Physical data report by station

Station n°131

LMD / UMR 8539 / Paris / France
LPO / UMR 6523 / Brest / France
IBENS / INSERM 1024 stations/ CNRS 8197 / Paris / France

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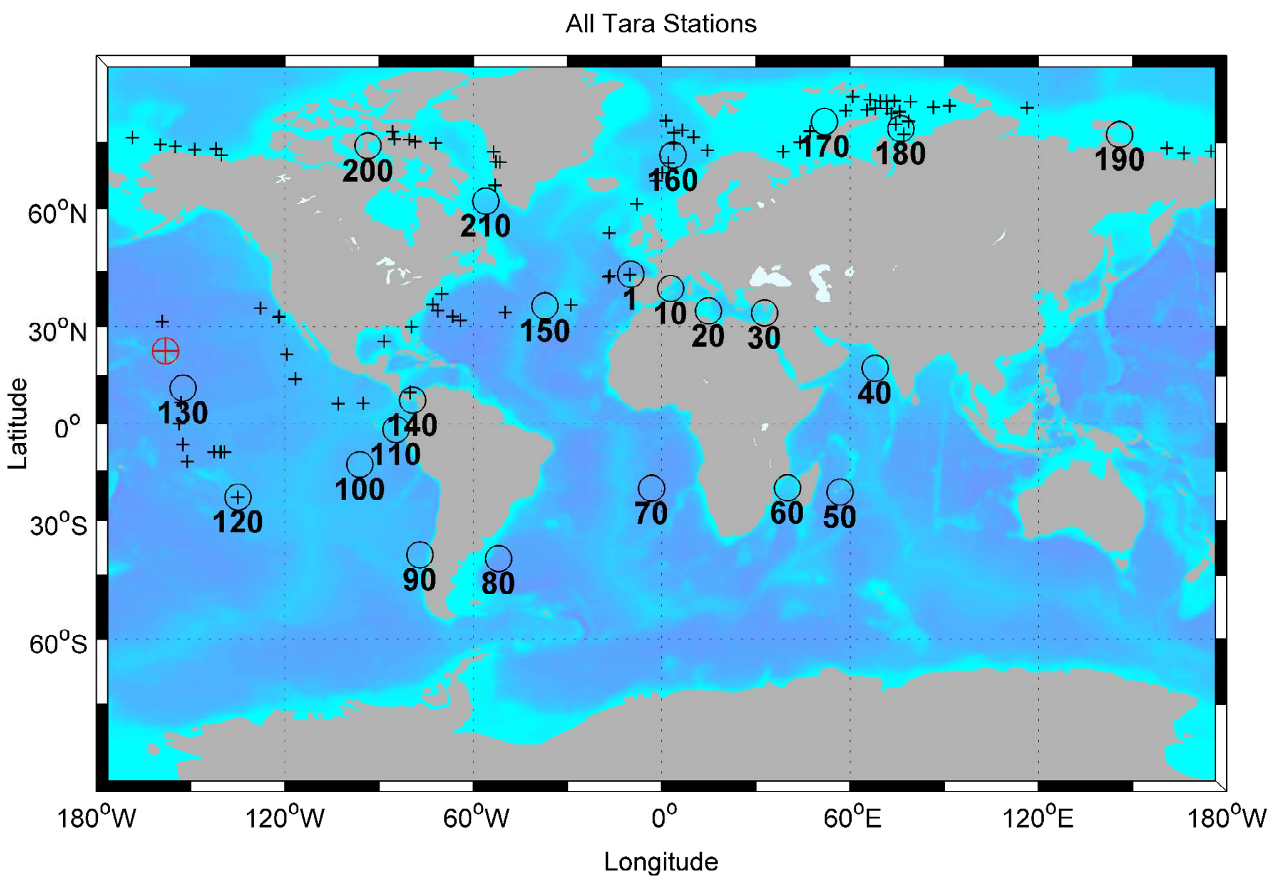

Contents

Station overview

We present here the geographical situation of the station and a quick overview of the physical data available. For more information please see the next sections. About availability in the table below, 1 means "available" and 0 "not available".

Station n°	131
Location	North Pacific Ocean
Date	29/9/2011
Mean Longitude	-158.0013°
Mean Latitude	22.7519°
CTDs profiles	9

Availability:	
UV Satellite fields	1
SST Satellite fields	1
SSS Satellite fields	1
SSH Satellite fields	1
CHL1 Satellite fields	1
Argo floats	1

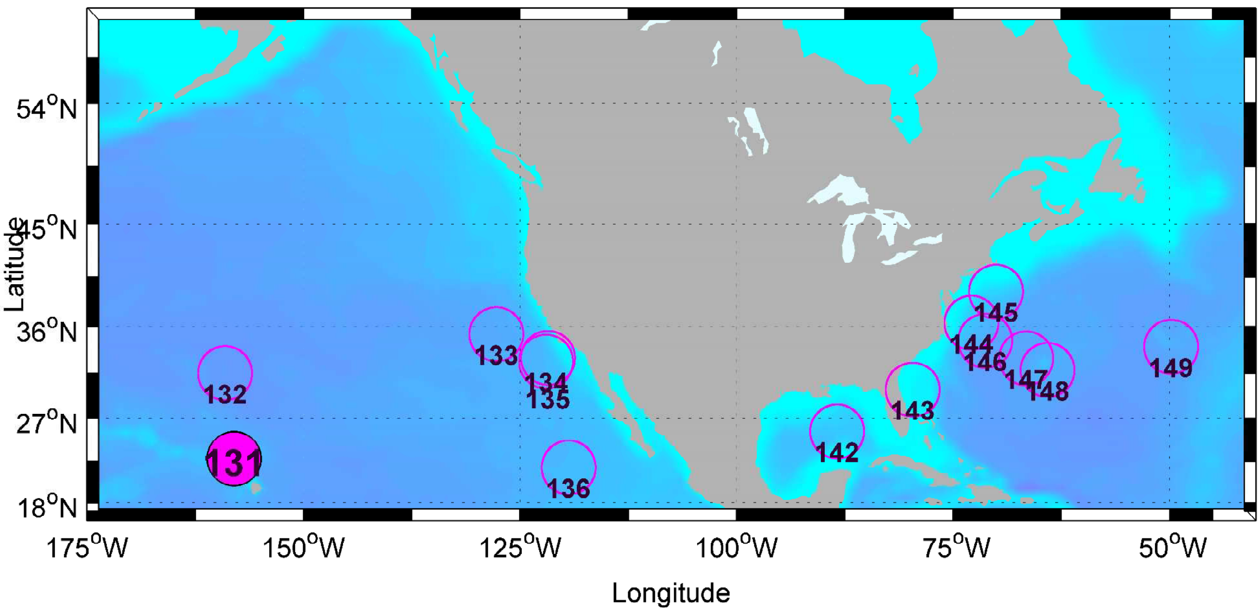

Figure 1: Filled magenta black circle indicate the station of this study.

1 Sea surface temperature, height and chlorophyll

1.1 Introduction

We present here several sea surface properties at the station position using satellite data (SSH $[m]$ in Fig.2 and Fig.3, the SST $[°C]$ in Fig.4 and Fig.5 and the CHL1 $[mg/m^3]$ in Fig.6 and Fig.7). We give definitions and information about these quantities below:

- Sea Surface Height (SSH): Maps of Absolute Dynamic Topography (MADT) from the global 1/4° (approx. $27km$) Daily Delayed Time Archiving Validation and Interpretation of Satellite Data in Oceanography (AVISO) field (Rio and Hernandez, 2004; Capet et al., 2014). The altimeter products were produced by Ssalto/Duacs and distributed by Aviso, with support from Cnes (`http://www.aviso.oceanobs.com/duacs/`).
- Sea Surface Temperature (SST): OSTIA uses satellite data provided by the GHRSST project, together with in-situ observations to determine the sea surface temperature. The analysis is performed using a variant of optimal interpolation (OI) described by Martin et al. (2007). The National Centre for Ocean Forecasting produces the analysis at a resolution of 1/20° (approx. $5km$). OSTIA data is provided in GHRSST netCDF format every day.
- Chlorophyll (CHL1): Weekly 1/10°Chlorophyll maps processed and distributed by ACRI-ST GlobColour service, supported by EU FP7 MyOcean & ESA GlobColour Projects, using ESA ENVISAT MERIS data, NASA MODIS and SeaWiFS data.

Legend In order to relieve figures we describe here their general legend:

- ● indicate the casts of Tara stations identified by their respective numbers.
- ○ are used to locate other Tara's stations around.
- □ refer to CTD profiles. When filled, each colour corresponds to a reference used in profiles plots (see CTD section) to make distinction between them.
- We indicate bathymetry by grey contours, horizontal geostrophic surface velocity field by dark arrows proportional to the current intensity, and SSH field by white contours.
- The ▼ is the nearest coast point (zlevel=0) of each ctd profile from etopo2 database
- When shown, $\bigtriangledown$ represent Argo's data available around the mean longitude and latitude position of CTDs. We defined a box around the mean position with $\Delta X \pm 4°$ $lat - lon$ and $\Delta t \pm 15$ $julian\ days$. Argo's numbers are only an index.
- Date refers to the day when SST, SSH or Chlorophyll maps are available.

