BOUSSOLE Monthly Cruise Report

Cruise 65
June 21 - 23, 2007

Duty Chief: Guislain Bécu (guislain.becu@obs-vlfr.fr)
Vessel: R/V Téthys II
(Captain: Alain Stéfan)

Science Personnel: Guislain Bécu, Dominique Tailliez, Grigor Obolenski, David Luquet, Jean de Vaugelas and Eric Viagnes.

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Fig 1. The BOUSSOLE cruise typical instrumentation: the buoy BOUSSOLE, the optical profiler SPMR hanging under the floating structure and the CTD rosette.

BOUSSOLE project

ESA/ESRIN contract N° 17286/03/I-OL

Deliverable from WP#400/200

June 29, 2007

Contents

Cruise Objectives

Routine operations

Multiple SPMR profiles are to occur within 1 hour of satellite overhead passes of MERIS around solar noon, under optimal conditions: clear blue skies and flat, calm sea surface. If the sky is clear and sea conditions are reasonably calm (no whitecaps or large swell), hand held CIMEL sun photometer measurements are to be performed consecutively where possible with SPMR profiles. If sea conditions are poor but sky is good, hand held CIMEL sun photometer measurements can be made at intervals throughout the day to measure atmospheric optical thickness. A floating platform is to be used to support the SPMR Eu sensor approximately 20cm below the surface for up to 3 minutes of stable light field before a release mechanism triggers the release of the profiler to start a descent as normal. Multiple descents ideally will be started in this way and the data will be used to assess near-surface Eu extrapolation model calculations. CTD deployments are required at the start and end of the SPMR profiling day and around noon in the longer summer days or when there is a high possibility of a satellite matchup. In addition to the depth profile from the CTD, CDOM fluorometer, Chl fluorometer and AC9, seawater samples are to be collected, filtered and stored in N_2 for HPLC pigment and particule absorption spectrophotometric filter analysis in the lab. A gimbled PAR sensor positioned on the foredeck and operated from the CTD computer serves as a light field stability indicator during SPMR profiling.

For one day of each cruise, at the end of the optics measurements on site, there will be one ctd transect between the Boussole site and the Port of Nice. This transect consists of four fixed locations on-route from Boussole and a final two station positions to be decided during the transect in order to sample on both sides of the main frontal structure between the coastal waters and Ligurian Sea. The time of day of this transect should be similar for each cruise, if possible to minimise influence of diurnal variability.

Additional operations

2 reporters from “France 3 - Côte d’Azur” went onboard to make a news sequence on the Climate Change.
The buoy clock had to be set again, as there was a reset to January 1, 1970, again…

Cruise Summary

Weather conditions were very poor for quite the entire cruise period. Only on the first day the wind was no too excessive and allowed to perform some measurements.
The CTD deck unit encountered some pb just after the station 2 of the transect between the BOUSSOLE site and the port of Nice. Even after a new electric cable connection, the CTD on the transect were interrupted for deck unit errors.
The buoy data retrieval from the CISCO wireless connection didn’t work, so that the data were retrieved from the head of the buoy. In fact the clock of the buoy was offset back to January 1970, and the buoy didn’t try a connection when the ship was turning around, as it was around midnight for the buoy.

Thursday 21 June 2007

Departure from the port was delayed for this day (food supplies were late and even cancelled, and furthermore we were invited by the port authority to bring the CTD/rosette trailer back to Villefranche). Operations performed this day were diving cleaning and pictures taking, 4 SPMR profiles, the buoy clock setting, 1 CIMEL measurement, 1 Secchi disk measurement, CDOM water sampling and 3 CTD casts, among which 2 on the transect between the ste and the port of Nice. After the station 2 of the transect, the CTD deck unit was going out of order and prevented to finish the other casts. The ship left for the port of Nice where the connection of the electric cable was wired again by Dominique Tailliez.

Friday 22 June 2007

Operations at sea for this day were only 3 CTD casts to attempt to finish the transect between the site and the port of Nice, but again, an error in the CTD deck unit prevented to accomplish these measurements. Then, the wind began to blow up to 18 knots, and the ship left to the port of Nice.

Saturday 23 June 2007

Bad weather prevented Departure from the port of Nice.

Cruise Report

21 June 2007 (UTC)

0730 Departure from the port of Nice.
1050 Divers at Sea.
1142 CIMEL 01, close to the buoy.
1150 Buoy data retrieval from the head of the buoy, as the CISCO connection didn't work.
1225 SPMR profiles 01, 02, 03 and 04.
1320 Secchi disk 01.
1333 CTD 01, 400 m, close to the buoy, with water sampling at 200, 150, 80, 70, 60, 50, 40, 30, 20, 10 and 5 meters for HPLC and Ap.
1435 Departure from the BOUSSOLE site.
1507 CTD 02, station 01 (43°25'N 07°48'E).
1822 CTD 03, station 02 (43°28'N 07°42'E).

22 June 2007

0700 Departure from the port of Nice.
0803 CTD 04, station 06 (43°39'N 07°21'E).
0855 CTD 05, station 05 (43°37'N 07°25'E).
1002 CTD 06, station 04 (43°34'N 07°31'E).

23 June 2007

Bad weather conditions prevented the departure.

Calculated Swath paths for the MERIS Sensor (ESOV Software)

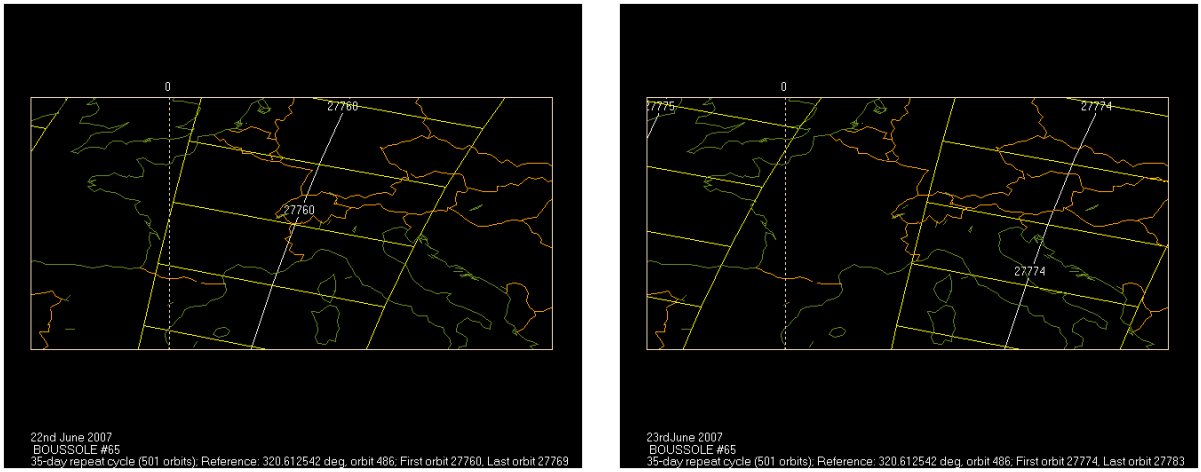
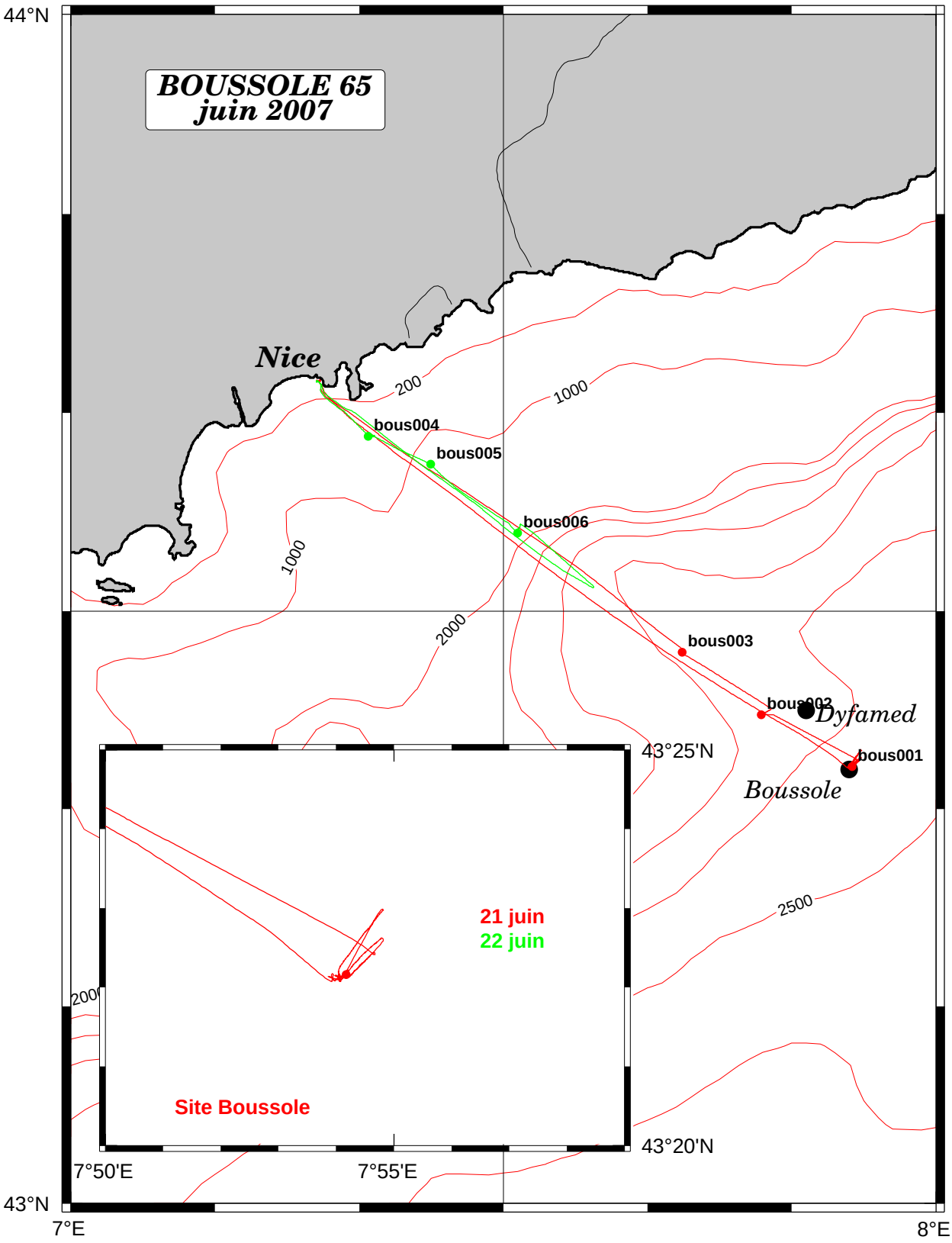


