

Results from Arvor 2DO

Acquisition of 2 prototypes of Arvor-2DO

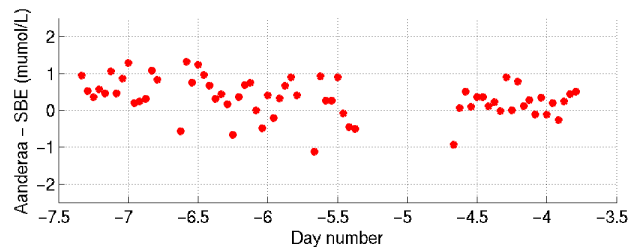
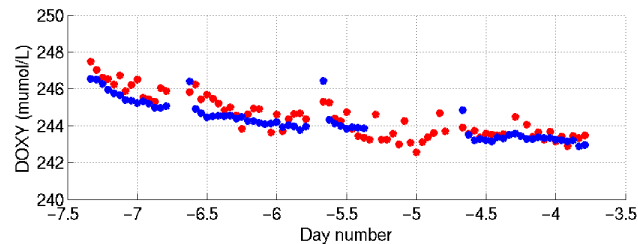
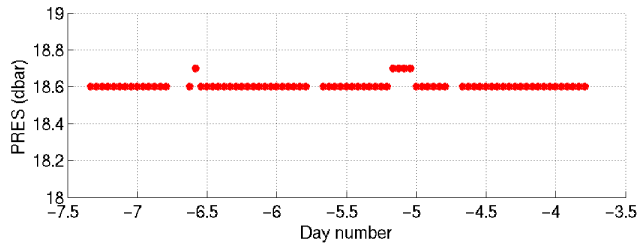
- SBE63 + Aanderaa 4330
- Multipoint calibration for each sensor
- Test in Ifremer pool

Results: test in Ifremer pool

Measurements during drifting phase (at the bottom of the pool)

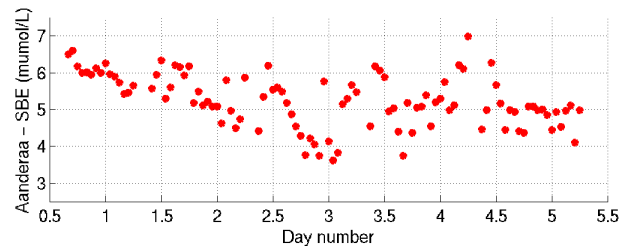
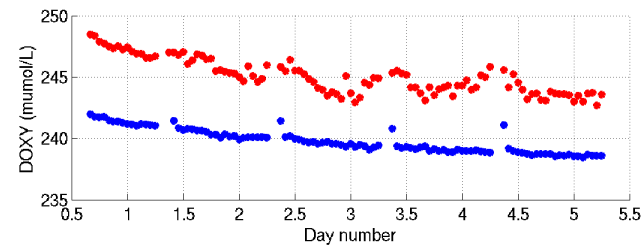
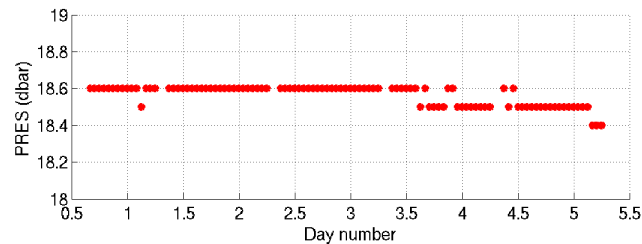
1 data point /hour

