SSS from French Research Vessels: Inventory of thermo-salinometer delayed mode data – 2015 update.

A contribution to GOSUD

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History

Date	Author	Comment
05/11/2014	F. Gaillard, D. Diverrès, Y. Gouriou , S. Jacquin	First version of document based on processing performed before October 2014
21/01/2015	F. Gaillard, D. Diverrès, S. Jacquin	New water samples have been added and some files were reprocessed in December 2014
14/09/2015	F. Gaillard, D. Diverrès, S. Jacquin	• Processing of year 2014 for FMCY, FNCM, FNFP, FZVN • Years 2013-2013 for FABB • New samples and CTD data added to previous years • Depth of water intake corrected

Content

1 Introduction

The continuous data acquisition of thermo-salinometer data on board French Research Vessels was initiated in 1999. The methodology was inspired by the Research Observatory, based on merchant ships (ORE-SSS, T. Delcroix, IRD).

To ensure that the data quality is in accordance with current research standards, the procedure has been carefully designed from the equipment to the last delayed mode processing.

- A set of similar instrument has been selected: the SBE-21 device provides the salinity value (deduced from the conductivity and temperature measured in the instrument) an additional temperature sensor is installed in the inlet (generally a SBE 38 sensor).
- The sensors are calibrated annually by the SHOM metrology service and returned to Seabird Electronics when the drift becomes excessive.
- On board Ships operated by Genavir, installation and proper functioning on board is performed by the crew who maintains a database relating all events relative to the instruments while on board. A similar system applies on the ship operated by other partners.
- Instruments are cleaned at the beginning of each cruise.
- Water samples are taken on a daily basis (Genavir) and analysed by SHOM.
- Reduced data (5 minutes) are transmitted in real time, full resolution data are archived on board and provided to SISMER after the cruises.
- The quality control and adjustment on the water samples has been performed using the software TSGQC (Grelet et al., 2008).
- The NetCdf output data format is described in the GOSUD document (GOSUD Data Format, V3, 2013).

We present here the results of the delayed mode processing of the dataset collected by the Research vessels listed Table 1. All data available as october 2014 have been taken into account.

Ship Name	Call Sign	First year	Last Year	Owner/ operator
POURQUOI PAS ?	FMCY	2006	2014	Ifremer-SHOM/ Genavir
L'ATALANTE	FNCM	2003	2014	Ifremer/ Genavir
THALASSA	FNFP	2001	2014	Ifremer/ Genavir
LE SUROIT	FZVN	2001	2014	Ifremer/ Genavir
BEAUTEMPS-BEAUPRE	FABB	2004	2014	SHOM/SHOM

Table 1: List of Research vessels

2 Inventory of data files

We list here the descriptors of all the files for each ship. The principle is to create one file per year, and per instrument.

2.1 Ship: BEAUTEMPS-BEAUPRE - FABB

File	Proc-level	TSG Type Serial Num	Date start Date end	Num-TSG Num ok	WS	Argo	Other
DM_FABB_2004a_TSG		SBE21	2004/01/16H00:00:00	55732	63	29	0
	2C+	N/A	2004/12/02H23:57:00	51871	63	21	0
DM_FABB_2005a_TSG		SBE21	2005/01/21H00:00:00	44157	0	17	0
	2C+	N/A	2005/11/02H19:09:00	42994	0	17	0
DM_FABB_2006a_TSG		SBE21	2006/01/11H07:48:00	64884	0	35	0
	2C+	N/A	2006/11/27H02:57:00	60958	0	35	0
DM_FABB_2007a_TSG		SBE21	2007/01/22H13:09:00	43709	47	27	0
	2C+	N/A	2007/11/13H13:00:00	42841	47	27	0
DM_FABB_2008a_TSG		SBE21	2008/01/03H09:15:00	31306	103	0	0
	2C+	N/A	2008/06/30H18:24:00	29203	102	0	0
DM_FABB_2009a_TSG		SBE21	2009/02/17H00:00:00	23451	189	0	0
	2C+	N/A	2009/11/22H16:54:00	22207	182	0	0
DM_FABB_2010a_TSG		SBE21	2010/02/02H00:03:00	37133	182	40	0
	2C+	3162	2010/11/24H23:57:00	36806	182	40	0
DM_FABB_2011a_TSG		SBE21	2011/02/08H08:51:00	40623	136	0	0
	2C+	3162	2011/11/24H16:32:44	40352	133	0	0
DM_FABB_2012a_TSG		SBE21	2012/01/29H12:05:31	16201	130	19	0
	2C+	3264	2012/07/27H03:57:17	15824	127	17	0
DM_FABB_2012b_TSG		SBE21	2012/08/06H11:39:09	5403	57	6	0
	2C+	3162	2012/11/22H13:47:27	4945	57	6	0
DM_FABB_2013a_TSG		SBE21	2013/02/23H12:44:12	11461	168	0	0
	2C+	3264	2013/11/09H03:52:49	11329	168	0	0
DM_FABB_2014a_TSG		SBE21	2014/01/30H13:28:23	20887	161	0	0
	2C+	3162	2014/11/12H04:57:16	20409	161	0	0