1.2 SSH maps

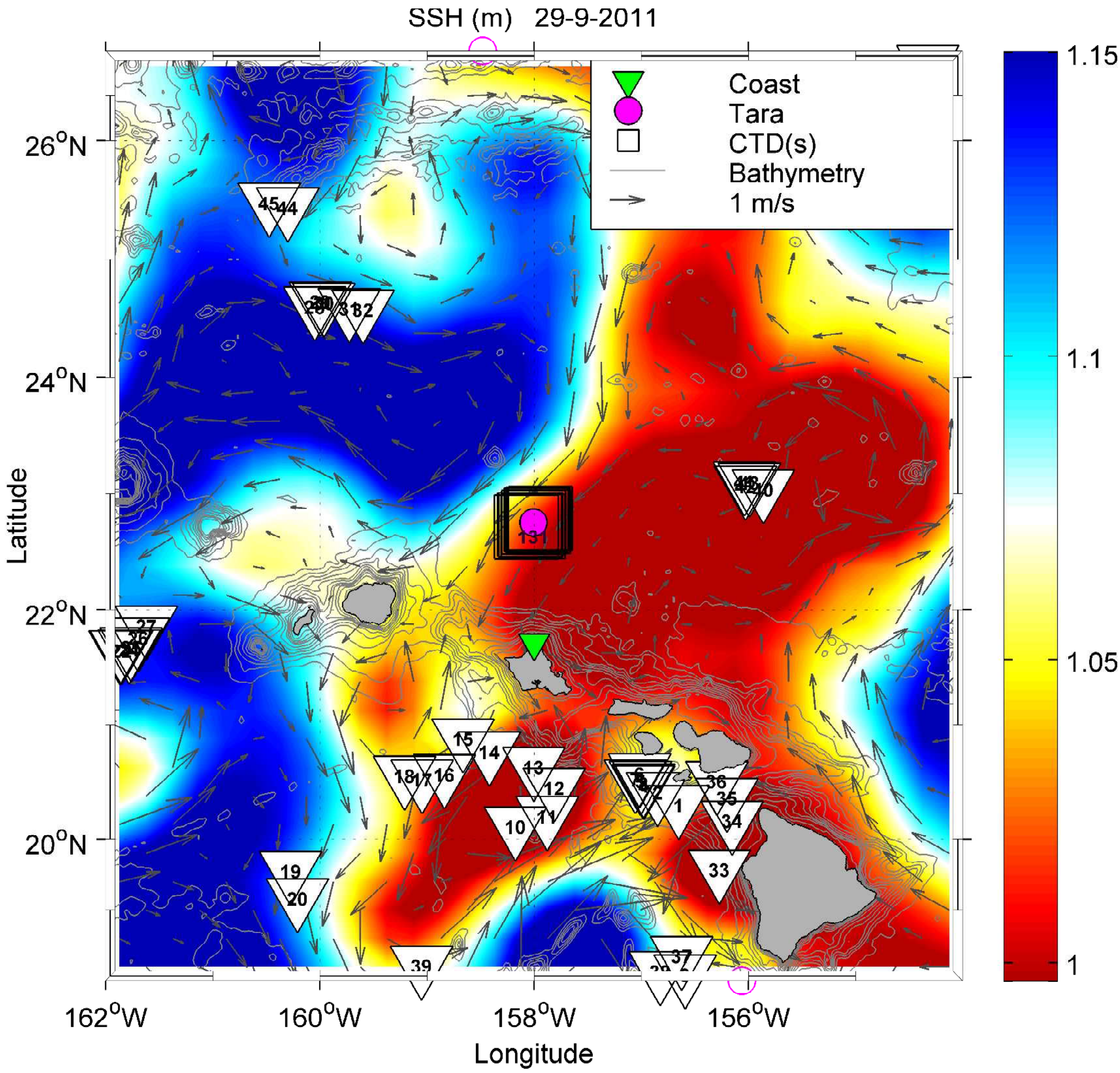

Figure 2: Description: see legend p. 14

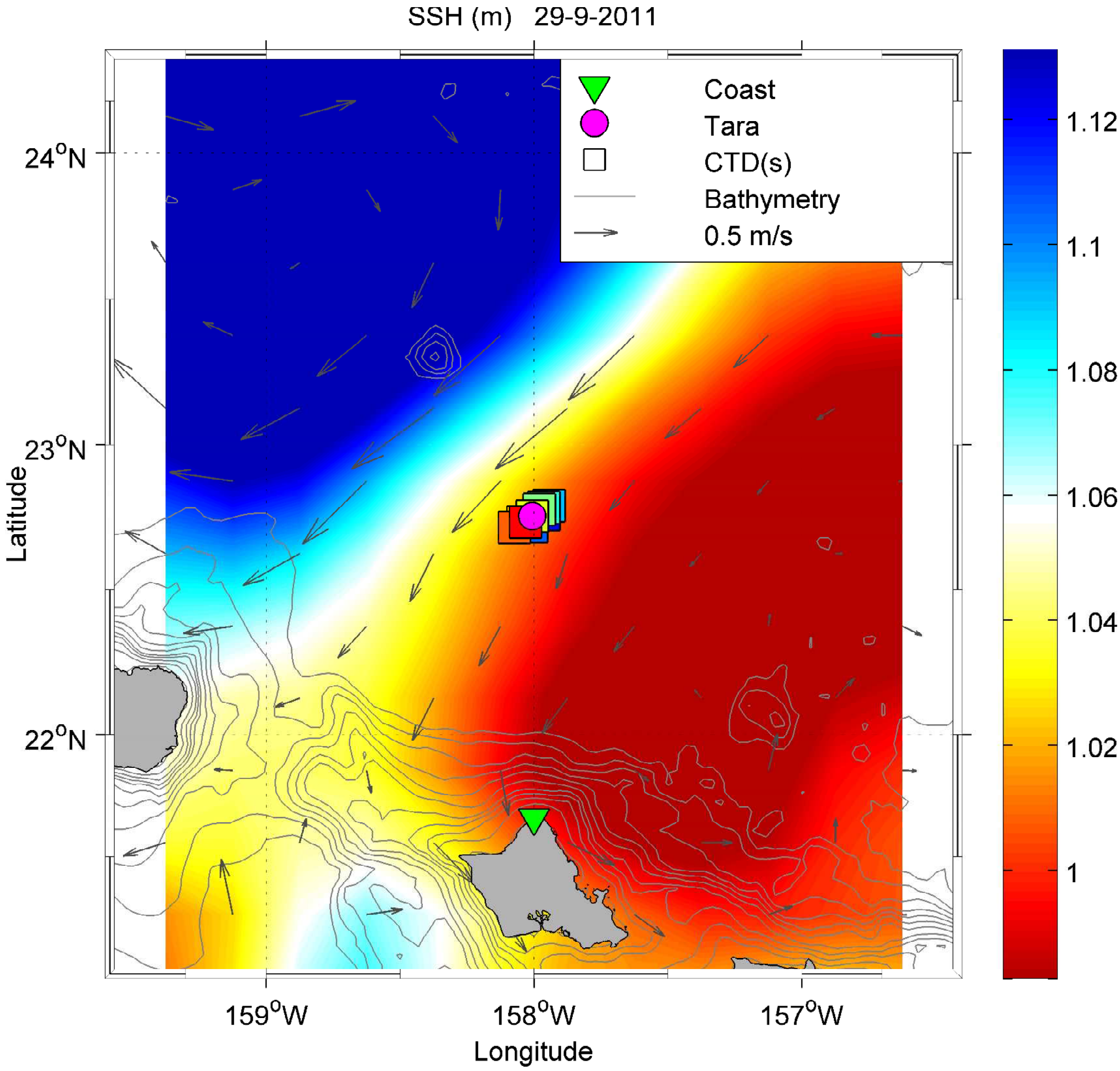

Figure 3: Description: see legend p. 14

1.3 SST maps

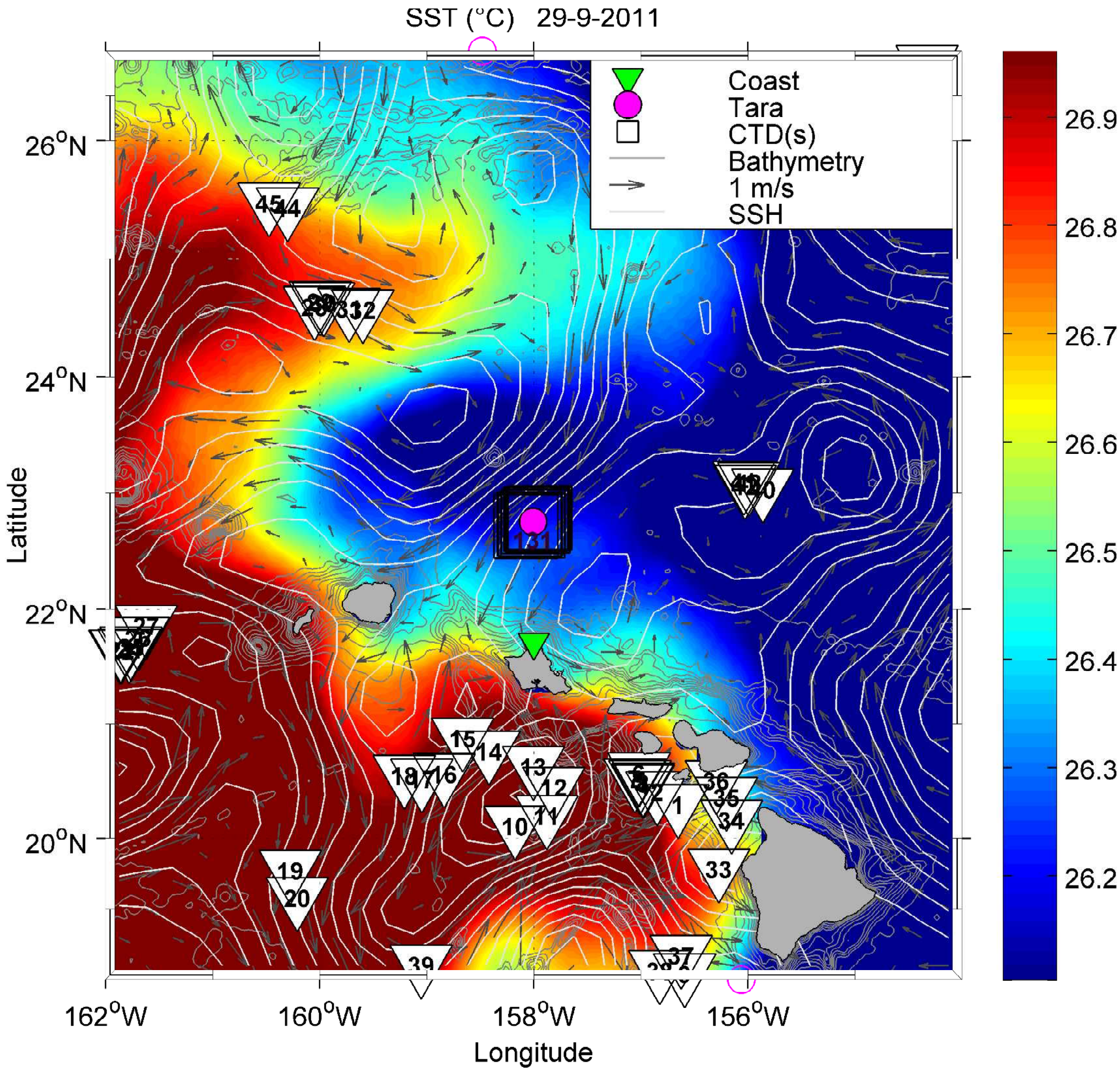

Figure 4: Description: see legend p. 14

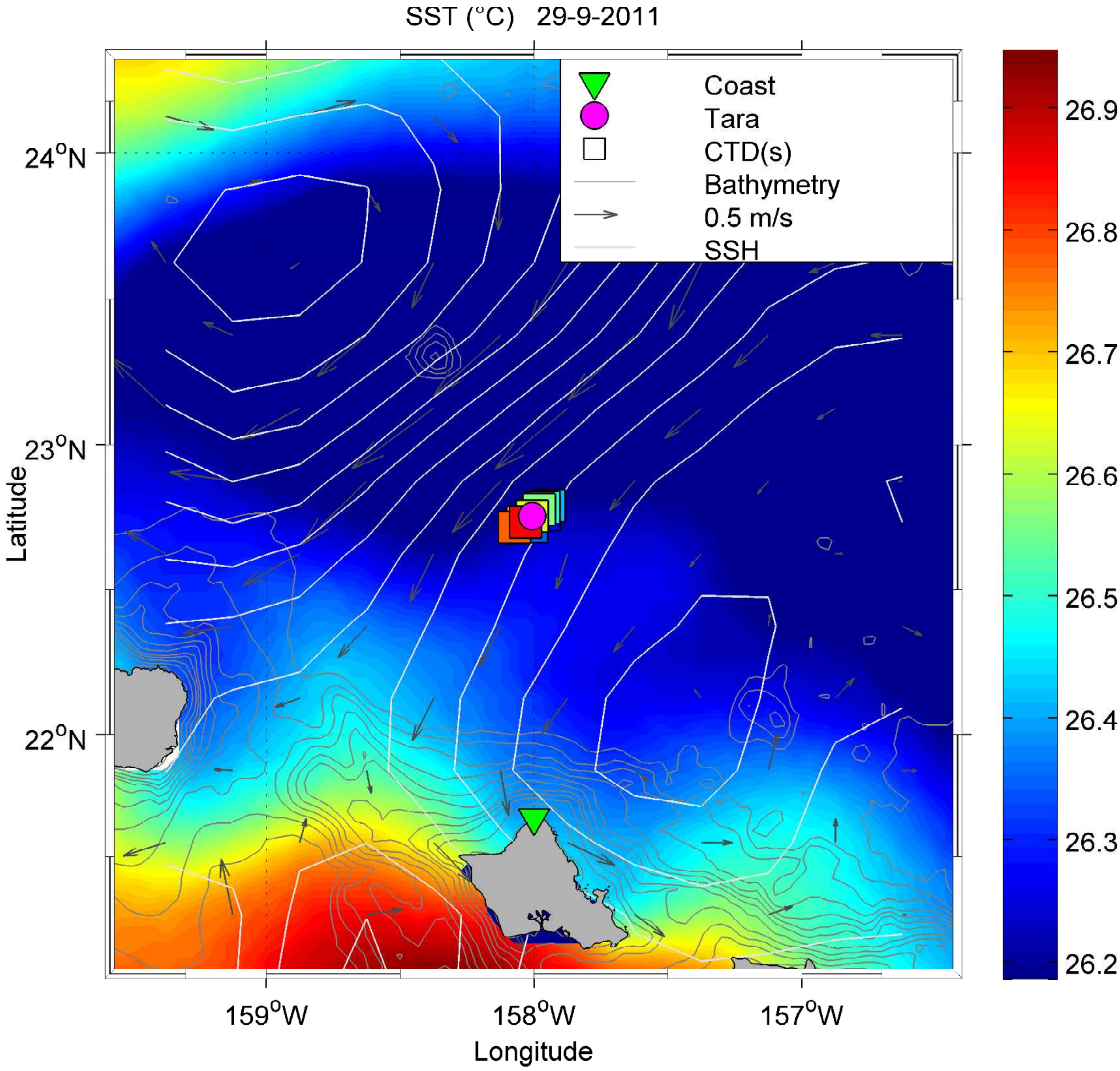

Figure 5: Description: see legend p. 14

1.4 Chlorophyl maps

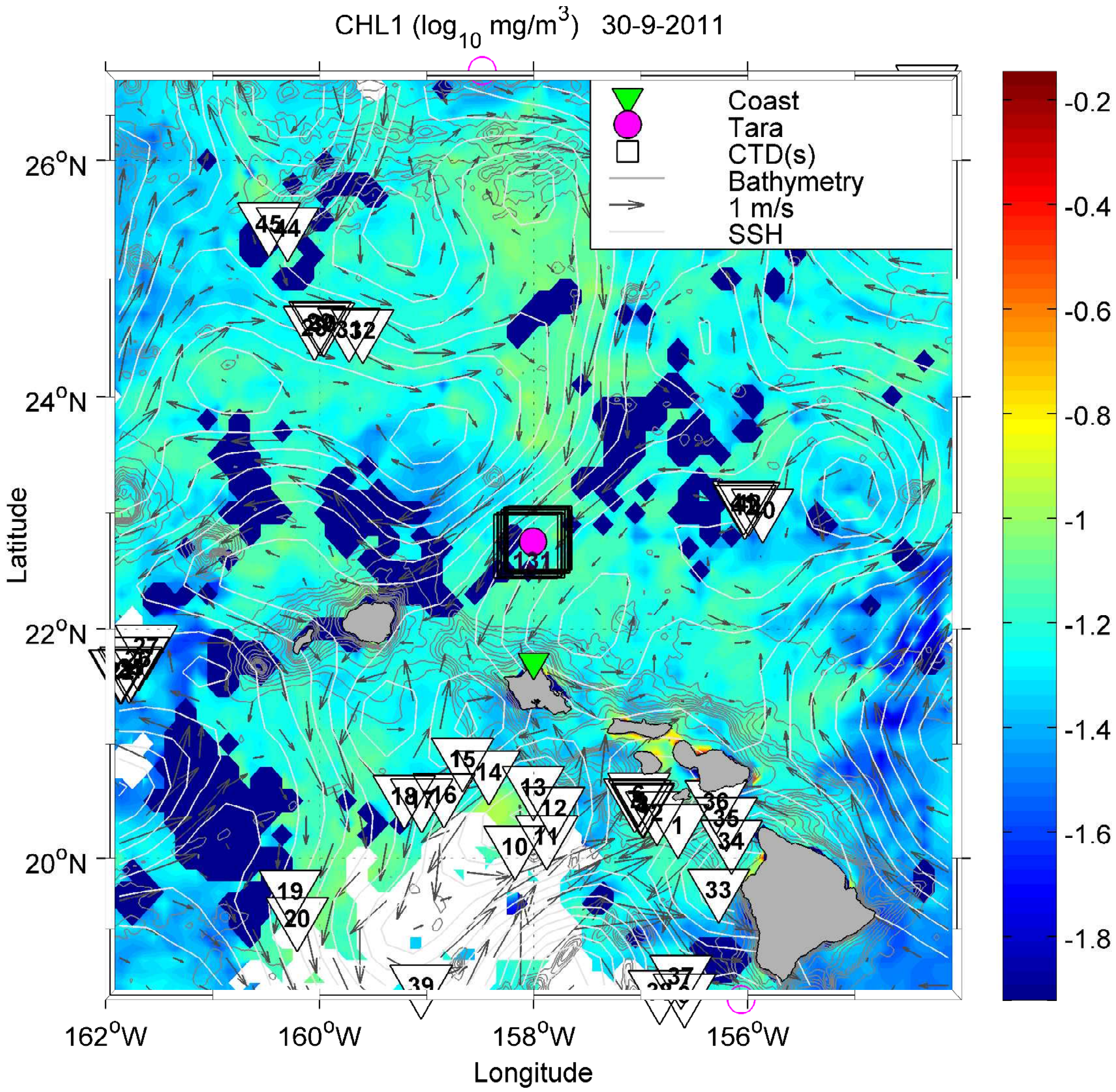

Figure 6: Description: see legend p. 14

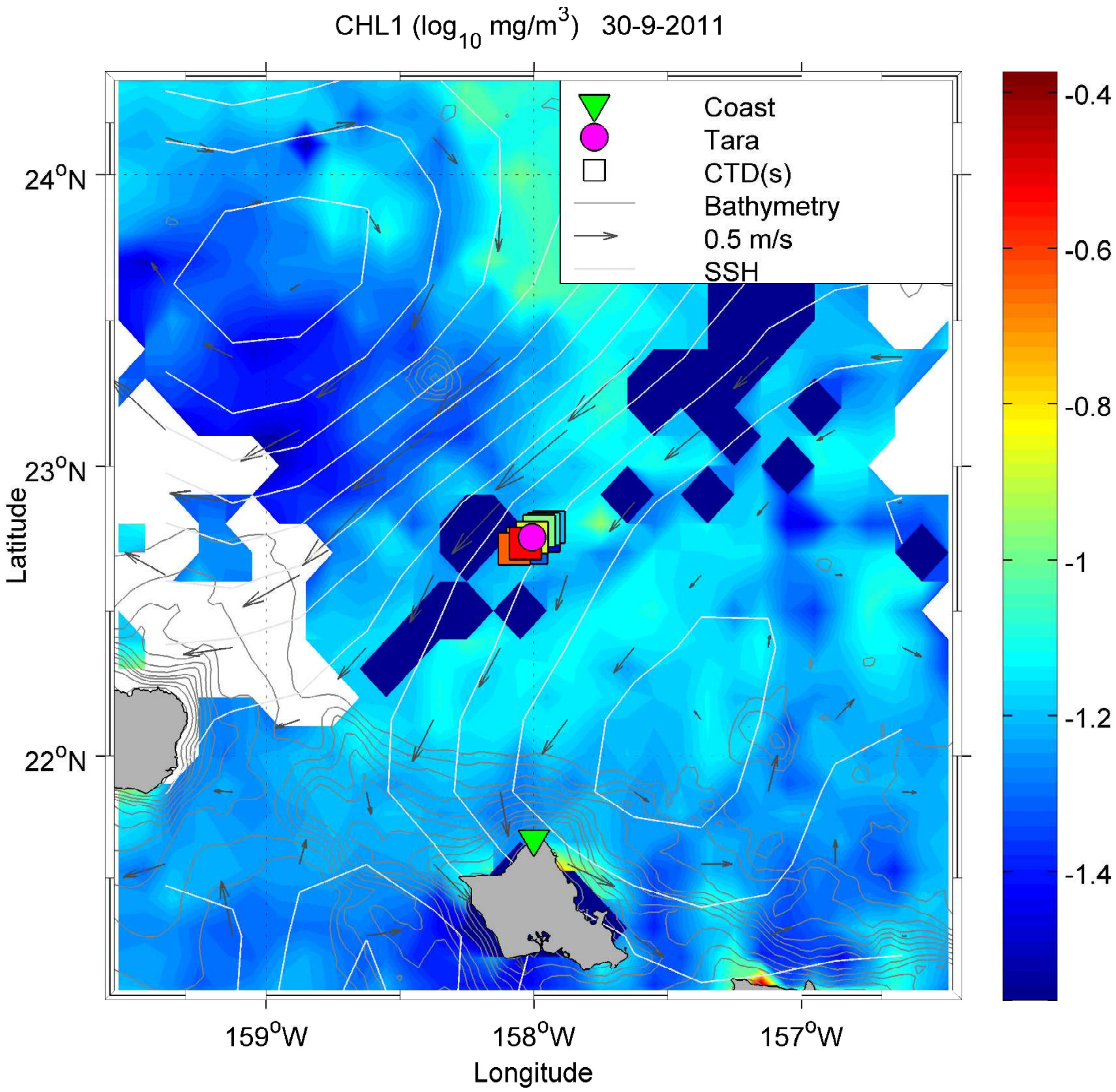

Figure 7: Description: see legend p. 14

2 TSG

2.1 Introduction

To complete the hydrological surface study, we use ThermoSalinoGraph (TSG) data measured by the Tara around the stations. Thermosalinographs are used to collect information about the sea surface, typically in flow-through systems operating continuously throughout a cruise.

We looked for the nearest TSG data available at $\Delta t \pm 15$ *julian days* around Tara stations. TSG data from the TARA OCEAN project (station 1 to 151) are validated but this is not the case of TSG data recorded during the TARA Porlar Cicle project that might present errors.29914 records satisfy these conditions. It is important to emphasize that TSG data are measure along the boat path whereas satellite data are snapshots.

TSG surface temperature is plotted over the Sea Surface Temperature measured by satellite and provided by OSTIA in figure 8.

TSG absolute salinity is plotted over the weekly Sea Surface Salinity data measured by Soil Moisture and Ocean Salinity (SMOS) mission in figure 9. The L3 SMOS data are available on the LOCEAN website (via a request form) but they still experience large biases and noise on various time and space scales. Nicolas KOLODZIEJCZYK work with a team at the LOCEAN to reduce these errors (see Hernandez et al. (2014), Kolodziejczyk et al. (2015b) and Kolodziejczyk et al. (2015a) for more information). These products are not perfect and large biases still exist but they are very promising. He gracefully gave us two types of corrected data for the context of this study:

- The most accurate set of data is composed of weekly map over the Atlantic (between 42N and 42S) with a resolution of 75 km for the period spanning from 2011 to 2013. Corrections are applied to reduce costal, large scale and seasonal orbit biases. An Optimal Interpolation using ISAS Argo interpolated products is performed.
- The other product is the 1/4 2days L3 SMOS data spanning from 30-Jun-2010 to 30-Aug-2014 on which a monthly filter and a systematic coastal bias correction are applied.

The Optimal interpolation product is not available for this station so the L3 band + coastal biais correction is ploted.

2.2 TSG Temperature maps

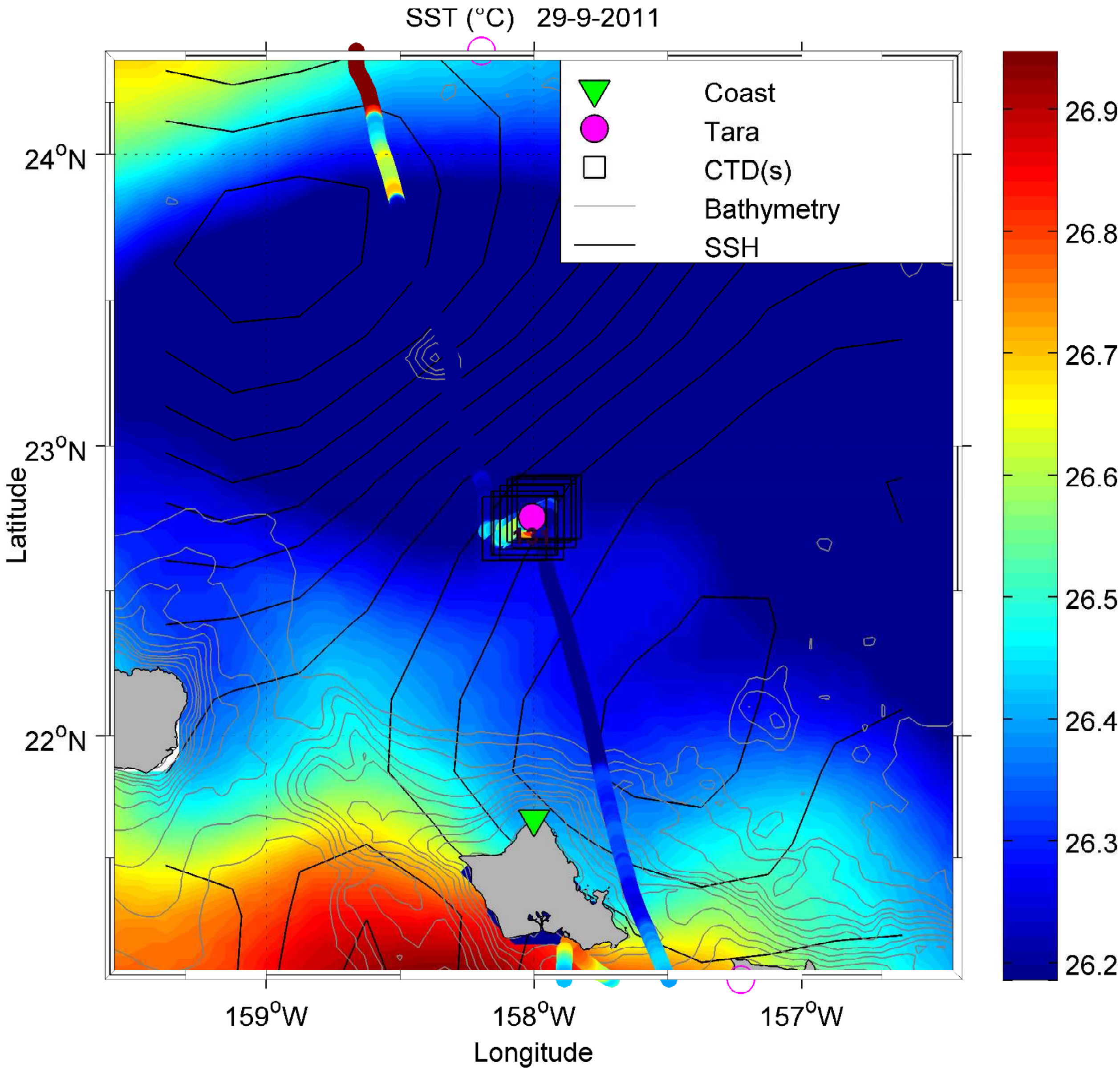

Figure 8: Description: see legend p. 14

2.3 TSG Salinity maps

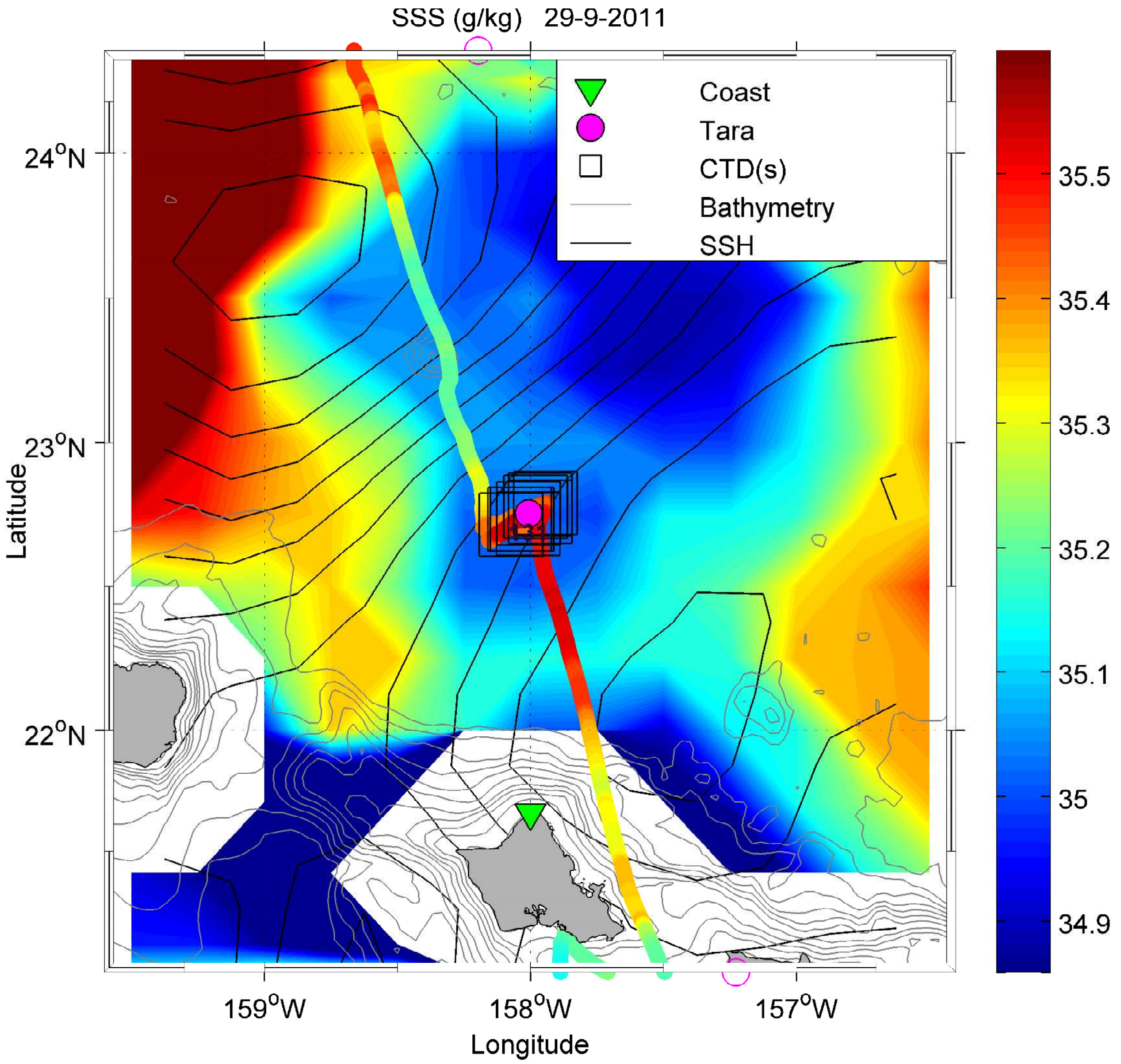

