# Notes on the GSW function gsw_t_from_CT for calculating in situ temperature $t$ from Conservative Temperature $\Theta$

This function essentially amounts to the following calls to two other GSW functions,

```
pr0 = zeros(size(SA));
pt0 = gsw_pt_from_CT(SA,CT);
t = gsw_pt_from_t(SA,pt0,pr0,p);
```

That is, from the inputs $(S_A, \Theta)$ potential temperature (referenced to zero dbar) is first formed. Then the function gsw_pt_from_t is called with the "bottle" being $(S_A, \theta, 0)$ and the reference pressure being $p$, so delivering the in situ temperature at $p$.