



Tara_LEG_REPORT_UTC YYYY MM DD HH MM

Start:	2010	05	08	00	00
End:	2010	05	27	00	00

CHIEF SCIENTIST'S SUMMARY REPORT

CRUISE OBJECTIVES:

This report concerns 3 weeks of open ocean work on board Tara, between the Islands of Mauritius, Reunion, Madagascar, and Mayotte (Fig. 1), from May 7 to May 27, 2010. The goal of the cruise was to sample the planktonic ecosystem from the tropical South Indian Ocean, following the *Tara-Oceans* core protocol. The collection included genetic and morphological samples for viruses, giruses, prokaryotes, protists, and metazoa, image data (UVP, flowcam, light microscopy), and physico-chemical data/samples from the sampled water column (CTD, Nitrate, Nutrients, Carbonate, Pigments).

MAJOR ACHIEVEMENTS & FINDINGS

4 open ocean and 1 lagoon core stations were realized along the cruise track (Fig. 1). The open ocean stations (50 to 53) were located in different water bodies (Fig. 1A) within the complex current system characterizing this poorly known part of the world oceans. Indeed the oligotrophic South Equatorial Current (SEC) system flows westward above the Mauritius-Reunion Islands axis, and splits into the southward SE Madagascar Current (SEMC) and the north-westard NE Madagascar Current (NEMC) when it flows into the Island of Madagascar (Fig. 1D). South of Madagascar, the SEMC retroflexes eastward, creating a series of clockwise and anticlockwise eddies in between 15 and 25 °Lat S (Fig. 1C and 1D). These eddies have relatively short-term features (weeks to months) with minor effect on primary productivity. As shown in Fig. 1B and 1E, the major drivers of the chlorophyll concentration in the area are topographic: the Reunion and Madagascar Islands clearly fertilize the waters masses on their western coast.