Figure 2. Calculated swath paths for MERIS (Esov software) above BOUSSOLE site for June 22 and 23, 2007.

Appendix

Cruise Summary Table for Boussole 65

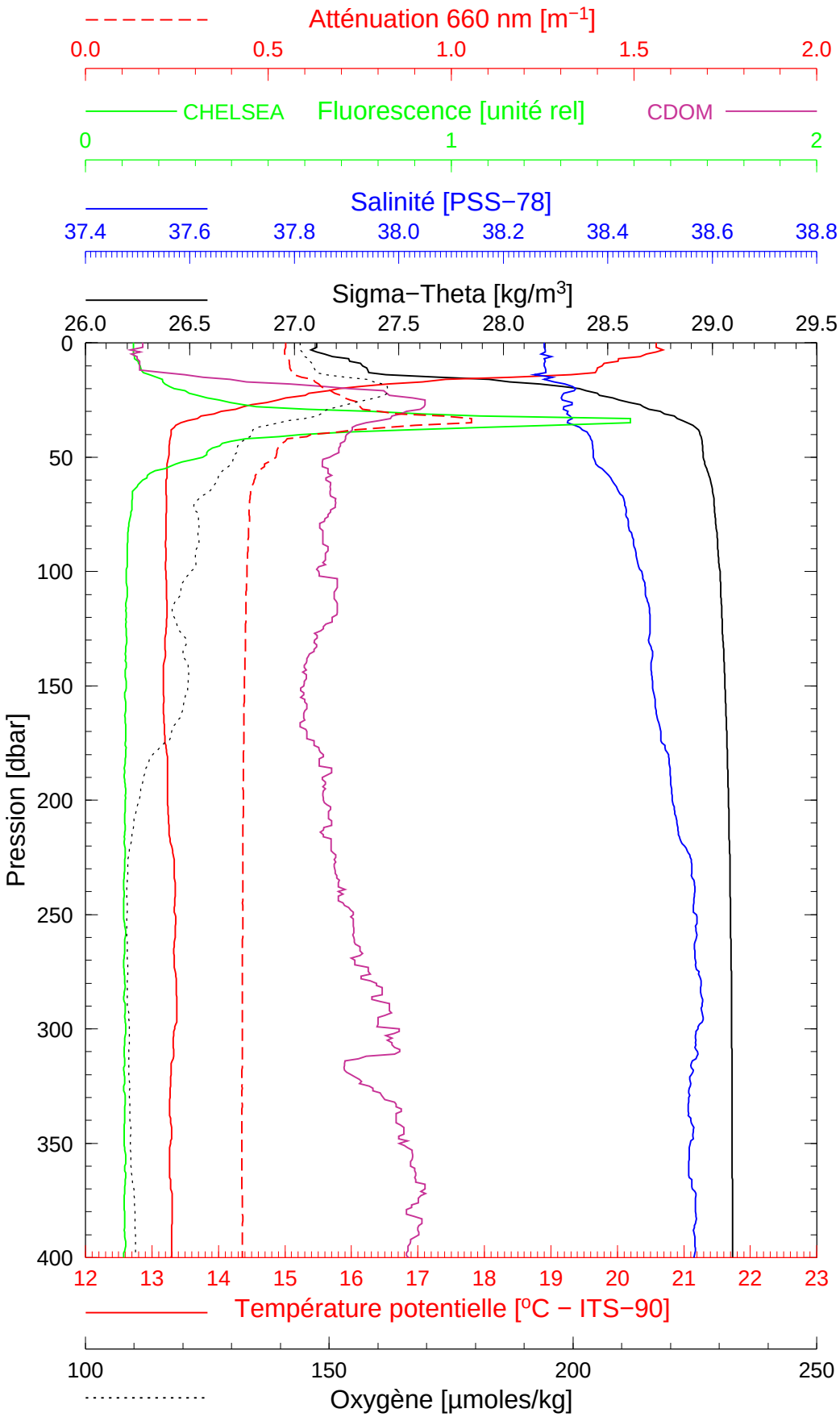
Date	Black names	Profile names	CTD notées /	Start Time	Duration	Depth max	Latitude (N)		longitude		Other sensors	Their cast	Start/Finish			Weather							Sea		
	(file ext: ".raw")	(file extension: ".raw")	satellite overpass	GMT (hour.min)	(min.sec)	(meter)	(Degree)	(Minute)	(Degree)	(Minute)				Sky	Clouds	Quantity (#/8)	Wind speed	Wind dir.	Atm. Pressure	humidity	Visibility	T air	T water	Sea	Swell height	Swell dir.	Whitecaps
				11:42	01:00		43	22.000	7	54.000	CIMEL 01			blue, slig. milky	no	1			1014.0								
	bou210607black1			12:22	03:00																						
		bou210607AA		12:29	03:25	150	43	22.312	7	54.127				blue, slig. milky	no	0	10 kn	185	1013.7	92	very good	21.7		moder. choppy	0,6 m		some
		bou210607AB		12:39	04:59	150	43	22.422	7	54.227				blue, slig. milky	no	0	10 kn	185	1013.7	92	very good	21.7		moder. choppy	0,6 m		some
		bou210607AC		12:49	05:11	150	43	22.668	7	54.476				blue, slig. milky	no	0	10 kn	185	1013.7	92	very good	21.7		moder. choppy	0,6 m		some
21/06/2007		bou210607AD		13:01	06:58	150	43	22.943	7	54.771				blue, slig. milky	no	0	10 kn	185	1013.7	92	very good	21.7		moder. choppy	0,6 m		some
	bou210607black2			13:24	03:00																						
				12:20	05:00	20	43	22.000	7	54.000	Secchi disk 01			blue, slig. milky	no	0											
			CTDBOUS001	13:33	29:00	400	43	22.164	7	54.170				blue, slig. milky	no	1	11 kn	205	1013.4	93	very good	21.7	20.8	choppy	0,9 m		yes
			CTDBOUS002	15:17	26:00	400	43	24.778	7	47.903				blue, slig. milky	no	1	10 kn	208	1013.3	98	very good	22.0	21.6	choppy	1,1 m		yes
			CTDBOUS003	16:22	27:00	400	43	27.944	7	47.903				blue, slig. milky	no	1	18 kn	180	1012.4	91	very good	21.8	21.4	choppy	1,1 m		yes
			CTDBOUS004	08:03	26:00	400	43	38.816	7	20.641				covered	homog.	4	10 kn	203	1012.5	82	very good	22.1	22.6	choppy	1,1 m		yes
22/06/2007			CTDBOUS005	08:55	25:00	400	43	37.413	7	24.949				covered	homog.	4	14 kn	218	1012.9	70	very good	22.6	22.4	choppy	1,1 m		yes
			CTDBOUS006	10.02	27:00	400	43	33.946	7	30.993				covered	homog.	4	17 kn	187	1012.7	86	very good	21.5	21.9	choppy	1,1 m		yes