2.2 Ship: L'ATALANTE - FNCM

File	Proc-level	TSG Type Serial Num	Date start Date end	Num-TSG Num ok	WS	Argo	Other
DM_FNCM_2003a_TSG		SBE21	2003/11/28H15:27:33	8733	20	0	0
	2C+	N/A	2003/12/31H23:55:26	7438	20	0	0
DM_FNCM_2004a_TSG		SBE21	2004/01/01H00:03:14	87694	4	36	0
	2C+	N/A	2004/12/31H23:56:30	78901	4	36	0
DM_FNCM_2005a_TSG		SBE21	2005/01/01H00:03:42	79637	15	27	0
	2C+	N/A	2005/12/21H14:36:35	68676	12	27	0
DM_FNCM_2006a_TSG		SBE21	2006/01/27H17:22:13	73654	0	53	73
	2C+	3153	2006/12/20H10:43:19	66145	0	53	73
DM_FNCM_2007a_TSG		SBE21	2006/12/23H04:53:04	36001	0	10	0
	2C+	3152	2007/06/20H05:56:19	33657	0	9	0
DM_FNCM_2007b_TSG		SBE21	2007/07/18H06:02:33	30580	72	10	0
	2C+	3201	2007/11/07H07:26:16	25183	72	9	0
DM_FNCM_2008a_TSG		SBE21	2008/01/07H15:32:43	22062	0	13	0
	2C+	3201	2008/03/28H08:36:12	20930	0	13	0
DM_FNCM_2008b_TSG		SBE21	2008/04/19H08:27:30	4426	12	6	0
	2C+	3152	2008/05/03H06:17:38	2495	12	5	0