ARVOR-2D0 #1



DIFF= 1,0 µmol/L

ARVOR-2D0 #2



DIFF= 5,6 µmol/L

PRES

DOXY from AANDERAA
DOXY from SBE63

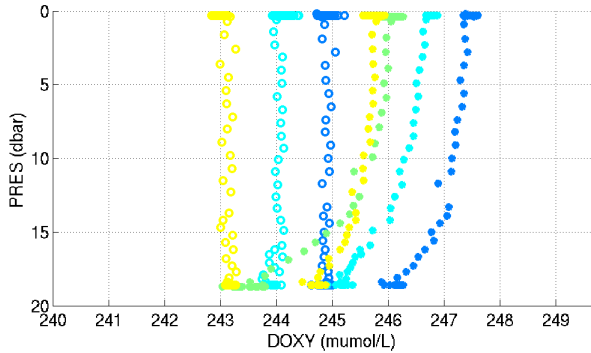
DIFF= AANDERAA-SBE63

Aanderaa optode measurements noisier than SBE63 measurements

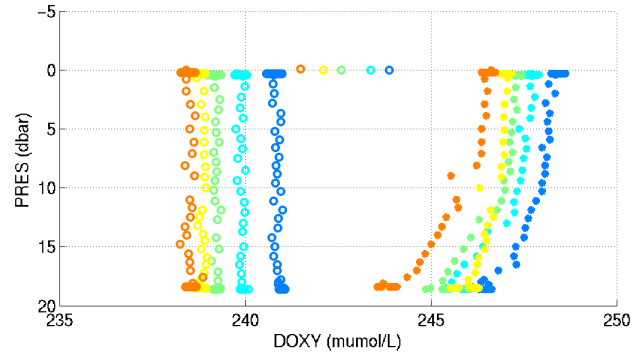
Results: test in Ifremer pool

Measurements during ascending profile (1 data point / 10 s)

ARVOR-2D0 #1



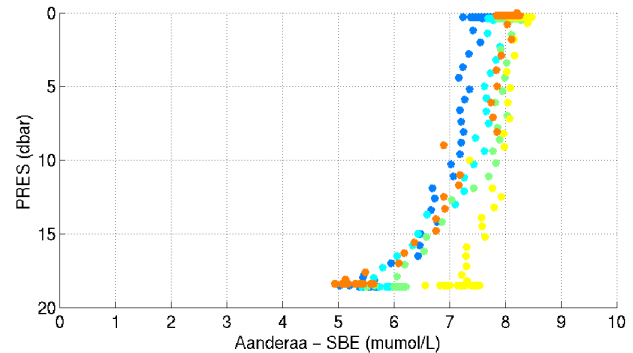
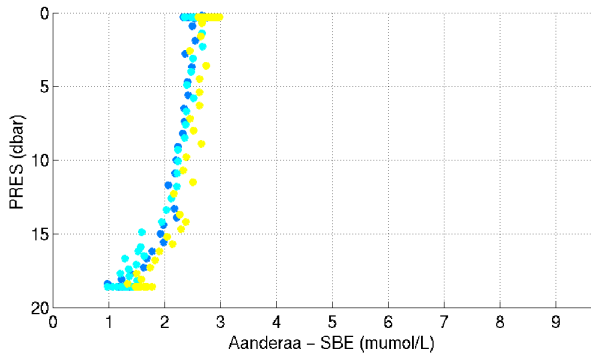
ARVOR-2D0 #2



