azoricus, whose physiology and behaviour are under tidal influence at 1700 m depth. The project Audrey Mat is developping is a fundamental research project aiming at understanding the temporal functioning of the mussel *B. azoricus* and of its natural deep-sea environment. This includes working both at the behavioural and the molecular level to understand how *B. azozicus* timing system works and how it perceives its environment, synchronizes, and interacts with it. At the molecular level, she will use both genomics tools to get a big picture of the mussel, and target specific markers known for their role in the biological clock of shallow-water species. Audrey Mat initiated this work with us as a LabexMER postdoc. She recently joined the laboratory of Pr Kristin Tessmar-Raible, affiliated primarely with the University of Vienna in Austria, and also with the Alfred Wegener Institute in Germany. The work will be carried out in collaboration with Ifremer, and specifically Dr Marjolaine Matabos.

Polymer degradation: this year, we also started a prospective deployment of specimens to study the degradation of biodegradable polymers in deep environment. 5 bags of samples were deployed in the vicinity of Seamon W and will be recovered during the next cruises. In parallel, accelerated ageing tests are being carried out in the SMASH laboratory on the same materials, taking into account various environmental parameters (pressure, temperature, biological environment) in order to set up predictive models of life duration. Collaboration P. Davies (Ifremer).

2.3. Position of the array and instruments

Tableau 1 : Position of the different arrays and instruments at the end of the 2022 maintenance cruise

Name	Description	Comment	Deployment date	Time	Locality	Latitude	Longitude	Prof(m)
BOREL	Buoy	Lest position	23/06/2022	19:10		N37°18.097	W32°16.749	1690
JPPE	Pressure gauge	PL2035-8	18/06/2022	11:26		N 37 16.993	W 032 14.856	
JPPW	Pressure gauge	PL2037-10	20/06/2022	12:19	JPPW	N 37 17.513	W 032 16.838	1729
OBS - LSVEP	Seismometer	Point de Release of hydro winch	13/06/2022	22:45		N 37° 16.804'	W 32° 14.520'	
OBS - LSVNP	Seismometer	Release point from winch	09/06/2022	23:48		N 37° 19.143'	W 32° 16.856'	
OBS-LSVWP	Seismometer	Release point from winch	14/06/2022	14:09		N37°17.937	W32°19.540	
OBS-LSVSP	Seismometer	Release point from winch	23/06/2022	21:52		N 37° 15.624'	W 32° 17.880'	
SEAMON W	Station	PL2037-10	20/06/2022	12:56		N 37 17.549	W 032 16.891	1727
OBS	Seismometer	PL2040-13	23/06/2022	15 :44		N 37 17.476	W 032 16.789	
échantillons de P. Davis	Expérience de vieillissement	Seamon W PL2037-10	20/06/2022	13:10		N 37 17.469	W 032 16.798	1738
SEAMON E	Station	PL2040-13	23/06/2022	11:11	Tour Eiffel	N 37 17.316	W 032 16.539	
TEMPO	Camera	PL2040-13	23/06/2022	12:31	Tour Eiffel	N 37 17.324	W 032 16.540	
DEAFS	Fluid sampler	PL2041-14	24/06/2022	10:55	Montsegur	N 37 17.283	W 032 16.542	1704
coloniser ANA	Biological colonizer	PL2034-7	17/06/2022	12:00	Sintra	N 37 17.510	W 032 16.548	
coloniser ANA	Biological colonizer	PL2034-7	17/06/2022	12:02	Sintra	N 37 17.510	W 032 16.547	
coloniser ANA	Biological colonizer	PL2035-8	18/06/2022	11:36		N 37 16.994	W 032 14.859	
coloniser ANA	Biological colonizer	PL2035-8	18/06/2022	11:36		N 37 16.994	W 032 14.859	
coloniser ANA	Biological colonizer	PL2035-8	18/06/2022	11:36		N 37 16.994	W 032 14.859	
coloniser ANA	Biological colonizer	PL2037-10	20/06/2022	13:33		N 37 17.465	W 032 16.790	1739
coloniser ANA	Biological colonizer	PL2037-10	20/06/2022	13:34		N 37 17.466	W 032 16.792	1739
coloniser ANA	Biological colonizer	PL2037-10	20/06/2022	13:35		N 37 17.468	W 032 16.792	1740
HTNKE 38003.	Temperature sensor	PL2038-11	21/06/2022	14:12	Tour Eiffel	N 37 17.341	W 032 16.542	1696
HTNKE 41003	Temperature sensor	PL2033-6	16/06/2022	15:08	Tour Eiffel	N 37 17.335	W 032 16.542	1699
HTNKE29016	Temperature sensor	PL2032-5	15/06/2022	10:50	Montsegur	N 37 17.286	W 032 16.529	1703
HTNKE29017	Temperature sensor	PL2030-3	12/06/2022	13:24	White Castel	N 37 17.385	W 032 16.860	1724
HTNKE29020	Temperature sensor	PL2030-3	12/06/2022	11:11	Tour Eiffel	N 37 17.353	W 032 16.517	1694
HTNKE30002	Temperature sensor	PL2038-11	21/06/2022	15:02	Tour Eiffel	N 37 17.333	W 032 16.539	1697
HTNKE30011	Temperature sensor	PL2030-3	12/06/2022	14:29	South Crystal	N 37 17.425	W 032 16.935	1723

HTNKE300 12	Temperature sensor	PL2030-3	12/06/2022	13:45	White Castel	N 37 17.380	W 032 16.869	1715
HTNKE380 01	Temperature sensor	PL2033-6	16/06/2022	15:51	Tour Eiffel	N 37 17.336	W 032 16.546	1700
HTNKE410 01	Temperature sensor	PL2034-7	17/06/2022	13:04	Sintra	N 37 17.536	W 032 16.503	
HTNKEXXX	Temperature sensor	PL2033-6	16/06/2022	12:35	Tour Eiffel	N 37 17.355	W 032 16.543	1692
HTW005	Temperature sensor	PL2033-6	16/06/2022	11:21	White Castel	N 37 17.380	W 032 16.864	1711
HTW005	Temperature sensor	PL2031-4	13/06/2022	11:50	South Crystal	N 37 17.432	W 032 16.930	1721
HTWN013	Temperature sensor	PL2030-3	12/06/2022	13:16	White Castel	N 37 17.384	W 032 16.861	1723
HTWN021	Temperature sensor	PL2036-9	19/06/2022	15:46	AISICS	N 37 17.330	W 032 16.531	1692
Ltgrad 10.	Temperature sensor	PL2038-11	21/06/2022	14:20	Tour Eiffel	N 37 17.341	W 032 16.542	1696
Ltgrad 2.	Temperature sensor	PL2038-11	21/06/2022	14:46	Tour Eiffel	N 37 17.339	W 032 16.541	1697
LTgrad1	Temperature sensor	PL2033-6	16/06/2022	14:57	Tour Eiffel	N 37 17.335	W 032 16.543	1699
LTgrad12	Temperature sensor	PL2033-6	16/06/2022	16:00	Tour Eiffel	N 37 17.336	W 032 16.546	1699
LTgrad14	Temperature sensor	PL2033-6	16/06/2022	16:08	Tour Eiffel	N 37 17.336	W 032 16.544	1699
LTGrad6	Temperature sensor	PL2030-3	12/06/2022	11:20	Tour Eiffel	N 37 17.349	W 032 16.534	1692
LTGrad8	Temperature sensor	2030-3	12/06/2022	14:10	White Castel	N 37 17.395	W 032 16.867	1722
LTgrad9	Temperature sensor	PL2033-6	16/06/2022	15:17	Tour Eiffel	N 37 17.336	W 032 16.542	1699
LTmetal13	Temperature sensor	PL2033-6	16/06/2022	16:14	Tour Eiffel	N 37 17.336	W 032 16.546	1700
LTW003	Temperature sensor	PL2038-11	21/06/2022	14:40	Tour Eiffel	N 37 17.338	W 032 16.541	1697
LTW006	Temperature sensor	PL2030-3	12/06/2022	14:36	South Crystal	N 37 17.425	W 032 16.935	1722
LTW017	Temperature sensor	2038-11	21/06/2022	15:07	Tour Eiffel	N 37 17.335	W 032 16.539	1697
LTW020	Temperature sensor	PL2038-11	21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699
POMME 1	Camera	PL2039-12 périphérie MERCES	22/06/2022	13:17	Montsegur	N 37 17.282	W 032 16.523	1704
POMME 2	Camera	PL2039-12 quadrat ROA	22/06/2022	14:10	Montsegur	N 37 17.284	W 032 16.531	1703
POMME 3	Camera	PL2039-12 quadrat C1B	22/06/2022	12:46	Montsegur	N 37 17.279	W 032 16.527	1703
TCM3-3	Current meter	PL2040-13	23/06/2022	15:54	Lac de lave	N 37 17.469	W 032 16.790	
TCM3-1	Current meter	PL2038-11	21/06/2022	15:17	Tour Eiffel	N 37 17.302	W 032 16.537	1704
TCM3-2.	Current meter	PL2038-11	21/06/2022	15:48	Tour Eiffel	N 37 17.354	W 032 16.532	1692
TCM3-B.	Current meter	PL2038-11	21/06/2022	16:09	Tour Eiffel	N 37 17.342	W 032 16.542	1694
TCM3-C.	Current meter	PL2038-11	21/06/2022	16:16	Tour Eiffel	N 37 17.342	W 032 16.524	1694
TCM3-D.	Current meter	PL2038-11	21/06/2022	15:42	Tour Eiffel	N 37 17.349	W 032 16.537	1691

3. Working zones and maps

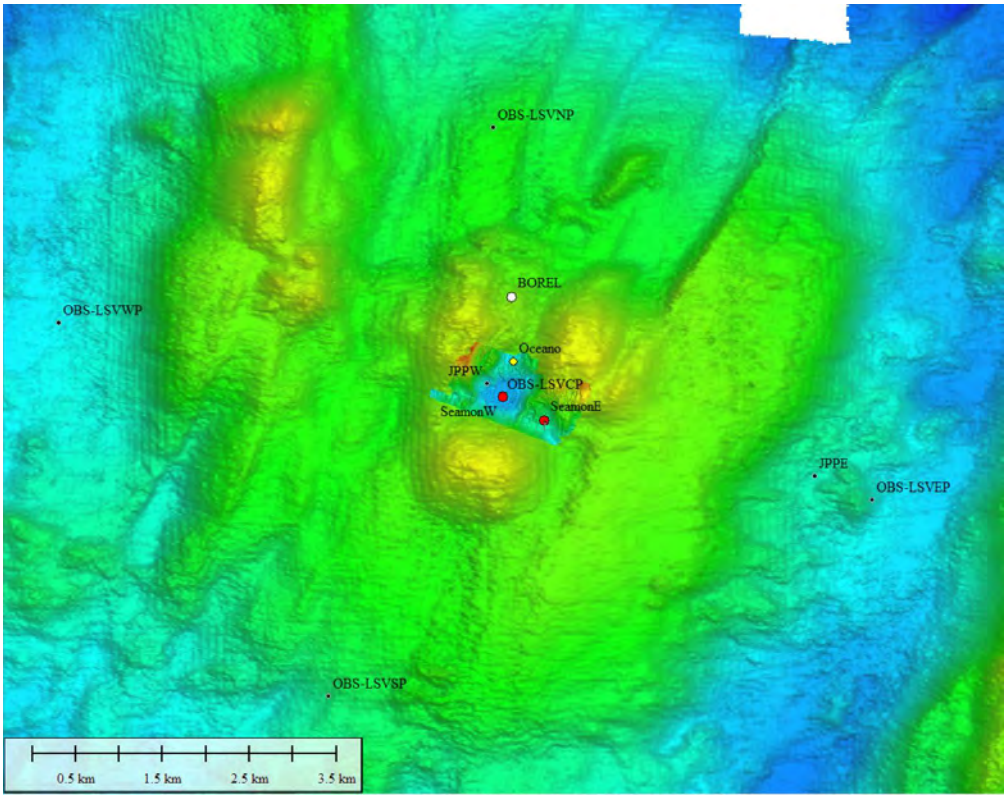


Fig. 3 Map of the area and morrings poitions after the cruise Momarsat 2022

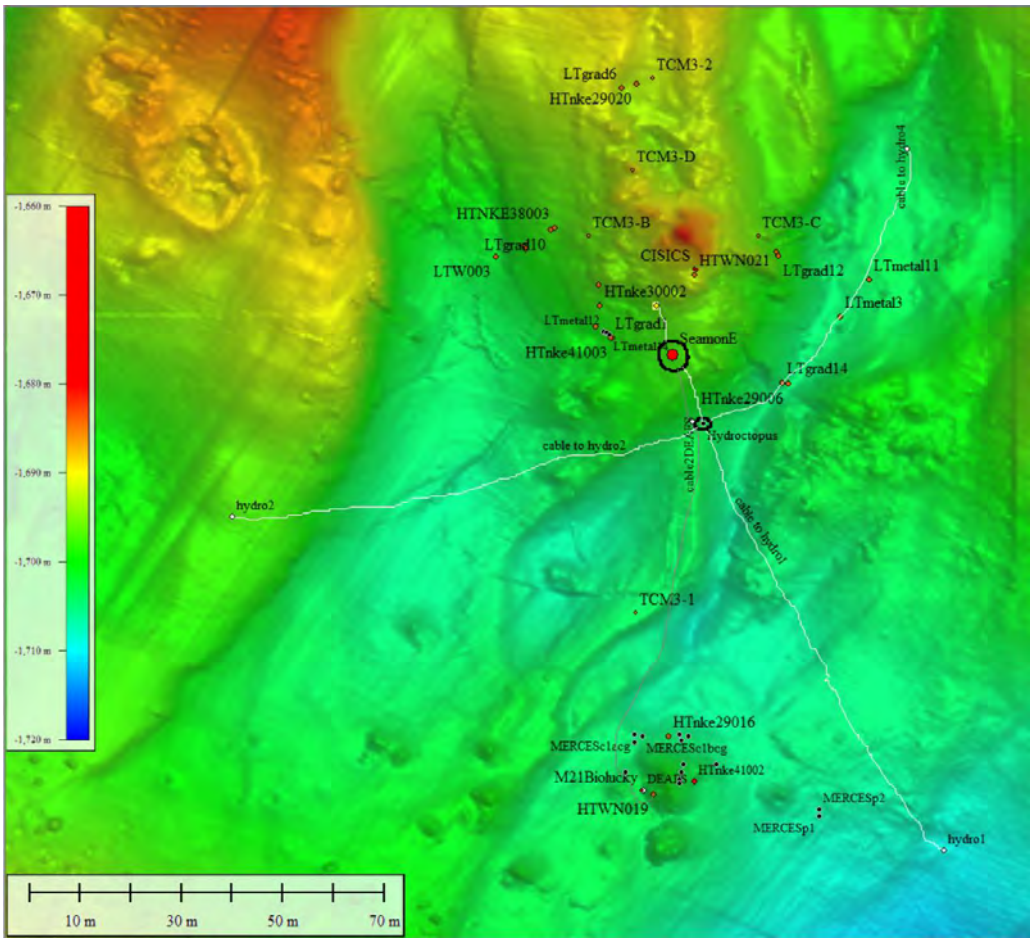


Fig. 4 Instrumentation at the Montesegur and Eiffel Tower edifice after Momarsat 2022

4. Scientifc and technical crew onboard

The participants of the MoMARSAT 2022 cruise are from the following organizations: IFREMER, CNRS-IPGP, M.I.O and University of Azores. It is a multidisciplinary team composed of both engineers and technicians who designed the observation infrastructure and its various components - the main object of the campaign, and user scientists, specialists in connected or autonomous instruments and in the long-term monitoring of the environment near the observed area.

Due to the COVID pandemic, a doctor was on board during the whole campaign.

The 2022 cruise was led by P.M. Sarradin and M. Matabos. L. Gautier was responsible for the infrastructure. The treatment of the navigation was assured by M. Matabos and M. Cannat. F. Hodel, A. Astorch, J. Sarrazin and P.M. Sarradin integrated the data into the SEALOG and CASINO software.

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Table 2 : Scientific crew onboard

NAME	First NAME	M/F (1)	DISCIPLINE(2)	AFFILIATION AND NATIONALITY					POSITION (4)					
					F	UE	E	A	CH.	I/T	D	ET	P.S	A
Sarradin	Pierre-Marie	H	Biogeochemistry	IFREMER BEEP	X				X					
Matabos	Marjolaine	F	Ecology	IFREMER BEEP	X				X					
Gautier	Laurent	H	Electonics	IFREMER RDT	X					X				
Castillo	Alain	H	Fluid geochemistry	CNRS GET	X					X				
Chavagnac	Valérie	F	Fluid geochemistry	CNRS GET	X				X					
Hodel	Florent	H	Electronics/DEAFS	CNRS GET	X				X					
Destrigneville	Christine	F	Fluid geochemistry	CNRS GET	X				X					

Dumouch	Tom	H	Instrumentation & Geophysics	CNRS IPGP	X					X				
Cannat	Mathilde	F	Geology/Geophysics	CNRS IPGP	X				X					
Fontaine	Fabrice	H	Geology/Geophysics	CNRS IPGP	X				X					
Sarrazin	Jozée	F	Ecology	IFREMER BEEP	X				X					
Lesongeur	Françoise	F	Microbiology	IFREMER BEEP	X					X				
Gayet	Nicolas	H	Cehmistry, instrumentation	IFREMER BEEP	X					X				
Hubert	Morgane	F	Chemistry	IFREMER BEEP	X					X				
Godfroy	Anne	F	Microbiology	IFREMER BEEP	X				X					
Fuchs	Sandra	F	Biology	IFREMER BEEP	X					X				
Rodier	Philippe	H	Electronics	IFREMER BEEP	X					X				
Michel	Loïc	H	Ecology	IFREMER BEEP		X			X					
Mertz	Nicolas	H	Electronics	IFREMER RDT	X					X				
Chauvet	Adrien	H	Électronics	IFREMER RDT	X					X				
Saliou	Damien	H	Mécanics	IFREMER RDT	X					X				
Bocher	Alan	H	Mécanics	IFREMER RDT	X					X				
Podeur	Christian	H	Mécanics	IFREMER RDT	X					X				
Colaço	Ana	F	Écology	IMAR		X			X					
Cruz	Mariana	F	Écology	IMAR		X					X			
Rommevaux	Céline	F	Géomicrobiology	CNRS MIO	X				X					
Astorch	Aina	F	Géomicrobiology	CNRS MIO		X					X			
Ferron	Bruno	H	Physical oceanography	CNRS LOPS	X				X					
Leizour	Stéphane	H	Physical oceanography	Ifremer-LOPS	X					X				
Vic	Clément	H	Physical oceanography	Ifremer LOPS	X				X					
Roudeau	Damien	H	Illustrator		X									X
TOTAL	31	18H/ 13F			27	4			14	14	2			1

(1) **M/F** : Gender.

(2) **Discipline :** Geology, physics, chemistry, biology, mécanics, électronics, informatics, etc.

(3) **Affiliation** is the employer: **F** : France, **UE** : EUropean Union**, E** : Europe outside of the European Union, **A** : Other countries

(4) **CH. :** Researcher, **I/T :** Engineers / technicians, **D :** PhD candidates, **ET :** Student, **P. S :** Submersible pilots (excluding ship crew), **A :** Journalists, Observers,…

5. Operation chronology

Tableau 3 : Chronology of operations at the surface and on the bottom conducted during the cruise (extracted from Casino & SEALOG software).

Date	Time	Latitude	Longitude	Name	Action	Operation identifier	Observation
06/08/2022	8 :00				Mobilisation		Ponta Delgada
06/08/2022	20 :00				Beginning of transit		
08/06/2022	04 :00				Arrival on the area		
08/06/2022	06:25:18	N 37° 17.71773'	W 32° 16.75825'	Mooring microRIO	Launching in water	MICRORIO-22-2	Start launching, ballast first
08/06/2022	08:45:08	N 37° 17.71787'	W 32° 16.75715'	Mooring microRIO	Mooring release	MICRORIO-22-1	releaser interogation: 1700 m + 15 m (distance releaser-bottom) = 1715 m on the mooring point
08/06/2022	09:03:30	N 37° 17.7172'	W 32° 16.75811'	Mooring microRIO	End of launching	MICRORIO-22-10	
08/06/2022	09:51:18	N 37° 17.54266'	W 32° 17.12944'	NAUTILE	LAUNCHING	NAUT-2028-01-2	
08/06/2022	10:40:19	N 37° 17.67862'	W 32° 17.05198'	Deep-sea cable	Launching in water	CGF-RECUP SEAMONW-1	Seamon W recovery
08/06/2022	12:10:26	N 37° 17.50199'	W 32° 16.83909'	Deep-sea cable	Cable deployment	CGF-RECUP SEAMONW-2	Nautile in safety position, cable immersion 1622m
08/06/2022	12:44:22	N 37° 17.47929'	W 32° 16.7983'	Deep-sea cable	At the bottom	CGF-RECUP SEAMONW-3	Nautile resuming
08/06/2022	13:05:24	N 37° 17.47926'	W 32° 16.79888'	Deep-sea cable	Hooking station	CGF-RECUP SEAMONW-4	Nautile hook the station
08/06/2022	13:26:17	N 37° 17.4645'	W 32° 16.78268'	Deep-sea cable	Recovery cable	CGF-RECUP SEAMON W-5	Recovery 0.3 puis 0.6 ms-1
08/06/2022	14:45:05	N 37° 17.46391'	W 32° 16.78282'	Deep-sea cable	On board	CGF-RECUP SEAMON W-6	Cable and Station onbord
08/06/2022	16:08:29	N 37° 17.58953'	W 32° 16.87828'	NAUTILE	Authorising release	NAUT-2028-01-3	
08/06/2022	17:10:09	N 37° 16.94347'	W 32° 17.11529'	NAUTILE	On board	NAUT-2028-01-4	
08/06/2022	18:10:23	N 37° 18.03974'	W 32° 16.45757'	Mooring microRIO	Triangulation	MICRORIO-22-3	Triangulation 1: 1859 m
08/06/2022	18:17:17	N 37° 17.8482'	W 32° 16.47253'	Mooring microRIO	Triangulation	MICRORIO-22-4	Triangulation 2: 1766 m
08/06/2022	18:28:34	N 37° 17.57014'	W 32° 16.48362'	Mooring microRIO	Triangulation	MICRORIO-22-5	Triangulation 3: 1773 m
08/06/2022	18:36:03	N 37° 17.45749'	W 32° 16.69519'	Mooring microRIO	Triangulation	MICRORIO-22-6	Triangulation 4: 1779 m
08/06/2022	18:41:18	N 37° 17.52736'	W 32° 16.96596'	Mooring microRIO	Triangulation	MICRORIO-22-7	Triangulation 5: 1774 m
08/06/2022	18:47:48	N 37° 17.85183'	W 32° 17.05267'	Mooring microRIO	Triangulation	MICRORIO-22-8	Triangulation 6: 1780 m
08/06/2022	18:51:41	N 37° 18.08204'	W 32° 16.88135'	Mooring microRIO	Triangulation	MICRORIO-22-9	Triangulation 7: 1843 m
09/06/2022	00:01:29	N 37° 17.71456'	W 32° 16.78766'	ship ADCP	Start profile	SADCP7	
09/06/2022	04:00:26	N 37° 17.76266'	W 32° 16.9235'	Ship ADCP	End of profile	SADCP11	
09/06/2022	07:30:10	N 37° 17.72832'	W 32° 16.84189'	NAUTILE ELEVATOR	Launching in water	ASCE-01-1	free fall
09/06/2022	09:43:56	N 37° 17.19007'	W 32° 16.6214'	NAUTILE	LAUNCHING	NAUT-2029-02-5	

09/06/2022	13:39:27	N 37° 17.4685'	W 32° 16.28666'	NAUTILE ELEVATOR	At the surface	ASCE-01-2	
09/06/2022	14:16:24	N 37° 17.15284'	W 32° 16.69837'	NAUTILE ELEVATOR	On board	ASCE-01-3	
09/06/2022	16:27:02	N 37° 17.47451'	W 32° 16.16907'	NAUTILE	Release authorisation	NAUT-2029-02-6	
09/06/2022	17:33:40	N 37° 17.25808'	W 32° 17.15867'	NAUTILE	On board	NAUT-2029-02-7	
09/06/2022	18:12:54	N 37° 17.8628'	W 32° 19.43182'	Autonomous OBS	Acoustic release de l'OBS	OBS-RECUP LSVWO-11	
09/06/2022	18:35:15	N 37° 17.6526'	W 32° 19.57171'	Autonomous OBS	OBS on board	OBS-RECUP LSVWO-13	
09/06/2022	20:10:05	N 37° 19.11381'	W 32° 17.08459'	Autonomous OBS	Acoustic release of the 'OBS	OBS-RECUP LSVNO-14	
09/06/2022	21:30:02	N 37° 19.13378'	W 32° 16.888'	Autonomous OBS	OBS on board	OBS-RECUP LSVNO-15	
09/06/2022	22:18:58	N 37° 19.14346'	W 32° 16.85667'	Autonomous OBS	Launching in water using hydro winch	OBS-DEP-LSVNP-16	
09/06/2022	23:48:46	N 37° 19.14349'	W 32° 16.85554'	Autonomous OBS	Release of hydro winch	OBS-DEP-LSVNP-17	
10/06/2022	00:30:39	N 37° 19.14395'	W 32° 16.85573'	Autonomous OBS	Hydro winch on board	OBS-DEP-LSVNP-18	
10/06/2022	01:15:44	N 37° 17.95033'	W 32° 19.52792'	Autonomous OBS	Launching in water using hydro winch	OBS-DEP-LSVWP-19	
10/06/2022	02:15:59	N 37° 17.95462'	W 32° 19.53356'	Autonomous OBS	INCIDENT	OBS-DEP-LSVWP-1	The acoustic release does not respond – OBS is brought back up at the surface
10/06/2022	02:55:13	N 37° 17.95415'	W 32° 19.53374'	Autonomous OBS	OBS on board	OBS-DEP-LSVWP-2	Le largueur a pris l'eau, déploiement annulé
10/06/2022	02:59:10	N 37° 17.95226'	W 32° 19.52744'	Ship ADCP	Start profile	SADCP12	
10/06/2022	08:17:40	N 37° 20.37227'	W 32° 23.94859'	Ship ADCP	End of profile	SADCP13	
10/06/2022	14:12:22	N 37° 17.76791'	W 32° 16.80473'	Oceanographic mooring	Release of Mooring	OCEANO-2021-1	
10/06/2022	14:48:20	N 37° 17.98875'	W 32° 16.54003'	CTD	Launching in water	BATHY-CTD01-1	
10/06/2022	15:50:22	N 37° 18.56797'	W 32° 15.42775'	Oceanographic mooring	Mooring on board	OCEANO-2021-2	
10/06/2022	17:26:46	N 37° 17.9662'	W 32° 16.59223'	CTD	Niskin trigger	BATHY-CTD01-2	Niskin 3 40 m du fond
10/06/2022	17:32:40	N 37° 17.9666'	W 32° 16.5922'	CTD	Niskin trigger	BATHY-CTD01-3	Niskin 4, 1500m du fond
10/06/2022	18:07:28	N 37° 17.96643'	W 32° 16.59224'	CTD	Niskin trigger	BATHY-CTD01-4	Niskin s 9 et 10 50 m de la surface
10/06/2022	18:12:23	N 37° 17.96651'	W 32° 16.59219'	CTD	On board	BATHY-CTD01-5	
10/06/2022	18:39:09	N 37° 15.8207'	W 32° 17.8861'	Autonomous OBS	Acoustic release of the OBS	OBS-RECUP-LSVSO-3	
10/06/2022	20:25:15	N 37° 15.71063'	W 32° 18.1721'	Autonomous OBS	OBS on board	OBS-RECUP-LSVSO-4	
10/06/2022	21:25:05	N 37° 17.47223'	W 32° 20.85229'	Ship ADCP	Start profile	SADCP14	
11/06/2022	03:47:06	N 37° 18.51925'	W 32° 20.44575'	Ship ADCP	End of profile	SADCP16	
11/06/2022	07:41:58	N 37° 17.85466'	W 32° 17.11457'	BOREL	Release of ballast	BOREL-2021-1	

11/06/2022	08:33:08	N 37° 17.85871'	W 32° 17.24882'	BOREL	Hooking	BOREL-2021-2	
11/06/2022	08:47:44	N 37° 18.00581'	W 32° 17.2456'	BOREL	Buoy on board	BOREL-2021-3	
11/06/2022	09:37:21	N 37° 18.54496'	W 32° 17.08952'	BOREL	Recovery of the line	BOREL-2021-4	
11/06/2022	10:55:59	N 37° 19.33645'	W 32° 17.01687'	BOREL	Mooring on board	BOREL-2021-5	
11/06/2022	11:22:53	N 37° 16.92103'	W 32° 14.81315'	Autonomous OBS	Acoustic release of the OBS	OBS-RECUP-LSVEO-5	
11/06/2022	12:43:44	N 37° 16.88875'	W 32° 14.55588'	Autonomous OBS	OBS on board	OBS-RECUP-LSVEO-6	
11/06/2022	13:32:32	N 37° 16.80116'	W 32° 14.52331'	Autonomous OBS	Launching in water using hydro winch	OBS-DEP-LSVEP-7	
11/06/2022	15:00:22	N 37° 16.80129'	W 32° 14.52341'	Autonomous OBS	Release of hydro winch	OBS-DEP-LSVEP-8	
11/06/2022	15:52:59	N 37° 16.80094'	W 32° 14.52296'	Autonomous OBS	Hydro winch on board	OBS-DEP-LSVEP-9	
11/06/2022	16:27:44	N 37° 17.70485'	W 32° 16.81858'	VMP	Launching in water	VMP-01-1	
11/06/2022	16:53:36	N 37° 17.49422'	W 32° 16.82489'	CTD	Launching in water	BATHY-CTD02-6	
11/06/2022	17:40:00	N 37° 17.52335'	W 32° 16.80662'	CTD	At the bottom	BATHY-CTD02-7	stop at 12 m from bottom
11/06/2022	17:40:14	N 37° 17.52335'	W 32° 16.80662'	VMP	At the surface	VMP-01-2	
11/06/2022	18:22:39	N 37° 17.52288'	W 32° 16.80686'	CTD	At the surface	BATHY-CTD02-8	
11/06/2022	18:25:22	N 37° 17.52238'	W 32° 16.80613'	CTD	On board	BATHY-CTD02-9	
11/06/2022	18:52:55	N 37° 17.02177'	W 32° 17.28381'	VMP	VMP on board	VMP-01-3	
11/06/2022	19:45:35	N 37° 17.48344'	W 32° 16.79314'	CTD	Launching in water	BATHY-CTD03-10	Point B ANA
11/06/2022	20:25:11	N 37° 17.48263'	W 32° 16.79339'	CTD	Niskin trigger	BATHY-CTD03-11	Niskin 3, depth 1724m
11/06/2022	20:28:05	N 37° 17.48266'	W 32° 16.79327'	CTD	Niskin trigger	BATHY-CTD03-12	Niskin 4, 1606m depth
11/06/2022	21:02:51	N 37° 17.4833'	W 32° 16.79251'	CTD	Niskin trigger	BATHY-CTD03-13	Niksin 9, 50 m under the surface
11/06/2022	21:06:40	N 37° 17.48345'	W 32° 16.79248'	CTD	On board	BATHY-CTD03-14	
11/06/2022	21:40:24	N 37° 17.44785'	W 32° 21.18967'	Ship ADCP	Start profile	SADCP1	
12/06/2022	03:35:03	N 37° 18.55822'	W 32° 20.92138'	Ship ADCP	End of profile	SADCP2	
12/06/2022	09:18:56	N 37° 17.11817'	W 32° 16.65598'	NAUTILE	LAUNCHING	NAUT-2030-03-1	
12/06/2022	09:49:36	N 37° 17.16105'	W 32° 16.37647'	Câble Grand Fond	Launching in water	CGF-RECUP SEAMON E-7	
12/06/2022	11:32:46	N 37° 17.33108'	W 32° 16.53658'	Câble Grand Fond	At the bottom	CGF-RECUP SEAMONE-8	Mooring is at the bottom
12/06/2022	11:33:27	N 37° 17.33133'	W 32° 16.53649'	Câble Grand Fond	On the bottom	CGF-RECUP SEAMON E-9	Nautile a l'autorisation d'aller sur le Mooring
12/06/2022	12:00:17	N 37° 17.33221'	W 32° 16.53616'	Câble Grand Fond	Hooking the station	CGF-RECUP SEAMON E-10	
12/06/2022	14:14:44	N 37° 17.35067'	W 32° 16.54991'	Câble Grand Fond	On board	CGF-RECUP SEAMON E-11	Station on board, TEMPO hanging
12/06/2022	16:17:17	N 37° 17.00807'	W 32° 16.69958'	NAUTILE	Release authorisation	NAUT-2030-03-8	
12/06/2022	16:43:59	N 37° 16.90045'	W 32° 16.87305'	NAUTILE	At the surface	NAUT-2030-03-9	

12/06/2022	17:13:39	N 37° 17.23682'	W 32° 16.93789'	NAUTILE	On board	NAUT-2030-03-10	
12/06/2022	18:05:35	N 37° 16.97435'	W 32° 16.74347'	NAUTILE ELEVATOR	Launching in water	ASCE-02-4	
12/06/2022	19:00:18	N 37° 17.68194'	W 32° 16.76207'	VMP	Launching in water	VMP-02-4	
12/06/2022	19:10:06	N 37° 17.46261'	W 32° 16.5134'	CTD	Launching in water	BATHY-CTD04-17	
12/06/2022	20:06:00	N 37° 17.52459'	W 32° 16.80563'	CTD	On the bottom	BATHY-CTD04-18	
12/06/2022	20:10:32	N 37° 17.52443'	W 32° 16.80558'	VMP	At the surface	VMP-02-5	
12/06/2022	20:47:06	N 37° 17.52428'	W 32° 16.80551'	CTD	At the surface	BATHY-CTD04-19	
12/06/2022	20:50:30	N 37° 17.52831'	W 32° 16.80922'	CTD	On board	BATHY-CTD04-20	
12/06/2022	21:19:05	N 37° 17.29357'	W 32° 17.72256'	VMP	VMP on board	VMP-02-6	
12/06/2022	22:55:33	N 37° 20.3947'	W 32° 30.01999'	Ship ADCP	Start profile	SADCP3	
13/06/2022	08:00:54	N 37° 20.26249'	W 32° 12.20437'	Ship ADCP	End of profile	SADCP4	
13/06/2022	09:51:55	N 37° 17.42812'	W 32° 17.12762'	NAUTILE	LAUNCHING	NAUT-2031-04-11	
13/06/2022	10:16:51	N 37° 17.58689'	W 32° 17.05375'	Câble Grand Fond	Launching in water	CGF-ASCC01-12	
13/06/2022	13:42:54	N 37° 17.58901'	W 32° 17.04714'	Câble Grand Fond	On the bottom	CGF-ASCC01-13	Material exchange completed
13/06/2022	13:49:43	N 37° 17.58855'	W 32° 17.04663'	Câble Grand Fond	cable recovery	CGF-ASCC01-14	0.4 puis 1 ms-1
13/06/2022	14:51:32	N 37° 17.58861'	W 32° 17.04799'	Câble Grand Fond	On board	CGF-ASCC01-15	
13/06/2022	16:48:34	N 37° 16.79737'	W 32° 16.49824'	NAUTILE	Release authorisation	NAUT-2031-04-12	
13/06/2022	17:41:10	N 37° 17.25307'	W 32° 16.82043'	NAUTILE	On board	NAUT-2031-04-13	
13/06/2022	18:22:51	N 37° 17.52459'	W 32° 16.87469'	VMP	Launching in water	VMP-03-7	
13/06/2022	19:00:16	N 37° 17.43193'	W 32° 16.84218'	CTD	Launching in water	BATHY-CTD05-21	
13/06/2022	19:41:07	N 37° 17.52046'	W 32° 16.80787'	CTD	On the bottom	BATHY-CTD05-22	
13/06/2022	19:43:33	N 37° 17.51994'	W 32° 16.80773'	VMP	At the surface	VMP-03-8	
13/06/2022	20:22:06	N 37° 17.51438'	W 32° 16.8039'	CTD	At the surface	BATHY-CTD05-23	
13/06/2022	20:24:37	N 37° 17.50969'	W 32° 16.80424'	CTD	On board	BATHY-CTD05-24	
13/06/2022	20:40:09	N 37° 17.28155'	W 32° 17.42217'	VMP	VMP on board	VMP-03-9	
13/06/2022	20:44:47	N 37° 17.14972'	W 32° 17.32843'	Autonomous OBS	Launching in water using hydro winch	OBS-DEP-LSVEP-20	
13/06/2022	22:45:23	N 37° 16.80423'	W 32° 14.52055'	Autonomous OBS	Release of hydro winch	OBS-DEP-LSVEP-21	
14/06/2022	14:09:02	N 999° 0'	E 999° 0'	Autonomous OBS	Launching in water usinghydro winch	OBS-DEP-LSVWP-24	N37°17.937 W32°19.540
14/06/2022	15:05:11	N 999° 0'	E 999° 0'	Autonomous OBS	Hydro winch on board	OBS-DEP-LSVWP-25	
14/06/2022	15:50:06	N 999° 0'	E 999° 0'	CTD	Launching in water	BATHY-CTD6-25	Pb Casino, position GPS ANA Point D N37°17.570, W 32°21.990

14/06/2022	16:49:38	N 999° 0'	E 999° 0'	CTD	On board	BATHY-CTD6-26	Pb Casino, position GPS ANA Point D N37°17.570, W 32°21.990
14/06/2022	17:47:48	N 999° 0'	E 999° 0'	CTD	Launching in water	BATHY-CTD7-27	Pb CASINO ANA Point D
14/06/2022	19:02:34	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-28	NIskin 3, 10 m du fond ANA Point D
14/06/2022	19:10:27	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-29	Niskin 4, ANA Point D
14/06/2022	19:48:04	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-30	Niskin 9, 50 m de la surface ANA Point D
14/06/2022	19:50:40	N 999° 0'	E 999° 0'	CTD	On board	BATHY-CTD7-31	
14/06/2022	20:40:44	N 37° 17.45675'	W 32° 16.92674'	CTD	Launching in water	BATHY-CTD8-32	ANA Point E
14/06/2022	21:25:09	N 37° 17.46316'	W 32° 16.92031'	CTD	Niskin trigger	BATHY-CTD8-33	Niskin 3, 1570 m ANA Point E
14/06/2022	21:29:53	N 37° 17.46322'	W 32° 16.92031'	CTD	Niskin trigger	BATHY-CTD8-34	Niskin 4, 1575 m
14/06/2022	22:04:39	N 37° 17.46322'	W 32° 16.92036'	CTD	Niskin trigger	BATHY-CTD8-35	Niskin s 9 et 10, 50 m from the surface
14/06/2022	22:10:35	N 37° 17.46327'	W 32° 16.92052'	CTD	On board	BATHY-CTD8-36	
14/06/2022	22:27:06	N 37° 17.73325'	W 32° 16.80907'	VMP	Launching in water	VMP-4-10	
14/06/2022	22:31:38	N 37° 17.67287'	W 32° 16.66512'	CTD	Launching in water	BATHY-CTD9-37	
14/06/2022	23:23:15	N 37° 17.51481'	W 32° 16.8044'	CTD	On the bottom	BATHY-CTD9-38	
15/06/2022	00:01:51	N 37° 17.51434'	W 32° 16.80367'	CTD	At the surface	BATHY-CTD09-39	
15/06/2022	00:02:22	N 37° 17.51455'	W 32° 16.80371'	CTD	On board	BATHY-CTD9-40	
15/06/2022	00:03:09	N 37° 17.51444'	W 32° 16.80346'	VMP	At the surface	VMP-4-11	
15/06/2022	00:51:55	N 37° 18.05283'	W 32° 17.55626'	VMP	VMP on board	VMP-4-12	
15/06/2022	02:16:14	N 37° 17.71841'	W 32° 16.76577'	Ship ADCP	Start profile	SADCP5	
15/06/2022	08:33:39	N 37° 17.68816'	W 32° 16.75197'	Ship ADCP	End of profile	SADCP6	
15/06/2022	09:18:09	N 37° 17.16531'	W 32° 16.64356'	NAUTILE	LAUNCHING	NAUT-2032-05-14	
15/06/2022	10:10:47	N 37° 17.31734'	W 32° 16.53743'	NAUTILE	On the bottom	NAUT-2032-05-15	
15/06/2022	15:22:51	N 37° 17.223'	W 32° 16.41'	NAUTILE ELEVATOR	On board	ASCE-02-11	
15/06/2022	16:11:28	N 37° 17.34043'	W 32° 16.28399'	NAUTILE	Release authorisation	NAUT-2032-05-16	
15/06/2022	16:30:11	N 37° 16.98945'	W 32° 16.25475'	NAUTILE	At the surface	NAUT-2032-05-17	
15/06/2022	17:10:47	N 37° 16.97483'	W 32° 16.82805'	NAUTILE	On board	NAUT-2032-05-18	
15/06/2022	17:52:23	N 37° 17.68407'	W 32° 16.81723'	VMP	Launching in water	VMP-5-13	
15/06/2022	18:32:51	N 37° 17.51378'	W 32° 16.74757'	CTD	Launching in water	BATHY-CTD10-41	
15/06/2022	19:06:19	N 37° 17.51312'	W 32° 16.75162'	VMP	At the surface	VMP-5-14	
15/06/2022	19:10:51	N 37° 17.51348'	W 32° 16.75149'	CTD	On the bottom	BATHY-CTD10-42	
15/06/2022	19:52:24	N 37° 17.51379'	W 32° 16.75265'	CTD	On board	BATHY-CTD10-43	

15/06/2022	20:13:50	N 37° 17.1459'	W 32° 16.97176'	VMP	VMP on board	VMP-5-15	
15/06/2022	21:55:08	N 37° 20.41125'	W 32° 30.00891'	Ship ADCP	Start profile	SADCP19	
16/06/2022	07:41:34	N 37° 20.33449'	W 31° 59.93336'	Ship ADCP	End of profile	SADCP20	
16/06/2022	09:30:34	N 37° 17.48459'	W 32° 17.13048'	NAUTILE	LAUNCHING	NAUT-2033-06-19	
16/06/2022	10:42:23	N 37° 17.3062'	W 32° 16.49164'	Câble Grand Fond	Launching in water	CGF-ASC2-16	
16/06/2022	11:53:58	N 37° 17.30857'	W 32° 16.37771'	Câble Grand Fond	On the bottom	CGF-ASC2-17	
16/06/2022	14:00:01	N 37° 17.30185'	W 32° 16.3753'	Câble Grand Fond	On the bottom	CGF-ASC2-18	Material exchange
16/06/2022	15:48:06	N 37° 17.29895'	W 32° 16.24225'	Câble Grand Fond	On board	CGF-ASC2-19	
16/06/2022	16:26:40	N 37° 17.44476'	W 32° 16.32587'	NAUTILE	Release authorisation	NAUT-2033-06-20	
16/06/2022	16:54:12	N 37° 17.2796'	W 32° 16.36732'	NAUTILE	At the surface	NAUT-2033-06-21	
16/06/2022	17:24:46	N 37° 16.89199'	W 32° 16.49947'	NAUTILE	On board	NAUT-2033-06-22	
16/06/2022	18:04:14	N 37° 17.68918'	W 32° 16.71847'	VMP	Launching in water	VMP-6-16	
16/06/2022	18:26:40	N 37° 17.51447'	W 32° 16.71309'	CTD	Launching in water	BATHY-CTD11-44	
16/06/2022	19:10:25	N 37° 17.51795'	W 32° 16.75235'	CTD	On the bottom	BATHY-CTD11-45	
16/06/2022	19:49:53	N 37° 17.51843'	W 32° 16.75394'	CTD	On board	BATHY-CTD11-46	
16/06/2022	20:09:17	N 37° 17.09904'	W 32° 17.2289'	VMP	At the surface	VMP-6-17	
16/06/2022	20:14:47	N 37° 17.06267'	W 32° 17.38258'	VMP	VMP on board	VMP-6-18	
16/06/2022	21:55:18	N 37° 20.40566'	W 32° 29.90341'	Ship ADCP	Start profile	SADCP21	
17/06/2022	07:30:48	N 37° 20.30574'	W 32° 3.67268'	Ship ADCP	End of profile	SADCP22	
17/06/2022	09:24:46	N 37° 17.12114'	W 32° 16.67825'	NAUTILE	LAUNCHING	NAUT-2034-07-23	
17/06/2022	10:00:22	N 37° 17.47243'	W 32° 16.70831'	Câble Grand Fond	Launching in water	CGF-ASC3-36	
17/06/2022	10:30:35	N 37° 17.47589'	W 32° 16.70711'	NAUTILE	On the bottom	NAUT-2034-07-24	
17/06/2022	15:07:54	N 37° 17.27098'	W 32° 16.71044'	Câble Grand Fond	On board	CGF-ASC3-37	
17/06/2022	16:32:15	N 37° 17.54555'	W 32° 16.895'	NAUTILE	Release authorisation	NAUT-2034-07-25	
17/06/2022	17:31:56	N 37° 17.43821'	W 32° 17.00506'	NAUTILE	On board	NAUT-2034-07-26	
17/06/2022	21:04:33	N 37° 17.61265'	W 32° 16.67713'	VMP	Launching in water	VMP-7-19	
17/06/2022	21:20:58	N 37° 17.52611'	W 32° 16.7624'	CTD	Launching in water	BATHY-CTD12-47	
17/06/2022	22:38:57	N 37° 17.53105'	W 32° 16.74995'	CTD	On board	BATHY-CTD12-49	
17/06/2022	23:15:48	N 37° 17.42084'	W 32° 17.55437'	VMP	VMP on board	VMP-7-28	
18/06/2022	01:54:41	N 37° 17.67772'	W 32° 16.76414'	VMP	Launching in water	VMP-7-20	
18/06/2022	02:16:08	N 37° 17.53816'	W 32° 16.84145'	CTD	Launching in water	BATHY-CTD13-50	

18/06/2022	02:57:41	N 37° 17.53075'	W 32° 16.74787'	CTD	On the bottom	BATHY-CTD13-51	
18/06/2022	03:38:11	N 37° 17.53106'	W 32° 16.748'	CTD	On board	BATHY-CTD13-52	
18/06/2022	04:31:28	N 37° 17.70583'	W 32° 16.82917'	VMP	VMP on board	VMP-8-29	
18/06/2022	04:35:18	N 37° 17.70955'	W 32° 16.74242'	Ship ADCP	Start profile	SADCP23	
18/06/2022	07:30:42	N 37° 17.55731'	W 32° 16.68455'	Ship ADCP	End of profile	SADCP24	
18/06/2022	08:05:41	N 37° 17.27561'	W 32° 15.61009'	NAUTILE ELEVATOR	Launching in water	ASCE-03-5	
18/06/2022	09:18:14	N 37° 17.24884'	W 32° 15.94697'	NAUTILE	LAUNCHING	NAUT-2035-8-27	
18/06/2022	10:09:44	N 37° 17.45251'	W 32° 15.93512'	NAUTILE	On the bottom	NAUT-2035-8-28	
18/06/2022	16:31:25	N 37° 17.77133'	W 32° 16.0445'	NAUTILE ELEVATOR	On board	ASCE-03-6	
18/06/2022	16:36:11	N 37° 17.75624'	W 32° 16.26448'	NAUTILE	Release authorisation	NAUT-2035-08-29	
18/06/2022	17:28:48	N 37° 18.30242'	W 32° 16.15658'	NAUTILE	On board	NAUT-2035-08-30	
18/06/2022	18:04:21	N 37° 17.35459'	W 32° 17.04296'	Câble Grand Fond	Launching in water	CGF-SEAMONW-21	
18/06/2022	18:24:02	N 37° 17.53392'	W 32° 16.85215'	Câble Grand Fond	Cable deployment	CGF-SEAMONW-22	0.2 ms-1 jusqu à 1600m
18/06/2022	20:52:58	N 37° 17.5216'	W 32° 16.73707'	Câble Grand Fond	Cable deployment	CGF-SEAMONW-23	deployment 0.1 ms-1 jusqu à 1699 m
18/06/2022	20:59:11	N 37° 17.5097'	W 32° 16.722'	Câble Grand Fond	Cable deployment	CGF-SEAMONW-24	Stop recovery, positioning on the target – lots of current at the bottom ?
18/06/2022	21:23:33	N 37° 17.48231'	W 32° 16.75663'	Câble Grand Fond	Release of the station	CGF-SEAMONW-25	
18/06/2022	21:25:44	N 37° 17.48237'	W 32° 16.75704'	Câble Grand Fond	Cable recovery	CGF-SEAMONW-26	
18/06/2022	21:53:14	N 37° 17.48036'	W 32° 16.76058'	Câble Grand Fond	On board	CGF-SEAMONW-27	
18/06/2022	22:12:56	N 37° 17.68963'	W 32° 16.74863'	VMP	Launching in water	VMP-9-21	
18/06/2022	22:25:21	N 37° 17.54913'	W 32° 16.74815'	CTD	Launching in water	BATHY-CTD14-53	
18/06/2022	23:09:52	N 37° 17.53985'	W 32° 16.74236'	CTD	On the bottom	BATHY-CTD14-54	
18/06/2022	23:48:17	N 37° 17.54062'	W 32° 16.74071'	CTD	On board	BATHY-CTD14-55	
19/06/2022	00:32:55	N 37° 17.07776'	W 32° 17.29929'	VMP	VMP on board	VMP-9-22	
19/06/2022	02:51:39	N 37° 17.67442'	W 32° 16.75246'	VMP	Launching in water	VMP-10-23	
19/06/2022	03:48:09	N 37° 17.53118'	W 32° 16.75223'	CTD	Launching in water	BATHY-CTD15-56	
19/06/2022	04:25:41	N 37° 17.53113'	W 32° 16.75229'	CTD	On board	BATHY-CTD15-57	
19/06/2022	05:05:11	N 37° 17.9228'	W 32° 18.13154'	VMP	VMP on board	VMP-10-24	
19/06/2022	08:21:41	N 37° 17.28875'	W 32° 16.52512'	NAUTILE ELEVATOR	Launching in water	ASCE-4-7	
19/06/2022	09:21:20	N 37° 17.12515'	W 32° 16.68494'	NAUTILE	LAUNCHING	NAUT-2036-9-31	
19/06/2022	10:30:57	N 37° 17.33948'	W 32° 16.4603'	NAUTILE	On the bottom	NAUT-2036-9-32	
19/06/2022	16:05:37	N 37° 17.24912'	W 32° 16.92177'	NAUTILE ELEVATOR	At the surface	ASCE-4-8	