File	TSG Type	Date start	Num-TSG	WS	Argo	Other
Proc-level	Serial Num	Date end	Num ok			
DM_FNCM_2008c_TSG	SBE21	2008/06/17H18:57:30	5485	36	15	0
2C+	3153	2008/07/05H14:50:36	5477	36	5	0
DM_FNCM_2008d_TSG	SBE21	2008/07/05H16:28:00	26581	76	20	0
2C+	3152	2008/10/28H06:07:14	23355	76	8	0
DM_FNCM_2009a_TSG	SBE21	2009/09/18H09:58:24	17591	71	17	0
2C+	3201	2009/12/18H11:32:24	15878	71	15	0
DM_FNCM_2010a_TSG	SBE21	2010/02/06H15:57:39	2684	8	0	0
2C+	3201	2010/02/15H01:12:09	2681	8	0	0
DM_FNCM_2010b_TSG	SBE21	2010/03/01H18:54:42	66518	220	24	0
2C+	1809	2011/01/30H23:52:27	65115	220	23	0
DM_FNCM_2011a_TSG	SBE21	2011/02/01H21:26:57	3095	0	2	0
2C+	1809	2011/02/10H21:49:50	3092	0	2	0
DM_FNCM_2011b_TSG	SBE21	2011/02/11H10:26:30	39834	0	13	0
2C+	3199	2011/07/26H14:08:27	36463	0	13	0
DM_FNCM_2011c_TSG	SBE21	2011/07/26H14:20:59	27850	92	20	0
2C+	3152	2011/10/29H17:10:27	27003	92	20	0
DM_FNCM_2011d_TSG	SBE21	2011/12/20H10:39:19	3585	23	9	0
2C+	1809	2012/01/12H05:59:29	3581	23	6	0
DM_FNCM_2012a_TSG	SBE21	2012/01/16H20:13:59	49934	55	19	0
2C+	3152	2012/05/10H05:56:22	48305	55	18	0
DM_FNCM_2012b_TSG	SBE21	2012/06/29H05:58:41	27010	70	36	0
2C+	3152	2012/10/08H05:57:51	26971	70	33	0
DM_FNCM_2012c_TSG	SBE21	2012/11/25H18:53:19	16957	25	0	0
2C+	3237	2012/12/23H19:49:28	16903	25	0	0
DM_FNCM_2013a_TSG	SBE21	2013/01/11H18:36:31	111083	134	52	0
2C+	3237	2013/09/23H04:19:53	111072	132	39	0
DM_FNCM_2013b_TSG	SBE21	2013/09/26H14:50:59	62642	64	24	0
2C+	3294	2013/12/23H10:22:09	61761	63	20	0
DM_FNCM_2014a_TSG	SBE21	2014/01/11H22:23:07	73188	121	20	157
2C+	3294	2014/06/12H11:34:51	73033	121	20	157
DM_FNCM_2014b_TSG	SBE21	2014/08/08H14:59:04	660	101	0	0
2C+	3294	2014/08/09H07:29:15	603	101	0	0

2.3 Ship: LE SUROIT - FZVN

File	TSG Type	Date start	Num-TSG	WS	Argo	Other
Proc-level	Serial Num	Date end	Num ok			
DM_FZVN_2001a_TSG	SBE21	2001/01/31H11:00:43	36268	0	0	0
2C+	N/A	2001/09/01H17:43:42	35333	0	0	0
DM_FZVN_2002a_TSG	SBE21	2002/03/09H15:06:15	65844	16	2	0
2C+	N/A	2002/12/31H23:57:29	57559	16	1	0
DM_FZVN_2003a_TSG	SBE21	2003/01/01H00:01:59	54895	2	20	0
2C+	N/A	2003/12/17H04:54:35	49829	2	20	0
DM_FZVN_2004a_TSG	SBE21	2004/02/01H21:07:08	27620	24	9	0
2C+	N/A	2004/09/29H07:50:21	24624	24	8	0
DM_FZVN_2005a_TSG	SBE21	2005/04/04H20:37:05	68829	43	34	117
2C+	N/A	2005/12/16H06:34:39	64896	43	31	117
DM_FZVN_2006a_TSG	SBE21	2006/02/10H21:12:51	47948	52	21	0
2C+	2752	2006/12/26H17:29:53	44183	52	20	0
DM_FZVN_2007a_TSG	SBE21	2007/01/02H03:26:45	49386	17	71	0
2C+	2752	2007/10/23H07:04:01	46827	17	67	0
DM_FZVN_2008a_TSG	SBE21	2008/01/24H06:43:16	61565	24	27	0
2C+	2752	2008/12/02H14:01:20	56672	24	27	0

File	Proc-level	TSG Type Serial Num	Date start Date end	Num-TSG Num ok	WS	Argo	Other
DM_FZVN_2009a_TSG		SBE21	2009/01/07H17:53:06	50016	72	42	0
	2C+	2752	2009/12/21H04:54:52	39004	72	39	0
DM_FZVN_2011a_TSG		SBE21	2011/03/22H06:02:48	30739	79	30	0
	2C+	3341	2011/07/02H15:33:55	29973	79	29	0
DM_FZVN_2011b_TSG		SBE21	2011/07/04H13:04:03	30005	24	10	0
	2C+	3341	2011/12/14H05:58:10	27044	24	9	0
DM_FZVN_2012a_TSG		SBE21	2012/02/24H11:40:20	26176	96	44	0
	2C+	3230	2012/05/20H04:56:59	26172	96	38	0
DM_FZVN_2012b_TSG		SBE21	2012/07/15H05:08:57	7181	0	14	0
	2C+	3230	2012/08/09H05:11:19	7181	0	14	0
DM_FZVN_2013a_TSG		SBE21	2013/02/03H09:23:28	146727	191	272	0
	2C+	2572	2013/11/05H10:39:26	139132	191	232	0
DM_FZVN_2014a_TSG		SBE21	2014/03/29H08:26:26	26975	27	27	0
	2C+	1809	2014/04/29H07:04:58	26056	27	27	0
DM_FZVN_2014b_TSG		SBE21	2014/05/01H11:06:12	61895	60	0	0
	2C+	3342	2014/07/22H14:14:00	59083	60	0	0