1 color / cycle

stars: DOXY AANDERAA

circles: DOXY SBE63



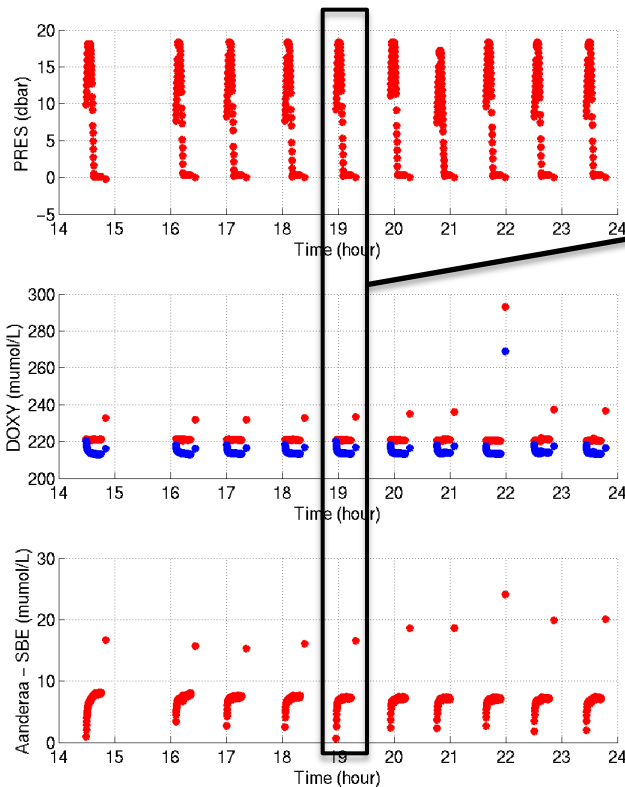
DIFF= AANDERAA-SBE63

DIFF increases with depth because vertical profiles are different
Data from SBE63 sensor more homogeneous on the vertical

Results: test in Ifremer pool

Measurements during ascending and descending profile (1 data point / 10 s): 10 cycles during half a day

Optode Aanderaa (red) / Optode SBE63 (blue)