19/06/2022	16:32:11	N 37° 17.47253'	W 32° 17.12452'	NAUTILE ELEVATOR	On board	ASCE-4-9	
19/06/2022	16:45:55	N 37° 17.35794'	W 32° 16.9745'	NAUTILE	Release authorisation	NAUT-2036-09-33	
19/06/2022	17:41:29	N 37° 17.78657'	W 32° 17.00238'	NAUTILE	On board	NAUT-2036-09-34	
19/06/2022	18:03:13	N 37° 17.66477'	W 32° 16.70398'	VMP	Launching in water	VMP-11-25	
19/06/2022	18:20:43	N 37° 17.54263'	W 32° 16.88818'	CTD	Launching in water	BATHY-CTD16-58	
19/06/2022	19:03:08	N 37° 17.53074'	W 32° 16.75093'	CTD	On the bottom	BATHY-CTD-59	
19/06/2022	19:42:42	N 37° 17.53076'	W 32° 16.75204'	CTD	On board	BATHY-CTD16-60	
19/06/2022	20:24:16	N 37° 18.16963'	W 32° 17.28951'	VMP	VMP on board	VMP-11-26	
19/06/2022	22:56:53	N 37° 17.64374'	W 32° 16.76796'	VMP	Launching in water	VMP-12-27	
19/06/2022	23:00:36	N 37° 17.49227'	W 32° 16.86191'	VMP	VMP on board	VMP-12-34	
19/06/2022	23:18:25	N 37° 17.50498'	W 32° 16.80301'	CTD	Launching in water	BATHY-CTD17-61	
20/06/2022	00:03:55	N 37° 17.5309'	W 32° 16.7525'	CTD	On the bottom	BATHY-CTD17-62	
20/06/2022	00:41:40	N 37° 17.53075'	W 32° 16.7528'	CTD	On board	BATHY-CTD17-63	
20/06/2022	02:08:05	N 37° 17.48098'	W 32° 16.84512'	Ship ADCP	Start profile	SADCP25	
20/06/2022	07:30:38	N 37° 17.63651'	W 32° 16.62028'	Ship ADCP	End of profile	SADCP26	
20/06/2022	08:10:41	N 37° 17.54899'	W 32° 16.79791'	NAUTILE ELEVATOR	Launching in water	ASCE-5-10	
20/06/2022	09:30:08	N 37° 17.43623'	W 32° 17.18369'	NAUTILE	LAUNCHING	NAUT-2037-10-35	
20/06/2022	10:50:56	N 37° 17.10957'	W 32° 17.50627'	NAUTILE	On the bottom	NAUT-2037-10-36	
20/06/2022	14:08:13	N 37° 17.3758'	W 32° 17.15146'	NAUTILE ELEVATOR	At the surface	ASCE-5-12	
20/06/2022	14:45:47	N 37° 17.08641'	W 32° 16.98134'	NAUTILE ELEVATOR	On board	ASCE-5-13	
20/06/2022	15:21:11	N 37° 17.40161'	W 32° 17.14056'	Flottabilité de déplacement	Release of the buoyancy device by Nautile	BUOYANCY DEVICE-SEAMONW-1	
20/06/2022	16:00:19	N 37° 17.4121'	W 32° 17.26222'	Buoyancy devicebilité de déplacement	Buoyancy device on board	BUOYANCY DEVICE-SEAMONW-2	
20/06/2022	16:54:44	N 37° 17.23352'	W 32° 17.29678'	NAUTILE	Release authorisation	NAUT-2037-10-37	
20/06/2022	17:42:12	N 37° 17.6557'	W 32° 17.81677'	NAUTILE	At the surface	NAUT-2037-10-38	
20/06/2022	18:01:41	N 37° 18.21868'	W 32° 17.89691'	NAUTILE	On board	NAUT-2037-10-39	
20/06/2022	18:49:03	N 37° 17.65182'	W 32° 16.79126'	VMP	Launching in water	VMP-13-30	
20/06/2022	19:10:34	N 37° 17.60341'	W 32° 16.78622'	CTD	Launching in water	BATHY-CTD18-64	
20/06/2022	19:52:11	N 37° 17.53116'	W 32° 16.75149'	CTD	On the bottom	BATHY-CTD18-65	
20/06/2022	20:29:44	N 37° 17.53077'	W 32° 16.75506'	CTD	On board	BATHY-CTD13-66	
20/06/2022	21:00:15	N 37° 17.78318'	W 32° 17.22239'	VMP	VMP on board	VMP-13-31	

20/06/2022	22:19:02	N 37° 17.27604'	W 32° 17.31829'	Ship ADCP	Start profile	SADCP27	
20/06/2022	23:53:40	N 999° 0'	E 999° 0'	VMP	Launching in water	VMP-14-32	
21/06/2022	00:11:07	N 37° 17.5105'	W 32° 16.82641'	CTD	Launching in water	BATHY-CTD19-67	
21/06/2022	00:53:40	N 37° 17.53022'	W 32° 16.75424'	CTD	On the bottom	BATHY-CTD19-68	
21/06/2022	01:33:21	N 37° 17.5307'	W 32° 16.75469'	CTD	On board	BATHY-CTD19-69	
21/06/2022	02:17:49	N 37° 16.58317'	W 32° 17.78646'	VMP	VMP on board	VMP-14-33	
21/06/2022	05:20:23	N 37° 20.19097'	W 32° 14.43707'	Ship ADCP	End of profile	SADCP28	
21/06/2022	08:12:20	N 37° 17.33796'	W 32° 16.42869'	NAUTILE ELEVATOR	Launching in water	ASCE-6-14	
21/06/2022	09:19:55	N 37° 17.13755'	W 32° 16.42657'	NAUTILE	LAUNCHING	NAUT-2038-11-40	
21/06/2022	10:24:26	N 37° 17.31831'	W 32° 16.24702'	NAUTILE	On the bottom	NAUT-2038-11-41	
21/06/2022	14:41:29	N 37° 17.11806'	W 32° 16.80725'	NAUTILE ELEVATOR	At the surface	ASCE-6-15	
21/06/2022	16:36:21	N 37° 16.93906'	W 32° 16.98838'	NAUTILE	Release authorisation	NAUT-2038-11-42	
21/06/2022	17:14:49	N 37° 17.05644'	W 32° 16.97422'	NAUTILE	At the surface	NAUT-2038-11-43	
21/06/2022	17:29:16	N 37° 17.20881'	W 32° 16.90663'	NAUTILE	On board	NAUT-2038-11-44	
21/06/2022	18:11:47	N 37° 17.29641'	W 32° 16.5437'	Deep-sea cable	Launching in water	CGF-SEAMONE-28	
21/06/2022	18:32:15	N 37° 17.33764'	W 32° 16.59622'	Deep-sea cable	Cable deployment	CGF-SEAMONE-29	Filage 2 ms-1
21/06/2022	20:40:13	N 37° 17.35168'	W 32° 16.53624'	Deep-sea cable	On the bottom	CGF-SEAMONE-30	Station at the bottom ... difference of 60 m between tha BUC and the deployed length, recovery 0.1ms-1
21/06/2022	21:08:38	N 37° 17.34598'	W 32° 16.5514'	Deep-sea cable	Release de station	CGF-SEAMONE-31	After repositioning, 15 m from the target point. We can see the release device on the tension of the cable (800 to 500 N)
21/06/2022	21:41:57	N 37° 17.3461'	W 32° 16.55147'	Deep-sea cable	On board	CGF-SEAMONE-32	
21/06/2022	22:13:54	N 37° 17.46967'	W 32° 20.26827'	Ship ADCP	Start profile	SADCP29	
22/06/2022	05:20:28	N 37° 18.52984'	W 32° 20.91039'	Ship ADCP	End of profile	SADCP30	
22/06/2022	08:03:34	N 37° 17.3405'	W 32° 16.41236'	NAUTILE ELEVATOR	Launching in water	ASCE-7-16	
22/06/2022	09:31:06	N 37° 17.2424'	W 32° 16.55463'	NAUTILE	LAUNCHING	NAUT-2039-12-45	
22/06/2022	10:48:35	N 37° 17.29024'	W 32° 16.85242'	NAUTILE	On the bottom	NAUT-2039-12-46	
22/06/2022	14:32:37	N 37° 17.13779'	W 32° 16.72391'	NAUTILE ELEVATOR	At the surface	ASCE-7-17	
22/06/2022	14:52:05	N 37° 17.08786'	W 32° 16.58029'	NAUTILE ELEVATOR	On board	ASCE-7-18	
22/06/2022	16:32:49	N 37° 16.85044'	W 32° 16.86127'	NAUTILE	Release authorisation	NAUT-2039-12-47	
22/06/2022	17:00:14	N 37° 16.86124'	W 32° 17.05295'	NAUTILE	At the surface	NAUT-2039-12-48	
22/06/2022	17:22:38	N 37° 17.14466'	W 32° 17.13313'	NAUTILE	On board	NAUT-2039-12-49	

22/06/2022	17:39:17	N 37° 17.14812'	W 32° 17.1549'	Mooring microRIO	Release of Mooring	MICRORIO-22-11	
22/06/2022	19:24:46	N 37° 18.02878'	W 32° 17.25968'	Mooring microRIO	Mooring on board	MICRORIO-22-12	
22/06/2022	21:03:40	N 37° 17.17165'	W 32° 17.00654'	CTD	Launching in water	BATHY-CTD20-70	
22/06/2022	21:40:21	N 37° 17.14198'	W 32° 16.98589'	CTD	Niskin trigger	BATHY-CTD20-71	Niskin s X and XX at 12 m du fond
22/06/2022	21:43:03	N 37° 17.14193'	W 32° 16.9854'	CTD	Niskin trigger	BATHY-CTD20-72	Niskin 9 1512m
22/06/2022	22:16:55	N 37° 17.14195'	W 32° 16.9847'	CTD	Niskin trigger	BATHY-CTD20-73	Niskin 10 at 50 m
22/06/2022	22:20:53	N 37° 17.14225'	W 32° 16.98473'	CTD	On board	BATHY-CTD20-74	
22/06/2022	22:40:51	N 37° 17.33345'	W 32° 16.52302'	CTD	Launching in water	BATHY-CTD21-75	
22/06/2022	23:22:28	N 37° 17.33406'	W 32° 16.52146'	CTD	Niskin trigger	BATHY-CTD21-76	Niskin 3 at 13m of teh bottom
23/06/2022	00:00:17	N 37° 17.33404'	W 32° 16.52178'	CTD	Niskin trigger	BATHY-CTD21-78	Niskin 9 at 50 m
23/06/2022	00:04:27	N 37° 17.3342'	W 32° 16.52119'	CTD	On board	BATHY-CTD21-79	
23/06/2022	06:00:16	N 37° 16.5769'	W 32° 14.69817'	Autonomous OBS	Acoustic release of the OBS	OBS-LSVEP-26	
23/06/2022	07:44:00	N 37° 16.7931'	W 32° 14.8738'	Autonomous OBS	OBS on board	OBS-LSVEP-27	
23/06/2022	08:21:52	N 37° 17.36885'	W 32° 16.41268'	NAUTILE ELEVATOR	Launching in water	ASCE-8-19	
23/06/2022	09:13:36	N 37° 17.21673'	W 32° 16.57647'	NAUTILE	LAUNCHING	NAUT-2040-13-50	
23/06/2022	10:20:07	N 37° 17.01421'	W 32° 16.61744'	NAUTILE	On the bottom	NAUT-2040-13-51	
23/06/2022	11:56:49	N 37° 17.24231'	W 32° 16.8004'	Buoyancy devicebilité de déplacement	Release de la Buoyancy device par le Nautile	BUOYANCY DEVICE-SEAMONE-3	
23/06/2022	12:40:26	N 37° 17.12745'	W 32° 16.78342'	Buoyancy devicebilité de déplacement	Buoyancy device on board	BUOYANCY DEVICE-SEAMONE-4	
23/06/2022	16:25:42	N 37° 17.18746'	W 32° 17.07807'	NAUTILE	Release authorisation	NAUT-2040-13-52	
23/06/2022	17:20:36	N 37° 17.40776'	W 32° 17.49338'	NAUTILE	On board	NAUT-2040-13-53	
23/06/2022	17:56:41	N 37° 17.34917'	W 32° 17.44551'	BOREL	Launching in water	BOREL-2022-6	Buoy launch in the water using the crane
23/06/2022	18:09:11	N 37° 17.33621'	W 32° 17.51212'	BOREL	Filage de la ligne	BOREL-2022-7	
23/06/2022	18:35:45	N 37° 17.8208'	W 32° 16.99128'	BOREL	Launching in water	BOREL-2022-8	Buoyancy device in teh water, transit towards the release point
23/06/2022	18:59:06	N 999° 0'	E 999° 0'	BOREL	Release from the deck	BOREL-2022-9	target point passed 150m - Release of the ballast
23/06/2022	19:10:10	N 999° 0'	E 999° 0'	BOREL	Release from the deck	BOREL-2022-10	Final position of the ballast N37°18.097, W32°16.749, imm 1690 - 40 m from the target
23/06/2022	20:17:22	N 37° 15.62475'	W 32° 17.88587'	Autonomous OBS	Launching in water using hydro winch	OBS-LSVSP-28	
23/06/2022	21:52:39	N 37° 15.62357'	W 32° 17.87949'	Autonomous OBS	Release of hydro winch	OBS-LSVSP-29	
23/06/2022	23:08:56	N 37° 17.49506'	W 32° 21.20707'	Ship ADCP	Start profile	SADCP31	

23/06/2022	23:27:19	N 37° 17.48454'	W 32° 23.98902'	CTD	Niskin trigger	BATHY-CTD21-77	Niskin 4 1522 m depth
24/06/2022	07:00:20	N 37° 17.53044'	W 32° 32.24475'	Ship ADCP	End of profile	SADCP32	
24/06/2022	09:19:26	N 37° 17.17714'	W 32° 16.58624'	NAUTILE	LAUNCHING	NAUT-2041-14-54	
24/06/2022	10:10:02	N 37° 17.34295'	W 32° 16.50143'	NAUTILE	On the bottom	NAUT-2041-14-55	
24/06/2022	14:55:36	N 37° 17.23794'	W 32° 16.52111'	NAUTILE ELEVATOR	On board	ASCE-8-20	
24/06/2022	16:01:59	N 37° 17.05947'	W 32° 16.35406'	NAUTILE	On board	NAUT-2041-14-58	
24/06/2022	16:06:59	N 37° 16.99861'	W 32° 16.33561'	NAUTILE	Release authorisation	NAUT-2041-14-56	
24/06/2022	16:36:36	N 37° 16.88989'	W 32° 16.51853'	NAUTILE	On board	NAUT-2041-14-57	
24/06/2022	19:30:19	N 37° 17.68809'	W 32° 16.71953'	Oceanographic mooring	Launching in water	OCEANO-2022-3	
24/06/2022	19:30:59	N 37° 17.69819'	W 32° 16.72535'	Oceanographic mooring	Fin de Launching in water	OCEANO-2022-4	
24/06/2022	20:05:44	N 37° 17.99171'	W 32° 16.71407'	Oceanographic mooring	Triangulation	OCEANO-2022-5	
24/06/2022	20:30:13	N 37° 17.75342'	W 32° 16.45598'	Oceanographic mooring	Triangulation	OCEANO-2022-6	triangulation failure, no response from the release device
24/06/2022	21:06:57	N 37° 17.24276'	W 32° 16.21224'	CTD	Launching in water	BATHY-CTD22-80	Station G
24/06/2022	21:52:40	N 37° 17.24174'	W 32° 16.21111'	CTD	Niskin trigger	BATHY-CTD22-81	Niskin 3, 12 m du fond
24/06/2022	22:00:23	N 37° 17.24178'	W 32° 16.21128'	CTD	Niskin trigger	BATHY-CTD22-82	Niskin 4 et XX - 1430m
24/06/2022	22:36:24	N 37° 17.24236'	W 32° 16.21126'	CTD	Niskin trigger	BATHY-CTD22-83	Niskin 9 - 50m
24/06/2022	22:39:10	N 37° 17.24234'	W 32° 16.21161'	CTD	On board	BATHY-CTD22-84	
24/06/2022	23:25:42	N 37° 17.45762'	W 32° 21.10801'	Ship ADCP	Start profile	SADCP33	
25/06/2022	07:01:06	N 37° 17.50343'	W 32° 32.7488'	Ship ADCP	End of profile	SADCP34	
25/06/2022	09:10:36	N 37° 17.17811'	W 32° 16.62905'	NAUTILE	LAUNCHING	NAUT-2042-15-59	
25/06/2022	10:00:49	N 37° 17.18245'	W 32° 16.4407'	Deep-sea cable	Launching in water	CGF-RECUP LEST-33	
25/06/2022	10:15:24	N 37° 17.18486'	W 32° 16.44536'	NAUTILE	On the bottom	NAUT-2042-15-60	
25/06/2022	12:00:01	N 37° 17.2744'	W 32° 16.52988'	Deep-sea cable	Hooking the station	CGF-RECUP LEST-34	
25/06/2022	13:30:08	N 37° 17.30638'	W 32° 16.15853'	Deep-sea cable	On board	CGF-RECUP LEST-35	
25/06/2022	14:53:47	N 37° 17.09996'	W 32° 15.90842'	NAUTILE	Release authorisation	NAUT-2042-15-61	
25/06/2022	15:44:14	N 37° 17.5613'	W 32° 16.15417'	NAUTILE	On board	NAUT-2042-15-62	
25/06/2022	16:20:41	N 37° 17.936'	W 32° 16.79944'	Oceanographic mooring	Triangulation	OCEANO-2022-7	Interrogating the release device, no response
25/06/2022	16:40:18	N 37° 19.02041'	W 32° 13.09959'	VESSEL	transit	NAV1	Start transiting towards Horta

26/6/2022	12 :00						Arrival at Horta
27/06/2022							Demobilisation

6. DIVES SUMMARIES

6.1. MoMARSAT 2022 DIVE 2028-1

Wednesday 08 June 2022

Launch positionNautile	N 37° 17.54266'	W 32° 17.12944'	
Position LAUNCH CGF Seamon W	N 37° 17.67862'	W 32° 17.05198'	50 m station
Launching time	09:50	Arrival at the bottom	10 :50
Departure from bottom	16:10	Nautile on board	17:10
Pilot	Guillaume De Parseval	Time at the bottom	05h20
Copilot	Luc Taillez		
Observer	Pierre-Marie Sarradin		

6.1.1. Objectives: Prepare Seamon W and SEAMON East for recovery

Site	Opération
SEAMON W	Trigger Niskin
	Prepare to hook Seamon W
	Hooking with the deep-sea cable
SEAMON E	Prepare to hook Seamon E TEMPO, disconnect CISICS and DEAFS
	Recovery of buttons chains (BT11, BT12 et BT13)
Tour Eiffel	Recovery of colonisers (2 or 3 ?)
Joker	
SEAMON E	Ltgrad 1, 2 et 10

Coordinates:

SEAMON W	N 37°17.476	W 32°16.786	1741
SEAMON E	N 37°17.306	W 32°16.539	1705
TEMPO	N 37 17.329	W 32 16.533	1697
DEAFS	N 37 17.261	W 32 16.554	1703
µRIO - target	N 37°17.723	W 32°16.763	

Nautile configuration

Basket descending

Niskin	Probe little basket	Longe / Tempo	

Basket going up

3 ubuttons chains	7 Colonisers Ana	Niskin	

Instrumentation

PIF/CHEMINI			

6.1.2. Operations summary

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
08/06/2022	10:52		N 37 17.459	W 032 17.062	1684	Arrival at the bottom – Transit towards Seamon W
08/06/2022	11:09		N 37 17.474	W 032 16.794	1742	Arrival sur Seamon W
08/06/2022	11:10		N 37 17.476	W 032 16.795	1742	Isolation test on Nautile
08/06/2022	11:10		N 37 17.475	W 032 16.794	1742	The cable for recovery - immersion 600m
08/06/2022	11:29		N 37 17.474	W 032 16.795	1742	Seamon W – End of isolation testing

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
08/06/2022	11:30		N 37 17.474	W 032 16.794	1742	Grabbing Niskin
08/06/2022	11:31		N 37 17.474	W 032 16.793	1742	TRIGGERING NISKIN in the water column at Seamon W
08/06/2022	11:32		N 37 17.474	W 032 16.794	1742	Verifying the integrity of SeamonW
08/06/2022	11:35	Lucky Strike	N 37 17.478	W 032 16.790	1742	Setting the sation to OFF
08/06/2022	11:47	Lucky Strike	N 37 17.477	W 032 16.783	1741	OBS - Cap 272 when Nautile facing it
08/06/2022	11:52	Lucky Strike	N 37 17.479	W 032 16.786	1742	Recovery et securing the OBS
08/06/2022	12:02	Lucky Strike	N 37 17.476	W 032 16.790	1742	Contact surface – the cable to hook the station is at immersion 1622m
08/06/2022	12:03	Lucky Strike	N 37 17.478	W 032 16.793	1742	Release of the floating device to which puts the sling under tension
08/06/2022	12:13	Lucky Strike	N 37 17.477	W 032 16.795	1736	Heading towards Y3 while the Deep-sea cable is positionned
08/06/2022	12:19	Lucky Strike	N 37 17.503	W 032 16.742	1732	Returning towards the sation by the south
08/06/2022	12:43	Lucky Strike	N 37 17.456	W 032 16.792	1735	The deep-sea cable as at the bottom, at 70 m, heading towards the cable
08/06/2022	12:47	Lucky Strike	N 37 17.487	W 032 16.807	1734	At the Mooring to hook the station
08/06/2022	13:04	Lucky Strike	N 37 17.480	W 032 16.792	1740	Seamon W hooked
08/06/2022	13:08	Lucky Strike	N 37 17.485	W 032 16.809	1736	Transit towards Tour Eiffel.
08/06/2022	13:32	Lucky Strike	N 37 17.332	W 032 16.546	1698	Arrival at Tour Eiffel
08/06/2022	13:33	Tour Eiffel	N 37 17.332	W 032 16.543	1696	Arrival at SEAMON East – verifying the station
08/06/2022	13:41	Tour Eiffel	N 37 17.334	W 032 16.541	1695	Arrival on TEMPO – preparing for recovery
08/06/2022	14:09	Tour Eiffel	N 37 17.336	W 032 16.538	1698	Projectors are folded in
08/06/2022	14:27	Tour Eiffel	N 37 17.333	W 032 16.531	1697	TEMPO stored and secured in its location on Seamon E
08/06/2022	14:29	Tour Eiffel	N 37 17.333	W 032 16.529	1696	Secured only on one side
08/06/2022	14:34	Tour Eiffel	N 37 17.330	W 032 16.536	1698	Deconnecting ODI Hydroctopus
08/06/2022	14:45	Tour Eiffel	N 37 17.332	W 032 16.541	1698	ODI DEAFS disconnected, ODI DEAFS dropped on hydroctopus station
08/06/2022	15:00	Tour Eiffel	N 37 17.339	W 032 16.535	1694	3 ibuttons chains to be recovered
08/06/2022	15:02	Tour Eiffel	N 37 17.340	W 032 16.534	1696	MOORING RECOVERY BT12
08/06/2022	15:13	Tour Eiffel	N 37 17.338	W 032 16.538	1695	MOORING RECOVERY BT11
08/06/2022	15:16	Tour Eiffel	N 37 17.360	W 032 16.541	1695	MOORING RECOVERY BT13
08/06/2022	15:21	Tour Eiffel	N 37 17.337	W 032 16.537	1695	Heading for the recovery of Ana's Colonisers
08/06/2022	15:28	Tour Eiffel	N 37 17.337	W 032 16.541	1697	MOORING RECOVERY ANA8?
08/06/2022	15:32	Tour Eiffel	N 37 17.335	W 032 16.532	1697	MOORING RECOVERY ANA
08/06/2022	15:35	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA9?
08/06/2022	15:35	Tour Eiffel	N 37 17.334	W 032 16.532	1697	Copepods under the flange
08/06/2022	15:37	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 float broken
08/06/2022	15:40	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 or 11, float broken
08/06/2022	15:42	Tour Eiffel	N 37 17.329	W 032 16.545	1697	MOORING RECOVERY COLONISER ANA5
08/06/2022	15:48	Tour Eiffel	N 37 17.336	W 032 16.534	1697	MOORING RECOVERY COLONISER ANA 6
08/06/2022	15:51	Tour Eiffel	N 37 17.336	W 032 16.537	1695	Video sequence to find a deployment area for the incubation chambers COMBOS
08/06/2022	15:54	Tour Eiffel	N 37 17.342	W 032 16.539	1691	End of dive, heading toawrds recovery area
08/06/2022	16 :00	Lucky Strike	N 37 17.319	W 032 16.563	1680	Authorisation to go up
08/06/2022	16 :38	Lucky Strike				Nautile At the surface
08/06/2022	17 :10	Lucky Strike				Nautile on board

6.1.3. Moorings

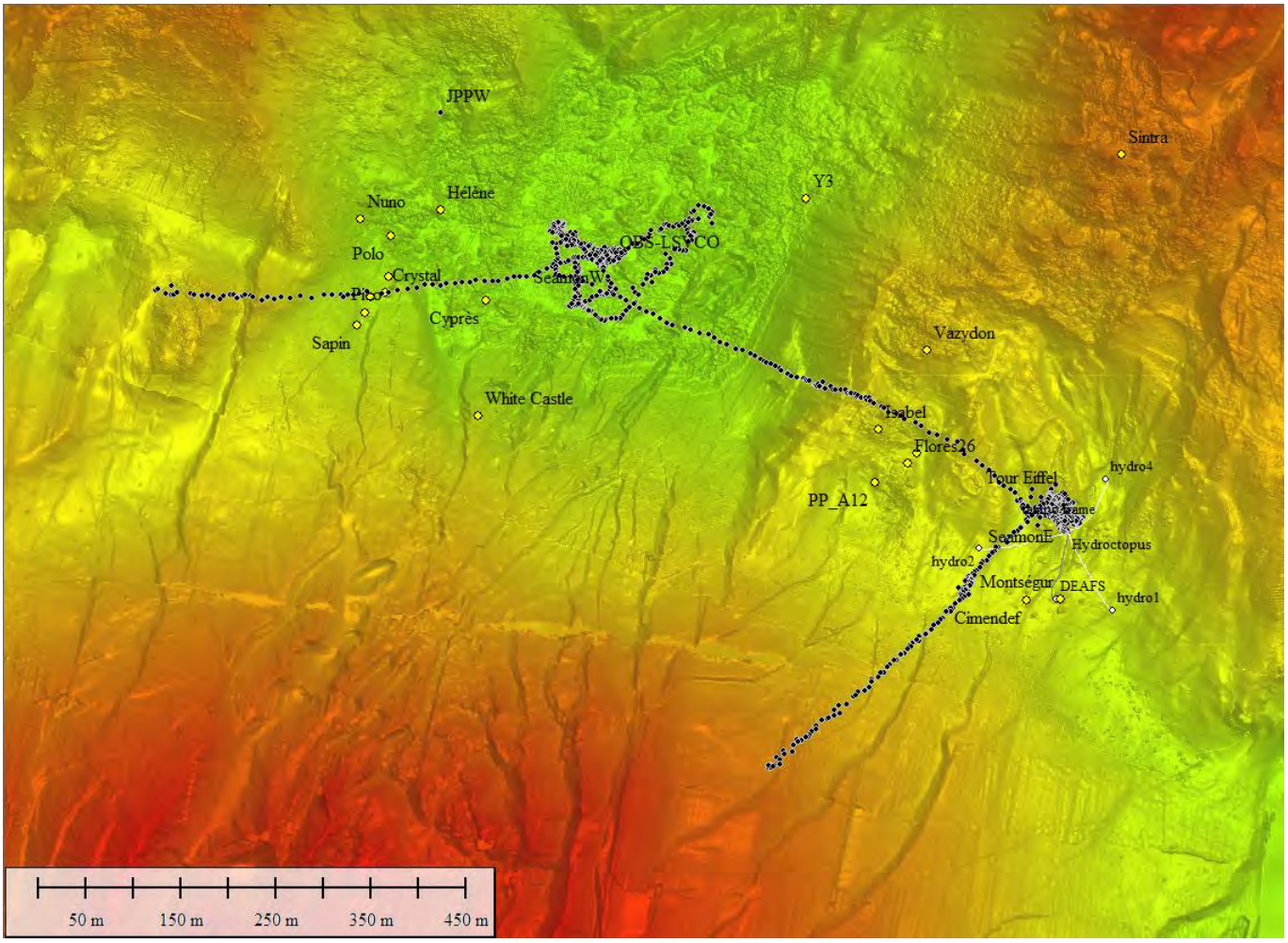
Date	Time	Locality	Latitude	Longitude	Prof(m)	Comment
08/06/2022	15:02	Tour Eiffel	N 37 17.340	W 032 16.534	1696	MOORING RECOVERY BT12
08/06/2022	15:13	Tour Eiffel	N 37 17.338	W 032 16.538	1695	MOORING RECOVERY BT11

08/06/2022	15:16	Tour Eiffel	N 37 17.360	W 032 16.541	1695	MOORING RECOVERY BT13
08/06/2022	15:28	Tour Eiffel	N 37 17.337	W 032 16.541	1697	MOORING RECOVERY ANA8?
08/06/2022	15:32	Tour Eiffel	N 37 17.335	W 032 16.532	1697	MOORING RECOVERY ANA
08/06/2022	15:35	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA9?
08/06/2022	15:37	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 Float broken
08/06/2022	15:40	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 ou 11, float broken
08/06/2022	15:42	Tour Eiffel	N 37 17.329	W 032 16.545	1697	MOORING RECOVERY COLONISER ANA5
08/06/2022	15:48	Tour Eiffel	N 37 17.336	W 032 16.534	1697	MOORING RECOVERY COLONISER ANA 6

6.1.4. Samples

Date	Time	Locality	Latitude	Longitude	Prof(m)	Comment
08/06/2022	11:31	SEAMONW	N 37 17.474	W 032 16.793	1742	SAMPLE NISKIN in water at Seamon W

6.1.5. Navigation DIVE 2028-1



6.2. MoMARSAT 2022 DIVE 2029-2

Thursday 9 June 2022

Launch position Nautile E	N 37° 17.19007'	W 32° 16.6214'	
Launch position ASC E	N 37° 17.72832'	W 32° 16.84189'	7:30
Launching time	09:45	Arrival at the bottom	10 :30
Departure from bottom	16:30	Nautile on board	17 :30
Pilot	Olivier Fauvin	Operation time at the bottom	6h
Copilot	Lucas Leroy		
Observer	Anne Godfroy		

6.2.1. Objectives: Preparing SEAMON East (DEAFs, CISICs) + chimney sampling

Montségur	Recovery DEAFS (+ Recovery of BIOLUCKY) déconnection and revovery in elevator
	Temperature measurement and sampling flui with titane syringes on DEAFS chimney and probe Recovery
Tour Eiffel	Sample NISKIN at SEAMON East
	Recovery of coloniser module CISICS on the AISICS chimney and preparation of SEAMON East
	Recovery of a tempearture probe
	Sample the low part of AISICS chimney and fluid in the vent plume with PLUME
	Temperature measurement and Sample fluid with titanium syringes on the AISICS chimney

Coordinates :

SEAMON E	N 37°17.306	W 32°16.539	1705
DEAFs	N 37° 17.261	W 32° 16.554	1703
CISICS	N 37 17.341	W 032 16.531	

NAUTILE

Basket descending

Niskin	blue basket	4 titanium syringes	2 PBTs
Balayette			

Basket going up

2 PBTs	HTWN021	4 titanium syringes	probes basket
Niskin	brush		

Instrumentation

Suction sampler jars	Chemini	PLUME 5 bags 2L	
PIF			

ELEVATOR

ELEVATOR basket going down		4 titanium syringes	
ELEVATOR basket going up	HTWN013	DEAFs	4 titanium syringes

6.2.2. Operations summary

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
09/06/2022	10:36	Lucky strike	N 37 17.152	W 032 16.623	1642	On the bottom
09/06/2022	10:41	Montsegur	N 37 17.191	W 032 16.572	1671	Calibration CHEMINI restarted
09/06/2022	10:59	Montsegur	N 37 17.276	W 032 16.548	1699	Start video sequence at DEAFS
09/06/2022	11:05	Montsegur	N 37 17.276	W 032 16.541	1702	RECOVERY BIOLUCKY in PBT2
09/06/2022	11:08	Montsegur	N 37 17.282	W 032 16.539	1702	Recovery of DEAFS starts
09/06/2022	11:11	Montsegur	N 37 17.281	W 032 16.534	1702	RECOVERY DEAFS bell

09/06/2022	11:13	Montsegur	N 37 17.279	W 032 16.534	1702	START Sample fluid with titanium syringes
09/06/2022	11:16	Montsegur	N 37 17.280	W 032 16.535	1703	START mesure temperature
09/06/2022	11:18	Montsegur	N 37 17.280	W 032 16.534	1704	Max temperature measured 310 °C
09/06/2022	11:22	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE Ti4- Sample M22Flu04
09/06/2022	11:25	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE TI3. Sample M22Flu03
09/06/2022	11:28	Montsegur	N 37 17.284	W 032 16.536	1704	END calibration CHEMINI
09/06/2022	11:29	Montsegur	N 37 17.284	W 032 16.535	1704	SAMPLE Ti2. Sample M22Flu02
09/06/2022	11:33	Montsegur	N 37 17.283	W 032 16.535	1704	SAMPLE Ti1. Sample M22Flu01
09/06/2022	11:38	Montsegur	N 37 17.280	W 032 16.537	1702	RECOVERY probe HTWN013
09/06/2022	11:43	Montsegur	N 37 17.279	W 032 16.536	1701	DEAFS Deconnexion
09/06/2022	11:50	Montsegur	N 37 17.283	W 032 16.536	1700	RECOVERY DEAFS
09/06/2022	11:51	Lucky strike	N 37 17.283	W 032 16.536	1697	Nautile going towards elevator
09/06/2022	12:09	Lucky strike	N 37 17.291	W 032 16.465	1687	Material exchange at the ELEVATOR : DEAFS and its bell, 4 Ti, PBT2, HTWN013
09/06/2022	12:34	Lucky strike	N 37 17.293	W 032 16.470	1688	Transfer titanium syringes in ELEVATOR
09/06/2022	12:53	Tour Eiffel	N 37 17.342	W 032 16.535	1684	Arrival at Tour Eiffel
09/06/2022	13:00	Tour Eiffel	N 37 17.328	W 032 16.535	1695	SAMPLE Niskin
09/06/2022	13:07	Tour Eiffel	N 37 17.332	W 032 16.536	1698	Cleaning turbidity meter with brush
09/06/2022	13:29	Tour Eiffel	N 37 17.329	W 032 16.530	1691	Arrival at CISICS for Recovery
09/06/2022	13:52	Tour Eiffel	N 37 17.328	W 032 16.536	1696	RECOVERY CISICS put on SEAMON East
09/06/2022	13:58	AISICS	N 37 17.340	W 032 16.538	1691	RECOVERY tempearture probe HTWN21
09/06/2022	14:08	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Aisics chimney in PBT1
09/06/2022	14:15	AISICS	N 37 17.340	W 032 16.528	1691	START Temperature measurementin AISICS chimney T Max 305°C
09/06/2022	14:20	AISICS	N 37 17.339	W 032 16.530	1691	SAMPLE TI5. Sample M22Flu05
09/06/2022	14:23	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE Ti7. Sample M22Flu07
09/06/2022	14:25	AISICS	N 37 17.341	W 032 16.528	1691	SAMPLE Ti 6. Sample M22Flu06
09/06/2022	14:28	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Ti8. Sample M22Flu08
09/06/2022	14:36	AISICS	N 37 17.340	W 032 16.527	1691	SAMPLE PLUME 2 Sample of fluid in the plume, T 80-100°C
09/06/2022	14:43	AISICS	N 37 17.342	W 032 16.530	1691	SAMPLE PLUME 3 Sample of fluid in the plume, T 80-100°C
09/06/2022	14:49	AISICS	N 37 17.342	W 032 16.529	1691	SAMPLE PLUME 4 Sample of fluid in the plume, T 80-100°C
09/06/2022	14:56	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE PLUME 5 Sample of fluid in the plume, T 80-100°C
09/06/2022	15:03	AISICS	N 37 17.343	W 032 16.534	1691	SAMPLE PLUME 6 Sample of fluid in the plume, T 80-100°C
09/06/2022	15:15	AISICS	N 37 17.341	W 032 16.529	1691	TEST CHEMINI
09/06/2022	15:18	AISICS	N 37 17.340	W 032 16.528	1691	Test Sample PIF
09/06/2022	15:21	AISICS	N 37 17.339	W 032 16.529	1690	END Test CHEMINI
09/06/2022	15:21	AISICS	N 37 17.338	W 032 16.529	1690	END Test PIF
09/06/2022	15:30	Tour Eiffel	N 37 17.324	W 032 16.532	1695	Locking CISICS on SEAMON East
09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY of coloniser 3
09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY of coloniser 6

6.2.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
09/06/2022	11:05	Montsegur	N 37 17.276	W 032 16.541	1702	RECOVERY BIOLUCKY in PBT2
09/06/2022	11:11	Montsegur	N 37 17.281	W 032 16.534	1702	RECOVERY bell DEAFS
09/06/2022	11:38	Montsegur	N 37 17.280	W 032 16.537	1702	RECOVERY probe HTWN013
09/06/2022	11:50	Montsegur	N 37 17.283	W 032 16.536	1700	RECOVERY DEAFS
09/06/2022	13:52	Tour Eiffel	N 37 17.328	W 032 16.536	1696	RECOVERY CISICS on SEAMON East
09/06/2022	13:58	AISICS	N 37 17.340	W 032 16.538	1691	RECOVERY probe HTWN21

09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY COLONISER 3
09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY COLONISER 6

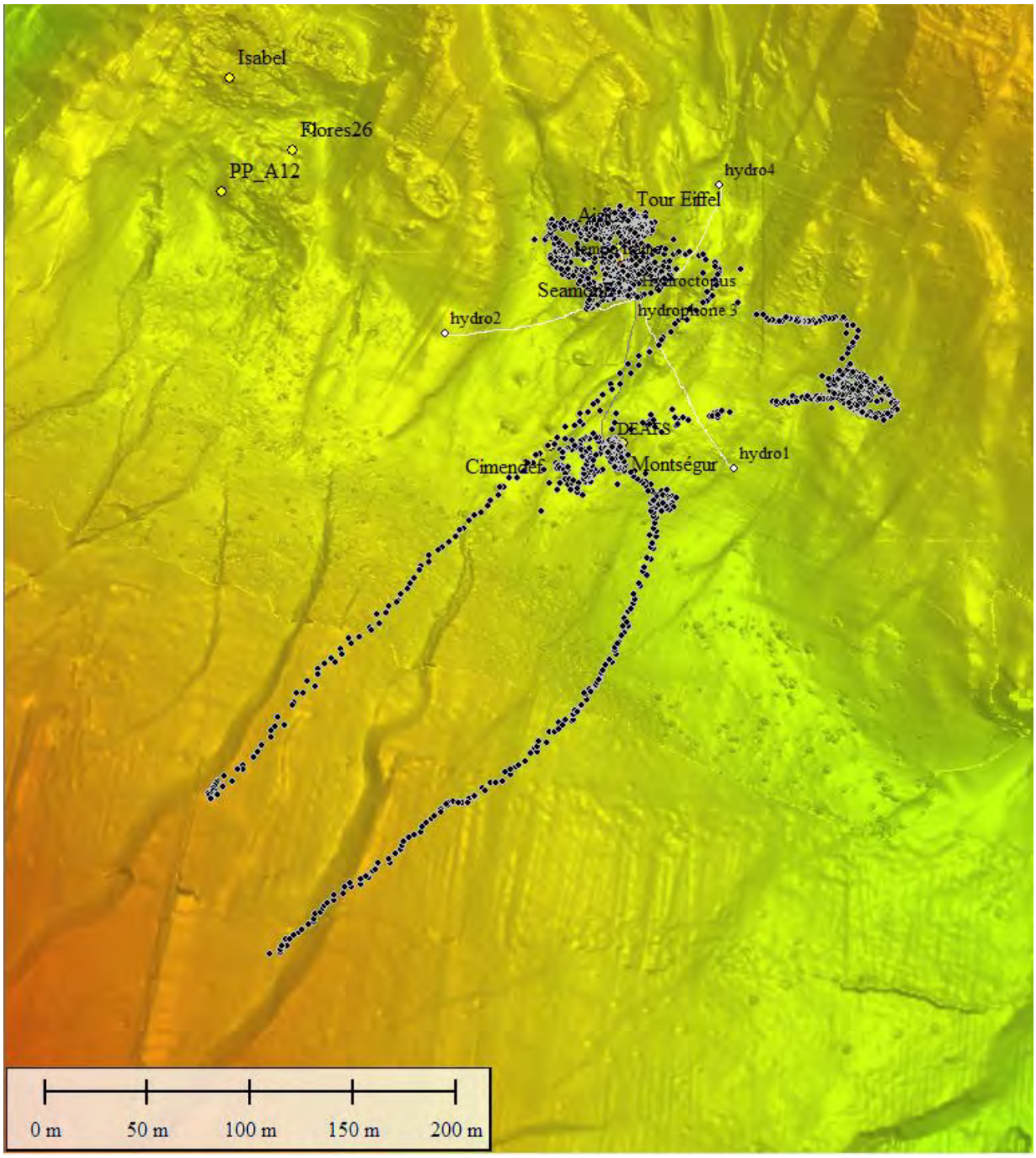
6.2.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
09/06/2022	11:22	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE Ti4- Sample M22Flu04
09/06/2022	11:25	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE TI3. Sample M22Flu03
09/06/2022	11:29	Montsegur	N 37 17.284	W 032 16.535	1704	SAMPLE Ti2. Sample M22Flu02
09/06/2022	11:33	Montsegur	N 37 17.283	W 032 16.535	1704	SAMPLE Ti1. Sample M22Flu01
09/06/2022	13:00	Tour Eiffel	N 37 17.328	W 032 16.535	1695	SAMPLE Niskin
09/06/2022	14:20	AISICS	N 37 17.339	W 032 16.530	1691	SAMPLE TI5. Sample M22Flu05
09/06/2022	14:23	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE Ti7. Sample M22Flu07
09/06/2022	14:25	AISICS	N 37 17.341	W 032 16.528	1691	SAMPLE Ti 6. Sample M22Flu06
09/06/2022	14:28	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Ti8. Sample M22Flu08
09/06/2022	14:36	AISICS	N 37 17.340	W 032 16.527	1691	SAMPLE PLUME 2 Sample in the fluid plume, T 80-100°C
09/06/2022	14:43	AISICS	N 37 17.342	W 032 16.530	1691	SAMPLE PLUME 3 Sample in the fluid plume, T 80-100°C
09/06/2022	14:49	AISICS	N 37 17.342	W 032 16.529	1691	SAMPLE PLUME 4 Sample in the fluid plume, T 80-100°C
09/06/2022	14:56	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE PLUME 5 Sample in the fluid plume, T 80-100°C
09/06/2022	15:03	AISICS	N 37 17.343	W 032 16.534	1691	SAMPLE PLUME 6 Sample in the fluid plume, T 80-100°C

6.2.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
09/06/2022	14:08	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Aisics chimney in PBT1

6.2.6. Navigation



6.3. MoMARSAT 2022 DIVE 2030-3

Sunday 12 June 2022

Launch position Nautile Est	N 37° 17.11817'	W 32° 16.65598'	
Position LAUNCH CGF Seamon E	N 37° 17.16105'	W 32° 16.37647'	9:50
Position CGF Hooking	N 37° 17.33221'	W 32° 16.53616'	
Launching time	09:20	On the bottom	10 :10
Departure from bottom	16:20	Nautile on board	17:15
Pilot	Guillaume De Parseval	Operations duration at the bottom	6h10
Copilot	Luc Tailliez		
Observer	Fabrice Fontaine		

6.3.1. Objectives: Recovery and replacement temperature probes at the west sites

Site	Operations
Seamon E	Trigger Niskin
	Hook SEAMON East
Tour Eiffel N SEAMON E	Recovery / replacement of temperature probes
White Castle	Recovery / replacement of temperature probes
South Crystal	Recovery / replacement of temperature probes
Cyprès	Recovery / replacement of temperature probes
Joker	
Tour Eiffel	Recovery Colonisers Ana Sample PLUME Suction gastropods and shrimps
Tour Eiffel	Suction gastropods and shrimps (Flange southern side of the edifice in front of TEMPO)

Coordinates:

SEAMON E	N 37°17.306	W 32°16.539	1705
Tour Eiffel N	N 37°17.350	W 32°16.530	1694
White Castle	N 37°17.387	W 32°16.864	1710
Cypres	N 37°17.439	W 32°16.864	1744
South Crystal	N 37°17.435	W 32°16.931	1724

Nautile

Basket descending

2 titanium syringes bells	Probe little basket	4 HTNke	2 Ltgrad
1 LTW	1HTWN	Niskin	

Basket going up

2 titanium syringes bells	Probe little basket with Ltgrad and 1 LTW	1 HTWN	7 HNKE
1 HTW	Niskin		

Instrumentation

	Suction sampler jars	PLUME 1 bag 5L (Ana)	

6.3.2. Operations summary

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
12/06/2022	10:09	Tour Eiffel	N 37 17.121	W 032 16.746	1583	On the bottom
12/06/2022	10:15	Tour Eiffel	N 37 17.195	W 032 16.651	1650	SAMPLE NISKIN at SEAMON East