2.4 Ship: POURQUOI PAS ? - FMCY

File	Proc-level	TSG Type Serial Num	Date start Date end	Num-TSG Num ok	WS	Argo	Other
DM_FMCY_2006a_TSG		SBE21	2006/05/02H05:57:57	26721	0	19	0
	2C+	N/A	2006/12/12H05:58:06	24778	0	18	0
DM_FMCY_2007a_TSG		SBE21	2007/03/01H12:50:55	43239	43	40	0
	2C+	3236	2007/09/23H06:01:20	42166	43	37	0
DM_FMCY_2007b_TSG		SBE21	2007/10/07H18:36:58	16384	31	10	0
	2C+	3237	2007/12/21H14:47:47	15586	31	9	0
DM_FMCY_2008a_TSG		SBE21	2008/01/27H07:16:46	55997	140	59	0
	2C+	3237	2008/10/03H05:55:11	48310	140	47	0
DM_FMCY_2008b_TSG		SBE21	2008/12/08H06:31:15	1384	0	0	0
	2C+	3236	2008/12/13H14:09:33	1305	0	0	0
DM_FMCY_2009a_TSG		SBE21	2009/02/16H10:59:20	25412	115	29	0
	2C+	3236	2009/10/28H06:27:11	23952	115	24	0
DM_FMCY_2009b_TSG		SBE21	2009/10/31H09:56:51	12478	0	5	0
	2C+	3294	2009/12/31H23:56:15	11192	0	5	0
DM_FMCY_2010a_TSG		SBE21	2010/01/01H00:00:45	14320	39	5	0
	2C+	3294	2010/04/20H05:36:52	12898	39	5	0
DM_FMCY_2010b_TSG		SBE21	2010/04/20H14:56:14	54884	173	31	0
	2C+	3237	2010/12/24H05:58:00	53080	168	22	0
DM_FMCY_2011a_TSG		SBE21	2011/01/01H00:03:40	23733	0	11	0
	2C+	3237	2011/03/19H05:59:24	23071	0	10	0
DM_FMCY_2011b_TSG		SBE21	2011/04/20H09:21:06	53723	49	17	0
	2C+	3294	2011/11/04H05:55:47	51303	47	10	0
DM_FMCY_2011c_TSG		SBE21	2011/12/10H16:28:36	15922	53	0	0
	2C+	3284	2012/01/10H09:41:54	15868	53	0	0
DM_FMCY_2012a_TSG		SBE21	2012/02/03H11:15:06	21007	85	32	0
	2C+	3284	2012/04/30H13:21:08	21005	85	32	0
DM_FMCY_2012b_TSG		SBE21	2012/07/21H06:41:46	16935	41	29	0
	2C+	3284	2012/11/02H14:16:33	16898	41	27	0
DM_FMCY_2012c_TSG		SBE21	2012/11/05H06:53:49	16532	15	17	0
	2C+	3341	2012/12/12H05:58:52	16465	10	17	0
DM_FMCY_2013a_TSG		SBE21	2013/03/09H09:48:44	14876	9	0	0
	2C+	3236	2013/03/29H06:34:54	12758	9	0	0

File	TSG Type	Date start	Num-TSG	WS	Argo	Other
Proc-level	Serial Num	Date end	Num ok			
DM_FMCY_2013b_TSG	SBE21	2013/08/03H08:12:40	32609	33	1	0
2C+	3341	2013/09/11H08:25:29	32332	33	1	0
DM_FMCY_2013c_TSG	SBE21	2013/09/27H09:05:22	44730	78	0	0
2C+	3284	2013/12/19H20:49:01	44684	78	0	0
DM_FMCY_2014a_TSG	SBE21	2013/12/25H14:47:31	104776	112	60	0
2C+	3284	2014/08/06H04:49:32	98008	112	60	0
DM_FMCY_2014b_TSG	SBE21	2014/09/13H18:45:15	19791	63	31	0
2C+	3358	2014/10/27H04:56:51	19594	63	30	0