Figure 9: Description: see legend p. 14

3 Conductivity, Temperature and Depth (CTD) measurements

3.1 Introduction

In this study, CTD's measurements have been realized by a `Seabird vertical profiler`. The CTD profiles shown here are provided by the Villefranche Oceanographic Laboratory (LOV), Villefranche-Sur-Mer, France (http://www.obs-vlfr.fr/LOV/ZooPart/Portal/). Moreover, vertical profiles of Nitrate and Oxygen are provided. Additional quantities like salinity or density are then inferred using the Gibbs SeaWater (GSW) Oceanographic Toolbox (`http://www.teos-10.org/pubs/gsw/html/gsw_contents.html`).

For the Tara station n131, 9 CTD profiles are available. We calculate the potential density σ_0 referred to surface and the Brunt-Vaisala frequency (N^2). This one is a pulsation known as the "Brunt-Vaisala frequency" (s^{-2}), and given by:

$$N^2(z) = -\frac{g}{\rho_*}\frac{d\sigma}{dz} \tag{1}$$

where g is the vertical component of gravity, ρ_* a constant density value, d/dz the vertical derivative operator and σ the potential density (we use here σ_0). For more information please refer to Gerkema and Zimmerman (2008) (Eq. 3.18, p. 48 in the book). For each profile, $N^2(z)$ is calculated with a finite differences numerical scheme using $dz = 1m$. When calculated, $N^2(z)$ is averaged with a running median window on $30dbar$ (± 5 $dbar$, centred) to filter noise at small vertical scales (~ 1 m).

We calculate the depth of mixed layer using two definitions given by De Boyer Montégut et al. (2004) to determine the MLD (m). Given a potential temperature profile $\theta(z)$ or a potential density profile $\sigma(z)$, we calculate z for which:

$$|\theta(z) - \theta(10m)| \leq 0.2\ ^\circ C \tag{2}$$

$$|\sigma(z) - \sigma(10m)| \leq 0.03\ kg/m^3 \tag{3}$$

Profiles and $\theta - S$ diagrams are presented on Fig. 10 and 11. Colors are used to distinct each CTD profile (dark blue for the first to red for the last one, "jet colorbar-like": dark blue, blue, light blue, cyan, green, yellow, orange, dark orange, red, dark red). Filled circles represent the bottle depths. We give bottles depths, and we calculate the N^2 and fluorescence maximum depths. We give the values of N^2 at all these different depths. Results are given in the Tab. 1

Several indices were computed to describe the context of CTD sampling. A season flag and a position in the season are given for each ctd sample. 4 "submesoscale" structures indices were computed at each ctd location from Satellite data. The intensity of the STT gradient and the intensity of the geostrophic currents are directly understandable. Strain rate is linked to the derivative of geostrophic current [see Waugh et al. (2006)] and Lyapunov exponent (computed by F.D'Ovidio [see d'Ovidio et al. (2004)])is a measure of the presence of a transport front where values in excess of 0.1 day-1 are typically fronts.

