ADMT18

NAARC ACTIVITIES

C. Cabanes, N.Kolodziejczyk, G. Maze, V. Thierry, C. Lagadec
NAARC ACTIVITIES for the year 2017

- Overall consistency of DM PSAL data in the NAARC region
- Check of the CTD reference database in the North Atlantic
- Products: ISAS15
Overall consistency of DM PSAL data in the NAARC region (North of 20° S)

Method

For floats that have been through DM analysis:

- We selected all unbiased floats according to the PI’s decision in the NAARC region

- We run the OW method for this subset of unbiased floats, using different sets of configuration parameters.

- We checked that the OW results obtained for this subset of floats were generally in agreement with the PI’s decision (i.e. no correction is necessary).

- Then, we run OW method for all the floats corrected in DM and checked that the correction obtained fit the one applied by the PI, within error bars.
Overall consistency of DM PSAL data in the NAARC region

(Argo data snapshot of 2017/05)

- 1653 floats in delayed mode

1345 unbiased floats, according to the Pi’s decision

Using four sets of configuration parameters:

Only 24 floats for which the estimated offset is larger 0.01 PSU and larger than two times the statistical error, for all the four runs.

Results obtained are mostly in agreement with the PI’s decision
Overall consistency of DM PSAL data in the NAARC region

(Argo data snapshot of 2017/05)

Map of the differences between reference salinities and float salinities at each float profile location (1345 unbiased floats)

8/24 unbiased floats for which we are not able to reproduce the PI’s decision are in this region
Overall consistency of DM PSAL data in the NAARC region

(Argo data snapshot of 2017/05)

Unbiased floats (1345)

Salinity corrections suggested by OW
Overall consistency of DM PSAL data in the NAARC region

Reference data coverage?

Argo reference database

CTD reference database

Salinity at theta levels: 3.9~4.2

Differences between mapped salinities and float salinities, config OW/129

Number of profiles over time for Argo and CTD databases.
Overall consistency of DM PSAL data in the NAARC region

(Argo data snapshot of 2017/05)

Unbiased floats (1345)

Salinity corrections suggested by OW
Overall consistency of DM PSAL data in the NAARC region

(Argo data snapshot of 2017/05)

Unbiased floats (1345)

Salinity corrections suggested by OW

No overcorrection

Are alternative checks used to take the decision not to correct the float ???

What about PSAL_ADJUSTED_ERROR if no alternative checks are used?
Overall consistency of DM PSAL data in the NAARC region

Check of the 308 floats with a PSAL correction

<table>
<thead>
<tr>
<th>Float number</th>
<th>Float launch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900547</td>
<td>Jun. 2005</td>
</tr>
<tr>
<td>1900608</td>
<td>Jun. 2006</td>
</tr>
<tr>
<td>6901613</td>
<td>Apr. 2014</td>
</tr>
<tr>
<td>6900230</td>
<td>Sep. 2003</td>
</tr>
<tr>
<td>6901238</td>
<td>Sep. 2013</td>
</tr>
<tr>
<td>6901506</td>
<td>Nov. 2013</td>
</tr>
<tr>
<td>6900198</td>
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<td>1900803</td>
<td>Sep. 2007</td>
</tr>
<tr>
<td>4900148</td>
<td>Jun. 2001</td>
</tr>
<tr>
<td>4901063</td>
<td>Jul. 2010</td>
</tr>
</tbody>
</table>

➢ reports were send to the PI’s or DM operators of these floats last week.
Overall consistency of DM PSAL data in the NAARC region

Check of DM corrections of NAARC floats (DAC: CORIOLIS)

G.Cabanes, V. Tahery, C.Lagade

SO ARGO - LOFS report - Update November 22, 2017

As part of North Atlantic ARC activities, the floats processed in delayed mode in the NAARC region have been checked again. Here we present the results for some floats of the CORIOLIS data center with PI

