Notes on the function gsw_rh_CT_exact(SA,CT,p)

This function, \texttt{gsw\_rh\_CT\_exact}(SA,CT,p), evaluates the \textit{in situ} density for given input values of Absolute Salinity \(S_A\), Conservative Temperature \(\Theta\), and pressure \(p\). This function uses the full TEOS-10 Gibbs function \(g(S_A,t,p)\) of IOC \textit{et al.} (2010), being the sum of the IAPWS-09 and IAPWS-08 Gibbs functions.

This function is simply two calls to other GSW functions, as follows,

\[
t = \text{gsw\_t\_from\_CT}(SA,CT,p);
\rho_{CT\_exact} = \text{gsw\_rho\_t\_exact}(SA,t,p);
\]

Potential density with respect to reference pressure \(p_r\) can be evaluated from this function by calling it with this value of pressure. For example, potential density with respect to \(p_r = 2000\ \text{dbar}\) is equal to \texttt{gsw\_rh\_CT\_exact}(SA,CT,p\_ref) where \(p\_ref\) is 2000 dbar.

References