12/06/2022	10:21	Tour Eiffel	N 37 17.287	W 032 16.547	1694	SEAMON East on Off
12/06/2022	10:35	Tour Eiffel	N 37 17.320	W 032 16.540	1698	RECOVERY LTGrad1 Tour Eiffel
12/06/2022	10:38	Tour Eiffel	N 37 17.324	W 032 16.541	1698	RECOVERY HTNKE30001 Tour Eiffel
12/06/2022	10:40	Tour Eiffel	N 37 17.325	W 032 16.540	1698	RECOVERY LTGrad2 Tour Eiffel
12/06/2022	10:45	Tour Eiffel	N 37 17.318	W 032 16.540	1698	RECOVERY LTGrad10 Tour Eiffel
12/06/2022	11:01	Tour Eiffel	N 37 17.329	W 032 16.516	1704	RECOVERY LTGrad9 Tour Eiffel North
12/06/2022	11:02	Tour Eiffel	N 37 17.329	W 032 16.515	1704	RECOVERY HTNKE29012 Tour Eiffel North
12/06/2022	11:11	Tour Eiffel	N 37 17.353	W 032 16.517	1694	DEPLOIEMENT HTNKE29020 Tour Eiffel North
12/06/2022	11:14	Tour Eiffel	N 37 17.351	W 032 16.533	1692	RECOVERY LTGrad9 Tour Eiffel North
12/06/2022	11:20	Tour Eiffel	N 37 17.349	W 032 16.534	1692	DEPLOYMENT LTGrad6 Tour Eiffel North
12/06/2022	11:47	Tour Eiffel	N 37 17.302	W 032 16.522	1700	Hooking Seamon E
12/06/2022	11:51	Lucky strike	N 37 17.300	W 032 16.523	1699	Heading towards White Castle
12/06/2022	12:20	White Castel	N 37 17.340	W 032 16.757	1702	RECOVERY HTW005 White Castle
12/06/2022	12:35	White Castel	N 37 17.374	W 032 16.866	1712	RECOVERY HTNKE38003 White Castle
12/06/2022	12:37	White Castel	N 37 17.376	W 032 16.865	1712	RECOVERY HTWN019 White Castle
12/06/2022	12:44	White Castel	N 37 17.386	W 032 16.862	1717	T° measurement for SAMPLE fluid titanium bell 80°C
12/06/2022	12:53	White Castel	N 37 17.386	W 032 16.862	1724	SAMPLE titanium bell Sample M22Flu09
12/06/2022	13:05	White Castel	N 37 17.383	W 032 16.860	1723	SAMPLE Titanium bell 2 Sample M22Flu10
12/06/2022	13:16	White Castel	N 37 17.384	W 032 16.861	1723	DEPLOYMENT HTWN013 White Castle
12/06/2022	13:20	White Castel	N 37 17.384	W 032 16.862	1723	DEPLOYMENT HTWN013 White Castle (
12/06/2022	13:24	White Castel	N 37 17.385	W 032 16.860	1724	DEPLOYMENT HTNKE29017 White Castle
12/06/2022	13:33	White Castel	N 37 17.384	W 032 16.860	1724	RECOVERY HTNKE29009 White Castle
12/06/2022	13:45	White Castel	N 37 17.381	W 032 16.867	1715	DEPLOYMENT HTNKE30012 White Castle
12/06/2022	13:45	White Castel	N 37 17.380	W 032 16.869	1715	DEPLOYMENT HTNKE30012
12/06/2022	14:06	White Castel	N 37 17.395	W 032 16.865	1723	RECOVERY HTNKE38002 White Castle
12/06/2022	14:10	White Castel	N 37 17.395	W 032 16.867	1722	DEPLOYMENT LTGrad8 White Castle
12/06/2022	14:11	White Castel	N 37 17.395	W 032 16.867	1722	DEPLOYMENT LTGrad8 White Castle
12/06/2022	14:12	White Castel	N 37 17.395	W 032 16.865	1721	Heading towards South Crystal
12/06/2022	14:23	South Crystal	N 37 17.425	W 032 16.935	1723	RECOVERY HTNKE30002 South Crystal
12/06/2022	14:29	South Crystal	N 37 17.425	W 032 16.935	1723	DEPLOYMENT HTNKE30011 South Crystal
12/06/2022	14:31	South Crystal	N 37 17.424	W 032 16.934	1722	RECOVERY LTW017 South Crystal
12/06/2022	14:36	South Crystal	N 37 17.425	W 032 16.935	1722	DEPLOYMENT LTW006 South Crystal
12/06/2022	14:48	Cypress hill	N 37 17.445	W 032 16.870	1737	Arrival zone Cyprès
12/06/2022	14:59	Cypress hill	N 37 17.454	W 032 16.857	1739	RECOVERY HTNKE29016 Cyprès
12/06/2022	15:09	Lucky strike	N 37 17.454	W 032 16.856	1739	Heading towards Tour Eiffel
12/06/2022	15:57	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE suction sampler jar 1
12/06/2022	15:59	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE suction sampler jar 2
12/06/2022	16:02	Tour Eiffel	N 37 17.327	W 032 16.548	1699	RECOVERY COLONISERur d'Ana
12/06/2022	16:03	Tour Eiffel	N 37 17.326	W 032 16.546	1698	End of dive

6.3.3. Moorings

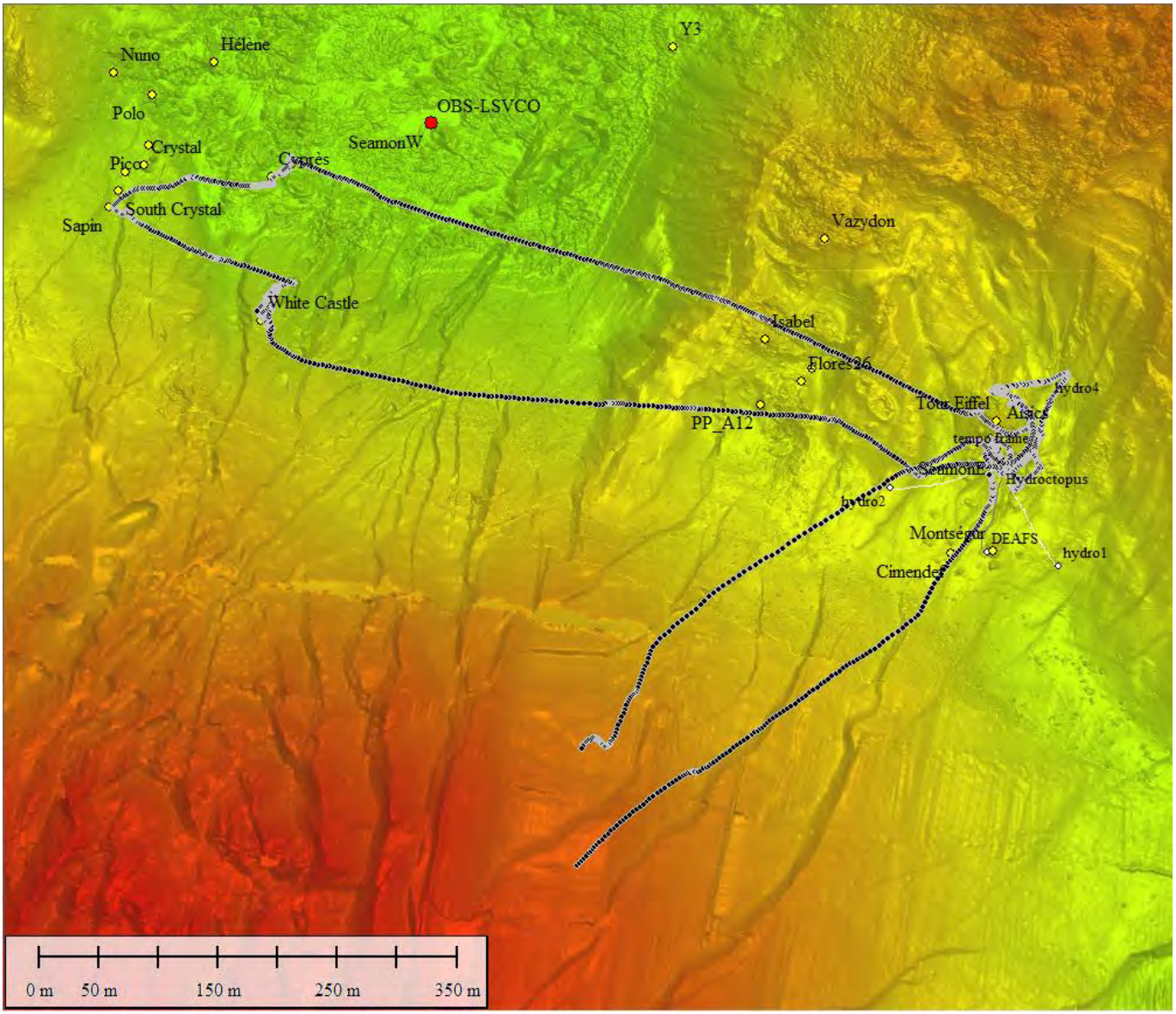
Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
12/06/2022	10:35	Tour Eiffel	N 37 17.320	W 032 16.540	1698	RECOVERY LTGrad1 Tour Eiffel
12/06/2022	10:38	Tour Eiffel	N 37 17.324	W 032 16.541	1698	RECOVERY HTNKE30001 Tour Eiffel
12/06/2022	10:40	Tour Eiffel	N 37 17.325	W 032 16.540	1698	RECOVERY LTGrad2 Tour Eiffel
12/06/2022	10:45	Tour Eiffel	N 37 17.318	W 032 16.540	1698	RECOVERY LTGrad10 Tour Eiffel
12/06/2022	11:01	Tour Eiffel	N 37 17.329	W 032 16.516	1704	RECOVERY LTGrad9 Tour Eiffel North

12/06/2022	11:02	Tour Eiffel	N 37 17.329	W 032 16.515	1704	RECOVERY HTNKE29012 Tour Eiffel North
12/06/2022	11:11	Tour Eiffel	N 37 17.353	W 032 16.517	1694	DEPLOYMENT HTNKE29020 Tour Eiffel North
12/06/2022	11:14	Tour Eiffel	N 37 17.351	W 032 16.533	1692	RECOVERY LTGrad9 Tour Eiffel North
12/06/2022	11:20	Tour Eiffel	N 37 17.349	W 032 16.534	1692	DEPLOYMENT LTGrad6 Tour Eiffel North
12/06/2022	11:47	Tour Eiffel	N 37 17.302	W 032 16.522	1700	Hooking Seamon E
12/06/2022	12:20	White Castel	N 37 17.340	W 032 16.757	1702	RECOVERY HTW005 White Castle
12/06/2022	12:35	White Castel	N 37 17.374	W 032 16.866	1712	RECOVERY HTNKE38003 White Castle
12/06/2022	12:37	White Castel	N 37 17.376	W 032 16.865	1712	RECOVERY HTWN019 White Castle
12/06/2022	13:16	White Castel	N 37 17.384	W 032 16.861	1723	DEPLOYMENT HTWN013 White Castle
12/06/2022	13:20	White Castel	N 37 17.384	W 032 16.862	1723	DEPLOYMENT HTWN013 White Castle (vue2)
12/06/2022	13:24	White Castel	N 37 17.385	W 032 16.860	1724	DEPLOYMENT HTNKE29017 White Castle
12/06/2022	13:33	White Castel	N 37 17.384	W 032 16.860	1724	RECOVERY HTNKE29009 White Castle
12/06/2022	13:45	White Castel	N 37 17.381	W 032 16.867	1715	DEPLOYMENT HTNKE30012 White Castle
12/06/2022	13:45	White Castel	N 37 17.380	W 032 16.869	1715	DEPLOYMENT HTNKE30012
12/06/2022	14:06	White Castel	N 37 17.395	W 032 16.865	1723	RECOVERY HTNKE38002 White Castle
12/06/2022	14:10	White Castel	N 37 17.395	W 032 16.867	1722	DEPLOYMENT LTGrad8 White Castle
12/06/2022	14:11	White Castel	N 37 17.395	W 032 16.867	1722	DEPLOYMENT LTGrad8 White Castle
12/06/2022	14:23	South Crystal	N 37 17.425	W 032 16.935	1723	RECOVERY HTNKE30002 South Crystal
12/06/2022	14:29	South Crystal	N 37 17.425	W 032 16.935	1723	DEPLOYMENT HTNKE30011 South Crystal
12/06/2022	14:31	South Crystal	N 37 17.424	W 032 16.934	1722	RECOVERY LTW017 South Crystal
12/06/2022	14:36	South Crystal	N 37 17.425	W 032 16.935	1722	DEPLOYMENT LTW006 South Crystal
12/06/2022	14:59	Cypress hill	N 37 17.454	W 032 16.857	1739	RECOVERY HTNKE29016 Cyprès
12/06/2022	16:02	Tour Eiffel	N 37 17.327	W 032 16.548	1699	RECOVERY COLONISER d'Ana

6.3.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
12/06/2022	10:15	Tour Eiffel	N 37 17.195	W 032 16.651	1650	SAMPLE NISKIN à SEAMON East
12/06/2022	15:57	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE Suction sampler jar 1
12/06/2022	15:59	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE Suction sampler jar 2

6.3.5. Navigation DIVE 2030-3



6.4. MoMARSAT 2022 DIVE 2031-4

Monday 13 June 2022

Mooring Nautile West	N 37° 17.42812'	W 32° 17.12762'	
Mooring ELEVATOR West with CGF	N 37° 17.58689'	W 32° 17.05375'	10 :15
Launching time	09:50	On the bottom	11 :00
Departure from bottom	16:50	Nautile on board	17:40
Pilot	G de Parseval	Operations duration On the bottom	5h50
Copilot	L. Tailliez		
Observer	A. Astorch		

6.4.1. Objectives : JPP West – Lava lake – début marché capteurs autonomes à Tour Eiffel/Montsegur

Site	Operation
South Crystal	Recovery et redéploiement HTW, Recovery TCM3
	Temperature measurement and Sample 4 titanium syringes
JPP	Recovery JPPW (photos and vidéos)
lava lake	Sample iron mats and Sample Plume 4*2L
Seamon W	Sample Niskin
White Castle	Température + Trigger 4 titanium syringes
Tour Eiffel	Recovery 2 Colonisers ANA + Sample 1*2PLUME
	Recovery TCM3-1, TCM3-B/C/D
Joker	End of dive
Montségur périphérie	Three points Chemini (centre, 2 corners) Recovery POMME camera system
Montsegur	Recovery POMMES C2bcg, C1bcg et R1 (North Montegur)
	Transit ELEVATOR with 4 POMMEs
	Suction shrimp for oceanopolis
	Suction gastropods

Coordinates:

SEAMON W	N 37°17.306	W 32°16.539	1705	
JPPW	N 37 17.584	W 32 16.899	1726	
TCM3-3 SC	N 37 17.447	W 32 16.898	1730	
LLFeox	N 37 17.549	W 32 16.790	1741	
POMME P1	N 37 17.282	W 32 16.520	1707	Montségur périphery
TCM3-1	N 37 17.303	W 32 16.538	1704	Tour Eiffel south
TCM3-B	N 37 17.343	W 32 16.541	1694	Tour Eiffel structure West
TCM3-C	N 37 17.343	W 32 16.526	1690	Tour Eiffel structure East
TCM3-D	N 37 17.349	W 32 16.534	1690	Tour Eiffel structure North

Nautile

Basket descending

4 titanium syringes	1 PBT	Probe HTNKE	Probe HTW008
Niskin			

Basket going up

4 titanium syringes	1 PBT	Niskin	

Instrumentation

PIF/CHEMINI	PLUME 5 bags (5*2L)	2 Suction sampler jars	

CABLED ELEVATOR WEST

ELEVATOR basket going down	4 titanium syringes		

ELEVATOR basket going up	JPP West	TCM3-3	4 -Ti

FREE FALL ELEVATOR (deployment Sunday 12 June – recovery Tuesday 14 June)

ELEVATOR basket going down	6 COMBOS		
ELEVATOR basket going up	TCM3-1, TCM3-A/B/C	4 POMMEs	

6.4.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
13/06/2022	11:05	South Crystal	N 37 17.441	W 032 16.926	1717	Arrival zone South Crystal
13/06/2022	11:18	South Crystal	N 37 17.429	W 032 16.930	1722	RECOVERY Probe HTW08
13/06/2022	11:30	South Crystal	N 37 17.430	W 032 16.930	1721	Temperature measurement South Crystal
13/06/2022	11:34	South Crystal	N 37 17.431	W 032 16.931	1721	SAMPLE Titanium syringe 1
13/06/2022	11:39	South Crystal	N 37 17.430	W 032 16.931	1721	SAMPLE Titanium syringe 2
13/06/2022	11:43	South Crystal	N 37 17.431	W 032 16.930	1721	SAMPLE Titanium syringe 3
13/06/2022	11:45	South Crystal	N 37 17.430	W 032 16.931	1722	SAMPLE Titanium syringe 4
13/06/2022	11:47	South Crystal	N 37 17.430	W 032 16.931	1722	End Calibration CHEMINI
13/06/2022	11:50	South Crystal	N 37 17.432	W 032 16.930	1721	DEPLOYMENT Probe HTW005
13/06/2022	12:30	South Crystal	N 37 17.441	W 032 16.910	1727	RECOVERY TCM3-3
13/06/2022	12:52	Lucky strike	N 37 17.549	W 032 16.892	1729	RECOVERY JPPW
13/06/2022	13:08	Lucky strike	N 37 17.550	W 032 16.916	1713	Transit towards ELEVATOR
13/06/2022	13:20	Lucky strike	N 37 17.573	W 032 17.040	1631	Material exchange
13/06/2022	13:42	Lucky strike	N 37 17.575	W 032 17.057	1626	Transit towards Lava Lake
13/06/2022	14:05	Lucky strike	N 37 17.534	W 032 16.794	1738	COLONISER at the lava Lake Céline with iron-riched microbial mats
13/06/2022	14:15	Lucky strike				Temperature measurement microbial mats
13/06/2022	14:16	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 1st bag plume
13/06/2022	14:20	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 2nd bag plume
13/06/2022	14:22	Lucky strike	N 37 17.533	W 032 16.796	1741	SAMPLE 3rd bag plume
13/06/2022	14:25	Lucky strike	N 37 17.534	W 032 16.795	1741	SAMPLE 4th bag plume
13/06/2022	14:38	Lucky strike	N 37 17.533	W 032 16.795	1741	SAMPLE mats PBT
13/06/2022	14:50	Lucky strike	N 37 17.532	W 032 16.793	1734	Transit towards Seamon West
13/06/2022	14:56	Lucky strike	N 37 17.472	W 032 16.786	1740	SAMPLE Niskin Seamon West
13/06/2022	14:58	Lucky strike	N 37 17.470	W 032 16.782	1734	Transit towards White Castle
13/06/2022	15:16	White Castel	N 37 17.377	W 032 16.864	1711	Temperature measurement White Castle
13/06/2022	15:26	White Castel	N 37 17.378	W 032 16.868	1711	SAMPLE Titanium syringe 8
13/06/2022	15:28	White Castel	N 37 17.379	W 032 16.868	1711	SAMPLE Titanium syringe 7
13/06/2022	15:30	White Castel	N 37 17.380	W 032 16.869	1711	SAMPLE Titanium syringe 6
13/06/2022	15:34	White Castel	N 37 17.377	W 032 16.868	1711	SAMPLE Titanium syringe 5
13/06/2022	15:36	White Castel				Video problems
13/06/2022	15:37	White Castel				Transit towards Tour Eiffel
13/06/2022	16:04	Tour Eiffel				RECOVERY TCM3-B
13/06/2022	16:13	Tour Eiffel				RECOVERY 1st COLONISER Ana
13/06/2022	16:14	Tour Eiffel				RECOVERY 2nd COLONISER Ana
13/06/2022	16:22	Tour Eiffel				RECOVERY TCM3-C
13/06/2022	16:30	Lucky strike				TCM3-B & TCM3-C in ELEVATOR
13/06/2022	16:38	Lucky strike				End of dive

6.4.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
13/06/2022	11:18	South Crystal	N 37 17.429	W 032 16.930	1722	RECOVERY Probe HTW08
13/06/2022	11:50	South Crystal	N 37 17.432	W 032 16.930	1721	DEPLOYMENT Probe HTW005
13/06/2022	12:30	South Crystal	N 37 17.441	W 032 16.910	1727	RECOVERY TCM3-3
13/06/2022	12:52	Lucky strike	N 37 17.549	W 032 16.892	1729	RECOVERY JPPW
13/06/2022	16:04	Tour Eiffel				RECOVERY TCM3-B
13/06/2022	16:13	Tour Eiffel				RECOVERY 1st COLONISER Ana
13/06/2022	16:14	Tour Eiffel				RECOVERY 2nd COLONISER Ana
13/06/2022	16:22	Tour Eiffel				RECOVERY TCM3-C
13/06/2022	16:30	Lucky strike				TCM3-B & TCM3-C in ELEVATOR

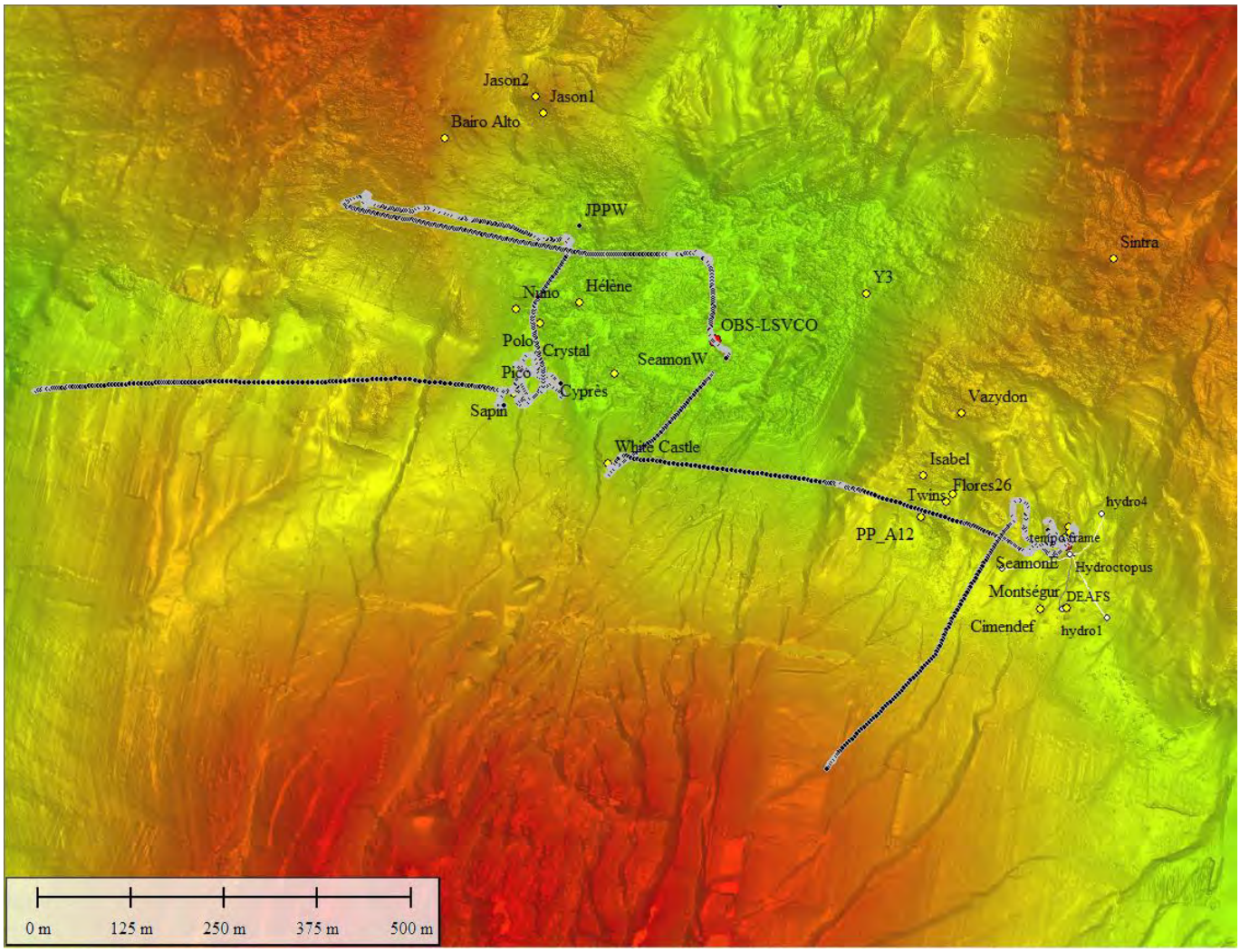
6.4.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
13/06/2022	11:34	South Crystal	N 37 17.431	W 032 16.931	1721	SAMPLE Titanium syringe 1
13/06/2022	11:39	South Crystal	N 37 17.430	W 032 16.931	1721	SAMPLE Titanium syringe 2
13/06/2022	11:43	South Crystal	N 37 17.431	W 032 16.930	1721	SAMPLE Titanium syringe 3
13/06/2022	11:45	South Crystal	N 37 17.430	W 032 16.931	1722	SAMPLE Titanium syringe 4
13/06/2022	14:16	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 1st bag plume
13/06/2022	14:20	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 2nd bag plume
13/06/2022	14:22	Lucky strike	N 37 17.533	W 032 16.796	1741	SAMPLE 3rd bag plume
13/06/2022	14:25	Lucky strike	N 37 17.534	W 032 16.795	1741	SAMPLE 4th bag plume
13/06/2022	14:56	Lucky strike	N 37 17.472	W 032 16.786	1740	SAMPLE Niskin Seamon West
13/06/2022	15:26	White Castel	N 37 17.378	W 032 16.868	1711	SAMPLE Titanium syringe 8
13/06/2022	15:28	White Castel	N 37 17.379	W 032 16.868	1711	SAMPLE Titanium syringe 7
13/06/2022	15:30	White Castel	N 37 17.380	W 032 16.869	1711	SAMPLE Titanium syringe 6
13/06/2022	15:34	White Castel	N 37 17.377	W 032 16.868	1711	SAMPLE Titanium syringe 5

6.4.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
13/06/2022	14:38	Lucky Strike	N 37 17.533	W 032 16.795	1741	SAMPLE iron-riched microbial mats in PBT

6.4.6. Navigation DIVE 2031-4



6.5. MoMARSAT 2022 DIVE 2032-5

Wednesday 15 June 2022

Launch position Nautile Est	N 37° 17.16531'	W 32° 16.64356'	
Mooring ELEVATOR East Libre	N37°17.3085	W32°16.4845	Sunday night
Launching time	09:20	Arrival at the bottom	10 :10
Departure from bottom	16:10	Nautile on board	17:10
		Operations duration on the bottom	6h
Pilot	Guillaume de Parseval		
Copilot	Luc Tailliez		
Observer	Loïc Michel		

6.5.1. Objectives: Deployment of incubation chambers COMBO

Site	Operation
Montsegur	Recovery / redeployment HTNKE temperature probes
	Recovery 1 TCM3-1 & POMME camera system
Tour Eiffel	TENSE experiments Mussel sampling Deployment of 6 chambers and injection
	Recovery TCM3-C & 1 POMME
	Recovery Probe HTW004
Isabel	Temperature measurement + Trigger 4 titanium syringes on black smoker
Joker	
Isabel	Sampling mussels (LyoPhall + DEEP-REST)
Isabel	Suction gastropods and shrimp

Coordinates:

SEAMON E	N 37°17.306	W 32°16.539	1705	
TCM3-1	N 37 17.303	W 32 16.538	1704	
TCM3-C	N 37 17.343	W 32 16.526	1690	
POI	N 37 17.2696	W 32 16.559		South Montesegur for COMBOS deployment

Nautile

Basket descending

4 titanium syringes	2 PBTs	Niskin	HTNKE 29016

Basket going up

4 titanium syringes	2 PBTs	Niskin	HTNKE 29006

Instrumentation

PIF/CHEMINI		Suction sampler jars	

ELEVATOR Free fall (Already on the bottom)

ELEVATOR basket going down	6 COMBOs			
ELEVATOR basket going up		2 TCMs	Probe HTW004	2 POMME camera systems

6.5.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
15/06/2022	10:09	Lucky strike	N 37 17.023	W 032 16.872	1607	Arrival at the bottom & chimaera
15/06/2022	10:18	Lucky strike	N 37 17.295	W 032 16.559	1699	POI Combo: some mussels and microbial mats but not adapted for the experiment

15/06/2022	10:35	Montsegur	N 37 17.285	W 032 16.529	1703	RECOVERY HTNKE 29006
15/06/2022	10:50	Montsegur	N 37 17.286	W 032 16.529	1703	DEPLOYMENT HTNKE29016
15/06/2022	10:52	Montsegur	N 37 17.286	W 032 16.530	1702	RECOVERY Pomme C2bCg
15/06/2022	10:58	Montsegur	N 37 17.302	W 032 16.528	1703	RECOVERY TCM 3-1
15/06/2022	11:03	Montsegur	N 37 17.318	W 032 16.545	1700	Arrival at ELEVATOR
15/06/2022	11:07	Montsegur	N 37 17.325	W 032 16.554	1692	Material transfer
15/06/2022	11:30	Tour Eiffel	N 37 17.348	W 032 16.526	1688	Beginning of location of Eiffel Tower for COMBO bell deployment site
15/06/2022	11:50	Tour Eiffel	N 37 17.345	W 032 16.529	1691	Found adequate site for COMBO deployment, End of exploration
15/06/2022	11:52	Tour Eiffel	N 37 17.345	W 032 16.528	1691	Chemini measurement T0 TENSE experiment (COMBO)
15/06/2022	11:54	Tour Eiffel	N 37 17.345	W 032 16.528	1691	technical issues => Restart PIF & Chemini
15/06/2022	11:58	Tour Eiffel	N 37 17.344	W 032 16.529	1691	Chemini measurement T0 TENSE experiment (COMBO)
15/06/2022	12:04	Tour Eiffel	N 37 17.343	W 032 16.529	1691	End MESURE Chemini
15/06/2022	12:11	Tour Eiffel	N 37 17.342	W 032 16.529	1691	SAMPLE PBT4 (T0 Manip TENSE / COMBO)
15/06/2022	12:21	Tour Eiffel	N 37 17.345	W 032 16.528	1693	RECOVERY TCM3-D
15/06/2022	12:28	Tour Eiffel	N 37 17.336	W 032 16.523	1684	RECOVERY HTW004
15/06/2022	12:52	Tour Eiffel	N 37 17.282	W 032 16.532	1703	RECOVERY 1 Pomme (C1a ?)
15/06/2022	12:57	Tour Eiffel	N 37 17.282	W 032 16.530	1702	RECOVERY POMME C2aCg
15/06/2022	13:19	Tour Eiffel	N 37 17.333	W 032 16.555	1692	Grab COMBO 2 : oss of skirt that was tangled in the tip, and broken while handling it
15/06/2022	13:51	Tour Eiffel	N 37 17.347	W 032 16.533	1689	Arrival at site TENSE, view on the two first deployed COMBO
15/06/2022	13:51	Tour Eiffel				DEPLOYMENT 1st COMBO
15/06/2022	14:01	Tour Eiffel	N 37 17.348	W 032 16.534	1691	DEPLOYMENT 3rd COMBO
15/06/2022	14:05	Tour Eiffel	N 37 17.348	W 032 16.535	1691	DEPLOYMENT 6th COMBO
15/06/2022	14:40	Tour Eiffel	N 37 17.345	W 032 16.540	1692	DEPLOYMENT COMBO 4
15/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.531	1691	DEPLOYMENT COMBO 5
15/06/2022	14:46	Tour Eiffel	N 37 17.347	W 032 16.530	1691	Trigger COMBO 3 => failure
15/06/2022	14:48	Tour Eiffel	N 37 17.348	W 032 16.530	1691	Trigger COMBO 6 => failure
15/06/2022	14:50	Tour Eiffel	N 37 17.349	W 032 16.528	1692	Trigger COMBO 4 => succeeded !
15/06/2022	14:52	Tour Eiffel	N 37 17.349	W 032 16.534	1692	Trigger COMBO 1 => failure
15/06/2022	15:00	Tour Eiffel	N 37 17.344	W 032 16.528	1691	Trigger COMBO 5 => failure
15/06/2022	15:14	Lucky strike	N 37 17.328	W 032 16.531	1697	SAMPLE Niskin at SeaMon E
15/06/2022	15:22	Isabel	N 37 17.370	W 032 16.625	1685	Arrival at Isabel for Titanium syringes
15/06/2022	15:56	Isabel	N 37 17.372	W 032 16.645	1686	SAMPLE PBT 4 (mussels Isabel for S. Fuchs, projects LYOPHALL & DEEP-REST)
15/06/2022	16:02	Isabel	N 37 17.368	W 032 16.643	1675	End of dive

6.5.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
15/06/2022	10:35	Montsegur	N 37 17.285	W 032 16.529	1703	RECOVERY HTNKE 29006
15/06/2022	10:50	Montsegur	N 37 17.286	W 032 16.529	1703	DEPLOYMENT HTNKE29016
15/06/2022	10:52	Montsegur	N 37 17.286	W 032 16.530	1702	RECOVERY Pomme C2bCg
15/06/2022	10:58	Montsegur	N 37 17.302	W 032 16.528	1703	RECOVERY TCM 3-1
15/06/2022	12:21	Tour Eiffel	N 37 17.345	W 032 16.528	1693	RECOVERY TCM3-D
15/06/2022	12:28	Tour Eiffel	N 37 17.336	W 032 16.523	1684	RECOVERY HTW004

15/06/2022	12:52	Tour Eiffel	N 37 17.282	W 032 16.532	1703	RECOVERY 1 Pomme (C1a ?)
15/06/2022	12:57	Tour Eiffel	N 37 17.282	W 032 16.530	1702	RECOVERY POMME C2aCg
15/06/2022	13:51	Tour Eiffel				DEPLOYMENT 1st COMBO
15/06/2022	14:01	Tour Eiffel	N 37 17.348	W 032 16.534	1691	DEPLOYMENT 3rd COMBO
15/06/2022	14:05	Tour Eiffel	N 37 17.348	W 032 16.535	1691	DEPLOYMENT 6th COMBO
15/06/2022	14:40	Tour Eiffel	N 37 17.345	W 032 16.540	1692	DEPLOYMENT COMBO 4
15/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.531	1691	DEPLOYMENT COMBO 5

6.5.4. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
15/06/2022	12:11	Tour Eiffel	N 37 17.342	W 032 16.529	1691	SAMPLE PBT4 (T0 Manip TENSE / COMBO)
15/06/2022	15:56	Isabel	N 37 17.372	W 032 16.645	1686	SAMPLE PBT 4 (mussels Isabel for S. Fuchs, projects LYOPHALL & DEEP-REST)

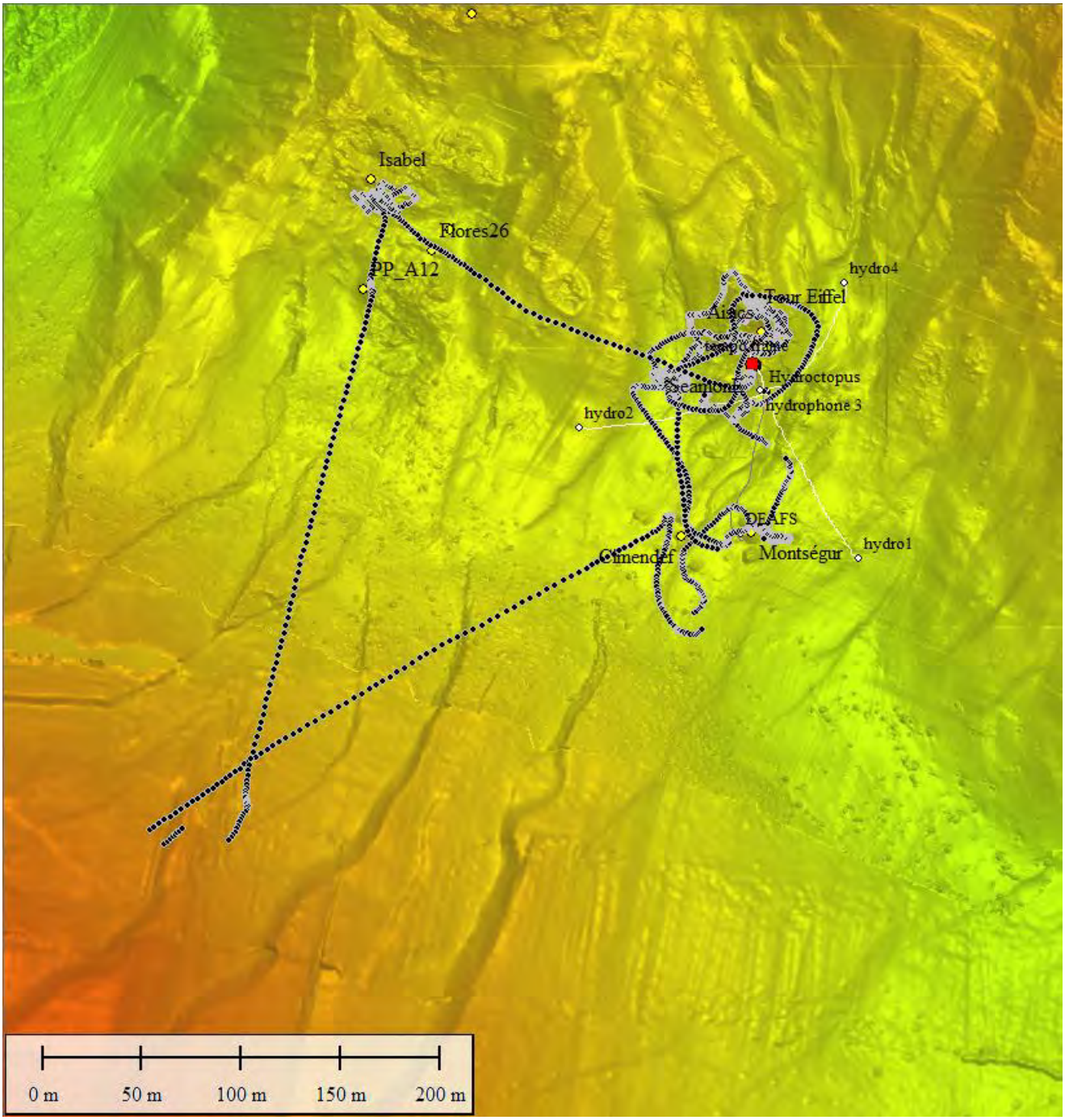
6.5.5. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
						TITANIUM SYRINGES Isabel ?
15/06/2022	15:14	Lucky strike	N 37 17.328	W 032 16.531	1697	SAMPLE Niskin at SeaMon E

6.5.6. Measurements CHEMINI

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
15/06/2022	11:58	Tour Eiffel	N 37 17.344	W 032 16.529	1691	MESURE Chemini T0 Manip TENSE (COMBO)
15/06/2022	12:04	Tour Eiffel	N 37 17.343	W 032 16.529	1691	End MESUREMENT Chemini

6.5.7. Navigation DIVE 2032-5



6.6. MoMARSAT 2022 DIVE 2033-6

Thursday 16 June 2022

Launch position Nautile West	N 37° 17.48459'	W 32° 17.13048'	
Mooring ELEVATOR cable GF	N 37° 17.3062'	W 32° 16.49164'	10:40
Launching time	09:30	On the bottom	10 :30
Departure from bottom	16:30	Nautile on board	17:30
Pilot	Guillaume De Parseval	Operations duration on the bottom	6h
Copilot	Luc Tailliez		
Observer	Mathilde Cannat		

6.6.1. Objectives: Recovery & replacement probes at Tour Eiffel

Site	Operation
South Crystal	Deplacement Probe HTW005 & repositioning at South Crystal
TE North	Temperature measurement, difuse fluid et Sample 4 titanium bells Sample 4 bags Plume and iron-riched microbial mats Deployment of one TCM3
Seamon E	Trigger Niskin in the water close to SEAMON East
Tour Eiffel Sud	Recovery and deployment of tempearture probes
TE sun south	Recovery and déploiement of temperature probes Temperature measurement, diffuse fluid + Sample 4 Niskin s titane
TE West	Recovery & deployment of temperature probes
Joker	
TE West	Deployment TCM3-X
TE Est	Deployment TCM3-X
TE Sud	Deployment TCM3-1
Montsegur	Deployment HTWN 019 in the East... or West if impossible

Coordinates:

SEAMON E	N 37°17.306	W 32°16.539	1705	
Tapis Fe TE North	N37 17.353	W32 16.535	1689	Cap 346°C
TCM3-X	N 37 17.349	W 032 16.534	1690	Tour Eiffel North
TCM3-X	N 37 17.343	W 032 16.526	1690	Tour Eiffel East
TCM3-X	N 37 17.343	W 032 16.541	1694	Tour Eiffel West

Nautile

Basket descending

4 titanium syringes bells	Probe little basket	1PBT	Niskin
5 HTNKE	4 Ltgrad + 3 LTmetal	2 LTW	1 HTWN

Basket going up

4 titanium syringes bells	Niskin	Probe little basket	1 PBT
4 HTNKE	4 Ltgrad (in basket)	1 LTW (in basket)	1 LTI (in basket)
1 LTNKE (in basket)			

Instrumentation

Suction sampler jars			

CABLED ELEVATOR WEST

ELEVATOR basket going down	4 titanium syringes bells	4 TCM	POMME
ELEVATOR basket going up	4 titanium syringes bells	Niksin	

6.6.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
16/06/2022	10:25	Lucky strike	N 37 17.503	W 032 17.275	1718	On the bottom
16/06/2022	10:27	Lucky strike	N 37 17.509	W 032 17.241	1706	Transit towards South Crystal
16/06/2022	10:44	Lucky strike	N 37 17.440	W 032 16.928	1723	Thruster issues, fuse change
16/06/2022	10:48	South Crystal	N 37 17.378	W 032 16.928	1719	Arrival at South Crystal to recover Probe HTW005
16/06/2022	10:51	South Crystal	N 37 17.435	W 032 16.930	1721	RECOVERY HTW005
16/06/2022	10:53	South Crystal	N 37 17.435	W 032 16.929	1721	Departure for South Crystal towards White Castle
16/06/2022	11:07	White Castel	N 37 17.395	W 032 16.863	1718	Arrival at White Castle
16/06/2022	11:21	White Castel	N 37 17.380	W 032 16.864	1711	DEPLOYMENT HTW005
16/06/2022	11:22	White Castel	N 37 17.380	W 032 16.864	1711	transit towards Tour Eiffel
16/06/2022	11:35	Isabel	N 37 17.348	W 032 16.643	1691	Isabel
16/06/2022	11:42	Tour Eiffel	N 37 17.352	W 032 16.530	1685	Tour Eiffel North
16/06/2022	12:05	Tour Eiffel	N 37 17.355	W 032 16.542	1692	Mesure T nautile: 53°C
16/06/2022	12:14	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 4
16/06/2022	12:19	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 3
16/06/2022	12:25	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 2
16/06/2022	12:30	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 1
16/06/2022	12:49	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 1 T 4.7°C
16/06/2022	12:55	Tour Eiffel	N 37 17.355	W 032 16.541	1692	SAMPLE PLUME Bag 2 at Plume 3 T 4.7°C
16/06/2022	13:00	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 3 at Plume 4 T 4.75°C
16/06/2022	13:04	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 4 at Plume 5 slowing down T 4.6°C
16/06/2022	13:12	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE iron-riched microbial mats PBT
16/06/2022	13:17	Tour Eiffel	N 37 17.355	W 032 16.538	1690	Transit towards site Seamon E
16/06/2022	13:25	Tour Eiffel	N 37 17.325	W 032 16.541	1698	SAMPLE Niskin
16/06/2022	13:39	ELEVATOR	N 37 17.327	W 032 16.413	1652	Material exchange
16/06/2022	14:14	Tour Eiffel	N 37 17.325	W 032 16.412	1652	Transit towards Tour Eiffel South
16/06/2022	14:30	Tour Eiffel	N 37 17.322	W 032 16.533	1703	Droping 4 TCM3 close to Hydroctopus.
16/06/2022	14:50	Tour Eiffel	N 37 17.335	W 032 16.542	1699	RECOVERY LTgrad15
16/06/2022	14:57	Tour Eiffel	N 37 17.335	W 032 16.543	1699	LTgrad1 deployed
16/06/2022	14:58	Tour Eiffel	N 37 17.335	W 032 16.543	1699	RECOVERY HTnke30007
16/06/2022	15:08	Tour Eiffel	N 37 17.335	W 032 16.542	1699	DEPLOYMENT HTnke 41003
16/06/2022	15:17	Tour Eiffel	N 37 17.336	W 032 16.542	1699	DEPLOYMENT LTgrad9
16/06/2022	15:24	Tour Eiffel	N 37 17.336	W 032 16.546	1700	RECOVERY HTnke30014
16/06/2022	15:36	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 5
16/06/2022	15:45	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 6
16/06/2022	15:49	Tour Eiffel	N 37 17.337	W 032 16.547	1700	Mesurement T Nautile 46°C
16/06/2022	15:51	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT HTnke38001
16/06/2022	16:00	Tour Eiffel	N 37 17.336	W 032 16.546	1699	DEPLOYMENT LTgrad12 deployed in grey sand, with white microbial mats nearby
16/06/2022	16:08	Tour Eiffel	N 37 17.336	W 032 16.544	1699	DEPLOYMENT LTgrad14
16/06/2022	16:14	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT LTmetal13
16/06/2022	16:18	Tour Eiffel	N 37 17.333	W 032 16.549	1693	End of dive

6.6.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
16/06/2022	10:51	South Crystal	N 37 17.435	W 032 16.930	1721	RECOVERY HTW005
16/06/2022	11:21	White Castel	N 37 17.380	W 032 16.864	1711	DEPLOYMENT HTW005
16/06/2022	14:50	Tour Eiffel	N 37 17.335	W 032 16.542	1699	RECOVERY LTgrad15
16/06/2022	14:57	Tour Eiffel	N 37 17.335	W 032 16.543	1699	DEPLOYMENT LTgrad1
16/06/2022	14:58	Tour Eiffel	N 37 17.335	W 032 16.543	1699	RECOVERY HTnke30007
16/06/2022	15:08	Tour Eiffel	N 37 17.335	W 032 16.542	1699	DEPLOYMENT HTnke 41003
16/06/2022	15:17	Tour Eiffel	N 37 17.336	W 032 16.542	1699	DEPLOYMENT LTgrad9
16/06/2022	15:24	Tour Eiffel	N 37 17.336	W 032 16.546	1700	RECOVERY HTnke30014
16/06/2022	15:51	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT HTnke38001
16/06/2022	16:00	Tour Eiffel	N 37 17.336	W 032 16.546	1699	DEPLOYMENT LTgrad12 deployed in grey sand, with white microbial mats nearby
16/06/2022	16:08	Tour Eiffel	N 37 17.336	W 032 16.544	1699	DEPLOYMENT LTgrad14
16/06/2022	16:14	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT LTmetal13

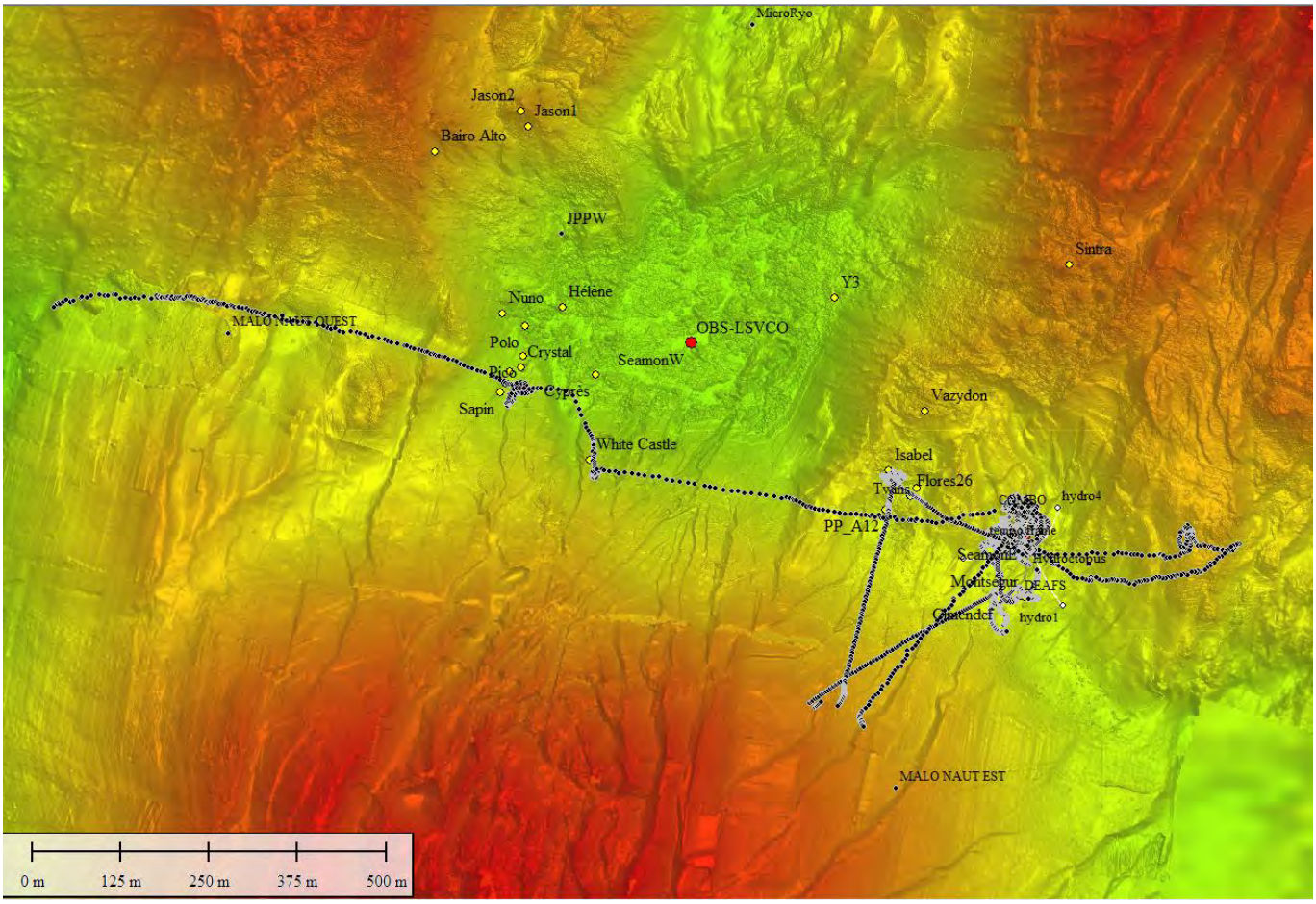
6.6.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
16/06/2022	12:14	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 4
16/06/2022	12:19	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 3
16/06/2022	12:25	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 2
16/06/2022	12:30	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 1
16/06/2022	12:49	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 1 T 4.7°C
16/06/2022	12:55	Tour Eiffel	N 37 17.355	W 032 16.541	1692	SAMPLE PLUME Bag 2 at Plume 3 T 4.7°C
16/06/2022	13:00	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 3 at Plume 4 T 4.75°C
16/06/2022	13:04	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 4 at Plume 5 slowing down T 4.6°C
16/06/2022	13:25	Tour Eiffel	N 37 17.325	W 032 16.541	1698	SAMPLE Niskin
16/06/2022	15:36	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 5
16/06/2022	15:45	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 6

6.6.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
16/06/2022	13:12	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE iron-riched microbial mats PBT