Contents

1 Method .................................................. 2

2 Results .................................................. 3

2.1 Summary and suggestions .................................................. 3

2.2 Float 1900547 .................................................. 4

2.2.1 Sections along the float trajectory - raw data .................................................. 4

2.2.2 Theta/S diagrams - raw data .................................................. 5

2.2.3 Comparison to reference Argo profiles .................................................. 6

2.2.4 Results of the OW method .................................................. 8

2.3 Float 1900608 .................................................. 9

2.3.1 Sections along the float trajectory - raw data .................................................. 9

2.3.2 Theta/S diagrams - raw data .................................................. 10

2.3.3 Comparison to reference Argo profiles .................................................. 11

2.3.4 Results of the OW method .................................................. 13

2.4 Float 6901613 .................................................. 14

2.4.1 Sections along the float trajectory - raw data .................................................. 14

2.4.2 Theta/S diagrams - raw data .................................................. 15

2.4.3 Theta/S diagrams - adjusted data .................................................. 16

2.4.4 Comparison to reference Argo profiles .................................................. 17

2.4.5 Comparison to the closest Real Time Argo profiles .................................................. 19

2.4.6 Results of the OW method .................................................. 23

Figure 6: Float 1999047 Cycle 47. The analysed Argo profile (orange) is compared in the SO current reference Argo profiles (black line) and to 6 specific profiles: the averaged reference profile in time (magenta), and the averaged reference profile in space (blue). The value of the analysed Argo profile represents the Q5-ω flag (green for a Q5-ω; blue for a Q5-ω; orange for a Q5-ω and red for a Q5-ω. a) ωθ diagram (left panel) and a zoom on the deepest layers (right panel).

Figure 5: Float 1900547. Results of the OW method (configuration 2923). Upper panel: Reference profiles used for the mapping (grey dots) are shown on a map along with the float trajectory. On the two last right-hand figures are displayed in green the ten most stable θ levels used to compute the fit. Lower panel: vertically-averaged mapped salinities minus float salinities on the 10 most stable θ levels (red line) and the offset obtained by a linear fit (green circle). The mapping errors are shaded in red. Green error bars show the fit error and blue error bars show the doubled fit error. The salinity correction currently available on the GDAC is displayed in magenta.
Quality is crucial especially for the DMQC of deep Argo floats. => special attention given on the **deepest layers**.

Salinity from the reference database observed on a deep theta level.
Check of the CTD reference database in the North Atlantic

Averaged salinity at theta levels: 2.4 - 2.5 (depth < 1000m), box 7403
Check of the CTD reference database in the North Atlantic

Averaged salinity at theta levels: 2.4 - 2.5 (depth<1000m), box 7403

More than 500 suspicious profiles in the whole region
Transmitted to Christine
NA-ARC product: ISAS-15
a delayed mode in situ temperature and salinity analyses

N. Kolodziejczyk, A. Prigent and F. Gaillard
LOPS, SNO-Argo-France, Brest

• Optimal Interpolation (OI)
  ➔ Monthly global T/S fields (0-2000 m)
  ➔ Résolution : 0.5° mercator grid, 152 z-levels
  ➔ Covariance scale : ~ 300 km
  ➔ QCI : extra visual QC before interpolation

• In situ data:
  ➔ Argo (Configuration ISAS15 Argo only available)
  ➔ Marime Mammals
  ➔ TAO-TRITON-PIRATA-RAMA Mooring
  ➔ ITP

• Data free Access
  ➔ Nicolas Kolodziejczyk, Annaig Prigent and Fabienne Gaillard
    SEANOE.
    ➔ http://www.umr-lops.fr/SNO-Argo/Products/ISAS-T-S-fields/Data-access

• Learn More:
  ➔ http://www.umr-lops.fr/SNO-Argo/Products/ISAS-T-S-fields
Class profiles

Class distribution

Maze et al, PO 2017
Plans for next year
Overall consistency of DM PSAL data in the NAARC region

Reference data coverage?

Argo reference database

CTD reference database