

# BOUSSOLE Monthly Cruise Report

## Cruise 261

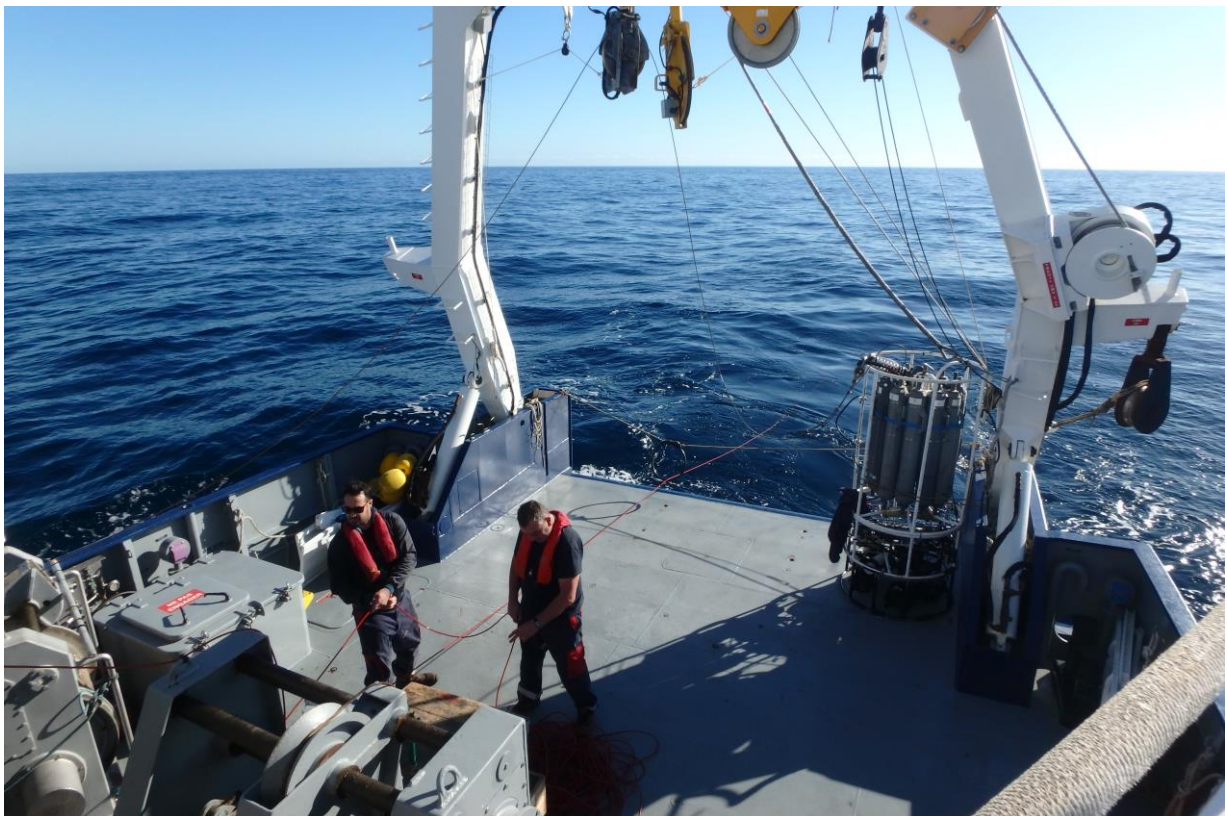
November 29 - December 01, 2023

Duty Chief: Melek Golbol ([melek.golbol@imev-mer.fr](mailto:melek.golbol@imev-mer.fr))

Vessel: R/V Téthys II  
(Captain: Dany Deneuve)

Science Personnel: Melek Golbol, Celine Laus and Paco Stil

*Institut de la Mer de Villefranche (IMEV), 06230 Villefranche-sur-Mer, France*



Recovery of the *Biospherical Compact - Optical Profiler System (C-OPS)* at the BOUSSOLE site from the deck of the R/V *Téthys II*

**BOUSSOLE project**

**ESA/ESRIN contract N° 4000119096/17/I-BG**

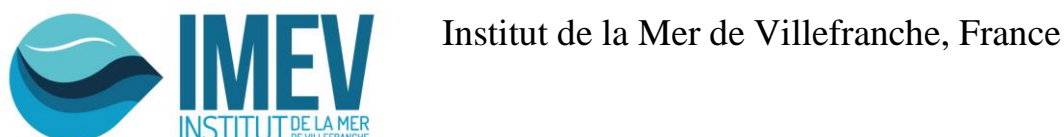
*December 22, 2023*



## Foreword

This report is part of the technical report series that is being established by the BOUSSOLE project.

BOUSSOLE is funded and supported by the following Agencies and Institutions



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## Cruise Objectives

### Routine operations

Multiple Biospherical's C-OPS (Compact Optical Profiling System) radiometric profiles are performed at the BOUSSOLE site around solar noon, under optimal conditions: clear blue skies and flat, calm sea surface. CTD deployments are required at the start and the end of the C-OPS profiling day and around noon in the longer summer days or when there is a high possibility of a satellite matchup. The CTD package also includes a Chl fluorometer. Additional instrumentation for measurement of inherent optical properties has been added from December 2011. The package includes a hyperspectral absorption meter (Hobilabs a-Sphere), a multispectral backscattering meter (Hobilabs Hydroscat-6) and a multispectral beam transmissometer (Hobilabs Gamma-4). A CTD cast including a 0.2 µm filter installed on the inlet tube of the a-Sphere is to be performed once per cruise at the BOUSSOLE site for the dissolved matter absorption measurements. This cast will be stopped at ten depths during 2 or 7 min depending on the depths in order to ensure that the integrating cavity of the a-Sphere be completely filled at each of these depths during the ascent of the CTD.