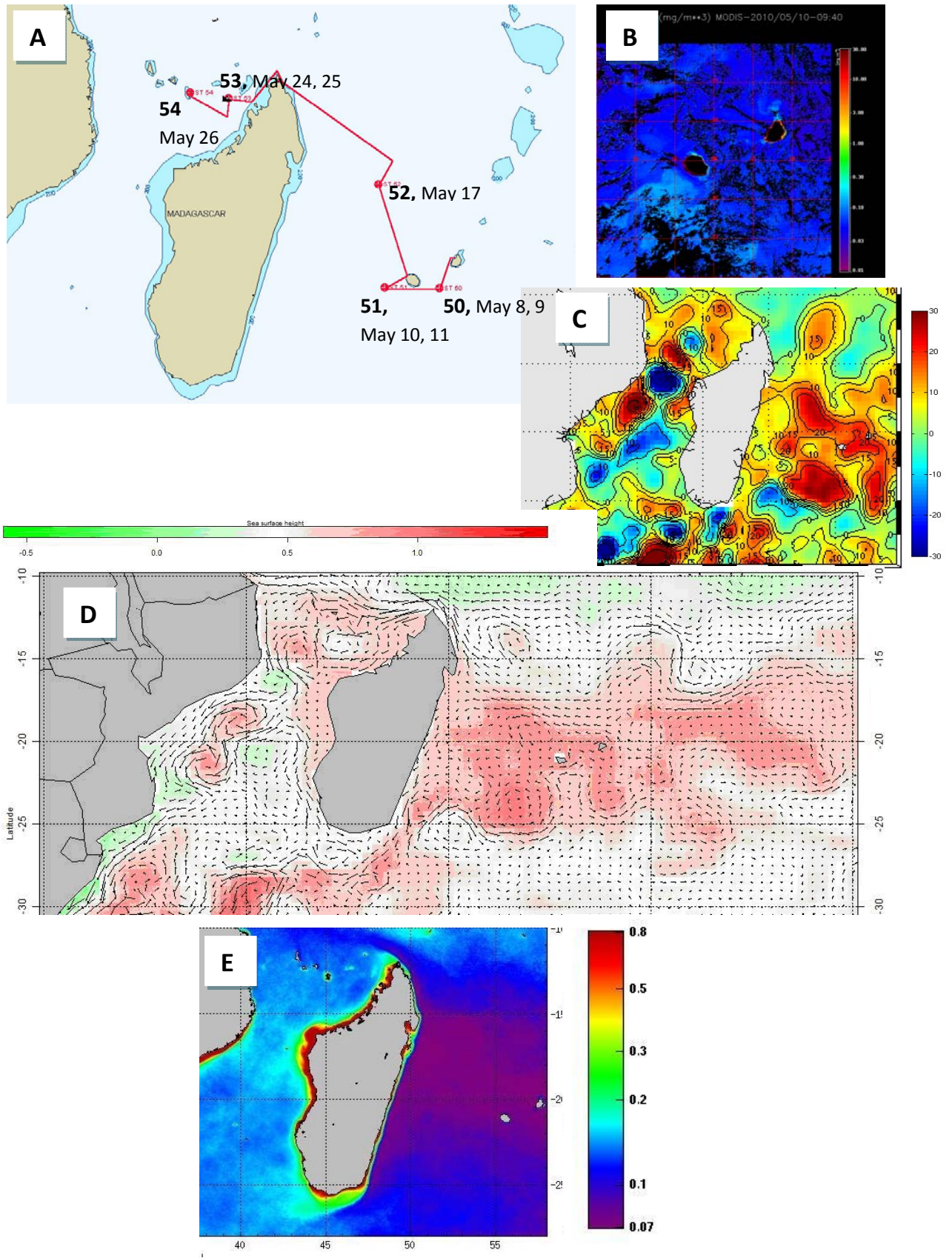
The open ocean stations were located in the middle of various eddies, each having a specific DCM/CTD profiles. Station 50 was highly oligotrophic, with a DCM at 100m and a 70m thick mixed layer. Stations 51 to 53 were less oligotrophic, with more or less marked DCMs at ~70m and mixed layers ranging from 30 to 50m thick. Stations 51 and 53 were located west of Reunion and Madagascar Islands, respectively, in areas of richer chlorophyll content.

Fig 1 –Next Page: Oceanographic settings of the sampling sites.

- A.** Location and date of Core Stations 50 to 54.
- B.** MODIS chlorophyll-a data (mg/m³), May 10th, 09:40, 2010
- C.** MODIS altimetry (cm), May 5th, 2010.
- D.** MERCATOR Sea Surface Height (SSH) anomaly (cm) and current direction at 75m depth,
- E.** Mean chlorophyll-a concentration (mg/m³): May 14 +/- 15 Days, GlobColour Climatology, 1998-2009.

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FIG. 1: OCEANOGRAPHY





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MAJOR CONCERNS & ACTIONS TO TAKE

- no Argos buoy
- no multinet data
- net 20 and 5 um
- no map ontime (Gaby)



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PARTICIPANTS

	ROLE	NAME, Surname, Affiliation
1	CREW- Captain	BOURMAUD Hervé, Tara Exp
2	CREW- 1st Officer	MENARD Mathilde/REGNIER Baptiste, Tara Exp
3	CREW- Chief engineer	DANIEL Julien, Tara Exp
4	CREW- Deck officer	REGNIER Baptiste, Tara Exp/KERDRAON Jean-Jacques, Douane Francaise
5	CREW- Cook	WEGERS Ian, Tara Exp
6	CREW- Media	BOLLET Sasha, Tara Exp
7	MEDIA- cameraman	TEIGNE Jérôme, MC4
8	MEDIA - montage	MANZANO Bertrand, MC4
9	SCIENCE- Chief Scientist	DE VARGAS Colomban, CNRS Roscoff
10	SCIENCE- Oceanography Engineer	SEARSON Sarah, CNRS Villefranche/mer
11, 12	SCIENCE- Optical Engineer	PROBERT Ian, CNRS Roscoff TOZZI Sasha, MBARI USA
13	SCIENCE- Biology Engineer	DIMIER Celine, CNRS Roscoff
14	SCIENCE- Virus-Girus-Bact	CLERISSI Camille, CNRS Banyuls