GMT 2007 Jul 9 16:16:55

Boussole 65 **21/06/2007** **BOUS070621_01**

BOUS001

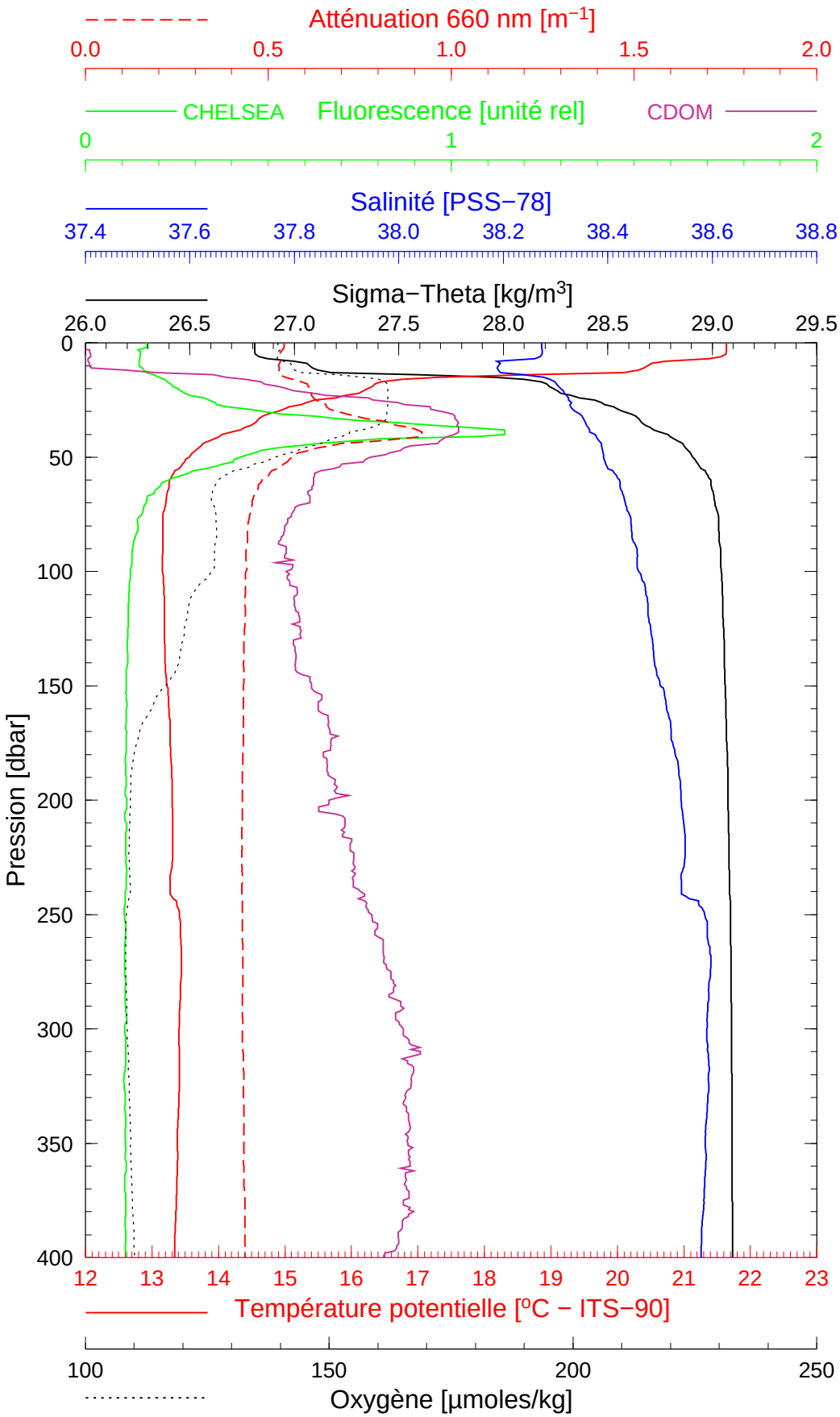


Date *21/06/2007* *Latitude* *43°22.164 N*

Heure déb *13h 33min [TU]* *Longitude* *07°54.170 E*

Boussole 65 **21/06/2007** **BOUS070621_02**

BOUS002

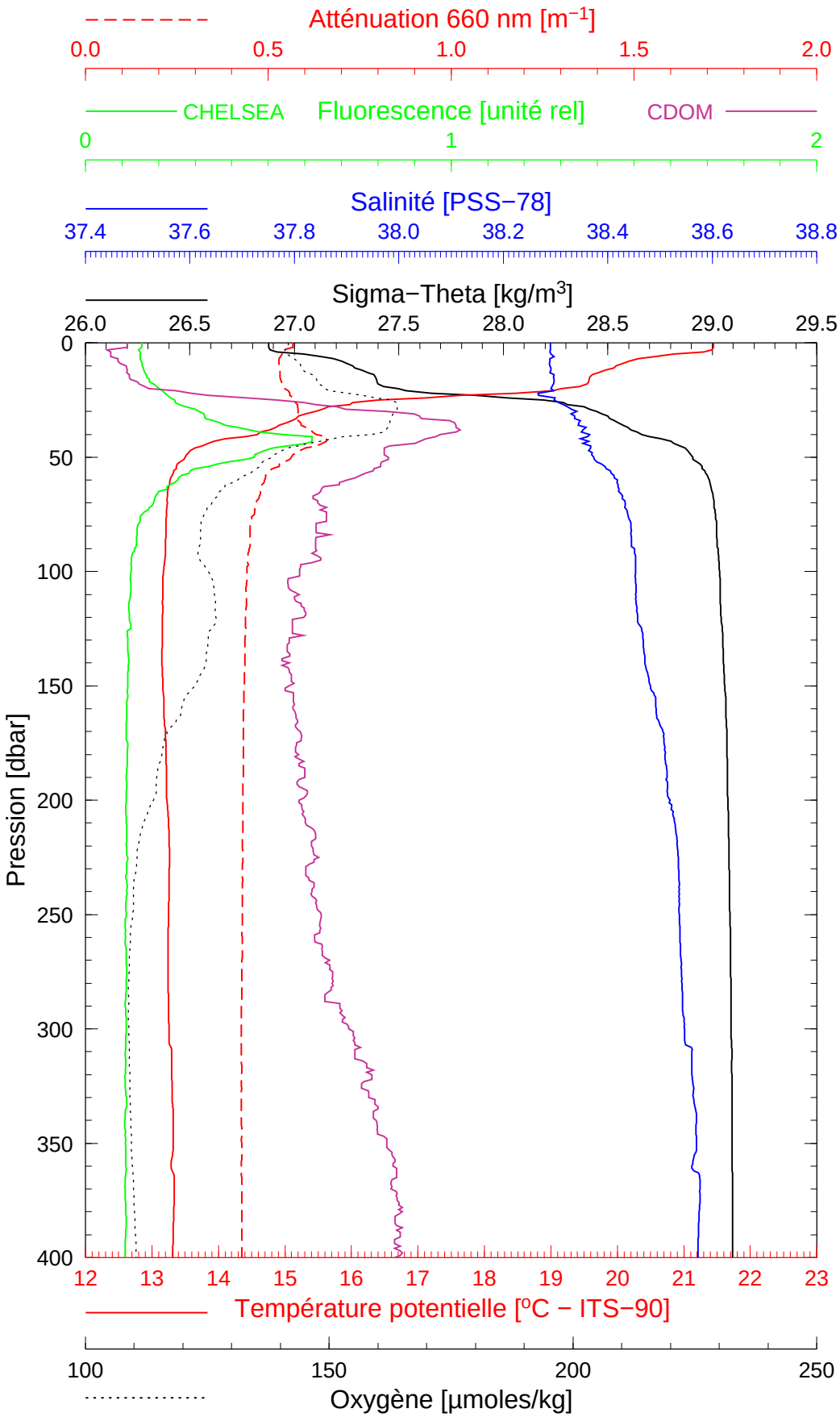