6.6.6. Navigation DIVE 2033-6



6.7. MoMARSAT 2022 DIVE 2034-07

Friday 17 June 2021

Launch position Nautile	N 37° 17.12114'	W 32° 16.67825'	EST
Launch position ELEVATOR	N 37° 17.47243'	W 32° 16.70831'	10:00
Launching time	09:30	On the bottom	10 :30
Departure from bottom	16:30	Nautile on board	17:30
Pilot	Olivier Fauvin	Operations duration on the bottom	6h
Copilot	Luca Leroy		
Observer	A. Colaço		

6.7.1. Objectives : Sintra

Site	Operation
Sintra inactif Merces	Chemical characterisation of quadrats I1 et I2- Merces Sample sulphur blocs Deployment 3 Colonisers Recovery POMME camera system I1
Sintra	Recovery/ deployment of temperature probe Temperature measurement + Sample with 4 titanium syringes
Y3	Sample iron-rich microbial mats Sample PLUME 4*2L bags Temperature measurement + Sample with 4 titanium syringes Visual transect Y3
Tour Eiffel	Mussel sampling Suction : shrimp Suction : gastropods Recovery / deployment of temperature probes in the West
Montségur	POMMES recovery

Coordinates :

Sintra Inactive I1 & I2	N 37° 17.475	W 32° 16.503		
Sintra active	N 37° 17.533	W 32° 16.502		
iron-rich mats Y3	N 37 17.518	W 32 16.663	1727 m	cap 315
Y3	N 37° 17.52	W 32° 16.665		

Nautile

Basket descending

HTNKE XXX	3 Colonisers ANA	2 PBTs	4 Titanium syringes

Basket going up

HTNKE30015	PBT1 + PBT2		4 Titanium syringes

Instrumentation

Chemini/PIF	Suction sampler jars	PLUME 5 bags de 2L	

ELEVATOR

Basket 1 descending: 4 titanium syringes	Basket 2 descending:
Basket 1 going up : 4 titanium syringes + POMME I1	Basket 2 going up :

6.7.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
17/06/2022	10:31	Lucky strike	N 37 17.352	W 032 16.556		On the bottom, lest from an elevator mooring

17/06/2022	11:02	Sintra	N 37 17.518	W 032 16.543		Zone inactive de Sintra avec le POMME
17/06/2022	11:08	Sintra	N 37 17.510	W 032 16.548	1653	CHEMINI measurement in the middle of the quadrat I1 et SAMPLE PIF in lquadrat I1
17/06/2022	11:33	Sintra	N 37 17.510	W 032 16.548		SAMPLE PIF in quadrat I2
17/06/2022	11:33	Sintra				CHEMINI MEASUREMENT in quadrat I2
17/06/2022	11:52	Sintra	N 37 17.510	W 032 16.548		RECOVERY POMME quadrat I2
17/06/2022	12:00	Sintra	N 37 17.510	W 032 16.548		DEPLOYMENT 1st COLONISER ANA
17/06/2022	12:02	Sintra	N 37 17.510	W 032 16.547		DEPLOYMENT 2nd COLONISERANA
17/06/2022	12:11	Sintra	N 37 17.510	W 032 16.548		SAMPLE PLUME bag 6 onColonisers
17/06/2022	12:18	Sintra	N 37 17.511	W 032 16.548		SAMPLE sulfure blocs
17/06/2022	12:37	Sintra	N 37 17.529	W 032 16.500	1615	RECOVERY Probe HTNKE 30015
17/06/2022	12:42	Sintra	N 37 17.532	W 032 16.506		Temperature measurement before Titanium syringe
17/06/2022	12:50	Sintra	N 37 17.535	W 032 16.505		SAMPLE Titanium syringe 1
17/06/2022	12:52	Sintra	N 37 17.537	W 032 16.504		SAMPLE Titanium syringe 2
17/06/2022	12:56	Sintra	N 37 17.536	W 032 16.503		SAMPLE Titanium syringe 3
17/06/2022	12:59	Sintra	N 37 17.535	W 032 16.503		SAMPLE Titanium syringe 4
17/06/2022	13:04	Sintra	N 37 17.536	W 032 16.503		DEPLOYMENT Probe 41001
17/06/2022	13:07	Lucky strike	N 37 17.538	W 032 16.504		Departure from Sintra towards ELEVATOR
17/06/2022	13:23	Lucky strike	N 37 17.475	W 032 16.673		Material exchange at ELEVATOR
17/06/2022	13:26	Lucky strike	N 37 17.471	W 032 16.679		Opening basket B1 of ELEVATOR
17/06/2022	13:29	Lucky strike	N 37 17.472	W 032 16.680		POMME in basket B1 of ELEVATOR
17/06/2022	13:48	Lucky strike	N 37 17.479	W 032 16.687		Departure from ELEVATOR towards Y3
17/06/2022	14:15	Y3	N 37 17.512	W 032 16.673		SAMPLE Plume 1 on iron mats at Y3
17/06/2022	14:23	Y3	N 37 17.512	W 032 16.667		SAMPLE Plume 2 on iron mats at Y3.
17/06/2022	14:23	Y3				SAMPLE Plume 3 on iron mats at Y3
17/06/2022	14:23	Y3				SAMPLE Plume 4 on iron mats at Y3
17/06/2022	14:33	Y3	N 37 17.509	W 032 16.662		SAMPLE iron mats for PBT
17/06/2022	14:48	Y3	N 37 17.512	W 032 16.668		Temperature measurement at Y3
17/06/2022	14:52	Y3	N 37 17.511	W 032 16.669		SAMPLE Titanium syringe 5
17/06/2022	14:54	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 6
17/06/2022	14:57	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 7
17/06/2022	14:59	Y3	N 37 17.509	W 032 16.665		SAMPLE Titanium syringe 8
17/06/2022	15:02	Y3	N 37 17.510	W 032 16.666		Start video transect at Y3
17/06/2022	15:25	Y3	N 37 17.514	W 032 16.672		End video transect Y3
17/06/2022	15:28	Y3	N 37 17.513	W 032 16.673		SAMPLE mussels for Audrey
17/06/2022	15:39	Y3	N 37 17.512	W 032 16.677		Departure from Y3 towards Tour Eiffel
17/06/2022	16:08	Tour Eiffel	N 37 17.339	W 032 16.533		*View on mussels
17/06/2022	16:09	Tour Eiffel	N 37 17.340	W 032 16.535		SAMPLE shrimp
17/06/2022	16:33	Lucky strike	N 37 17.183	W 032 16.674		End of dive

6.7.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
17/06/2022	11:52	Sintra	N 37 17.510	W 032 16.548		RECOVERY POMME on quadrat I2
17/06/2022	12:00	Sintra	N 37 17.510	W 032 16.548		DEPLOYMENT 1st COLONISER ANA
17/06/2022	12:02	Sintra	N 37 17.510	W 032 16.547		DEPLOYMENT 2nd COLONISERANA
17/06/2022	12:37	Sintra	N 37 17.529	W 032 16.500	1615	RECOVERY Probe HTNKE 30015
17/06/2022	13:04	Sintra	N 37 17.536	W 032 16.503		DEPLOYMENT Probe 41001

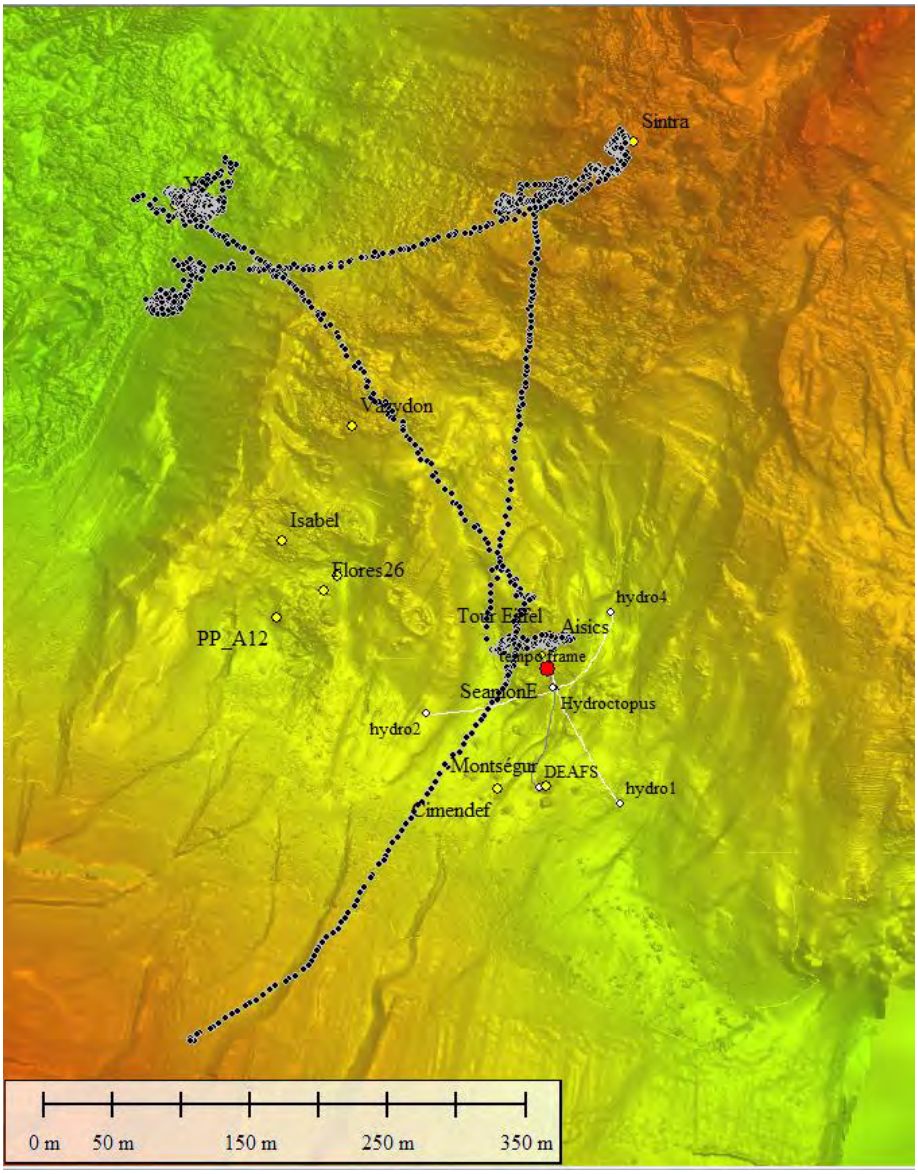
6.7.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
17/06/2022	11:08	Sintra	N 37 17.510	W 032 16.548	1653	SAMPLE PIF in quadrat I1
17/06/2022	11:33	Sintra	N 37 17.510	W 032 16.548		SAMPLE PIF in quadrat I2
17/06/2022	12:11	Sintra	N 37 17.510	W 032 16.548		SAMPLE PLUME bag 6 on Colonisers
17/06/2022	12:18	Sintra	N 37 17.511	W 032 16.548		SAMPLE 2 sulfure blocs
17/06/2022	12:50	Sintra	N 37 17.535	W 032 16.505		SAMPLE Titanium syringe 1
17/06/2022	12:52	Sintra	N 37 17.537	W 032 16.504		SAMPLE Titanium syringe 2
17/06/2022	12:56	Sintra	N 37 17.536	W 032 16.503		SAMPLE Titanium syringe 3
17/06/2022	12:59	Sintra	N 37 17.535	W 032 16.503		SAMPLE Titanium syringe 4
17/06/2022	14:15	Y3	N 37 17.512	W 032 16.673		SAMPLE Plume 1 on iron mats at Y3
17/06/2022	14:23	Y3	N 37 17.512	W 032 16.667		SAMPLE Plume 2 on iron mats at Y3.
17/06/2022	14:23	Y3				SAMPLE Plume 3 on iron mats at Y3
17/06/2022	14:23	Y3				SAMPLE Plume 4 on iron mats at Y3
17/06/2022	14:52	Y3	N 37 17.511	W 032 16.669		SAMPLE Titanium syringe 5
17/06/2022	14:54	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 6
17/06/2022	14:57	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 7
17/06/2022	14:59	Y3	N 37 17.509	W 032 16.665		SAMPLE Titanium syringe 8

6.7.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
17/06/2022	15:28	Y3	N 37 17.513	W 032 16.673		SAMPLE mussels for AUdrey
17/06/2022	16:09	Tour Eiffel	N 37 17.340	W 032 16.535		SAMPLE shrimp

6.7.6. Navigation DIVE 2034-07



6.8. MoMARSAT 2022 DIVE 2035-8

Saturday 18 June 2022

Launch positionNautile	N 37° 17.24884'	W 32° 15.94697'	Capelinhos
Launch positionELEVATOR gravitaire	N 37° 17.27561'	W 32° 15.61009'	8:00
Launching time	09:20	On the bottom	10:10
Departure from bottom	16:30	Nautile on board	17:30
Pilot	Guillaume de Parseval	Operations duration On the bottom	6h20
Copilot	Luc Tailliez		
Observer	Tom Dumouch		

6.8.1. Objectives : JPPE and Capelinhos

Site	Operation
JPP Est	Recovery/ deployment JPP East
	Deployment Colonisers Ana, Sample Bag 6
Capelhinos	Temperature measurement, diffuse fluid + Sample 4 titanium bells
	Sample iron-riched microbial mats North TE (PBT1) Sample 4 Plume 2L
	Recovery DEEP-SEEDS in GBT
	Recovery Probe HTW019
	Temperature measurements and Sample 4 titanium syringes
joker	Sample lower part of chminey
joker	Suction sampler shrimp

Coordinates :

Position Probe T°C HTW0019	N37°17.357	W32°15.844	1660	
Position iron-rich microbial mats	N37°17.360	W32°15.829	1669	Cap 264
Position Deep-Seeds	N37°17.371	W32°15.831	1668	
JPP East	N37°16.986	W32°14.853	1984	

Nautile

Basket descending

2 PBT	4 titanium syringes		3 Colonisers Ana

Basket going up

2 PBT	4 titanium syringes	Probe HTW019	

Instrumentation

5 bags PLUME de 2L	Suction sampler jars		

ELEVATOR free falling

Basket 1 descending: JPP	Basket 2 descending : GBT & 4 titanium syringes
Panier 1 going up : JPP	Basket 2 going up : Module DEEP SEEDS in GBT, 4 Titanium syringes

6.8.2. Operations:

Date	Time	Locality	Latitude	Longitude	Comment
18/06/2022	10:22	Lucky strike	N 37 17.275	W 032 15.706	Arrival at ELEVATOR and Recovery JPP
18/06/2022	10:35	Lucky strike	N 37 17.234	W 032 15.653	Transit towards JPPE
18/06/2022	11:10	Lucky strike	N 37 16.991	W 032 14.867	Arrival at JPPE
18/06/2022	11:19	Lucky strike	N 37 16.993	W 032 14.859	RECOVERY JPPE
18/06/2022	11:26	Lucky strike	N 37 16.993	W 032 14.856	DEPLOYMENT of new JPPE
18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.

18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.
18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.
18/06/2022	11:39	Lucky strike	N 37 16.991	W 032 14.861	SAMPLE PLUME in the middle of the 3 Colonisers Temperature = 4.23°C
18/06/2022	12:52	Capelinhos	N 37 17.368	W 032 15.834	Arrival at Capelinhos
18/06/2022	13:17	Capelinhos	N 37 17.368	W 032 15.834	SAMPLE TITANIUM BELL N°8
18/06/2022	13:21	Capelinhos	N 37 17.367	W 032 15.835	SAMPLE TITANIUM BELL N°7
18/06/2022	13:24	Capelinhos	N 37 17.368	W 032 15.836	SAMPLE TITANIUM BELL N°6
18/06/2022	13:27	Capelinhos	N 37 17.366	W 032 15.834	SAMPLE TITANIUM BELL N°5
18/06/2022	13:47	Capelinhos	N 37 17.361	W 032 15.831	SAMPLE PBT2 at iron-riched microbial mats
18/06/2022	13:54	Capelinhos	N 37 17.362	W 032 15.832	SAMPLE PLUME at iron-rich microbial mats Temperature = 4.6°C
18/06/2022	14:21	Capelinhos	N 37 17.369	W 032 15.834	Temperature measurement at the opening of the DEEP-SEEDS tubes Temperature = 4.74°C
18/06/2022	14:22	Capelinhos	N 37 17.369	W 032 15.833	Temperature measurement at the opening of the DEEP-SEEDS tubes Temperature = 5,1°C
18/06/2022	14:37	Capelinhos	N 37 17.368	W 032 15.831	RECOVERY DEEP-SEEDS in GBT
18/06/2022	15:44	Capelinhos	N 37 17.363	W 032 15.834	RECOVERY Probe HTW019
18/06/2022	16:19	Capelinhos	N 37 17.359	W 032 15.832	Temperature measurement in smoker Température = 105°C
18/06/2022	16:20	Capelinhos	N 37 17.359	W 032 15.833	SAMPLE TITANIUM N°4
18/06/2022	16:21	Capelinhos	N 37 17.359	W 032 15.832	SAMPLE TITANIUM N°3
18/06/2022	16:22	Capelinhos	N 37 17.358	W 032 15.832	SAMPLE TITANIUM N°2
18/06/2022	16:24	Capelinhos	N 37 17.358	W 032 15.833	SAMPLE TITANIUM N°1

6.8.3. Moorings

Date	Time	Locality	Latitude	Longitude	Comment
18/06/2022	11:19	Lucky strike	N 37 16.993	W 032 14.859	RECOVERY JPPE
18/06/2022	11:26	Lucky strike	N 37 16.993	W 032 14.856	DEPLOYMENT of new JPPE
18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.
18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.
18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859	DEPLOYMENT COLONISER ANA.
18/06/2022	14:37	Capelinhos	N 37 17.368	W 032 15.831	RECOVERY DEEP-SEEDS in GBT
18/06/2022	15:44	Capelinhos	N 37 17.363	W 032 15.834	RECOVERY Probe HTW019

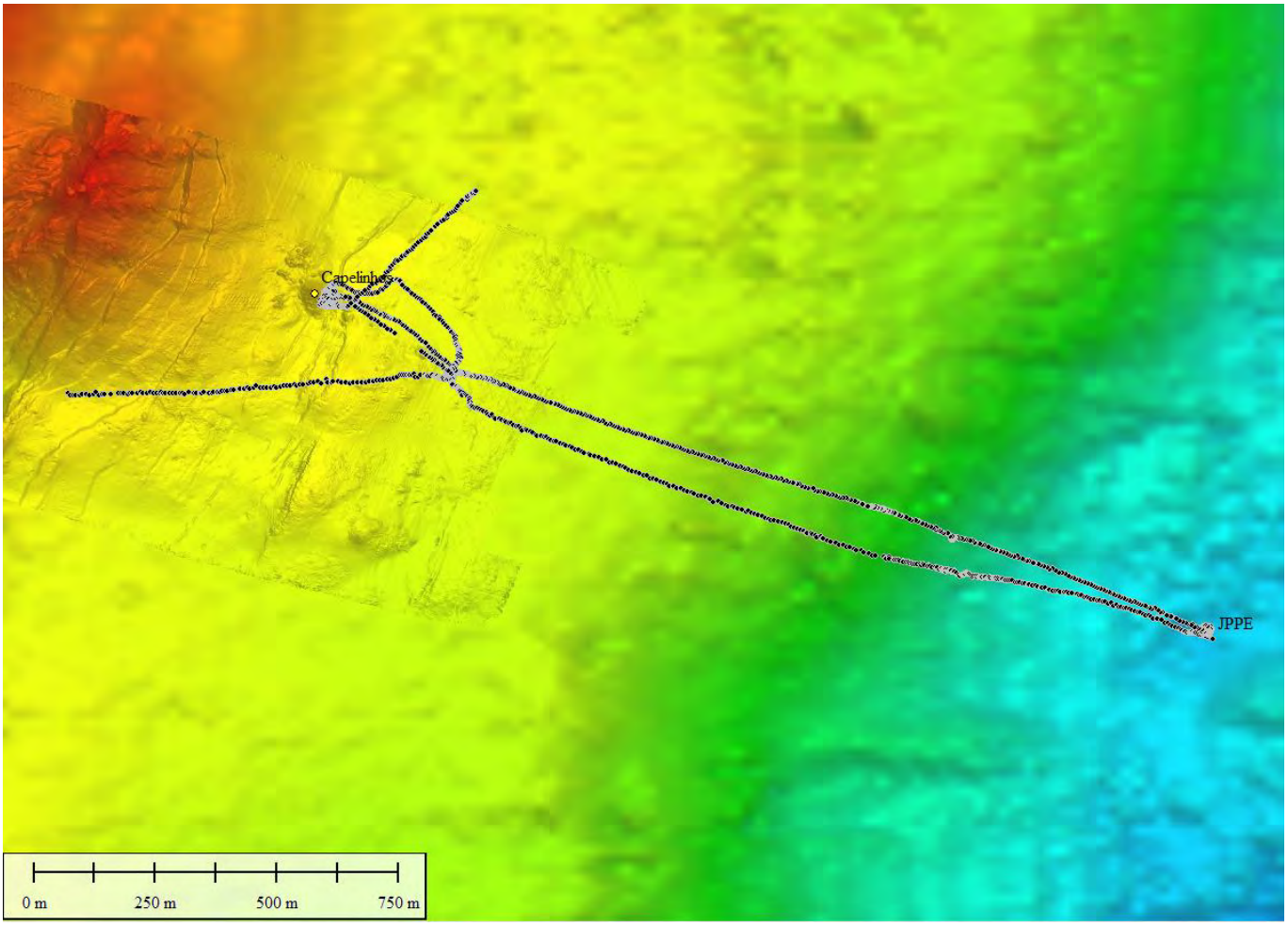
6.8.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Comment
18/06/2022	13:17	Capelinhos	N 37 17.368	W 032 15.834	SAMPLE TITANIUM BELL N°8
18/06/2022	13:21	Capelinhos	N 37 17.367	W 032 15.835	SAMPLE TITANIUM BELL N°7
18/06/2022	13:24	Capelinhos	N 37 17.368	W 032 15.836	SAMPLE TITANIUM BELL N°6
18/06/2022	13:27	Capelinhos	N 37 17.366	W 032 15.834	SAMPLE TITANIUM BELL N°5
18/06/2022	13:54	Capelinhos	N 37 17.362	W 032 15.832	SAMPLE PLUME atiron-rich microbial matsTempérature = 4,6°C
18/06/2022	16:20	Capelinhos	N 37 17.359	W 032 15.833	SAMPLE TITANIUM N°4
18/06/2022	16:21	Capelinhos	N 37 17.359	W 032 15.832	SAMPLE TITANIUM N°3
18/06/2022	16:22	Capelinhos	N 37 17.358	W 032 15.832	SAMPLE TITANIUM N°2
18/06/2022	16:24	Capelinhos	N 37 17.358	W 032 15.833	SAMPLE TITANIUM N°1

6.8.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Comment
18/06/2022	13:47	Capelinhos	N 37 17.361	W 032 15.831	SAMPLE PBT2 at iron-riched microbial mats
18/06/2022	14:37	Capelinhos	N 37 17.368	W 032 15.831	RECOVERY DEEP-SEEDS in GBT

6.8.6. Navigation DIVE 2035-8



6.9. MoMARSAT 2022 DIVE 2036-09

Sunday 19 June 2022

Launch position Nautile	N 37° 17.12515'	W 32° 16.68494'	EST
Launch position ELEVATOR Free fall	N 37° 17.28875'	W 32° 16.52512'	8:20
Launching time	09:20	On the bottom	10:30
Departure from bottom	16:45	Nautile on board	17:40
Pilot	Olivier Fauvin	Operations duration on the bottom	6h15
Copilot	Luca Leroy		
Observer	Marjolaine Matabos		

6.9.1. Objectives : Mésocosme, MERCES POMMEs

Site	Operation
Montsegur	Deployment of mesocosm
	Sample gastropods and shrimp
	Gradient Chemini before in smoker
	Temperature measurement+ Sample 4 titanium syringes at Montsegur black smoker
	Deployment HTWN
Montsegur	Chamical characterisation of quadrats –C1bcg, C2bcg, R1
Tour Eiffel	Recovery COMBO bell 1 : chemini + sampling
AISICS	Sample 3 bags PLUME AISICS
	Deployment HTWN
Isabel	Temperature measurement + Sample 4 titanium syringes
joker	Instruments deployment : TCM3-B/C/D

Coordinates :

Cloches TENSE	N 37° 17.345	W32° 16.54	1692	
Mesocosm	N 37° 17.293	W 32° 16.533	1697	
Isabel	N 37°17.379	W 32° 16.637	1685	cap 220 – Sample 190
Montsegur C1bcg	N 37° 17.293	W 32° 16.527	1708	
AISICs	N 37° 17.338	W 32° 16.531	1692	

Nautile

Basket descending

4 titanium syringes	1 PBT	2 Probes HTWN	

Basket going up

4 titanium syringes	1 PBT		

Instrumentation

Suction sampler jars	Chemini/PIF	PLUME 5 bags 2L	

ELEVATOR

Basket 1 descending: mésocosme + TCM3-D	Basket 2 descending: titanium syringes
Basket 1 going up : cloches COMBO	Basket 2 going up : titanium syringes

6.9.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	10:31	Lucky strike	N 37 17.263	W 032 16.608	1684	Arrival at the bottom

19/06/2022	10:41	Lucky strike	N 37 17.276	W 032 16.543	1691	Recovery mesocosm at the ELEVATOR
19/06/2022	10:42	Lucky strike	N 37 17.277	W 032 16.542	1691	Transit towards Montsegur
19/06/2022	10:59	Montsegur	N 37 17.283	W 032 16.538	1702	SAMPLE mussels for mesocosm
19/06/2022	11:14	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE gastropods in suction jar 1
19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE shrimp in suction jar 2
19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.540	1703	SAMPLE shrimp in suction jar 3
19/06/2022	11:19	Montsegur	N 37 17.284	W 032 16.540	1703	Start CHEMINI gradient mesaurement in the smoker, T 290°C
19/06/2022	11:34	Montsegur	N 37 17.284	W 032 16.541	1703	End Chemini iron & sulphides gradient in mesocosm smoker
19/06/2022	11:39	Montsegur	N 37 17.282	W 032 16.536	1703	DEPLOYMENT mesocosm
19/06/2022	11:49	Montsegur	N 37 17.285	W 032 16.538	1703	Start Chemini sulphides & iron measurement in mésocosme
19/06/2022	12:16	Montsegur	N 37 17.284	W 032 16.534	1703	End Chemini sulphides & iron measurement in mésocosme
19/06/2022	12:28	Montsegur	N 37 17.272	W 032 16.535	1701	Temperature measurements in black smoker Température 311,2°C
19/06/2022	12:31	Montsegur	N 37 17.273	W 032 16.534	1701	SAMPLE titanium syringe n°1
19/06/2022	12:32	Montsegur	N 37 17.272	W 032 16.535	1701	SAMPLE titanium syringe n°2
19/06/2022	12:35	Montsegur	N 37 17.272	W 032 16.534	1701	SAMPLE titanium syringe n°3
19/06/2022	12:38	Montsegur	N 37 17.272	W 032 16.536	1701	SAMPLE titanium syringe n°4
19/06/2022	12:40	Montsegur	N 37 17.274	W 032 16.535	1701	DEPLOYMENT Probe HTWN019
19/06/2022	12:55	Montsegur	N 37 17.280	W 032 16.530	1703	Start MERCES measurements
19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : middle point
19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.530	1703	SAMPLE syringe n°1 PIF filtered at quadrat C2bcg middle point
19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE syringe n°2 PIF non filtered at quadrat C2bcg middle point
19/06/2022	13:01	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 1
19/06/2022	13:05	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 2
19/06/2022	13:11	Montsegur	N 37 17.281	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : middle point (too early! did not wait a minute...)
19/06/2022	13:12	Montsegur	N 37 17.283	W 032 16.537	1703	SAMPLE PIF syringe n°3 non filtered at middle point quadrat C1bcg
19/06/2022	13:12	Montsegur	N 37 17.281	W 032 16.534	1703	SAMPLE syringe n°4 PIF at middle point, quadrat C1bcg, selected filter while there is no filter...
19/06/2022	13:18	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 1
19/06/2022	13:22	Montsegur	N 37 17.282	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 2- 5,5 °C
19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat R1 : middle point
19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.532	1703	SAMPLE syringe PIF n°5 filtered at middle point quadrat R1
19/06/2022	13:34	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF syringe n°6 non filtered at middle point quadrat R1
19/06/2022	13:36	Montsegur	N 37 17.283	W 032 16.531	1703	SAMPLE PIF syringe n°8 filtered at middle point quadrat R1
19/06/2022	13:42	Montsegur	N 37 17.284	W 032 16.534	1703	Problem CHEMINI, measurement to be reocnducted
19/06/2022	13:42	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 1

19/06/2022	13:46	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 2
19/06/2022	13:55	Montsegur	N 37 17.281	W 032 16.532	1703	SAMPLE syringe n°9 PIF non filtered middle point quadrat C2bcg
19/06/2022	13:55	Montsegur	N 37 17.282	W 032 16.532	1703	SAMPLE syringe n°10 PIF filtered at middle point quadrat C2bcg
19/06/2022	13:58	Lucky strike	N 37 17.281	W 032 16.532	1703	Transit towards Tour Eiffel
19/06/2022	14:02	Lucky strike	N 37 17.285	W 032 16.534	1704	SAMPLE rock C1bcg
19/06/2022	14:25	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 1
19/06/2022	14:29	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 2
19/06/2022	14:33	Tour Eiffel	N 37 17.345	W 032 16.536	1691	Start Chemini sulphides & iron measurement point 3
19/06/2022	14:37	Tour Eiffel	N 37 17.345	W 032 16.535	1691	SAMPLE mussels in PBT COMBO
19/06/2022	14:42	Tour Eiffel	N 37 17.345	W 032 16.535	1691	RECOVERY bell COMBO n°1
19/06/2022	14:43	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY bell COMBO n°5
19/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY bell COMBO n°4
19/06/2022	14:46	Tour Eiffel	N 37 17.344	W 032 16.534	1691	RECOVERY bell COMBO n°6
19/06/2022	14:47	Lucky strike	N 37 17.344	W 032 16.532	1691	Start transit towards ELEVATOR
19/06/2022	14:57	Lucky strike	N 37 17.273	W 032 16.547	1691	Exchange material
19/06/2022	15:32	Lucky strike	N 37 17.309	W 032 16.529	1703	DEPLOYMENT TCM3-D Hydroctopus
19/06/2022	15:39	AISICS	N 37 17.331	W 032 16.537	1691	Arrival at AISICS
19/06/2022	15:46	AISICS	N 37 17.330	W 032 16.531	1692	DEPLOYMENT Probe HTWN021
19/06/2022	15:48	AISICS	N 37 17.331	W 032 16.533	1692	SAMPLE PLUME bag 1 line 2, Température: fluctuation between 75°C and 115°C
19/06/2022	15:52	AISICS	N 37 17.330	W 032 16.532	1692	SAMPLE PLUME bag 2 line, 85° and 100°C
19/06/2022	15:56	Lucky strike	N 37 17.329	W 032 16.531	1691	Transit towards Isabel
19/06/2022	16:23	Isabel	N 37 17.391	W 032 16.645	1681	SAMPLE suction jar 4 gastropods
19/06/2022	16:25	Isabel	N 37 17.392	W 032 16.644	1681	SAMPLE suction jar 5 shrimp
19/06/2022	16:34	Isabel	N 37 17.386	W 032 16.640	1685	End of dive

6.9.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	14:42	Tour Eiffel	N 37 17.345	W 032 16.535	1691	RECOVERY bell COMBO n°1
19/06/2022	14:43	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY bell COMBO n°5
19/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY bell COMBO n°4
19/06/2022	14:46	Tour Eiffel	N 37 17.344	W 032 16.534	1691	RECOVERY bell COMBO n°6
19/06/2022	15:32	Lucky strike	N 37 17.309	W 032 16.529	1703	DEPLOYMENT TCM3-D Hydroctopus
19/06/2022	15:46	AISICS	N 37 17.330	W 032 16.531	1692	DEPLOYMENT Probe HTWN021

6.9.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	12:31	Montsegur	N 37 17.273	W 032 16.534	1701	SAMPLE titanium syringe n°1
19/06/2022	12:32	Montsegur	N 37 17.272	W 032 16.535	1701	SAMPLE titanium syringe n°2
19/06/2022	12:35	Montsegur	N 37 17.272	W 032 16.534	1701	SAMPLE titanium syringe n°3
19/06/2022	12:38	Montsegur	N 37 17.272	W 032 16.536	1701	SAMPLE titanium syringe n°4
19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.530	1703	SAMPLE syringe n°1 PIF filtered at quadrat C2bcg middle point

19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE syringe n°2 PIF non filtered at quadrat C2bcg middle point
19/06/2022	13:12	Montsegur	N 37 17.283	W 032 16.537	1703	SAMPLE PIF syringe n°3 non filtered at middle point quadrat C1bcg
19/06/2022	13:12	Montsegur	N 37 17.281	W 032 16.534	1703	SAMPLE syringe n°4 PIF at middle point, quadrat C1bcg, selected filter while there is no filter...
19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.532	1703	SAMPLE syringe PIF n°5 filtered at middle point quadrat R1
19/06/2022	13:34	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF syringe n°6 non filtered at middle point quadrat R1
19/06/2022	13:36	Montsegur	N 37 17.283	W 032 16.531	1703	SAMPLE PIF syringe n°8 filtered at middle point quadrat R1
19/06/2022	13:55	Montsegur	N 37 17.281	W 032 16.532	1703	SAMPLE syringe n°9 PIF non filtered middle point quadrat C2bcg
19/06/2022	13:55	Montsegur	N 37 17.282	W 032 16.532	1703	SAMPLE syringe n°10 PIF filtered at middle point quadrat C2bcg
19/06/2022	15:48	AISICS	N 37 17.331	W 032 16.533	1692	SAMPLE PLUME bag 1 line 2, Température: fluctuation between 75°C and 115°C
19/06/2022	15:52	AISICS	N 37 17.330	W 032 16.532	1692	SAMPLE PLUME bag 2 line, 85° and 100°C

6.9.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	10:59	Montsegur	N 37 17.283	W 032 16.538	1702	SAMPLE mussels for mesocosm
19/06/2022	11:14	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE gastropods in suction jar 1
19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE shrimp in suction jar 2
19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.540	1703	SAMPLE shrimp in suction jar 3
19/06/2022	14:37	Tour Eiffel	N 37 17.345	W 032 16.535	1691	SAMPLE mussels in PBT COMBO
19/06/2022	16:23	Isabel	N 37 17.391	W 032 16.645	1681	SAMPLE suction jar 4 gastropods
19/06/2022	16:25	Isabel	N 37 17.392	W 032 16.644	1681	SAMPLE suction jar 5 shrimp

6.9.6. Sample roche

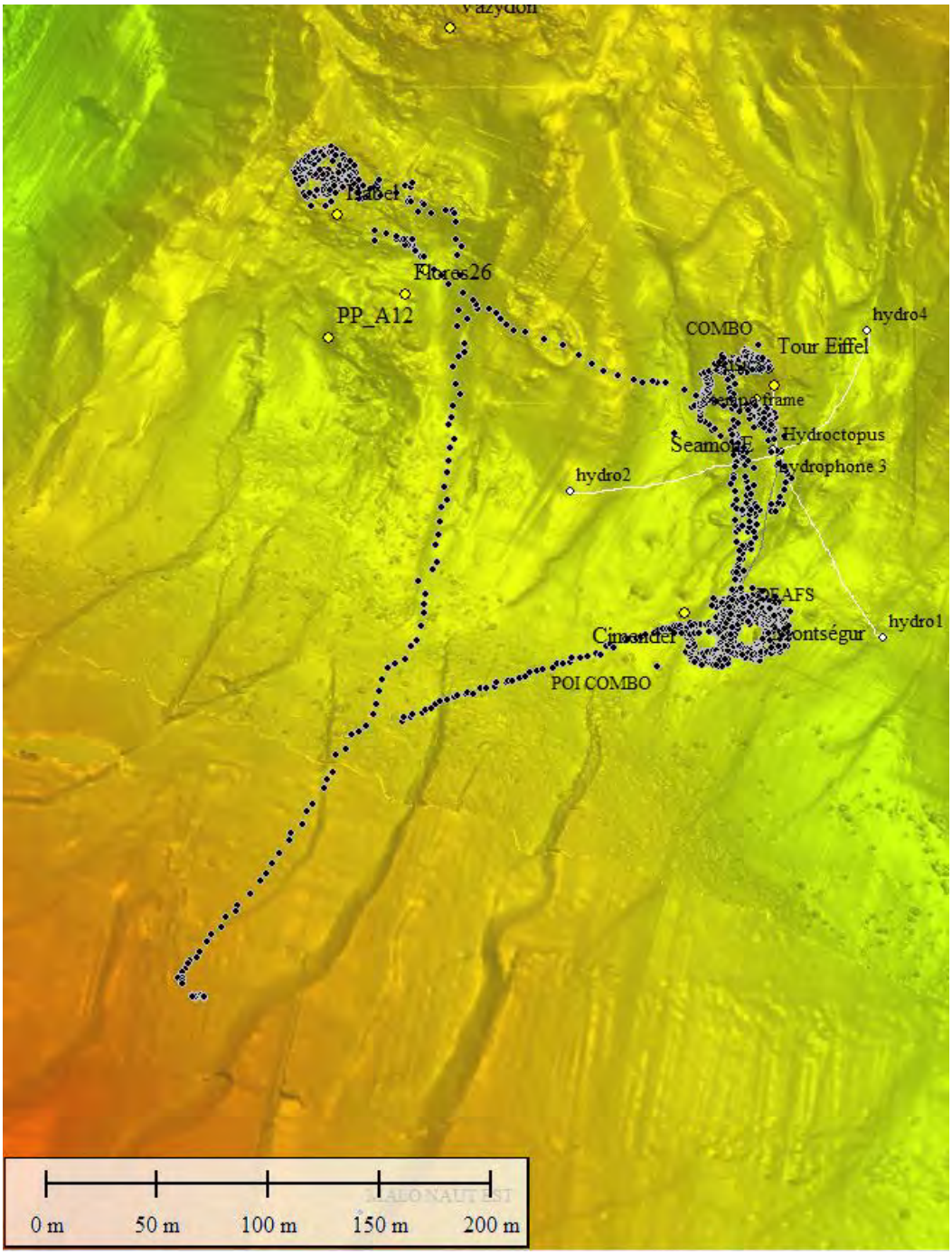
Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	14:02	Lucky strike	N 37 17.285	W 032 16.534	1704	SAMPLE rock C1bcg

6.9.7. Mesures CHEMINI

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
19/06/2022	11:19	Montsegur	N 37 17.284	W 032 16.540	1703	Start CHEMINI gradient mesaurement in the smoker, T 290°C
19/06/2022	11:49	Montsegur	N 37 17.285	W 032 16.538	1703	Start Chemini sulphides & iron measurement in mésocosme
19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : middle point
19/06/2022	13:01	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 1
19/06/2022	13:05	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 2
19/06/2022	13:11	Montsegur	N 37 17.281	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : middle point (too early! did not wait a minute...)

19/06/2022	13:18	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 1
19/06/2022	13:22	Montsegur	N 37 17.282	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 2- 5,5 °C
19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat R1 : middle point
19/06/2022	13:42	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 1
19/06/2022	13:46	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 2
19/06/2022	14:25	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 1
19/06/2022	14:29	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 2
19/06/2022	14:33	Tour Eiffel	N 37 17.345	W 032 16.536	1691	Start Chemini sulphides & iron measurement point 3

6.9.8. Navigation DIVE 2036-09



6.10. MoMARSAT 2022 DIVE 2037-10

Monday 20 June 2021

LAUNCH Nautile East	N 37° 17.43623'	W 32° 17.18369'	
Launch position SEAMON W	N 37° 17.48231'	W 32° 16.75663'	18/6 21:20
Launch position ELEVATOR Free fall	N 37° 17.54899'	W 32° 16.79791'	JPP W
Launching time	09:20	On the bottom	10:30
Departure from bottom	16:45	Nautile on board	17:45
Pilot	Guillaume de Parseval	Duration of operations at the bottom	6:15
Copilot	Luc Tailliez		
Observer	Adrien Chauvet		

6.10.1. Objectives: Installation Seamon W + test WIFI

Site	Opération
Y3 iron mats	Temperature measurement + Sample 4 titanium bells on diffuse fluid newt to iron-rich mats
JPP W	Deployment JPPW
Seamon W	Trigger Niskin
	Installation of Seamon W
	Move colonisers of P Davies
	Release of buyoancy mooring
	If time, deploy ANA colonisers — Sample PLUME
MicroRYo	Observation of the bottom of the Mooring MicroRYo
Crystal	Transit Crystal
	Temperature measurements + Sample titanium syringes
South Crystal	Finish deployment of TCMs
Joker	Suction sampling : gastropods and shrimp

Coordinates :

SEAMON W	N 37°17.4786	W 32°16.8002	1742	
MicroRyo	N 37° 17.720	W 32°16.740		
JPP West	N 37°17.559	W 32°16.885	1729	
Iron-rich mats Y3	N 37 17.518	W 32 16.663	1727	cap 315
TCM3-X South Crystal	N37°17.447	W 32°16.898	1699	Mathilde
Crystal	N 37°17.457	W 32°16.916	1727	

Nautile

Basket descending

Niskin	3 Colonisers Ana	WIFI	4 titanium bells

Basket going up

		WIFI	4 titanium syringes

Instrumentation

Suction sampler jars	1 PLUME 2L		

ELEVATOR

Basket 1 descending: 4 titanium syringes	Basket 2 descending: JPPW
Basket 1 going up : 4 titanium bells	Basket 2 going up : Niskin

6.10.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment

20/06/2022	10:29	Lucky strike	N 37 17.377	W 032 17.409	1572	Arrival at the bottom
20/06/2022	10:42	Y3	N 37 17.341	W 032 17.493	1761	Arrival at Y3
20/06/2022	10:52	Y3	N 37 17.387	W 032 17.284	1670	Temperature 90 °C
20/06/2022	11:00	Y3	N 37 17.461	W 032 17.071	1666	SAMPLE TITANIUM BELL 6
20/06/2022	11:06	Y3	N 37 17.494	W 032 16.892	1680	SAMPLE TITANIUM BELL 8
20/06/2022	11:12	Y3	N 37 17.510	W 032 16.718	1730	SAMPLE TITANIUM BELL 7
20/06/2022	11:17	Y3	N 37 17.503	W 032 16.676	1728	SAMPLE TITANIUM BELL 5
20/06/2022	11:26	Lucky strike	N 37 17.509	W 032 16.674	1730	Arrival at the ELEVATOR – materiral exchange
20/06/2022	12:19	JPPW	N 37 17.513	W 032 16.838	1729	DEPLOYMENT of JPPW
20/06/2022	12:21	Lucky strike	N 37 17.513	W 032 16.842	1728	Departure towards SEAMON WEST
20/06/2022	12:35	Lucky strike	N 37 17.547	W 032 16.883	1723	Inspection of SEAMON WEST
20/06/2022	12:43	Lucky strike	N 37 17.547	W 032 16.894	1728	SAMPLE Niskin
20/06/2022	12:52	Lucky strike	N 37 17.547	W 032 16.896	1729	Release of displacement lest
20/06/2022	12:56	Lucky strike	N 37 17.549	W 032 16.891	1727	Moving SEAMON W
20/06/2022	13:10	Lucky strike	N 37 17.469	W 032 16.798	1738	DEPLOYMENT of aging samples for P. Davis outside of SEAMON W
20/06/2022	13:17	Lucky strike	N 37 17.465	W 032 16.786	1738	DEPLOYMENT of the OBS
20/06/2022	13:33	Lucky strike	N 37 17.465	W 032 16.790	1739	DEPLOYMENT first COLONISER Ana
20/06/2022	13:34	Lucky strike	N 37 17.466	W 032 16.792	1739	DEPLOYMENT second COLONISER Ana
20/06/2022	13:35	Lucky strike	N 37 17.468	W 032 16.792	1740	DEPLOYMENT third COLONISER Ana
20/06/2022	13:37	Lucky strike	N 37 17.467	W 032 16.789	1738	SAMPLE PLUME on Colonisers
20/06/2022	13:43	Lucky strike	N 37 17.467	W 032 16.790	1739	Departure transit towards µRYO
20/06/2022	13:56	Lucky strike	N 37 17.472	W 032 16.789	1741	Inspection of the Mooring µRYO
20/06/2022	14:39	Lucky strike	N 37 17.759	W 032 16.781	1692	Arrival at SEAMON West to finish the deployment
20/06/2022	14:46	Lucky strike	N 37 17.730	W 032 16.758	1693	Release buoyancy device for displacement
20/06/2022	14:51	Lucky strike	N 37 17.534	W 032 16.774	1694	Insertion Wifi
20/06/2022	15:10	Lucky strike	N 37 17.497	W 032 16.797	1736	Departure - transit towards CRYSTAL
20/06/2022	15:28	Crystal	N 37 17.468	W 032 16.791	1742	Tempearture measurement 320°C
20/06/2022	15:33	Crystal	N 37 17.470	W 032 16.790	1742	SAMPLE Titanium syringe 1
20/06/2022	15:36	Crystal	N 37 17.469	W 032 16.790	1742	SAMPLE Titanium syringe 2
20/06/2022	15:38	Crystal	N 37 17.468	W 032 16.792	1742	SAMPLE Titanium syringe 3
20/06/2022	15:41	Crystal	N 37 17.476	W 032 16.795	1742	SAMPLE Titanium syringe 4
20/06/2022	15:48	Crystal	N 37 17.467	W 032 16.821	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER
20/06/2022	15:58	Lucky strike	N 37 17.444	W 032 16.918	1725	SAMPLE shrimp, mussels, SUCTION SAMPLER
20/06/2022	16:06	Lucky strike	N 37 17.447	W 032 16.924	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER
20/06/2022	16:11	Lucky strike	N 37 17.444	W 032 16.915	1725	End of dive

6.10.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
20/06/2022	12:19	JPPW	N 37 17.513	W 032 16.838	1729	DEPLOYMENT of JPPW
20/06/2022	13:10	Lucky strike	N 37 17.469	W 032 16.798	1738	DEPLOYMENT of aging samples for P. Davis outside of SEAMON W
20/06/2022	13:17	Lucky strike	N 37 17.465	W 032 16.786	1738	DEPLOYMENT of the OBS
20/06/2022	13:33	Lucky strike	N 37 17.465	W 032 16.790	1739	DEPLOYMENT first COLONISER Ana
20/06/2022	13:34	Lucky strike	N 37 17.466	W 032 16.792	1739	DEPLOYMENT second COLONISER Ana
20/06/2022	13:35	Lucky strike	N 37 17.468	W 032 16.792	1740	DEPLOYMENT third COLONISER Ana

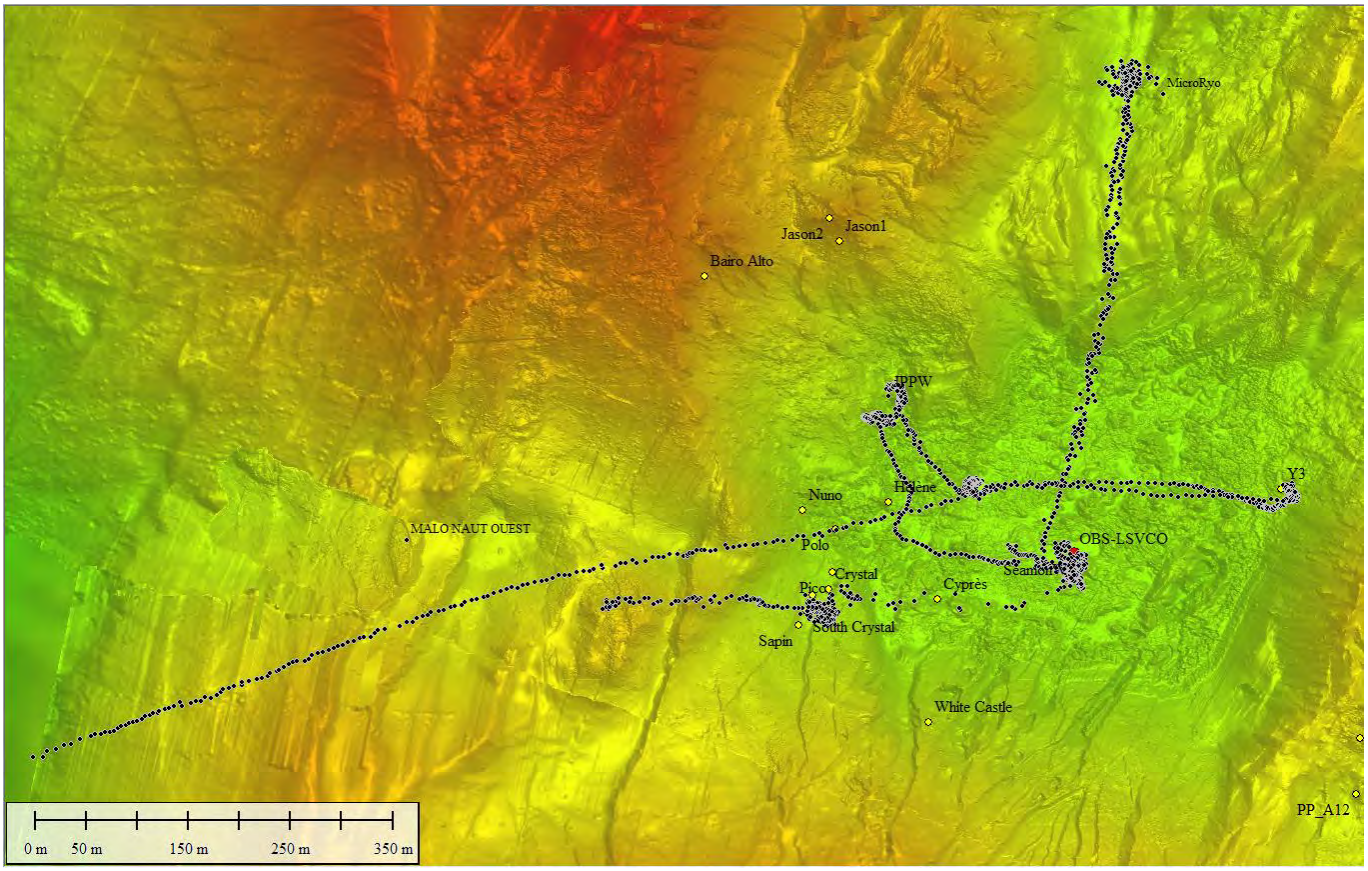
6.10.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
20/06/2022	11:00	Y3	N 37 17.461	W 032 17.071	1666	SAMPLE TITANIUM BELL 6
20/06/2022	11:06	Y3	N 37 17.494	W 032 16.892	1680	SAMPLE TITANIUM BELL 8
20/06/2022	11:12	Y3	N 37 17.510	W 032 16.718	1730	SAMPLE TITANIUM BELL 7
20/06/2022	11:17	Y3	N 37 17.503	W 032 16.676	1728	SAMPLE TITANIUM BELL 5
20/06/2022	12:43	Lucky strike	N 37 17.547	W 032 16.894	1728	SAMPLE Niskin
20/06/2022	13:37	Lucky strike	N 37 17.467	W 032 16.789	1738	SAMPLE PLUME on Colonisers
20/06/2022	15:33	Crystal	N 37 17.470	W 032 16.790	1742	SAMPLE Titanium syringe 1
20/06/2022	15:36	Crystal	N 37 17.469	W 032 16.790	1742	SAMPLE Titanium syringe 2
20/06/2022	15:38	Crystal	N 37 17.468	W 032 16.792	1742	SAMPLE Titanium syringe 3
20/06/2022	15:41	Crystal	N 37 17.476	W 032 16.795	1742	SAMPLE Titanium syringe 4