2.5 Ship: THALASSA - FNFP

File	TSG Type	Date start	Num-TSG	WS	Argo	Other
Proc-level	Serial Num	Date end	Num ok			
DM_FNFP_2001a_TSG	SBE21	2001/08/23H14:00:37	34077	16	11	0
2C+	N/A	2001/12/02H14:33:46	33978	16	11	0
DM_FNFP_2002a_TSG	SBE21	2002/01/30H19:54:50	81263	0	22	0
2C+	N/A	2002/12/02H08:17:24	77819	0	20	0
DM_FNFP_2003a_TSG	SBE21	2003/02/02H04:58:20	26068	23	7	0
2C+	N/A	2003/12/01H07:13:23	25498	23	4	0
DM_FNFP_2004a_TSG	SBE21	2004/01/22H09:50:21	63670	99	25	0
2C+	N/A	2004/12/11H16:31:29	62604	99	19	0
DM_FNFP_2005a_TSG	SBE21	2005/01/27H09:16:40	70321	42	36	0
2C+	N/A	2005/12/04H17:15:49	69024	42	25	0
DM_FNFP_2006a_TSG	SBE21	2006/01/27H10:28:24	26656	92	17	0
2C+	3201	2006/05/30H15:12:44	26629	85	16	0
DM_FNFP_2006b_TSG	SBE21	2006/07/06H15:06:58	24417	0	8	0
2C+	3200	2006/12/03H09:01:13	22391	0	7	0
DM_FNFP_2007a_TSG	SBE21	2007/01/23H17:34:05	28561	15	15	0
2C+	3200	2007/08/22H11:59:54	25926	15	10	0
DM_FNFP_2007b_TSG	SBE21	2007/10/01H06:41:17	2557	35	22	0
2C+	2281	2007/10/13H14:51:17	2553	35	22	0
DM_FNFP_2007c_TSG	SBE21	2007/10/14H07:00:23	692	4	16	0
2C+	2572	2007/10/20H16:13:23	518	3	16	0
DM_FNFP_2007d_TSG	SBE21	2007/10/20H17:13:16	12285	47	8	0
2C+	2281	2007/12/03H13:03:45	11807	47	8	0
DM_FNFP_2008a_TSG	SBE21	2008/02/15H13:04:27	63375	222	99	0
2C+	2281	2008/11/29H15:51:40	62218	221	98	0
DM_FNFP_2009a_TSG	SBE21	2009/01/17H19:28:17	26340	124	39	0
2C+	3200	2009/07/21H15:29:32	26316	124	39	0
DM_FNFP_2009b_TSG	SBE21	2009/09/24H13:42:56	17797	65	7	0
2C+	2281	2009/11/30H12:06:14	17754	65	6	0
DM_FNFP_2010a_TSG	SBE21	2010/01/17H09:25:28	59450	181	39	0
2C+	2281	2010/09/08H11:37:46	58222	179	36	0
DM_FNFP_2010b_TSG	SBE21	2010/10/18H15:02:35	22628	36	1	0
2C+	3153	2010/12/01H14:01:15	19538	36	1	0
DM_FNFP_2011a_TSG	SBE21	2011/01/11H14:24:18	16513	0	0	0
2C+	3153	2011/02/13H16:50:23	14458	0	0	0
DM_FNFP_2011b_TSG	SBE21	2011/03/26H20:11:11	28254	0	0	0
2C+	3201	2011/08/15H13:48:16	28175	0	0	0
DM_FNFP_2011c_TSG	SBE21	2011/10/03H14:36:08	19061	67	0	0
2C+	3200	2011/11/30H08:42:03	19002	67	0	0
DM_FNFP_2012a_TSG	SBE21	2012/01/12H08:31:04	25055	28	0	0
2C+	3200	2012/02/13H13:24:16	23604	28	0	0