Date *21/06/2007* *Latitude* *43°24.778 N*

Heure déb *15h 17min [TU]* *Longitude* *07°47.903 E*

Boussole 65 **21/06/2007** **BOUS070621_03**

BOUS003

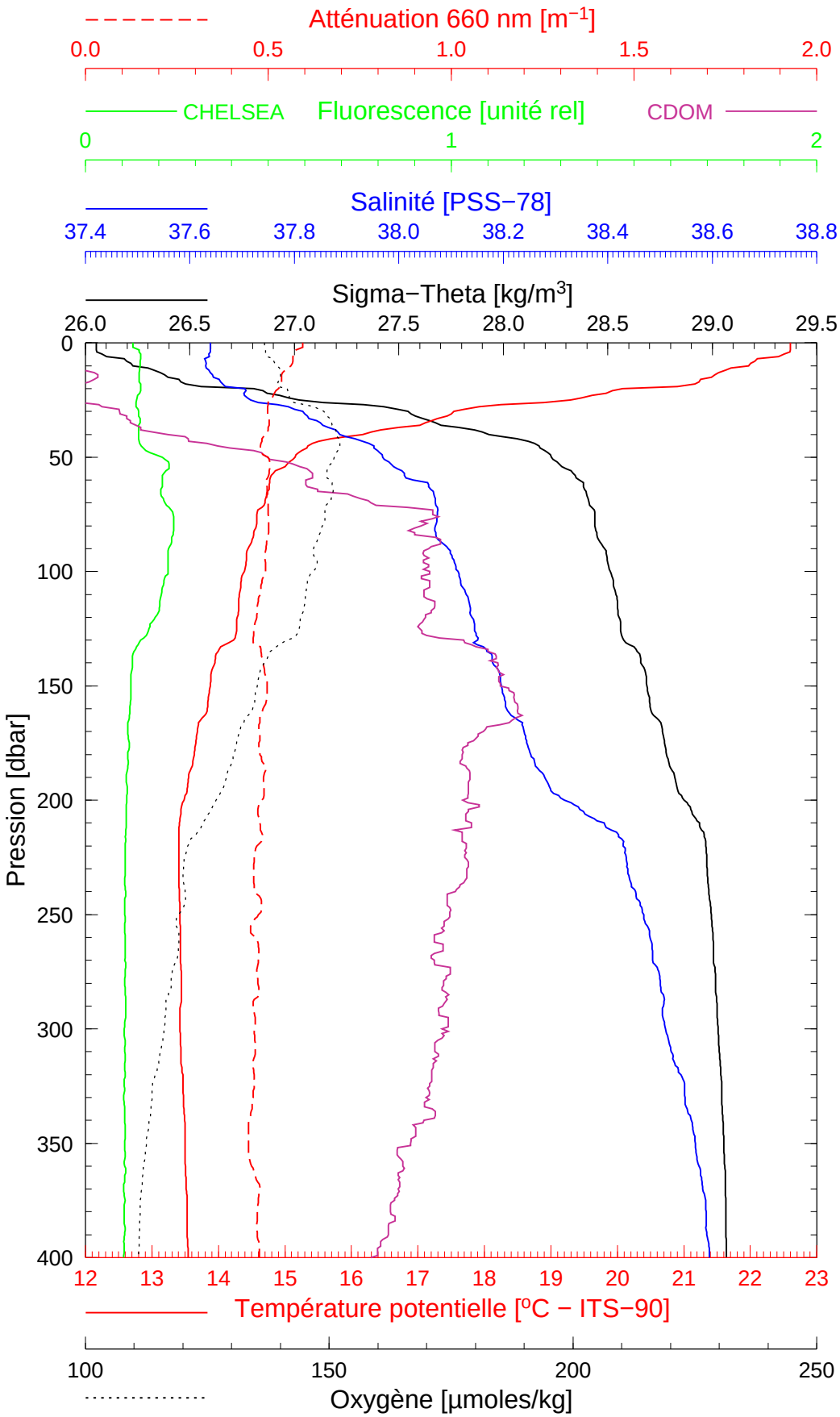


Date *21/06/2007* *Latitude* *43°27.944 N*

Heure déb *16h 22min [TU]* *Longitude* *07°42.418 E*

Boussole 65 **22/06/2007** **BOUS070622_01**

BOUS004

