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

This function, **gsw_internal_energy_CT_exact**(SA,CT,p), evaluates the internal energy u in terms of the input variables Absolute Salinity S_A Conservative Temperature Θ and pressure p. This function uses the full TEOS-10 Gibbs function $g(S_A, t, p)$ of IOC *et al.* (2010), being the sum of the IAPWS-09 and IAPWS-08 Gibbs functions.

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

t = gsw_t_from_CT(SA,CT,p); internal_energy_CT_exact = gsw_internal_energy_t_exact(SA,t,p);

References

- IAPWS, 2008: Release on the IAPWS Formulation 2008 for the Thermodynamic Properties of Seawater. The International Association for the Properties of Water and Steam. Berlin, Germany, September 2008, available from <u>www.iapws.org</u>. This Release is referred to in the text as **IAPWS-08**.
- IAPWS, 2009: Supplementary Release on a Computationally Efficient Thermodynamic Formulation for Liquid Water for Oceanographic Use. The International Association for the Properties of Water and Steam. Doorwerth, The Netherlands, September 2009, available from http://www.iapws.org. This Release is referred to in the text as IAPWS-09.
- IOC, SCOR and IAPSO, 2010: The international thermodynamic equation of seawater 2010: Calculation and use of thermodynamic properties. Intergovernmental Oceanographic Commission, Manuals and Guides No. 56, UNESCO (English), 196 pp. Available from <u>http://www.TEOS-10.org</u>