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DM_FNFP_2012b_TSG              SBE21     2012/03/24H10:16:58   49688  189   37   90
                     2C+        3153     2012/11/30H18:19:36   49382  189   26   90

DM_FNFP_2013a_TSG              SBE21     2013/01/15H06:35:41  103608  141    0    0
                     2C+        3200     2013/11/30H14:30:49  100258  139    0    0

DM_FNFP_2014a_TSG              SBE21     2014/01/14H09:37:48  189967  208    0    0
                     2C+        3230     2014/11/30H13:22:19  186114  208    0    0
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3 Summary of data content by vessel

For each vessel and each year we summarize here the following information:

nb.tsg: Number of TSG data points (total/valid)

pct. TSG: percentage of valid TSG data

nb.days: Number of days with TSG data collected

nb.WS/RV: Number of water samples collected on board

nd/day: Mean number of water sample per day

nb. WS: Number of external measurments (WS + Argo + CTD) total/valid

BEAUTEMPS-BEAUPRE

year	nb.tsg total	nb.tsg ok	pct tsg	nb.days	nd.WS RV	nd/day	nb.WS total	nb.WS ok	pct
2001	0	0	NaN	0	0	NaN	0	0	NaN
2002	0	0	NaN	0	0	NaN	0	0	NaN
2003	0	0	NaN	0	0	NaN	0	0	NaN
2004	55732	51871	93	135	63	0.47	92	84	91
2005	44157	42994	97	104	0	0.00	0	0	NaN
2006	64884	60958	94	166	0	0.00	0	0	NaN
2007	43709	42841	98	120	47	0.39	74	74	100
2008	31306	29203	93	89	103	1.16	103	102	99
2009	23451	22207	95	64	189	2.95	189	182	96
2010	37133	36806	99	94	182	1.94	222	222	100
2011	40623	40352	99	101	136	1.35	136	133	98
2012	21604	20769	96	151	187	1.24	212	207	98
2013	11461	11367	99	86	168	1.95	168	168	100
2014	20887	20409	98	148	161	1.09	161	161	100

L'ATALANTE

year	nb.tsg total	nb.tsg ok	pct tsg	nb.days	nd.WS RV	nd/day	nb.WS total	nb.WS ok	pct
2001	0	0	NaN	0	0	NaN	0	0	NaN
2002	0	0	NaN	0	0	NaN	0	0	NaN
2003	8733	7438	85	32	20	0.62	20	20	100
2004	87694	78901	90	307	4	0.01	40	40	100
2005	79637	68676	86	275	15	0.05	42	39	93
2006	76408	68804	90	258	0	0.00	0	0	NaN
2007	63827	56180	88	218	72	0.33	82	81	99
2008	58554	52228	89	197	124	0.63	165	142	86
2009	17591	14657	83	63	71	1.13	88	86	98

2010	61663	59963	97	171	228	1.33	251	250	100
2011	78575	74132	94	209	104	0.50	130	129	99
2012	97229	95397	98	235	161	0.69	220	214	97
2013	173725	173656	100	198	198	1.00	274	254	93
2014	73848	73635	100	87	222	2.55	399	399	100

LE SUROIT

year	nb.tsg total	nb.tsg ok	pct tsg	nb.days	nd.WS RV	nd/day	nb.WS total	nb.WS ok	pct
2001	36268	35333	97	86	0	0.00	0	0	NaN
2002	65844	57559	87	230	14	0.06	16	15	94
2003	54895	49829	91	193	4	0.02	24	24	100
2004	27620	24624	89	98	24	0.24	33	32	97
2005	68829	64896	94	238	43	0.18	194	191	98
2006	47948	44182	92	167	52	0.31	73	72	99
2007	49386	46831	95	161	17	0.11	88	84	95
2008	61565	56672	92	146	24	0.16	51	51	100
2009	50016	39004	78	140	72	0.51	114	111	97
2010	0	0	NaN	0	0	NaN	0	0	NaN
2011	60744	57017	94	168	103	0.61	143	141	99
2012	33357	33352	100	101	96	0.95	140	134	96
2013	146727	139125	95	172	191	1.11	463	423	91
2014	88870	85138	96	100	87	0.87	114	114	100

POURQUOI PAS ?