6.10.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
20/06/2022	15:48	Crystal	N 37 17.467	W 032 16.821	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER
20/06/2022	15:58	Lucky strike	N 37 17.444	W 032 16.918	1725	SAMPLE shrimp, mussels, SUCTION SAMPLER
20/06/2022	16:06	Lucky strike	N 37 17.447	W 032 16.924	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER

6.10.6. Navigation DIVE DIVE 2037-10



6.11. MoMARSAT 2022 DIVE 2038-11

Tuesday 21 June 2022

Position DEPLOYMENT Nautile	N 37° 17.13755'	W 32° 16.42657'	
Position DEPLOYMENT ELEVATOR	N 37° 17.33796'	W 32° 16.42869'	8:10
Launching time	09:20	On the bottom	10:25
Departure from bottom	16:35	Nautile on board	17:15
Pilot	Olivier Fauvin	Operations duration on the bottom	6h10
Copilot	Luca Leroy		
Observer	Florent Hodel		

6.11.1. Objectives:

Site	Operation
Montségur	Measurements + Sample 4 titanium syringes at DEAFs
	Installation DEAFS
	Installation Biolucky
	Sample 3 bags PLUME Temperature measurement
	Connexion DEAFS on caillebotis
	Temperature measurement + Sample 4 titanium syringes fumeur ex-DEAFs
Est Montsegur	Deployment HTNKE
Tour Eiffel West	Swap Probes
TE sud	Swap Probes
joker	Start TCMs deployment TCM3-1 between Tour Eiffel & Montsegur south of Hydroctopus TCM3-2 North TE at the iron-rich mats (NTEFeOx) TCM3-B West TE on the edifice immersion 1695 TCM3-D North TE on the edifice immersion 1693 TCM3-C Est TE on the edifice immersion 1694

Coordinates :

New DEAFS	N 37 17.261	W 32 16.554	1703	
Ex-DEAFs	N 37 17.283	W 32 16.539		
TCM3-1	N 37 17.303	W 32 16.538	1704	

Nautile

Basket descending

4 titanium syringes	PBT1 with BioLucky	3 LTW	3 HTNKE
		2 LTgrad	

Basket going up

4 titanium syringes	PBT1	1 LTNKE	1 LTI
	1 LTW	3 LTgrad	2 HTNKE

Instrumentation

Suction sampler jars	PLUME 3 bags de 2L		

ELEVATOR free fall

Basket 1 descending: 4 titanium syringes	Basket 2 descending: DEAFs
Basket 1 going up : 4 titanium syringes	Basket 2 going up :

6.11.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
21/06/2022	10:25	Lucky strike	N 37 17.246	W 032 16.557	1689	Arrival at the bottom and start transit towards Montségur
21/06/2022	10:28	Montsegur	N 37 17.275	W 032 16.545	1696	Arrival at Montségur.
21/06/2022	10:32	Montsegur	N 37 17.279	W 032 16.539	1702	Arrival at DEAFs.
21/06/2022	10:39	Montsegur	N 37 17.280	W 032 16.539	1702	Temperature measurement at the smoker DEAFs : 302 °C.
21/06/2022	10:42	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 1. Smoker DEAFs before deployment: Sample M22Flu53.
21/06/2022	10:44	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanium syringe 2. Smoker DEAFs before deployment: Sample M22Flu54.
21/06/2022	10:45	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanum syringe 3. A high number of shrimp and crabs around. Smoker DEAFs before deployment: Sample M22Flu55.
21/06/2022	10:48	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 4. Inlet broken. Smoker DEAFs before deployment: Sample M22Flu56.
21/06/2022	10:54	Montsegur	N 37 17.279	W 032 16.538	1697	Transit towards the ELEVATOR.
21/06/2022	11:02	Montsegur	N 37 17.320	W 032 16.463	1673	Arrival at the ELEVATOR. Exchange material.
21/06/2022	11:38	Montsegur	N 37 17.279	W 032 16.536	1701	Arrival at Montségur
21/06/2022	11:44	Montsegur	N 37 17.279	W 032 16.532	1702	Start deployment of DEAFs.
21/06/2022	11:48	Montsegur	N 37 17.279	W 032 16.533	1702	Connecting DEAFs.
21/06/2022	12:23	Montsegur	N 37 17.281	W 032 16.533	1701	Stop trying to place DEAFs: the junction with the bell broke. Disconnection and going back to ELEVATOR.
21/06/2022	12:45	Montsegur	N 37 17.322	W 032 16.452	1672	Dropping DEAFs at the ELEVATOR.
21/06/2022	13:08	Montsegur	N 37 17.281	W 032 16.536	1702	Temperature measurementsur smoker ex-DEAFs : 272 °C.
21/06/2022	13:13	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 5 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu57.
21/06/2022	13:15	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 6 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu58.
21/06/2022	13:17	Montsegur	N 37 17.281	W 032 16.536	1702	SAMPLE Titanium syringe 7 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu59.
21/06/2022	13:20	Montsegur	N 37 17.281	W 032 16.536	1701	SAMPLE Titanium syringe 8 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu60.
21/06/2022	13:51	Montsegur	N 37 17.285	W 032 16.527	1699	Start transit towards Tour Eiffel West to deploy tempearture probes.
21/06/2022	14:01	Tour Eiffel	N 37 17.340	W 032 16.542	1697	RECOVERY Htnke29008.
21/06/2022	14:12	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Htnke 38003.
21/06/2022	14:14	Tour Eiffel	N 37 17.341	W 032 16.542	1696	RECOVERY Ltgrad12.
21/06/2022	14:20	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Ltgrad 10.
21/06/2022	14:27	Tour Eiffel	N 37 17.337	W 032 16.542	1697	RECOVERY LTI 1.
21/06/2022	14:40	Tour Eiffel	N 37 17.338	W 032 16.541	1697	DEPLOYMENT de LTW003.
21/06/2022	14:42	Tour Eiffel	N 37 17.339	W 032 16.541	1697	RECOVERY de Ltgrad 13.
21/06/2022	14:46	Tour Eiffel	N 37 17.339	W 032 16.541	1697	DEPLOYMENT Ltgrad 2.
21/06/2022	14:50	Tour Eiffel	N 37 17.339	W 032 16.547	1699	RECOVERY Ltgrad 14.
21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	DEPLOYMENT LTW020.
21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	RECOVERY Ltnke26004.
21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.547	1699	Start transit towards Tour Eiffel South.
21/06/2022	14:58	Tour Eiffel				RECOVERY Htnke30005.
21/06/2022	15:02	Tour Eiffel	N 37 17.333	W 032 16.539	1697	DEPLOYMENT Htnke30002.
21/06/2022	15:04	Tour Eiffel	N 37 17.335	W 032 16.540	1697	RECOVERY LTW040.
21/06/2022	15:07	Tour Eiffel	N 37 17.335	W 032 16.539	1697	DEPLOYMENT LTW017.
21/06/2022	15:08	Tour Eiffel	N 37 17.335	W 032 16.539	1696	Start transit towards SEAMON East for recovery and depoloyment of TCM.

21/06/2022	15:17	Tour Eiffel	N 37 17.302	W 032 16.537	1704	DEPLOYMENT de TCM3-1 between Tour Eiffel and Montségur, south of Hydroctopus.
21/06/2022	15:42	Tour Eiffel	N 37 17.349	W 032 16.537	1691	DEPLOYMENT TCM3-D.
21/06/2022	15:48	Tour Eiffel	N 37 17.354	W 032 16.532	1692	DEPLOYMENT TCM3-2.
21/06/2022	16:09	Tour Eiffel	N 37 17.342	W 032 16.542	1694	DEPLOYMENT TCM3-B.
21/06/2022	16:16	Tour Eiffel	N 37 17.342	W 032 16.524	1694	DEPLOYMENT TCM3-C.
21/06/2022	16:22	Tour Eiffel	N 37 17.328	W 032 16.536	1669	End of dive.

6.11.3. Moorings

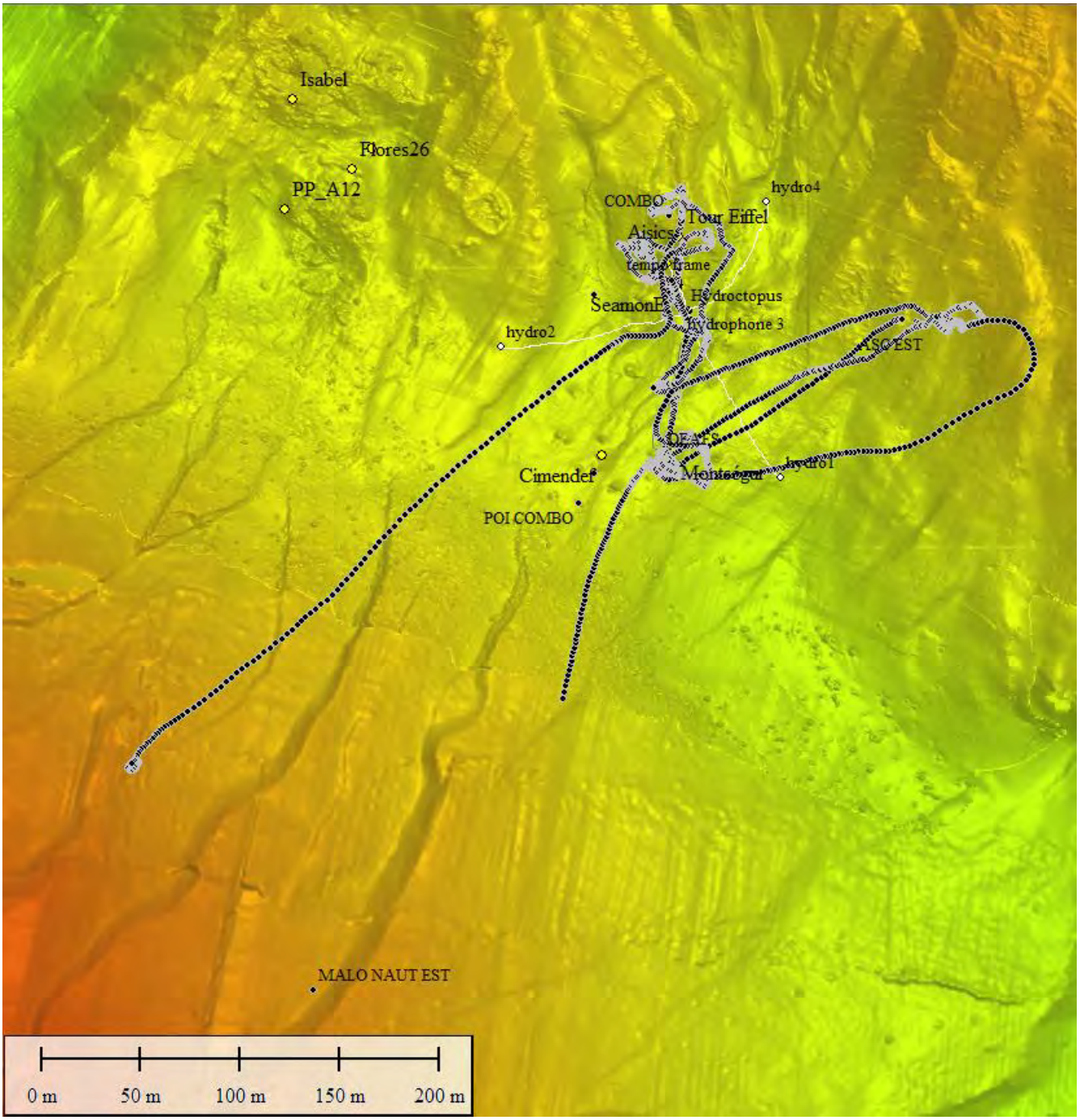
Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
21/06/2022	14:01	Tour Eiffel	N 37 17.340	W 032 16.542	1697	RECOVERY Htnke29008.
21/06/2022	14:12	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Htnke 38003.
21/06/2022	14:14	Tour Eiffel	N 37 17.341	W 032 16.542	1696	RECOVERY Ltgrad12.
21/06/2022	14:20	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Ltgrad 10.
21/06/2022	14:27	Tour Eiffel	N 37 17.337	W 032 16.542	1697	RECOVERY LTI 1.
21/06/2022	14:40	Tour Eiffel	N 37 17.338	W 032 16.541	1697	DEPLOYMENT de LTW003.
21/06/2022	14:42	Tour Eiffel	N 37 17.339	W 032 16.541	1697	RECOVERY de Ltgrad 13.
21/06/2022	14:46	Tour Eiffel	N 37 17.339	W 032 16.541	1697	DEPLOYMENT Ltgrad 2.
21/06/2022	14:50	Tour Eiffel	N 37 17.339	W 032 16.547	1699	RECOVERY Ltgrad 14.
21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	DEPLOYMENT LTW020.
21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	RECOVERY Ltnke26004.
21/06/2022	14:58	Tour Eiffel				RECOVERY Htnke30005.
21/06/2022	15:02	Tour Eiffel	N 37 17.333	W 032 16.539	1697	DEPLOYMENT Htnke30002.
21/06/2022	15:04	Tour Eiffel	N 37 17.335	W 032 16.540	1697	RECOVERY LTW040.
21/06/2022	15:07	Tour Eiffel	N 37 17.335	W 032 16.539	1697	DEPLOYMENT LTW017.
21/06/2022	15:17	Tour Eiffel	N 37 17.302	W 032 16.537	1704	DEPLOYMENT de TCM3-1 between Tour Eiffel and Montségur, south of Hydroctopus.
21/06/2022	15:42	Tour Eiffel	N 37 17.349	W 032 16.537	1691	DEPLOYMENT TCM3-D.
21/06/2022	15:48	Tour Eiffel	N 37 17.354	W 032 16.532	1692	DEPLOYMENT TCM3-2.
21/06/2022	16:09	Tour Eiffel	N 37 17.342	W 032 16.542	1694	DEPLOYMENT TCM3-B.
21/06/2022	16:16	Tour Eiffel	N 37 17.342	W 032 16.524	1694	DEPLOYMENT TCM3-C.

6.11.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment

21/06/2022	10:42	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 1. Smoker DEAFs before deployment: Sample M22Flu53.
21/06/2022	10:44	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanium syringe 2. Smoker DEAFs before deployment: Sample M22Flu54.
21/06/2022	10:45	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanum syringe 3. A high number of shrimp and crabs around. Smoker DEAFs before deployment: Sample M22Flu55.
21/06/2022	10:48	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 4. Inlet broken. Smoker DEAFs before deployment: Sample M22Flu56.
21/06/2022	13:13	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 5 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu57.
21/06/2022	13:15	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 6 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu58.
21/06/2022	13:17	Montsegur	N 37 17.281	W 032 16.536	1702	SAMPLE Titanium syringe 7 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu59.
21/06/2022	13:20	Montsegur	N 37 17.281	W 032 16.536	1701	SAMPLE Titanium syringe 8 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu60.

6.11.5. Navigation DIVE 2038-11



6.12. MoMARSAT 2022 DIVE 2039-12

Wednesday 22 June 2022

Launch position Nautile	N 37° 17.2424'	W 32° 16.55463'	
Launch position ELEVATOR	N 37° 17.3405'	W 32° 16.41236'	
Launching time	09:30	On the bottom	10:50
Departure from bottom	17:00	Nautile on board	17:20
Pilot	Guillaume de Parseval	Operations duration on the bottom	6h10
Copilot	Luc Taillez		
Observer	Jozée Sarrazin		

6.12.1. Objectives: Mésocosme, MERCES POMMEs

Site	Operation
Y3	Sample ELFES on mussels/gastropods
Montsegur	Quadrat C1b : Sample PIF + 3 Chemini – deployment POMME
Périphérie	Quadrat P : Recovery POMME + Sample PIF + 3 Chemini – deployment POMME
Montsegur	Quadrat R0a : Sample PIF + 3 Chemini – deployment POMME
	Quadrat C2a : Sample PIF + 3 Chemini
	Start over quadrats Marjo for PIF : R1 & C1bcg - PIF
	PBT Audrey if ELFES does not work
Tour Eiffel	Survey SEAMON East
	Chemini TEMPO area

Coordinates :

Y3	N 37° 17.52	W 32° 16.665		
Montsegur	N 37° 17.293	W 32° 16.527	1708	
Periphery P1	N 37° 17.282	W 32° 16.520	1707	

Nautile

Basket descending

	ELFES + 2 cellules	PBT	

Basket going up

	ELFES	PBT	

Instrumentation

Suction sampler jars	Chemini/PIF		

ELEVATOR free fall

Basket 1 descending: cell ELFES ?	Basket 2 descending: 3 POMMEs
Basket 1 going up : 2 cells ELFES	Basket 2 going up : 1 POMME

6.12.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
22/06/2022	10:34	Lucky strike	N 37 17.327	W 032 16.659	1688	Arrival at the bottom 10H27
22/06/2022	10:37	Y3	N 37 17.395	W 032 16.672	1683	Transit towards Y3
22/06/2022	10:53	Y3	N 37 17.496	W 032 16.668	1733	SAMPLE suction with ELFES cell 3 on mussels, flange Y3
22/06/2022	11:14	Y3	N 37 17.495	W 032 16.683	1733	SAMPLE ELFES cell 4 on flange Y3
22/06/2022	11:27	Y3	N 37 17.499	W 032 16.677	1729	Transit towards ELEVATOR
22/06/2022	11:43	Y3	N 37 17.320	W 032 16.455	1670	Arrival ELEVATOR – Material transfer

22/06/2022	12:01	Lucky strike	N 37 17.317	W 032 16.468	1669	Transit towards Montségur
22/06/2022	12:15	Montsegur	N 37 17.279	W 032 16.524	1699	Arrival at Montségur
22/06/2022	12:22	Montsegur	N 37 17.277	W 032 16.528	1703	Start MEASUREMENT CHEMINI Fe Sulfure on quadrat C1B, temperature between 5 and 6°C
22/06/2022	12:24	Montsegur	N 37 17.277	W 032 16.530	1703	SAMPLE PIF filtered, syringe #1 quadrat C1B
22/06/2022	12:28	Montsegur	N 37 17.277	W 032 16.528	1703	SAMPLE PIF non-filtered, syringe #2 quadrat C1B
22/06/2022	12:44	Montsegur	N 37 17.279	W 032 16.526	1703	*Nice video
22/06/2022	12:46	Montsegur	N 37 17.279	W 032 16.527	1703	DEPLOYMENT POMME 3 on quadrat C1B
22/06/2022	12:50	Montsegur	N 37 17.281	W 032 16.526	1702	Site periphery MERCES
22/06/2022	12:52	Montsegur	N 37 17.283	W 032 16.519	1704	RECOVERY POMME camera system 8 at periphery MERCES
22/06/2022	12:56	Montsegur	N 37 17.283	W 032 16.520	1704	Start MEASUREMENT CHEMINI fer/sulphides at quadrat periphery, temperature 4.6°C
22/06/2022	12:56	Montsegur	N 37 17.282	W 032 16.520	1704	SAMPLE PIF filtered, quadrat MERCES periphery, syringe #3
22/06/2022	12:59	Montsegur	N 37 17.282	W 032 16.522	1704	SAMPLE PIF non-filtered, quadrat MERCES periphery, syringe #4
22/06/2022	13:17	Montsegur	N 37 17.282	W 032 16.523	1704	DEPLOYMENT POMME 1 quadrat periphery MERCES
22/06/2022	13:18	Lucky strike	N 37 17.282	W 032 16.522	1704	RECOVERY POMME 8
22/06/2022	13:26	Lucky strike	N 37 17.315	W 032 16.461	1671	Arrival at ELEVATOR – Material transfer
22/06/2022	13:32	Lucky strike	N 37 17.316	W 032 16.454	1673	Transit towards Montségur
22/06/2022	13:47	Montsegur	N 37 17.281	W 032 16.531	1703	Start MEASUREMENT CHEMINI iron/sulphides quadrat ROA
22/06/2022	13:49	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF at quadrat R0A (centre), filtered, syringe #5
22/06/2022	13:51	Montsegur	N 37 17.281	W 032 16.528	1703	SAMPLE PIF, quadrat ROA, without filter, syringe #6
22/06/2022	14:10	Montsegur	N 37 17.284	W 032 16.531	1703	DEPLOYMENT POMME 2 at quadrat ROA
22/06/2022	14:15	Montsegur	N 37 17.285	W 032 16.533	1703	Start MEASUREMENT CHEMINI iron/sulfures at quadrat C2A
22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF at quadrat C2A (centre), without filter, syringe #7
22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF sur quadrat C2A (centre), filtered, syringe #8
22/06/2022	14:42	Montsegur	N 37 17.282	W 032 16.532	1703	Start MEASUREMENT CHEMINI iron/sulphides at quadrat R1,
22/06/2022	14:45	Montsegur	N 37 17.284	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), no filter, syringe #9
22/06/2022	14:45	Montsegur	N 37 17.283	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), filter, syringe #10
22/06/2022	14:56	Montsegur	N 37 17.287	W 032 16.535	1704	Start MESUREMENT CHEMINI iron/sulhpides at quadrat C1b_cg
22/06/2022	14:57	Montsegur	N 37 17.287	W 032 16.535	1704	SAMPLE PIF at quadrat C1b_cg (centre), no filter, syringe #11
22/06/2022	14:58	Montsegur	N 37 17.287	W 032 16.534	1704	SAMPLE PIF at quadrat C1b_cg (centre), filter, syringe #12
22/06/2022	15:03	Montsegur	N 37 17.287	W 032 16.539	1703	End of work at Montségur, heading towards TE
22/06/2022	15:05	Lucky strike	N 37 17.309	W 032 16.551	1699	Station is deployed, sensors are in place
22/06/2022	15:25	Tour Eiffel	N 37 17.328	W 032 16.544	1696	Stabilisation caillebotis TEMPO with bags
22/06/2022	15:30	Tour Eiffel	N 37 17.325	W 032 16.538	1695	Zoom on the TEMPO area
22/06/2022	15:33	Tour Eiffel	N 37 17.326	W 032 16.539	1695	Start MESUREMENT CHEMINI iron/sulhpides in the TEMPO area
22/06/2022	15:52	Tour Eiffel	N 37 17.323	W 032 16.540	1696	SAMPLE PIF in TEMPO area, filtred, syringe #13
22/06/2022	15:55	Tour Eiffel	N 37 17.324	W 032 16.536	1695	SAMPLE PIF in TEMPO area, non filtred, syringe #14
22/06/2022	16:01	Tour Eiffel	N 37 17.329	W 032 16.544	1696	SAMPLE PIF in TEMPO area, filtred, syringe #15
22/06/2022	16:03	Tour Eiffel	N 37 17.330	W 032 16.542	1696	SAMPLE PIF in TEMPO area, non filtred, syringe #16
22/06/2022	16:11	Tour Eiffel	N 37 17.331	W 032 16.538	1694	SAMPLE covered with mussels for Audrey, placed in PBT
22/06/2022	16:22	Tour Eiffel	N 37 17.329	W 032 16.543	1688	End of dive

6.12.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
22/06/2022	12:46	Montsegur	N 37 17.279	W 032 16.527	1703	DEPLOYMENT POMME 3 on quadrat C1B
22/06/2022	13:17	Montsegur	N 37 17.282	W 032 16.523	1704	DEPLOYMENT POMME 1 quadrat periphery MERCES
22/06/2022	13:18	Lucky strike	N 37 17.282	W 032 16.522	1704	RECOVERY POMME 8
22/06/2022	14:10	Montsegur	N 37 17.284	W 032 16.531	1703	DEPLOYMENT POMME 2 at quadrat ROA

6.12.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
22/06/2022	12:24	Montsegur	N 37 17.277	W 032 16.530	1703	SAMPLE PIF filtered, syringe #1 quadrat C1B
22/06/2022	12:28	Montsegur	N 37 17.277	W 032 16.528	1703	SAMPLE PIF non-filtered, syringe #2 quadrat C1B
22/06/2022	12:56	Montsegur	N 37 17.282	W 032 16.520	1704	SAMPLE PIF filtered, quadrat MERCES periphery, syringe #3
22/06/2022	12:59	Montsegur	N 37 17.282	W 032 16.522	1704	SAMPLE PIF non-filtered, quadrat MERCES periphery, syringe #4
22/06/2022	13:49	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF at quadrat R0A (centre), filtered, syringe #5
22/06/2022	13:51	Montsegur	N 37 17.281	W 032 16.528	1703	SAMPLE PIF, quadrat ROA, without filter, syringe #6
22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF at quadrat C2A (centre), without filter, syringe #7
22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF sur quadrat C2A (centre), filtered, syringe #8
22/06/2022	14:45	Montsegur	N 37 17.284	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), no filter, syringe #9
22/06/2022	14:45	Montsegur	N 37 17.283	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), filter, syringe #10
22/06/2022	14:57	Montsegur	N 37 17.287	W 032 16.535	1704	SAMPLE PIF at quadrat C1b_cg (centre), no filter, syringe #11
22/06/2022	14:58	Montsegur	N 37 17.287	W 032 16.534	1704	SAMPLE PIF at quadrat C1b_cg (centre), filter, syringe #12
22/06/2022	15:52	Tour Eiffel	N 37 17.323	W 032 16.540	1696	SAMPLE PIF in TEMPO area, filtred, syringe #13
22/06/2022	15:55	Tour Eiffel	N 37 17.324	W 032 16.536	1695	SAMPLE PIF in TEMPO area, non filtred, syringe #14
22/06/2022	16:01	Tour Eiffel	N 37 17.329	W 032 16.544	1696	SAMPLE PIF in TEMPO area, filtred, syringe #15
22/06/2022	16:03	Tour Eiffel	N 37 17.330	W 032 16.542	1696	SAMPLE PIF in TEMPO area, non filtred, syringe #16

6.12.5. Biological samples

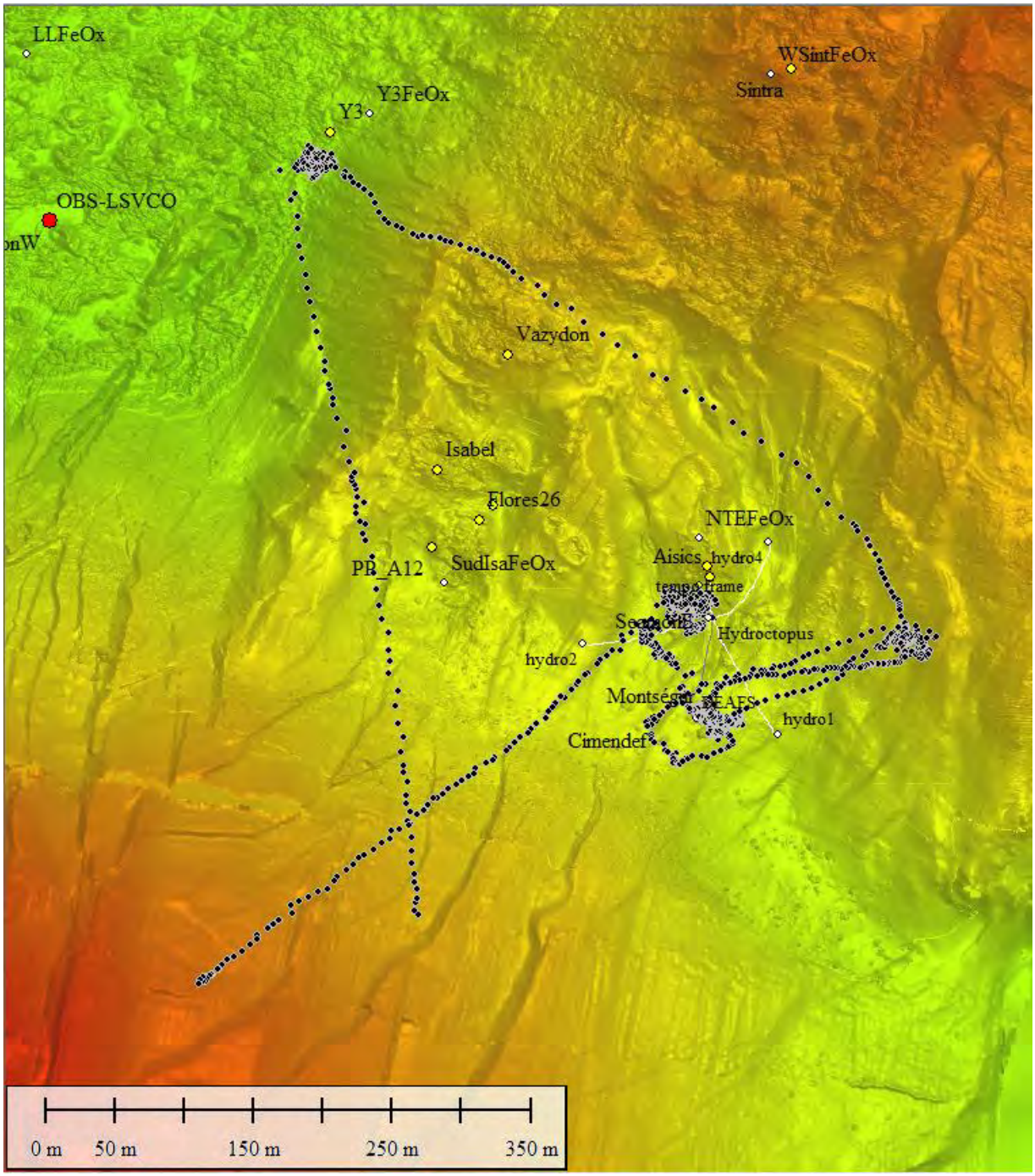
Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
22/06/2022	10:53	Y3	N 37 17.496	W 032 16.668	1733	SAMPLE suction with ELFES cell 3 on mussels, flange Y3
22/06/2022	11:14	Y3	N 37 17.495	W 032 16.683	1733	SAMPLE ELFES cell 4 on flange Y3
22/06/2022	16:11	Tour Eiffel	N 37 17.331	W 032 16.538	1694	SAMPLE covered with mussels for Audrey, placed in PBT

6.12.6. Mesures Chemini

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
22/06/2022	12:22	Montsegur	N 37 17.277	W 032 16.528	1703	Start MEASUREMENT CHEMINI Fe Sulfure on quadrat C1B, temperature between 5 and 6°C
22/06/2022	12:56	Montsegur	N 37 17.283	W 032 16.520	1704	Start MEASUREMENT CHEMINI fer/sulphides at quadrat periphery, temperature 4.6°C
22/06/2022	13:47	Montsegur	N 37 17.281	W 032 16.531	1703	Start MEASUREMENT CHEMINI iron/sulphides quadrat ROA
22/06/2022	14:15	Montsegur	N 37 17.285	W 032 16.533	1703	Start MEASUREMENT CHEMINI iron/sulfures at quadrat C2A

22/06/2022	14:42	Montsegur	N 37 17.282	W 032 16.532	1703	Start MEASUREMENT CHEMINI iron/sulphides at quadrat R1,
22/06/2022	14:56	Montsegur	N 37 17.287	W 032 16.535	1704	Start MESUREMENT CHEMINI iron/sulhpides at quadrat C1b_cg
22/06/2022	15:33	Tour Eiffel	N 37 17.326	W 032 16.539	1695	Start MESUREMENT CHEMINI iron/sulhpides in the TEMPO area

6.12.7. Navigation DIVE 2039-12



6.13. MoMARSAT 2022 DIVE 2040-13

Thursday 23 June 2021

Launch positionNautile	N 37° 17.21673'	W 32° 16.57647'	
Launching time	09:15	On the bottom	10:20
Departure from bottom	16:30	Nautile on board	17:20
Pilot	Olivier Fauvin	Operations duration on the bottom	6:10
Copilot	Lucas Leroy		
Observer	Laurent Gautier		

6.13.1. Objectives : Installation TEMPO, DEAFS, hydroctopus Seamon E + test WIFI, Probes TE

Site	Operation
DEAFS	Deployment DEAFS and connexion caillebotis
Seamon E	Positioning and test Wifi
	Release buoyancy device for positioning
	Deployment TEMPO – test Wifi
	Connexion Hydroctopus and DEAFS– test Wifi
Seamon W	WIFI on Seamon W

Coordinates :

TEMPO	N 37 17.329	W 32 16.533	1697

Nautile

Basket descending

Niskin	WIFI		

Basket going up

Niskin	WIFI		

Instrumentation

ELEVATOR libre (remonte le lendemain)

Basket 1 descending: DEAFS	Basket 2 descending:
Basket 1 going up: mesocosm + COMBO	Basket 2 going up : Niskin

6.13.2. Operations

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
23/06/2022	10:20	Lucky strike	N 37 17.277	W 032 16.480		On the bottom
23/06/2022	10:24	Lucky strike	N 37 17.310	W 032 16.454		ELEVATOR – grab DEAFS
23/06/2022	10:42	Montsegur	N 37 17.281	W 032 16.543		Arrival at DEAFS
23/06/2022	10:44	Montsegur	N 37 17.275	W 032 16.537		Positioning DEAFS
23/06/2022	11:02	Montsegur	N 37 17.277	W 032 16.549		ODI of DEAFS connected
23/06/2022	11:11	Tour Eiffel	N 37 17.316	W 032 16.539		Seamon East
23/06/2022	11:14	Tour Eiffel	N 37 17.314	W 032 16.551		Lest Seamon East released
23/06/2022	11:45	Tour Eiffel	N 37 17.322	W 032 16.535		Test Wifi
23/06/2022	12:19	Tour Eiffel	N 37 17.320	W 032 16.534		Buoyancy device released
23/06/2022	12:31	Tour Eiffel	N 37 17.324	W 032 16.540		DEPLOYMENT TEMPO
23/06/2022	13:14	Tour Eiffel	N 37 17.322	W 032 16.533		Test Wifi
23/06/2022	13:36	Tour Eiffel	N 37 17.329	W 032 16.546		Connector ODI of DEAFS in position

23/06/2022	14:10	Tour Eiffel	N 37 17.320	W 032 16.535		Connector ODI hydroctopus in position
23/06/2022	14:27	Tour Eiffel	N 37 17.321	W 032 16.543		Test Wifi
23/06/2022	15:44	Lucky strike	N 37 17.477	W 032 16.789		Arrival at Seamon West
23/06/2022	15:44	Lucky strike	N 37 17.476	W 032 16.789		Seamon West, OBS DEPLOYMENT
23/06/2022	15:51	Lucky strike	N 37 17.471	W 032 16.784		SAMPLE Niskin
23/06/2022	15:54	Lucky strike	N 37 17.469	W 032 16.790		DEPLOYMENT TCM
23/06/2022	15:58	Lucky strike	N 37 17.471	W 032 16.789		Test Wifi at Seamon West
23/06/2022	16:30	Lucky strike	N 37 17.464	W 032 16.797		End of dive

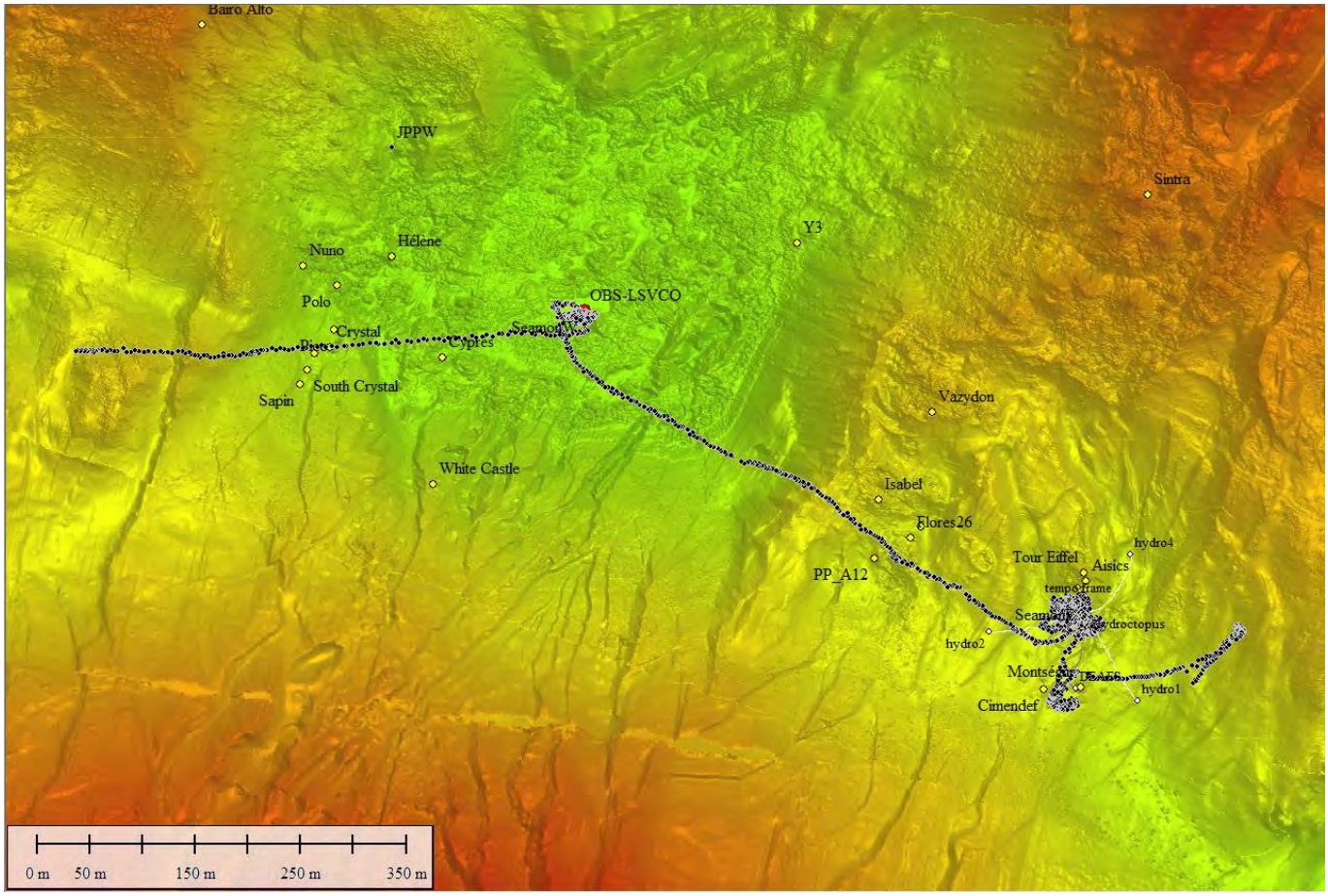
6.13.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
23/06/2022	12:31	Tour Eiffel	N 37 17.324	W 032 16.540		DEPLOYMENT TEMPO
23/06/2022	15:44	Lucky strike	N 37 17.476	W 032 16.789		Seamon West, OBS DEPLOYMENT
23/06/2022	15:54	Lucky strike	N 37 17.469	W 032 16.790		DEPLOYMENT TCM

6.13.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
23/06/2022	15:51	Lucky strike	N 37 17.471	W 032 16.784		SAMPLE Niskin Niskin

6.13.5. Navigation DIVE 2040-13



6.14. MoMARSAT 2022 DIVE 2041-14

Friday 24 June 2022

Launch positionNautile	N 37° 17.17714'	W 32° 16.58624'	EST
Launch positionELEVATOR	N 37° 17.36885'	W 32° 16.41268'	LAUNCH le 23/06
Launching time	09:20	On the bottom	10:10
Departure from bottom	16:35	Nautile on board	17:30
Pilot	Guillaume de Parseval		
Copilot	Luc Tailliez		
Observer	Céline Rommevaux		

6.14.1. Objectives : Mésocosm, DEAFs, titanium syringes Isabel, MERCES

Site	Operation
Montsegur	Installation DEAFS
	Installation Biolucky
	Sample 3 bags PLUME Temperature measurement
Tour Eiffel N	Recovery COMBO
	Trigger Niskin at Seamon E
	Transit Montsegur
Tour Eiffel Est	Recovery LTW018 & LTgrad 5 – swap LTI1 and Ltgrad 12
	Along hydro 4 cable: Deployment HTNKE 29006 and Ltgrad 14 Deployment LTmetal 3 and 11
Montsegur	Recovery mesocosm
Isabel	Trigger 4 titanium syringes
	Visit two lests at Montsegur and Tour Eiffel for recovery planification
joker	Manips MERCES at 6 quadrats : R2, C1acg, R2cg, C2acg, C1a, C2b

Coordinates :

Montsegur	N 37° 17.293	W 32° 16.527	1708
Nouveau DEAFS	N 37 17.261	W 32 16.554	1703

Nautile

Basket descending

2 Ltgrad	1HTNKE	PBT Biolucky	Niskin
4 titanium syringes	2 LTmetal	1 LTI	

Basket going up

1 Ltgrad	1 LTW	PBT Biolucky	4 titanium syringes

Instrumentation

Suction sampler jars	Chemini/PIF ?		