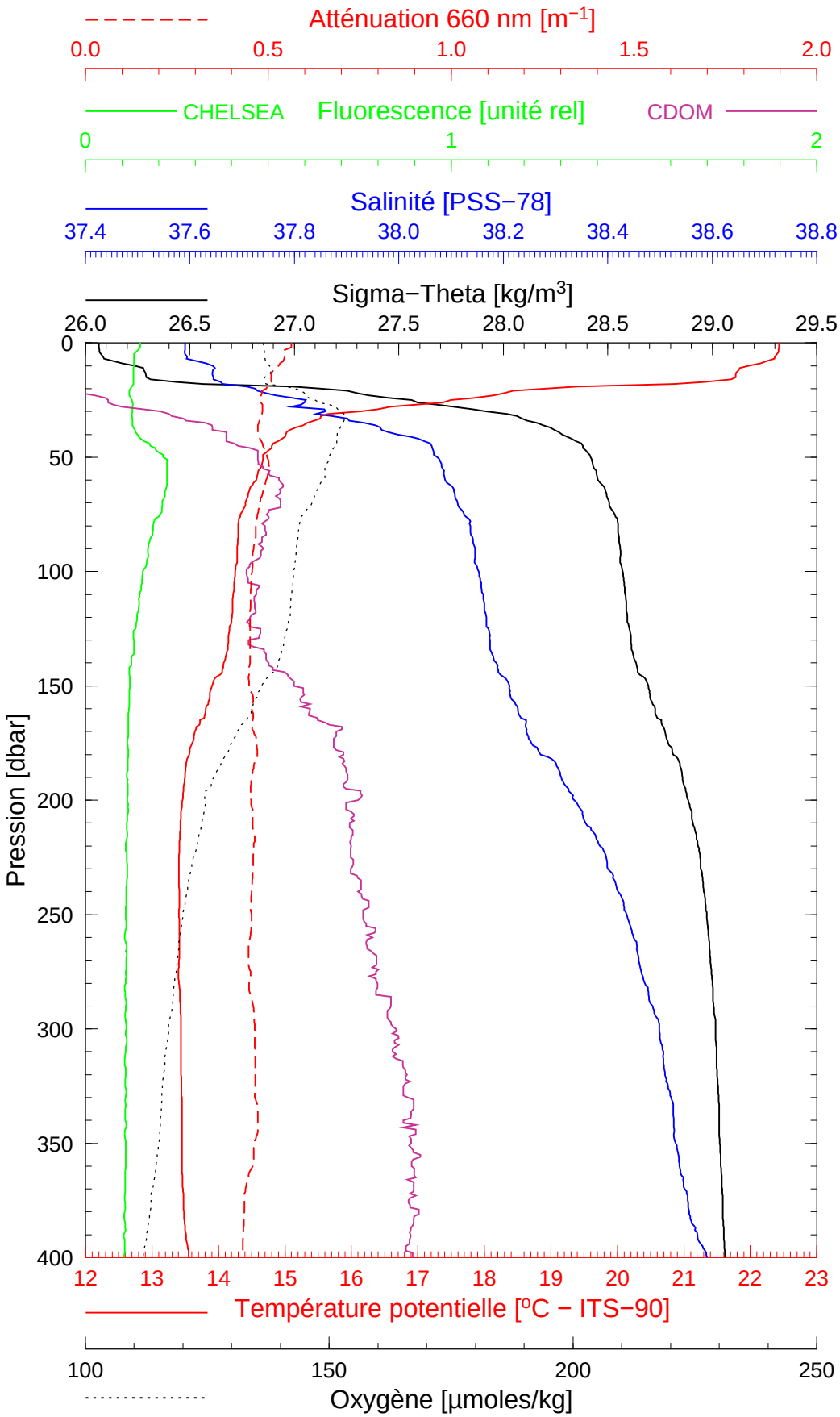


Date *22/06/2007* *Latitude* *43°38.816 N*

Heure déb *08h 03min [TU]* *Longitude* *07°20.641 E*

Boussole 65 **22/06/2007** **BOUS070622_02**

BOUS005

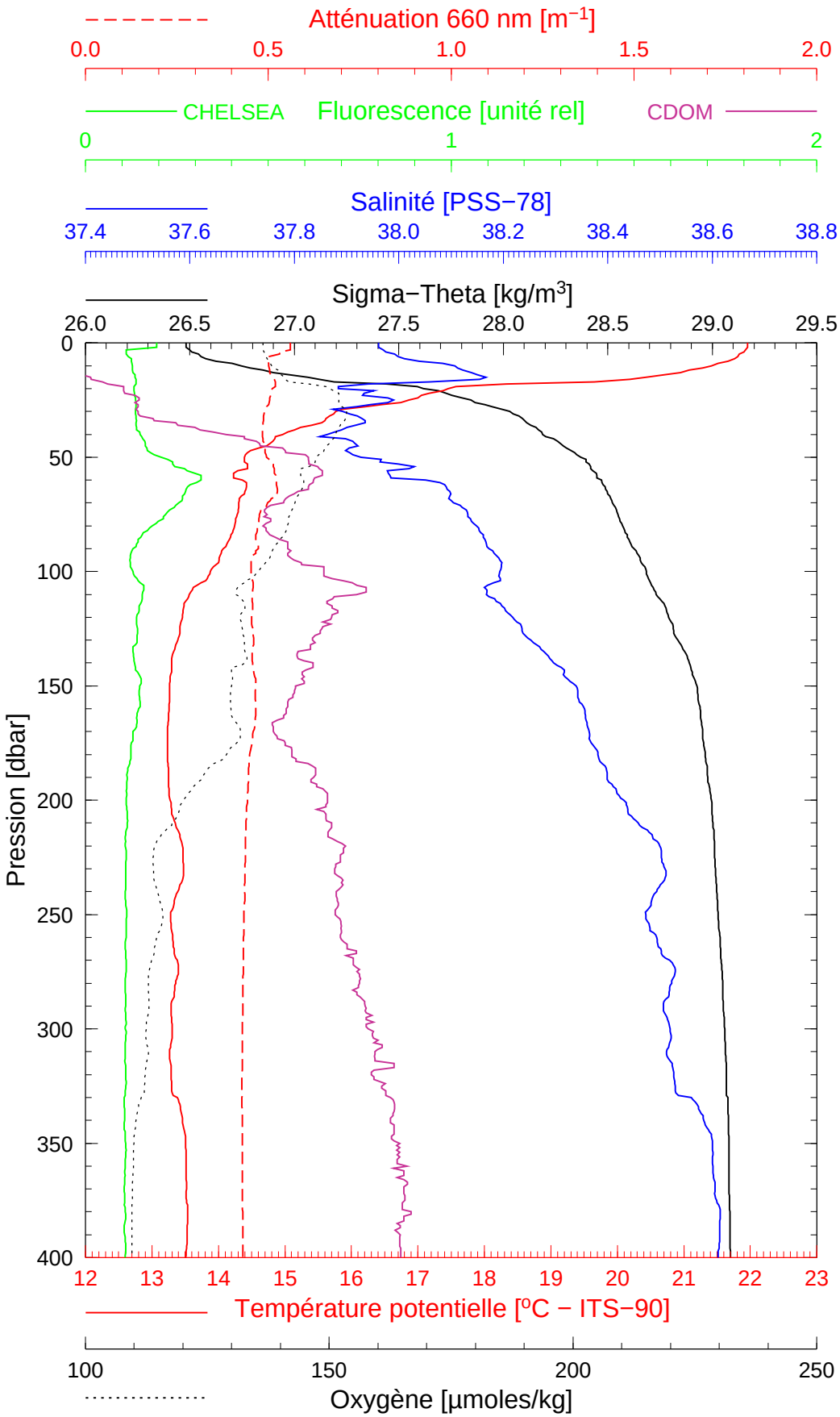


Date *22/06/2007* *Latitude* *43°37.413 N*

Heure déb *08h 55min [TU]* *Longitude* *07°24.949 E*