Legend In order to relieve figures we describe here their general legend:

- For each CTD we give the Tara's cast's number, CTD number, the bottom depth inferred from `eTopo2` bathymetry product, the distance, azimuth and position of nearest coast point (also inferred from etopo).
- Time information are then presented by giving the date in classic and julian format. Two season indices are presented: the season and the position in this season
- We give the fluo value at Max_{Fluo} depth, and a simple sum of fluo along vertical profile (from 1 to 200m, when possible).
- "Submesoscale" indices computed from satellite data are then presented.

- Ctd properties are then computed at precise depths: MLD_θ, MLD_σ, Max_{Fluo}, Max_{N^2} and each bottle depth.

3.2 CTD profiles

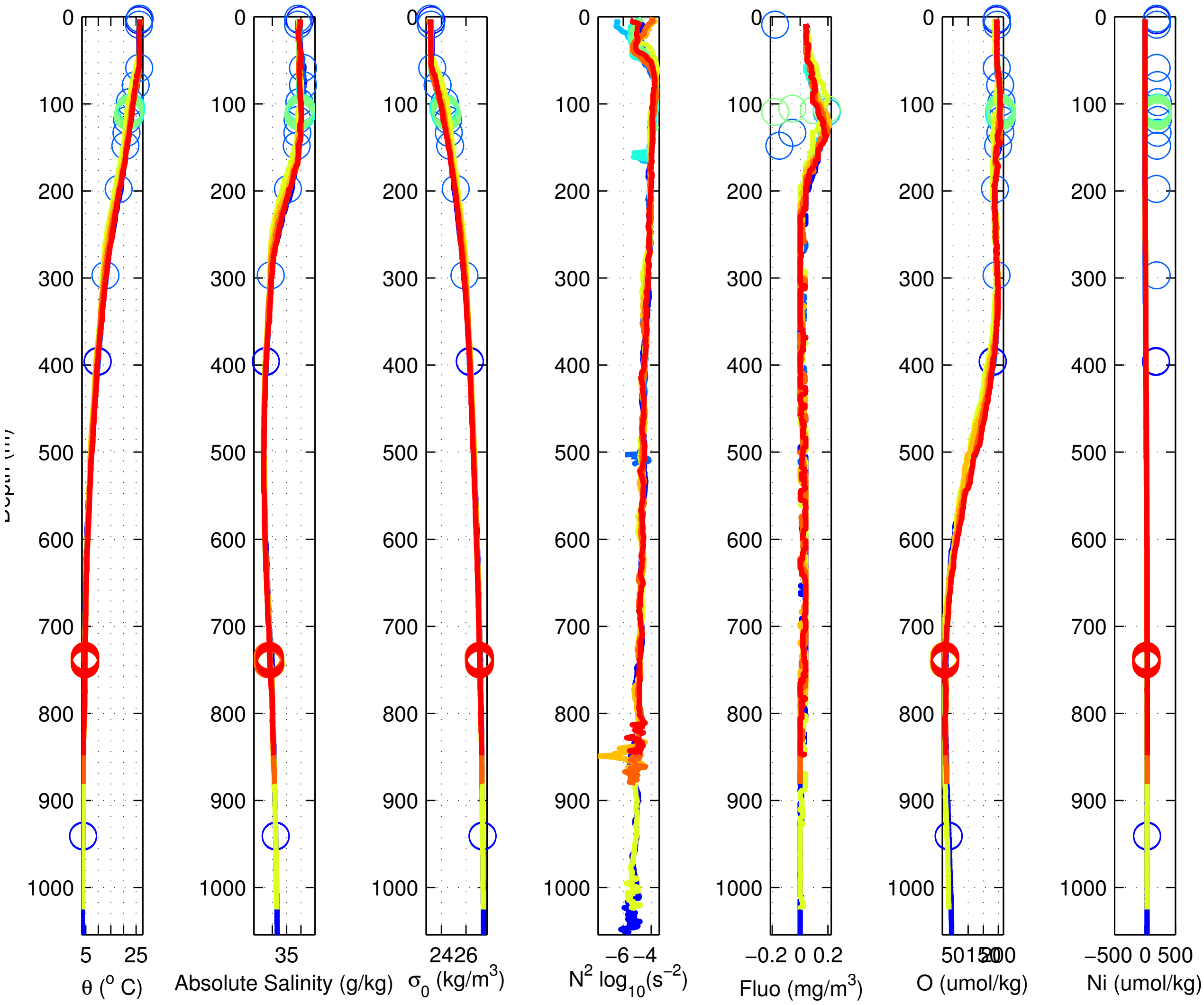

Figure 10: Description: see paragraph p. 14

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3.3 CTD $\theta - S$ diagrams

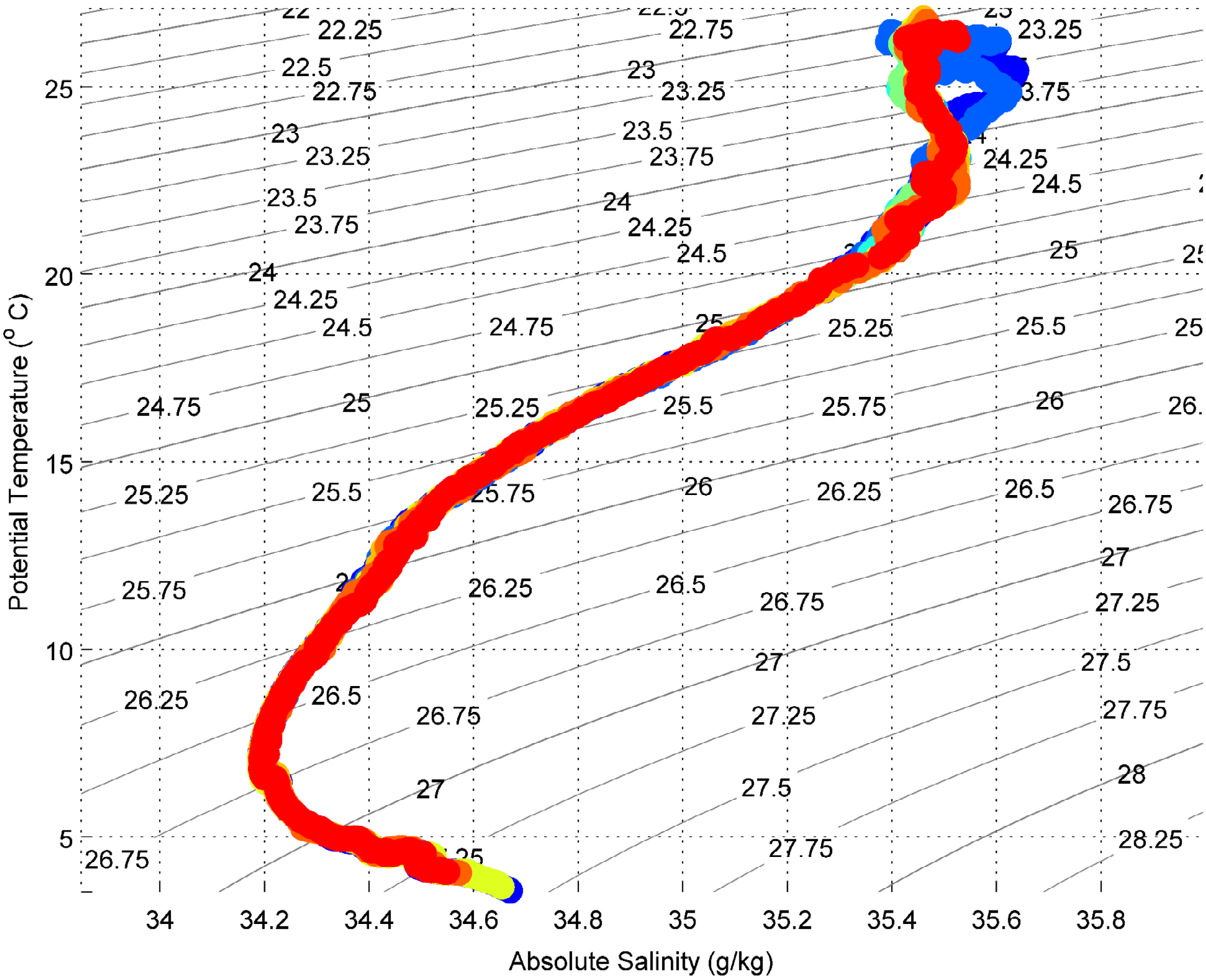

Figure 11: Description: see paragraph p. 14

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3.4 Water column characterization from CTD measurements

Profil	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	1	-157.9626	22.7595	1054	-4707	117/182	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
29	9	2011	2455834	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.17872	135	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.38534	0.16864	1.219e-05	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.1634	35.462	23.2076	1.4356e-05	0.042444	195.2179	-1.8332
Max	1054	3.6422	34.6696	27.4382	NaN	0	45.5892	34.0973
MLD_σ	18	26.1086	35.476	23.2359	4.9335e-05	0.042709	194.6781	-2.2971
MLD_θ	64	25.9866	35.5951	23.3667	0.00025449	0.070763	201.4455	-2.6328
Max_{N2}	80	24.873	35.6169	23.7273	0.0005172	0.086857	205.3061	-2.2738
Max_{Fluo}	135	22.1182	35.4739	24.4294	9.7673e-05	0.17872	201.8394	-2.6385
Max_O	95	23.697	35.5261	24.0118	0.00011419	0.11835	213.3745	-2.2036
Min_O	784	4.2787	34.4939	27.2323	1.035e-05	0.0069015	23.4287	33.9571
$Depth$ $Nitro$	462	8.2045	34.2107	26.5061	2.6744e-05	0.011883	150.3758	17.2677
B i1	950	3.9054	34.6249	27.3758	3.2889e-06	0	37.855	33.2845
B i2	949	3.9065	34.6249	27.3757	5.1431e-06	0	37.8846	33.413
B i3	400	9.6364	34.2694	26.3265	1.4322e-05	0	181.2896	12.7308
B i4	399	9.6436	34.2702	26.3259	6.7087e-06	0	181.5667	12.8414
B i5	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491
B i6	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491
B i7	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491
B i8	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491
B i9	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491
B i10	5	26.1733	35.4604	23.203	1.3458e-05	NaN	194.4714	-2.4491

Table 1:

Profil	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	2	-158.0088	22.7185	515	-4729	112/180	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
30	9	2011	2455835	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.18188	120	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.18662	0.16251	5.876e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.1893	35.3919	23.1469	2.4505e-05	0.040949	196.7537	-1.075
Max	515	7.0702	34.1939	26.6556	NaN	0.040949	113.0299	24.0135
MLD_σ	35	26.2024	35.4331	23.1755	3.0651e-05	0.046543	196.2392	-0.94363
MLD_θ	71	26.0139	35.5499	23.3248	0.0002426	0.066985	199.6659	-0.94513
Max_{N2}	3	NaN	NaN	NaN	NaN	NaN	NaN	NaN
Max_{Fluo}	120	22.0473	35.4375	24.4209	0.00010735	0.18188	209.6877	-1.8379
Max_O	90	24.2482	35.5693	23.8805	0.00022036	0.11905	210.6615	-1.0099
Min_O	515	7.0702	34.1939	26.6556	NaN	0.040949	113.0299	24.0135
$Depth$ $Nitro$	510	7.175	34.1953	26.6422	6.8504e-05	0	113.6894	23.1458
B i1	300	12.6144	34.4357	25.9182	0.00010989	0	194.4132	6.1908
B i2	200	18.0712	35.0693	25.1945	0.00010464	0.040949	190.1948	0.38995
B i3	150	20.8133	35.3701	24.7117	5.6651e-05	0.14757	196.791	-1.0345
B i4	135	21.2868	35.3924	24.5988	2.2874e-05	0.15553	204.6399	-1.9642
B i5	120	22.0473	35.4375	24.4209	0.00010735	0.18188	209.6877	-1.8379
B i6	100	23.0435	35.46	24.1528	0.00010287	0.14757	212.2544	-1.4982
B i7	80	25.4465	35.5684	23.5154	0.00024387	0.10665	203.9914	-0.52083
B i8	60	26.1865	35.5334	23.2575	1.0443e-05	0.066985	194.9038	-1.5038
B i9	10	26.1893	35.3919	23.1469	2.4505e-05	0.040949	196.7537	-1.075
B i10	2	NaN	NaN	NaN	NaN	NaN	NaN	NaN

Table 2:

$Profil$	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	3	-157.9439	22.7901	168	-4685	120/183	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
30	9	2011	2455835	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.18675	114	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.1893	0.16918	9.9741e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.3573	35.468	23.1511	6.0322e-07	0.040949	194.8374	-0.57363
Max	168	19.97	35.2992	24.8839	NaN	0.11114	192.1289	-0.60911
MLD_σ	55	26.1946	35.4342	23.1802	5.849e-05	0.066985	195.1913	-0.59319
MLD_θ	56	26.1784	35.4331	23.1845	4.6246e-05	0.066985	195.4029	-0.75086
Max_{N^2}	86	24.3254	35.4829	23.7921	0.00023193	0.10019	204.9861	-1.2872
Max_{Fluo}	114	22.001	35.4319	24.4293	0.00015143	0.18675	208.4739	-1.838
Max_O	117	21.7334	35.4227	24.4974	0.00017478	0.16966	205.7797	-1.0305
Min_O	159	20.2202	35.3498	24.8558	1.5147e-05	0.10704	189.3496	-0.47185
$Depth\ Nitro$	166	20.0265	35.3104	24.8775	3.9826e-05	0.069695	192.7619	-0.74509
B i1	115	21.9196	35.4292	24.4502	0.00022594	0.17792	208.0397	-1.5898
B i2	114	22.001	35.4319	24.4293	0.00015143	0.18675	208.4739	-1.838
B i3	113	22.0707	35.4445	24.4193	NaN	0.18675	209.4112	-1.1099
B i4	112	22.1917	35.4674	24.4024	0.00013208	0.18675	209.5678	-1.2653
B i5	111	22.3799	35.4873	24.3642	0.00026979	0.18675	210.0866	-1.5161
B i6	110	22.4843	35.5016	24.3452	0.0001815	0.17597	209.3116	-1.2321
B i7	109	22.5458	35.5009	24.3272	0.00014073	0.17597	206.9069	-0.33887
B i8	108	22.5731	35.4971	24.3165	9.6722e-05	0.17597	203.6534	-0.54701
B i9	107	22.5948	35.4935	24.3074	0.00017218	0.16279	203.0499	-1.1034
B i10	106	22.6873	35.494	24.2813	0.00036098	0.15461	203.5925	-1.1034

Table 3:

$Profil$	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	4	-157.9632	22.7842	165	-4694	120/182	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
30	9	2011	2455835	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.18708	117	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.23593	0.17087	9.5193e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.3232	35.4439	23.1438	2.8564e-06	0.040949	194.89	-0.98721
Max	165	19.8581	35.29	24.9063	NaN	0.091086	189.4174	0.19683
MLD_σ	62	26.2483	35.4359	23.165	7.3572e-05	0.040949	196.2714	-0.40646
MLD_θ	63	26.1857	35.4243	23.1762	0.00012853	0.043273	197.4048	-0.093786
Max_{N^2}	100	23.5734	35.5069	24.0339	NaN	0.11629	205.8136	0.030669
Max_{Fluo}	117	22.1282	35.4383	24.3986	0.00032736	0.18708	210.764	-0.5619
Max_O	116	22.2908	35.4683	24.3753	0.00022193	0.18402	211.032	-0.6714
Min_O	165	19.8581	35.29	24.9063	NaN	0.091086	189.4174	0.19683
$Depth\ Nitro$	164	19.9947	35.3044	24.8812	0.00012286	0.085926	190.0554	-0.34772
B i1	115	22.4505	35.4992	24.3533	0.00019994	0.18402	211.4795	-0.80167
B i2	114	22.5452	35.5101	24.3345	0.00017155	0.18402	210.3378	-1.164
B i3	113	22.5768	35.5006	24.3183	0.00014481	0.18402	205.5703	-1.1594
B i4	112	22.6348	35.505	24.305	0.00014273	0.17385	202.4244	-0.97887
B i5	111	22.6999	35.5088	24.2892	0.0001541	0.17385	203.361	-0.28735
B i6	110	22.7651	35.5129	24.2735	0.00022806	0.16008	203.6484	-0.049253
B i7	109	22.8717	35.5126	24.2427	0.00031212	0.15643	203.716	-0.45397
B i8	108	22.98	35.5105	24.2098	0.00025933	0.14992	202.2713	-0.10427
B i9	107	23.0642	35.5163	24.1897	NaN	0.14707	204.4986	-0.57796
B i10	106	23.1261	35.5189	24.1738	0.00017665	0.1299	204.545	-0.74545

Table 4:

$Profil$	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	5	-157.9803	22.7772	132	-4699	119/181	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
30	9	2011	2455835	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.16578	125	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.28285	0.17186	9.0298e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.3029	35.4294	23.1393	1.2353e-06	0.040949	194.6237	0.22954
Max	132	21.0119	35.4147	24.6907	NaN	0.15096	194.1792	0.46321
MLD_σ	45	26.2134	35.4228	23.165	6.5375e-05	0.060421	195.7979	0.5386
MLD_θ	49	26.1283	35.4171	23.1877	NaN	0.066985	196.3407	0.050061
Max_{N^2}	85	24.0164	35.4887	23.8885	0.00029733	0.099651	206.0764	0.61163
Max_{Fluo}	125	21.4594	35.4317	24.5805	7.4602e-05	0.16578	195.7135	-0.54956
Max_O	106	22.4841	35.4963	24.3411	0.0002421	0.16578	209.8087	0.10447
Min_O	128	21.2539	35.4342	24.6391	0.00016261	0.16578	192.033	-0.024945
$Depth\ Nitro$	129	21.1846	35.4288	24.6541	0.00018868	0.14394	193.2496	-0.024945
B i1	115	21.6474	35.4154	24.5156	0.00016619	0.1539	209.6365	-0.64132
B i2	114	21.7417	35.4192	24.4922	0.00018339	0.1539	209.9109	-0.33062
B i3	113	21.7984	35.4216	24.4782	0.00014359	0.1581	209.375	-0.23962
B i4	112	21.8656	35.4263	24.4629	0.00016789	0.1581	209.5884	-0.32786
B i5	111	21.9441	35.4303	24.4439	0.00020439	0.15994	210.2856	-0.35486
B i6	110	22.0429	35.437	24.4212	0.00020609	0.16578	210.99	0.17789
B i7	109	22.1136	35.4377	24.4019	0.00014394	0.16578	211.9764	0.010068
B i8	108	22.1892	35.4528	24.3918	0.000133	0.16578	211.5095	0.3133
B i9	107	22.3255	35.4812	24.3747	0.00024872	0.16578	210.7363	0.12874
B i10	106	22.4841	35.4963	24.3411	0.0002421	0.16578	209.8087	0.10447

Table 5:

$Profil$	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	6	-158.0067	22.7546	1025	-4711	116/180	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
1	10	2011	2455836	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.18188	89	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.29144	0.17379	4.2733e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.3345	35.4396	23.137	1.4514e-05	0.040949	188.8014	0.35213
Max	1025	3.7424	34.6535	27.4154	NaN	0	36.6049	36.7017
MLD_σ	43	26.2795	35.4502	23.1647	1.7596e-05	0.073916	189.7772	-0.18848
MLD_θ	45	26.2166	35.4432	23.1793	0.00022584	0.076152	191.3855	0.59979
Max_{N^2}	56	25.1271	35.4546	23.5263	0.0002982	0.11119	196.3051	0.017748
Max_{Fluo}	89	22.6656	35.5156	24.3029	0.00010506	0.18188	192.1262	-0.66817
Max_O	61	24.8353	35.4597	23.6193	0.00027354	0.12222	197.1362	0.41538
Min_O	745	4.6226	34.4211	27.1377	1.717e-05	0.009918	15.5592	35.0689
$Depth\ Nitro$	448	8.0398	34.207	26.5273	5.7198e-05	0	137.5214	20.141
B i1	750	4.5503	34.4375	27.1585	9.0518e-06	0.02682	15.44	36.0526
B i2	749	4.5485	34.4365	27.1579	7.429e-06	0.02682	15.1066	36.6001
B i3	748	4.5517	34.4358	27.1569	2.761e-05	0.02682	15.0381	36.1814
B i4	747	4.5749	34.433	27.1522	8.6802e-05	0.009918	14.8121	35.8448
B i5	746	4.6175	34.4224	27.1392	7.1337e-05	0.009918	14.9529	35.4241
B i6	745	4.6226	34.4211	27.1377	1.717e-05	0.009918	15.5592	35.0689
B i7	744	4.6262	34.4192	27.1357	2.6345e-05	0.009918	15.8504	34.7898
B i8	743	4.6274	34.415	27.1323	2.0032e-05	0.02682	15.9473	34.9795
B i9	742	4.6229	34.4136	27.1316	NaN	0.040949	16.1725	35.7652
B i10	741	4.6214	34.4122	27.1307	7.7944e-06	0.040949	16.2806	36.2173

Table 6:

Profil	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	7	-158.041	22.734	867	-4722	114/178	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
1	10	2011	2455836	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.20883	119	57.841

Intensity SST Gradient ($°/100km$)	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.2607	0.17554	3.7585e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.3922	35.4361	23.1162	3.3347e-05	0.040949	195.7135	2.3265
Max	867	4.1507	34.5443	27.2863	NaN	0	26.3093	37.8604
MLD_σ	24	26.3243	35.4464	23.1463	1.17e-05	0.040949	195.941	1.9036
MLD_θ	58	26.2103	35.4315	23.1734	5.9787e-05	0.075057	196.7204	1.6722
Max_{N^2}	70	25.1406	35.4538	23.5225	0.00015322	0.091086	203.6831	1.7903
Max_{Fluo}	119	22.4977	35.5165	24.3532	0.00015185	0.20883	200.626	1.5738
Max_O	84	24.2391	35.4866	23.8205	0.00047932	0.11119	206.5985	1.9721
Min_O	728	4.5792	34.414	27.1365	4.2794e-06	0.022408	22.5292	36.9453
$Depth$ $Nitro$	467	7.5837	34.1976	26.5863	5.752e-05	0.014866	128.5506	24.6053
B i1	750	4.7127	34.4646	27.1622	9.2546e-06	0.0072354	25.9669	37.13
B i2	749	4.7068	34.4635	27.1619	7.1666e-06	0.011492	25.5581	36.5562
B i3	748	4.7024	34.4612	27.1606	6.5526e-06	0.011492	25.3599	36.8111
B i4	747	4.6977	34.4607	27.1607	1.0304e-05	0.029158	25.3804	37.2637
B i5	746	4.6936	34.4575	27.1586	NaN	0.029158	25.5372	35.7167
B i6	745	4.6726	34.4459	27.1517	4.3476e-05	0.030952	25.4628	35.9452
B i7	744	4.6473	34.4418	27.1513	4.7163e-06	0.030952	24.9675	37.0602
B i8	743	4.6253	34.4381	27.1508	1.1194e-05	0.029158	23.6983	37.4064
B i9	742	4.6191	34.435	27.149	2.7563e-05	0.029158	23.0705	37.2392
B i10	741	4.5969	34.4271	27.1451	2.9912e-05	0.028476	23.238	37.1725

Table 7:

Profil	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	8	-158.0731	22.7154	881	-4737	112/176	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
1	10	2011	2455836	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.1844	127	57.841

Intensity SST Gradient ($°/100km$)	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.20644	0.17673	3.2941e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.4104	35.448	23.1194	3.347e-05	0.040949	195.4564	2.9331
Max	881	4.107	34.5722	27.313	NaN	0	29.2953	38.2171
MLD_σ	43	26.3208	35.4474	23.1496	2.8601e-06	0.046781	194.9638	2.3501
MLD_θ	58	26.233	35.4335	23.1678	6.876e-05	0.066985	195.2748	2.259
Max_{N^2}	92	24.3966	35.457	23.7516	5.494e-05	0.11119	205.6942	2.5596
Max_{Fluo}	127	22.4959	35.5255	24.361	0.00023255	0.1844	199.2025	2.4489
Max_O	97	24.0495	35.4911	23.8812	0.00030015	0.11119	205.6623	2.1041
Min_O	739	4.6965	34.4038	27.1158	1.7975e-05	0.028362	24.8813	36.6708
$Depth$ $Nitro$	630	5.282	34.2749	26.9468	1.0651e-05	0.011447	49.972	34.2889
B i1	750	4.6917	34.4312	27.1381	NaN	0.040949	25.5614	38.044
B i2	749	4.6481	34.4156	27.1305	3.5853e-05	0.040949	24.9124	37.6741
B i3	748	4.6155	34.4107	27.1302	3.705e-06	0.033735	24.3268	37.5957
B i4	747	4.6219	34.412	27.1306	2.8522e-07	0.031676	24.2486	37.5957
B i5	746	4.6291	34.413	27.1305	1.553e-06	0.0091132	24.0217	37.5554
B i6	745	4.6418	34.4157	27.1313	3.1267e-05	0.0091132	23.6612	37.4114
B i7	744	4.6722	34.4109	27.1241	5.3025e-05	0.0091132	23.3947	37.3911
B i8	743	4.6831	34.4064	27.1194	2.5226e-05	0.0091132	23.6246	37.2497
B i9	742	4.6849	34.4059	27.1188	NaN	0.0091132	24.5787	36.9533
B i10	741	4.6866	34.4064	27.119	2.9229e-06	0.0091132	25.0022	37.3545

Table 8:

$Profil$	CTD	Lon	Lat	CTD Depth max (m)	Bathy (m)	Dist[km]/azimuth[°] coast	Lon coast	Lat coast
131	9	-158.0317	22.7341	848	-4720	114/178	-158	21.7107

Day	Month	Year	Julian day	Core biology Flag	Season	Season part (early-middle-late)
1	10	2011	2455836	1	Autumn	Early

$Max_{Fluo}(mg/m^3)$	Depth (m)	Sum $Fluo$ $1-200m(mg/m^3)$
0.17875	135	57.841

Intensity SST Gradient $(°/100km)$	Intensity Geostrophic current (m/s)	Strain $rate$ (s^{-2})	Lyapunov exponent $(1/days)$
0.28116	0.17418	3.7562e-06	0.04229

	Depth (m)	T $(°C)$	AS (g/kg)	σ_0 (kg/m^3)	N^2 (s^{-2})	$Fluo$ (mg/m^3)	O $(\mu mol/kg)$	Ni $(\mu mol/kg)$
$10m$	10	26.4288	35.4704	23.1303	3.782e-06	0.041732	194.5289	2.8049
Max	848	4.1404	34.5496	27.2914	NaN	0.0073273	26.7004	38.0059
MLD_σ	38	26.3728	35.4828	23.1594	2.1149e-05	0.054937	195.7718	2.4725
MLD_θ	58	26.2524	35.5264	23.2314	0.00021606	0.082279	198.014	2.8714
Max_{N^2}	67	25.362	35.4689	23.4658	0.00041302	0.082279	202.3141	3.1825
Max_{Fluo}	135	22.2945	35.496	24.3963	0.00017223	0.17875	198.9511	0.95733
Max_O	118	23.219	35.5145	24.1442	8.9695e-05	0.15683	205.1137	2.5322
Min_O	754	4.5909	34.4338	27.1512	1.8253e-05	0.030743	23.0876	36.8654
$Depth$ $Nitro$	501	7.4851	34.2017	26.6039	4.7803e-05	0.020504	126.8549	24.5257
B i1	750	4.6533	34.4372	27.147	3.4355e-05	0.040949	22.716	37.2695
B i2	749	4.6842	34.434	27.1411	4.6288e-05	0.040949	23.1737	37.4882
B i3	748	4.6861	34.4298	27.1376	3.685e-05	0.040949	23.4886	37.2253
B i4	747	4.6777	34.4236	27.1336	2.2575e-05	0.040949	23.7574	36.331
B i5	746	4.6658	34.4212	27.133	1.8046e-05	0.040949	24.1852	37.5048
B i6	745	4.6731	34.4182	27.1298	1.531e-05	0.040949	24.1784	37.5436
B i7	744	4.6768	34.4189	27.1299	NaN	0.040949	24.0227	37.6892
B i8	743	4.6802	34.4182	27.1291	3.3697e-06	0.040949	24.0722	37.7144
B i9	742	4.6816	34.4187	27.1292	NaN	0.040949	24.2053	37.6777
B i10	741	4.6841	34.4186	27.1289	1.5512e-06	0.040949	24.2445	37.3006

Table 9:

4 ARGO

4.1 Introduction

To complete the CTD study, we use ARGO data available around Tara's stations. ARGO is a global array of autonomous profiling floats that observe pressure, temperature and salinity in the upper $2000m$ of the ocean. These data were collected and made freely available by the International Argo Program and the national programs that contribute to it (http://www.argo.ucsd.edu, http://argo.jcommops.org).

