Notes on the GSW function gsw_deltaSA_from_SP(SP,p,long,lat)

Notes made 8th May 2011

The Absolute Salinity Anomaly δS_A is defined by

$$\delta S_A = S_A - S_R \,. \tag{1}$$

The function **gsw_deltaSA_from_SP**(SP,p,long,lat) is essentially the following one line of code which calls two other GSW functions.

```
deltaSA = gsw_SA_from_SP(SP,p,long,lat) - gsw_SR_from_SP(SP);
```

From the help file of the GSW function **gsw_SA_from_SP** it can be seen that the present function **gsw_deltaSA_from_SP** returns either Eqn. (2) or Eqn. (3) below depending on whether or not the observation is in the Baltic Sea.

$$\delta S_A = \frac{35.165\,04\ \mathrm{g\,kg^{-1}}}{35}\ S_P\, R^{\delta} \,. \qquad \textit{Non-Baltic} \tag{2}$$

$$\delta S_A = 0.087\left(1 - \frac{S_P}{35}\right)\mathrm{g\,kg^{-1}}. \qquad \textit{Baltic Sea} \tag{3}$$