ELEVATOR libre (mouillé la veille)

Basket 1 descending:	Basket 2 descending:
Basket 1 going up : mesocosm + COMBO	Basket 2 going up : Niskin

6.14.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment

24/06/2022	10:18	Montsegur	N 37 17.265	W 032 16.537	1700	On the bottom – test pyro
24/06/2022	10:55	Montsegur	N 37 17.283	W 032 16.542	1704	DEPLOYMENT final DEAFS
24/06/2022	11:05	Montsegur	N 37 17.283	W 032 16.534	1702	Temperature measurement at the DEAFS exit : 36-173°C Purge PLUME 1 min
24/06/2022	11:08	Montsegur	N 37 17.284	W 032 16.534	1702	SAMPLE PLUME Bag 1 M22-Biolucky-Plume µBio 78°C
24/06/2022	11:10	Montsegur	N 37 17.286	W 032 16.539	1702	SAMPLE PLUME Bag 2 M22-Biolucky-Fe Iso InS1 Temperature 65-137°C
24/06/2022	11:16	Montsegur	N 37 17.271	W 032 16.541	1702	SAMPLE PLUME Bag 3 M22-Biolucky-Fe Iso InS2 Température 40-50°C
24/06/2022	11:34	Montsegur	N 37 17.278	W 032 16.530	1702	DEPLOYMENT Biolucky at the rear of DEAFS
24/06/2022	11:50	Tour Eiffel	N 37 17.314	W 032 16.527	1698	Arrival at SEAMON East
24/06/2022	11:54	Tour Eiffel	N 37 17.320	W 032 16.527	1696	SAMPLE Niskin
24/06/2022	12:06	Tour Eiffel	N 37 17.344	W 032 16.530	1693	RECOVERY COMBO bell
24/06/2022	12:15	Lucky strike	N 37 17.318	W 032 16.457	1675	Arrival at ELEVATOR – Material transfer
24/06/2022	12:20	Lucky strike	N 37 17.312	W 032 16.453	1674	Direction Montségur to recover the mesocosm
24/06/2022	12:36	Montsegur	N 37 17.283	W 032 16.537	1704	RECOVERY Mesocosm
24/06/2022	12:44	Lucky strike	N 37 17.304	W 032 16.455	1672	Arrival at the ELEVATOR – Material transfer
24/06/2022	13:11	Lucky strike	N 37 17.312	W 032 16.455	1674	Departure towards TE East for tempearture Probes
24/06/2022	13:25	Tour Eiffel	N 37 17.334	W 032 16.522	1693	RECOVERY Probe LTW018
24/06/2022	13:27	Tour Eiffel	N 37 17.333	W 032 16.520	1694	RECOVERY Probe LTGrad5
24/06/2022	13:33	Tour Eiffel	N 37 17.338	W 032 16.515	1693	DEPLOYMENT Probe LT1
24/06/2022	13:37	Tour Eiffel	N 37 17.334	W 032 16.520	1693	DEPLOYMENT Probe LTGrad12
24/06/2022	13:51	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTGrad14
24/06/2022	13:56	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTNKE29006
24/06/2022	14:08	Tour Eiffel	N 37 17.328	W 032 16.519	1704	DEPLOYMENT LTMetal3
24/06/2022	14:20	Tour Eiffel	N 37 17.335	W 032 16.511	1703	DEPLOYMENT LTMetal11
24/06/2022	14:23	Tour Eiffel	N 37 17.335	W 032 16.513	1697	Direction Seamon West
24/06/2022	14:45	Lucky strike	N 37 17.466	W 032 16.784	1741	Switch SEAMONW pushed to ON
24/06/2022	14:51	Lucky strike	N 37 17.468	W 032 16.782	1741	SAMPLE basaltic glass
24/06/2022	14:54	Lucky strike	N 37 17.469	W 032 16.781	1740	Departure towards Isabel
24/06/2022	15:13	Isabel	N 37 17.389	W 032 16.632	1681	Temperature measurement296,4°C

24/06/2022	15:17	Isabel	N 37 17.389	W 032 16.631	1681	SAMPLE Ti4
24/06/2022	15:18	Isabel	N 37 17.389	W 032 16.633	1681	SAMPLE Ti3
24/06/2022	15:21	Isabel	N 37 17.390	W 032 16.636	1681	SAMPLE Ti2
24/06/2022	15:23	Isabel	N 37 17.388	W 032 16.632	1681	SAMPLE Ti1
24/06/2022	15:25	Isabel	N 37 17.389	W 032 16.633	1681	Heading towards inspection old ELEVATOR lest at Tour Eiffel then Montsegur
24/06/2022	15:35	Tour Eiffel	N 37 17.323	W 032 16.549	1697	Arrival at old ELEVATOR lest Tour Eiffel
24/06/2022	15:39	Montsegur	N 37 17.281	W 032 16.540	1700	Arrival at old ELEVATOR lest Montsegur. Positioning above and cap 190 ans 170 to evaluate potential obstacle to recovering
24/06/2022	15:52	Montsegur	N 37 17.282	W 032 16.533	1702	Inspection of DEAFS
24/06/2022	15:55	Montsegur	N 37 17.283	W 032 16.533	1702	SAMPLE chminey pieces on the floor
24/06/2022	16:02	Montsegur	N 37 17.240	W 032 16.586	1662	End of dive

6.14.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
24/06/2022	10:55	Montsegur	N 37 17.283	W 032 16.542	1704	DEPLOYMENT final DEAFS
24/06/2022	11:34	Montsegur	N 37 17.278	W 032 16.530	1702	DEPLOYMENT Biolucky at the rear of DEAFS
24/06/2022	12:06	Tour Eiffel	N 37 17.344	W 032 16.530	1693	RECOVERY COMBO bell
24/06/2022	12:36	Montsegur	N 37 17.283	W 032 16.537	1704	RECOVERY Mesocosm
24/06/2022	13:25	Tour Eiffel	N 37 17.334	W 032 16.522	1693	RECOVERY Probe LTW018
24/06/2022	13:27	Tour Eiffel	N 37 17.333	W 032 16.520	1694	RECOVERY Probe LTGrad5
24/06/2022	13:33	Tour Eiffel	N 37 17.338	W 032 16.515	1693	DEPLOYMENT Probe LT1
24/06/2022	13:37	Tour Eiffel	N 37 17.334	W 032 16.520	1693	DEPLOYMENT Probe LTGrad12
24/06/2022	13:51	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTGrad14
24/06/2022	13:56	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTNKE29006
24/06/2022	14:08	Tour Eiffel	N 37 17.328	W 032 16.519	1704	DEPLOYMENT LTMetal3
24/06/2022	14:20	Tour Eiffel	N 37 17.335	W 032 16.511	1703	DEPLOYMENT LTMetal11

6.14.4. Geochemical samples

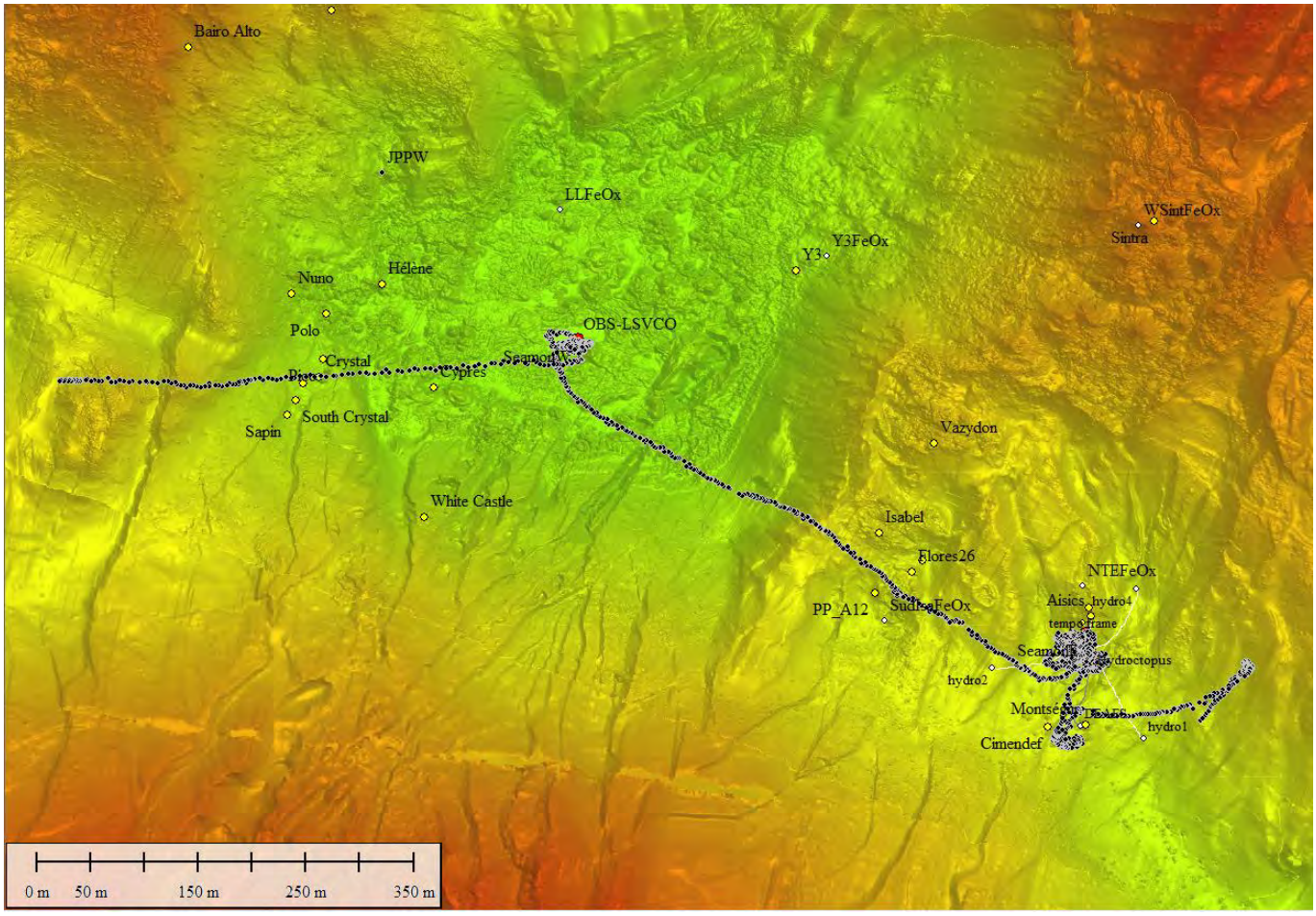
Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
24/06/2022	11:08	Montsegur	N 37 17.284	W 032 16.534	1702	SAMPLE PLUME Bag 1 M22-Biolucky-Plume µBio 78°C

24/06/2022	11:10	Montsegur	N 37 17.286	W 032 16.539	1702	SAMPLE PLUME Bag 2 M22-Biolucky-Fe Iso InS1 Temperature 65-137°C
24/06/2022	11:16	Montsegur	N 37 17.271	W 032 16.541	1702	SAMPLE PLUME Bag 3 M22-Biolucky-Fe Iso InS2 Température 40-50°C
24/06/2022	11:54	Tour Eiffel	N 37 17.320	W 032 16.527	1696	SAMPLE Niskin
24/06/2022	15:17	Isabel	N 37 17.389	W 032 16.631	1681	SAMPLE Ti4
24/06/2022	15:18	Isabel	N 37 17.389	W 032 16.633	1681	SAMPLE Ti3
24/06/2022	15:21	Isabel	N 37 17.390	W 032 16.636	1681	SAMPLE Ti2
24/06/2022	15:23	Isabel	N 37 17.388	W 032 16.632	1681	SAMPLE Ti1

6.14.5. Rock samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
24/06/2022	14:51	Lucky strike	N 37 17.468	W 032 16.782	1741	SAMPLE basaltic glass
24/06/2022	15:55	Montsegur	N 37 17.283	W 032 16.533	1702	SAMPLE chminey pieces on the floor

6.14.6. Navigation DIVE 2041-14



6.15. MoMARSAT 2022 DIVE 2042-15

Saturday 25 June 2022

Launch positionNautile	N37°17.1377	W32°16.6309	EST
Launch positionELEVATOR			Tour Eiffel
Launching time	09:30		
Departure from bottom	16:30	Nautile on board	17:30
Pilot	Olivier Fauvin		
Copilot	Lucas Leroy		
Observer	Mariana Cruz		

6.15.1. Objectives : Mésocosme, MERCES POMMEs

Site	Operation
	Recovery of an old lest
	Cleaning site
Capelinhos	Sample fluids
	Transect TE - Capelinhos

Coordinates :

Lest ELEVATOR3 PL3 TE	N37°17.3261	W32°16.5548
Lest ELEVATOR PL9 Montsegur	N31°17.2777	W32° 16.5487
Capelinhos	N37°17.371	W32°15.831

Nautile

Basket descending

Niskin	2 PBTs	4 titanium syringes	

Basket going up

Niskin	2 PBTs	CORODODO	4 titanium syringes

Instrumentation

Suction sampler jars			

6.15.2. Operations:

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	10:14	Lucky strike	N 37 17.309	W 032 16.601		On the bottom.
25/06/2022	10:19	Tour Eiffel	N 37 17.322	W 032 16.544		Arrival at Seamon East.
25/06/2022	10:25	Tour Eiffel	N 37 17.334	W 032 16.541		SAMPLE rock with zoanthids and put it at PBT 1.
25/06/2022	10:32	Tour Eiffel	N 37 17.333	W 032 16.540		Nettoyage CORODODO.
25/06/2022	11:21	Tour Eiffel	N 37 17.347	W 032 16.552		SAMPLE Rock with pedonculate sponges in PBT2.
25/06/2022	11 :40	Montségur			1697	Starting lest recovery
25/06/2022	11 :54	Montségur				Hooking the lest to be recovered through the steel sling
25/06/2022	12:26	Lucky strike	N 37 17.291	W 032 16.505		Start the TRANSECT to Capelinhos.
25/06/2022	13:20	Lucky strike	N 37 17.374	W 032 15.861		Arriving to Capelinhos,End of the TRANSECT.
25/06/2022	13:44	Capelinhos	N 37 17.360	W 032 15.836		Measuring the temperature 298°C
25/06/2022	13:54	Capelinhos	N 37 17.357	W 032 15.833		SAMPLE titanium syringe n°5
25/06/2022	13:56	Capelinhos	N 37 17.357	W 032 15.830		SAMPLE titanium syringe n°6
25/06/2022	13:59	Capelinhos	N 37 17.360	W 032 15.827		SAMPLE titanium syringe n°7
25/06/2022	14:04	Capelinhos	N 37 17.358	W 032 15.831		SAMPLE titanium syringe n°8

25/06/2022	14:39	Capelinhos	N 37 17.359	W 032 15.827		SAMPLE chimney in the box
25/06/2022	14:46	Capelinhos	N 37 17.364	W 032 15.835		Leaving Capelinhos.

6.15.3. Moorings

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	11 :54	Montségur				Hooking the lest to be recovered through the steel sling

6.15.4. Geochemical samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	13:54	Capelinhos	N 37 17.357	W 032 15.833		SAMPLE titanium syringe n°5
25/06/2022	13:56	Capelinhos	N 37 17.357	W 032 15.830		SAMPLE titanium syringe n°6
25/06/2022	13:59	Capelinhos	N 37 17.360	W 032 15.827		SAMPLE titanium syringe n°7
25/06/2022	14:04	Capelinhos	N 37 17.358	W 032 15.831		SAMPLE titanium syringe n°8

6.15.5. Biological samples

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	11:21	Tour Eiffel	N 37 17.347	W 032 16.552		SAMPLE Rock with pedonculate sponges in PBT2.

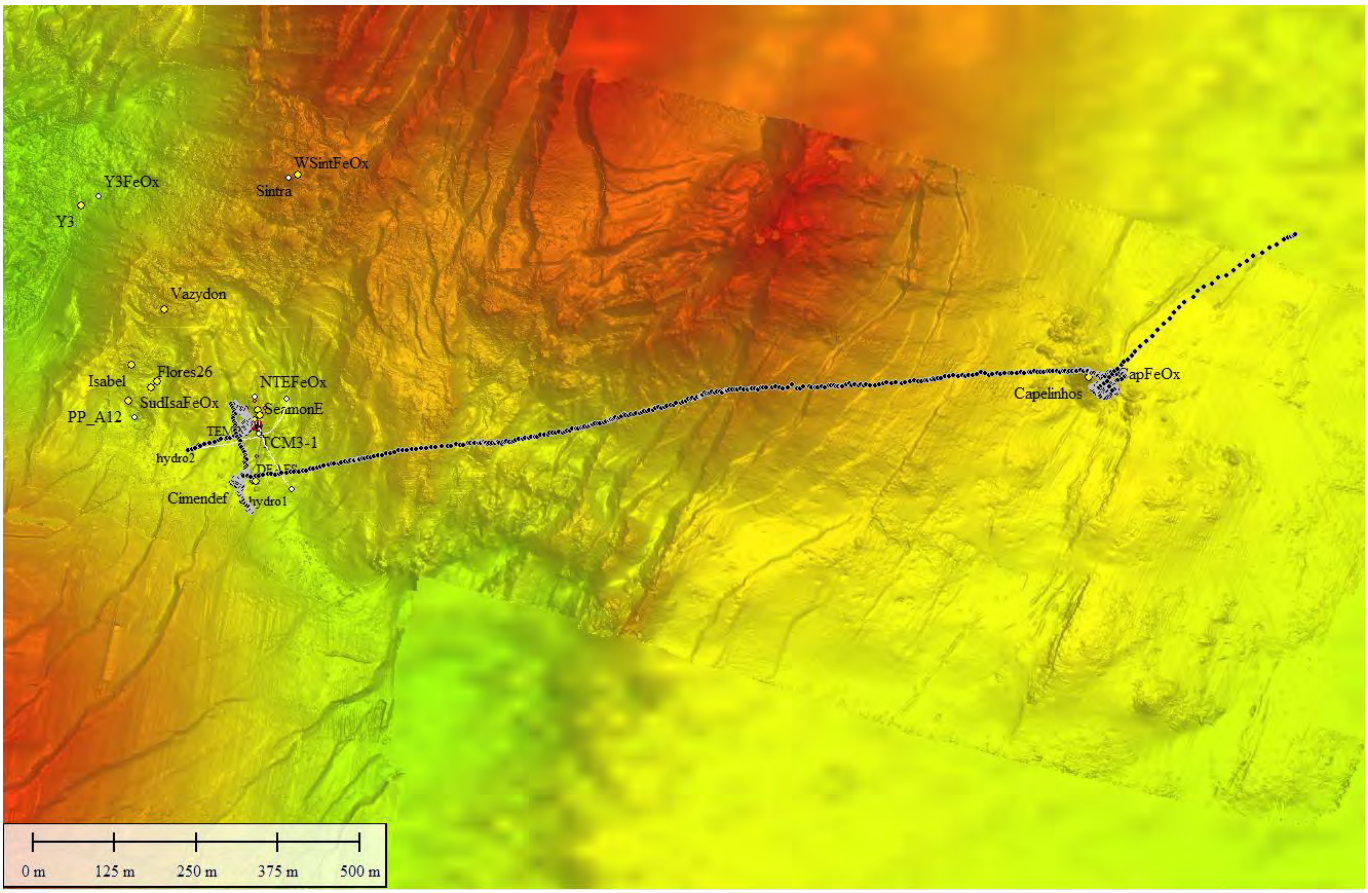
6.15.6. Samples de roches

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	14:39	Capelinhos	N 37 17.359	W 032 15.827		SAMPLE chimney in the box

6.15.7. Transect caméra verticale

Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
25/06/2022	12:26	Lucky strike	N 37 17.291	W 032 16.505		Start the TRANSECT to Capelinhos.
25/06/2022	13:20	Capelinhos	N 37 17.374	W 032 15.861		Arriving to Capelinhos, End of the TRANSECT.

6.15.8. Navigation DIVE 2042-15



7. List of operations

7.1. Operations and mooring deployed from the surface

- Oceanographic mooring graphics,
- Mooring MicroRIO,
- Deployment of OBS using the hydro winch
- Recovery of Autonomous OBS and the positioning buoyancy device of the stations,
- Deployment and Recovery of BOREL buoy,
- Operating deep-sea cable for : Mooring and recovery of the stations,
  ELEVATOR operations
  Lest recovery,

Exclude Nautile dives (part 6 of the report), transects SADCP and VMP and CTD Depthiles

Date	Time	Latitude	Longitude	Instrument/Device	Action Name	Operation Identifier	Observation
08/06/2022	06:25:18	N 37° 17.71773'	W 32° 16.75825'	Mooring microRIO	Deployment	MICRORIO-22-2	Start of deployment, lest first
08/06/2022	09:03:30	N 37° 17.7172'	W 32° 16.75811'	Mooring microRIO	End of deployment	MICRORIO-22-10	
08/06/2022	10:40:19	N 37° 17.67862'	W 32° 17.05198'	Deep-sea cable	Deployment	CGF-RECUP SEAMONW-1	Recovery of Seamon W
08/06/2022	13:05:24	N 37° 17.47926'	W 32° 16.79888'	Deep-sea cable	Hooking station	CGF-RECUP SEAMONW-4	Nautile hooks the station
08/06/2022	14:45:05	N 37° 17.46391'	W 32° 16.78282'	Deep-sea cable	On board	CGF-RECUP SEAMON W-6	Câble and Station on board
08/06/2022	18:10:23	N 37° 18.03974'	W 32° 16.45757'	Mooring microRIO	Triangulation	MICRORIO-22-3	Start Triangulation
08/06/2022	18:51:41	N 37° 18.08204'	W 32° 16.88135'	Mooring microRIO	Triangulation	MICRORIO-22-9	End Triangulation
09/06/2022	07:30:10	N 37° 17.72832'	W 32° 16.84189'	NAUTILE ELEVATOR	Deployment in water	ELEVATORE-01-1	Free fall
09/06/2022	14:16:24	N 37° 17.15284'	W 32° 16.69837'	NAUTILE ELEVATOR	On board	ELEVATORE-01-3	
09/06/2022	18:12:54	N 37° 17.8628'	W 32° 19.43182'	Autonomous OBS	Acoustic release of the OBS	OBS-RECUP LSVWO-11	Recovery OBS
09/06/2022	20:10:05	N 37° 19.11381'	W 32° 17.08459'	Autonomous OBS	Acoustic release of the OBS	OBS-RECUP LSVNO-14	Recovery OBS
09/06/2022	22:18:58	N 37° 19.14346'	W 32° 16.85667'	Autonomous OBS	Deployment by hydro winch	OBS-DEP-LSVNP-16	Deployment OBS
10/06/2022	01:15:44	N 37° 17.95033'	W 32° 19.52792'	Autonomous OBS	Deployment by hydro winch	OBS-DEP-LSVWP-19	Deployment OBS
10/06/2022	02:15:59	N 37° 17.95462'	W 32° 19.53356'	Autonomous OBS	INCIDENT	OBS-DEP-LSVWP-1	Acoustic release does not respond – OBS came up to the surface

10/06/2022	02:55:13	N 37° 17.95415'	W 32° 19.53374'	Autonomous OBS	OBS on board	OBS-DEP-LSVWP-2	Deployment canceled, water leak in acoustic release
10/06/2022	14:12:22	N 37° 17.76791'	W 32° 16.80473'	Oceanographic mooring	Release of Mooring	OCEANO-2021-1	Recovery of the Oceanographic mooring
10/06/2022	15:50:22	N 37° 18.56797'	W 32° 15.42775'	Oceanographic mooring	Mooring on board	OCEANO-2021-2	
10/06/2022	18:39:09	N 37° 15.8207'	W 32° 17.8861'	Autonomous OBS	Acoustic release of the OBS	OBS-RECUP-LSVSO-3	Recovery OBS
10/06/2022	20:25:15	N 37° 15.71063'	W 32° 18.1721'	Autonomous OBS	OBS on board	OBS-RECUP-LSVSO-4	
11/06/2022	07:41:58	N 37° 17.85466'	W 32° 17.11457'	BOREL	Release of lest	BOREL-2021-1	Recovery BOREL
11/06/2022	10:55:59	N 37° 19.33645'	W 32° 17.01687'	BOREL	Mooring on board	BOREL-2021-5	
11/06/2022	11:22:53	N 37° 16.92103'	W 32° 14.81315'	Autonomous OBS	Acoustic release de l'OBS	OBS-RECUP-LSVEO-5	Recovery OBS
11/06/2022	12:43:44	N 37° 16.88875'	W 32° 14.55588'	Autonomous OBS	OBS on board	OBS-RECUP-LSVEO-6	
11/06/2022	13:32:32	N 37° 16.80116'	W 32° 14.52331'	Autonomous OBS	Deployment by hydro winch	OBS-DEP-LSVEP-7	Deployment OBS
11/06/2022	15:52:59	N 37° 16.80094'	W 32° 14.52296'	Autonomous OBS	Hydro winch on board	OBS-DEP-LSVEP-9	
12/06/2022	09:49:36	N 37° 17.16105'	W 32° 16.37647'	Deep-sea cable	Deployment	CGF-RECUP SEAMON E-7	Recovery SEAMON E
12/06/2022	12:00:17	N 37° 17.33221'	W 32° 16.53616'	Deep-sea cable	Hooking station	CGF-RECUP SEAMON E-10	Nautile hooks the station
12/06/2022	14:14:44	N 37° 17.35067'	W 32° 16.54991'	Deep-sea cable	On board	CGF-RECUP SEAMON E-11	Station on board, TEMPO hanging
12/06/2022	18:05:35	N 37° 16.97435'	W 32° 16.74347'	NAUTILE ELEVATOR	Deployment	ELEVATORE-02-4	Free fall
13/06/2022	10:16:51	N 37° 17.58689'	W 32° 17.05375'	Deep-sea cable	Deployment	CGF-ELEVATORC01-12	ELEVATOR cabled
13/06/2022	14:51:32	N 37° 17.58861'	W 32° 17.04799'	Deep-sea cable	On board	CGF-ELEVATORC01-15	
13/06/2022	20:44:47	N 37° 17.14972'	W 32° 17.32843'	Autonomous OBS	Deployment by hydro winch	OBS-DEP-LSVEP-20	Deployment OBS
13/06/2022	22:45:23	N 37° 16.80423'	W 32° 14.52055'	Autonomous OBS	Release of hydro winch	OBS-DEP-LSVEP-21	
14/06/2022	14:09:02	N37°17.937	W32°19.540	Autonomous OBS	Deployment by hydro winch	OBS-DEP-LSVWP-24	Deployment OBS
14/06/2022	15:05:11			Autonomous OBS	Hydro winch on board	OBS-DEP-LSVWP-25	
15/06/2022	15:22:51	N 37° 17.223'	W 32° 16.41'	NAUTILE ELEVATOR	On board	ELEVATORE-02-11	
16/06/2022	10:42:23	N 37° 17.3062'	W 32° 16.49164'	Deep-sea cable	Deployment	CGF-ELEVATOR2-16	ELEVATOR cabled
16/06/2022	15:48:06	N 37° 17.29895'	W 32° 16.24225'	Deep-sea cable	On board	CGF-ELEVATOR2-19	
17/06/2022	10:00:22	N 37° 17.47243'	W 32° 16.70831'	Deep-sea cable	Deployment	CGF-ELEVATOR3-36	ELEVATOR cabled
17/06/2022	15:07:54	N 37° 17.27098'	W 32° 16.71044'	Deep-sea cable	On board	CGF-ELEVATOR3-37	
18/06/2022	08:05:41	N 37° 17.27561'	W 32° 15.61009'	NAUTILE ELEVATOR	Deployment	ELEVATORE-03-5	ELEVATOR free fall
18/06/2022	16:31:25	N 37° 17.77133'	W 32° 16.0445'	NAUTILE ELEVATOR	On board	ELEVATORE-03-6	
18/06/2022	18:04:21	N 37° 17.35459'	W 32° 17.04296'	Deep-sea cable	Deployment	CGF-SEAMONW-21	Deployment SEAMON W
18/06/2022	21:53:14	N 37° 17.48036'	W 32° 16.76058'	Deep-sea cable	On board	CGF-SEAMONW-27	

19/06/2022	08:21:41	N 37° 17.28875'	W 32° 16.52512'	NAUTILE ELEVATOR	Deployment	ELEVATORE-4-7	Free fall
19/06/2022	16:32:11	N 37° 17.47253'	W 32° 17.12452'	NAUTILE ELEVATOR	On board	ELEVATORE-4-9	
20/06/2022	08:10:41	N 37° 17.54899'	W 32° 16.79791'	NAUTILE ELEVATOR	Deployment	ELEVATORE-5-10	
20/06/2022	14:45:47	N 37° 17.08641'	W 32° 16.98134'	NAUTILE ELEVATOR	On board	ELEVATORE-5-13	
20/06/2022	15:21:11	N 37° 17.40161'	W 32° 17.14056'	Buoyancy devicebilité de déplacement	Release of the Buoyancy device by Nautile	BUOYANCY DEVICE-SEAMONW-1	
20/06/2022	16:00:19	N 37° 17.4121'	W 32° 17.26222'	Buoyancy devicebilité de déplacement	Buoyancy device on board	BUOYANCY DEVICE-SEAMONW-2	
21/06/2022	08:12:20	N 37° 17.33796'	W 32° 16.42869'	NAUTILE ELEVATOR	Deployment	ELEVATORE-6-14	
21/06/2022	14:41:29	N 37° 17.11806'	W 32° 16.80725'	NAUTILE ELEVATOR	At the surface	ELEVATORE-6-15	
21/06/2022	18:11:47	N 37° 17.29641'	W 32° 16.5437'	Deep-sea cable	Deployment	CGF-SEAMONE-28	Deployment SEAMON E
21/06/2022	21:41:57	N 37° 17.3461'	W 32° 16.55147'	Deep-sea cable	On board	CGF-SEAMONE-32	
22/06/2022	08:03:34	N 37° 17.3405'	W 32° 16.41236'	NAUTILE ELEVATOR	Deployment	ELEVATORE-7-16	
22/06/2022	14:52:05	N 37° 17.08786'	W 32° 16.58029'	NAUTILE ELEVATOR	On board	ELEVATORE-7-18	
22/06/2022	17:39:17	N 37° 17.14812'	W 32° 17.1549'	Mooring microRIO	Release of Mooring	MICRORIO-22-11	
22/06/2022	19:24:46	N 37° 18.02878'	W 32° 17.25968'	Mooring microRIO	Mooring on board	MICRORIO-22-12	
23/06/2022	06:00:16	N 37° 16.5769'	W 32° 14.69817'	Autonomous OBS	Acoustic release of the OBS	OBS-LSVEP-26	Recovery OBS
23/06/2022	07:44:00	N 37° 16.7931'	W 32° 14.8738'	Autonomous OBS	OBS on board	OBS-LSVEP-27	
23/06/2022	08:21:52	N 37° 17.36885'	W 32° 16.41268'	NAUTILE ELEVATOR	Deployment	ELEVATORE-8-19	
23/06/2022	11:56:49	N 37° 17.24231'	W 32° 16.8004'	Buoyancy devicebilité de déplacement	Release of the Buoyancy device by Nautile	BUOYANCY DEVICE-SEAMONE-3	
23/06/2022	12:40:26	N 37° 17.12745'	W 32° 16.78342'	Buoyancy devicebilité de déplacement	Buoyancy device on board	BUOYANCY DEVICE-SEAMONE-4	
23/06/2022	17:56:41	N 37° 17.34917'	W 32° 17.44551'	BOREL	Deployment	BOREL-2022-6	Deployment BOREL
23/06/2022	19:10:10	N 999° 0'	E 999° 0'	BOREL	Release	BOREL-2022-10	Lest final position N37°18.097, W32°16.749, imm 1690 - 40 m of the target – inhibited beacon
23/06/2022	20:17:22	N 37° 15.62475'	W 32° 17.88587'	Autonomous OBS	Deployment hydro winch	OBS-LSVSP-28	
23/06/2022	21:52:39	N 37° 15.62357'	W 32° 17.87949'	Autonomous OBS	Release from hydro winch	OBS-LSVSP-29	
24/06/2022	14:55:36	N 37° 17.23794'	W 32° 16.52111'	NAUTILE ELEVATOR	On board	ELEVATORE-8-20	
24/06/2022	19:30:19	N 37° 17.68809'	W 32° 16.71953'	Oceanographic mooring	Deployment	OCEANO-2022-3	
24/06/2022	19:30:59	N 37° 17.69819'	W 32° 16.72535'	Oceanographic mooring	End of deployment	OCEANO-2022-4	
24/06/2022	20:05:44	N 37° 17.99171'	W 32° 16.71407'	Oceanographic mooring	Triangulation	OCEANO-2022-5	

24/06/2022	20:30:13	N 37° 17.75342'	W 32° 16.45598'	Oceanographic mooring	Triangulation	OCEANO-2022-6	Triangulation failure, no response from acoustic beacon
25/06/2022	10:00:49	N 37° 17.18245'	W 32° 16.4407'	Deep-sea cable	Launching in water	CGF-RECUP LEST-33	Recovery of old lest
25/06/2022	12:00:01	N 37° 17.2744'	W 32° 16.52988'	Deep-sea cable	Hooking of station	CGF-RECUP LEST-34	hooked by Nautile
25/06/2022	13:30:08	N 37° 17.30638'	W 32° 16.15853'	Deep-sea cable	On board	CGF-RECUP LEST-35	
25/06/2022	16:20:41	N 37° 17.936'	W 32° 16.79944'	Oceanographic mooring	Triangulation	OCEANO-2022-7	Interrogating acoustic release, no response

7.2. List of CTD and VMP Depthiles

Correspondant B. Ferron, CNRS-LOPS

- 22 CTDs (7 equiped with 4 Sampling Niskin– contact A. Colaco)
- 14 VMP

Date	Time	Latitude	Longitude	Device name	Action name	Operation identifier	Samples
10/06/2022	14:48:20	N 37° 17.98875'	W 32° 16.54003'	CTD	Deployment	BATHY-CTD01-1	
10/06/2022	17:26:46	N 37° 17.9662'	W 32° 16.59223'	CTD	Niskin trigger	BATHY-CTD01-2	Niskin 3 40 m from bottom
10/06/2022	17:32:40	N 37° 17.9666'	W 32° 16.5922'	CTD	Niskin trigger	BATHY-CTD01-3	Niskin 4, 1500m from bottom
10/06/2022	18:07:28	N 37° 17.96643'	W 32° 16.59224'	CTD	Niskin trigger	BATHY-CTD01-4	Niskins 9 and 10 50 m from surface
11/06/2022	16:27:44	N 37° 17.70485'	W 32° 16.81858'	VMP	Deployment	VMP-01-1	
11/06/2022	16:53:36	N 37° 17.49422'	W 32° 16.82489'	CTD	Deployment	BATHY-CTD02-6	
11/06/2022	19:45:35	N 37° 17.48344'	W 32° 16.79314'	CTD	Deployment	BATHY-CTD03-10	Point B ANA
11/06/2022	20:25:11	N 37° 17.48263'	W 32° 16.79339'	CTD	Niskin trigger	BATHY-CTD03-11	Niskin 3, depth 1724m
11/06/2022	20:28:05	N 37° 17.48266'	W 32° 16.79327'	CTD	Niskin trigger	BATHY-CTD03-12	Niskin 4, 1606 m depth
11/06/2022	21:02:51	N 37° 17.4833'	W 32° 16.79251'	CTD	Niskin trigger	BATHY-CTD03-13	Niskin 9, 50 m under the surface
12/06/2022	19:00:18	N 37° 17.68194'	W 32° 16.76207'	VMP	Deployment	VMP-02-4	
12/06/2022	19:10:06	N 37° 17.46261'	W 32° 16.5134'	CTD	Deployment	BATHY-CTD04-17	
13/06/2022	18:22:51	N 37° 17.52459'	W 32° 16.87469'	VMP	Deployment	VMP-03-7	
13/06/2022	19:00:16	N 37° 17.43193'	W 32° 16.84218'	CTD	Deployment	BATHY-CTD05-21	
14/06/2022	17:47:48	N 999° 0'	E 999° 0'	CTD	Deployment	BATHY-CTD7-27	Pb CASINO ANA Point D position GPS ANA Point D N37°17.570, W 32°21.990
14/06/2022	19:02:34	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-28	Niskin 3, 10 m from bottom ANA Point D

14/06/2022	19:10:27	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-29	Niskin 4, ANA Point D
14/06/2022	19:48:04	N 999° 0'	E 999° 0'	CTD	Niskin trigger	BATHY-CTD7-30	Niskin 9, 50 m from the surface ANA Point D
14/06/2022	20:40:44	N 37° 17.45675'	W 32° 16.92674'	CTD	Deployment	BATHY-CTD8-32	ANA Point E
14/06/2022	21:25:09	N 37° 17.46316'	W 32° 16.92031'	CTD	Niskin trigger	BATHY-CTD8-33	Niskin 3, 1570 m ANA Point E
14/06/2022	21:29:53	N 37° 17.46322'	W 32° 16.92031'	CTD	Niskin trigger	BATHY-CTD8-34	Niskin 4, 1575 m
14/06/2022	22:04:39	N 37° 17.46322'	W 32° 16.92036'	CTD	Niskin trigger	BATHY-CTD8-35	Niskin s 9 et 10, 50 m from the surface
14/06/2022	22:27:06	N 37° 17.73325'	W 32° 16.80907'	VMP	Deployment	VMP-4-10	
14/06/2022	22:31:38	N 37° 17.67287'	W 32° 16.66512'	CTD	Deployment	BATHY-CTD9-37	
15/06/2022	17:52:23	N 37° 17.68407'	W 32° 16.81723'	VMP	Deployment	VMP-5-13	
15/06/2022	18:32:51	N 37° 17.51378'	W 32° 16.74757'	CTD	Deployment	BATHY-CTD10-41	
16/06/2022	18:04:14	N 37° 17.68918'	W 32° 16.71847'	VMP	Deployment	VMP-6-16	
16/06/2022	18:26:40	N 37° 17.51447'	W 32° 16.71309'	CTD	Deployment	BATHY-CTD11-44	
17/06/2022	21:04:33	N 37° 17.61265'	W 32° 16.67713'	VMP	Deployment	VMP-7-19	
17/06/2022	21:20:58	N 37° 17.52611'	W 32° 16.7624'	CTD	Deployment	BATHY-CTD12-47	
18/06/2022	01:54:41	N 37° 17.67772'	W 32° 16.76414'	VMP	Deployment	VMP-7-20	
18/06/2022	02:16:08	N 37° 17.53816'	W 32° 16.84145'	CTD	Deployment	BATHY-CTD13-50	
18/06/2022	22:12:56	N 37° 17.68963'	W 32° 16.74863'	VMP	Deployment	VMP-9-21	
18/06/2022	22:25:21	N 37° 17.54913'	W 32° 16.74815'	CTD	Deployment	BATHY-CTD14-53	
19/06/2022	02:51:39	N 37° 17.67442'	W 32° 16.75246'	VMP	Deployment	VMP-10-23	
19/06/2022	03:48:09	N 37° 17.53118'	W 32° 16.75223'	CTD	Deployment	BATHY-CTD15-56	
19/06/2022	18:03:13	N 37° 17.66477'	W 32° 16.70398'	VMP	Deployment	VMP-11-25	
19/06/2022	18:20:43	N 37° 17.54263'	W 32° 16.88818'	CTD	Deployment	BATHY-CTD16-58	
19/06/2022	22:56:53	N 37° 17.64374'	W 32° 16.76796'	VMP	Deployment	VMP-12-27	
19/06/2022	23:18:25	N 37° 17.50498'	W 32° 16.80301'	CTD	Deployment	BATHY-CTD17-61	
20/06/2022	18:49:03	N 37° 17.65182'	W 32° 16.79126'	VMP	Deployment	VMP-13-30	
20/06/2022	19:10:34	N 37° 17.60341'	W 32° 16.78622'	CTD	Deployment	BATHY-CTD18-64	
20/06/2022	23:53:40	N 999° 0'	E 999° 0'	VMP	Deployment	VMP-14-32	
21/06/2022	00:11:07	N 37° 17.5105'	W 32° 16.82641'	CTD	Deployment	BATHY-CTD19-67	
22/06/2022	21:03:40	N 37° 17.17165'	W 32° 17.00654'	CTD	Deployment	BATHY-CTD20-70	
22/06/2022	21:40:21	N 37° 17.14198'	W 32° 16.98589'	CTD	Niskin trigger	BATHY-CTD20-71	Niskins X et XX à 12 m from bottom
22/06/2022	21:43:03	N 37° 17.14193'	W 32° 16.9854'	CTD	Niskin trigger	BATHY-CTD20-72	Niskin 9 1512m
22/06/2022	22:16:55	N 37° 17.14195'	W 32° 16.9847'	CTD	Niskin trigger	BATHY-CTD20-73	Niskin 10 to 50 m

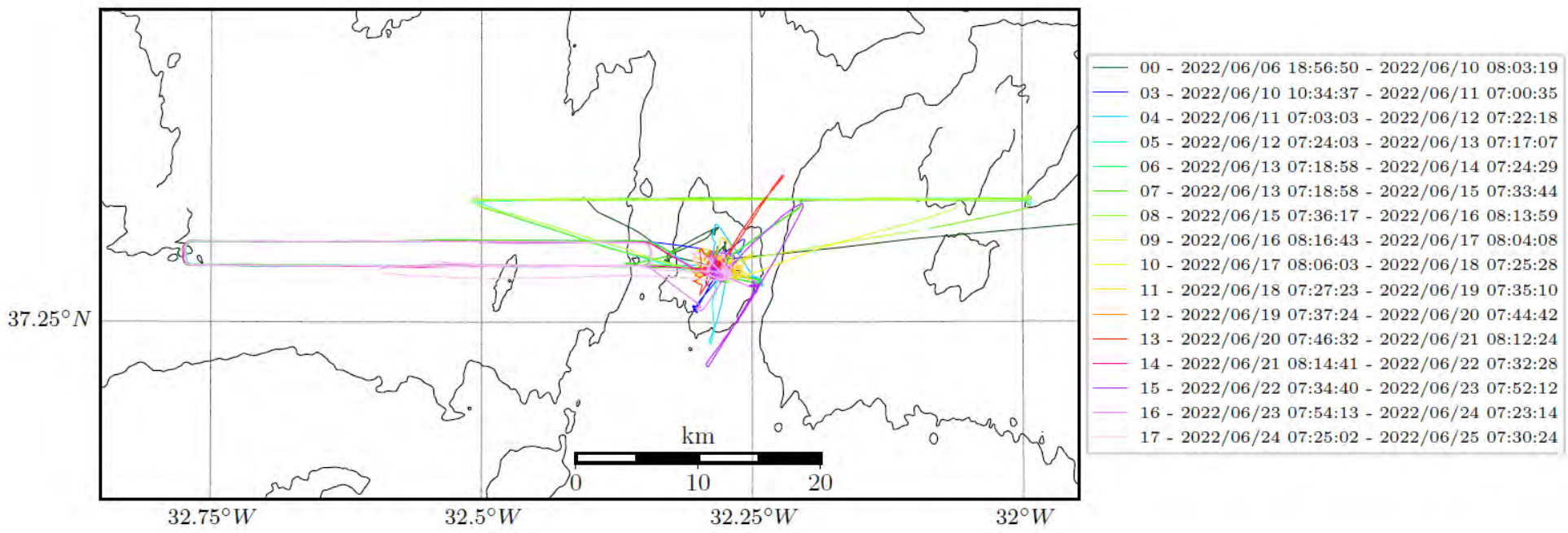
22/06/2022	22:40:51	N 37° 17.33345'	W 32° 16.52302'	CTD	Launching in water	BATHY-CTD21-75	
22/06/2022	23:22:28	N 37° 17.33406'	W 32° 16.52146'	CTD	Niskin trigger	BATHY-CTD21-76	Niskin 3 à 13m du fond
23/06/2022	00:00:17	N 37° 17.33404'	W 32° 16.52178'	CTD	Niskin trigger	BATHY-CTD21-78	Niskin 9 à 50 m
23/06/2022	23:27:19	N 37° 17.48454'	W 32° 23.98902'	CTD	Niskin trigger	BATHY-CTD21-77	Niskin 4 1522 m de Depthondeur
24/06/2022	21:06:57	N 37° 17.24276'	W 32° 16.21224'	CTD	Launching in water	BATHY-CTD22-80	Station G
24/06/2022	21:52:40	N 37° 17.24174'	W 32° 16.21111'	CTD	Niskin trigger	BATHY-CTD22-81	Niskin 3, 12 m du fond
24/06/2022	22:00:23	N 37° 17.24178'	W 32° 16.21128'	CTD	Niskin trigger	BATHY-CTD22-82	Niskin 4 et XX - 1430m
24/06/2022	22:36:24	N 37° 17.24236'	W 32° 16.21126'	CTD	Niskin trigger	BATHY-CTD22-83	Niskin 9 - 50m

7.3. Sections S ADCP

Contact C. Vic Ifremer LOPS

Date	Time	Latitude	Longitude	Device name	Action name	Operation identifier
09/06/2022	00:01:29	N 37° 17.71456'	W 32° 16.78766'	Ship ADCP	Start Depthile	SADCP7
09/06/2022	04:00:26	N 37° 17.76266'	W 32° 16.9235'	Ship ADCP	End of Depthile	SADCP11
10/06/2022	02:59:10	N 37° 17.95226'	W 32° 19.52744'	Ship ADCP	Start Depthile	SADCP12
10/06/2022	08:17:40	N 37° 20.37227'	W 32° 23.94859'	Ship ADCP	End of Depthile	SADCP13
10/06/2022	21:25:05	N 37° 17.47223'	W 32° 20.85229'	Ship ADCP	Start Depthile	SADCP14
11/06/2022	03:47:06	N 37° 18.51925'	W 32° 20.44575'	Ship ADCP	End of Depthile	SADCP16
11/06/2022	21:40:24	N 37° 17.44785'	W 32° 21.18967'	Ship ADCP	Start Depthile	SADCP1
12/06/2022	03:35:03	N 37° 18.55822'	W 32° 20.92138'	Ship ADCP	End of Depthile	SADCP2
12/06/2022	22:55:33	N 37° 20.3947'	W 32° 30.01999'	Ship ADCP	Start Depthile	SADCP3
13/06/2022	08:00:54	N 37° 20.26249'	W 32° 12.20437'	Ship ADCP	End of Depthile	SADCP4
15/06/2022	02:16:14	N 37° 17.71841'	W 32° 16.76577'	Ship ADCP	Start Depthile	SADCP5
15/06/2022	08:33:39	N 37° 17.68816'	W 32° 16.75197'	Ship ADCP	End of Depthile	SADCP6
15/06/2022	21:55:08	N 37° 20.41125'	W 32° 30.00891'	Ship ADCP	Start Depthile	SADCP19
16/06/2022	07:41:34	N 37° 20.33449'	W 31° 59.93336'	Ship ADCP	End of Depthile	SADCP20
16/06/2022	21:55:18	N 37° 20.40566'	W 32° 29.90341'	Ship ADCP	Start Depthile	SADCP21
17/06/2022	07:30:48	N 37° 20.30574'	W 32° 3.67268'	Ship ADCP	End of Depthile	SADCP22
18/06/2022	04:35:18	N 37° 17.70955'	W 32° 16.74242'	Ship ADCP	Start Depthile	SADCP23
18/06/2022	07:30:42	N 37° 17.55731'	W 32° 16.68455'	Ship ADCP	End of Depthile	SADCP24
20/06/2022	02:08:05	N 37° 17.48098'	W 32° 16.84512'	Ship ADCP	Start Depthile	SADCP25

20/06/2022	07:30:38	N 37° 17.63651'	W 32° 16.62028'	Ship ADCP	End of Depthile	SADCP26
20/06/2022	22:19:02	N 37° 17.27604'	W 32° 17.31829'	Ship ADCP	Start Depthile	SADCP27
21/06/2022	05:20:23	N 37° 20.19097'	W 32° 14.43707'	Ship ADCP	End of Depthile	SADCP28
21/06/2022	22:13:54	N 37° 17.46967'	W 32° 20.26827'	Ship ADCP	Start Depthile	SADCP29
22/06/2022	05:20:28	N 37° 18.52984'	W 32° 20.91039'	Ship ADCP	End of Depthile	SADCP30
23/06/2022	23:08:56	N 37° 17.49506'	W 32° 21.20707'	Ship ADCP	Start Depthile	SADCP31
24/06/2022	07:00:20	N 37° 17.53044'	W 32° 32.24475'	Ship ADCP	End of Depthile	SADCP32
24/06/2022	23:25:42	N 37° 17.45762'	W 32° 21.10801'	Ship ADCP	Start Depthile	SADCP33
25/06/2022	07:01:06	N 37° 17.50343'	W 32° 32.7488'	Ship ADCP	End of Depthile	SADCP34



Sections S ADCP effectuées durant la campagne

7.4. Autonomous moorings deployed or recovered during the cruise by Nautile

PL	Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment	Mooring	Contact
2028-1	08/06/2022	15:02	Tour Eiffel	N 37 17.340	W 032 16.534	1696	MOORING RECOVERY BT12	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:02	Tour Eiffel	N 37 17.340	W 032 16.534	1696	MOORING RECOVERY BT12	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:13	Tour Eiffel	N 37 17.338	W 032 16.538	1695	MOORING RECOVERY BT11	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:13	Tour Eiffel	N 37 17.338	W 032 16.538	1695	MOORING RECOVERY BT11	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:16	Tour Eiffel	N 37 17.360	W 032 16.541	1695	MOORING RECOVERY BT13	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:16	Tour Eiffel	N 37 17.360	W 032 16.541	1695	MOORING RECOVERY BT13	Temperature sensor	M. Matabos
2028-1	08/06/2022	15:28	Tour Eiffel	N 37 17.337	W 032 16.541	1697	MOORING RECOVERY ANA8?	COLONISER	A. Colaco
2028-1	08/06/2022	15:32	Tour Eiffel	N 37 17.335	W 032 16.532	1697	MOORING RECOVERY ANABIOZ	COLONISER	A. Colaco
2028-1	08/06/2022	15:35	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA9?	COLONISER	A. Colaco
2028-1	08/06/2022	15:37	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 broken float	COLONISER	A. Colaco
2028-1	08/06/2022	15:40	Tour Eiffel	N 37 17.334	W 032 16.532	1697	MOORING RECOVERY ANA7 or 11, broken float	COLONISER	A. Colaco
2028-1	08/06/2022	15:42	Tour Eiffel	N 37 17.329	W 032 16.545	1697	MOORING RECOVERY COLONISERUR ANA5	COLONISER	A. Colaco
2028-1	08/06/2022	15:48	Tour Eiffel	N 37 17.336	W 032 16.534	1697	MOORING RECOVERY COLONISERUR ANA 6	COLONISER	A. Colaco
2029-2	09/06/2022	11:05	Montsegur	N 37 17.276	W 032 16.541	1702	RECOVERY BIOLUCKY in PBT2	COLONISER	C. Rommevaux
2029-2	09/06/2022	11:11	Montsegur	N 37 17.281	W 032 16.534	1702	RECOVERY bell DEAFS	Sequential sampler	V. Chavagnac
2029-2	09/06/2022	11:38	Montsegur	N 37 17.280	W 032 16.537	1702	RECOVERY Probe HTWN013	Temperature sensor	M. Cannat
2029-2	09/06/2022	11:50	Montsegur	N 37 17.283	W 032 16.536	1700	RECOVERY DEAFS	Sequential sampler	V. Chavagnac
2029-2	09/06/2022	13:52	Tour Eiffel	N 37 17.328	W 032 16.536	1696	RECOVERY CISICS deposited on SEAMON East	COLONISER	A. Godfroy
2029-2	09/06/2022	13:58	AISICS	N 37 17.340	W 032 16.538	1691	RECOVERY Probe HTWN21	Temperature sensor	M. Cannat
2029-2	09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY. COLONISER 3	COLONISER	A. Colaco
2029-2	09/06/2022	15:59	Tour Eiffel	N 37 17.338	W 032 16.539	1696	RECOVERY. COLONISER 6	COLONISER	A. Colaco
2030-3	12/06/2022	10:35	Tour Eiffel	N 37 17.320	W 032 16.540	1698	RECOVERY LTGrad1 Tour Eiffel	Temperature sensor	M. Cannat
2030-3	12/06/2022	10:38	Tour Eiffel	N 37 17.324	W 032 16.541	1698	RECOVERY HTNKE30001 Tour Eiffel	Temperature sensor	M. Cannat
2030-3	12/06/2022	10:40	Tour Eiffel	N 37 17.325	W 032 16.540	1698	RECOVERY LTGrad2 Tour Eiffel	Temperature sensor	M. Cannat
2030-3	12/06/2022	10:45	Tour Eiffel	N 37 17.318	W 032 16.540	1698	RECOVERY LTGrad10 Tour Eiffel	Temperature sensor	M. Cannat
2030-3	12/06/2022	11:01	Tour Eiffel	N 37 17.329	W 032 16.516	1704	RECOVERY LTGrad9 Tour Eiffel North	Temperature sensor	M. Cannat
2030-3	12/06/2022	11:02	Tour Eiffel	N 37 17.329	W 032 16.515	1704	RECOVERY HTNKE29012 Tour Eiffel North	Temperature sensor	M. Cannat
2030-3	12/06/2022	11:11	Tour Eiffel	N 37 17.353	W 032 16.517	1694	DEPLOYMENT HTNKE29020 Tour Eiffel North	Temperature sensor	M. Cannat
2030-3	12/06/2022	11:20	Tour Eiffel	N 37 17.349	W 032 16.534	1692	DEPLOYMENT LTGrad6 Tour Eiffel North	Temperature sensor	M. Cannat
2030-3	12/06/2022	12:20	White Castel	N 37 17.340	W 032 16.757	1702	RECOVERY HTW005 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	12:35	White Castel	N 37 17.374	W 032 16.866	1712	RECOVERY HTNKE38003 White Castle	Temperature sensor	M. Cannat