The Argo Program is part of the Global Ocean Observing System. The ARGO profiles were downloaded on the Aviso ftp web site where only pressure (P), temperature (T), and salinity (S) data. However, some of these profiles were still suspicious so applied another analysis in the same way that Chaigneau et al. (2011) using the following conditions:

- Data flagged as good and probably good (Argo quality flag 1 and 2)
- The shallowest data above 15 dbar and the deepest data below 300m
- A difference of pressure level inferior than 25 dbar between 0-100dbar and inferior than 50 dbar between 100-300dbar

We looked for the nearest ARGO floats available in box defined by $\Delta X \pm 4^\circ$ $lat - lon$ and $\Delta t \pm 15$ $julian\ days$ around Tara stations. For each CTD profile we search for the best matching ARGO profile. We computed distance dx, delay time dt, and radius $r = \sqrt{dx^2 + dt^2}$ between each ARGO and CTD profiles. We add correlations calculations between CTD-ARGO salinity and temperature. Correlations are calculated using the `corrcoef` function in `Matlab`. To make correlations calculation possible we interpolate ARGO profiles (defined on the 152 levels vertical grid) on a CTD-compatible 1 decibar vertical grid. We present the results in Tab. 16 with the ARGO profiles we kept after tests. We show the CTD and **all** ARGO profiles on Fig. 12, and a $\theta - S$ diagram on Fig. 13.

4.2 Correlations with CTD profiles

CTD	Argo	*Radius*	*dt (jul)*	*dx (km)*	θ correl.	S correl.	Lon Argo	Lat Argo
1	1	304.7587	12	304.5223	0.99442	0.96118	-156.651	20.311
1	2	284.7472	8	284.6348	0.99648	0.96765	-156.848	20.422
1	3	271.7541	4	271.7247	0.9902	0.96174	-156.977	20.497
1	4	273.2751	0	273.2751	0.99496	0.96011	-156.977	20.482
1	5	267.975	-4	267.9451	0.99509	0.96655	-157.008	20.522
1	6	261.0352	-8	260.9126	0.99621	0.97182	-157.016	20.587
1	7	264.8629	-12	264.5909	0.99289	0.96948	-157.056	20.537
1	8	271.9116	-16	271.4404	0.99517	0.97426	-156.979	20.499
1	9	461.3853	8	461.3159	0.99478	0.94982	-156.59	18.819
1	10	294.7154	13	294.4285	0.97801	0.86565	-158.175	20.122
1	11	283.7658	5	283.7218	0.9899	0.94148	-157.878	20.212
1	12	256.1156	1	256.1136	0.98827	0.93333	-157.813	20.463
1	13	235.5525	-3	235.5334	0.98799	0.93897	-158.003	20.644
1	14	225.8149	-11	225.5468	0.9887	0.92804	-158.418	20.778
1	15	220.671	-15	220.1606	0.99538	0.9731	-158.664	20.892
1	16	259.1962	8	259.0727	0.99425	0.95865	-158.838	20.579
1	17	271.7308	-3	271.7143	0.99609	0.9677	-159.046	20.536
1	18	276.3858	-13	276.0799	0.99625	0.96942	-159.21	20.567
1	19	413.5485	5	413.5183	0.99386	0.95975	-160.274	19.733
1	20	432.1764	-6	432.1348	0.99439	0.97326	-160.21	19.492
1	21	567.8014	7	567.7583	0.98662	0.93017	-154.326	26.646
1	22	419.2223	9	419.1257	0.99384	0.95724	-161.852	21.659
1	23	420.6339	5	420.6042	0.99783	0.98271	-161.867	21.659
1	24	411.8707	-3	411.8598	0.99668	0.98996	-161.781	21.667
1	25	409.402	-7	409.3421	0.99753	0.99148	-161.762	21.686
1	26	400.1109	-11	399.9597	0.99845	0.99205	-161.695	21.77
1	27	389.6029	-15	389.314	0.99813	0.99225	-161.62	21.874
1	28	296.2563	10	296.0874	0.99568	0.98498	-160.048	24.611
1	29	295.7364	6	295.6755	0.99635	0.98664	-159.996	24.654
1	30	292.6204	2	292.6136	0.99298	0.97754	-159.963	24.645
1	31	272.4291	-10	272.2455	0.99404	0.97787	-159.725	24.597
1	32	263.2458	-14	262.8733	0.99393	0.97667	-159.597	24.586
1	33	378.9707	12	378.7807	0.99106	0.94782	-156.271	19.744
1	34	343.5543	-4	343.5311	0.9917	0.95018	-156.152	20.174
1	35	322.2926	-8	322.1933	0.996	0.96156	-156.2	20.374
1	36	303.5716	-16	303.1497	0.99404	0.95941	-156.294	20.521
1	37	443.0396	12	442.877	0.99615	0.95357	-156.623	18.983
1	38	451.4563	8	451.3855	0.99514	0.94947	-156.823	18.847
1	39	444.9399	-16	444.6521	0.99638	0.9649	-159.052	18.897
1	40	218.4814	14	218.0324	0.99868	0.9929	-155.86	23.051
1	41	201.439	4	201.3993	0.99865	0.98781	-156.037	23.118
1	42	201.7485	-6	201.6593	0.99792	0.98159	-156.027	23.081
1	43	206.5395	-16	205.9188	0.99861	0.99096	-155.99	23.108
1	44	382.2566	5	382.2239	0.99509	0.98298	-160.3	25.45
1	45	396.7849	-6	396.7395	0.99375	0.97108	-160.474	25.489
2	1	302.9232	13	302.6441	0.99362	0.97956	-156.651	20.311
2	2	282.6181	9	282.4748	0.99515	0.97806	-156.848	20.422
2	3	269.4097	5	269.3633	0.99505	0.97467	-156.977	20.497
2	4	270.9011	1	270.8992	0.99837	0.97501	-156.977	20.482
2	5	265.5565	-3	265.5396	0.99811	0.97555	-157.008	20.522
2	6	258.6479	-7	258.5531	0.99825	0.97961	-157.016	20.587
2	7	262.3231	-11	262.0924	0.99692	0.97516	-157.056	20.537
2	8	269.4943	-15	269.0766	0.9976	0.98701	-156.979	20.499
2	9	458.597	9	458.5087	0.99473	0.95822	-156.59	18.819
2	10	289.892	14	289.5537	0.9821	0.91273	-158.175	20.122
2	11	279.4154	6	279.351	0.99474	0.97245	-157.878	20.212
2	12	251.9054	2	251.8975	0.99343	0.9627	-157.813	20.463
2	13	230.9417	-2	230.9331	0.99511	0.97032	-158.003	20.644
2	14	220.3467	-10	220.1197	0.99248	0.96442	-158.418	20.778
2	15	214.7614	-14	214.3046	0.99656	0.98883	-158.664	20.892

Table 10: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt (jul)*	*dx (km)*	θ correl.	*S* correl.	Lon Argo	Lat Argo
2	16	253.3078	9	253.1479	0.99642	0.98236	-158.838	20.579
2	17	265.6116	-2	265.6041	0.99775	0.99049	-159.046	20.536
2	18	270.096	-12	269.8293	0.99836	0.97658	-159.21	20.567
2	19	407.0886	6	407.0444	0.99696	0.97283	-160.274	19.733
2	20	425.7552	-5	425.7258	0.9964	0.97677	-160.21	19.492
2	21	574.3526	8	574.2969	0.97549	0.91911	-154.326	26.646
2	22	413.4297	10	413.3088	0.99598	0.97021	-161.852	21.659
2	23	414.8341	6	414.7907	0.99906	0.98768	-161.867	21.659
2	24	406.0376	-2	406.0326	0.9969	0.99135	-161.781	21.667
2	25	403.5703	-6	403.5257	0.99835	0.99117	-161.762	21.686
2	26	394.3239	-10	394.1971	0.99821	0.98954	-161.695	21.77
2	27	383.8816	-14	383.6263	0.99787	0.98844	-161.62	21.874
2	28	296.1853	11	295.981	0.99389	0.99109	-160.048	24.611
2	29	295.81	7	295.7272	0.99544	0.99101	-159.996	24.654
2	30	292.7186	3	292.7033	0.99016	0.97937	-159.963	24.645
2	31	272.8135	-9	272.665	0.98959	0.97701	-159.725	24.597
2	32	263.8372	-13	263.5167	0.99054	0.97542	-159.597	24.586
2	33	377.2444	13	377.0204	0.99489	0.96928	-156.271	19.744
2	34	342.4084	-3	342.3952	0.99324	0.97994	-156.152	20.174
2	35	321.2961	-7	321.2199	0.99604	0.98352	-156.2	20.374
2	36	302.5758	-15	302.2038	0.99803	0.97959	-156.294	20.521
2	37	440.2941	13	440.1021	0.99715	0.96464	-156.623	18.983
2	38	448.3762	9	448.2858	0.98926	0.9573	-156.823	18.847
2	39	439.2887	-15	439.0326	0.99182	0.96218	-159.052	18.897
2	40	223.9609	15	223.458	0.99825	0.99758	-155.86	23.051
2	41	207.0629	5	207.0025	0.99847	0.99416	-156.037	23.118
2	42	207.2501	-5	207.1898	0.99814	0.99081	-156.027	23.081
2	43	212.0192	-15	211.4879	0.99849	0.99627	-155.99	23.108
2	44	383.0107	6	382.9637	0.99364	0.98411	-160.3	25.45
2	45	397.3293	-5	397.2978	0.99163	0.97452	-160.474	25.489
3	1	306.9876	13	306.7122	0.947	-0.22662	-156.651	20.311
3	2	287.1115	9	286.9704	0.96075	-0.34873	-156.848	20.422
3	3	274.2082	5	274.1626	0.96933	-0.056784	-156.977	20.497
3	4	275.7216	1	275.7198	0.99603	-0.080374	-156.977	20.482
3	5	270.4222	-3	270.4055	0.99433	0.051473	-157.008	20.522
3	6	263.4447	-7	263.3517	0.99355	0.006067	-157.016	20.587
3	7	267.3238	-11	267.0974	0.959	-0.19774	-157.056	20.537
3	8	274.2901	-15	273.8796	0.96208	0.37472	-156.979	20.499
3	9	464.0382	9	463.9509	0.95963	-0.6921	-156.59	18.819
3	10	298.2981	14	297.9694	0.96211	0.80166	-158.175	20.122
3	11	287.131	6	287.0683	0.98665	0.78961	-157.878	20.212
3	12	259.4075	2	259.3998	0.98032	0.49996	-157.813	20.463
3	13	238.9838	-2	238.9754	0.98124	0.64571	-158.003	20.644
3	14	229.4968	-10	229.2788	0.98819	0.76947	-158.418	20.778
3	15	224.4446	-14	224.0075	0.97591	0.68835	-158.664	20.892
3	16	263.0875	9	262.9335	0.97289	0.50792	-158.838	20.579
3	17	275.6141	-2	275.6069	0.97811	0.52173	-159.046	20.536
3	18	280.2426	-12	279.9855	0.98495	-0.35047	-159.21	20.567
3	19	417.4441	6	417.401	0.9601	-0.10813	-160.274	19.733
3	20	436.0625	-5	436.0338	0.98939	-0.56007	-160.21	19.492
3	21	563.9697	8	563.913	0.98515	0.61079	-154.326	26.646
3	22	422.0506	10	421.9321	0.991	0.41769	-161.852	21.659
3	23	423.45	6	423.4075	0.995	0.24723	-161.867	21.659
3	24	414.6803	-2	414.6754	0.98723	0.49009	-161.781	21.667
3	25	412.1922	-6	412.1485	0.99254	0.21926	-161.762	21.686
3	26	402.8439	-10	402.7197	0.98828	-0.14055	-161.695	21.77
3	27	392.2607	-14	392.0108	0.96205	-0.56851	-161.62	21.874
3	28	295.3022	11	295.0973	0.97849	0.56843	-160.048	24.611
3	29	294.6779	7	294.5948	0.98753	0.67168	-159.996	24.654
3	30	291.5272	3	291.5118	0.99618	0.70784	-159.963	24.645

Table 11: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt (jul)*	*dx (km)*	θ correl.	*S* correl.	Lon Argo	Lat Argo
3	31	271.111	-9	270.9616	0.97295	0.68091	-159.725	24.597
3	32	261.7891	-13	261.4661	0.9937	0.7088	-159.597	24.586
3	33	381.1219	13	380.9001	0.98977	-0.21026	-156.271	19.744
3	34	345.3408	-3	345.3277	0.98281	0.77894	-156.152	20.174
3	35	323.982	-7	323.9064	0.96669	0.60636	-156.2	20.374
3	36	305.2203	-15	304.8515	0.99486	0.52274	-156.294	20.521
3	37	445.6872	13	445.4975	0.96756	-0.58504	-156.623	18.983
3	38	454.2495	9	454.1603	0.84467	-0.87433	-156.823	18.847
3	39	448.686	-15	448.4352	0.9117	-0.61582	-159.052	18.897
3	40	216.146	15	215.6249	0.98982	0.74957	-155.86	23.051
3	41	198.9062	5	198.8433	0.98932	0.68424	-156.037	23.118
3	42	199.2292	-5	199.1664	0.99717	0.92216	-156.027	23.081
3	43	203.944	-15	203.3916	0.99399	0.88438	-155.99	23.108
3	44	380.7884	6	380.7411	0.98068	0.64938	-160.3	25.45
3	45	395.3876	-5	395.356	0.98519	0.74165	-160.474	25.489
4	1	307.2814	13	307.0062	0.96658	-0.045913	-156.651	20.311
4	2	287.3105	9	287.1695	0.9792	-0.15851	-156.848	20.422
4	3	274.3384	5	274.2928	0.98477	0.06915	-156.977	20.497
4	4	275.8472	1	275.8454	0.99524	0.10304	-156.977	20.482
4	5	270.537	-3	270.5203	0.99603	0.15012	-157.008	20.522
4	6	263.5739	-7	263.481	0.99087	0.16726	-157.016	20.587
4	7	267.4067	-11	267.1803	0.97741	0.034517	-157.056	20.537
4	8	274.4192	-15	274.0089	0.98055	0.558	-156.979	20.499
4	9	464.0315	9	463.9442	0.97678	-0.54382	-156.59	18.819
4	10	297.4914	14	297.1618	0.9445	0.68115	-158.175	20.122
4	11	286.5312	6	286.4684	0.97972	0.80505	-157.878	20.212
4	12	258.8661	2	258.8584	0.96772	0.55547	-157.813	20.463
4	13	238.2861	-2	238.2777	0.96896	0.61735	-158.003	20.644
4	14	228.4376	-10	228.2186	0.98322	0.78398	-158.418	20.778
4	15	223.1715	-14	222.7319	0.96444	0.66142	-158.664	20.892
4	16	261.7765	9	261.6217	0.96165	0.54187	-158.838	20.579
4	17	274.1945	-2	274.1872	0.97406	0.63005	-159.046	20.536
4	18	278.7332	-12	278.4748	0.99393	-0.11607	-159.21	20.567
4	19	415.752	6	415.7087	0.97799	0.078621	-160.274	19.733
4	20	434.4312	-5	434.4025	0.99386	-0.33708	-160.21	19.492
4	21	565.7441	8	565.6875	0.96934	0.46041	-154.326	26.646
4	22	419.9593	10	419.8402	0.99721	0.46734	-161.852	21.659
4	23	421.3584	6	421.3157	0.99798	0.30517	-161.867	21.659
4	24	412.5882	-2	412.5834	0.99112	0.6174	-161.781	21.667
4	25	410.1005	-6	410.0566	0.99067	0.3471	-161.762	21.686
4	26	400.7539	-10	400.6291	0.98531	0.032488	-161.695	21.77
4	27	390.1741	-14	389.9229	0.97976	-0.39598	-161.62	21.874
4	28	294.3274	11	294.1218	0.96287	0.53308	-160.048	24.611
4	29	293.7476	7	293.6642	0.97411	0.61806	-159.996	24.654
4	30	290.6072	3	290.5917	0.99558	0.56823	-159.963	24.645
4	31	270.2844	-9	270.1345	0.95084	0.5282	-159.725	24.597
4	32	261.0281	-13	260.7041	0.98256	0.5626	-159.597	24.586
4	33	381.4611	13	381.2395	0.98629	-0.031594	-156.271	19.744
4	34	345.8746	-3	345.8616	0.96431	0.70801	-156.152	20.174
4	35	324.5636	-7	324.4881	0.95447	0.67476	-156.2	20.374
4	36	305.8074	-15	305.4393	0.99221	0.59758	-156.294	20.521
4	37	445.6909	13	445.5012	0.98198	-0.45154	-156.623	18.983
4	38	454.1392	9	454.0501	0.8793	-0.83904	-156.823	18.847
4	39	447.5402	-15	447.2888	0.93959	-0.41126	-159.052	18.897
4	40	218.2018	15	217.6856	0.97744	0.7397	-155.86	23.051
4	41	200.9816	5	200.9194	0.9848	0.71052	-156.037	23.118
4	42	201.2985	-5	201.2364	0.99192	0.84705	-156.027	23.081
4	43	206.0119	-15	205.4651	0.99179	0.85791	-155.99	23.108
4	44	380.0694	6	380.022	0.96025	0.48705	-160.3	25.45
4	45	394.6152	-5	394.5835	0.96984	0.57725	-160.474	25.489