Seawater samples are to be collected, filtered and stored into liquid nitrogen for subsequent HPLC pigment and particle absorption spectrophotometric filter analysis in the lab. Three replicate samples are to be collected at surface for total suspended matter weighting in the lab.

Further details about these operations and the data collection and processing protocols are to be found in: Antoine, D. M. Chami, H. Claustre, F. D'Ortenzio, A. Morel, G. Bécu, B. Gentili, F. Louis, J. Ras, E. Roussier, A.J. Scott, D. Tailliez, S. B. Hooker, P. Guevel, J.-F. Desté, C. Dempsey and D. Adams. 2006, BOUSSOLE: a joint CNRS-INSU, ESA, CNES and NASA Ocean Color Calibration And Validation Activity. NASA Technical memorandum N° 2006 - 214147, 61 pp.

[http://www.obs-vlfr.fr/Boussole/html/publications/pubs/BOUSSOLE\\_TM\\_214147.pdf](http://www.obs-vlfr.fr/Boussole/html/publications/pubs/BOUSSOLE_TM_214147.pdf)

### Additional operations

Two vertical zooplankton nets were performed at the DYFAMED site for the MOOSE program.

## Cruise Summary

Only the first day was used to perform BOUSSOLE operations because of the bad weather during the next days. This day was used for optical profiles, CTD casts with water sampling and a Secchi disk at the BOUSSOLE site. It was also used for two vertical zooplankton nets at the DYFAMED site for the MOOSE program.

### Wednesday 29 November 2023

The sea state was slight with a light breeze. The sky was blue and the visibility was excellent. Firstly, three C-OPS profiles and then, two CTD casts with water sampling were performed at the BOUSSOLE site. For the second cast, a cap was put on the backscattering meter for dark measurements and a 0.2 µm filter put on the a-Sphere absorption meter for the dissolved matter absorption measurements. This cast was stopped at 10 depths during the ascent of the CTD. Then, a Secchi disk was performed before the departure to the DYFAMED site. Finally, two vertical zooplankton nets were deployed at the DYFAMED site before returning to the Nice harbour.

### Thursday 30 November 2023

Bad weather prevented departure from the Nice harbour.

### Friday 01 December 2023

Bad weather prevented departure from the Nice harbour.

Pictures taken during this cruise can be found at:  
<https://photos.app.goo.gl/8V9Z7M7daSqEu1N49>

Data from the BOUSSOLE cruises and buoy are available at:  
[http://www.obs-vlfr.fr/Boussole/html/boussole\\_data/login\\_form.php](http://www.obs-vlfr.fr/Boussole/html/boussole_data/login_form.php)

## **Cruise Report**

**Wednesday 29 November 2023 (UTC)**

People on board: Melek Golbol, Céline Laus and Paco Stil

0715 Departure from the Nice harbour.  
1045 Arrival at the BOUSSOLE site.  
1055 C-OPS 01, 02, 03, 04.  
1155 CTD 01, 400 m with water sampling at 400, 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 m for HPLC and  $a_p$ .  
1255 CTD 02, 400 m with water sampling at 5 m for TSM (with a 0.2  $\mu\text{m}$  filter on a-Sphere and with 2 minutes stop at 400, 150 m and 7 minutes stop at 80, 60, 50, 40, 30, 20, 10 et 5 m) (with cap on the HS6).  
1420 Secchi 01, 17 m.  
1425 Departure to the DYFAMED site.  
1440 Arrival at the DYFAMED site.  
1445 Zooplankton nets x 2 at 100 and 200 m (MOOSE program).  
1510 Departure to the Nice harbour.  
1810 Arrival at the Nice harbour.

**Thursday 30 November 2023**

Bad weather prevented departure from the Nice harbour.

**Friday 01 December 2023**

Bad weather prevented departure from the Nice harbour.