GENERAL DIVISION OF WORK

RESPONSIBILITIES	NAME
LOGISTICS – Planning, quality assurance, data & metadata archives	Chief Sci. DE VARGAS
LOGISTICS – Consumables and samples storage & inventories	Biol. Eng. DIMIER
BGC – Nutrients	Chief Sci. DE VARGAS
BGC – Carbonates	Chief Sci. DE VARGAS
BGC – Hg	Chief Sci. <i>not sampled</i>
BGC – OM Lugol/Formol	Chief Sci. DE VARGAS
BGC – Cultures	Chief Sci. DE VARGAS
BGC – HPLC	Chief Sci. DE VARGAS
META – Metagenomic/TaxoGen/Morph	Opt. Eng. PROBERT
BACT – GIRUS – VIRUS (BGV)	CLERISSI
PROT – dDNA	Biol. Eng. DIMIER
IMAG – FlowCam	Opt. Eng. PROBERT/TOZZI
IMAG – Macroscopy	<i>not done</i>
IMAG – SeaFlow	<i>not working</i>
IMAG – SPIM	<i>not used</i>



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OCEANO – Rosette	Oceano. Eng. SEARSON
OCEANO – Nets	SEARSON/PROBERT
OCEANO – Pump	Oceano. Eng. SEARSON
OCEANO – TSRB	<i>not used</i>
OCEANO – ARGO floats	<i>not used</i>
OCEANO - TSG	Oceano. Eng. SEARSON
OCEANO – FRRF	Oceano. Eng. SEARSON
OCEANO – ACS	<i>not used</i>

CALENDAR OF ACTIVITIES

DATE (MMDD)	ACTIVITY	COMMENTS
May 7	Departure from Port Louis, Mauritius	
May 8	Core station 50, night-part	From 11pm to 3am, WP11 50um not done
May 9	Core station 50, day-part	From 9:30am to 8pm, no WP11, no Double 20um DCM, one 20um net broke up during this windy/high-drift station. DCM water was sampled for BGV and protist from 2 additional 200m rosette casts.
May 10	Route toward Reunion Island, science meeting, Core station 51, night-part	From 8 :30pm to 00 :30am (May 11). No WP11 nets due to the strong drift.
May 11	Core station 51, day-part	From 7am to 5pm. Two additional test 5um net tows in the morning. No DCM 20um tows.
May 12	Arrival offshore St Pierre, La Reunion, and then St. Denis	
May 12-13-14	Heavy comm. Programm. Deck and wet-lab cleaning, reception of 2 new Liquid N containers, filled and set-up on board.	May 12 : Press Conf, Veolia apero, meeting with local scientists, dinner with TAAF prefet May 13 : break May 14 : EDF/Credit Agricole conference
May 15	Departure from Le Port, La Reunion, toward Tromelin island, and Madagascar	Light delay due to a technical problem with one of Tara's engine. The 4 days @sea to reach Diego Suarez allow time for a single station
May 16	Route toward station 52.	
May 17	Core station 52 (continuous day-night)	From 7am to 10 :30pm. Very good station with relatively low wind/drift. The wind started to blow at night, hindering the towing of WP11 nets.
May 18	Arrival @ Tromelin at noon. Route toward Madagascar	
May 19		



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SAMPLING STRATEGY

STATION PREPARATION

ACTIVITIES ON DECK (e.g. instruments, protocols, timing)

ACTIVITIES IN THE WETLAB (e.g. instruments, protocols, timing)

ACTIVITIES IN THE DRYLAB (e.g. instruments, protocols, timing)

EQUIPMENT & CONSUMABLES (e.g. filters, tubes, chemicals)

SAMPLE STORAGE

METADATA & DATA

OTHER