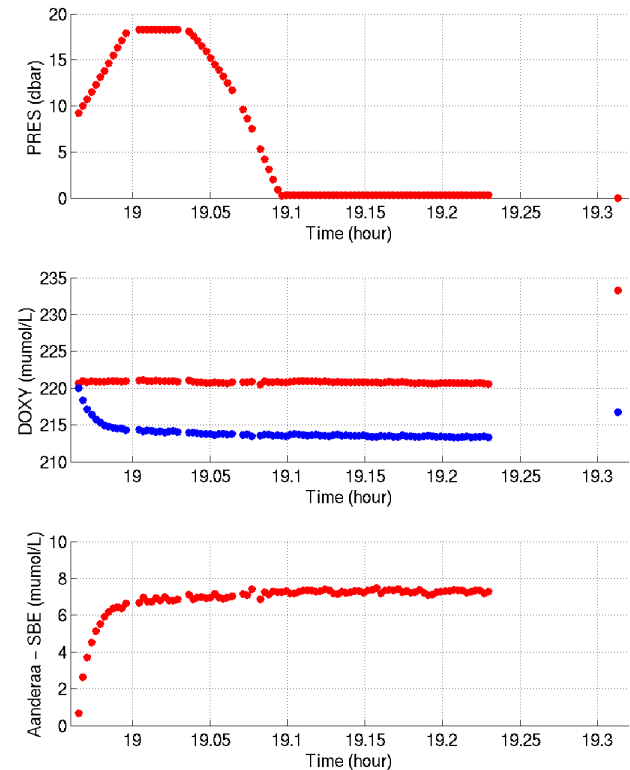


DOXY AANDERAA

DOXY SBE63

DIFF= AANDERAA-SBE63

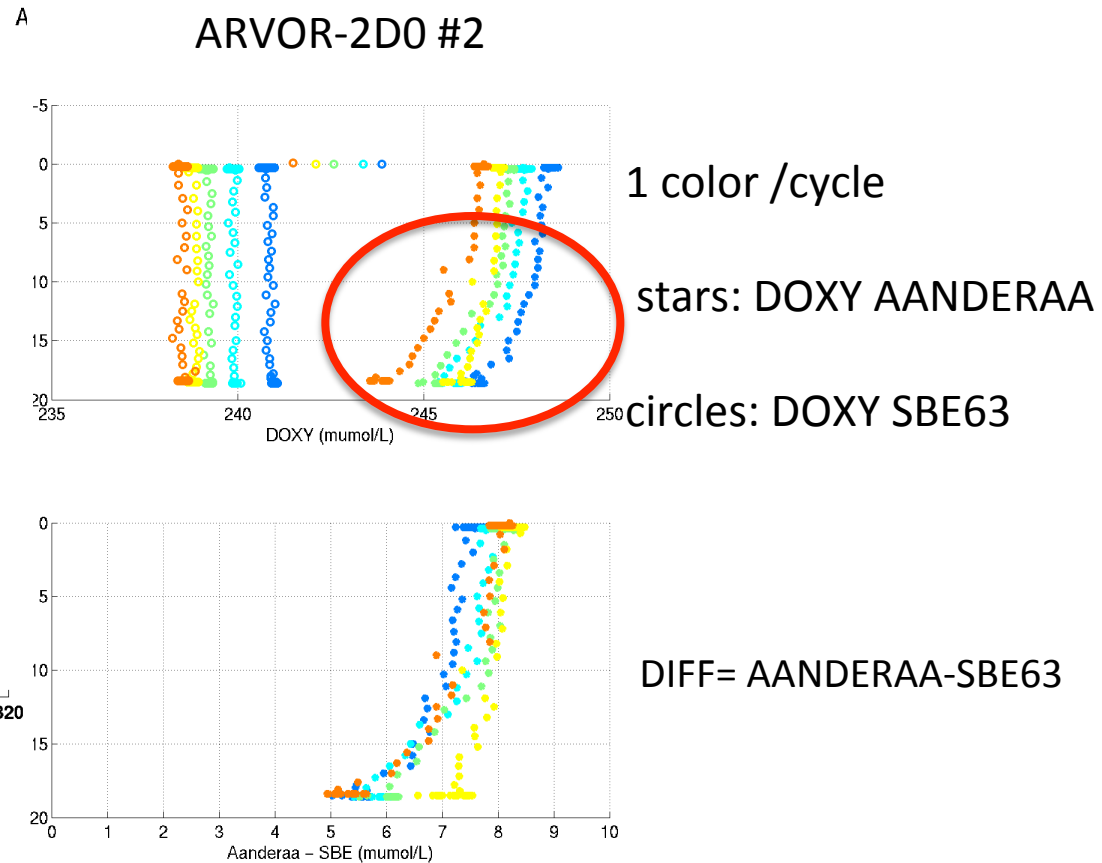
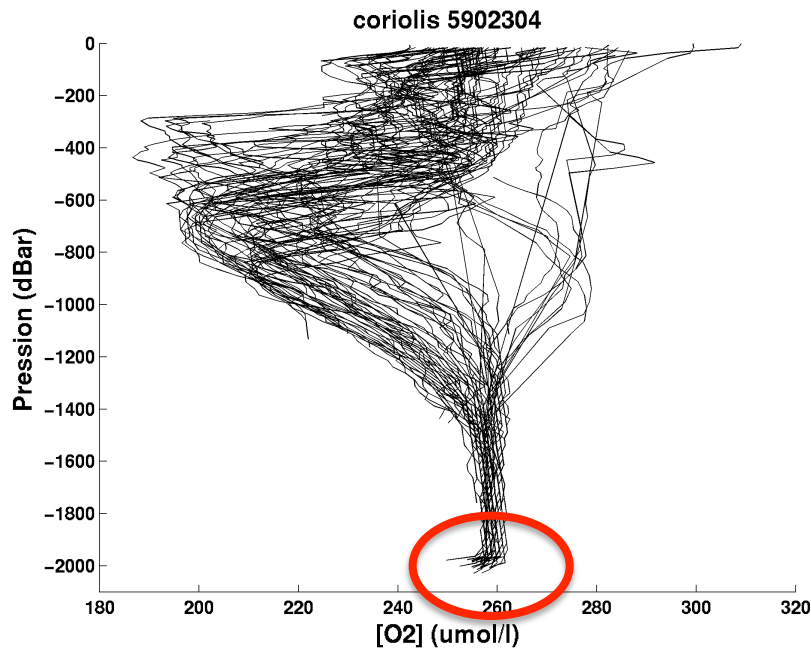
Optode Aanderaa (red) / Optode SBE63 (blue)