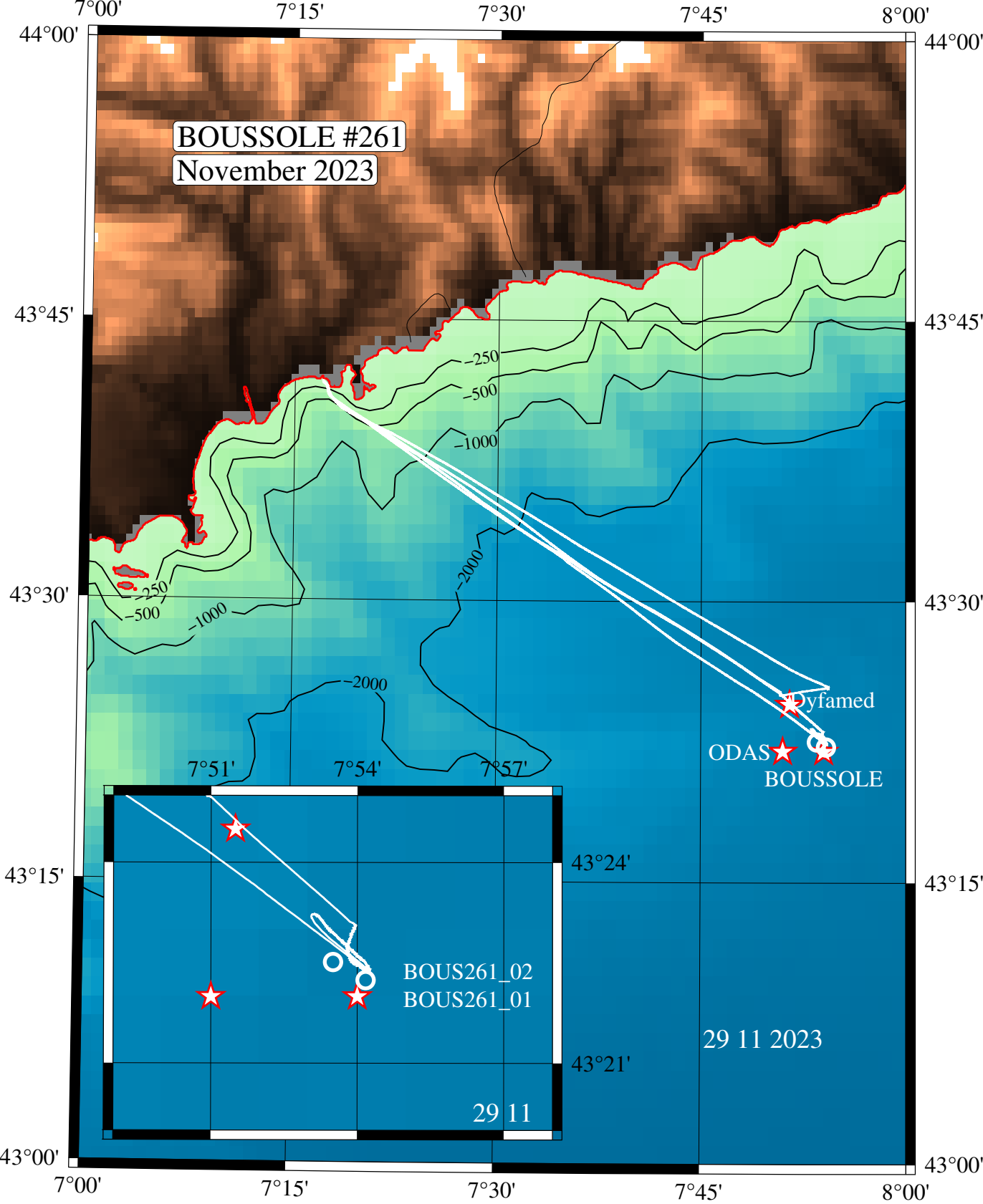
## **Problems identified during the cruise**

No problems.

## **Appendices**

Cruise Summary Table for Boussole 261

Date	Black names (file ext: ".raw")	Profile names (file extension: ".raw")	CTD notées	Other sensors	Start Time		Depth max (meter)	Latitude (N)			Longitude			Sky	Clouds	Quantity (#/8)	Weather		Atm. Pressure (hPa)	Humidity (%)	Visibility	T air	T water	Sea		Whitecaps
					GMT (hour.min)	Duration (hour.min.sec)		(Degree)	(Minute)	(Degree)	(Minute)	Wind sp. (kn)	Wind dir.				Swell H (m)	Swell dir.								
29/11/23		bou_c-ops_231129_1011_001_data.csv			10:54	0:04:26	104	43	22.574	7	54.038	blue	none	0	3.3	142	1006	53.2	excellent	15.4		slight	0.8		no	
		bou_c-ops_231129_1011_002_data.csv			11:05	0:04:21	100	43	22.705	7	53.844	blue	none	0	3.3	142	1006	53.2	excellent	15.4		slight	0.8		no	
		bou_c-ops_231129_1011_003_data.csv			11:15	0:03:42	85	43	22.841	7	53.654	blue	none	0	3.3	142	1006	53.2	excellent	15.4		slight	0.8		no	
		bou_c-ops_231129_1011_004_data.csv			11:26	0:04:15	105	43	23.002	7	53.410	blue	none	0	3.3	142	1006	53.2	excellent	15.4		slight	0.8		no	
			BOUS261_01		HPLC & ap	11:56	0:27:00	400	43	22.242	7	54.170	blue	none	0	3.6	144	1005	52.2		15.5	15.2	slight			
			BOUS261_02		TSM	12:56	1:22:00	400	43	22.514	7	53.902	blue	none	0	5.8	198	1004	51		14.9	15.2	slight			
				Secchi 01	14:20	0:04:00	17	43	22	7	54	blue	none	0					excellent			slight				
30/11/23	Bad weather																									
01/12/23	Bad weather																									