Table 12: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt (jul)*	*dx (km)*	θ correl.	S correl.	Lon Argo	Lat Argo
5	1	307.3768	13	307.1018	0.96074	0.28618	-156.651	20.311
5	2	287.3193	9	287.1783	0.95518	0.12774	-156.848	20.422
5	3	274.2845	5	274.2389	0.96976	0.27497	-156.977	20.497
5	4	275.7889	1	275.7871	0.99553	0.21955	-156.977	20.482
5	5	270.4691	-3	270.4525	0.9973	0.53406	-157.008	20.522
5	6	263.5197	-7	263.4267	0.98036	0.48413	-157.016	20.587
5	7	267.3099	-11	267.0834	0.90372	0.067952	-157.056	20.537
5	8	274.3646	-15	273.9542	0.93441	0.24835	-156.979	20.499
5	9	463.8466	9	463.7593	0.9756	-0.44212	-156.59	18.819
5	10	296.5932	14	296.2626	0.94241	0.076809	-158.175	20.122
5	11	285.8164	6	285.7534	0.9853	0.63797	-157.878	20.212
5	12	258.2047	2	258.1969	0.97592	0.54565	-157.813	20.463
5	13	237.4867	-2	237.4783	0.97552	0.59228	-158.003	20.644
5	14	227.3213	-10	227.1013	0.98631	0.65946	-158.418	20.778
5	15	221.8714	-14	221.4292	0.96379	0.6178	-158.664	20.892
5	16	260.4424	9	260.2868	0.96251	0.52856	-158.838	20.579
5	17	272.7682	-2	272.7609	0.97379	0.52716	-159.046	20.536
5	18	277.2322	-12	276.9724	0.96309	0.070435	-159.21	20.567
5	19	414.1004	6	414.057	0.97255	0.3518	-160.274	19.733
5	20	432.8284	-5	432.7995	0.98552	-0.098619	-160.21	19.492
5	21	567.4638	8	567.4074	0.98452	-0.33114	-154.326	26.646
5	22	418.0563	10	417.9367	0.989	0.62753	-161.852	21.659
5	23	419.4554	6	419.4125	0.99154	0.50642	-161.867	21.659
5	24	410.6839	-2	410.679	0.99561	0.39576	-161.781	21.667
5	25	408.1972	-6	408.1531	0.99503	0.36783	-161.762	21.686
5	26	398.8553	-10	398.7299	0.99389	0.19249	-161.695	21.77
5	27	388.2829	-14	388.0304	0.9465	-0.43521	-161.62	21.874
5	28	293.6142	11	293.4081	0.97494	-0.11157	-160.048	24.611
5	29	293.0775	7	292.9939	0.98601	-0.37474	-159.996	24.654
5	30	289.9471	3	289.9316	0.9883	-0.086267	-159.963	24.645
5	31	269.7146	-9	269.5644	0.974	-0.26524	-159.725	24.597
5	32	260.5211	-13	260.1965	0.99306	-0.24032	-159.597	24.586
5	33	381.5961	13	381.3746	0.99347	0.29663	-156.271	19.744
5	34	346.1915	-3	346.1785	0.9836	0.66042	-156.152	20.174
5	35	324.9259	-7	324.8505	0.94994	0.45704	-156.2	20.374
5	36	306.1758	-15	305.8082	0.98979	0.58814	-156.294	20.521
5	37	445.5158	13	445.3261	0.95621	0.13961	-156.623	18.983
5	38	453.8602	9	453.771	0.91835	-0.3298	-156.823	18.847
5	39	446.3436	-15	446.0915	0.90555	-0.17511	-159.052	18.897
5	40	220.0463	15	219.5345	0.98956	0.43845	-155.86	23.051
5	41	202.8525	5	202.7909	0.99344	0.49975	-156.037	23.118
5	42	203.1602	-5	203.0986	0.99788	0.74482	-156.027	23.081
5	43	207.8744	-15	207.3325	0.99562	0.67927	-155.99	23.108
5	44	379.5983	6	379.5509	0.98297	-0.36076	-160.3	25.45
5	45	394.0931	-5	394.0613	0.98476	-0.18018	-160.474	25.489
6	1	306.4163	14	306.0963	0.99546	0.96448	-156.651	20.311
6	2	286.1896	10	286.0149	0.99397	0.95319	-156.848	20.422
6	3	273.0286	6	272.9627	0.99414	0.97007	-156.977	20.497
6	4	274.5102	2	274.5029	0.99672	0.96099	-156.977	20.482
6	5	269.1589	-2	269.1515	0.99571	0.95695	-157.008	20.522
6	6	262.22	-6	262.1514	0.99614	0.96846	-157.016	20.587
6	7	265.9186	-10	265.7305	0.99319	0.96265	-157.056	20.537
6	8	273.0358	-14	272.6767	0.99551	0.97265	-156.979	20.499
6	9	462.343	10	462.2348	0.99326	0.92927	-156.59	18.819
6	10	293.9554	15	293.5724	0.99041	0.92654	-158.175	20.122
6	11	283.4355	7	283.3491	0.99585	0.96881	-157.878	20.212
6	12	255.8981	3	255.8805	0.99545	0.96623	-157.813	20.463
6	13	234.9478	-1	234.9457	0.99405	0.96494	-158.003	20.644
6	14	224.2796	-9	224.099	0.99612	0.9637	-158.418	20.778
6	15	218.5669	-13	218.18	0.99771	0.98107	-158.664	20.892

Table 13: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt* (*jul*)	*dx* (*km*)	θ correl.	*S* correl.	Lon Argo	Lat Argo
6	16	257.1899	10	256.9954	0.99785	0.97325	-158.838	20.579
6	17	269.3622	-1	269.3603	0.99799	0.97125	-159.046	20.536
6	18	273.7095	-11	273.4884	0.99628	0.95851	-159.21	20.567
6	19	410.494	7	410.4343	0.9959	0.95324	-160.274	19.733
6	20	429.2355	-4	429.2169	0.99398	0.95323	-160.21	19.492
6	21	571.1476	9	571.0767	0.99393	0.95778	-154.326	26.646
6	22	414.7737	11	414.6278	0.99739	0.96684	-161.852	21.659
6	23	416.1643	7	416.1054	0.99867	0.97805	-161.867	21.659
6	24	407.3657	-1	407.3644	0.99848	0.98875	-161.781	21.667
6	25	404.875	-5	404.8442	0.99895	0.98247	-161.762	21.686
6	26	395.5521	-9	395.4497	0.99894	0.97972	-161.695	21.77
6	27	385.0095	-13	384.79	0.99766	0.97647	-161.62	21.874
6	28	293.5142	12	293.2688	0.99756	0.9822	-160.048	24.611
6	29	293.0534	8	292.9442	0.99718	0.98261	-159.996	24.654
6	30	289.9309	4	289.9033	0.99685	0.98517	-159.963	24.645
6	31	269.8407	-8	269.7221	0.99687	0.98264	-159.725	24.597
6	32	260.7573	-12	260.481	0.99685	0.98444	-159.597	24.586
6	33	380.6941	14	380.4366	0.99306	0.95181	-156.271	19.744
6	34	345.5946	-2	345.5888	0.99706	0.97501	-156.152	20.174
6	35	324.4062	-6	324.3507	0.99776	0.97918	-156.2	20.374
6	36	305.6438	-14	305.323	0.99768	0.9769	-156.294	20.521
6	37	444.0405	14	443.8197	0.99468	0.92816	-156.623	18.983
6	38	452.1926	10	452.082	0.99076	0.91953	-156.823	18.847
6	39	443.1932	-14	442.972	0.99222	0.93541	-159.052	18.897
6	40	223.1627	16	222.5883	0.9976	0.9936	-155.86	23.051
6	41	206.0293	6	205.9419	0.99821	0.99453	-156.037	23.118
6	42	206.2477	-4	206.2089	0.99801	0.99421	-156.027	23.081
6	43	210.9301	-14	210.465	0.99681	0.99381	-155.99	23.108
6	44	379.9599	7	379.8954	0.99769	0.98569	-160.3	25.45
6	45	394.3237	-4	394.3034	0.9946	0.97486	-160.474	25.489
7	1	306.0477	14	305.7274	0.99718	0.97424	-156.651	20.311
7	2	285.6377	10	285.4626	0.99706	0.96919	-156.848	20.422
7	3	272.3444	6	272.2783	0.99577	0.97745	-156.977	20.497
7	4	273.8159	2	273.8085	0.99807	0.97254	-156.977	20.482
7	5	268.4457	-2	268.4383	0.99735	0.97128	-157.008	20.522
7	6	261.5393	-6	261.4704	0.99845	0.9813	-157.016	20.587
7	7	265.1441	-10	264.9555	0.99607	0.97766	-157.056	20.537
7	8	272.3508	-14	271.9907	0.99745	0.9821	-156.979	20.499
7	9	461.336	10	461.2276	0.99566	0.95006	-156.59	18.819
7	10	291.4838	15	291.0976	0.98586	0.89695	-158.175	20.122
7	11	281.3423	7	281.2552	0.99454	0.96112	-157.878	20.212
7	12	253.9234	3	253.9057	0.99406	0.96096	-157.813	20.463
7	13	232.6931	-1	232.691	0.99392	0.95993	-158.003	20.644
7	14	221.3841	-9	221.2011	0.99492	0.95481	-158.418	20.778
7	15	215.3122	-13	214.9194	0.99822	0.98359	-158.664	20.892
7	16	253.8634	10	253.6664	0.99742	0.97132	-158.838	20.579
7	17	265.8601	-1	265.8582	0.99849	0.97663	-159.046	20.536
7	18	270.0712	-11	269.8471	0.99818	0.97611	-159.21	20.567
7	19	406.5916	7	406.5313	0.99713	0.96859	-160.274	19.733
7	20	425.4128	-4	425.394	0.99639	0.97234	-160.21	19.492
7	21	575.1646	9	575.0942	0.98839	0.93633	-154.326	26.646
7	22	410.7501	11	410.6028	0.99702	0.96958	-161.852	21.659
7	23	412.1412	7	412.0818	0.99949	0.98678	-161.867	21.659
7	24	403.3365	-1	403.3353	0.99841	0.99391	-161.781	21.667
7	25	400.8504	-5	400.8192	0.99922	0.99272	-161.762	21.686
7	26	391.5496	-9	391.4462	0.99973	0.99326	-161.695	21.77
7	27	381.039	-13	380.8172	0.99916	0.99043	-161.62	21.874
7	28	292.6834	12	292.4373	0.99622	0.98365	-160.048	24.611
7	29	292.3225	8	292.213	0.99605	0.98401	-159.996	24.654
7	30	289.2243	4	289.1966	0.99478	0.97821	-159.963	24.645