While DOXY from Aanderaa is stable during the cycle and for all cycle, DOXY from SBE63 needs time to reach an equilibrium after each surfacing

Results: test in Ifremer pool

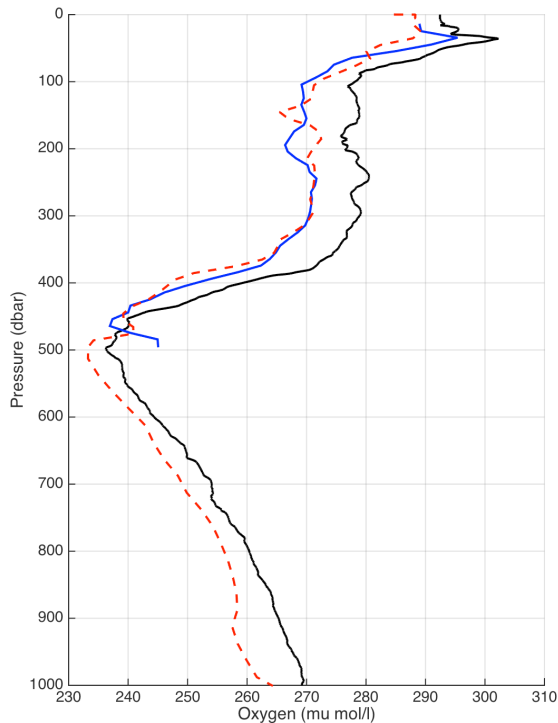
Measurements during ascending profile (1 data point / 10 s)



We suspect an issue in the time response of the unpumped Aanderaa optode when it is switched on after un long period during witch it was switched off (drifting phase, beginning of the ascent profile)