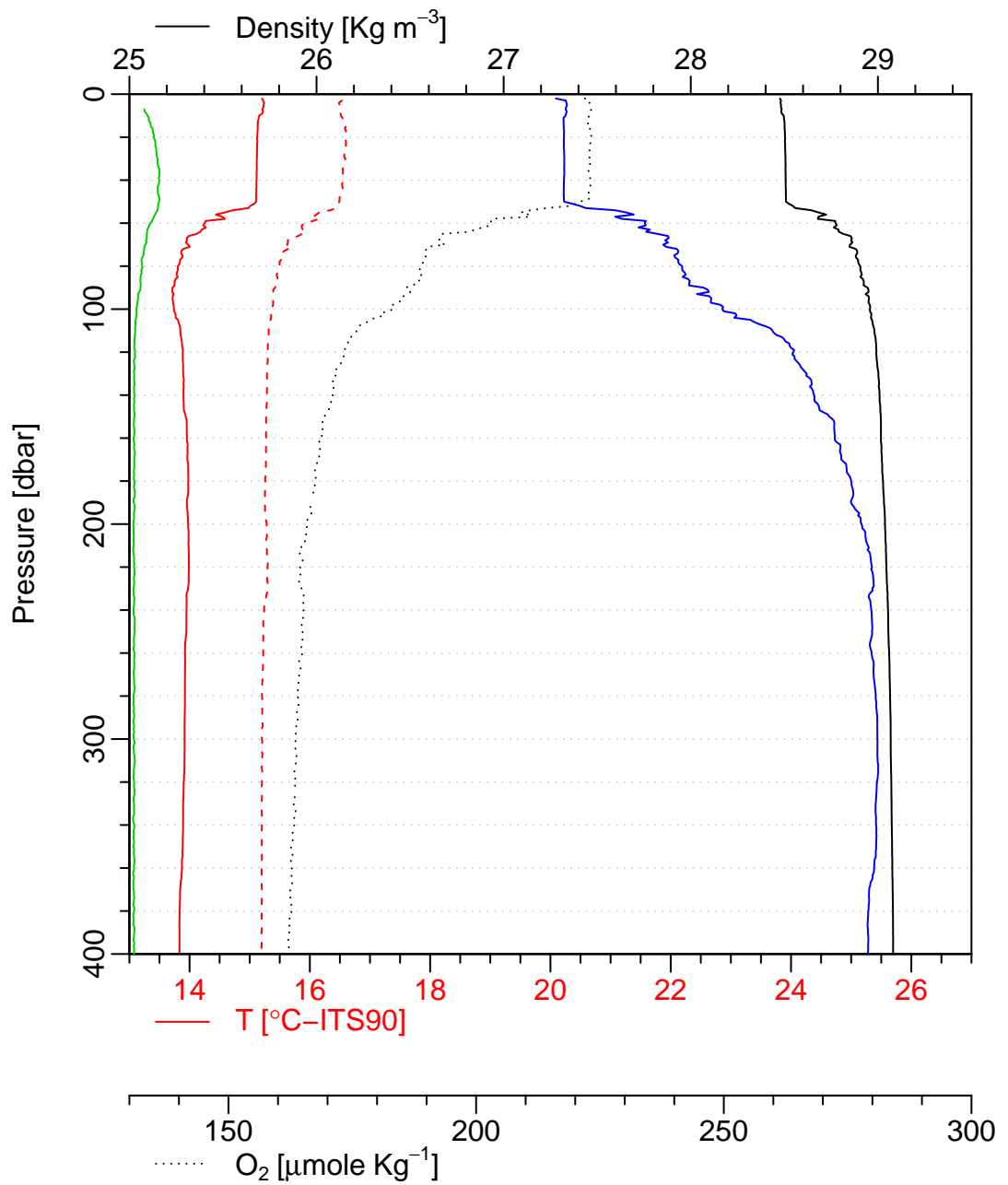
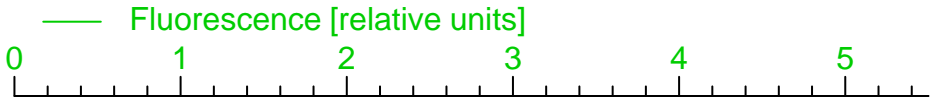
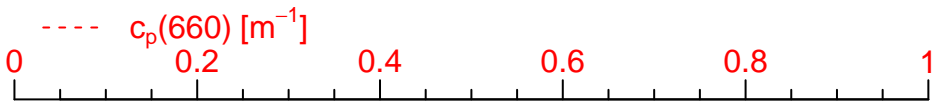
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Longitude = 007 54.170 E