2030-3	12/06/2022	12:37	White Castel	N 37 17.376	W 032 16.865	1712	RECOVERY HTWN019 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	13:16	White Castel	N 37 17.384	W 032 16.861	1723	DEPLOYMENT HTWN013 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	13:24	White Castel	N 37 17.385	W 032 16.860	1724	DEPLOYMENT HTNKE29017 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	13:33	White Castel	N 37 17.384	W 032 16.860	1724	RECOVERY HTNKE29009 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	13:45	White Castel	N 37 17.380	W 032 16.869	1715	DEPLOYMENT HTNKE30012	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:06	White Castel	N 37 17.395	W 032 16.865	1723	RECOVERY HTNKE38002 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:10	White Castel	N 37 17.395	W 032 16.867	1722	DEPLOYMENT LTGrad8 White Castle	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:23	South Crystal	N 37 17.425	W 032 16.935	1723	RECOVERY HTNKE30002 South Crystal	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:29	South Crystal	N 37 17.425	W 032 16.935	1723	DEPLOYMENT HTNKE30011 South Crystal	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:31	South Crystal	N 37 17.424	W 032 16.934	1722	RECOVERY LTW017 South Crystal	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:36	South Crystal	N 37 17.425	W 032 16.935	1722	DEPLOYMENT LTW006 South Crystal	Temperature sensor	M. Cannat
2030-3	12/06/2022	14:59	Cypress hill	N 37 17.454	W 032 16.857	1739	RECOVERY HTNKE29016 Cyprès	Temperature sensor	M. Cannat
2030-3	12/06/2022	16:02	Tour Eiffel	N 37 17.327	W 032 16.548	1699	RECOVERY COLONISER Ana	Temperature sensor	M. Cannat
2031-4	13/06/2022	11:18	South Crystal	N 37 17.429	W 032 16.930	1722	RECOVERY Probe HTW08	Temperature sensor	M. Cannat
2031-4	13/06/2022	11:50	South Crystal	N 37 17.432	W 032 16.930	1721	DEPLOYMENT Probe HTW005	Temperature sensor	M. Cannat
2031-4	13/06/2022	12:30	South Crystal	N 37 17.441	W 032 16.910	1727	RECOVERY TCM3-3	Current meter	M. Cannat
2031-4	13/06/2022	12:52	Lucky strike	N 37 17.549	W 032 16.892	1729	RECOVERY JPPW	Pressure gauge	M. Cannat
2031-4	13/06/2022	16:04	Tour Eiffel				RECOVERY TCM3-B	Current meter	M. Matabos
2031-4	13/06/2022	16:13	Tour Eiffel				RECOVERY 1st COLONISER Ana	COLONISER	A. Colaco
2031-4	13/06/2022	16:14	Tour Eiffel				RECOVERY 2nd COLONISER Ana	COLONISER	A. Colaco
2031-4	13/06/2022	16:22	Tour Eiffel				RECOVERY TCM3-C	Current meter	M. Matabos
2032-5	15/06/2022	10:35	Montsegur	N 37 17.285	W 032 16.529	1703	RECOVERY HTNKE 29006	Temperature sensor	M. Cannat
2032-5	15/06/2022	10:50	Montsegur	N 37 17.286	W 032 16.529	1703	DEPLOYMENT HTNKE29016	Temperature sensor	M. Cannat
2032-5	15/06/2022	10:52	Montsegur	N 37 17.286	W 032 16.530	1702	RECOVERY Pomme C2bCg	Camera	P. Rodier
2032-5	15/06/2022	10:58	Montsegur	N 37 17.302	W 032 16.528	1703	RECOVERY TCM 3-1	Current meter	M. Cannat
2032-5	15/06/2022	12:21	Tour Eiffel	N 37 17.345	W 032 16.528	1693	RECOVERY TCM3-D	Current meter	M. Matabos
2032-5	15/06/2022	12:28	Tour Eiffel	N 37 17.336	W 032 16.523	1684	RECOVERY HTW004	Temperature sensor	M. Cannat
2032-5	15/06/2022	12:52	Tour Eiffel	N 37 17.282	W 032 16.532	1703	RECOVERY 1 Pomme (C1a ?)	Camera	P. Rodier
2032-5	15/06/2022	12:57	Tour Eiffel	N 37 17.282	W 032 16.530	1702	RECOVERY POMME C2aCg	Camera	P. Rodier
2032-5	15/06/2022	13:51	Tour Eiffel				DEPLOYMENT 1st COMBO	Incubation chamber	L. Michel
2032-5	15/06/2022	14:01	Tour Eiffel	N 37 17.348	W 032 16.534	1691	DEPLOYMENT 3rd COMBO	Incubation chamber	L. Michel
2032-5	15/06/2022	14:05	Tour Eiffel	N 37 17.348	W 032 16.535	1691	DEPLOYMENT 6thCOMBO	Incubation chamber	L. Michel
2032-5	15/06/2022	14:40	Tour Eiffel	N 37 17.345	W 032 16.540	1692	DEPLOYMENT COMBO 4	Incubation chamber	L. Michel
2032-5	15/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.531	1691	DEPLOYMENT COMBO 5	Incubation chamber	L. Michel
2033-6	16/06/2022	10:51	South Crystal	N 37 17.435	W 032 16.930	1721	RECOVERY HTW005	Temperature sensor	M. Cannat

2033-6	16/06/2022	11:21	White Castel	N 37 17.380	W 032 16.864	1711	DEPLOYMENT HTW005	Temperature sensor	M. Cannat
2033-6	16/06/2022	12:00	Tour Eiffel	N 37 17.355	W 032 16.542	1692	RECOVERY HTnkeXXXX	Temperature sensor	M. Cannat
2033-6	16/06/2022	12:35	Tour Eiffel	N 37 17.355	W 032 16.543	1692	DEPLOYMENT Probe HTnkeXXX	Temperature sensor	M. Cannat
2033-6	16/06/2022	14:50	Tour Eiffel	N 37 17.335	W 032 16.542	1699	RECOVERY LTgrad15	Temperature sensor	M. Cannat
2033-6	16/06/2022	14:57	Tour Eiffel	N 37 17.335	W 032 16.543	1699	DEPLOYMENT LTgrad1	Temperature sensor	M. Cannat
2033-6	16/06/2022	14:58	Tour Eiffel	N 37 17.335	W 032 16.543	1699	RECOVERY HTnke30007	Temperature sensor	M. Cannat
2033-6	16/06/2022	15:08	Tour Eiffel	N 37 17.335	W 032 16.542	1699	DEPLOYMENT HTnke 41003	Temperature sensor	M. Cannat
2033-6	16/06/2022	15:17	Tour Eiffel	N 37 17.336	W 032 16.542	1699	DEPLOYMENT LTgrad9	Temperature sensor	M. Cannat
2033-6	16/06/2022	15:24	Tour Eiffel	N 37 17.336	W 032 16.546	1700	RECOVERY HTnke30014	Temperature sensor	M. Cannat
2033-6	16/06/2022	15:51	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT HTnke38001	Temperature sensor	M. Cannat
2033-6	16/06/2022	16:00	Tour Eiffel	N 37 17.336	W 032 16.546	1699	DEPLOYMENT LTgrad12 deposited in grey sand, next to bacterial mats	Temperature sensor	M. Cannat
2033-6	16/06/2022	16:08	Tour Eiffel	N 37 17.336	W 032 16.544	1699	DEPLOYMENT LTgrad14	Temperature sensor	M. Cannat
2033-6	16/06/2022	16:14	Tour Eiffel	N 37 17.336	W 032 16.546	1700	DEPLOYMENT LTmetal13	Temperature sensor	M. Cannat
2034-7	17/06/2022	11:52	Sintra	N 37 17.510	W 032 16.548		RECOVERY POMME at quadrat I2	Camera	P. Rodier
2034-7	17/06/2022	12:00	Sintra	N 37 17.510	W 032 16.548		DEPLOYMENT 1er COLONISER ANA	COLONISER	A. Colaco
2034-7	17/06/2022	12:02	Sintra	N 37 17.510	W 032 16.547		DEPLOYMENT 2ème COLONISER ANA	COLONISER	A. Colaco
2034-7	17/06/2022	12:37	Sintra	N 37 17.529	W 032 16.500	1615	RECOVERY Probe HTNKE 30015	Temperature sensor	M. Cannat
2034-7	17/06/2022	13:04	Sintra	N 37 17.536	W 032 16.503		DEPLOYMENT of Probe 41001	Temperature sensor	M. Cannat
2035-8	18/06/2022	11:19	Lucky strike	N 37 16.993	W 032 14.859		RECOVERY JPPE	Pressure gauge	M. Cannat
2035-8	18/06/2022	11:26	Lucky strike	N 37 16.993	W 032 14.856		DEPLOYMENT of the new JPPE	Pressure gauge	M. Cannat
2035-8	18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859		DEPLOYMENT COLONISER ANA.	OLONISER	A. Colaco
2035-8	18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859		DEPLOYMENT COLONISER ANA.	OLONISER	A. Colaco
2035-8	18/06/2022	11:36	Lucky strike	N 37 16.994	W 032 14.859		DEPLOYMENT COLONISER ANA.	OLONISER	A. Colaco
2035-8	18/06/2022	14:37	Capelinhos	N 37 17.368	W 032 15.831		RECOVERY DEEP-SEEDS in GBT	OLONISER	J. Sarrazin
2035-8	18/06/2022	15:44	Capelinhos	N 37 17.363	W 032 15.834		RECOVERY Probe HTW019	Temperature sensor	M. Cannat
2036-9	19/06/2022	14:42	Tour Eiffel	N 37 17.345	W 032 16.535	1691	RECOVERY COMBO n°1	Incubation chamber	L. Michel
2036-9	19/06/2022	14:43	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY COMBO n°5	Incubation chamber	L. Michel
2036-9	19/06/2022	14:44	Tour Eiffel	N 37 17.344	W 032 16.535	1691	RECOVERY COMBO n°4	Incubation chamber	L. Michel
2036-9	19/06/2022	14:46	Tour Eiffel	N 37 17.344	W 032 16.534	1691	RECOVERY COMBO n°6	Incubation chamber	L. Michel
2036-9	19/06/2022	15:32	Lucky strike	N 37 17.309	W 032 16.529	1703	DEPLOYMENT TCM3-D Hydroctopus	Current meter	M. Matabos
2036-9	19/06/2022	15:46	AISICS	N 37 17.330	W 032 16.531	1692	DEPLOYMENT Probe HTWN021	Temperature sensor	M. Cannat
2037-10	20/06/2022	12:19	JPPW	N 37 17.513	W 032 16.838	1729	DEPLOYMENT JPPW	Jauge de Pression	M. Cannat
2037-10	20/06/2022	13:10	Lucky strike	N 37 17.469	W 032 16.798	1738	DEPLOYMENT P. Davis samples off SEAMON W	Agin materiel	P. Davis
2037-10	20/06/2022	13:17	Lucky strike	N 37 17.465	W 032 16.786	1738	DEPLOYMENT of the OBS off SEAMON	OBS	M. Cannat

2037-10	20/06/2022	13:33	Lucky strike	N 37 17.465	W 032 16.790	1739	DEPLOYMENT first COLONISER Ana	COLONISER	A. Colaco
2037-10	20/06/2022	13:34	Lucky strike	N 37 17.466	W 032 16.792	1739	DEPLOYMENT second COLONISER Ana	COLONISER	A. Colaco
2037-10	20/06/2022	13:35	Lucky strike	N 37 17.468	W 032 16.792	1740	DEPLOYMENT third COLONISER Ana	COLONISER	A. Colaco
2038-11	21/06/2022	14:01	Tour Eiffel	N 37 17.340	W 032 16.542	1697	RECOVERY Htnke29008.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:12	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Htnke 38003.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:14	Tour Eiffel	N 37 17.341	W 032 16.542	1696	RECOVERY Ltgrad12.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:20	Tour Eiffel	N 37 17.341	W 032 16.542	1696	DEPLOYMENT Ltgrad 10.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:27	Tour Eiffel	N 37 17.337	W 032 16.542	1697	RECOVERY LTI 1.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:40	Tour Eiffel	N 37 17.338	W 032 16.541	1697	DEPLOYMENT of LTW003.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:42	Tour Eiffel	N 37 17.339	W 032 16.541	1697	RECOVERY of Ltgrad 13.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:46	Tour Eiffel	N 37 17.339	W 032 16.541	1697	DEPLOYMENT Ltgrad 2.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:50	Tour Eiffel	N 37 17.339	W 032 16.547	1699	RECOVERY Ltgrad 14.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	DEPLOYMENT LTW020.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:53	Tour Eiffel	N 37 17.339	W 032 16.546	1699	RECOVERY Ltnke26004.	Temperature sensor	M. Cannat
2038-11	21/06/2022	14:58	Tour Eiffel				RECOVERY Htnke30005.	Temperature sensor	M. Cannat
2038-11	21/06/2022	15:02	Tour Eiffel	N 37 17.333	W 032 16.539	1697	DEPLOYMENT Htnke30002.	Temperature sensor	M. Cannat
2038-11	21/06/2022	15:04	Tour Eiffel	N 37 17.335	W 032 16.540	1697	RECOVERY LTW040.	Temperature sensor	M. Cannat
2038-11	21/06/2022	15:07	Tour Eiffel	N 37 17.335	W 032 16.539	1697	DEPLOYMENT LTW017.	Temperature sensor	M. Cannat
2038-11	21/06/2022	15:17	Tour Eiffel	N 37 17.302	W 032 16.537	1704	DEPLOYMENT of TCM3-1 between Tour Eiffel and Montségur, south of Hydroctopus.	Current meter	M. Cannat
2038-11	21/06/2022	15:42	Tour Eiffel	N 37 17.349	W 032 16.537	1691	DEPLOYMENT TCM3-D.	Current meter	M. Matabos
2038-11	21/06/2022	15:48	Tour Eiffel	N 37 17.354	W 032 16.532	1692	DEPLOYMENT TCM3-2.	Current meter	M. Cannat
2038-11	21/06/2022	16:09	Tour Eiffel	N 37 17.342	W 032 16.542	1694	DEPLOYMENT TCM3-B.	Current meter	M. Matabos
2038-11	21/06/2022	16:16	Tour Eiffel	N 37 17.342	W 032 16.524	1694	DEPLOYMENT TCM3-C.	Current meter	M. Matabos
2039-12	22/06/2022	12:46	Montsegur	N 37 17.279	W 032 16.527	1703	DEPLOYMENT POMME 3 sur quadrat C1B	Camera	P. Rodier
2039-12	22/06/2022	13:17	Montsegur	N 37 17.282	W 032 16.523	1704	DEPLOYMENT POMME 1 quadrat periphery MERCES	Camera	P. Rodier
2039-12	22/06/2022	13:18	Lucky strike	N 37 17.282	W 032 16.522	1704	RECOVERY POMME 8	Camera	P. Rodier
2039-12	22/06/2022	14:10	Montsegur	N 37 17.284	W 032 16.531	1703	DEPLOYMENT POMME 2 on quadrat ROA	Camera	P. Rodier
2040-13	23/06/2022	12:31	Tour Eiffel	N 37 17.324	W 032 16.540		DEPLOYMENT TEMPO	Camera	M.Matabos
2040-13	23/06/2022	15:44	Lucky strike	N 37 17.476	W 032 16.789		Seamon West, OBS DEPLOYMENT	OBS	M. Cannat
2040-13	23/06/2022	15:54	Lucky strike	N 37 17.469	W 032 16.790		DEPLOYMENT TCM	Current meter	M. Cannat
2041-14	24/06/2022	10:55	Montsegur	N 37 17.283	W 032 16.542	1704	DEPLOYMENT final DEAFS	Sequential sampler	V. Chavagnac
2041-14	24/06/2022	11:34	Montsegur	N 37 17.278	W 032 16.530	1702	DEPLOYMENT Biolucky at the DEAFS exit	COLONISER	C. Rommevaux
2041-14	24/06/2022	12:06	Tour Eiffel	N 37 17.344	W 032 16.530	1693	RECOVERY incubation chamber COMBO	Incubation bell	L. Michel
2041-14	24/06/2022	12:36	Montsegur	N 37 17.283	W 032 16.537	1704	RECOVERY Mesocosme	Mesocosm	M. Matabos

2041-14	24/06/2022	13:25	Tour Eiffel	N 37 17.334	W 032 16.522	1693	RECOVERY Probe LTW018	Temperature sensor	M. Cannat
2041-14	24/06/2022	13:27	Tour Eiffel	N 37 17.333	W 032 16.520	1694	RECOVERY Probe LTGrad5	Temperature sensor	M. Cannat
2041-14	24/06/2022	13:33	Tour Eiffel	N 37 17.338	W 032 16.515	1693	DEPLOYMENT Probe LT1	Temperature sensor	M. Cannat
2041-14	24/06/2022	13:37	Tour Eiffel	N 37 17.334	W 032 16.520	1693	DEPLOYMENT Probe LTGrad12	Temperature sensor	M. Cannat
2041-14	24/06/2022	13:51	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTGrad14	Temperature sensor	M. Cannat
2041-14	24/06/2022	13:56	Tour Eiffel	N 37 17.324	W 032 16.513	1704	DEPLOYMENT Probe LTNKE29006	Temperature sensor	M. Cannat
2041-14	24/06/2022	14:08	Tour Eiffel	N 37 17.328	W 032 16.519	1704	DEPLOYMENT LTMetal3	Temperature sensor	M. Cannat
2041-14	24/06/2022	14:20	Tour Eiffel	N 37 17.335	W 032 16.511	1703	DEPLOYMENT LTMetal11	Temperature sensor	M. Cannat
2042-15	25/06/2022	11 :54	Montségur				Hooking the lest to be recovered through the steel sling	Old lest	

7.5. List of Samples

7.5.1. Nagoya Protocol on Access and Benefit-sharing (ABS)

An e-mail has been sent to the Instituto da Conservação da Natureza e das Florestas to know the actual regulation in the Azores concerning the access to genetic resources in Portugal within the framework of the Nagoya Protocol (Convention on Biological Diversity). We received no answer to our inquiries regarding the evolution of regulations.

Below is the reply received from Paulo Carmo (Instituto da Conservação da Natureza e das Florestas, IP, Chefe da Divisão de Aplicação de Normativos) in 2019 and 2021.

"ABS regime

Presently there is no national legislation nor any regulatory requirements drawing from the Nagoya Protocol for access to genetic resources in mainland Portugal. As such, if samples are to be collected in mainland Portugal, there are no applicable prior informed consent requirements.

In case of access to genetic resources in the Autonomous Regions of Azores or Madeira, please contact the respective authorities in Azores (aida.mc.medeiros@azores.gov.pt ; Joao.MR.Gregorio@azores.gov.pt) or in Madeira (duartebarreto@gov-madeira.pt ; ifcn@madeira.gov.pt) whom will inform you on relevant regional legislation.

In the Autonomous Region of Azores, the collection of natural resources for scientific purposes is subject to Prior Informed Consent which should be requested by filling the form you can find here http://www.formstack.com/forms/GRA-Request_Access_Sampling_Scientific_Purposes .

Other relevant nature conservation legislation

Please also be informed for possible future ventures that, in situ collection of specimens is possible, although regulated in two situations:

- the collection of protected species – Irrespective of where they are collected, the collection species protected under Portuguese nature conservation legislation is subject to a permit;

- the collection of specimens (irrespective of any protection status) in classified/protected areas - Applicability of such legislation needs to be assessed on a case by case basis (depending on where species will be collected). Legal acts that create protected areas or their Land Spatial Plans, where they exist, determine the conditions applicable to activities within classified/protected areas, namely for the collection of specimens in those areas. As such, if the collection of material occurs within classified/protected areas, we will need to assess if the intended collection is allowed or subject to any specific conditioning and whether or not you need a permit/authorization.

Please contact Ms. Marina Sequeira (marina.sequeira@icnf.pt) to this effect in what concerns protected species/areas in mainland Portugal or the above mentioned regional authorities when sampling occurs in the Azores or Madeira territories."

The biological samples that were collected during the cruise will be used only to acquire fundamental knowledge on the temporal dynamics, the functioning and the resilience of hydrothermal ecosystems of the Lucky Strike area.

The list of these samples, the associated metadata, and the researchers responsible are compiled in a specific table below.

The samples will not be shared to any other team without the authorization of the chief scientist.

Any modification in the use of the samples (eg study on their economic valorization) will be reported.

7.5.2. List of Geochemical samples

PL	Date	Time	Locality	Latitude	Longitude	Depth (m)	Comment	
2028-1	08/06/2022	11:31	SEAMONW	N 37 17.474	W 032 16.793	1742	TRIGGERING NISKIN in the water column at Seamon W	M. Hubert
2029-2	09/06/2022	11:22	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE Ti4- Sample M22Flu04	V. Chavagnac
2029-2	09/06/2022	11:25	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE TI3. Sample M22Flu03	V. Chavagnac
2029-2	09/06/2022	11:29	Montsegur	N 37 17.284	W 032 16.535	1704	SAMPLE Ti2. Sample M22Flu02	V. Chavagnac
2029-2	09/06/2022	11:33	Montsegur	N 37 17.283	W 032 16.535	1704	SAMPLE Ti1. Sample M22Flu01	V. Chavagnac
2029-2	09/06/2022	13:00	Tour Eiffel	N 37 17.328	W 032 16.535	1695	SAMPLE Niskin	M. Hubert
2029-2	09/06/2022	14:20	AISICS	N 37 17.339	W 032 16.530	1691	SAMPLE TI5. Sample M22Flu05	V. Chavagnac
2029-2	09/06/2022	14:23	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE Ti7. Sample M22Flu07	V. Chavagnac
2029-2	09/06/2022	14:25	AISICS	N 37 17.341	W 032 16.528	1691	SAMPLE Ti 6. Sample M22Flu06	V. Chavagnac
2029-2	09/06/2022	14:28	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Ti8. Sample M22Flu08	V. Chavagnac
2029-2	09/06/2022	14:36	AISICS	N 37 17.340	W 032 16.527	1691	SAMPLE PLUME 2 Sample of fluid in the plume, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:43	AISICS	N 37 17.342	W 032 16.530	1691	SAMPLE PLUME 3 Sample of fluid in the plume, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:49	AISICS	N 37 17.342	W 032 16.529	1691	SAMPLE PLUME 4 Sample of fluid in the plume, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:56	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE PLUME 5 Sample of fluid in the plume, T 80-100°C	A. Godfroy
2029-2	09/06/2022	15:03	AISICS	N 37 17.343	W 032 16.534	1691	SAMPLE PLUME 6 Sample of fluid in the plume, T 80-100°C	A. Godfroy
2030-3	12/06/2022	10:15	Tour Eiffel	N 37 17.195	W 032 16.651	1650	SAMPLE NISKIN at SEAMON East	M.Hubert
2030-3	12/06/2022	15:57	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE suction sampler jar 1	C. Rommevaux
2030-3	12/06/2022	15:59	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE suction sampler jar 2	C. Rommevaux
2031-4	13/06/2022	11:34	South Crystal	N 37 17.431	W 032 16.931	1721	SAMPLE Titanium syringe 1	V. Chavagnac
2031-4	13/06/2022	11:39	South Crystal	N 37 17.430	W 032 16.931	1721	SAMPLE Titanium syringe 2	V. Chavagnac
2031-4	13/06/2022	11:43	South Crystal	N 37 17.431	W 032 16.930	1721	SAMPLE Titanium syringe 3	V. Chavagnac

2031-4	13/06/2022	11:45	South Crystal	N 37 17.430	W 032 16.931	1722	SAMPLE Titanium syringe 4	V. Chavagnac
2031-4	13/06/2022	14:16	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 1st bag plume	C. Rommevaux
2031-4	13/06/2022	14:20	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 2nd bag plume	C. Rommevaux
2031-4	13/06/2022	14:22	Lucky strike	N 37 17.533	W 032 16.796	1741	SAMPLE 3rd bag plume	C. Rommevaux
2031-4	13/06/2022	14:25	Lucky strike	N 37 17.534	W 032 16.795	1741	SAMPLE 4th bag plume	C. Rommevaux
2031-4	13/06/2022	14:56	Lucky strike	N 37 17.472	W 032 16.786	1740	SAMPLE Niskin Seamon West	M.Hubert
2031-4	13/06/2022	15:26	White Castel	N 37 17.378	W 032 16.868	1711	SAMPLE Titanium syringe 8	V. Chavagnac
2031-4	13/06/2022	15:28	White Castel	N 37 17.379	W 032 16.868	1711	SAMPLE Titanium syringe 7	V. Chavagnac
2031-4	13/06/2022	15:30	White Castel	N 37 17.380	W 032 16.869	1711	SAMPLE Titanium syringe 6	V. Chavagnac
2031-4	13/06/2022	15:34	White Castel	N 37 17.377	W 032 16.868	1711	SAMPLE Titanium syringe 5	V. Chavagnac
2033-6	16/06/2022	12:14	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 4	V. Chavagnac
2033-6	16/06/2022	12:19	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 3	V. Chavagnac
2033-6	16/06/2022	12:25	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 2	V. Chavagnac
2033-6	16/06/2022	12:30	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titanium syringe 1	V. Chavagnac
2033-6	16/06/2022	12:49	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 1 T 4.7°C	C. Rommevaux
2033-6	16/06/2022	12:55	Tour Eiffel	N 37 17.355	W 032 16.541	1692	SAMPLE PLUME Bag 2 at Plume 3 T 4.7°C	C. Rommevaux
2033-6	16/06/2022	13:00	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 3 at Plume 4 T 4.75°C	C. Rommevaux
2033-6	16/06/2022	13:04	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 4 at Plume 5 slowing down T 4.6°C	C. Rommevaux
2033-6	16/06/2022	13:25	Tour Eiffel	N 37 17.325	W 032 16.541	1698	SAMPLE Niskin	M. Hubert
2033-6	16/06/2022	15:36	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 5	V. Chavagnac
2033-6	16/06/2022	15:45	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titanium syringe 6	V. Chavagnac
2034-7	17/06/2022	11:33	Sintra	N 37 17.510	W 032 16.548		SAMPLE PIF in lquadrat I2	J. Sarrazin
2034-7	17/06/2022	12:11	Sintra	N 37 17.510	W 032 16.548		SAMPLE PLUME bag 6 on Colonisers	A. Colaco
2034-7	17/06/2022	12:50	Sintra	N 37 17.535	W 032 16.505		SAMPLE Titanium syringe 1	V. Chavagnac
2034-7	17/06/2022	12:52	Sintra	N 37 17.537	W 032 16.504		SAMPLE Titanium syringe 2	V. Chavagnac
2034-7	17/06/2022	12:56	Sintra	N 37 17.536	W 032 16.503		SAMPLE Titanium syringe 3	V. Chavagnac
2034-7	17/06/2022	12:59	Sintra	N 37 17.535	W 032 16.503		SAMPLE Titanium syringe 4	V. Chavagnac
2034-7	17/06/2022	14:15	Y3	N 37 17.512	W 032 16.673		SAMPLE Plume 1 on iron mats at Y3	C. Rommevaux
2034-7	17/06/2022	14:23	Y3	N 37 17.512	W 032 16.667		SAMPLE Plume 2 on iron mats at Y3.	C. Rommevaux
2034-7	17/06/2022	14:23	Y3				SAMPLE Plume 3 on iron mats at Y3	C. Rommevaux
2034-7	17/06/2022	14:23	Y3				SAMPLE Plume 4 on iron mats at Y3	C. Rommevaux
2034-7	17/06/2022	14:33	Y3	N 37 17.509	W 032 16.662		SAMPLE du Tapis de fer pour la PBT	C. Rommevaux
2034-7	17/06/2022	14:52	Y3	N 37 17.511	W 032 16.669		SAMPLE Titanium syringe 5	V. Chavagnac
2034-7	17/06/2022	14:54	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 6	V. Chavagnac
2034-7	17/06/2022	14:57	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 7	V. Chavagnac

2034-7	17/06/2022	14:59	Y3	N 37 17.509	W 032 16.665		SAMPLE Titanium syringe 8	V. Chavagnac
2035-8	18/06/2022	13:17	Capelinhos	N 37 17.368	W 032 15.834		SAMPLE TITANIUM BELL N°8	V. Chavagnac
2035-8	18/06/2022	13:21	Capelinhos	N 37 17.367	W 032 15.835		SAMPLE TITANIUM BELL N°7	V. Chavagnac
2035-8	18/06/2022	13:24	Capelinhos	N 37 17.368	W 032 15.836		SAMPLE TITANIUM BELL N°6	V. Chavagnac
2035-8	18/06/2022	13:27	Capelinhos	N 37 17.366	W 032 15.834		SAMPLE TITANIUM BELL N°5	V. Chavagnac
2035-08	18/06/2022	13:54	Capelinhos	N 37 17.362	W 032 15.832		SAMPLE PLUME at iron-rich mats Temperature = 4.6°C	C. Rommevaux
2035-08	18/06/2022	16:20	Capelinhos	N 37 17.359	W 032 15.833		SAMPLE TITANIUM N°4	V. Chavagnac
2035-08	18/06/2022	16:21	Capelinhos	N 37 17.359	W 032 15.832		SAMPLE TITANIUM N°3	V. Chavagnac
2035-08	18/06/2022	16:22	Capelinhos	N 37 17.358	W 032 15.832		SAMPLE TITANIUM N°2	V. Chavagnac
2035-08	18/06/2022	16:24	Capelinhos	N 37 17.358	W 032 15.833		SAMPLE TITANIUM N°1	V. Chavagnac
2036-09	19/06/2022	12:31	Montsegur	N 37 17.273	W 032 16.534	1701	SAMPLE titanium syringe n°1	V. Chavagnac
2036-09	19/06/2022	12:32	Montsegur	N 37 17.272	W 032 16.535	1701	SAMPLE titanium syringe n°2	V. Chavagnac
2036-09	19/06/2022	12:35	Montsegur	N 37 17.272	W 032 16.534	1701	SAMPLE titanium syringe n°3	V. Chavagnac
2036-09	19/06/2022	12:38	Montsegur	N 37 17.272	W 032 16.536	1701	SAMPLE titanium syringe n°4	V. Chavagnac
2036-09	19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.530	1703	SAMPLE syringe n°1 PIF filtered at quadrat C2bcg middle point	J. Sarrazin
2036-09	19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE syringe n°2 PIF non filtered at quadrat C2bcg middle point	J. Sarrazin
2036-09	19/06/2022	13:12	Montsegur	N 37 17.283	W 032 16.537	1703	SAMPLE PIF syringe n°3 non filtered at middle point quadrat C1bcg	J. Sarrazin
2036-09	19/06/2022	13:12	Montsegur	N 37 17.281	W 032 16.534	1703	SAMPLE syringe n°4 PIF at middle point, quadrat C1bcg, selected filter while there is no filter...	J. Sarrazin
2036-09	19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.532	1703	SAMPLE syringe PIF n°5 filtered at middle point quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:34	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF syringe n°6 non filtered at middle point quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:36	Montsegur	N 37 17.283	W 032 16.531	1703	SAMPLE PIF syringe n°8 filtered at middle point quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:55	Montsegur	N 37 17.281	W 032 16.532	1703	SAMPLE syringe n°9 PIF non filtered middle point quadrat C2bcg	J. Sarrazin
2036-09	19/06/2022	13:55	Montsegur	N 37 17.282	W 032 16.532	1703	SAMPLE syringe n°10 PIF filtered at middle point quadrat C2bcg	J. Sarrazin
2036-09	19/06/2022	15:48	AISICS	N 37 17.331	W 032 16.533	1692	SAMPLE PLUME bag 1 line 2, Température: fluctuation between 75°C and 115°C	A. Godfroy
2036-09	19/06/2022	15:52	AISICS	N 37 17.330	W 032 16.532	1692	SAMPLE PLUME bag 2 line, 85° and 100°C	A. Godfroy
2037-10	20/06/2022	11:00	Y3	N 37 17.461	W 032 17.071	1666	SAMPLE TITANIUM BELL 6	V. Chavagnac
2037-10	20/06/2022	11:06	Y3	N 37 17.494	W 032 16.892	1680	SAMPLE TITANIUM BELL 8	V. Chavagnac
2037-10	20/06/2022	11:12	Y3	N 37 17.510	W 032 16.718	1730	SAMPLE TITANIUM BELL 7	V. Chavagnac
2037-10	20/06/2022	11:17	Y3	N 37 17.503	W 032 16.676	1728	SAMPLE TITANIUM BELL 5	V. Chavagnac
2037-10	20/06/2022	12:43	Lucky strike	N 37 17.547	W 032 16.894	1728	SAMPLE Niskin	M. Hubert
2037-10	20/06/2022	13:37	Lucky strike	N 37 17.467	W 032 16.789	1738	SAMPLE PLUME on Colonisers	C. Rommevaux
2037-10	20/06/2022	15:33	Crystal	N 37 17.470	W 032 16.790	1742	SAMPLE Titanium 1	V. Chavagnac
2037-10	20/06/2022	15:36	Crystal	N 37 17.469	W 032 16.790	1742	SAMPLE Titanium 2	V. Chavagnac
2038-11	21/06/2022	10:42	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 1. Smoker DEAFs before deployment: Sample M22Flu53.	V. Chavagnac

2038-11	21/06/2022	10:44	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanium syringe 2. Smoker DEAFs before deployment: Sample M22Flu54.	V. Chavagnac
2038-11	21/06/2022	10:45	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titanum syringe 3. A high number of shrimp and crabs around. Smoker DEAFs before deployment: Sample M22Flu55.	V. Chavagnac
2038-11	21/06/2022	10:48	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titanium syringe 4. Inlet broken. Smoker DEAFs before deployment: Sample M22Flu56.	V. Chavagnac
2038-11	21/06/2022	13:13	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 5 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu57.	V. Chavagnac
2038-11	21/06/2022	13:15	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titanium syringe 6 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu58.	V. Chavagnac
2038-11	21/06/2022	13:17	Montsegur	N 37 17.281	W 032 16.536	1702	SAMPLE Titanium syringe 7 at ex-DEAFs. Smoker ex-DEAFs: Sample M22Flu59.	V. Chavagnac
2038-11	21/06/2022	13:20	Montsegur	N 37 17.281	W 032 16.536	1701	SAMPLE Titanium syringe 8 at ex-DEAFs. Smoker ex-DEAFs : Sample M22Flu60.	V. Chavagnac
2039-12	22/06/2022	12:24	Montsegur	N 37 17.277	W 032 16.530	1703	SAMPLE PIF filtered, syringe #1 quadrat C1B	J. Sarrazin
2039-12	22/06/2022	12:28	Montsegur	N 37 17.277	W 032 16.528	1703	SAMPLE PIF non-filtered, syringe #2 quadrat C1B	J. Sarrazin
2039-12	22/06/2022	12:56	Montsegur	N 37 17.282	W 032 16.520	1704	SAMPLE PIF filtered, quadrat MERCES periphery, syringe #3	J. Sarrazin
2039-12	22/06/2022	12:59	Montsegur	N 37 17.282	W 032 16.522	1704	SAMPLE PIF non-filtered, quadrat MERCES periphery, syringe #4	J. Sarrazin
2039-12	22/06/2022	13:49	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF at quadrat R0A (centre), filtered, syringe #5	J. Sarrazin
2039-12	22/06/2022	13:51	Montsegur	N 37 17.281	W 032 16.528	1703	SAMPLE PIF, quadrat ROA, without filter, syringe #6	J. Sarrazin
2039-12	22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF at quadrat C2A (centre), without filter, syringe #7	J. Sarrazin
2039-12	22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF sur quadrat C2A (centre), filtered, syringe #8	J. Sarrazin
2039-12	22/06/2022	14:45	Montsegur	N 37 17.284	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), no filter, syringe #9	J. Sarrazin
2039-12	22/06/2022	14:45	Montsegur	N 37 17.283	W 032 16.530	1703	SAMPLE PIF at quadrat R1 (centre), filter, syringe #10	J. Sarrazin
2039-12	22/06/2022	14:57	Montsegur	N 37 17.287	W 032 16.535	1704	SAMPLE PIF at quadrat C1b_cg (centre), no filter, syringe #11	J. Sarrazin
2039-12	22/06/2022	14:58	Montsegur	N 37 17.287	W 032 16.534	1704	SAMPLE PIF at quadrat C1b_cg (centre), filter, syringe #12	J. Sarrazin
2039-12	22/06/2022	15:52	Tour Eiffel	N 37 17.323	W 032 16.540	1696	SAMPLE PIF in TEMPO area, filtred, syringe #13	J. Sarrazin
2039-12	22/06/2022	15:55	Tour Eiffel	N 37 17.324	W 032 16.536	1695	SAMPLE PIF in TEMPO area, non filtred, syringe #14	J. Sarrazin
2039-12	22/06/2022	16:01	Tour Eiffel	N 37 17.329	W 032 16.544	1696	SAMPLE PIF in TEMPO area, filtred, syringe #15	J. Sarrazin
2039-12	22/06/2022	16:03	Tour Eiffel	N 37 17.330	W 032 16.542	1696	SAMPLE PIF in TEMPO area, non filtred, syringe #16	J. Sarrazin
2040-13	23/06/2022	15:51	Lucky strike	N 37 17.471	W 032 16.784		SAMPLE Niskin	M. Hubert
2041-14	24/06/2022	11:08	Montsegur	N 37 17.284	W 032 16.534	1702	SAMPLE PLUME Bag 1 M22-Biolucky-Plume µBio 78°C	C. Rommevaux
2041-14	24/06/2022	11:10	Montsegur	N 37 17.286	W 032 16.539	1702	SAMPLE PLUME Bag 2 M22-Biolucky-Fe Iso InS1 Temperature 65-137°C	C. Rommevaux
2041-14	24/06/2022	11:16	Montsegur	N 37 17.271	W 032 16.541	1702	SAMPLE PLUME Bag 3 M22-Biolucky-Fe Iso InS2 Température 40-50°C	C. Rommevaux
2041-14	24/06/2022	11:54	Tour Eiffel	N 37 17.320	W 032 16.527	1696	SAMPLE Niskin Niskin	M. Hubert
2041-14	24/06/2022	15:17	Isabel	N 37 17.389	W 032 16.631	1681	SAMPLE Ti4	V. Chavagnac
2041-14	24/06/2022	15:18	Isabel	N 37 17.389	W 032 16.633	1681	SAMPLE Ti3	V. Chavagnac
2041-14	24/06/2022	15:21	Isabel	N 37 17.390	W 032 16.636	1681	SAMPLE Ti2	V. Chavagnac
2041-14	24/06/2022	15:23	Isabel	N 37 17.388	W 032 16.632	1681	SAMPLE Ti1	V. Chavagnac
2042-15	25/06/2022	13:54	Capelinhos	N 37 17.357	W 032 15.833		SAMPLE titanium syringe n°5	V. Chavagnac

2042-15	25/06/2022	13:56	Capelinhos	N 37 17.357	W 032 15.830		SAMPLE titanium syringe n°6	V. Chavagnac
2042-15	25/06/2022	13:59	Capelinhos	N 37 17.360	W 032 15.827		SAMPLE titanium syringe n°7	V. Chavagnac
2042-15	25/06/2022	14:04	Capelinhos	N 37 17.358	W 032 15.831		SAMPLE titanium syringe n°8	V. Chavagnac
PL	Date	Time	Locality	Latitude	Longitude	Depth (m)	Comment	
2028-1	08/06/2022	11:31	SEAMONW	N 37 17.474	W 032 16.793	1742	SAMPLE NISKIN en pleine eau devant Seamon W	M. Hubert
2029-2	09/06/2022	11:22	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE Ti4- Sample M22Flu04	V. Chavagnac
2029-2	09/06/2022	11:25	Montsegur	N 37 17.282	W 032 16.535	1705	SAMPLE TI3. Sample M22Flu03	V. Chavagnac
2029-2	09/06/2022	11:29	Montsegur	N 37 17.284	W 032 16.535	1704	SAMPLE Ti2. Sample M22Flu02	V. Chavagnac
2029-2	09/06/2022	11:33	Montsegur	N 37 17.283	W 032 16.535	1704	SAMPLE Ti1. Sample M22Flu01	V. Chavagnac
2029-2	09/06/2022	13:00	Tour Eiffel	N 37 17.328	W 032 16.535	1695	SAMPLE Niskin	M. Hubert
2029-2	09/06/2022	14:20	AISICS	N 37 17.339	W 032 16.530	1691	SAMPLE TI5. Sample M22Flu05	V. Chavagnac
2029-2	09/06/2022	14:23	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE Ti7. Sample M22Flu07	V. Chavagnac
2029-2	09/06/2022	14:25	AISICS	N 37 17.341	W 032 16.528	1691	SAMPLE Ti 6. Sample M22Flu06	V. Chavagnac
2029-2	09/06/2022	14:28	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Ti8. Sample M22Flu08	V. Chavagnac
2029-2	09/06/2022	14:36	AISICS	N 37 17.340	W 032 16.527	1691	SAMPLE PLUME 2 Sample de fluide in le panache, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:43	AISICS	N 37 17.342	W 032 16.530	1691	SAMPLE PLUME 3 Sample de fluide in le panache, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:49	AISICS	N 37 17.342	W 032 16.529	1691	SAMPLE PLUME 4 Sample de fluide in le panache, T 80-100°C	A. Godfroy
2029-2	09/06/2022	14:56	AISICS	N 37 17.341	W 032 16.530	1691	SAMPLE PLUME 5 Sample de fluide in le panache, T 80-100°C	A. Godfroy
2029-2	09/06/2022	15:03	AISICS	N 37 17.343	W 032 16.534	1691	SAMPLE PLUME 6 Sample de fluide in le panache, T 80-100°C	A. Godfroy
2030-3	12/06/2022	10:15	Tour Eiffel	N 37 17.195	W 032 16.651	1650	SAMPLE NISKIN à SEAMON East	M.Hubert
2030-3	12/06/2022	15:57	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE Bag aspi 1	C. Rommevaux
2030-3	12/06/2022	15:59	Tour Eiffel	N 37 17.327	W 032 16.545	1699	SAMPLE Bag aspi 2	C. Rommevaux
2031-4	13/06/2022	11:34	South Crystal	N 37 17.431	W 032 16.931	1721	SAMPLE Titanium syringe 1	V. Chavagnac
2031-4	13/06/2022	11:39	South Crystal	N 37 17.430	W 032 16.931	1721	SAMPLE Titanium syringe 2	V. Chavagnac
2031-4	13/06/2022	11:43	South Crystal	N 37 17.431	W 032 16.930	1721	SAMPLE Titanium syringe 3	V. Chavagnac
2031-4	13/06/2022	11:45	South Crystal	N 37 17.430	W 032 16.931	1722	SAMPLE Titanium syringe 4	V. Chavagnac
2031-4	13/06/2022	14:16	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 1ère bag plume	C. Rommevaux
2031-4	13/06/2022	14:20	Lucky strike	N 37 17.534	W 032 16.797	1741	SAMPLE 2ème bag plume	C. Rommevaux
2031-4	13/06/2022	14:22	Lucky strike	N 37 17.533	W 032 16.796	1741	SAMPLE 3ème bag plume	C. Rommevaux
2031-4	13/06/2022	14:25	Lucky strike	N 37 17.534	W 032 16.795	1741	SAMPLE 4ème bag plume	C. Rommevaux
2031-4	13/06/2022	14:56	Lucky strike	N 37 17.472	W 032 16.786	1740	SAMPLE Niskin Seamon West	M.Hubert
2031-4	13/06/2022	15:26	White Castel	N 37 17.378	W 032 16.868	1711	SAMPLE Titanium syringe 8	V. Chavagnac
2031-4	13/06/2022	15:28	White Castel	N 37 17.379	W 032 16.868	1711	SAMPLE Titanium syringe 7	V. Chavagnac
2031-4	13/06/2022	15:30	White Castel	N 37 17.380	W 032 16.869	1711	SAMPLE Titanium syringe 6	V. Chavagnac
2031-4	13/06/2022	15:34	White Castel	N 37 17.377	W 032 16.868	1711	SAMPLE Titanium syringe 5	V. Chavagnac

2032-5							TITANIUM SYRINGES Isabel ?	
2033-6	16/06/2022	12:14	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titane 4	V. Chavagnac
2033-6	16/06/2022	12:19	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titane 3	V. Chavagnac
2033-6	16/06/2022	12:25	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titane 2	V. Chavagnac
2033-6	16/06/2022	12:30	Tour Eiffel	N 37 17.355	W 032 16.543	1692	SAMPLE Titane 1	V. Chavagnac
2033-6	16/06/2022	12:49	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 1 T 4.7°C	C. Rommevaux
2033-6	16/06/2022	12:55	Tour Eiffel	N 37 17.355	W 032 16.541	1692	SAMPLE PLUME Bag 2 sur Plume 3 T 4.7°C	C. Rommevaux
2033-6	16/06/2022	13:00	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 3 sur Plume 4 T 4.75°C	C. Rommevaux
2033-6	16/06/2022	13:04	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE PLUME bag 4 sur Plume 5 réduction vitesse T 4.6°C	C. Rommevaux
2033-6	16/06/2022	13:25	Tour Eiffel	N 37 17.325	W 032 16.541	1698	SAMPLE Niskin	M. Hubert
2033-6	16/06/2022	15:36	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titane 5 déclenchée	V. Chavagnac
2033-6	16/06/2022	15:45	Tour Eiffel	N 37 17.336	W 032 16.546	1700	SAMPLE Titane 6 déclenchée	V. Chavagnac
2034-7	17/06/2022	11:33	Sintra	N 37 17.510	W 032 16.548		SAMPLE PIF in le quadrat I2	J. Sarrazin
2034-7	17/06/2022	12:11	Sintra	N 37 17.510	W 032 16.548		SAMPLE PLUME bag 6 sur les Colonisers	A. Colaco
2034-7	17/06/2022	12:50	Sintra	N 37 17.535	W 032 16.505		SAMPLE Titanium syringe 1	V. Chavagnac
2034-7	17/06/2022	12:52	Sintra	N 37 17.537	W 032 16.504		SAMPLE Titanium syringe 2	V. Chavagnac
2034-7	17/06/2022	12:56	Sintra	N 37 17.536	W 032 16.503		SAMPLE Titanium syringe 3	V. Chavagnac
2034-7	17/06/2022	12:59	Sintra	N 37 17.535	W 032 16.503		SAMPLE Titanium syringe 4	V. Chavagnac
2034-7	17/06/2022	14:15	Y3	N 37 17.512	W 032 16.673		SAMPLE Plume 1 sur le Tapis de fer à Y3	C. Rommevaux
2034-7	17/06/2022	14:23	Y3	N 37 17.512	W 032 16.667		SAMPLE Plume 2 sur tapis Fer Y3.	C. Rommevaux
2034-7	17/06/2022	14:23	Y3				SAMPLE Plume 3 sur le Tapis de fer à Y3	C. Rommevaux
2034-7	17/06/2022	14:23	Y3				SAMPLE Plume 4 sur le Tapis de fer à Y3	C. Rommevaux
2034-7	17/06/2022	14:33	Y3	N 37 17.509	W 032 16.662		SAMPLE du Tapis de fer pour la PBT	C. Rommevaux
2034-7	17/06/2022	14:52	Y3	N 37 17.511	W 032 16.669		SAMPLE Titanium syringe 5	V. Chavagnac
2034-7	17/06/2022	14:54	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 6	V. Chavagnac
2034-7	17/06/2022	14:57	Y3	N 37 17.512	W 032 16.667		SAMPLE Titanium syringe 7	V. Chavagnac
2034-7	17/06/2022	14:59	Y3	N 37 17.509	W 032 16.665		SAMPLE Titanium syringe 8	V. Chavagnac
2035-8	18/06/2022	13:17	Capelinhos	N 37 17.368	W 032 15.834		SAMPLE TITANIUM BELL N°8	V. Chavagnac
2035-8	18/06/2022	13:21	Capelinhos	N 37 17.367	W 032 15.835		SAMPLE TITANIUM BELL N°7	V. Chavagnac
2035-8	18/06/2022	13:24	Capelinhos	N 37 17.368	W 032 15.836		SAMPLE TITANIUM BELL N°6	V. Chavagnac
2035-8	18/06/2022	13:27	Capelinhos	N 37 17.366	W 032 15.834		SAMPLE TITANIUM BELL N°5	V. Chavagnac
2035-8	18/06/2022	13:54	Capelinhos	N 37 17.362	W 032 15.832		SAMPLE PLUME sur iron-rich microbial matsTempérature = 4,6°C	C. Rommevaux
2035-8	18/06/2022	16:20	Capelinhos	N 37 17.359	W 032 15.833		SAMPLE TITANE N°4	V. Chavagnac
2035-8	18/06/2022	16:21	Capelinhos	N 37 17.359	W 032 15.832		SAMPLE TITANE N°3	V. Chavagnac
2035-8	18/06/2022	16:22	Capelinhos	N 37 17.358	W 032 15.832		SAMPLE TITANE N°2	V. Chavagnac