Results from the At sea deployment of the prototype 1

Arvor 2DO # 1 - Cycle 1 - Descent & Ascent - GEOVIDE Sta 36



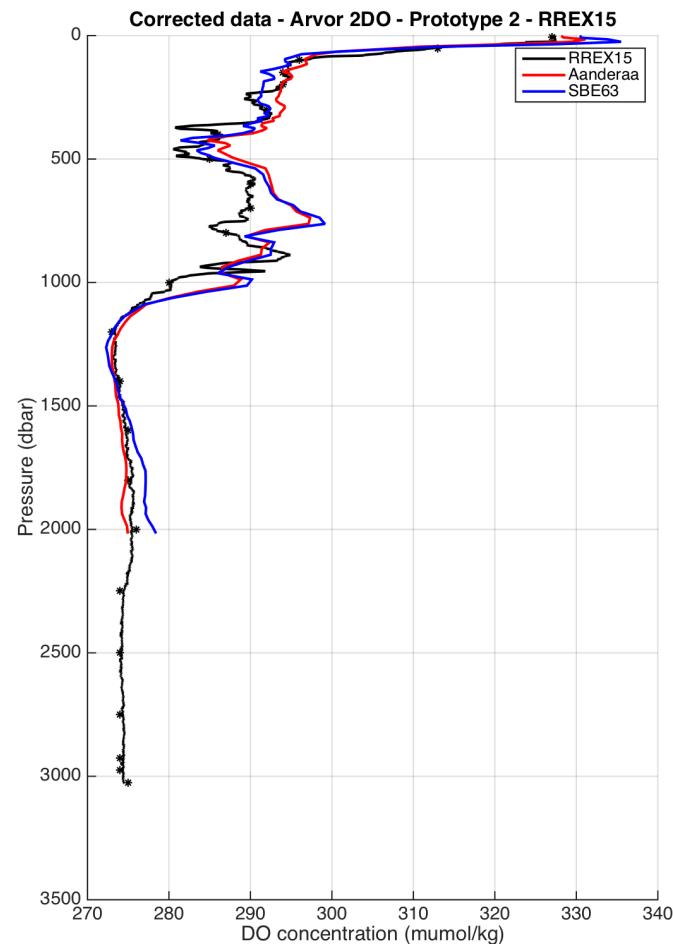
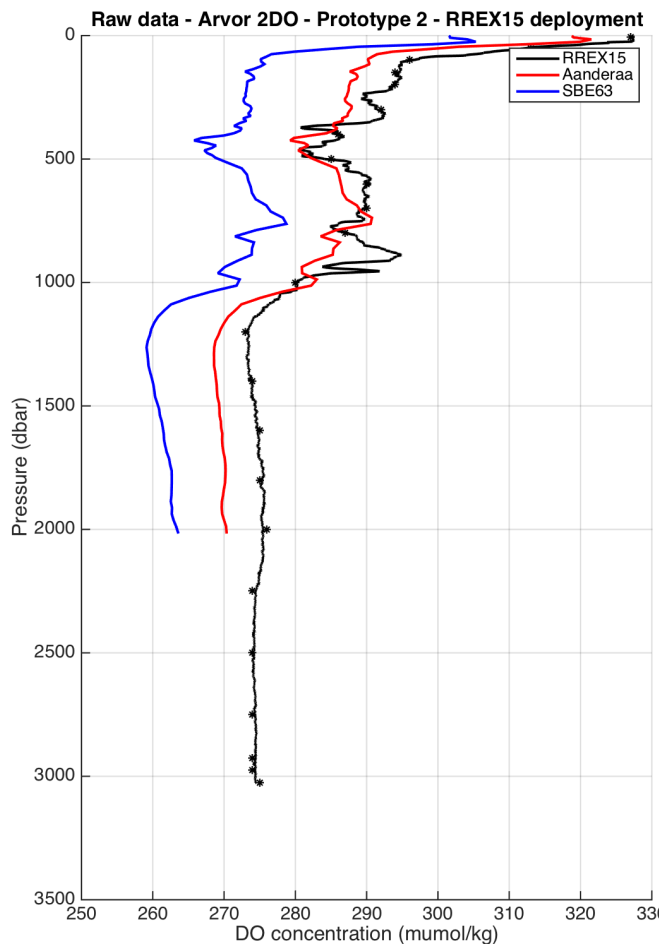
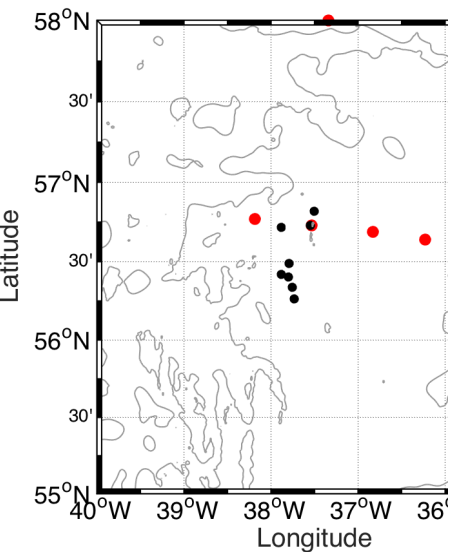
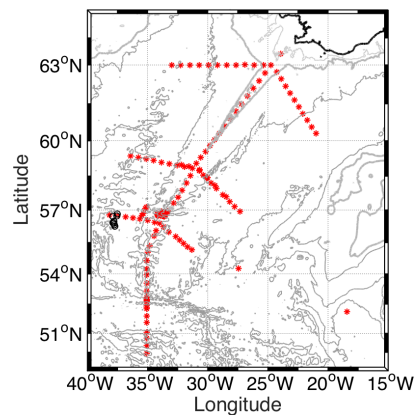
- First descending profile provided by Aanderaa optode not usable (shifted toward too high values) because the foil needs time to reach an equilibrium after storage. This is not the case for SBE63.
- We compared the first descending profile provided by the SBE63 to the first ascending profile of the Aanderaa sensor (3 days later)
- As in Ifremer pool, the two oxygen sensors provide very similar values (no obvious bias between the two)