Boussole 65 **22/06/2007** **BOUS070622_03**

BOUS006



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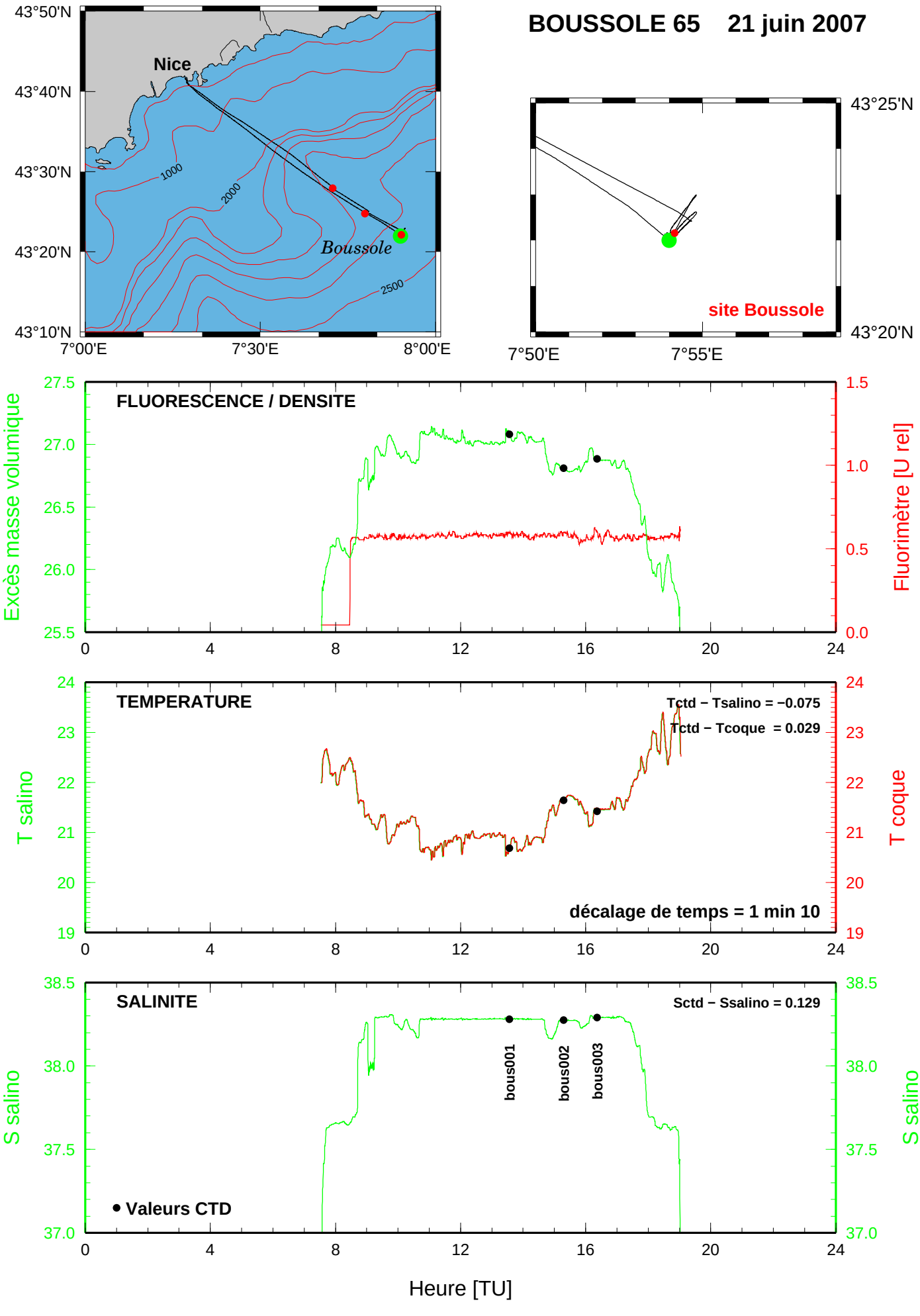
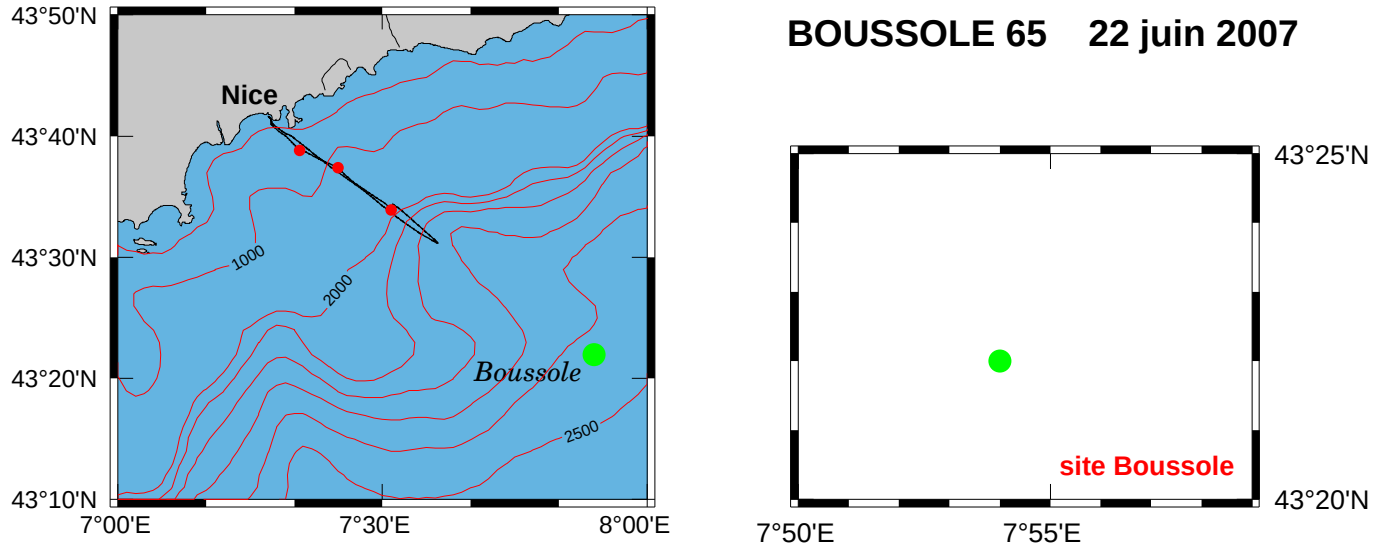
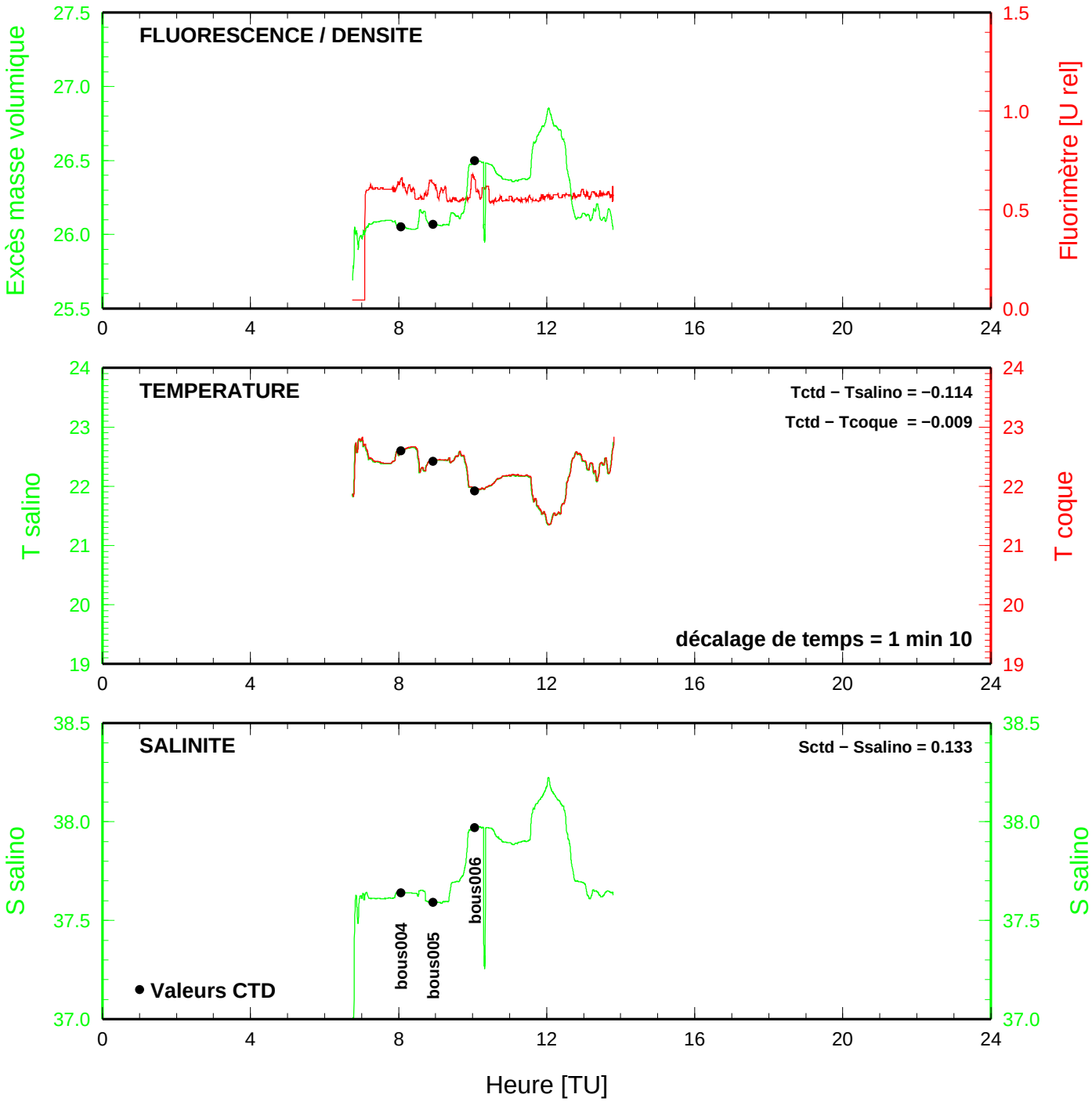
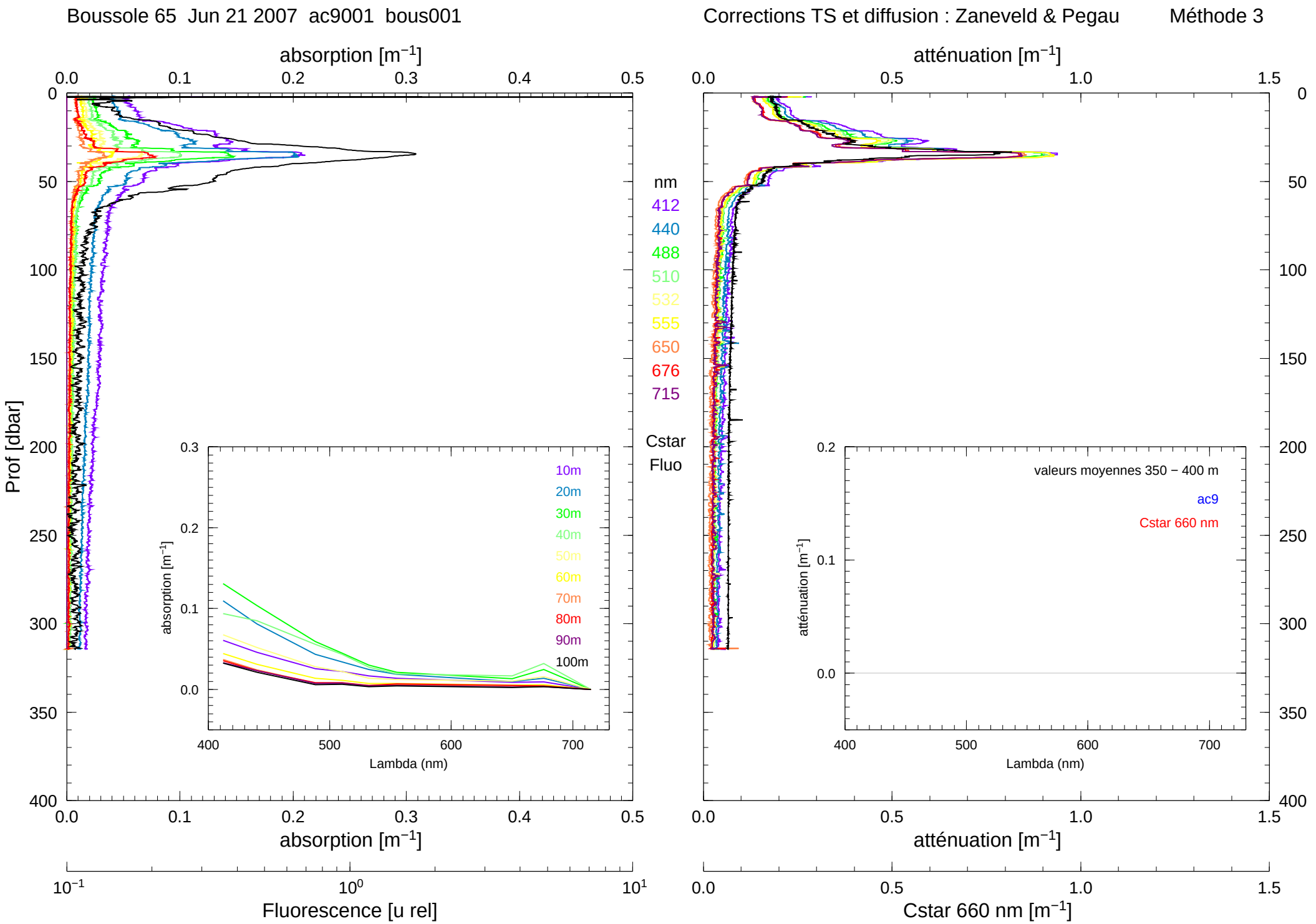
Heure déb *10h 02min [TU]* *Longitude* *07°30.993 E*