Latitude = 43 22.242 N



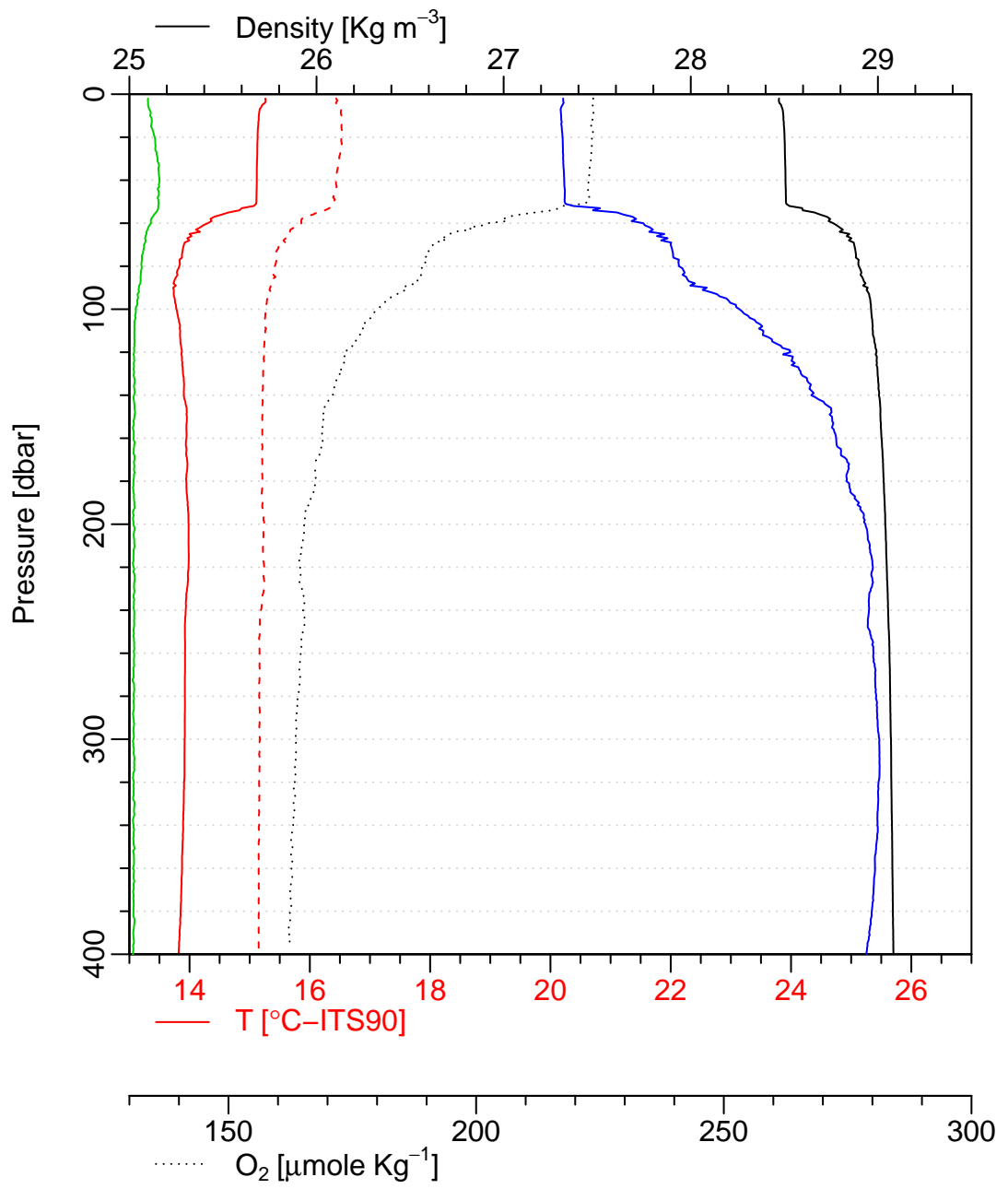
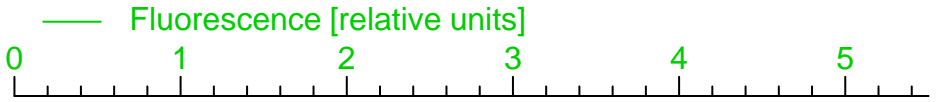
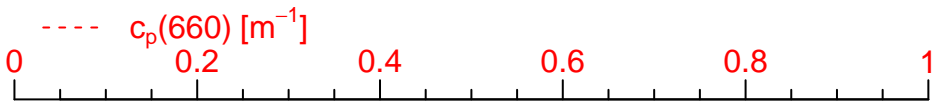
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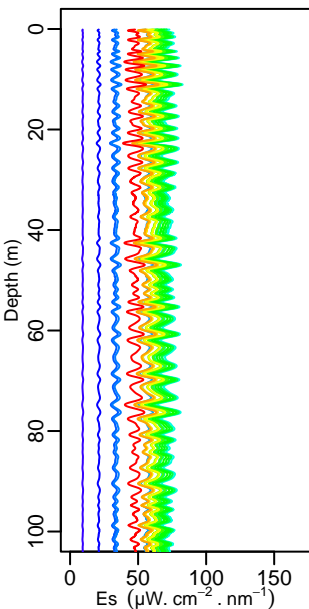
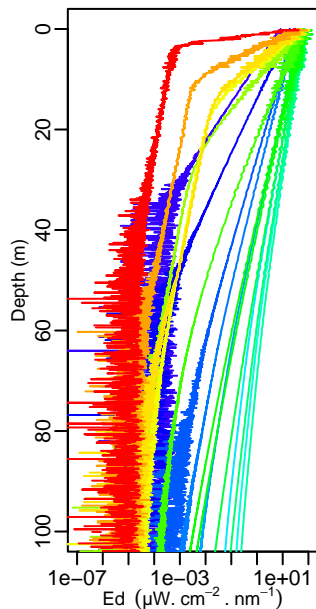
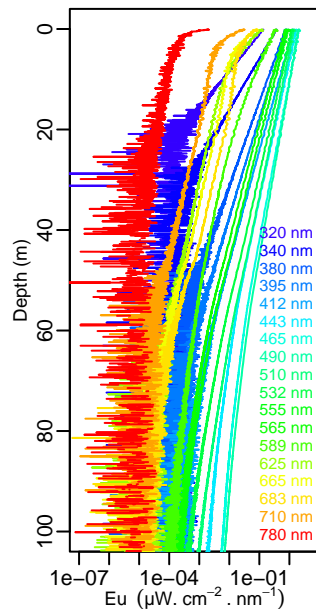
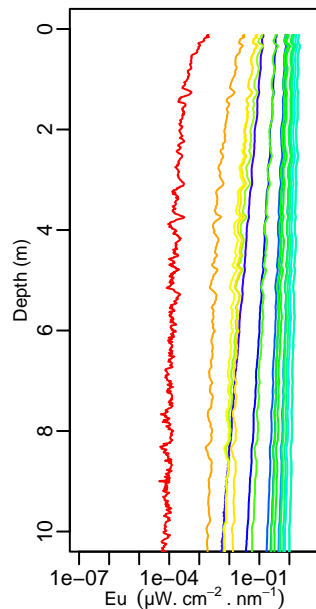
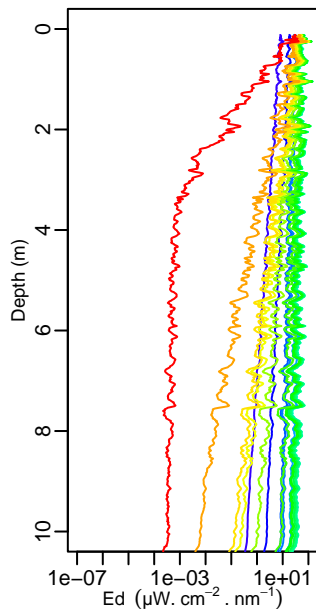
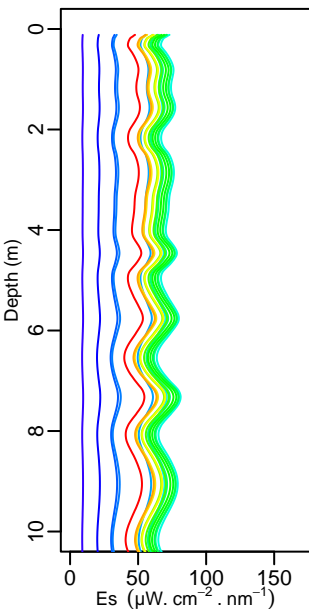