- Reference profile (with a temporary calibration)

- SBE63 data (descending profile at deployment)

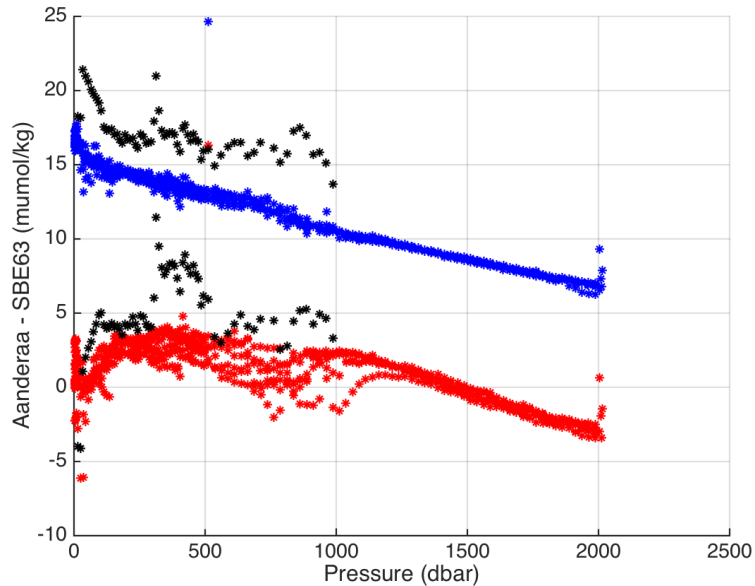
-- Aanderaa data (ascending profile 3 days after deployment)

Results from the At sea deployment of the prototype 2

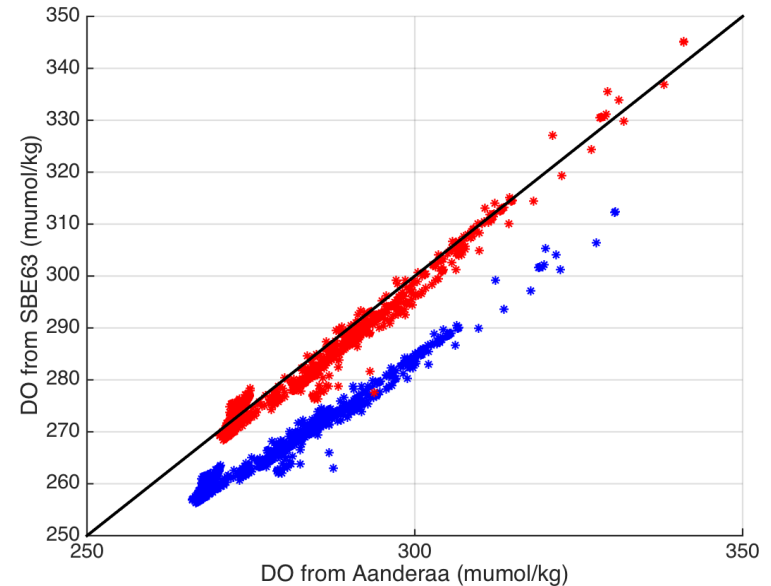


Results from the At sea deployment of the prototype 2

Aanderaa – SBE63 = f(P)



SBE63 vs Aanderaa



Raw data

Corrected data (by comparison to bottle data)

1st descending profile

Questions/conclusions

- Pressure effect ? Modify the pressure compensation equation ?
- Influence of sampling frequency ? 10s vs 30s ?
- Use in air measurements to correct data from Aanderaa optode and compare with the correction done by comparison to the reference data