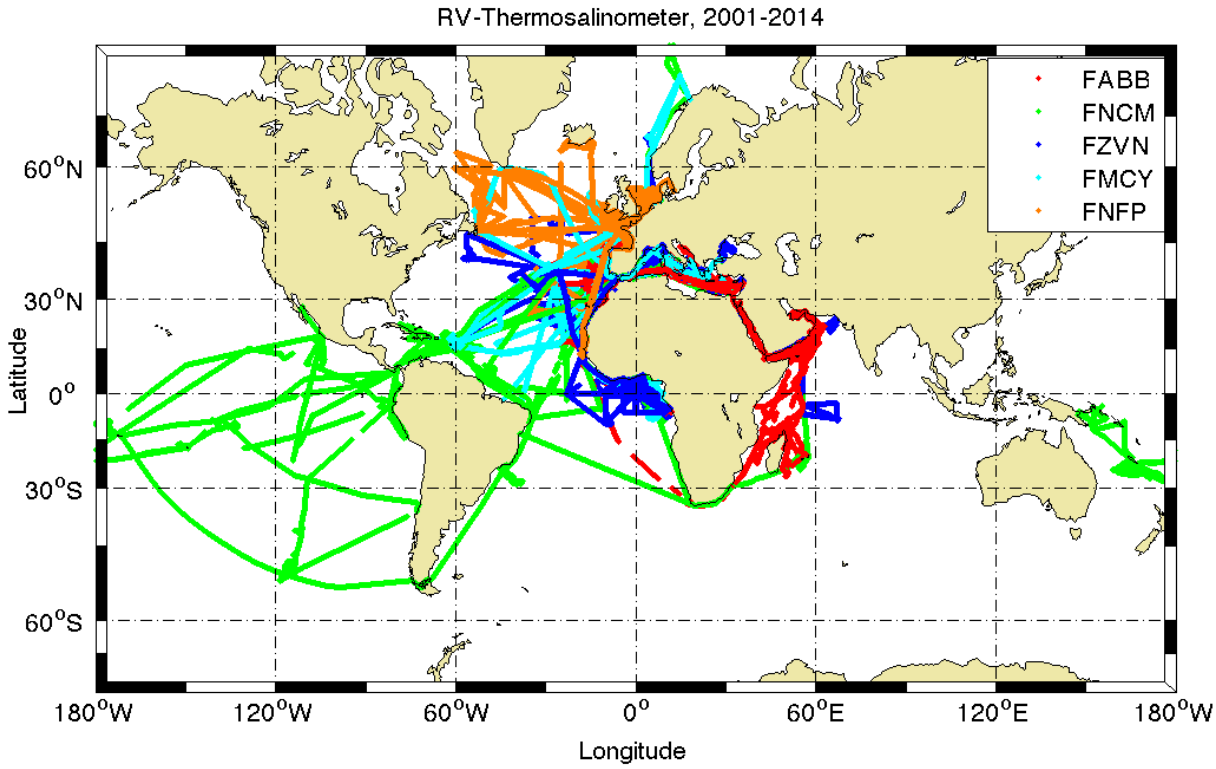
year	nb.tsg total	nb.tsg ok	pct tsg	nb.days	nd.WS RV	nd/day	nb.WS total	nb.WS ok	pct
2001	0	0	NaN	0	0	NaN	0	0	NaN
2002	0	0	NaN	0	0	NaN	0	0	NaN
2003	0	0	NaN	0	0	NaN	0	0	NaN
2004	0	0	NaN	0	0	NaN	0	0	NaN
2005	0	0	NaN	0	0	NaN	0	0	NaN
2006	26721	24778	93	99	0	0.00	0	0	NaN
2007	59623	57752	97	213	74	0.35	124	120	97
2008	57381	49447	86	202	140	0.69	199	187	94
2009	37890	35144	93	142	115	0.81	144	139	97
2010	69204	66083	95	233	212	0.91	248	234	94
2011	90605	87509	97	220	93	0.42	110	101	92
2012	57247	57131	100	144	150	1.04	228	221	97
2013	98321	95898	98	114	119	1.04	120	120	100
2014	118461	111496	94	135	176	1.30	267	266	100