BOUSSOLE 65 21 juin 2007
Nice
Boussole
1000
2000
2500
43°50'N
43°40'N
43°30'N
43°20'N
43°10'N
7°00'E
7°30'E
8°00'E
site Boussole
43°25'N
43°20'N
7°50'E
7°55'E
FLUORESCENCE / DENSITE
Excès masse volumique
Fluorimètre [U rel]
TEMPERATURE
Tctd − Tsalino = −0.075
Tctd − Tcoque = 0.029
décalage de temps = 1 min 10
T salino
T coque
SALINITE
Sctd − Ssalino = 0.129
bous001
bous002
bous003
• Valeurs CTD
S salino
Heure [TU]

BOUSSOLE 65 22 juin 2007



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Corrections TS et diffusion : Zaneveld & Pegau Méthode 3
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atténuation [m−1]
Prof [dbar]
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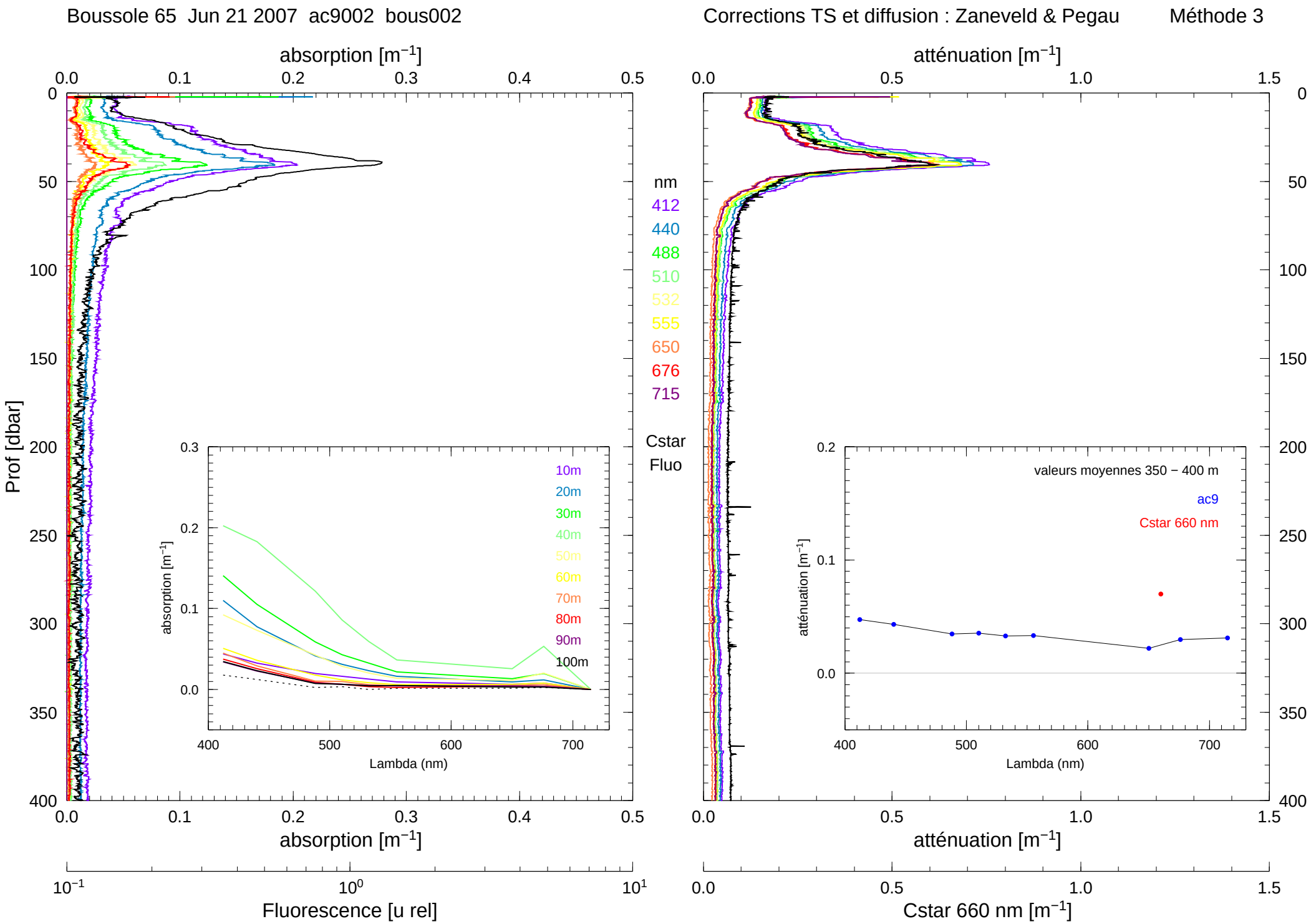
Lambda (nm)
valeurs moyennes 350 − 400 m
ac9
Cstar 660 nm