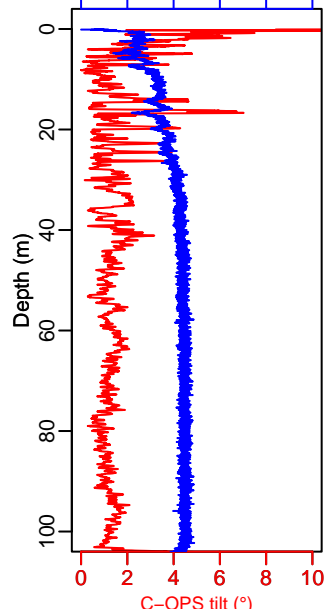
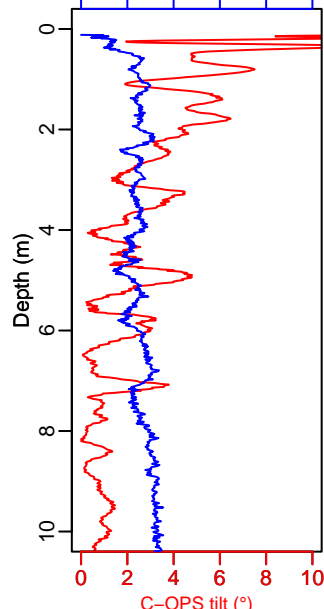
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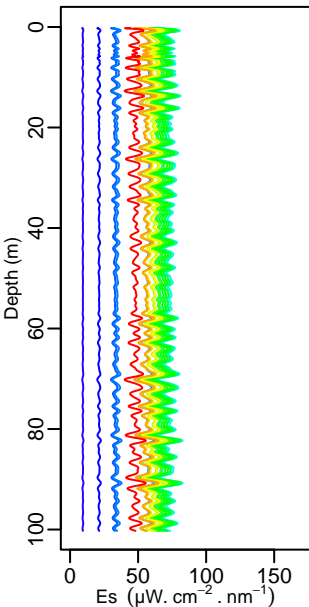
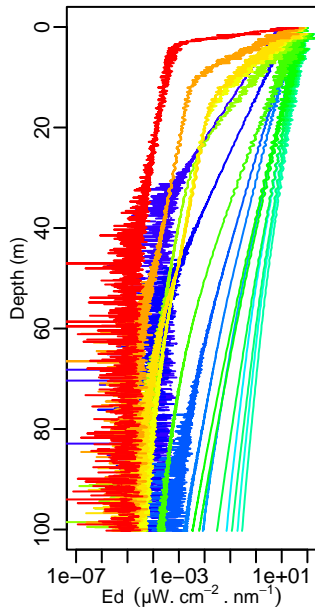
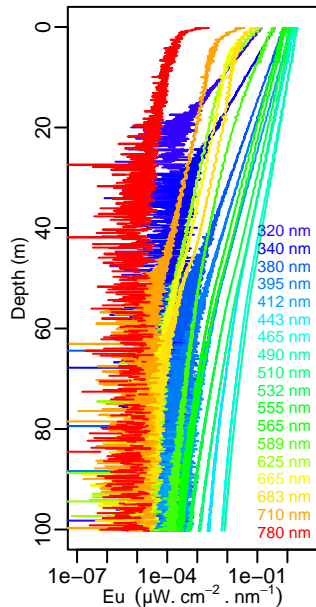
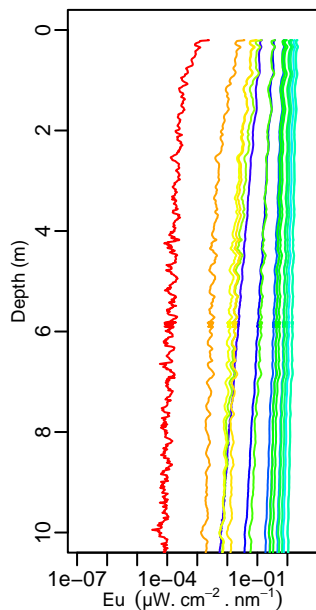
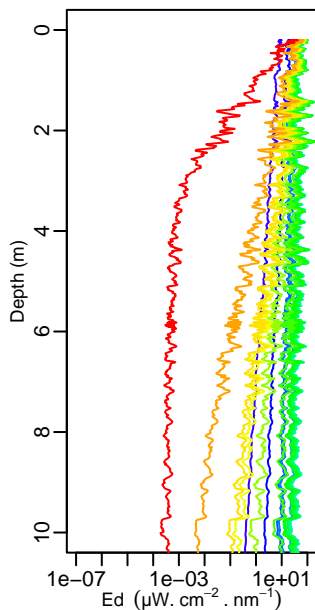
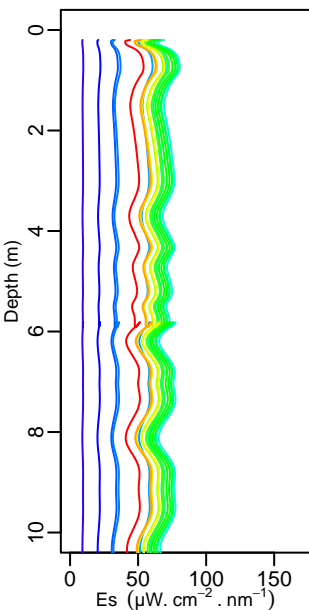
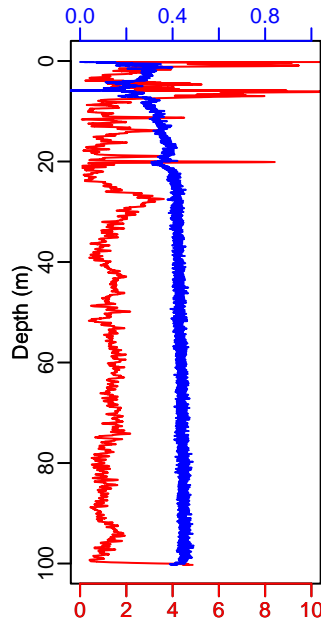
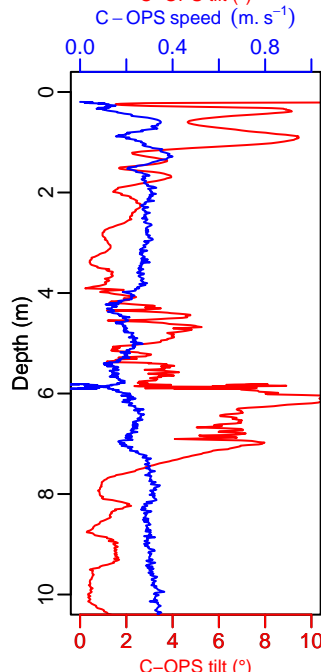