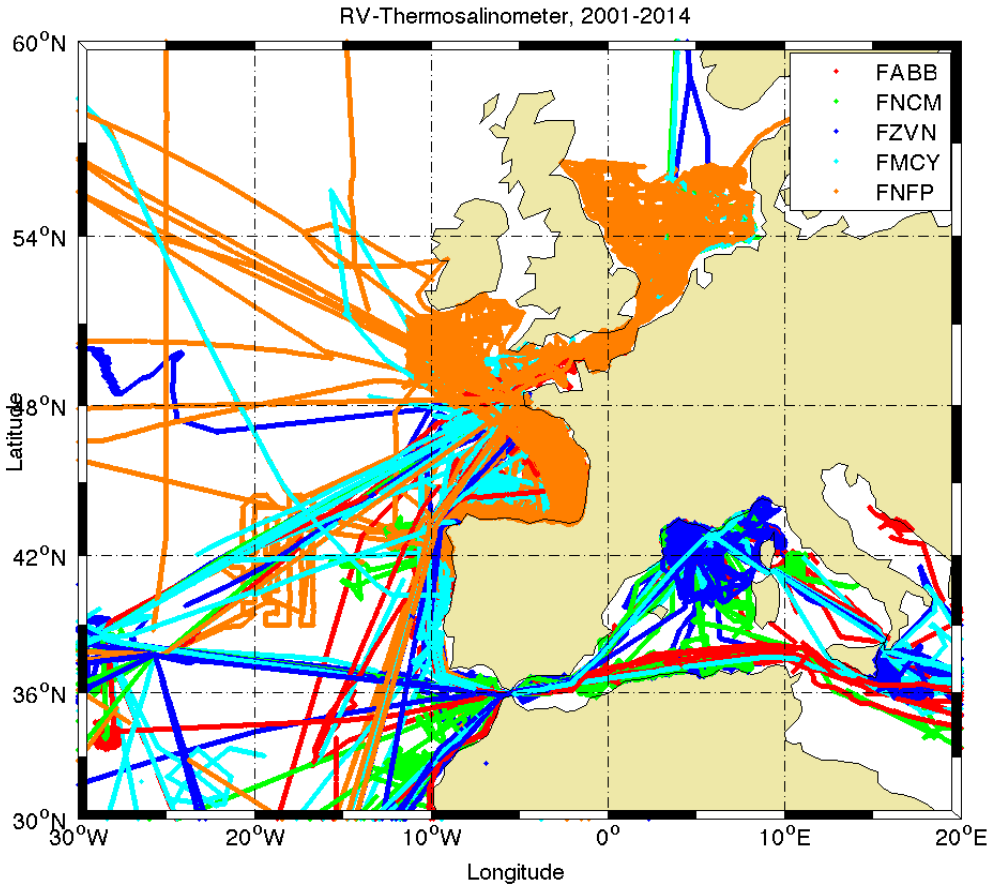
THALASSA

year	nb.tsg total	nb.tsg ok	pct tsg	nb.days	nd.WS RV	nd/day	nb.WS total	nb.WS ok	pct
2001	34077	33978	100	93	16	0.17	27	27	100
2002	81263	77819	96	247	0	0.00	0	0	NaN
2003	26068	25498	98	88	23	0.26	30	27	90
2004	63670	62363	98	219	99	0.45	124	118	95
2005	70321	65927	94	234	42	0.18	78	67	86
2006	51073	49020	96	181	92	0.51	109	101	93
2007	44095	40774	92	160	101	0.63	162	156	96
2008	63375	62184	98	224	222	0.99	321	319	99
2009	44137	44070	100	153	189	1.24	235	234	100
2010	82078	77821	95	203	217	1.07	257	252	98
2011	63828	61635	97	168	67	0.40	67	67	100
2012	74743	73116	98	222	217	0.98	344	333	97

2013	103608	100254	97	119	141	1.18	141	139	99
2014	189967	186108	98	218	208	0.95	208	208	100

4 Maps (all years)





5 References

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