Fluorescence [u rel]
Cstar 660 nm [m−1]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Fluorescence [u rel]
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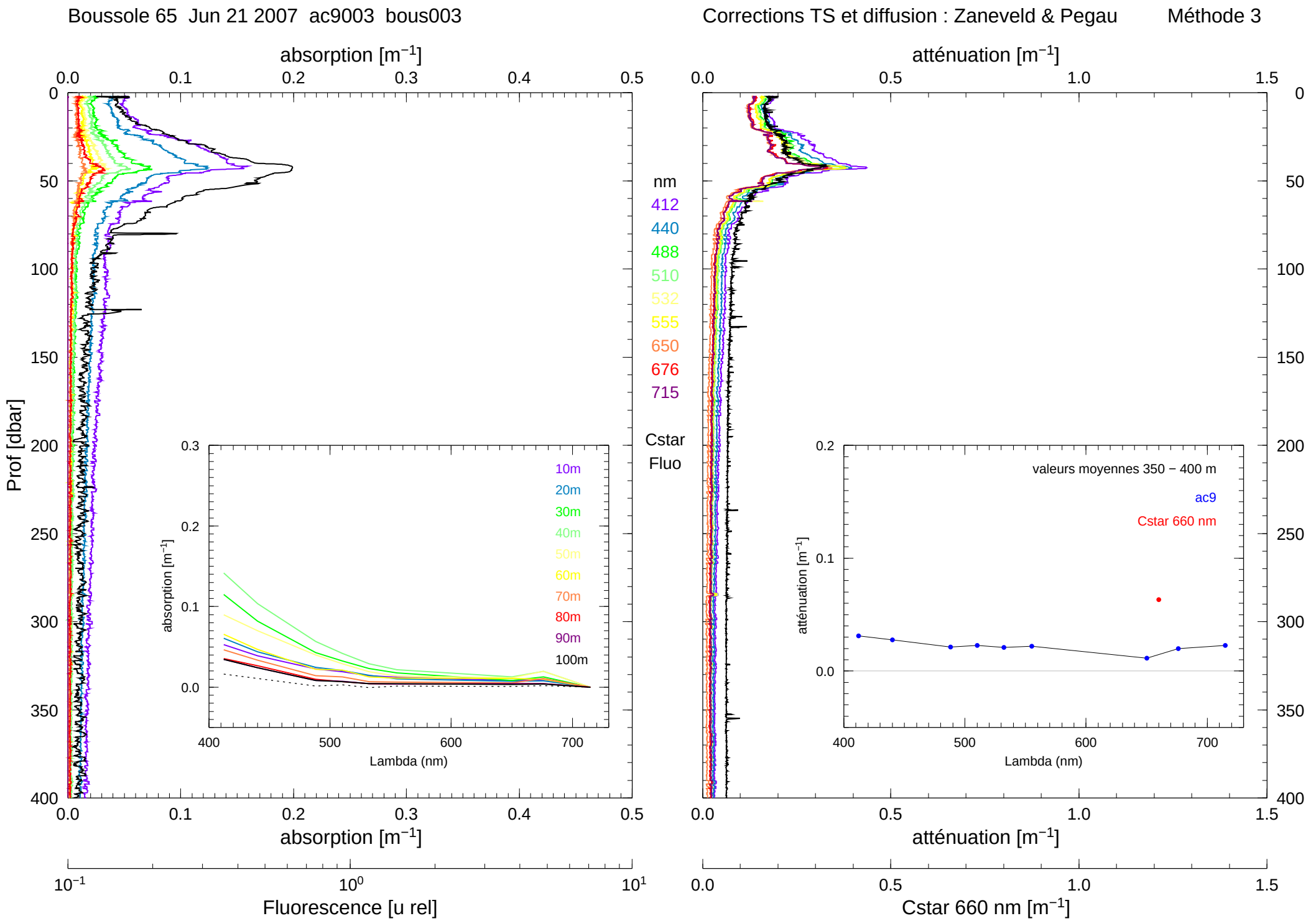
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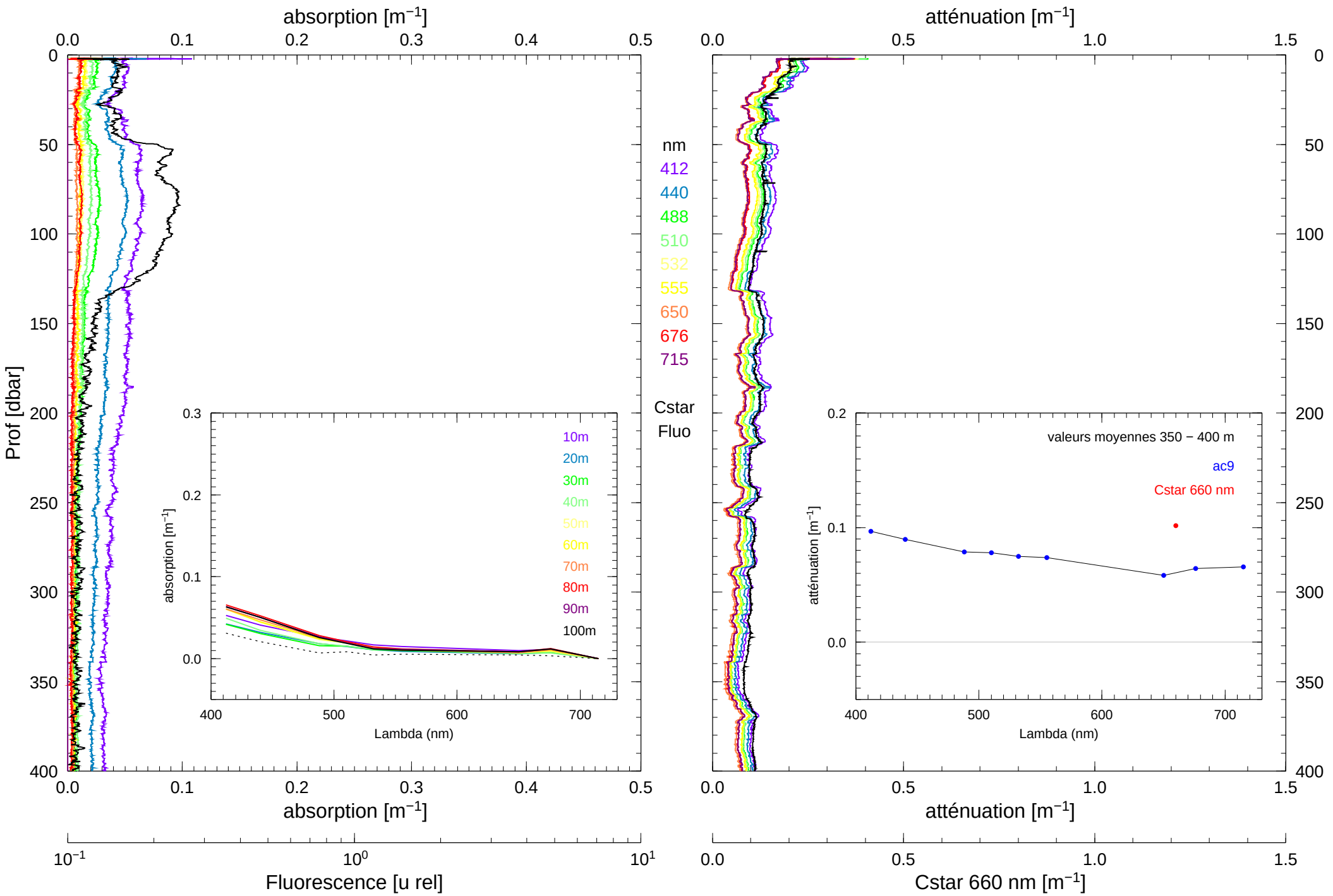
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Fluorescence [u rel]
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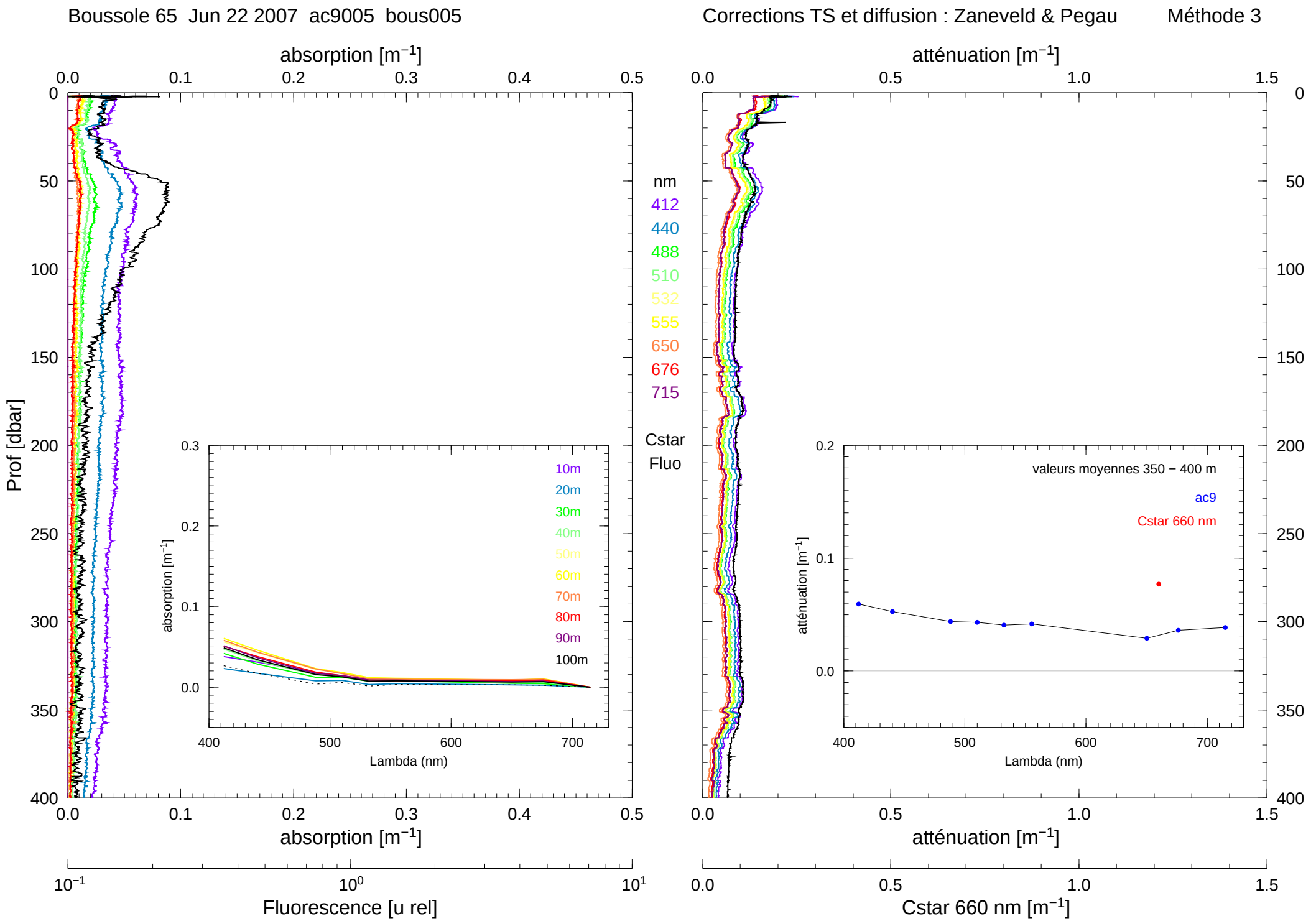
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Fluorescence [u rel]
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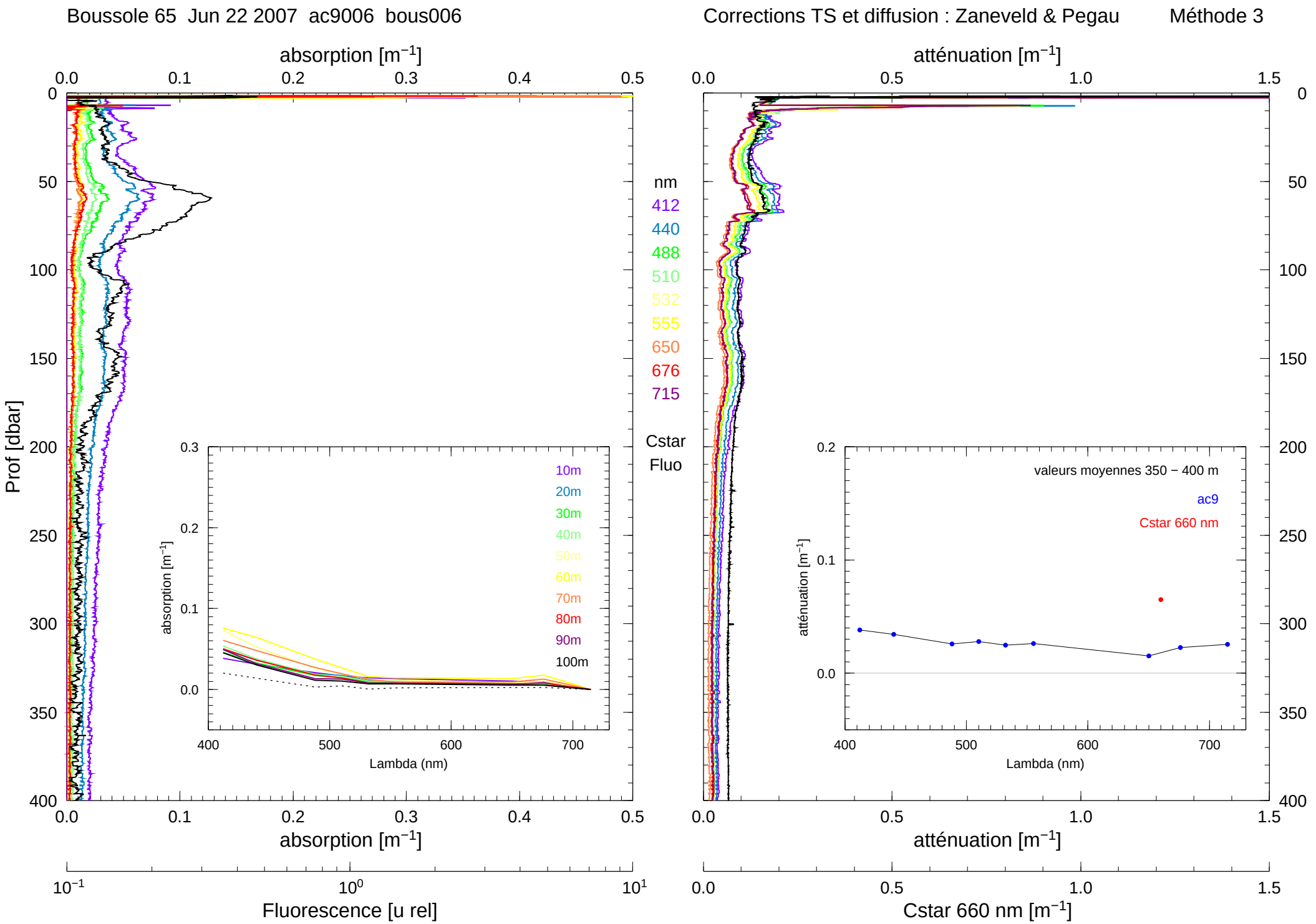
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Lambda (nm)
valeurs moyennes 350 − 400 m
ac9
Cstar 660 nm
Fluorescence [u rel]
Cstar 660 nm [m−1]