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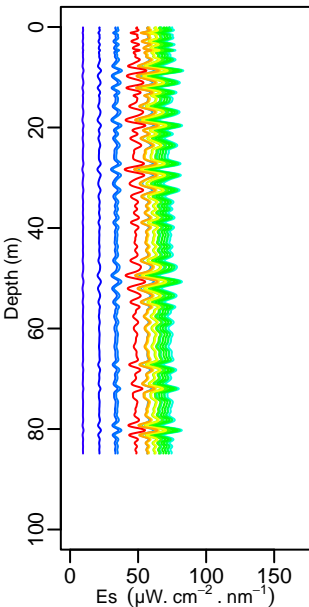
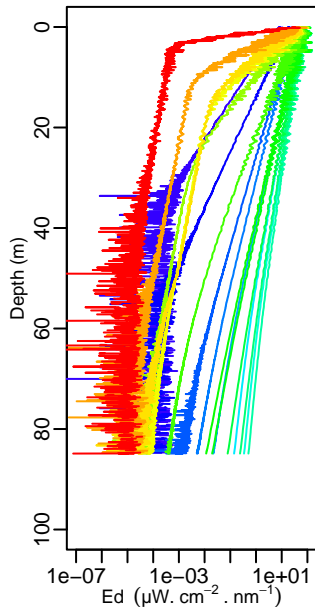
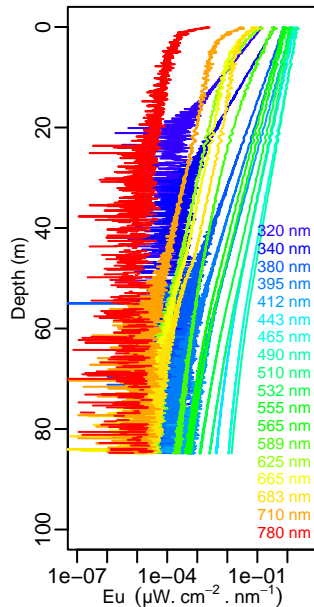
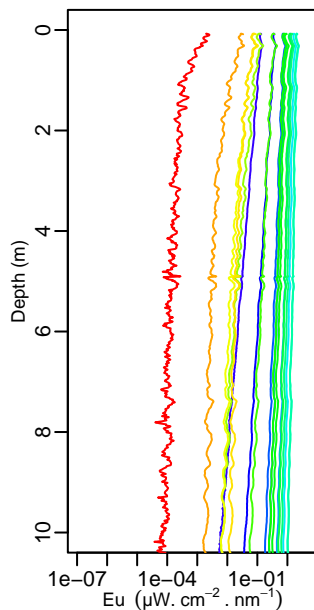
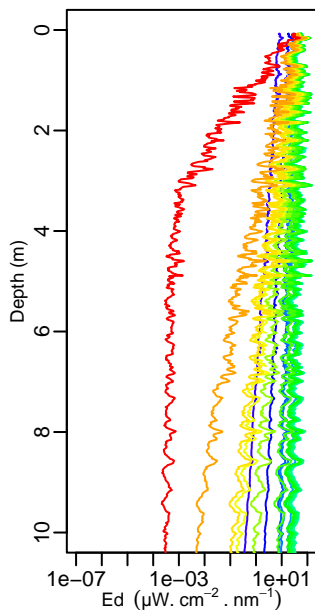
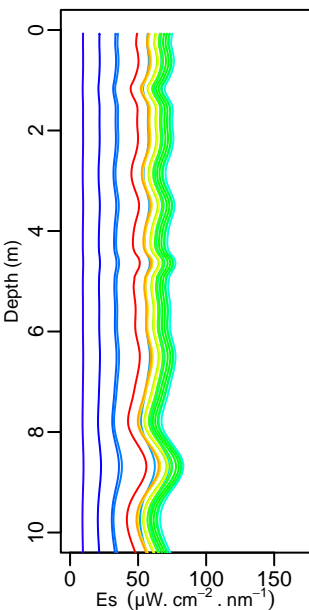
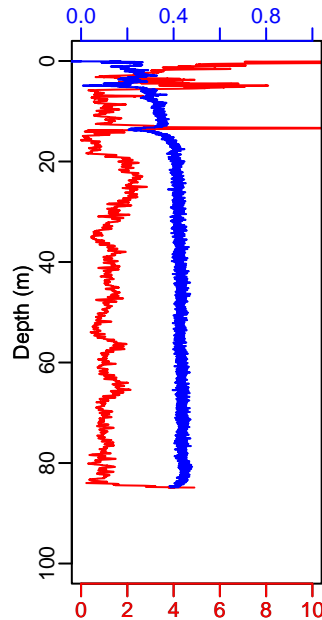
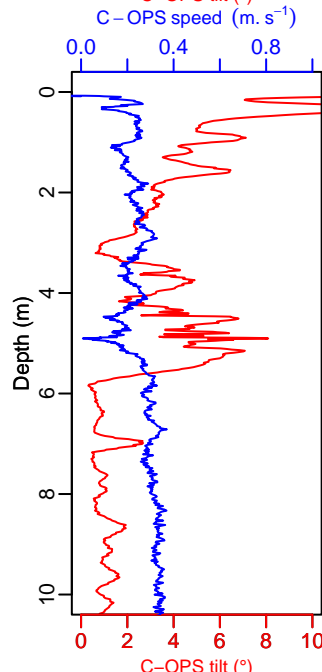
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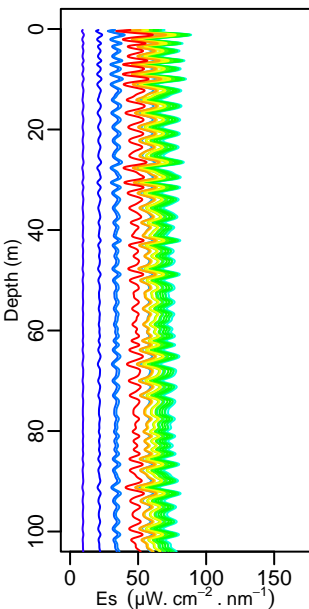