Table 14: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt (jul)*	*dx (km)*	θ correl.	S correl.	Lon Argo	Lat Argo
7	31	269.3478	-8	269.229	0.99415	0.97782	-159.725	24.597
7	32	260.4104	-12	260.1338	0.99436	0.97737	-159.597	24.586
7	33	380.3945	14	380.1368	0.99467	0.96311	-156.271	19.744
7	34	345.7041	-2	345.6983	0.99573	0.97097	-156.152	20.174
7	35	324.622	-6	324.5666	0.99819	0.97602	-156.2	20.374
7	36	305.8793	-14	305.5587	0.99832	0.97769	-156.294	20.521
7	37	443.0571	14	442.8358	0.99688	0.94927	-156.623	18.983
7	38	450.9855	10	450.8746	0.99423	0.94184	-156.823	18.847
7	39	440.1119	-14	439.8892	0.99525	0.95927	-159.052	18.897
7	40	226.9971	16	226.4325	0.99858	0.99589	-155.86	23.051
7	41	209.9492	6	209.8634	0.99914	0.99406	-156.037	23.118
7	42	210.1369	-4	210.0988	0.99832	0.98888	-156.027	23.081
7	43	214.8286	-14	214.3719	0.99852	0.99508	-155.99	23.108
7	44	379.6611	7	379.5965	0.99606	0.98539	-160.3	25.45
7	45	393.9068	-4	393.8865	0.99267	0.97046	-160.474	25.489
8	1	305.819	14	305.4983	0.99687	0.96747	-156.651	20.311
8	2	285.242	10	285.0667	0.99776	0.96922	-156.848	20.422
8	3	271.8283	6	271.762	0.99491	0.97014	-156.977	20.497
8	4	273.29	2	273.2827	0.99762	0.96639	-156.977	20.482
8	5	267.9033	-2	267.8959	0.99729	0.9703	-157.008	20.522
8	6	261.0287	-6	260.9597	0.99872	0.97958	-157.016	20.587
8	7	264.5453	-10	264.3562	0.99618	0.97622	-157.056	20.537
8	8	271.8338	-14	271.473	0.9975	0.97687	-156.979	20.499
8	9	460.4959	10	460.3873	0.99605	0.95306	-156.59	18.819
8	10	289.2817	15	288.8926	0.98213	0.869	-158.175	20.122
8	11	279.5007	7	279.413	0.99274	0.94505	-157.878	20.212
8	12	252.1989	3	252.1811	0.9917	0.94354	-157.813	20.463
8	13	230.7072	-1	230.705	0.99184	0.94371	-158.003	20.644
8	14	218.7867	-9	218.6016	0.99244	0.93584	-158.418	20.778
8	15	212.3685	-13	211.9703	0.99753	0.97552	-158.664	20.892
8	16	250.8456	10	250.6462	0.99621	0.95989	-158.838	20.579
8	17	262.6711	-1	262.6692	0.99788	0.96956	-159.046	20.536
8	18	266.7493	-11	266.5224	0.9981	0.97566	-159.21	20.567
8	19	403.0075	7	402.9467	0.99641	0.9678	-160.274	19.733
8	20	421.9063	-4	421.8873	0.99632	0.97495	-160.21	19.492
8	21	578.8677	9	578.7978	0.9867	0.92668	-154.326	26.646
8	22	407.0107	11	406.862	0.99602	0.96249	-161.852	21.659
8	23	408.4022	7	408.3422	0.99914	0.98596	-161.867	21.659
8	24	399.5921	-1	399.5909	0.99786	0.99184	-161.781	21.667
8	25	397.1101	-5	397.0786	0.99867	0.99331	-161.762	21.686
8	26	387.8293	-9	387.7249	0.99958	0.99546	-161.695	21.77
8	27	377.3475	-13	377.1235	0.99929	0.99528	-161.62	21.874
8	28	291.9056	12	291.6588	0.99589	0.98466	-160.048	24.611
8	29	291.6373	8	291.5276	0.99612	0.98527	-159.996	24.654
8	30	288.5623	4	288.5346	0.99403	0.97527	-159.963	24.645
8	31	268.888	-8	268.769	0.99367	0.97593	-159.725	24.597
8	32	260.088	-12	259.811	0.99392	0.97451	-159.597	24.586
8	33	380.2196	14	379.9618	0.99378	0.95617	-156.271	19.744
8	34	345.9122	-2	345.9064	0.99421	0.95608	-156.152	20.174
8	35	324.9314	-6	324.876	0.99736	0.96381	-156.2	20.374
8	36	306.2097	-14	305.8895	0.99718	0.96606	-156.294	20.521
8	37	442.2403	14	442.0186	0.99717	0.95314	-156.623	18.983
8	38	449.9593	10	449.8482	0.99534	0.94805	-156.823	18.847
8	39	437.3183	-14	437.0941	0.99644	0.96569	-159.052	18.897
8	40	230.5824	16	230.0266	0.99865	0.99279	-155.86	23.051
8	41	213.6089	6	213.5246	0.99912	0.98876	-156.037	23.118
8	42	213.7704	-4	213.733	0.99815	0.98129	-156.027	23.081
8	43	218.4695	-14	218.0205	0.99888	0.99132	-155.99	23.108
8	44	379.3643	7	379.2997	0.9956	0.98376	-160.3	25.45
8	45	393.4992	-4	393.4789	0.99303	0.97077	-160.474	25.489

Table 15: Description: see paragraph p. 22

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CTD	Argo	*Radius*	*dt* (*jul*)	*dx* (*km*)	θ correl.	*S* correl.	Lon Argo	Lat Argo
9	1	305.6043	14	305.2834	0.99459	0.95834	-156.651	20.311
9	2	285.2316	10	285.0562	0.99655	0.96299	-156.848	20.422
9	3	271.9659	6	271.8997	0.99209	0.96079	-156.977	20.497
9	4	273.4394	2	273.4321	0.99573	0.95785	-156.977	20.482
9	5	268.0732	-2	268.0657	0.99557	0.96279	-157.008	20.522
9	6	261.1598	-6	261.0908	0.99704	0.97268	-157.016	20.587
9	7	264.7851	-10	264.5962	0.99381	0.96826	-157.056	20.537
9	8	271.973	-14	271.6124	0.99575	0.96956	-156.979	20.499
9	9	461.0302	10	460.9217	0.99431	0.94565	-156.59	18.819
9	10	291.5446	15	291.1585	0.97783	0.8573	-158.175	20.122
9	11	281.2987	7	281.2116	0.98976	0.93434	-157.878	20.212
9	12	253.8481	3	253.8304	0.98837	0.93191	-157.813	20.463
9	13	232.6918	-1	232.6896	0.98841	0.93159	-158.003	20.644
9	14	221.5694	-9	221.3865	0.98913	0.92372	-158.418	20.778
9	15	215.616	-13	215.2237	0.99552	0.96753	-158.664	20.892
9	16	254.192	10	253.9952	0.99468	0.95169	-158.838	20.579
9	17	266.2525	-1	266.2507	0.99645	0.96205	-159.046	20.536
9	18	270.5181	-11	270.2944	0.99614	0.96915	-159.21	20.567
9	19	407.1566	7	407.0964	0.9942	0.96209	-160.274	19.733
9	20	425.9393	-4	425.9205	0.99423	0.96917	-160.21	19.492
9	21	574.5367	9	574.4662	0.98546	0.92754	-154.326	26.646
9	22	411.6769	11	411.5299	0.99403	0.95767	-161.852	21.659
9	23	413.0685	7	413.0092	0.99809	0.98262	-161.867	21.659
9	24	404.2628	-1	404.2615	0.99694	0.98961	-161.781	21.667
9	25	401.7775	-5	401.7464	0.9978	0.99125	-161.762	21.686
9	26	392.4809	-9	392.3777	0.9988	0.99298	-161.695	21.77
9	27	381.9752	-13	381.754	0.99844	0.99395	-161.62	21.874
9	28	293.3424	12	293.0968	0.99619	0.98784	-160.048	24.611
9	29	292.9646	8	292.8553	0.99648	0.98823	-159.996	24.654
9	30	289.8623	4	289.8347	0.99272	0.97635	-159.963	24.645
9	31	269.9474	-8	269.8289	0.99378	0.97792	-159.725	24.597
9	32	260.9829	-12	260.7069	0.99362	0.97646	-159.597	24.586
9	33	379.9377	14	379.6797	0.99089	0.94597	-156.271	19.744
9	34	345.1664	-2	345.1606	0.9911	0.94625	-156.152	20.174
9	35	324.0642	-6	324.0086	0.99642	0.95585	-156.2	20.374
9	36	305.3179	-14	304.9968	0.9949	0.95724	-156.294	20.521
9	37	442.746	14	442.5246	0.99615	0.94734	-156.623	18.983
9	38	450.7251	10	450.6142	0.9949	0.94452	-156.823	18.847
9	39	440.3583	-14	440.1357	0.99562	0.96062	-159.052	18.897
9	40	226.0486	16	225.4817	0.99861	0.99046	-155.86	23.051
9	41	209.0067	6	208.9206	0.99893	0.9856	-156.037	23.118
9	42	209.1906	-4	209.1524	0.99783	0.97859	-156.027	23.081
9	43	213.886	-14	213.4273	0.99857	0.98798	-155.99	23.108
9	44	380.2268	7	380.1623	0.99548	0.98508	-160.3	25.45
9	45	394.4944	-4	394.4741	0.99399	0.97445	-160.474	25.489

Table 16: Description: see paragraph p. 22

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4.3 ARGO and CTD profiles

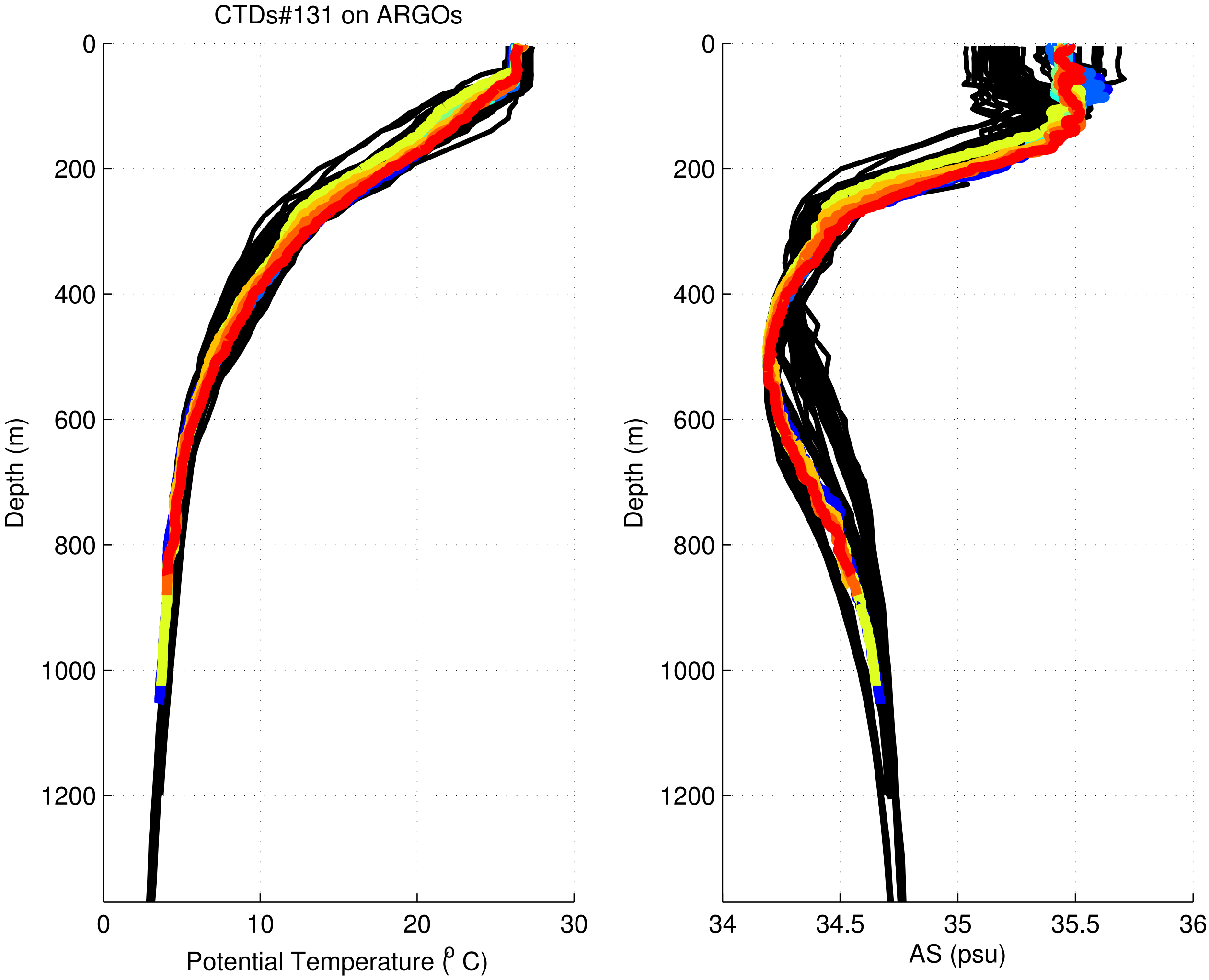

Figure 12: Description: see paragraph p. 22

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4.4 ARGO and CTD $\theta - S$ diagrams

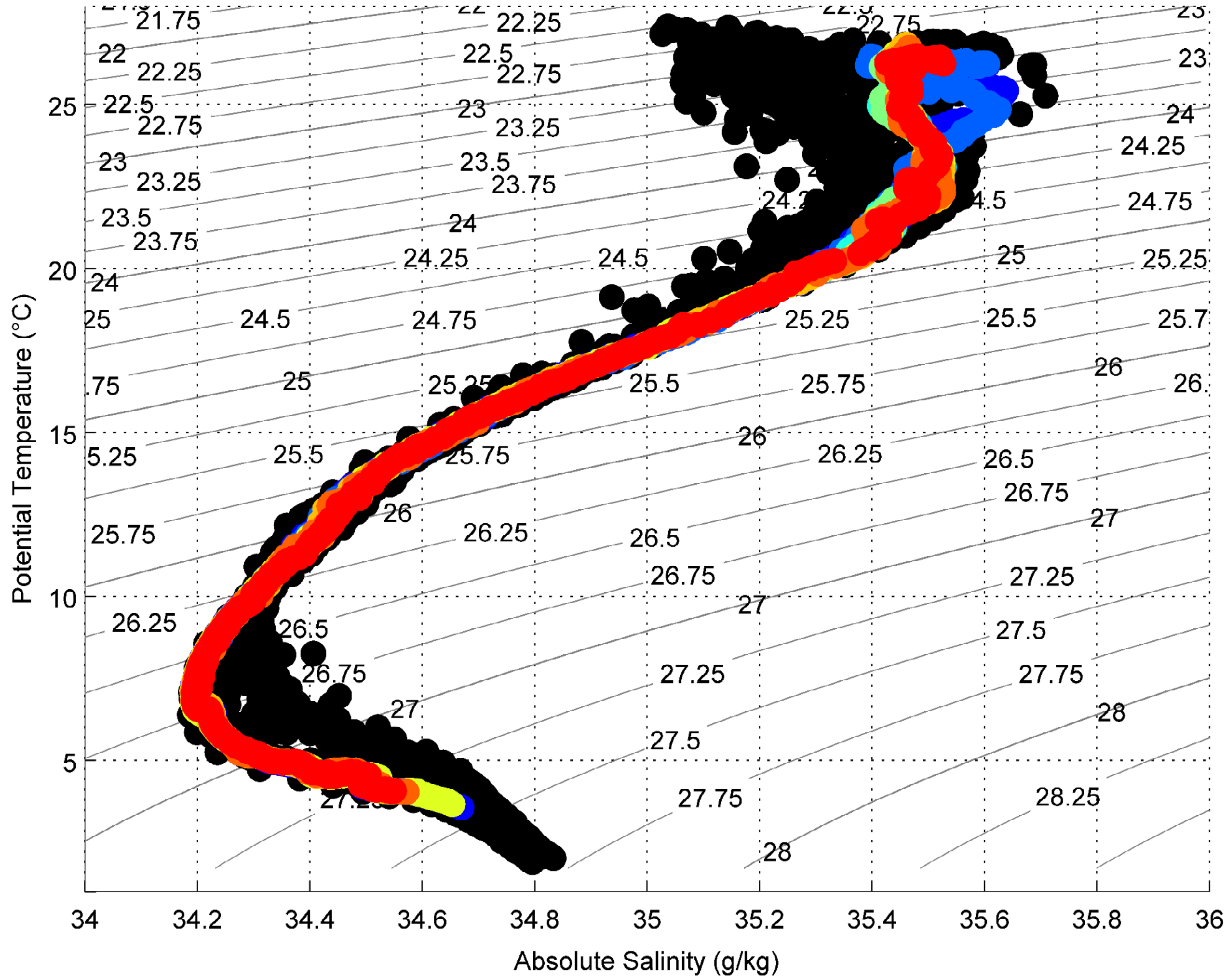

Figure 13: Description: see paragraph p. 22

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