2035-8	18/06/2022	16:24	Capelinhos	N 37 17.358	W 032 15.833		SAMPLE TITANE N°1	V. Chavagnac
2036-09	19/06/2022	12:31	Montsegur	N 37 17.273	W 032 16.534	1701	SAMPLE titane n°1	V. Chavagnac
2036-09	19/06/2022	12:32	Montsegur	N 37 17.272	W 032 16.535	1701	SAMPLE titane n°2	V. Chavagnac
2036-09	19/06/2022	12:35	Montsegur	N 37 17.272	W 032 16.534	1701	SAMPLE titane n°3	V. Chavagnac
2036-09	19/06/2022	12:38	Montsegur	N 37 17.272	W 032 16.536	1701	SAMPLE titane n°4	V. Chavagnac
2036-09	19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.530	1703	SAMPLE seringue n°1 PIF filtrée quadrat C2bcg point milieu	J. Sarrazin
2036-09	19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE Seringue n°2 PIF non filtrée sur quadrat C2bcg point milieu	J. Sarrazin
2036-09	19/06/2022	13:12	Montsegur	N 37 17.283	W 032 16.537	1703	SAMPLE PIF seringue n°3 sans filtre sur point milieu quadrat C1bcg	J. Sarrazin
2036-09	19/06/2022	13:12	Montsegur	N 37 17.281	W 032 16.534	1703	SAMPLE seringue n°4 PIF sur point milieu quadrat C1bcg, sélection filtre alors qu'il n'y a pas de filtre...	J. Sarrazin
2036-09	19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.532	1703	SAMPLE seringue PIF n°5 filtré sur point milieu quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:34	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF seringue n°6 non filtrée sur point milieu quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:36	Montsegur	N 37 17.283	W 032 16.531	1703	SAMPLE PIF seringue n°8 filtrée sur point milieu quadrat R1	J. Sarrazin
2036-09	19/06/2022	13:55	Montsegur	N 37 17.281	W 032 16.532	1703	SAMPLE seringue n°9 PIF sans filtre sur point milieu quadrat C2bcg	J. Sarrazin
2036-09	19/06/2022	13:55	Montsegur	N 37 17.282	W 032 16.532	1703	SAMPLE seringue n°10 PIF filtrée sur point milieu quadrat C2bcg	J. Sarrazin
2036-09	19/06/2022	15:48	AISICS	N 37 17.331	W 032 16.533	1692	SAMPLE PLUME bag 1 voie 2, Température: fluctuation entre 75°C et 115°C	A. Godfroy
2036-09	19/06/2022	15:52	AISICS	N 37 17.330	W 032 16.532	1692	SAMPLE PLUME bag 2 voie 3, 85° et 100°C	A. Godfroy
2037-10	20/06/2022	11:00	Y3	N 37 17.461	W 032 17.071	1666	SAMPLE TITANIUM BELL 6	V. Chavagnac
2037-10	20/06/2022	11:06	Y3	N 37 17.494	W 032 16.892	1680	SAMPLE TITANIUM BELL 8	V. Chavagnac
2037-10	20/06/2022	11:12	Y3	N 37 17.510	W 032 16.718	1730	SAMPLE TITANIUM BELL 7	V. Chavagnac
2037-10	20/06/2022	11:17	Y3	N 37 17.503	W 032 16.676	1728	SAMPLE TITANIUM BELL 5	V. Chavagnac
2037-10	20/06/2022	12:43	Lucky strike	N 37 17.547	W 032 16.894	1728	SAMPLE Niskin	M. Hubert
2037-10	20/06/2022	13:37	Lucky strike	N 37 17.467	W 032 16.789	1738	SAMPLE PLUME sur les Colonisers	C. Rommevaux
2037-10	20/06/2022	15:33	Crystal	N 37 17.470	W 032 16.790	1742	SAMPLE Titane 1	V. Chavagnac
2037-10	20/06/2022	15:36	Crystal	N 37 17.469	W 032 16.790	1742	SAMPLE Titane 2	V. Chavagnac
2038-11	21/06/2022	10:42	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titane 1. Fumeur de DEAFs avant mise en place : Sample M22Flu53.	V. Chavagnac
2038-11	21/06/2022	10:44	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titane 2. Fumeur de DEAFs avant mise en place : Sample M22Flu54.	V. Chavagnac
2038-11	21/06/2022	10:45	Montsegur	N 37 17.279	W 032 16.539	1703	SAMPLE Titane 3. Nombreuses crevettes et crabes autour. Fumeur de DEAFs avant mise en place : Sample M22Flu55.	V. Chavagnac
2038-11	21/06/2022	10:48	Montsegur	N 37 17.279	W 032 16.539	1702	SAMPLE Titane 4. Canule cassée. Fumeur de DEAFs avant mise en place : Sample M22Flu56.	V. Chavagnac
2038-11	21/06/2022	13:13	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titane 5 sur ex-DEAFs. Fumeur de ex-DEAFs : Sample M22Flu57.	V. Chavagnac
2038-11	21/06/2022	13:15	Montsegur	N 37 17.281	W 032 16.537	1702	SAMPLE Titane 6. Fumeur de ex-DEAFs : Sample M22Flu58.	V. Chavagnac
2038-11	21/06/2022	13:17	Montsegur	N 37 17.281	W 032 16.536	1702	SAMPLE Titane 7. Fumeur de ex-DEAFs : Sample M22Flu59.	V. Chavagnac
2038-11	21/06/2022	13:20	Montsegur	N 37 17.281	W 032 16.536	1701	SAMPLE Titane 8. Fumeur de ex-DEAFs : Sample M22Flu60.	V. Chavagnac

2039-12	22/06/2022	12:24	Montsegur	N 37 17.277	W 032 16.530	1703	SAMPLE PIF filtré, seringue #1 quadrat C1B	J. Sarrazin
2039-12	22/06/2022	12:28	Montsegur	N 37 17.277	W 032 16.528	1703	SAMPLE PIF non-filtré, seringue #2 quadrat C1B	J. Sarrazin
2039-12	22/06/2022	12:56	Montsegur	N 37 17.282	W 032 16.520	1704	SAMPLE PIF filtré, quadrat MERCES périphérie, seringue #3	J. Sarrazin
2039-12	22/06/2022	12:59	Montsegur	N 37 17.282	W 032 16.522	1704	SAMPLE PIF non-filtré, quadrat MERCES périphérie, seringue #4	J. Sarrazin
2039-12	22/06/2022	13:49	Montsegur	N 37 17.282	W 032 16.531	1703	SAMPLE PIF sur quadrat R0A (centre), filtré, seringue 5	J. Sarrazin
2039-12	22/06/2022	13:51	Montsegur	N 37 17.281	W 032 16.528	1703	SAMPLE PIF, quadrat ROA, sans filtre, seringue #6	J. Sarrazin
2039-12	22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF sur quadrat C2A (centre), sans filtre, seringue #7	J. Sarrazin
2039-12	22/06/2022	14:18	Montsegur	N 37 17.285	W 032 16.531	1703	SAMPLE PIF sur quadrat C2A (centre), filtré, seringue #8	J. Sarrazin
2039-12	22/06/2022	14:45	Montsegur	N 37 17.284	W 032 16.530	1703	SAMPLE PIF sur quadrat R1 (centre), sans filtre, seringue #9	J. Sarrazin
2039-12	22/06/2022	14:45	Montsegur	N 37 17.283	W 032 16.530	1703	SAMPLE PIF sur quadrat R1 (centre), filtré, seringue #10	J. Sarrazin
2039-12	22/06/2022	14:57	Montsegur	N 37 17.287	W 032 16.535	1704	SAMPLE PIF sur quadrat C1b_cg (centre), sans filtre, seringue #11	J. Sarrazin
2039-12	22/06/2022	14:58	Montsegur	N 37 17.287	W 032 16.534	1704	SAMPLE PIF sur quadrat C1b_cg (centre), filtré, seringue #12	J. Sarrazin
2039-12	22/06/2022	15:52	Tour Eiffel	N 37 17.323	W 032 16.540	1696	SAMPLE PIF sur zone TEMPO, filtré, seringue #13	J. Sarrazin
2039-12	22/06/2022	15:55	Tour Eiffel	N 37 17.324	W 032 16.536	1695	SAMPLE PIF sur zone TEMPO, sans filtre, seringue #14	J. Sarrazin
2039-12	22/06/2022	16:01	Tour Eiffel	N 37 17.329	W 032 16.544	1696	SAMPLE PIF sur zone TEMPO, filtré, seringue #15	J. Sarrazin
2039-12	22/06/2022	16:03	Tour Eiffel	N 37 17.330	W 032 16.542	1696	SAMPLE PIF sur zone TEMPO, sans filtre, seringue #16	J. Sarrazin
2040-13	23/06/2022	15:51	Lucky strike	N 37 17.471	W 032 16.784		SAMPLE Niskin Niskin	M. Hubert
2041-14	24/06/2022	11:08	Montsegur	N 37 17.284	W 032 16.534	1702	SAMPLE PLUME Bag 1 M22-Biolucky-Plume µBio 78°C	C. Rommevaux
2041-14	24/06/2022	11:10	Montsegur	N 37 17.286	W 032 16.539	1702	SAMPLE PLUME Bag 2 M22-Biolucky-Fe Iso InS1 Temperature 65-137°C	C. Rommevaux
2041-14	24/06/2022	11:16	Montsegur	N 37 17.271	W 032 16.541	1702	SAMPLE PLUME Bag 3 M22-Biolucky-Fe Iso InS2 Température 40-50°C	C. Rommevaux
2041-14	24/06/2022	11:54	Tour Eiffel	N 37 17.320	W 032 16.527	1696	SAMPLE Niskin Niskin	M. Hubert
2041-14	24/06/2022	15:17	Isabel	N 37 17.389	W 032 16.631	1681	SAMPLE Ti4	V. Chavagnac
2041-14	24/06/2022	15:18	Isabel	N 37 17.389	W 032 16.633	1681	SAMPLE Ti3	V. Chavagnac
2041-14	24/06/2022	15:21	Isabel	N 37 17.390	W 032 16.636	1681	SAMPLE Ti2	V. Chavagnac
2041-14	24/06/2022	15:23	Isabel	N 37 17.388	W 032 16.632	1681	SAMPLE Ti1	V. Chavagnac
2042-15	25/06/2022	13:54	Capelinhos	N 37 17.357	W 032 15.833		SAMPLE titanium syringe n°5	V. Chavagnac
2042-15	25/06/2022	13:56	Capelinhos	N 37 17.357	W 032 15.830		SAMPLE titanium syringe n°6	V. Chavagnac
2042-15	25/06/2022	13:59	Capelinhos	N 37 17.360	W 032 15.827		SAMPLE titanium syringe n°7	V. Chavagnac
2042-15	25/06/2022	14:04	Capelinhos	N 37 17.358	W 032 15.831		SAMPLE titanium syringe n°8	V. Chavagnac

7.5.3. Liste of Biological samples/Microbiology

PL	Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment	Correspondant
2029-02	09/06/2022	14:08	AISICS	N 37 17.340	W 032 16.528	1691	SAMPLE Aisics chimney in PBT1	A. Godfroy
2031-04	13/06/2022	14:38	Lucky strike	N 37 17.533	W 032 16.795	1741	SAMPLE iron-riched microbial mats PBT	C. Rommevaux
2032-05	15/06/2022	12:11	Tour Eiffel	N 37 17.342	W 032 16.529	1691	SAMPLE PBT4 (T0 Experiment TENSE / COMBO)	L. Michel
2032-05	15/06/2022	15:56	Isabel	N 37 17.372	W 032 16.645	1686	SAMPLE PBT 4 (mussels Isabel for S. Fuchs, projects LYOPHALL & DEEP-REST)	S. Fuchs
2033-06	16/06/2022	13:12	Tour Eiffel	N 37 17.356	W 032 16.541	1692	SAMPLE iron-riched microbial mats PBT	C. Rommevaux
2034-07	17/06/2022	15:28	Y3	N 37 17.513	W 032 16.673		SAMPLE mussels for Audrey	A. Mat
2034-07	17/06/2022	16:09	Tour Eiffel	N 37 17.340	W 032 16.535		SAMPLE shrimp	J. Sarrazin
2035-08	18/06/2022	13:47	Capelinhos	N 37 17.361	W 032 15.831		SAMPLE PBT2 at iron-riched microbial mats	C. Rommevaux
2035-08	18/06/2022	14:37	Capelinhos	N 37 17.368	W 032 15.831		RECOVERY DEEP-SEEDS in GBT	J. Sarrazin
2036-09	19/06/2022	10:59	Montsegur	N 37 17.283	W 032 16.538	1702	SAMPLE mussels for mesocosm	M. Matabos
2036-09	19/06/2022	11:14	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE gastropods in suction jar 1	
2036-09	19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.538	1703	SAMPLE shrimp in suction jar 2	
2036-09	19/06/2022	11:15	Montsegur	N 37 17.282	W 032 16.540	1703	SAMPLE shrimp in suction jar 3	
2036-09	19/06/2022	14:37	Tour Eiffel	N 37 17.345	W 032 16.535	1691	SAMPLE mussels in PBT COMBO	L. Michel
2036-09	19/06/2022	16:23	Isabel	N 37 17.391	W 032 16.645	1681	SAMPLE suction jar 4 gastropods	
2036-09	19/06/2022	16:25	Isabel	N 37 17.392	W 032 16.644	1681	SAMPLE suction jar 5 shrimp	
2037-10	20/06/2022	15:48	Crystal	N 37 17.467	W 032 16.821	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER	
2037-10	20/06/2022	15:58	Lucky strike	N 37 17.444	W 032 16.918	1725	SAMPLE shrimp, mussels, SUCTION SAMPLER	
2037-10	20/06/2022	16:06	Lucky strike	N 37 17.447	W 032 16.924	1724	SAMPLE shrimp, mussels, SUCTION SAMPLER	
2039-12	22/06/2022	10:53	Y3	N 37 17.496	W 032 16.668	1733	SAMPLE suction with ELFES cell 3 on mussels, flange Y3	
2039-12	22/06/2022	11:14	Y3	N 37 17.495	W 032 16.683	1733	SAMPLE ELFES cell 4 on flange Y3	
2039-12	22/06/2022	16:11	Tour Eiffel	N 37 17.331	W 032 16.538	1694	SAMPLE covered with mussels for Audrey, placed in PBT	A. Mat
2042-15	25/06/2022	11:21	Tour Eiffel	N 37 17.347	W 032 16.552		SAMPLE Rock with pedonculate sponges in PBT2.	

7.5.4. Liste of rock samples

PL	Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment	Correspondant
2034-07	17/06/2022	12:18	Sintra	N 37 17.511	W 032 16.548		SAMPLE of 2 sulfure blocs	J. Sarrazin , A. Colaco
2041-14	24/06/2022	14:51	Lucky strike	N 37 17.468	W 032 16.782	1741	SAMPLE of basdaltic glass	
2041-14	24/06/2022	15:55	Montsegur	N 37 17.283	W 032 16.533	1702	SAMPLE pieces of chminey on the floor	
2042-15	25/06/2022	14:39	Capelinhos	N 37 17.359	W 032 15.827		SAMPLE chimney in the box	

7.6. Transect of vertical camera

	Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
PL2042-15	25/06/2022	12:26	Lucky strike	N 37 17.291	W 032 16.505		Start the TRANSECT to Capelinhos.
PL2042-15	25/06/2022	13:20	Capelinhos	N 37 17.374	W 032 15.861		Arriving to Capelinhos, End of the TRANSECT.

7.7. Liste of continuous measurement

Equipment installed on Nautile : Temperature, CHEMINI Fe(II), CHEMINI Sulfurs- Corresponding scientist M. Hubert

Plongée	Date	Time	Locality	Latitude	Longitude	Depth(m)	Comment
2036-09	19/06/2022	11:19	Montsegur	N 37 17.284	W 032 16.540	1703	Start CHEMINI gradient mesaurement in the smoker, T 290°C
2036-09	19/06/2022	11:49	Montsegur	N 37 17.285	W 032 16.538	1703	Start Chemini sulphides & iron measurement in mésocosme
2036-09	19/06/2022	12:57	Montsegur	N 37 17.282	W 032 16.531	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : middle point
2036-09	19/06/2022	13:01	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 1
2036-09	19/06/2022	13:05	Montsegur	N 37 17.282	W 032 16.530	1703	Start Chemini sulphides & iron measurement at quadrat C2bcg : corner 2
2036-09	19/06/2022	13:11	Montsegur	N 37 17.281	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : middle point (too early! did not wait a minute...)
2036-09	19/06/2022	13:18	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 1
2036-09	19/06/2022	13:22	Montsegur	N 37 17.282	W 032 16.534	1703	Start Chemini sulphides & iron measurement at quadrat C1bcg : corner 2- 5,5 °C
2036-09	19/06/2022	13:33	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement at quadrat R1 : middle point
2036-09	19/06/2022	13:42	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 1
2036-09	19/06/2022	13:46	Montsegur	N 37 17.283	W 032 16.533	1703	Start Chemini sulphides & iron measurement quadrat R1 : corner 2
2036-09	19/06/2022	14:25	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 1
2036-09	19/06/2022	14:29	Tour Eiffel	N 37 17.345	W 032 16.537	1691	Start Chemini sulphides & iron measurement point 2
2036-09	19/06/2022	14:33	Tour Eiffel	N 37 17.345	W 032 16.536	1691	Start Chemini sulphides & iron measurement point 3
2039-12	22/06/2022	12:22	Montsegur	N 37 17.277	W 032 16.528	1703	Start MEASUREMENT CHEMINI Fe Sulfure on quadrat C1B, temperature between 5 and 6°C
2039-12	22/06/2022	12:56	Montsegur	N 37 17.283	W 032 16.520	1704	Start MEASUREMENT CHEMINI fer/sulphides at quadrat periphery, temperature 4.6°C
2039-12	22/06/2022	13:47	Montsegur	N 37 17.281	W 032 16.531	1703	Start MEASUREMENT CHEMINI iron/sulphides quadrat ROA
2039-12	22/06/2022	14:15	Montsegur	N 37 17.285	W 032 16.533	1703	Start MEASUREMENT CHEMINI iron/sulfures at quadrat C2A
2039-12	22/06/2022	14:42	Montsegur	N 37 17.282	W 032 16.532	1703	Start MEASUREMENT CHEMINI iron/sulphides at quadrat R1,
2039-12	22/06/2022	14:56	Montsegur	N 37 17.287	W 032 16.535	1704	Start MESUREMENT CHEMINI iron/sulhpides at quadrat C1b_cg
2039-12	22/06/2022	15:33	Tour Eiffel	N 37 17.326	W 032 16.539	1695	Start MESUREMENT CHEMINI iron/sulhpides in the TEMPO area

8. Annexes

S. R.

MINISTÉRIO DOS NEGÓCIOS ESTRANGEIROS
Direção-Geral de Política Externa

Ref.ª 58520/2022
Proc.º DGPE/USEN-4/2022
13/05/2022

NOTA VERBAL

O Ministério dos Negócios Estrangeiros apresenta os seus melhores cumprimentos à Embaixada de França em Lisboa e, em referência à Nota Verbal nº 2022 -0141844, de 22.03.2022, tem a honra de informar que é autorizada a entrada na ZEE portuguesa - subárea dos Açores, do navio oceanográfico ***POURQUOI PAS?***, bem como a campanha de investigação ***MOMARSAT* 2022**, a efetuar no período de 15 de maio a 15 de julho de 2022, no pressuposto de que serão cumpridos todos os formalismos constantes do Anexo I.

Tendo em conta o relevante interesse da referida campanha, o Ministério dos Negócios Estrangeiros muito agradece o envio (preferencialmente em formato eletrónico) do respetivo Relatório, assim como dos dados processados para atualização da informação e cartografia nas áreas sob jurisdição nacional.

O Ministério dos Negócios Estrangeiros aproveita a oportunidade para reiterar à Embaixada de França os protestos da sua mais elevada consideração.

MINISTÉRIO DOS NEGÓCIOS ESTRANGEIROS DIREÇÃO GERAL DE POLÍTICA EXTERNA

À Embaixada de França
em Lisboa

Largo do Rilvas
1399-030

ANEXO I

1. O NAVIO DE FRANÇA "POURQUOI PAS" PRETENDE EFETUAR A CAMPANHA OCEANOGRAFICA" MOMARSAT 2022", NA ZEE PORTUGUESA-ACORES, NO PERIODO DE 15 DE MAIO A 15 DE JULHO DE 2022.

2. CONSIDERA-SE QUE A AREA DE OPERACOES INTERFERE COM AS AREAS DE PASSAGEM DE SUBMARINOS.

3. NÃO ESTÁ PREVISTA NENHUMA NAVEGACAO SUBMARINA NO PERIODO CONSIDERADO, NO ENTANTO, TORNA-SE NECESSARIO TER CONHECIMENTO COM 72 HORAS DE ANTECEDENCIA DAS INTENCOES DE MOVIMENTOS E POSICOES DE TRABALHO DO NAVIO "POURQUOI PAS" POR FORMA A GARANTIR A SEGURANCA NAVEGACAO SUBMARINA NACIONAL E ESTRANGEIRA, QUE EVENTUALMENTE OCORRA.

4. PARA O EFEITO O NAVIO DEVERÁ MANTER O AIS SEMPRE EM FUNCIONAMENTO E EFECTUAR UM COMUNICADO DIARIO, DIRIGIDO AO CENTRO DE OPERACOES MARITIMAS (COMAR), DA MARINHA PORTUGUESA, COM A SEGUINTE INFORMACAO:
   A. DENTIFICACAO DO NAVIO.
   B. POSICAO/RUMO/VELOCIDADE REFERIDA ÀS 1200 (UTC);
   C. ACTIVIDADE EM CURSO/POSICOES DE EQUIPAMENTOS FUNDEADOS.
   D. INTENCOES PROXIMAS 24, 48 E 72 HORAS.
   E. CONTACTOS DE. INMARSAT FAX E TELEFONE E EMAIL NAVIO.

5. SOLICITA-SE QUE, SEMPRE QUE HAJA ALTERACAO AOS DADOS DO PLANEAMENTO, ESTES SEJAM COMUNICADOS COM A MAXIMA ANTECEDENCIA POSSÍVEL, DESEJAVELMENTE COM 72 HORAS E NUNCA MENOS DE 24 HORAS.

6. PARA A PASSAGEM DA INFORMACAO ACIMA REFERIDA, DEVERÃO SER UTILIZADOS OS SEGUINTES MEIOS:
   A) TELEFONE: 00 351 210 984 451
   B) E-MAIL: COMAR.SUPERVISOR @ MARINHA.PT
   CZMA.EM.INF@MARINHA.PT
   CZMA.PC.SUPERVISOR@MARINHA.PT

7. SOLICITA-SE A DESCRIÇÃO PORMENORIZADA DOS EQUIPAMENTOS EMPREGUES NA AQUISIÇÃO DOS DADOS E PROCESAAMENTO DA INFORMAÇÃO.

8. NO DECURSO DOS TRABALHOS DE INVESTIGAÇÃO CIENTÍFICA, DESIGNADAMENTE DURANTE AS OPERAÇÕES DE MANUSEAMENTO DOS EQUIPAMENTOS, OUTROS MATERIAIS SUBMERSOS E BÓIAS DE SINALIZAÇÃO, BEM COMO NASMANOBRAS A QUE O NAVIO ESTIVER SUJEITO, DEVEM SER SALVAGUARDADAS ASDISTÂNCIAS MÍNIMAS DE SEGURANÇA QUER AOS CABOS SUBMARINOS (1/4 MILHA) IDENTIFICADOS NAS CARTAS NÁUTICA OFICIAIS, QUER AOS NAVIOS (1 MILHA) ENVOLVIDOS EM REPARAÇÕES OU LANÇAMENTO DE CABOS

9. DE FORMA A EMITIR ATEMPADAMENTE OS AVISOS AH NAVEGACAO, COMAR DEVERÁ SER INFORMADO DOS MOVIMENTOS E LIMITACOES DE MANOBRA DO NAVIO COM 72H DE ANTECEDENCIA, ATRAVEHS DO SEGUINTE
   E-MAIL: comar.supervisor@marinha.pt

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S. R.

MINISTÈRE DES AFFAIRES ÉTRANGÈRES
Direction générale de la politique étrangère

Réf. 58520/2022
Proc. DGPE/USEN-4/2022
13/05/2022

NOTE VERBALE

Le ministère des Affaires étrangères présente ses meilleures salutations à l'ambassade de France à Lisbonne et, en référence à la note verbale n° 2022-0141844, du 22/03/2022, a l'honneur de l'informer que l'entrée du navire océanographique ***POURQUOI PAS ?*** dans la ZEE portugaise, sous-zone des Açores, est autorisée, ainsi que la campagne de recherche ***MOMARSAT 2022***, qui sera menée au cours de la période comprise entre le 15 mai et le 15 juillet 2022, sous réserve que l'ensemble des formalités visées à l'Annexe I soient remplies.

Compte tenu de l'intérêt de la campagne en question, le ministère des Affaires étrangères vous remercie de l'envoi (de préférence sous format électronique) du rapport correspondant, ainsi que des données traitées pour la mise à jour des informations et de la cartographie des zones sous juridiction nationale.

Le ministère des Affaires étrangères saisit cette occasion pour exprimer à l'ambassade de France sa plus haute considération.

MINISTÉRIO DOS NEGÓCIOS ESTRANGEIROS
DIRECÇÃO GERAL DE POLÍTICA EXTERNA

À L'ambassade de
France à Lisbonne

Largo do Rilvas
1399-030 LISBOINHE
Téléphone : (351) 213646000 E-mail : dgpe.mne.pt

ANNEXE I

1. LE NAVIRE FRANCAIS « POURQUOI PAS » SOUHAITE MENER LA CAMPAGNE OCÉANOGRAPHIQUE « MOMARSAT 2022 » DANS LA ZEE PORTUGAISE SOUS-ZONE DES AÇORES, AU COURS DE LA PÉRIODE DU 15 MAI AU 15 JUILLET 2022.

2. IL APPARAÎT QUE LA ZONE DES OPÉRATIONS INTERFÈRE AVEC LES ZONES DE PASSAGE HABITUEL DE SOUS-MARINS.

3. AUCUNE NAVIGATION DE SOUS-MARINS N'EST PRÉVUE PENDANT LA PÉRIODE VISÉE, NÉANMOINS, IL SERA NÉCESSAIRE DE COMMUNIQUER 72 HEURES À L'AVANCE LES DÉPLACEMENTS ET LES POSITIONS DE TRAVAIL PRÉVUS DU NAVIRE « POURQUOI PAS » AFIN D'ASSURER LA SÉCURITÉ DE LA NAVIGATION SOUS-MARINE NATIONALE ET ÉTRANGÈRE POUVANT ÉVENTUELLEMENT INTERVENIR.

4. À CET EFFET, LE NAVIRE DEVRA MAINTENIR SON SYSTÈME D'IDENTIFICATION AUTOMATIQUE (AIS) EN FONCTIONNEMENT PERMANENT ET ENVOYER UN COMMUNIQUÉ QUOTIDIEN AU CENTRE DES OPÉRATIONS MARITIMES (COMAR) DE LA MARINE PORTUGAISE, COMPRENANT LES INFORMATIONS SUIVANTES :
   A. IDENTIFICATION DU NAVIRE.
   B. POSITION/CAP/VITESSE DE RÉFÉRENCE A 1200 (UTC) ;
   C. ACTIVITÉ EN COURS/POSITION DES ÉQUIPEMENTS AU MOUILLAGE.
   D. PROCHAINES POSITIONS PRÉVUES DANS LES 24, 48 ET 72 HEURES.
   E. CONTACTS SUIVANTS : INMARSAT, FAX, TELEPHONE ET E-MAIL DU NAVIRE.

5. MERCI DE COMMUNIQUER TOUTE MODIFICATION DES DONNÉES DU PLANNING DANS LES MEILLEURS DÉLAIS, ET SI POSSIBLE 72 HEURES À L'AVANCE ET AU PLUS TARD 24 HEURES À L'AVANCE.

6. POUR LA COMMUNICATION DES INFORMATIONS CI-DESSUS, LES MOYENS SUIVANTS DEVRONT ÊTRE UTILISÉS :
   A) TÉLÉPHONE : 00 351 210 984 451
   B) E-MAIL : COMAR.SUPERVISOR@MARINHA.PT
   CZMA.EM.INF@MARINHA.PT
   CZMA.PC.SUPERVISOR@MARINHA.PT

7. UNE DESCRIPTION DÉTAILLÉE DES ÉQUIPEMENTS UTILISÉS POUR L'ACQUISITION DES DONNÉES ET LE TRAITEMENT DE L'INFORMATION EST DEMANDÉE.

8. AU COURS DES TRAVAUX DE RECHERCHE SCIENTIFIQUE, ET NOTAMMENT PENDANT LES OPÉRATIONS DE MANUTENTION DES ÉQUIPEMENTS, DES AUTRES MATÉRIELS SUBMERGÉS ET DES BALISES DE SIGNALISATION, ET PENDANT LES MANŒUVRES DU NAVIRE, LES DISTANCES MINIMUM DE SÉCURITÉ DOIVENT ETRE RESPECTÉES, TANT VIS-A-VIS DES CÂBLES SOUS-MARINS(1/4) MILE) IDENTIFIÉS SUR LES CARTES NAUTIQUES OFFICIELLES, QUE DES NAVIRES CÂBLIERS (1 MILLE) IMPLIQUÉS DANS LA RÉPARATION OU L'INSTALLATION DE CÂBLES

9. POUR POUVOIR ÉMETTRE LES AVIS DE NAVIGATION EN TEMPS VOULUS, LE COMAR DOIT ÊTRE INFORMÉ DES MOUVEMENTS ET DES LIMITES DE MANŒUVRE DU NAVIRE 72H À L'AVANCE, À L'ADRESSE E-MAIL SUIVANTE : **comar.supervisor@marinha.pt**

REGIÃO AUTÓNOMA DOS AÇORES
SECRETARIA REGIONAL DO MAR E DAS PESCAS
DIREÇÃO REGIONAL DE POLÍTICAS MARÍTIMAS

AMP / 2022 / 008

AUTORIZAÇÃO DE INVESTIGAÇÃO CIENTÍFICA EM ÁREA MARINHA PROTEGIDA
AUTHORIZATION AREA FOR SCIENTIFIC RESEARCH IN MARINE PROTECTED AREA

1. Local onde se desenvolverá o trabalho / *Area of the Study:*

Parque Marinho dos Açores /*Azores Marine Park*	DLR n.º 13/2016/A	X	Reserva Natural Marinha do Campo Hidrotermal Lucky Strike (PMA03)

2. Titular da Licença / *License Holder* :

Nome / *Name:* Pierre Marie Sarradin
Nr. Identi Civil / *ID Number* : NL002882243B01
Instituição / *Institution:* IFREMER - Institut français de recherche pour l'exploitation de la mer
E-mail : Pierre.Marie.Sarradin@ifremer.fr

3. Nome do Projeto / *Projet Name* :

MoMARSAT 2022

4. Objetivo / *Purpose* :

Manutenção anual do observatório EMSO-Açores no Lucky Strike (MAR).

Yearly maintenance of the EMSO-Azores observatory at lucky Strike (Mid-Atlantic Ridge).

5. Métodos / Equipamentos a Usar / *Methods / Equipments* :

Infraestrutura de investigação marinha EMSO.
ROV, submarino.

Marine Research Infrastructure EMSO.
ROV, submarine.

6. Recolha de Amostras: / *Sample Recolection* :

Recolha de amostras de fluidos hidrotermais, organismos e microorganismos de profundidade, rochas, sedimentos e água do mar.

Collection of samples of hydrothermal fluids, deep-sea organisms and micro-organisms, rocks and sea water.

7. Duração / *Duration:*

De 15 de maio e 15 de julho de 2022.

May 15 to July 15, 2022.

8. Condicionantes / *Conditions:*

Findo o estudo, o titular deve entregar à DRPM um relatório resultante do estudo.
A presente licença não inibe do cumprimento de qualquer outra legislação aplicável à ação em curso.

Upon completation of the study, the holder shall submit to DRPM a report resulting from this study.
This authorization does not prevent the fulfillment of any other legislation applicable to the current action.

O Diretor Regional,
The Regional Director,

SGC0060/2022/2491

REGIÃO AUTÓNOMA DOS AÇORES
VICE-PRESIDÊNCIA DO GOVERNO REGIONAL
Direção Regional da Ciência e Tecnologia

6Acesso e utilização de recursos naturais para fins científicos / Access and use of natural resources for scientific purposes

Certificado de Conformidade Internacionalmente Reconhecido *Internationally Recognized Compliance Certificate*	**22/2022/DRCTD**

A TODO O TEMPO O TITULAR PODE FICAR OBRIGADO A: / *THE HOLDER MAY AT ANY TIME BE OBLIGED TO*:

a) **Depositar ou remeter duplicado da amostra**, ou parte dela, no prazo e local a determinar pela entidade emissora da declaração, nos termos do dispos no n.º 1 do artigo 11.º do Decreto Legislativo Regional n.º 9/2012/A, de 20 de março, com as alterações introduzidas pelo Decreto Legislativo Regional r 17/2020/A, de 15 de julho; *Deposit or send a duplicate of the sample, or part of it, within the time and place to be determined by the entity issuing tl declaration; pursuant to paragraph 1 of article 11 of the Regional Legislative Decree No. 9/2012 / A, of March 20th, with the changes introduced b Regional Legislative Decree No. 17/2020 / A, of July 15th;*

b) **Enviar o relatório** a que se refere o n.º 2 do artigo 11.º do Decreto Legislativo Regional n.º 9/2012/A, de 20 de março, com as alterações introduzida pelo Decreto Legislativo Regional n.º 17/2020/A, de 15 de julho; *Submit the report referred to in paragraph 2 of article 11 of the Regional Legislativ Decree no. 9/2012 / A, of March 20, with the changes introduced by Regional Legislative Decree no. 17/2020 / A, of July 15;*

c) **Contratualizar mecanismos de cooperação com a RAA**, nos termos do disposto no artigo 17.º-B do Decreto Legislativo Regional n.º 9/2012/A, de 2 de março, com as alterações introduzidas pelo Decreto Legislativo Regional n.º 17/2020/A, de 15 de julho; *Contract cooperation mechanisms with th RAA,pursuant to article 17-B of the Regional Legislative Decree No. 9/2012 / A, of March 20, with the changes introduced by Regional Legislative Decre No. 17/2020 / A, of July 15;*

d) **Realizar um contrato de partilha justa e equitativa de benefícios** nos termos do disposto no artigo 17.º-C do Decreto Legislativo Regional n.º 9/2012/A, de 20 de março, com as alterações introduzidas pelo Decreto Legislativo Regional n.º 17/2020/A, de 15 de julho; *Carry out a fair agreement for the just and equitable sharing of benefits; Enter into a fair and equitable benefit sharing agreement under the terms of article 17;*

e) **Não permitir a utilização da amostra, ou de parte dela, por terceiros**, exceto nos casos de procedimento de transferência previstos no capítulo III d Decreto Legislativo Regional n.º 9/2012/A, de 20 de março, com as alterações introduzidas pelo Decreto Legislativo Regional n.º 17/2020/A, de 15 d julho. *Do not allow the use of the sample, or part of it, by third parties, except in cases of transfer procedure provided for in Chapter III of Regiona Legislative Decree No. 9/2012 / A, of March 20, with the changes introduced by Regional Legislative Decree No. 17/2020 / A, of July 15.*

TITULAR DO CCIR / *DECLARATION OWNER*

CRUISE: Navio POURQUOI PAS?
CIENTISTA CHEFE DO CRUZEIRO: Pierre Marie Sarradin
Nº de Identificação Civil/Passaporte | ***National Identity Card/Passport*:** 15DD40606

Endereço/*Address*: Ifremer centre de Bretagne, REM/BEEP ZI de la pointe du diable, PLOUZANE, BRETAGNE	**Código Postal/*Zip code* | País/*Country*:** 29280, France

Instituição/*Institution*: IFREMER - Institut français de recherche pour l'exploitation de la mer

EQUIPA ENVOLVIDA NAS ATIVIDADES DE ACESSO/ *IDENTIFICATION OF THE TEAM INVOLVED IN ACCESS ACTIVITIES*:

Colaborador/Investigador *Collaborator/Researcher*	**Identificação civil/Passaporte** *National Identity Card/Passport:*	**Atividade profissional/** *Occupation*	**Instituição/** *Institution*
Pierre Marie Sarradin	15DD40606	Investigador	IFREMER - Institut français de recherche pour l'exploitation de la mer

RECURSO NATURAL A ACEDER / *NATURAL RESOURCE SAMPLE*

Identificação do tipo de amostra/ *Sample type identification*: Recolha de amostras de fluidos hidrotermais, organismos e microorganismos de profundidade, rochas, sedimentos e água do mar. / Collection of samples of hydrothermal fluids, deep-sea organisms and micro-organisms, rocks and sea water.

Nome científico (quando aplicável) /*Scientific name (when applicable)*: Amostras de água e fluidos, Amostras biológicas e microbianas. / Water and fluid samples , Biological and microbial samples.

Direção Regional da Ciência e Tecnologia *Rua do Mercado, 21 * 9500- 126 Ponta Delgada
Telefone: (+351) 296 308 900 * E-mail: info.drct@azores.gov.pt
scientific.samples@azores.gov.pt

REGIÃO AUTÓNOMA DOS AÇORES
VICE-PRESIDÊNCIA DO GOVERNO REGIONAL
Direção Regional da Ciência e Tecnologia

Forma, quantidade e tamanho expetável (com recurso a descritores de peso e dimensões físicas sempre que justificável):
***Expected shape, quantity and size (including weight and size whenever justified)*:** Amostras de água e fluidos : 70*200 ML, Amostras biológicas microbiológicas : 50 / Water and fluid samples : 70*200 ML, Biological and microbiological samples : 50

Métodos a utilizar/*Methods to be used*: Infraestrutura de investigação marinha EMSO. ROV, submarino. / Marine Research Infrastructure EMSO. ROV, submarine.

DETALHES DA AMOSTRAGEM/ *SAMPLING DETAILS*

Data de inicio de recolha (mês e ano) e fim de recolha/ Starting collection date and Ending colletion date: A recolha efetua-se de 15 de maio a 15 julho de 2022. / From May 15 to julho 15, 2022.

Locais de recolha/ *Sampling Locations*: Reserva Natural Marinha do Campo Hidrotermal Lucky Strike (PMA03).

USOS A QUE SE DESTINA/*INTENDED USES*:

Os resultados do projeto servirão fundamentalmente para o contributo do conhecimento âmbito do projeto EMSO Azores deep sea observatory. / The resul of the project will be fundamentally used to contribute to the EMSO Azores deep sea observatory project.

INTENÇÃO DE TRANSFERÊNCIA DA AMOSTRA PARA TERCEIROS/ *TRANSFER INTENT*:

- X **Não/No**
- ☐ **Sim/Yes**
- ☐ **Não Determinado/Not determined**

OBSERVAÇÕES FINAIS/ *CONCLUSIVE OBSERVATIONS*

Deve o titular cooperar e colaborar com a transferência para a RAA (Região Autónoma dos Açores) do conhecimento e partilha dos resultados d investigação e desenvolvimento com investigador e sua equipa /*The holder must cooperate and collaborate with transfer to the RAA (Autonomous Regio of the Azores) of knowledge and sharing of research and development results with researcher and his/her tea).*

O titular deste documento deve ter atenção ao disposto na licença em anexo da Direção Regional dos Assuntos do Mar (DRAM), licença de utilização d Recursos Hídricos e nas suas condicionantes referidas nas mesmas licenças. /*The holder of this document must pay attention to the provisions of the attache license from the Direção Regional dos Assuntos do Mar (DRAM), license for the use of Water Resources and its conditions referred to in the same license*

O Diretor Regional da Ciência e Tecnologia

Flávio Gomes Borges Tiago

Direção Regional da Ciência e Tecnologia *Rua do Mercado, 21 * 9500- 126 Ponta Delgada
Telefone: (+351) 296 308 900 * E-mail: info.drct@azores.gov.pt
scientific.samples@azores.gov.pt

REGIÃO AUTONOMA DOS AÇORES
SECRETARIA REGIONAL DO MAR E DAS PESCAS
DIREÇÃO REGIONAL DE POLÍTICAS MARÍTIMAS

Alvará nº DPM/2022/021

LICENÇA DE UTILIZAÇÃO DE RECURSOS HÍDRICOS

A Direção Regional de Políticas Marítimas da Secretaria Regional do Mar e das Pescas atribui a presente licença de utilização de recursos hídricos, nos termos da Lei da Água, aprovada pela Lei nº 58/2005, de 29 de dezembro, na sua atual redação, do Decreto-Lei nº 226-A/2007, de 31 de maio, na sua atual redação, e da Portaria nº 67/2007, de 15 de outubro, nos termos abaixo definidos, ficando o titular sujeito às condições referidas nos pontos 4 e 5 do presente alvará.

1. IDENTIFICAÇÃO DO TITULAR

Titular da Licença:	Pierre Marie Sarradin
Contribuinte nº/VAT:	NL002882243B01
Endereço Postal:	IFREMER - Institut français de recherche pour l'exploitation de la mer

2. FINALIDADE E DESCRIÇÃO GERAL

Tipo de utilização:	Ocupação do Domínio Publico Marítimo (DPM), de acordo com a alínea d), do art.º 3º do Anexo da Lei n.º 31/2016, de 23 de agosto
Descrição:	Colocação, usando o navio Pourquois Pas? (missão MOMARSAT 2022), da infraestrutura EMSO, composta por dois equipamentos de monitorização (SEAMON), ligados acusticamente com uma boia à superfície (BOREL)) por um ano.
Finalidade:	Monitorização multidisciplinar de fontes hidrotermais no MAR (Crista Médio Atlântica)

3. LOCALIZAÇÃO DA UTILIZAÇÃO

Local:	Reserva Natural Marinha do Campo Hidrotermal Lucky Strike
Freguesia:	Não se aplica
Concelho:	Não se aplica
Ilha:	Não se aplica
Coordenadas:	N 37 17.329W 032 16.532 N 37 17.473W 032 16.791 N 37 18.072W 032 16.730

4. CONDIÇÕES GERAIS

4.1. Esta licença é concedida a título precário, e não pode ser transferida, a qualquer título, sem autorização da Direção Regional de Políticas Marítimas;
4.2. O objeto da licença fica sujeito à fiscalização por todas as autoridades com jurisdição local, obrigando-se o titular da licença a facultar o livre acesso aos agentes dessas autoridades de modo que possam exercer as suas funções com eficiência;
4.3. O titular desta licença deverá respeitar todas as leis e regulamentos aplicáveis, bem como munir-se de quaisquer outras licenças exigíveis por outras entidades;
4.4. Da inobservância de qualquer das condições impostas resulta imediatamente a perda de todos os direitos conferidos por esta licença;
4.5. As despesas com vistorias extraordinárias que resultem de reclamações justificadas serão suportadas pelo titular da licença;
4.6. Os litígios que surjam relativamente a esta licença serão resolvidos pelos tribunais;
4.7. A presente licença poderá ser revista pela Direção Regional de Políticas Marítimas se entretanto ocorrer a publicação do regime económico-financeiro e/ou alteração da titularidade dos recursos hídricos.

5. OUTRAS CONDIÇÕES

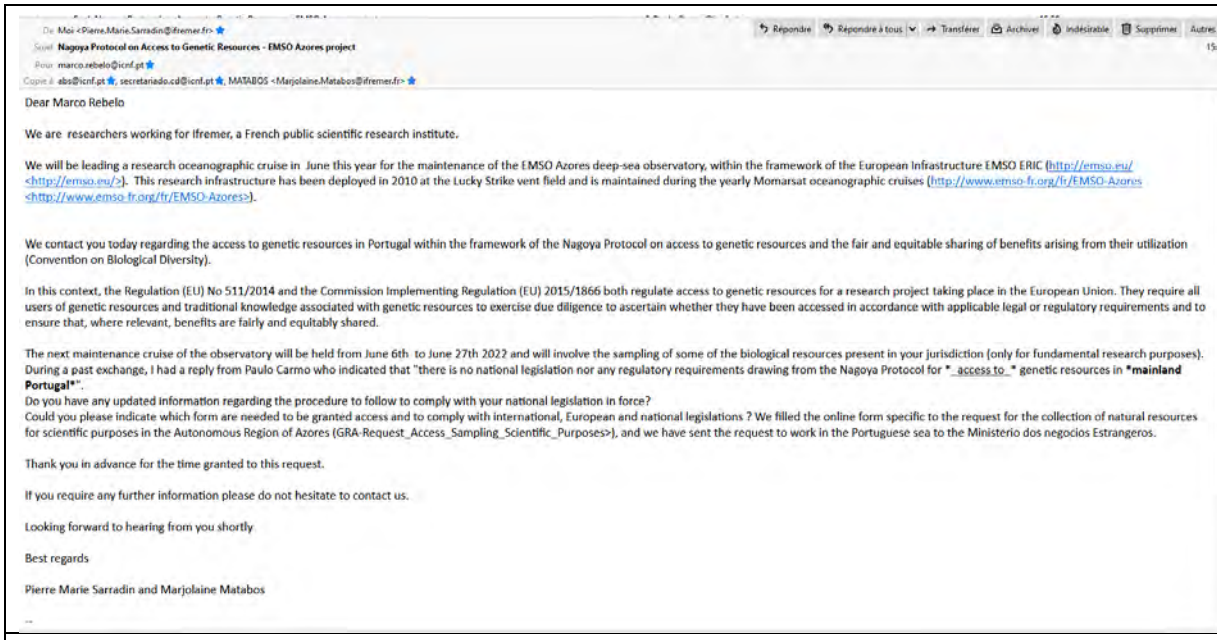
5.1. Constitui obrigação do titular da presente licença executar a ação de acordo com o pedido enviado.

5.2. O titular da presente licença obriga-se a cumprir todas as disposições legais em vigor que à mesma sejam aplicáveis, incluindo, mas não limitada, a Lei n.º 58/2005, de 29 de dezembro, na sua atual redação, e o Decreto-Lei n.º 226-A/2007, de 31 de maio, na sua atual redação.

6. PRAZO DA LICENÇA

Prazo: A presente licença é temporária e válida desde 15 de maio de 2022 a 15 de julho de 2023.

O Diretor Regional,



De Moi <Pierre.Marie.Sarradin@ifremer.fr>
Sujet **Nagoya Protocol on Access to Genetic Resources - EMSO Azores project**
Pour marco.rebelo@icnf.pt
Copie à abs@icnf.pt, secretariado.cd@icnf.pt, MATABOS <Marjolaine.Matabos@ifremer.fr>

Répondre | Répondre à tous | Transférer | Archiver | Indésirable | Supprimer | Autres | 15:46

Dear Marco Rebelo

We are researchers working for Ifremer, a French public scientific research institute.

We will be leading a research oceanographic cruise in June this year for the maintenance of the EMSO Azores deep-sea observatory, within the framework of the European Infrastructure EMSO ERIC (http://emso.eu/ <http://emso.eu/>). This research infrastructure has been deployed in 2010 at the Lucky Strike vent field and is maintained during the yearly Momarsat oceanographic cruises (http://www.emso-fr.org/fr/EMSO-Azores <http://www.emso-fr.org/fr/EMSO-Azores>).

We contact you today regarding the access to genetic resources in Portugal within the framework of the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization (Convention on Biological Diversity).

In this context, the Regulation (EU) No 511/2014 and the Commission Implementing Regulation (EU) 2015/1866 both regulate access to genetic resources for a research project taking place in the European Union. They require all users of genetic resources and traditional knowledge associated with genetic resources to exercise due diligence to ascertain whether they have been accessed in accordance with applicable legal or regulatory requirements and to ensure that, where relevant, benefits are fairly and equitably shared.

The next maintenance cruise of the observatory will be held from June 6th to June 27th 2022 and will involve the sampling of some of the biological resources present in your jurisdiction (only for fundamental research purposes). During a past exchange, I had a reply from Paulo Carmo who indicated that "there is no national legislation nor any regulatory requirements drawing from the Nagoya Protocol for *_access to_* genetic resources in ***mainland Portugal***".
Do you have any updated information regarding the procedure to follow to comply with your national legislation in force?
Could you please indicate which form are needed to be granted access and to comply with international, European and national legislations ? We filled the online form specific to the request for the collection of natural resources for scientific purposes in the Autonomous Region of Azores (GRA-Request_Access_Sampling_Scientific_Purposes>), and we have sent the request to work in the Portuguese sea to the Ministerio dos negocios Estrangeros.

Thank you in advance for the time granted to this request.

If you require any further information please do not hesitate to contact us.

Looking forward to hearing from you shortly

Best regards

Pierre Marie Sarradin and Marjolaine Matabos

--

De Mail Delivery System <MAILER-DAEMON@ifremer.fr>
Sujet **Undelivered Mail Returned to Sender**
Pour Moi <Pierre.Marie.Sarradin@ifremer.fr>

This is the mail system at host gwyddion.ifremer.fr.

I'm sorry to have to inform you that your message could not
be delivered to one or more recipients. It's attached below.

For further assistance, please send mail to postmaster.

If you do so, please include this problem report. You can
delete your own text from the attached returned message.

The mail system

<marco.rebelo@icnf.pt>: host icnf-pt.mail.protection.outlook.com[104.47.18.74]
said: 550 5.4.1 Recipient address rejected: Access denied. AS(201806281)
[AM6EUR05FT007.eop-eur05.prod.protection.outlook.com] (in reply to RCPT TO
command)

Reporting-MTA: dns; gwyddion.ifremer.fr
X-Postfix-Queue-ID: 5939140345D
X-Postfix-Sender: rfc822; Pierre.Marie.Sarradin@ifremer.fr
Arrival-Date: Mon, 14 Mar 2022 15:47:00 +0100 (CET)

Final-Recipient: rfc822; marco.rebelo@icnf.pt
Original-Recipient: rfc822;marco.rebelo@icnf.pt
Action: failed
Status: 5.4.1
Remote-MTA: dns; icnf-pt.mail.protection.outlook.com
Diagnostic-Code: smtp; 550 5.4.1 Recipient address rejected: Access denied.
AS(201806281) [AM6EUR05FT007.eop-eur05.prod.protection.outlook.com]

—Nagoya Protocol on Access to Genetic Resources - EMSO Azores project.eml—

Sujet : Nagoya Protocol on Access to Genetic Resources - EMSO Azores project

De Secretariado CD <Secretariado.CD@icnf.pt>
Sujet **Lida:Nagoya Protocol on Access to Genetic Resources - EMSO Azores project**
Pour Moi <Pierre.Marie.Sarradin@ifremer.fr>

A sua mensagem

Para: Secretariado CD
Assunto: Nagoya Protocol on Access to Genetic Resources - EMSO Azores project
Enviado: 14 de março de 2022 14:46:55 (UTC+00:00) Dublin, Edinburgh, Lisbon, London

foi lida em 14 de março de 2022 16:09:04 (UTC+00:00) Dublin, Edinburgh, Lisbon, London.

Final-recipient: RFC822; Secretariado.CD@icnf.pt
Disposition: automatic-action/MDN-sent-automatically; displayed
X-MSExch-Correlation-Key: 3zhNXOWVn0O3yylXaIq7eg==
X-Display-Name: Secretariado CD