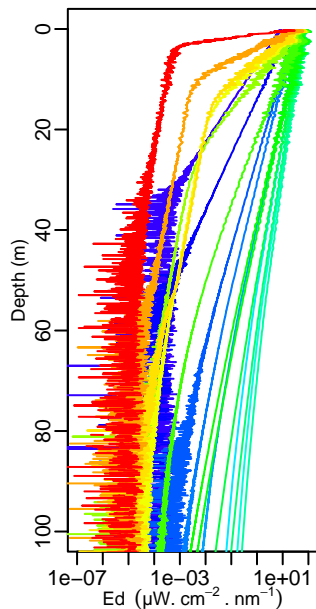
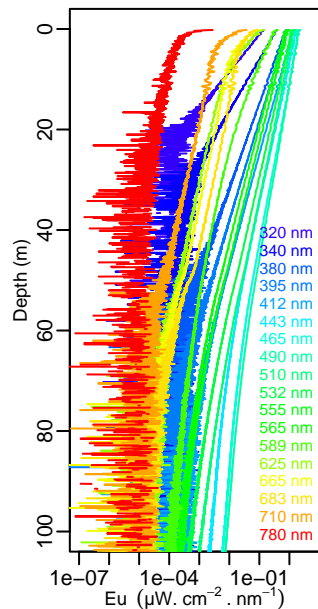
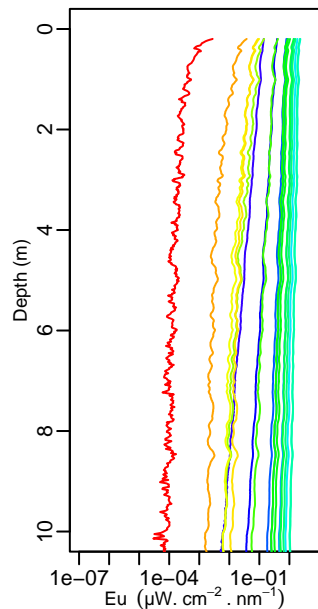
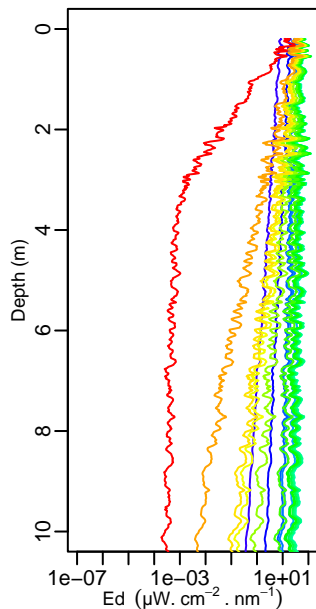
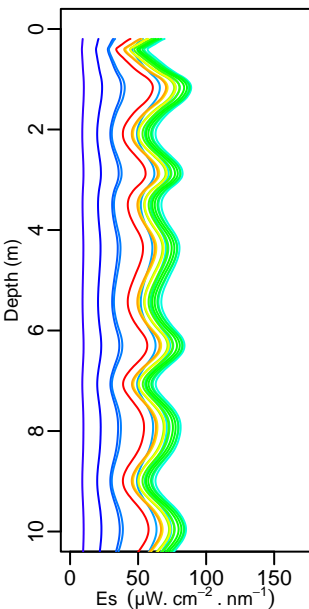
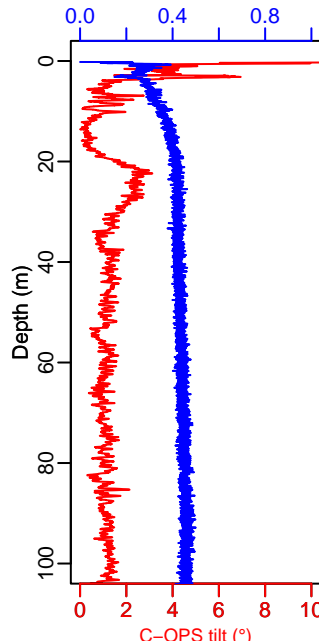
Latitude = 43 22.514 N



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**C-OPS speed (m. s<sup>-1</sup>)**

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